brother

BE EMBROIDERY STUDIO

WILCOM



Reference Manual

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The Product Differentiation Table which appears in the appendices of this manual itemizes features which are relevant to each product level. While every effort has been made to maintain this table up to the current release, late changes may not be precisely reflected. For purchasing advice, please consult the marketing literature or talk to a Wilcom representative.

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Rev 1 July 2025

Chapter 1

BE EmbroideryStudio Setup

Welcome to BE EmbroideryStudio 2025, the leading design software application for the decorated goods industry. Combining both the embroidery capabilities of Wilcom software with the graphical capabilities of the CorelDRAW® Graphics Suite, no other product provides the flexibility of BE EmbroideryStudio in creating designs for both embroidery and multi-decoration. While supporting multi-decoration, the product is tailored to the requirements of the embroidery specialist who requires a powerful toolset to create and edit high-quality, production-ready embroidery. BE EmbroideryStudio is the ultimate embroidery software for professional digitizers, embroidery shops, industry educators, apparel decorators and hobbyists.



Note: Screen illustrations in this publication are intended as representations only. Depending on your software model or product level, screen layouts generated by the software may differ slightly. Similarly, samples used to illustrate software features and capabilities may not be exactly duplicable in your product level.

Product levels & Elements

The BE EmbroideryStudio 2025 suite consists of several product levels. These are powerful, well featured, professional embroidery applications for different needs.

Product level	Applications
2 ES Decorating ^	The power of auto-digitizing and CorelDRAW, backed by easy-to-use digitizing tools. ES Decorating provides professional lettering, customization and editing tools for smaller embroidery houses. Ideal for those who outsource digitizing work but need to be able to create logos, customize designs, or auto-digitize customer artwork. Supports some Elements.

^ Includes CorelDRAW® Graphics Suite as standard

Product level		Applications
3	ES Editing	Be in control of quality and production by bringing design editing in-house. ES Editing provides professional lettering, customization and editing capabilities for retail and production shops. Supports machine connections.
4	ES Lettering	ES Lettering delivers world-class lettering quality. Create lettering, name drops, or monograms quickly, without a digitizer. Supports full lettering, customization, with machine connections.

^ Includes CorelDRAW® Graphics Suite as standard

Add-on Elements

Add-on Elements allow users to access additional tools, effects, or automation features beyond the core functions of the licensed BE EmbroideryStudio product level. Some are available at extra-cost. Some are provided as standard in higher product levels. Benefits include...

Subscription access	For subscription-based licenses, all Elements for that BE EmbroideryStudio level are automatically included.
Enhanced functionality	Elements may include advanced lettering, monogramming, auto-digitizing, special stitch types, or other embroidery-related tools.
Customization	Users can enable specific Elements to tailor BE EmbroideryStudio to their workflow needs.
Perpetual license add-ons	Owners may purchase and assign specific Elements separately.

System requirements

Before you install, or if you experience operating problems, make sure that your computer meets the system requirements.

PC specifications

Check CPU/RAM as well as hard disk space. The table below provides minimum system requirements.

Component	Minimum	Recommended
CPU	Intel® Core i5 (8th Gen) or AMD Ryzen 5 4000 Series	Latest Gen Intel® i7 / i9 processor or AMD Ryzen 8000 / 9000 series

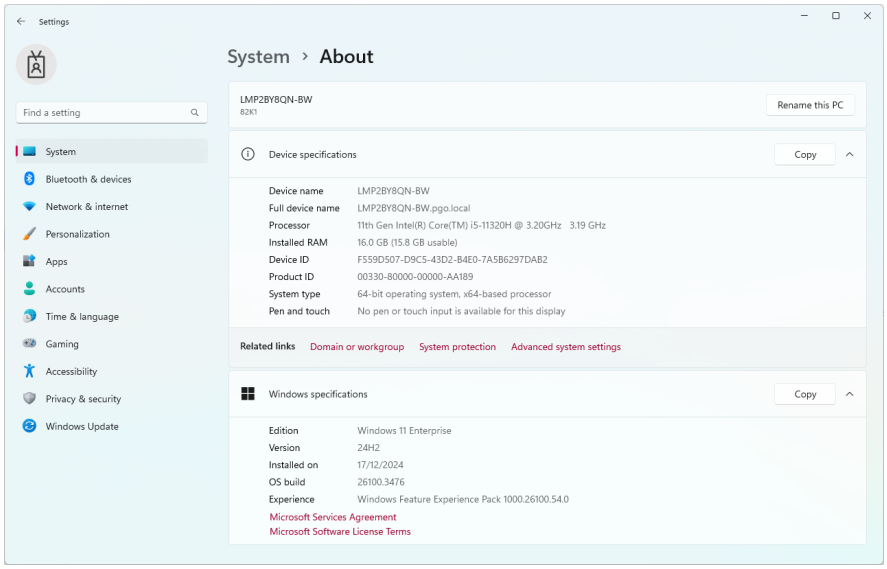
Component	Minimum	Recommended
Operating system	Microsoft Windows 10 64-bit Edition	Microsoft Windows 11 64-bit Edition with the latest updates
Browser	Microsoft Edge, Chrome, or similar	
Memory	16 GB	32 GB or more
Hard disk size	128 GB	512 GB or more (Solid State Drive)
Free disk space	40 GB	60 GB or more
Graphics card	Support for Highest Color (32bit) and resolution (1600 x 900)	• Support for Highest Color (32bit) and resolution (1920 x 1080 or higher) • 4 GB or more of graphics memory (non-integrated)
Monitor	1600 x 900 screen resolution	Dual monitors capable of displaying 1920 x 1080 screen resolution
Mouse	USB mouse or Bluetooth	
USB port	Required for HL (hardware license) version. Not required for DL (digital license) version.	
Sound card	Required for online video help.	
Internet connection	Required for: • Product activation and registration • Machine file export • Periodic software updates • Access to news, community, product blog, tutorials, and product documentation • During installation, to download Windows features.	

Check OS and device specifications

Check your CPU (processor) and RAM specifications, and the version of Windows you are running, to ensure they meet BE EmbroideryStudio 2025 requirements. We recommend updating to Windows® 11 (64-bit edition) with latest updates installed. You will, however, need to uninstall any earlier versions of CorelDRAW® Graphics Suite. For latest operating system information, visit the Wilcom Support Center at help.wilcom.com.

To check your OS and device specifications...

1 Go to MS Windows® **Settings** and open the **About** tab.



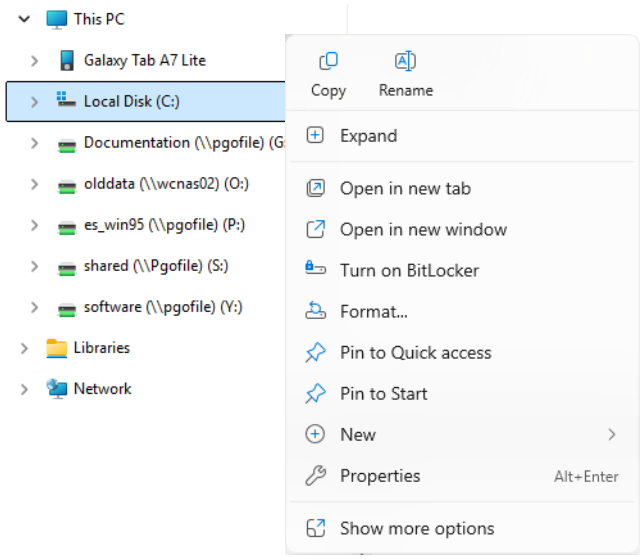
2 Check the Windows version, the CPU and the amount of RAM.

Check hard disk space

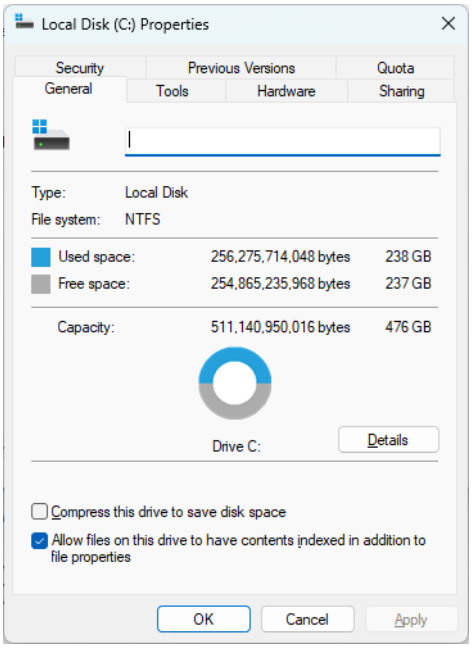
BE EmbroideryStudio occupies up to 5 GB of hard disk space, depending on options installed. CorelDRAW® Graphics Suite also takes up an additional 3 GB. However, you need additional free space for your applications to run smoothly. Check that your hard disk has enough space to run BE EmbroideryStudio effectively. After installation you will need 40 GB free or 10% of your total hard drive space, whichever is the greater amount.

To check your hard disk space...

1 Go to **This PC** in **File Explorer** and right-click the **Local Disk** (C:) to open the popup menu.



2 Select **Properties** to open the **Properties** dialog.



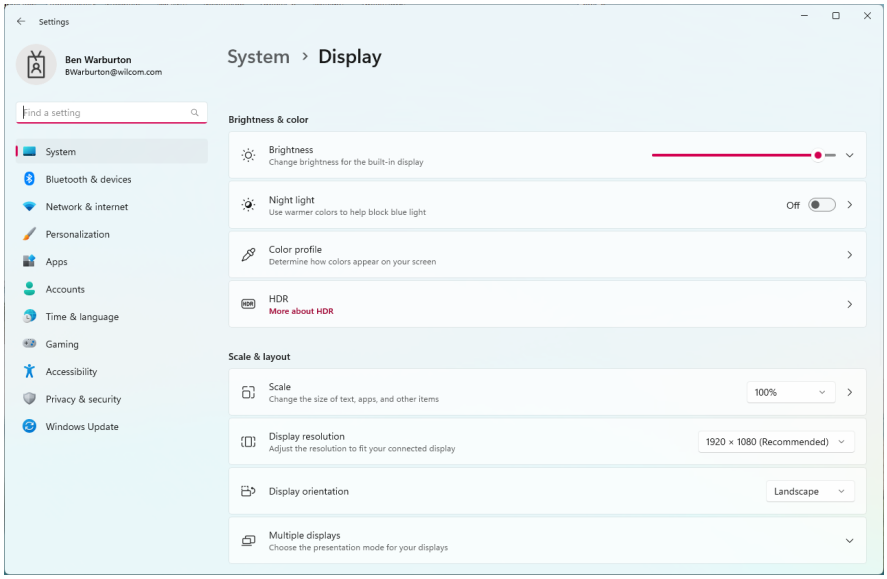
3 Go to the **General** tab. This tab shows the hard-disk capacity as well as any free space.

Check display settings

Some controls may be hidden on the user interface if you run your monitor at low resolutions. The physical size of your monitor will have a bearing on the optimum screen resolution. Larger fonts will exacerbate the problem.

To check your display settings...

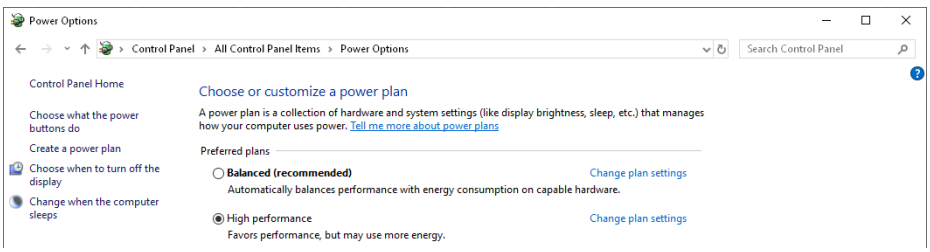
1 Go to MS Windows® **Settings** and open the **Display** tab.



2 If you experience visibility issues, try adjusting both screen resolution and font size. For example, a resolution of 1920 x 1080 with a font size of 100% or 125% should be acceptable.

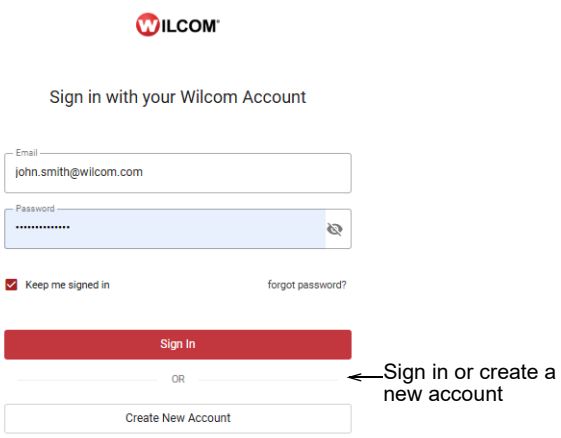
Power plan

For best performance make sure your PC is set to high performance power plan.



Software licensing

With BE EmbroideryStudio 2025, all users have a **Wilcom User Account**. The software still needs to be installed on a computer but the license is mobile which makes usage more flexible. Whenever you log in, BE EmbroideryStudio will load the appropriate software level and registered add-on Elements.



Your **Wilcom User Account** is also required to provide access to:

- Personalized Wilcom support geared to your product level and registered add-on Elements.
- Live and recorded online training (as it becomes available)
- Information about product updates, events and special offers.

Licensing models for Wilcom products

Wilcom offers multiple licensing models to accommodate different user needs. These models define how users access and manage their Wilcom 'apps' or applications, such as **Truesizer**, **Estimator** and **BE EmbroideryStudio**.

Perpetual licensing

This is a one-time purchase model available for BE EmbroideryStudio. With this model:

- Users own and can use the software indefinitely.
- Licenses are linked to a specific user or device and can be transferred if needed.
- Includes automatic minor updates and support, for the life of the current version.

- Users must purchase major version updates. Generally, those which contain new features.

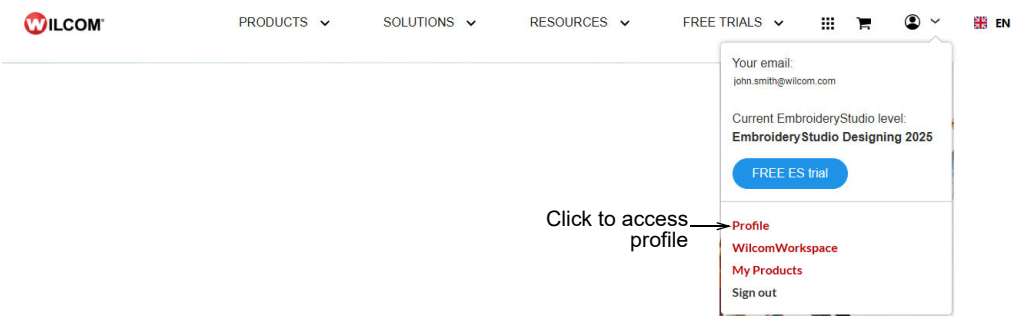
Network licensing (Enterprise)

Network licensing allows multiple users to access a shared license within an organization. With this model:

- Typically used by large production facilities needing centralized license management.
- Requires a license server and network dongle to distribute access.
- Each licensing model offers different benefits depending on the user's needs, budget, and software usage patterns.

Managing your Wilcom Account

Wilcom User Account is a cloud-based service designed to enable registered Wilcom Account holders to manage multiple licenses and users of various Wilcom 'apps' (applications) under a single account. From the top of the Wilcom website you can access your account via the dropdown menu...



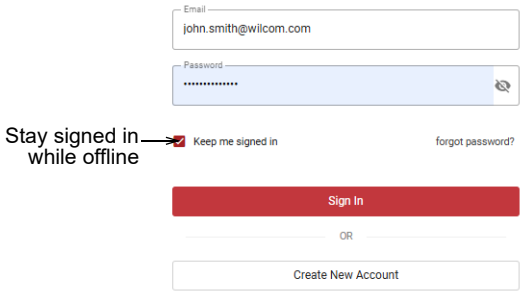
Supported apps

Wilcom 'apps' currently supported by the service include...

Truesizer	A Wilcom app that allows users to view, resize, and convert embroidery design files without altering stitch quality. It is often used for previewing and basic modifications.
Estimator	A Wilcom app that calculates the estimated stitch count and cost of an embroidery design before actual production.
BE EmbroideryStudio	Wilcom's flagship embroidery digitizing software, designed for professional embroidery design creation, editing, and production management. (Versions previous to EmbroideryStudio Digital Edition are not supported at this time.)

Active BE EmbroideryStudio sessions

Each licensed copy of BE EmbroideryStudio is for a single user. You may install it on multiple computers but only one active session can be used at one time. In the **Sign-in** dialog, tick 'Keep me signed in'. This means you will not have to enter your **Wilcom User Account** details each time you start the software.



Caution: Simply uninstalling the software does **not** release the license. Select **File > Sign Out and Exit** before uninstalling.

Key features

Wilcom Account Management allows for greater flexibility, enabling organizations to purchase and manage multiple licenses, add members, and assign or unassign licenses as necessary. Key functionalities include…

Multiple user management	Add and manage multiple users within a single organization account.
License management	Purchase, assign, and manage multiple licenses of various Wilcom applications.
Billing management	View and manage subscriptions and payments for licenses.
User security	Implement two-step verification within the organization for added security.
Reporting	Analyze usage for Truesizer and Estimator and monitor login activity for all apps, across all users and licenses.

Installation & registration

There are various scenarios you may encounter when installing or upgrading BE EmbroideryStudio software.

In every case, you will need to sign in or register a **Wilcom User Account**. Registration simply requires a username, an email address, and a password of your choosing. Registration is linked to your email account.

Custom assets

BE EmbroideryStudio allows you to create files or 'assets' of various kinds during normal use. The most important of these are of course actual embroidery designs. There are other assets you may create such as design templates, custom motifs and borders. These assets are preserved from installation to installation, whether installing a new version of BE EmbroideryStudio or an update patch. If you want to move your BE EmbroideryStudio to another PC, you will need to manually transfer any custom assets you have created or received from third parties. See Asset Management for details.



Caution: When installing new or updated assets, such as design templates, custom motifs and borders, or keyboard design collections, the installation procedure will not overwrite existing assets of the same name. If you do want to install new assets, remove or back up the old ones before updating your current installation.

Product installation

BE EmbroideryStudio is supplied as a downloadable product only. If you are installing on an operating system (OS) that is in a supported language, the installation process will run in that language.

To install the product...

1. Ensure your computer meets the system requirements.
2. Close all open applications.

   Note: When you install the software, you will be prompted to reboot your PC to complete the installation. Make sure you save any files and close all applications beforehand.
3. Run the installation by double-clicking the installation file.
4. Follow the onscreen instructions. You will be prompted to choose:
   - where the software will be installed on your PC (default location recommended)
   - which components to install – i.e. additional languages. English is the default.
   - which installed version you wish to merge user-defined settings with.
5. If you are using BE EmbroideryStudio 2025 HL, attach the dongle when prompted.
6. Upon successful installation of the software and any additional Windows files, the **Installation Complete** screen appears.

7 Click **Finish**. The computer will reboot and the software can be used.

Note: If you encounter problems with the installation, please contact Wilcom Support.

Register an account & sign in

Product registration is required to validate the software. Also, by registering you will have access to:

- Wilcom support
- Live and recorded online training (as it becomes available)
- Information about product updates, events and special offers.

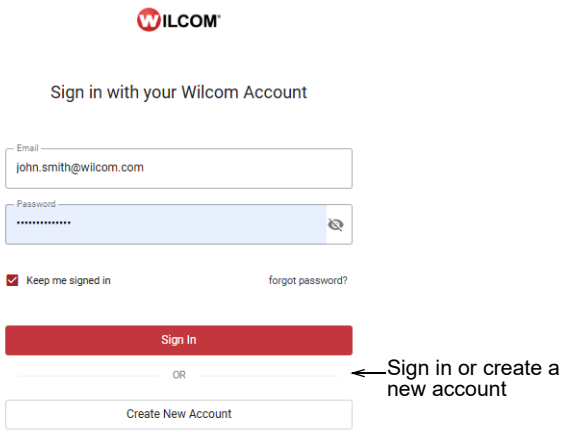
Sign in and registration is essentially the same process. In both cases you will be presented with a **Sign In** screen. You register a **Wilcom User Account** whether or not you purchase. If you decide not to purchase, your registration remains and will be reactivated if you chose to purchase at a later date.

To register an account...

1 Go to the Wilcom website. From any page, you will have the option to sign in.

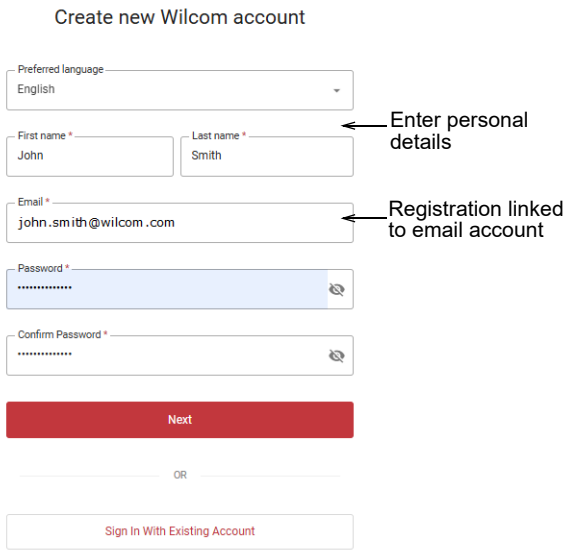


2 Click the **Sign In** button at the top of the screen. Alternatively, when you first run the software, you will encounter the same sign-in screen...



Note: If you are already registered, simply enter your email and password. Your BE EmbroideryStudio account is registered to your email address.

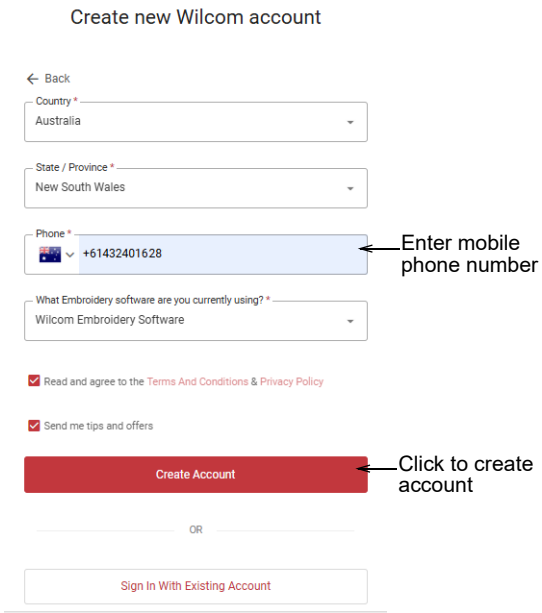
3 Click the **Create New Account** button to access the registration form.



4 Enter a few personal details together with your email address.

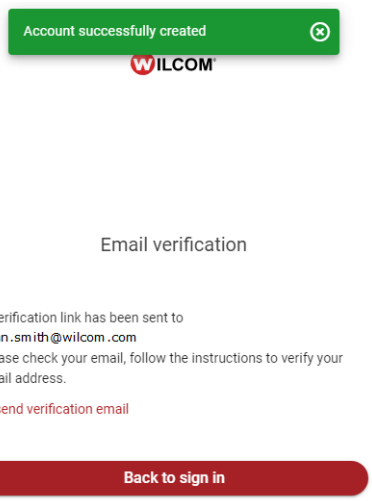
5 Enter a password you can easily memorize. Keep a written copy in case you forget.

6 Click **Next** to access the second page.



7 Enter your country of residence and a mobile phone number. Your are advised to read the **Terms & Conditions** and **Privacy Policy**. 'Tips and offers' are optional.

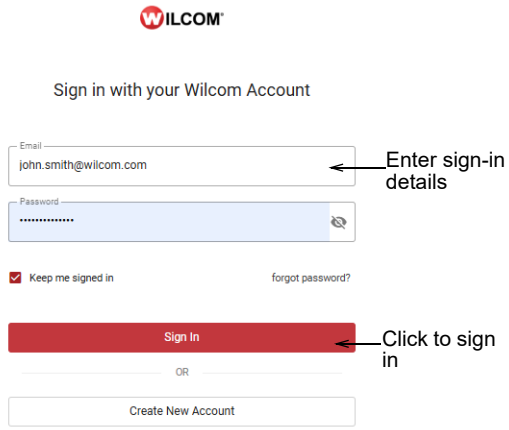
8 Click **Create Account**. You will receive confirmation via email.



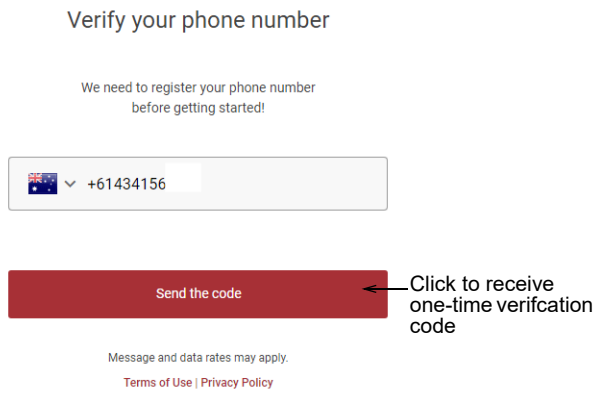
9 Once received, click **Verify Email** to confirm receipt of the email.

To sign in for the first time...

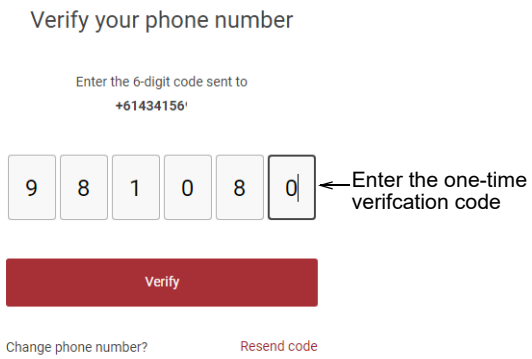
1 Return to the **Sign In** screen, enter your email and password, and click **Sign In**.



The first time you sign in, you will be prompted to verify your mobile phone number.



2 Click the **Send Code** button. Check you mobile phone. The following screen will appear.



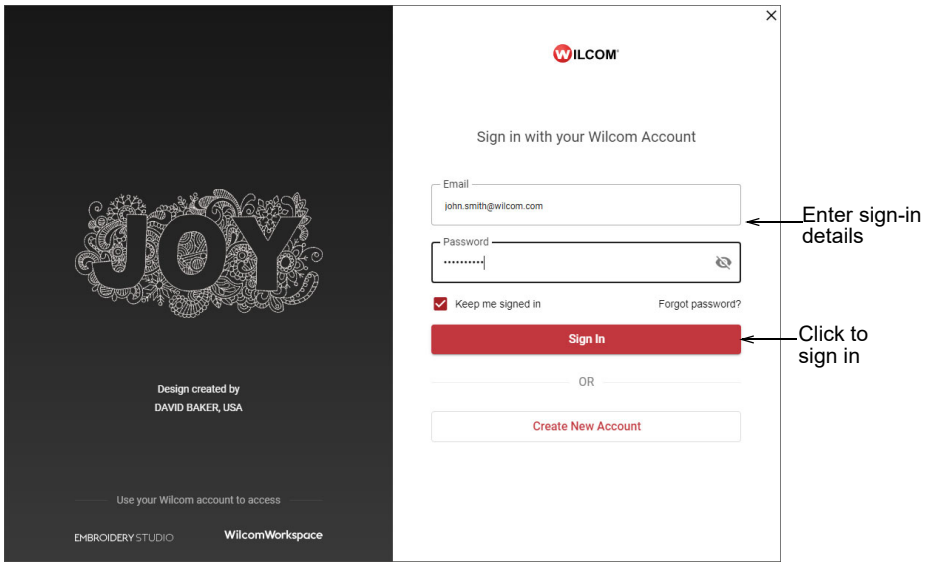
3 Click **Verify**.

Run the software

Once you have rebooted your PC following installation, you can run the software.

To run the software...

1 Double-click the icon on the desktop to start the software for the first time. If you are not already signed in via the website, you will encounter the same sign-in screen...

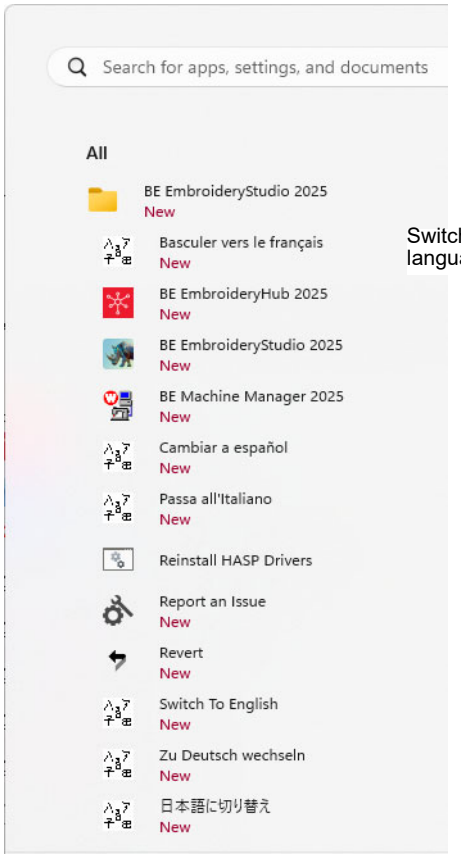


2 When prompted, enter your BE EmbroideryStudio email and password in the fields provided.

3 Click **OK** and the software will connect to our activation server and the software will open.

Run BE EmbroideryStudio in other languages

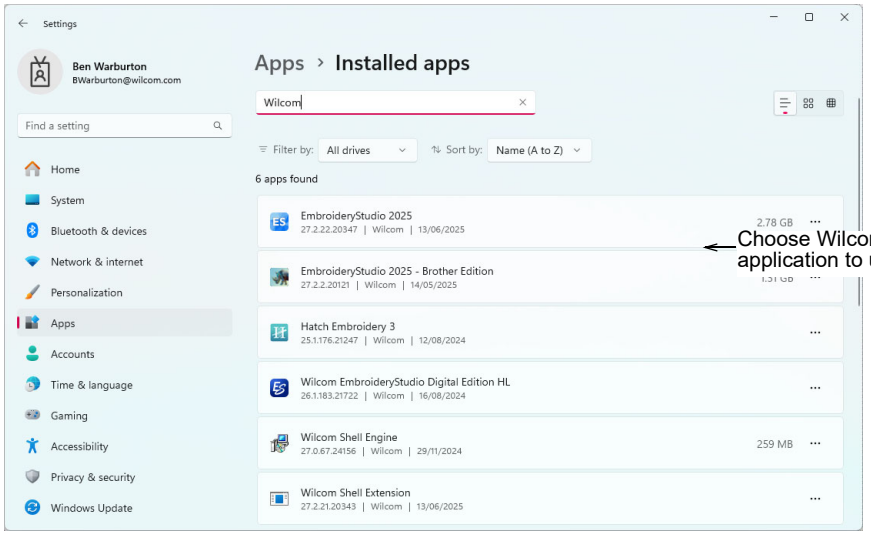
If you want to install and run a specific language on an English OS, you will need to select it from the available languages during installation. The software will then need to be 'switched' to the additional installed language from the BE EmbroideryStudio program group before it can be run in that language.



Switch to other languages

Uninstall the software

If for any reason you need to uninstall BE EmbroideryStudio, make sure you do so via the MS Windows® **Apps > Installed apps** dialog. Select a Wilcom application from the list – BE EmbroideryStudio (main application), Wilcom PDF Printer, and/or Wilcom Shell Extension.



Caution: Simply uninstalling the software does **not** release the license. Select **File > Sign Out and Exit** before uninstalling. Also...

- If you remove Wilcom PDF Printer without uninstalling the main app, you will be unable to print a PDF from BE EmbroideryStudio.
- Similarly, if you remove Wilcom Shell Extension for any reason, no thumbnails/design info will be displayed in **File Explorer** or **Design Library**.

Integration with CorelDRAW®

The CorelDRAW® Graphics Suite is a professional vector graphics design application used for creating illustrations, logos, and complex designs. It is widely used in various industries, including embroidery, because of its precise design capabilities. CorelDRAW® is integrated with BE EmbroideryStudio, allowing users to seamlessly convert vector graphics into embroidery designs.

CorelDRAW® GRAPHICS SUITE

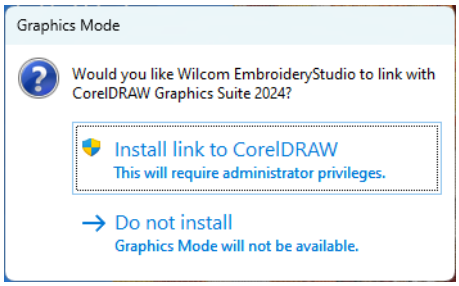
CorelDRAW as part of BE EmbroideryStudio

- Certain BE EmbroideryStudio product levels – ES Designing and ES Decorating – include a CorelDRAW® license as part of the package.
- Integration is currently only available with certain levels of CorelDRAW®. For more information, see FAQs on the BE EmbroideryStudio website.

- BE EmbroideryStudio only supports the MS Windows® version of CorelDRAW®.
- CorelDRAW® may be installed together with Windows .NET Framework. To ensure that CorelDRAW® uses the correct version of .NET, make sure you install it when prompted to do so. It can take up to 20 minutes or more to install on some computers.

How CorelDRAW enhances BE EmbroideryStudio

- You will be prompted to link upon launching BE EmbroideryStudio.



- The integration allows for a seamless workflow, making it easy to adjust designs before digitizing them into embroidery stitches.
- Users can import, edit, and convert vector graphics from CorelDRAW® into embroidery files.
- The built-in **CorelDRAW Graphics** window includes CorelDRAW® drawing tools which offer many techniques for drafting outlines and shapes on screen. Vector objects can be converted to embroidery designs. For a full description of the tools, refer to the online help available from the **Graphics** mode **Help** menu.
- Some CorelDRAW® functions may not be available in **CorelDRAW Graphics**.

Licensing & activation

- If an BE EmbroideryStudio product level includes CorelDRAW®, the **License Details** page in the **Wilcom Account Management System** displays:
  - The CorelDRAW Key (a unique activation code).
  - A download link to install CorelDRAW®.
- Users need to activate CorelDRAW® separately using the provided key.
- CorelDRAW® follows its own licensing terms but remains linked to the BE EmbroideryStudio license.
- If the BE EmbroideryStudio license is a subscription, access to CorelDRAW® is tied to the subscription period.

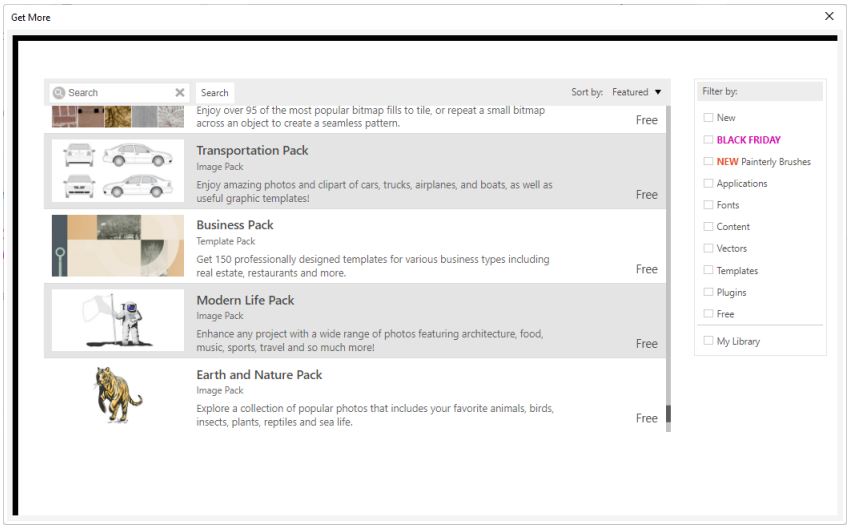
- If the BE EmbroideryStudio license is perpetual, CorelDRAW® remains available as long as the license is valid.

CorelDRAW® registration

- CorelDRAW® needs to be registered separately before it can be used by BE EmbroideryStudio.
- Registration also provides access to the latest CorelDRAW® updates.
- CorelDRAW® and its sister product, Corel PHOTO-PAINT® can also be run as standalone applications. CorelDRAW® features 'best-of-breed' bitmap-to-vector tracing, enhanced illustration capabilities, photo-editing together with a library of professional clipart images.

CorelDRAW® content

CorelDRAW® Standard Membership provides access to content – clipart, fonts, stock photos, templates, and much more.



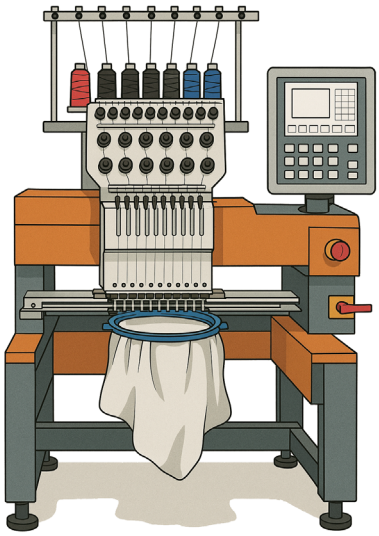
Device connections

You will need to connect peripheral devices for use with BE EmbroideryStudio. These may include digitizing tablets, printers, appliqué cutters, scanners and embroidery machines. Different devices are set up in different ways – some in MS Windows®, via the **Control Panel**, others within BE EmbroideryStudio itself.

Tip: The number of available ports limits the number of devices you can connect. If additional ports are required, you can add them. Multi-port serial cards can also be used. See a PC technician about your requirements.

Machine connection

BE EmbroideryStudio supports many sets of machine model. Most machines can read USB memory sticks. These are convenient portable memory devices which can hold large amounts of data.



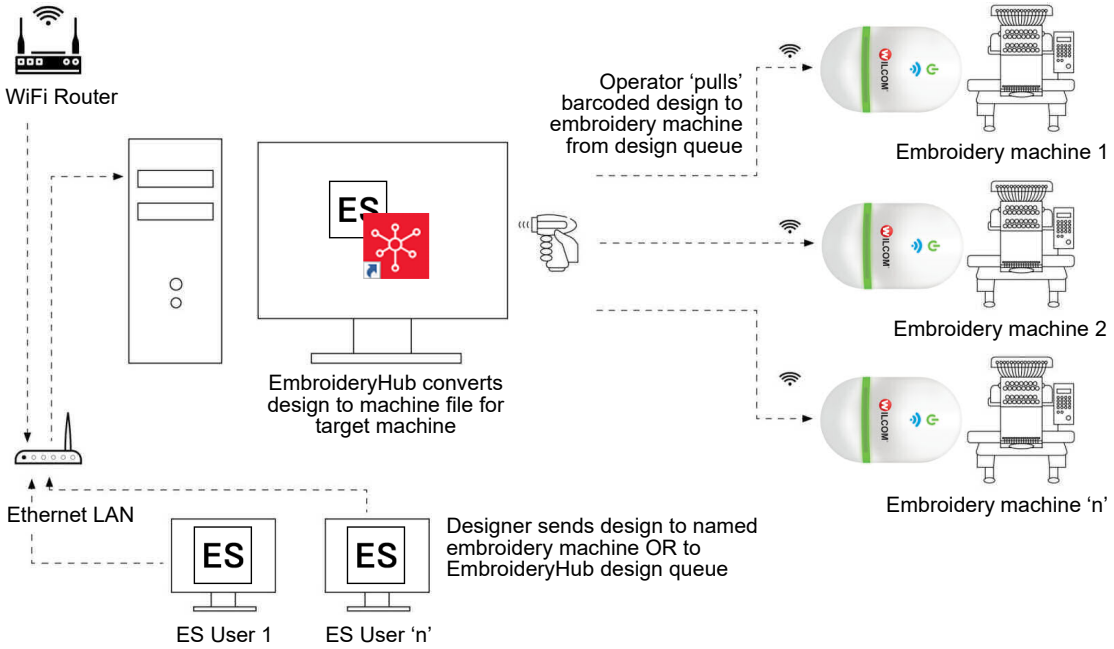
Tip: Some customers want to connect their embroidery software directly to machine. If your embroidery machine can be seen as an external drive in **File Explorer**, you may be able to send designs directly.

Related topics...

- Hardware Setup
- Sending designs to machine
- Exporting designs for machine
- Machine Formats
- Wireless Machine Connection with EmbroideryConnect

EmbroideryConnect networking

Wilcom's **EmbroideryConnect** capability allows you to wirelessly transfer embroidery designs from BE EmbroideryStudio to USB-enabled embroidery machines. Machine files are automatically generated and sent via a standard WiFi network to an EmbroideryConnect device plugged into a compatible machine. Design transfers are securely encrypted. The concept behind the EmbroideryConnect network is described by the following diagram…



Quickly and easily send, scan, and queue your embroidery designs for production. EmbroideryHub software is included with the **EmbroideryConnect** Element.

Wirelessly manage and transfer embroidery designs from **EmbroideryHub** to any **EmbroideryConnect** WiFi device connected to your embroidery machines. Features include:

- Simple integration with your existing WiFi network.
- Color-coded LED light notifications.
- Barcode reader for fast design loading.

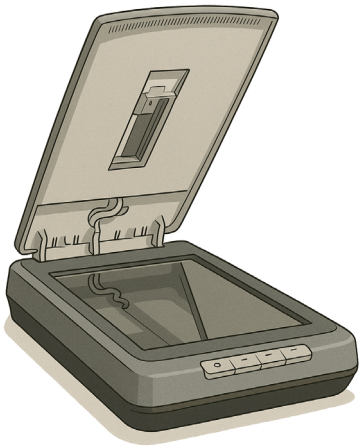


Related topics...

- Wireless Machine Connection with EmbroideryConnect

Scanner setup

BE EmbroideryStudio supports WIA-compatible scanners. Some scanners will not work with BE EmbroideryStudio because they require their own scanner software. If this is the case with your scanner, use your scanner software for scanning, save the image to your hard drive, then load the image into BE EmbroideryStudio.



Related topics...

- Setting up scanners

Connecting digitizing tablets

You can use a digitizing tablet and puck with BE EmbroideryStudio as an alternative to digitizing directly on-screen. To use a tablet, you place an enlargement drawing on the active area, and use the puck to mark reference points.



Digitizing tablet with pressure sensitivity and pen tilt sensitivity

Related topics...

- Connecting digitizing tablets

Configuring embroidery libraries

Design Library is a design management tool. Use it to browse design and artwork files stored on your PC or local network. **Design Library** capabilities make it fast and practical for daily commercial use, avoiding the need to switch to and from **File Explorer**. It recognizes all file formats used by BE EmbroideryStudio. It also makes it easy to search, sort and browse all embroidery designs on your network.

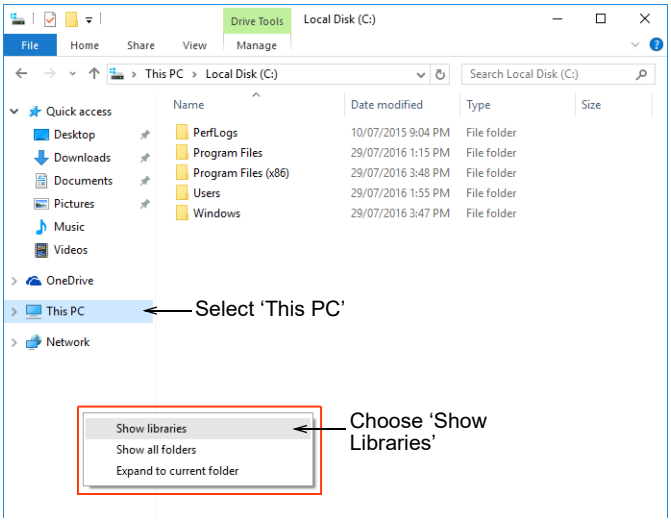
If you are already familiar with **File Explorer**, the **Design Library** interface will be quite intuitive to you. You may, however, need to make a few adjustments to folder options for recommended embroidery design settings. The steps below are based on Windows 10 settings.

Activate embroidery libraries in File Explorer

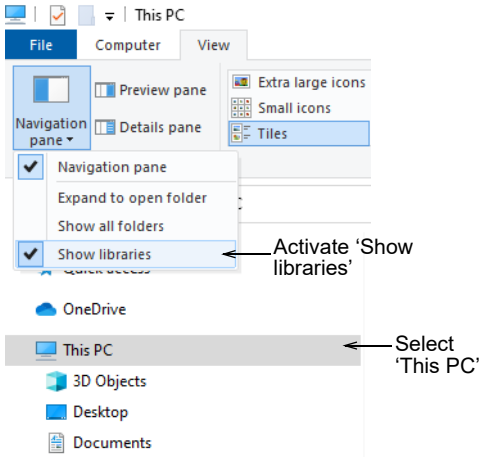
Embroidery libraries may not automatically appear in Windows 10. If you do not see your them in **File Explorer**, follow the steps below.

To activate embroidery libraries in File Explorer...

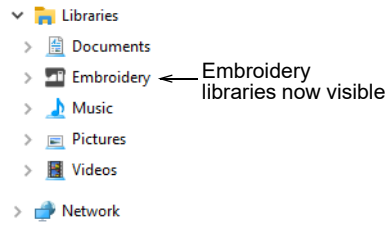
1. Go to **File Explorer** and select **This PC**.
2. Right-click the empty navigation pane to invoke the popup menu as shown.



3 Alternatively, click the **Navigation pane** button to open the dropdown menu.



4 Select **Show libraries**. Embroidery libraries are added to **File Explorer**.



Note: If you want to display embroidery libraries in the **Save As** dialog, you need to activate them in the same way.

Related topics...

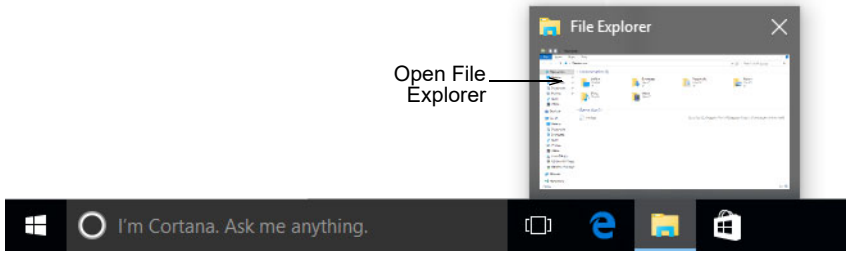
- Design library layout
- Viewing designs in network folders

Configure design thumbnails

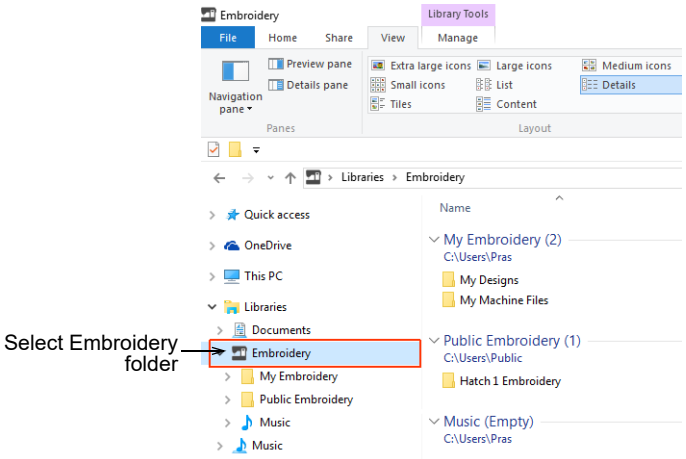
In some Windows 10/11 installations, embroidery design thumbnails may not automatically appear. If so, follow the steps below.

To configure design thumbnails...

- Start the **File Explorer** program from the Windows taskbar.

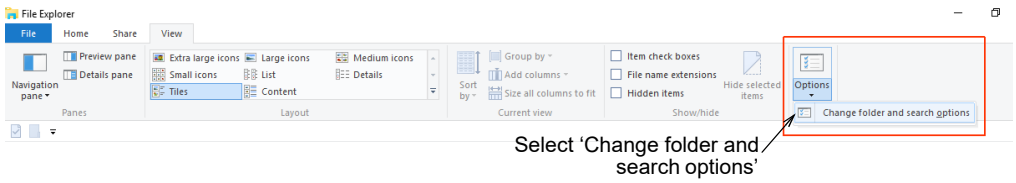


- Select the **Embroidery** folder.

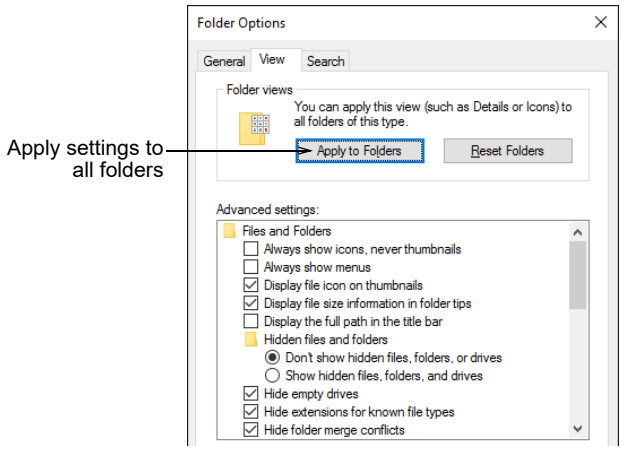


Note: Embroidery libraries do not automatically appear in some installations of Windows 10/11.

- Go to **File Explorer > View > Options** and select **Change folder and search options**.



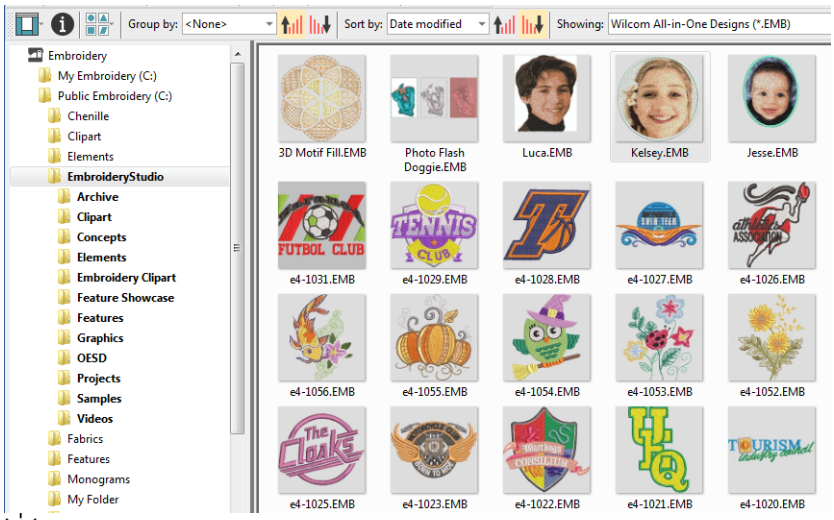
- The **Folder Options** dialog opens.



- Go to the **View** tab. Several Windows default settings are not ideal for embroidery. Recommended settings include:

Setting		Reason
Always show icons, never thumbnails	☐	So thumbnail images of embroidery designs will show, not the program icon.
Display file icon on thumbnails	☐	So program icons do not display in the corner of design thumbnails.
Hide extensions for known file types	☐	So you can see the different types of embroidery design files – EMB, DST, JEF, etc.
Show preview handlers in preview pane	☑	So you can see a preview of the embroidery design in the preview pane.

- Click **Apply to Folders** to apply settings to the **Embroidery** folders. If your **File Explorer** settings are properly configured, thumbnail images will appear as expected in the **Design Library**:



Tip: In addition to the **Design Library**, these settings affect how thumbnails display in **File Explorer** and other Windows applications.

Related topics...

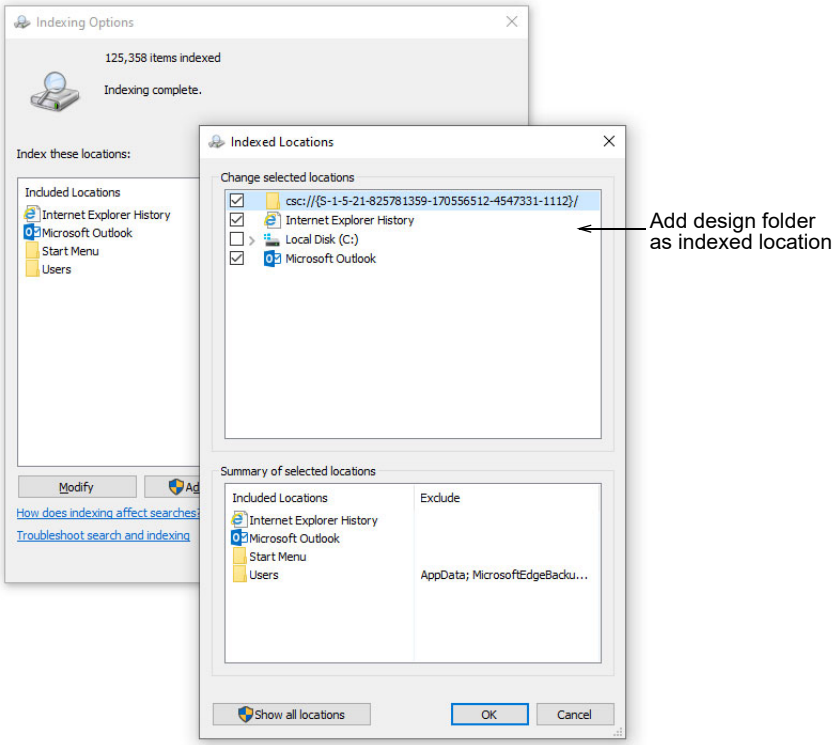
- Viewing designs in network folders
- Opening designs from Design Library

Fast searching on shared network drives

For networks with multiple computers reading and writing EMB or machine format designs, you may want to set up a dedicated PC as a repository for all design files. Connect any folders on the repository to each 'client' PC via **Design Library**. **Design Library** relies on Windows indexing to ensure fast searching.

To set up searching on shared network drives...

- For the Windows file server, make sure you have the Windows Search service running. You should have the latest Windows Server installed to enable fast-search indexing. You will also need some version of BE EmbroideryStudio installed.
- Add the design folder to be shared with the indexing function. Go to **Control Panel > Indexing Options > Modify** and select the correct path.



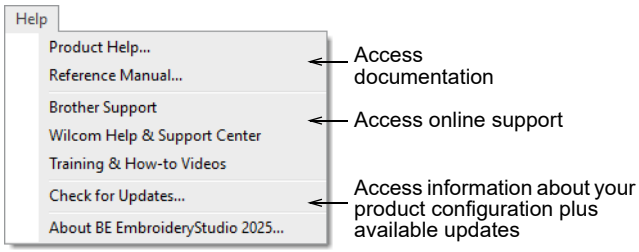
- Install BE EmbroideryStudio so that the Shell Extension is registered. This allows the server to index additional embroidery file properties.
- Once the server has finished indexing the folder, then, for every PC using the file server, add the design folder to **Design Library**. See above.

Related topics...

- Viewing designs in network folders
- Locating designs in the library

Resources & support

BE EmbroideryStudio provides various ways to access information about the software and how to use it.



Product documentation

Product documentation is provided in three formats – online, electronic (PDF), and printed. Components may include release notes, reference manual, online help, as well as various supplements.

Online help

Online help provides quick access to general information on BE EmbroideryStudio features and step-by-step instructions. There are two types available – **Wilcom Workspace** Help and **CorelDRAW Graphics** Help. The latter can be accessed from the **CorelDRAW Graphics** Help menu.

Tip: Context-Sensitive Help is available for tools and dialogs by pressing the F1 key.

Reference manual

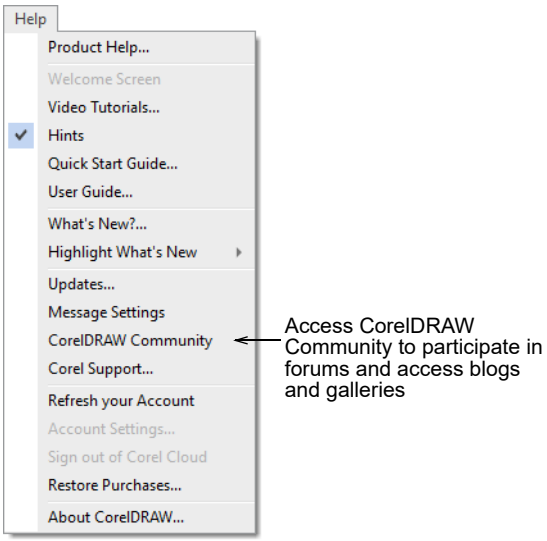
The reference manual can be accessed from the BE EmbroideryStudio **Help** menu or MS Windows® **Programs** folder. You can read it with Adobe Acrobat™ Reader which can be downloaded from the Adobe website. It can also be downloaded from the online help home page.

Note: Screen illustrations in the documentation are representations, not exact duplicates of screen layouts generated by the software. Procedural descriptions may vary slightly from your installation, depending on current settings.

CorelDRAW® Graphics Suite support

CorelDRAW® Graphics Suite is bundled as standard with some product levels. CorelDRAW® needs to be registered before it can be used by BE EmbroideryStudio. Registration gives you access to the latest CorelDRAW® updates. Registered users of this site can participate in forums as well as comment and rate blogs and galleries. Some forums

are in local languages. Access the CorelDRAW Community site via the **CorelDRAW Graphics > Help** menu.



Note: For a detailed description of the CorelDRAW® Graphics Suite interface, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **CorelDRAW Graphics Help** menu.

Chapter 2

Introduction to BE EmbroideryStudio

Embroidery design with BE EmbroideryStudio consists of turning basic artwork shapes into embroidery designs. BE EmbroideryStudio gives you the flexibility of creating embroidery objects using artwork as backdrops, or of directly converting digital artwork. You can take a mixed-mode approach as well, doing the bulk of the design by means of automatic conversion, followed by touch-ups and edits using the suite of BE EmbroideryStudio embroidery digitizing tools.

Artwork & designs

High quality embroidery starts with good design and forward planning.

Artwork

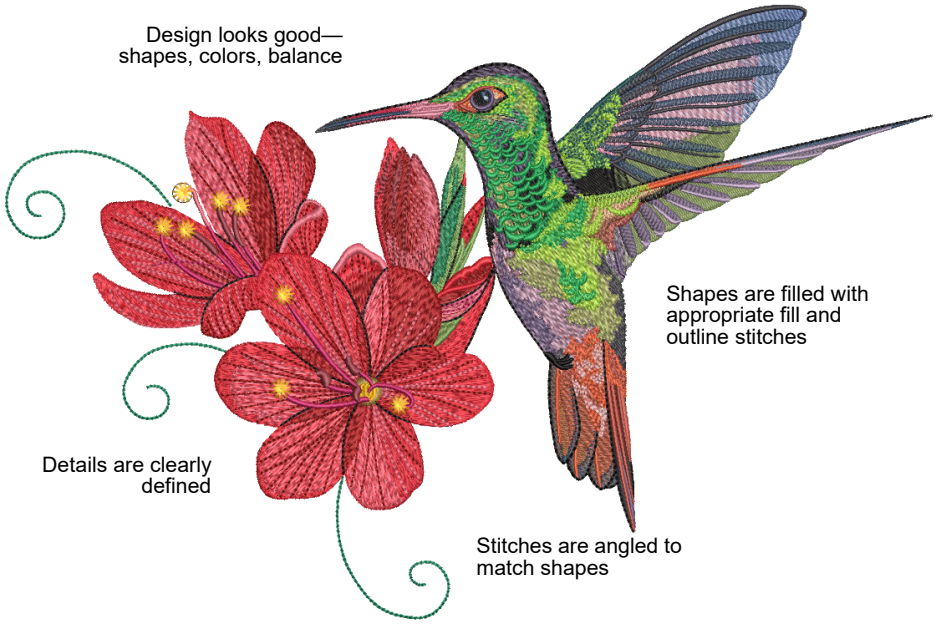
Electronic artwork in both bitmap and vector formats can be inserted, pasted or scanned into BE EmbroideryStudio for use as digitizing templates or 'backdrops'. Likely sources include:

- Internet and CD clipart libraries
- Business cards, post cards and wrapping paper
- Samples in the **Design Library**
- Books of embroidery patterns
- Children's story books
- Printed table cloths or tea towels
- Original artwork – e.g. children's drawings.

Unless you are an experienced digitizer, do not use complicated artwork. Also, be sure to check the copyright of any images you have not created yourself. If unsure, contact the relevant supplier to seek their permission.

Good design

Keep the following points in mind when digitizing your design and assessing the final output:



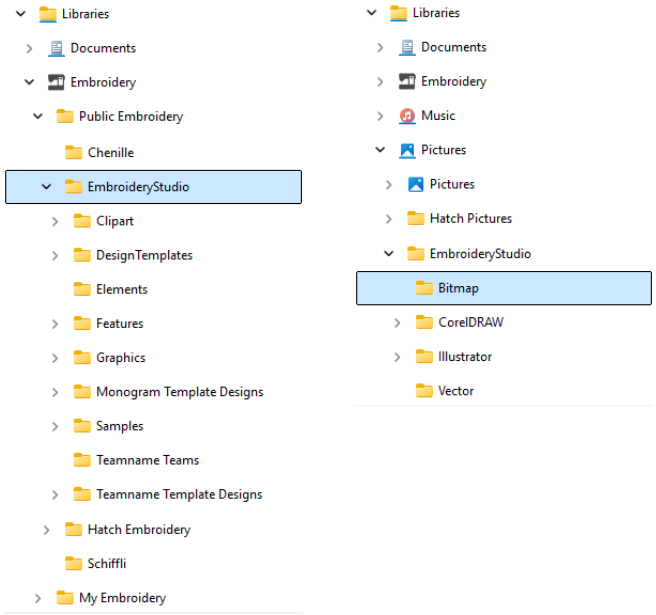
The stitched-out design should also have the following characteristics:

- Design looks good – shapes, colors, balance
- Shapes are filled with appropriate fill and outline stitches
- Details are clearly defined
- Stitches are neat, smooth and even
- Stitches angles follow design shapes
- Lettering is clear and easy to read
- The design stitches out efficiently on the machine
- Shapes are stitched correctly – no unwanted gaps
- The fabric has not puckered around the stitched areas
- The design is free of loose ends.

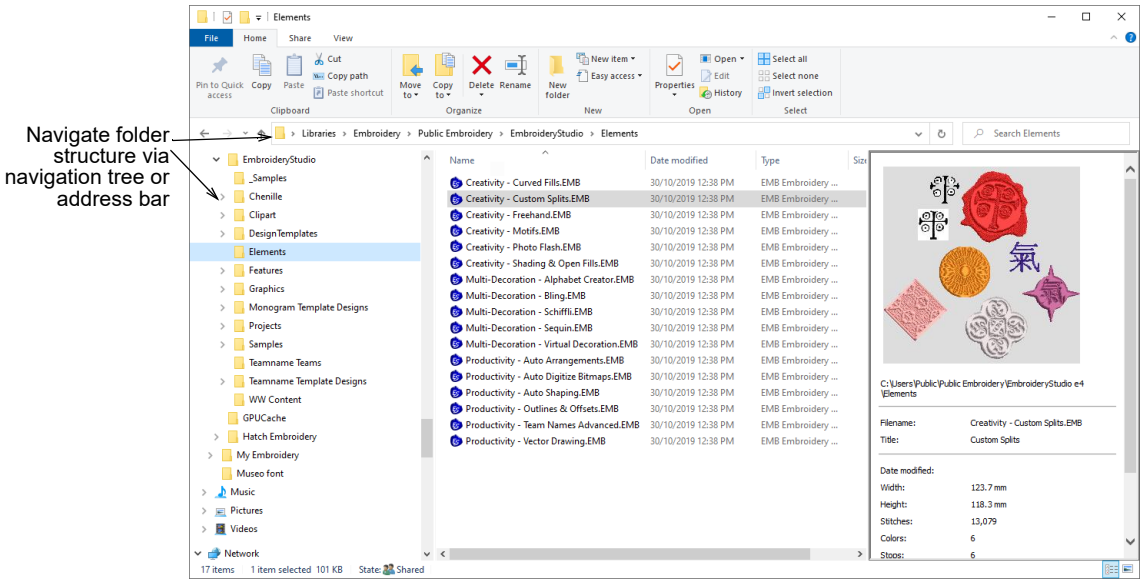
Tip: Good design is enhanced by the use of correct backing, tension and a good quality embroidery machine.

Sample designs & artwork

BE EmbroideryStudio contains hundreds of ready-to-stitch designs, including attractive ornaments, samples and digitizing backdrops. Design files (EMB files) and images (BMP, JPG, and WMF files) can be found in your **Embroidery** and **Picture** libraries.



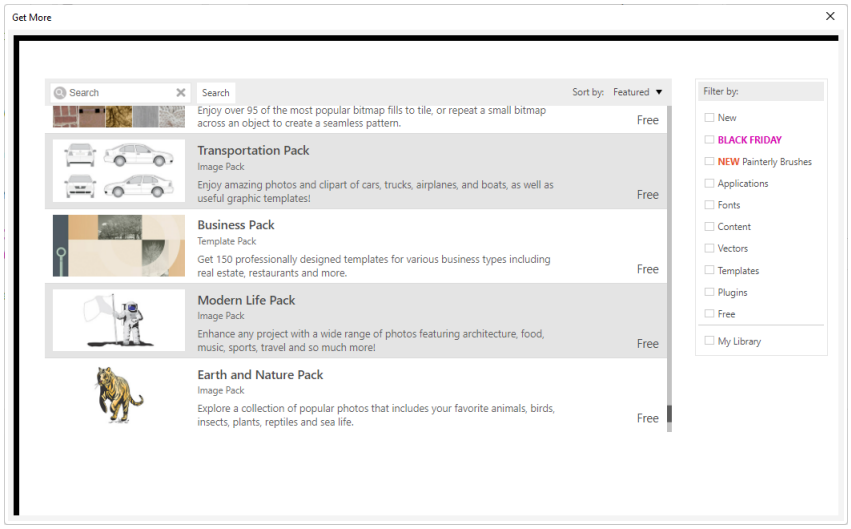
The most valuable thing you can do when starting out is to spend some time exploring these designs and getting to know what's available. BE EmbroideryStudio includes its own **Design Library** design management application to view and manage your embroidery designs. Alternatively, explore design folders using **File Explorer**. See also Design Management.



Caution: Included artwork (clipart) and embroidery designs can only be used for personal use – i.e. they cannot be commercially sold in any form. Changing the medium – i.e. clipart to embroidery or embroidery to clipart – does not remove copyright protection.

CorelDRAW resources

CorelDRAW® Graphics Suite is bundled as standard with some product models. CorelDRAW® Standard Membership also provides access to content – clipart, fonts, stock photos, templates, and much more.



Get familiar with the many CorelDRAW® resources available to you. Many can be adapted for use with embroidery design, either as digitizing backdrops or direct conversion.

Caution: Included artwork (clipart) and embroidery designs can only be used for personal use – i.e. they cannot be commercially sold in any form.

Embroidery creation techniques

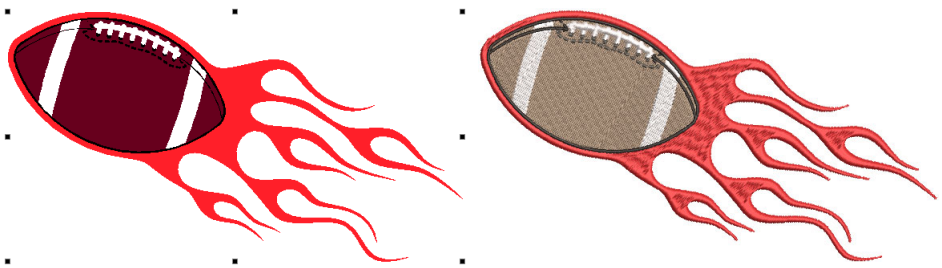
Depending on your level of product, there are two fundamental design modes in BE EmbroideryStudio:

CorelDRAW Graphics	This mode allows you to create or edit graphic designs using the CorelDRAW® Graphics Suite toolset.
Wilcom Workspace	This mode allows you to create and edit embroidery designs using an embroidery digitizing toolset.

Note: For a full description of the CorelDRAW® Graphics Suite tools, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **Help** menu.

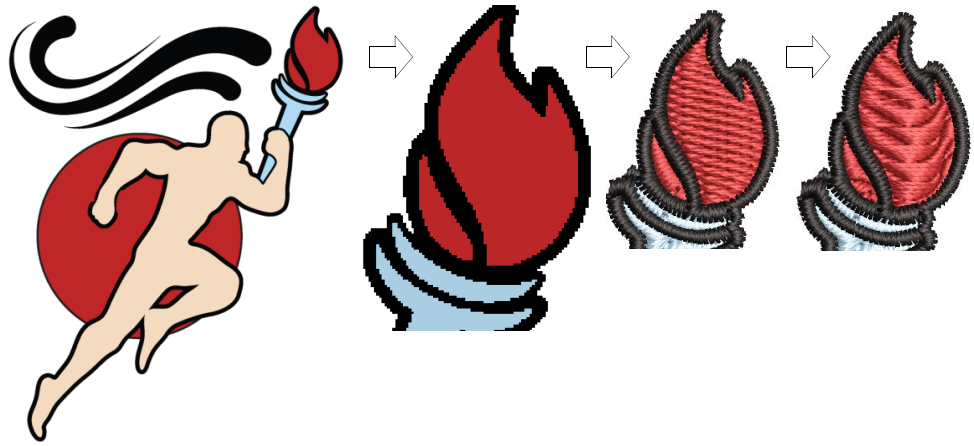
Using electronic artwork

There are two broad categories of artwork file, both of which can be imported into BE EmbroideryStudio for use as digitizing backdrops – vector and bitmap. **CorelDRAW Graphics** supports the automatic and semi-automatic digitizing of both bitmap images and vector graphics. The quality of the resulting embroidery greatly depends on the type and quality of the original artwork.



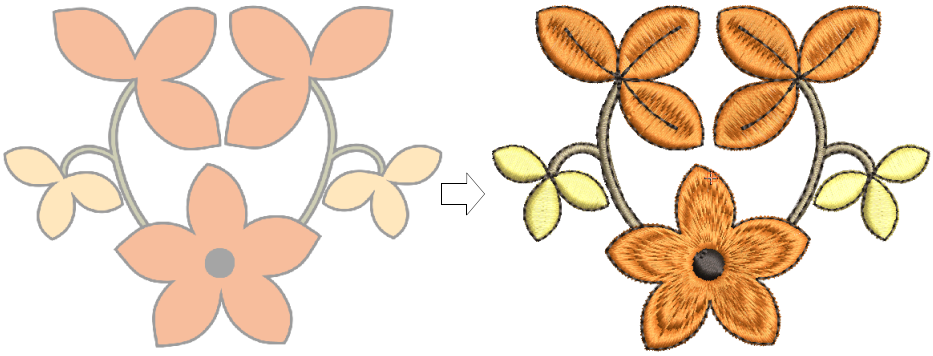
Preparing images for digitizing

Generally speaking, vector graphics preserve the picture quality when resized, whereas bitmap images cause problems of pixelation and image degradation when enlarged or scaled down. In order to make bitmap images more suitable for automatic digitizing, BE EmbroideryStudio provides image processing capabilities. See Digitizing with Bitmaps for details.



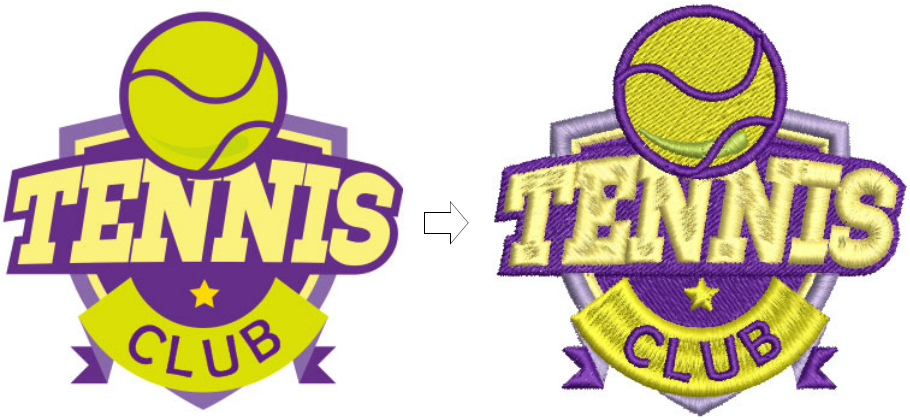
Digitizing shapes manually

You trace shapes and lines over electronic artwork using various digitizing on 'input' methods. Using a bitmap image in this way is like using an enlargement drawing on a digitizing tablet, except that everything is done on screen. See Embroidery digitizing for details.



Converting artwork to embroidery

BE EmbroideryStudio lets you convert vector objects directly to embroidery objects. In fact, entire vector designs can be converted to embroidery. You can modify these designs as you wish. You can also convert embroidery to vector graphics. See Convert objects with CorelDRAW Graphics for details.



Tip: CorelDRAW® Graphics Suite lets you trace bitmaps to convert them to fully editable and scalable vector graphics. You can trace scanned sketches, artwork, digital photos, and logos and easily integrate them into your designs.

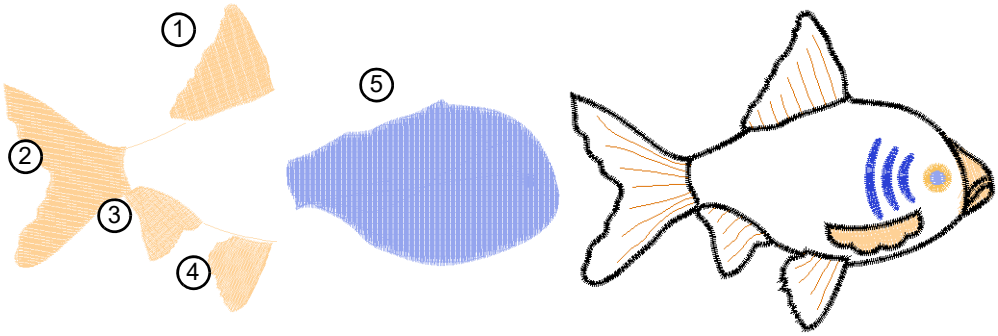
Object-based embroidery

In BE EmbroideryStudio, you build designs from basic shapes or 'embroidery objects'. They are called 'objects' because they are discrete entities which can be manipulated independently of each other. These are like ordinary vector objects in that they have certain defining characteristics or 'properties' such as color, size, position, and so on. They also have properties unique to embroidery such as stitch type and density.

Note: In BE EmbroideryStudio, vector and embroidery objects are in fact inter-convertible since they share many of the same characteristics. See also Convert objects with CorelDRAW Graphics.

Design shapes and stitching sequence

The embroidery objects comprising a design form a stitching sequence. Before creating an embroidery design, it is good practice to analyze and plan shapes and stitching sequence in advance. Shapes need to be clearly defined to make them easy to embroider. The best ones have relatively constant width, with smooth edges, no sharp turns and no small, protruding details. Outlines and details should always be stitched last.



If you are digitizing manually, objects are stitched out in the order they were created. In other words, the digitizing sequence defines the stitching sequence. If you have converted an electronic design, BE EmbroideryStudio uses automatic sequencing to create the optimum stitching sequence. Auto-sequencing attempts to generate embroidery designs which are economical to produce, with minimal down time, and accurate registration of textures and colors.

Mixed-mode approach

If you take a mixed-mode approach, you may do the bulk of the design by means of automatic conversion, and touch-ups and edits using the suite of BE EmbroideryStudio embroidery digitizing tools. In addition, you can always manually adjust the stitching sequence to improve the

stitchout, for example, to minimize color changes. See also Automatic digitizing.

Object viewing and selection

BE EmbroideryStudio provides many viewing modes to make it easier to work with your designs. View a design at actual size or zoom in for more detail. Pan a design instead of scrolling, or quickly change between one view and the last. Show or hide outlines, stitches themselves, or view designs in TrueView™.

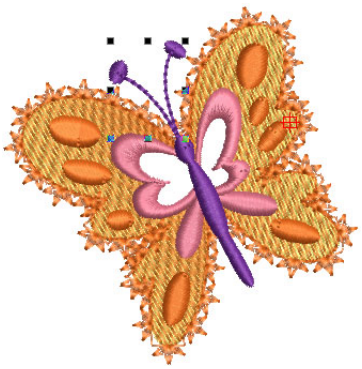


Understanding stitching sequence

When working with embroidery designs, you can check the stitching sequence by 'traveling' through it by means of color blocks, embroidery objects, or even stitch-by-stitch. Alternatively, simulate the actual embroidery design stitchout on screen. You can also preview designs in different colors on different backgrounds by selecting from predefined colorways. See Viewing stitching sequence for details.

Selecting embroidery objects

BE EmbroideryStudio provides various ways to select embroidery objects. Modify the design as a whole or select individual objects for more precise modification. The **Color-Object List** provides an easy way to select objects and colors in a design and access their properties. Use it also to group and ungroup, lock and unlock, and show and hide objects. See Selecting objects for details.



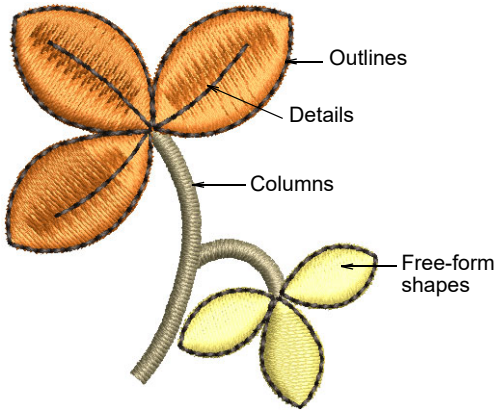
Digitizing embroidery shapes

In addition to the automated and semi-automated techniques BE EmbroideryStudio provides for creating embroidery designs, it also contains a suite of manual digitizing tools. These are similar to graphics

tools except that the end result are embroidery rather than vector objects. It is important to be familiar with manual digitizing methods in order to fully understand the process, the types of objects created, and the problems associated with embroidery digitizing.

Digitizing simple & complex shapes

There are tools for digitizing filled shapes with turning stitches and fixed stitch angles, with or without holes. There are also tools for creating columns and borders of fixed or varying width. See Embroidery digitizing for details.

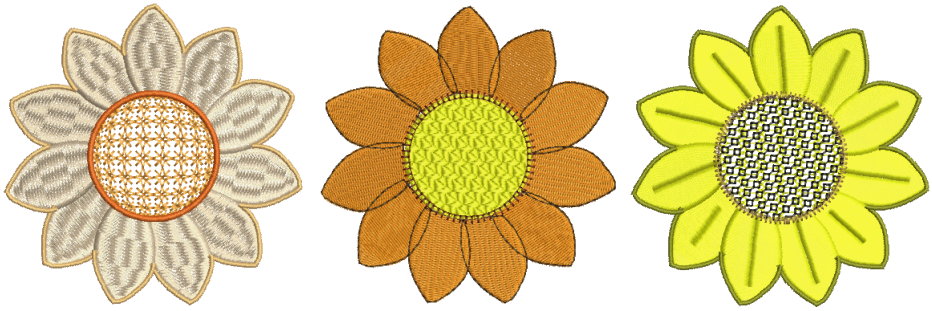


Digitizing outlines & details

BE EmbroideryStudio provides tools for creating outline stitching of varying thicknesses and styles. They are typically used to add outlines and details to designs. There are tools for creating simple run stitching as well as decorative outlines using predefined motifs. Backstitch is an older-style, adaptable stitch which can be used for delicate outlines. Stemstitch is thicker and can be used to mimic hand-sewn embroidery. Occasionally you may even need to digitize individual stitches. See Digitizing outlines & details for details.

Stitch types

The most important property of all embroidery objects is their stitch type. The software uses object outlines and the associated stitch type to generate stitches. Whenever you reshape, transform or scale an object, stitches are automatically regenerated. See Stitch Types for details.



Threads & colorways

When digitizing, you select thread colors for objects from the color palette. This contains a selection of colors tailored to each design or color scheme. The particular 'colorway' represents the actual thread colors in which a design will be stitched. You can define multiple color schemes and switch between them. See Colorways for details.



For each colorway you define, you can select colors from commercial thread charts or define your own. Search for particular threads by specific code. Automatic thread color matching helps you locate thread colors based on closest match across one or several thread charts. You can also match thread colors from imported graphics – vector or bitmap.

Design backgrounds

BE EmbroideryStudio also lets you set the background color, fabric, or product of the current colorway for more realistic previews and presentations. The background is saved with the colorway. See Fabric & product backgrounds for details.



Properties, fabrics, styles & templates

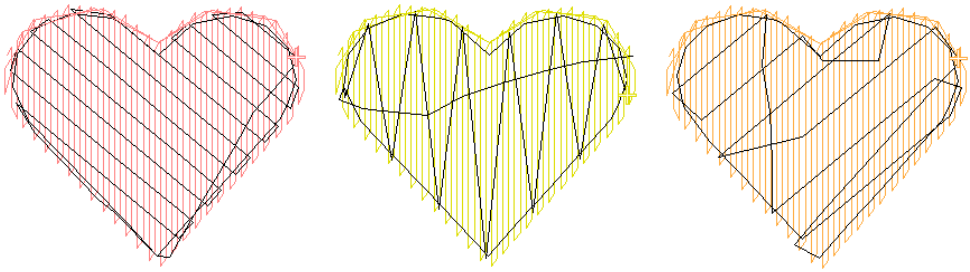
Object properties are stored with each object whenever you save a design. These properties determine how stitches will be regenerated whenever you reshape, transform or scale an object or entire design.



Default properties are stored with the design template and form the basis of all new designs. These may be overridden by fabric settings which are automatically adjusted to suit different fabric types. These in turn may be overridden by individual property settings determined by the digitizer. See Object Properties for details.

Underlays & pull compensation

Embroidery stitches pull fabric inward where needles penetrate. This can cause fabric to pucker, stitch bunching, and/or unsightly gaps to appear in the embroidery. BE EmbroideryStudio includes many techniques for achieving smooth, even placement of stitches, and the elimination of gaps in designs.



For an object to sew out correctly, it must have correct stitch spacing, sufficient pull compensation, together with a suitable underlay for the particular combination of cover stitch type, object type, object shape, and fabric. See Embroidery Reinforcement for details.

Embroidery connectors



Connectors link objects in a design. They can be run stitches or jumps. Travel runs are typically used to connect segments **within** filled objects. You can use automatic settings to generate connectors, trims and tie-offs, or add them manually. You can change connector settings for a whole design or selected objects. If you prefer to add tie-offs and trims as you digitize, you can turn off automatic connectors altogether.

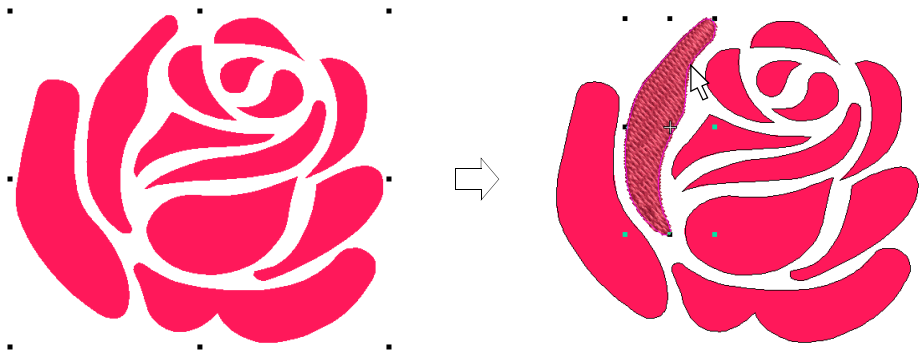
BE EmbroideryStudio also allows you to automatically connect first and last stitches of a design. This makes it easy to position the needle before stitching, and reduces the chance of it hitting the frame. See Embroidery Connectors for details.

Automatic digitizing

Depending on your product level, BE EmbroideryStudio offers a variety of complementary tools and techniques for automatically digitizing suitably prepared artwork.

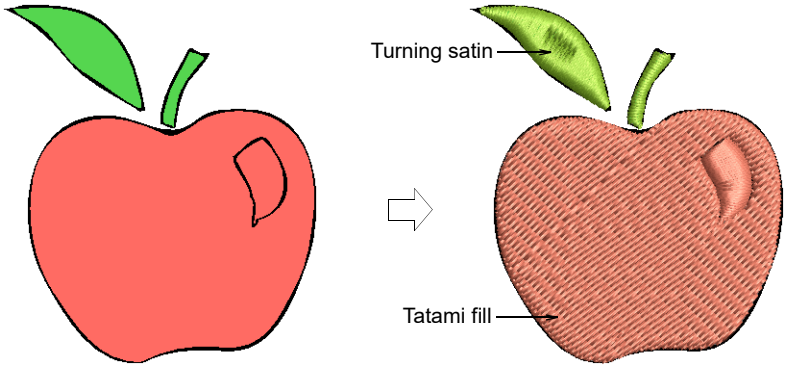
Auto-tracing bitmap artwork

Use **Auto Trace To Vectors** to create vector outlines from bitmap images. You can then convert these to embroidery objects using a variety of input methods. **Auto Trace To Vectors** can find holes in shapes – both inside and outside boundaries are detected. See Auto-tracing bitmap artwork for details.



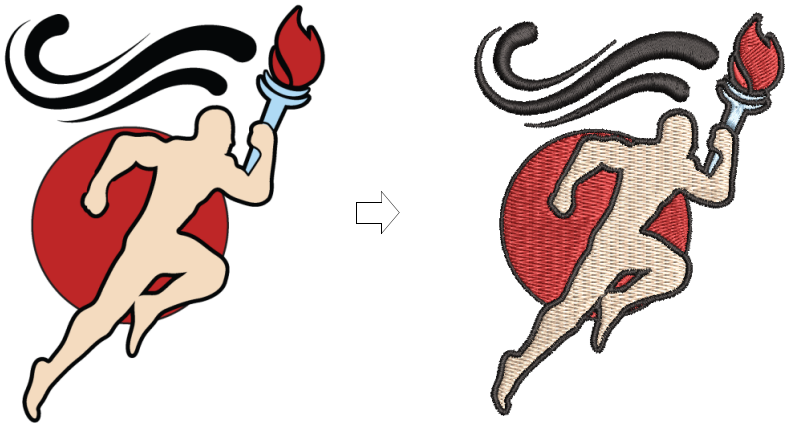
Auto-digitizing image shapes

Auto-Digitizing tools provide everything necessary to digitize shapes in bitmap images and vector graphics automatically without using manual digitizing methods. See Auto-digitize individual shapes for details.



Auto-digitizing entire images

Smart Design automatically converts whole bitmap images to fully digitized embroidery. See Auto-digitize entire designs for details.



Auto-digitizing photographs

Use **Color PhotoStitch** or **Photo Flash** to create embroidery from photographs and other images. While **Photo Flash** designs consist of rows of single-color satin stitching, **Color PhotoStitch** produces variegated stitching using multiple thread colors. The overall effect is like multi-colored stippling. See Auto-Digitizing with Photos for details.



Modifying designs

After digitizing a design, you can modify it as a whole, edit individual objects or even individual stitches.

Combining & resequencing objects

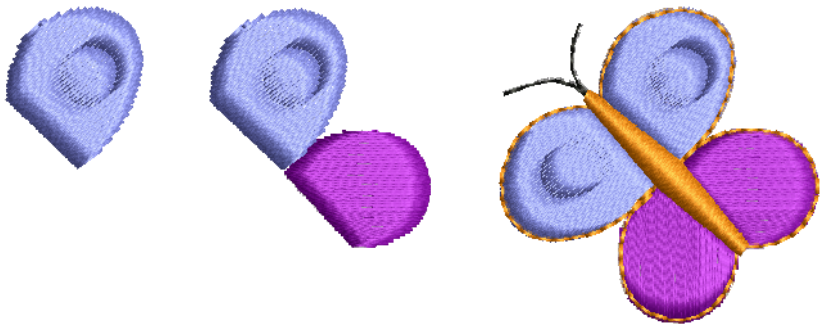
BE EmbroideryStudio provides various techniques for combining and sequencing objects. You can add to designs by duplicating and copying objects. Combine designs. Resequence objects in designs to minimize color changes and optimize production.



The stitching sequence naturally occurs in the order in which an embroidery design is digitized or assembled. When converting a graphic design to an embroidery design, BE EmbroideryStudio decides the stitching sequence according to its own internal logic. Either way, you may, for reasons of aesthetics or production efficiency, want to adjust it. The **Color-Object List** displays a sequential list of objects grouped by object and color. It provides an easy way to group, cut, copy and paste, and resequence selected objects and color blocks. BE EmbroideryStudio also allows you to create 'branched objects'. Like-objects are thereby resequenced, connectors minimized, components grouped, and stitches regenerated. Underlay can be applied to all. See Combining Objects for details.

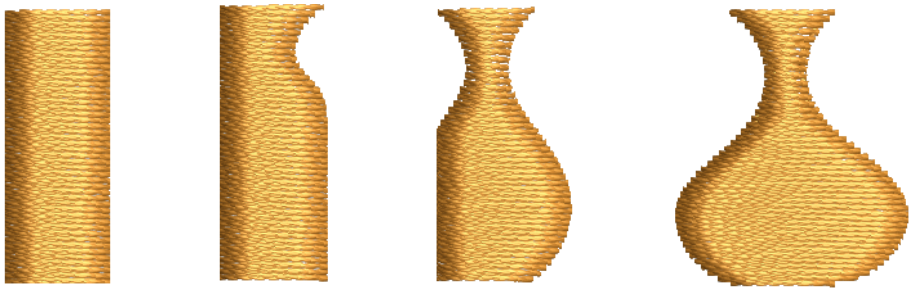
Arranging, scaling & transforming objects

You can change the position, size and orientation of objects in a design by moving, scaling and transforming them. Group objects together to apply universal changes, or lock them to avoid unintentional modification. Modify objects directly on screen or via their object properties. Access commonly used functions via the Color-Object List. See Transforming Objects for details.



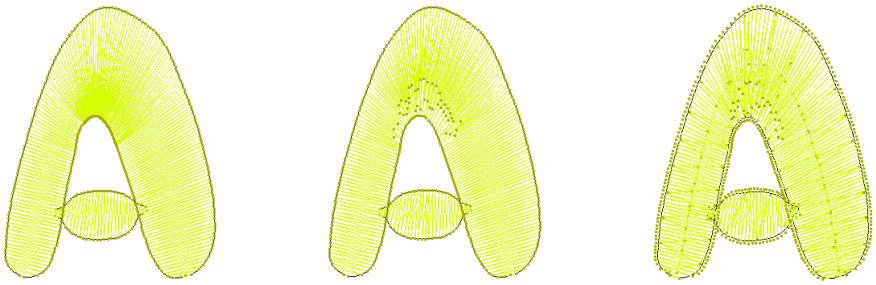
Reshaping and converting objects

BE EmbroideryStudio offers a number of techniques for reshaping embroidery objects, all with the one tool. Sometimes you may need to cut, split or break up complex or compound objects in order to fine-tune them. Various tools are available for this purpose. As well as reshaping object outlines, you can add and adjust stitch angles, a property unique to embroidery objects. You can also change the entry and exit points of individual objects which is important if you are digitizing manually or resequencing embroidery objects. See Reshaping & Splitting Objects for details.



Optimizing stitch quality

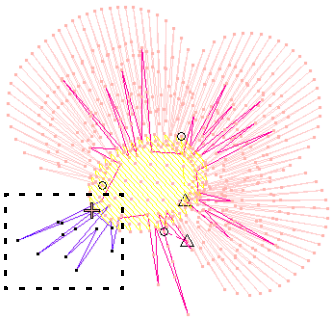
When it comes to embroidery production, the current stitch density may not be perfect for certain fabrics or threads. Or you may want to make production cheaper by reducing overall stitch count. After scaling operations, for example, designs may contain small stitches which can damage fabric and cause thread or needle breakage. Sharp corners may cause stitch bunching which can create hard spots in the embroidery and damage fabric or needle. Embroidery machines have a maximum possible stitch length which is determined by the physical frame movement. If long Satin stitches exceed this, they are broken into smaller stitches. BE EmbroideryStudio helps you resolve these issues with a number of specialized techniques for optimizing stitching quality for different design types and production requirements. See Stitch Quality for details.



Editing stitches & machine functions

BE EmbroideryStudio automatically generates stitches from design outlines and properties. This means you can scale, transform, and reshape native designs without compromising stitch density or quality.

However, BE EmbroideryStudio also lets you edit individual stitches. You may need to do this, for example, when working with 'stitch' files which do not contain outline data. Like stitches, machine functions are inserted automatically whenever you digitize objects and specify object properties. They are stored with the embroidery object and updated whenever it is modified. However, BE EmbroideryStudio also lets you manually insert machine functions and modify them. This flexibility allows you to adapt designs to almost any machine requirement. See Stitches & Machine Functions for details.



Advanced digitizing

BE EmbroideryStudio provides specialized productivity features as well as special effects and digitizing techniques.

Productivity techniques

Specialized digitizing features help to save digitizing time. BE EmbroideryStudio provides special input tools for circles, stars, and rings, as well as methods for creating repeated or 'backtracked' outlines. Remove underlying layers of stitching in overlapping objects to reduce stitch counts and prevent a build-up of stitches.

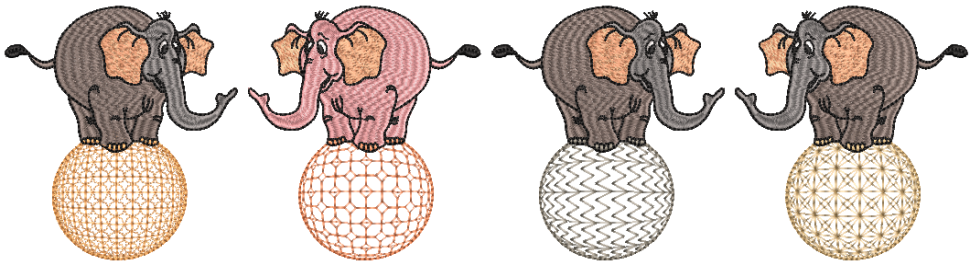


BE EmbroideryStudio also provides tools for quickly creating outlines based on existing filled shapes, and vice versa. Add decorative borders such as rectangles, ovals, and shields to designs or selected objects using the **Borders** library. See Productivity Techniques for details.

Motif runs & fills

Motifs are predefined design elements, such as hearts, leaves or border patterns. They generally consist of one or more simple objects, and are

stored in a special motif set. The BE EmbroideryStudio **Motif** tools allow you to use motifs to create ornamental runs and textured fills. Use the ones provided with the software or create your own. Motifs can be scaled, rotated and mirrored in the same way as other objects. You can even use them to create interesting three dimensional effects. See Motif Stitching for details.



Embroidery lettering

Create top-quality lettering quickly and simply. BE EmbroideryStudio provides a large range of scalable closest-join font styles and multi-color and fancy fonts to choose from.

Creating embroidery lettering

Create high-quality embroidery lettering quickly and simply.
BE EmbroideryStudio provides a large range of scalable fonts to choose from. Add embroidery lettering directly to designs or convert from **CorelDRAW Graphics**. Apply formatting just like a word processor, including italics, bolding, and right/left justification. Change values for the whole text or individual letters. See Creating Embroidery Lettering for details.



Editing embroidery lettering

BE EmbroideryStudio gives you interactive and precise numeric control over many settings affecting lettering objects. Adjust both individual letters and lettering objects as a whole. Apply horizontal, vertical, and curved baselines. Modify baseline type, length, radius and angle, as well as position. You can even define the rotation angle of letters relative to

the baseline or the design itself. See Editing Embroidery Lettering for details.



Advanced lettering techniques



Add special characters and symbols to your lettering. By default, lettering objects are filled with **Satin** stitch. Apply other basic fill stitch types as with all embroidery objects.

Specify the sequence in which letters are stitched to minimize registration problems. The automatic kerning feature improves lettering appearance and legibility by fine-tuning spacings between character pairs.

Alternatively, fine-tune letter spacing according to the number of characters per object. This is particularly useful with Asian fonts. Lettering appearance and quality can be improved with the correct underlay. See Advanced Embroidery Lettering for details.

Apply **Lettering Art** effects to make letters bulge or arch, stretch or compress. Many styles are available from the **Lettering Art** gallery. You can fine-tune preset shapes as preferred. Edit lettering text in envelopes the same way as normal lettering. See Creating special effects with lettering art for details.

Team lettering

The **Team Names** feature lets you create designs with multiple names. For example, you can use the same logo with different names for sports teams or corporate uniforms, without having to create multiple copies of the same design. Names are stored in lists that can be accessed from any design. You can add to these lists, or remove names at any time.



Depending on how you want to stitch out, you can choose to save and stitch names and designs separately, or together. See Team Names for details.

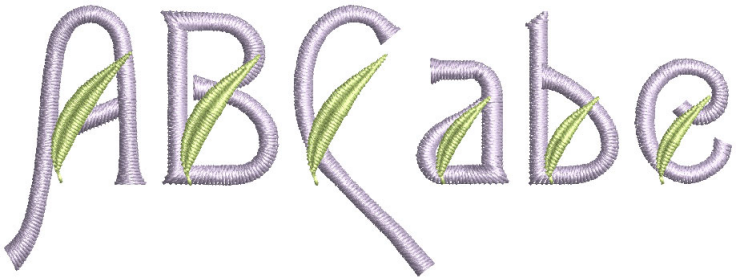
Monograms

A monogram is a design composed of one or more letters, typically the initials of a name, used as an identifying mark. The **Monogramming** feature offers a simple way to create personalized monograms using a selection of predefined monogram styles, border shapes and ornaments, together with a set of tools to help you place these elements in creative and decorative ways. See Monogramming for details.



Custom fonts

Turn any TrueType font installed on your system into an embroidery font. The automatic kerning feature improves lettering appearance and legibility by fine-tuning spacings between character pairs. Sometimes you find that you want to reshape a letter to improve its appearance, perhaps to suit a particular lettering height. BE EmbroideryStudio lets you save the letter as an alternative version. In fact you can save multiple versions of the same letter within the same font. You can even create your own custom fonts or modify an existing font for special applications. Even merge letters from two or more fonts. See Custom Lettering for details.



Mixed decoration

BE EmbroideryStudio provides support for various multi-decoration techniques, including print.

Appliqué digitizing



Automatically create all the stitching you need for appliqué using the **Appliqué** tool. Up to four layers of stitching – guide runs, cutting lines, tack stitches and cover stitches – can be generated for any appliqué object, depending on current settings. You can also extract appliqué shapes from a design to output to a cutter or separate file. See Appliqué Embroidery for details.

Bling digitizing

Bling refers to decorative objects placed on garments or templates, either on their own or in combination with other design elements. Bling is supplied in varying sizes, shapes, colors and materials. It goes under various names such as diamante, rhinestones, eyelets, ribbons, charms, crystals, glitz, nailheads, studs, etc.



BE EmbroideryStudio lets you create bling and embroidery multi-decoration designs with the **Bling** toolset. This tool lets you create and visualize bling embellishments in combination with other decorative elements. See Bling Digitizing for details.

Multi-decoration export

The **Multi-Decoration File Export** (MDFE) capability allows you to export the different file formats involved in a multi-decoration design production with a single command option. The system recognizes whether a design element is embroidery, graphics, appliqué, or bling. It displays each element in an export dialog with a list of corresponding file types to choose from. See Exporting multi-decoration files for details.



Files, machines, & design processing

Design processing and encoding involve all the important, back-end operations of embroidery design and manufacture. This is where you actually output your designs to machine, disk, printer, cutter, and so on. For this, you will need an understanding of embroidery file types as well as different machine formats. Depending on your setup, you will also

need an understanding of traditional storage media such as embroidery disks.

Printing designs

From the same design file, you can output a production worksheet for the embroidery machine operator. Designers frequently want to distribute their designs for viewing in real colors, in TrueView™ or otherwise, with or without fabric or product backgrounds. BE EmbroideryStudio allows you to customize information in the format you require for production worksheets and/or approval sheets. You can specify the data to print, graphics to include, zoom factor, and general options such as company name. You can use a color printer or plotter to produce your worksheets. See Design Reports for details.



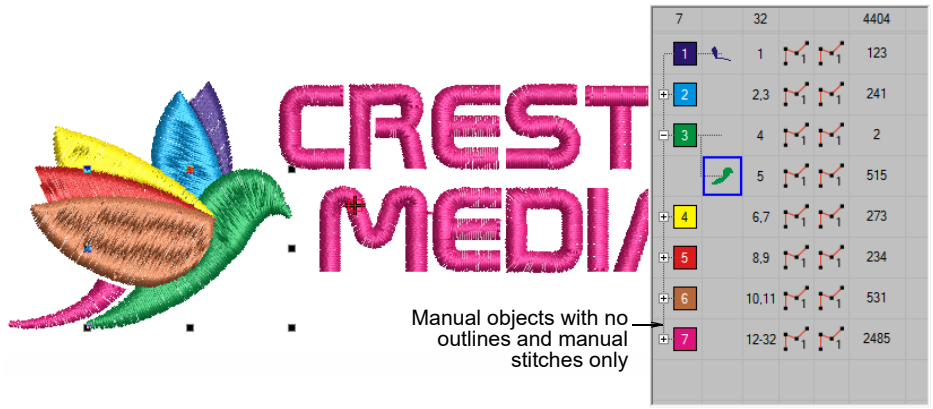
Outputting designs

You can output embroidery designs for actual stitchout in a variety of ways – sending directly to machine for stitching, or saving to specific machine formats and/or to embroidery disk. See Embroidery Output for details.



Reading files of different formats

By default BE EmbroideryStudio saves to its native file format, EMB. This format contains all information necessary both for stitching a design and for later modification. When opening designs created or saved in other formats, BE EmbroideryStudio converts them internally to EMB format. They can then be modified using the full range of BE EmbroideryStudio features. Depending on the file type, you may need to provide additional information to assist BE EmbroideryStudio in the conversion process. See Machine Files for details.



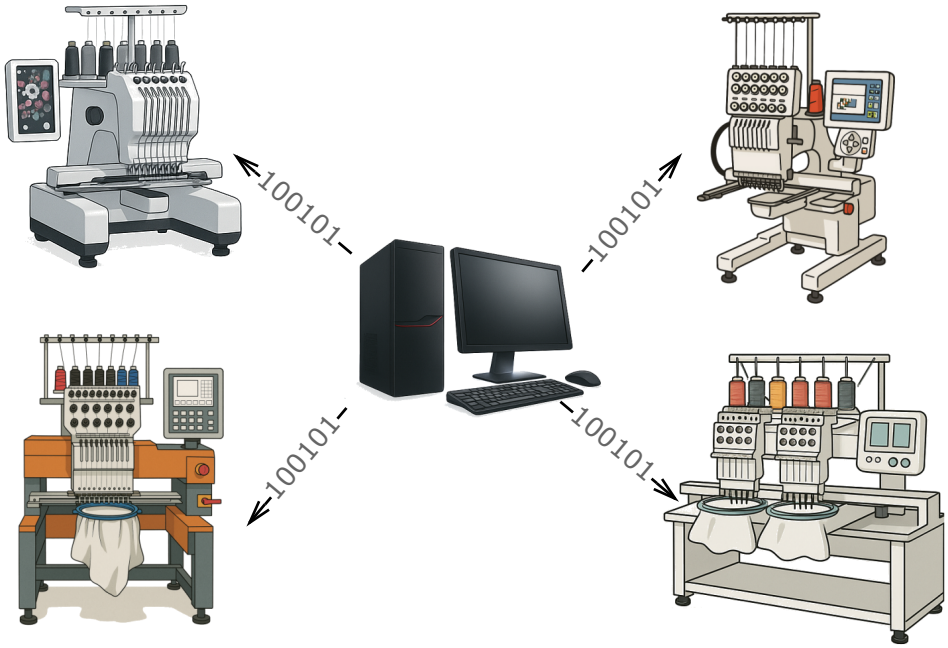
Hooping designs



Devices made from wood, plastic, or steel, hoops are used to tightly grip fabric and stabilizer between an inner and outer ring. Designed to hold fabric taut against the machine bed for embroidering, they attach to the machine's frame. Fabrics must be hooped before stitching out on the machine. BE EmbroideryStudio allows you to select from a wide range of standard factory-supplied hoops. If you are using a hoop which does not appear in the hoop library, you can define your own from scratch or based on a standard hoop. See Design Hooping for details.

Machine formats

Different embroidery machines speak different languages. They have their own control commands for the various machine functions. Before you can stitch a design, it must be in a format which can be understood by the embroidery machine. When you select a machine format, BE EmbroideryStudio uses it to translate digitized designs into a specific machine-readable form. If required, you can customize machine formats to meet specific machine requirements. See Machine Formats for details.

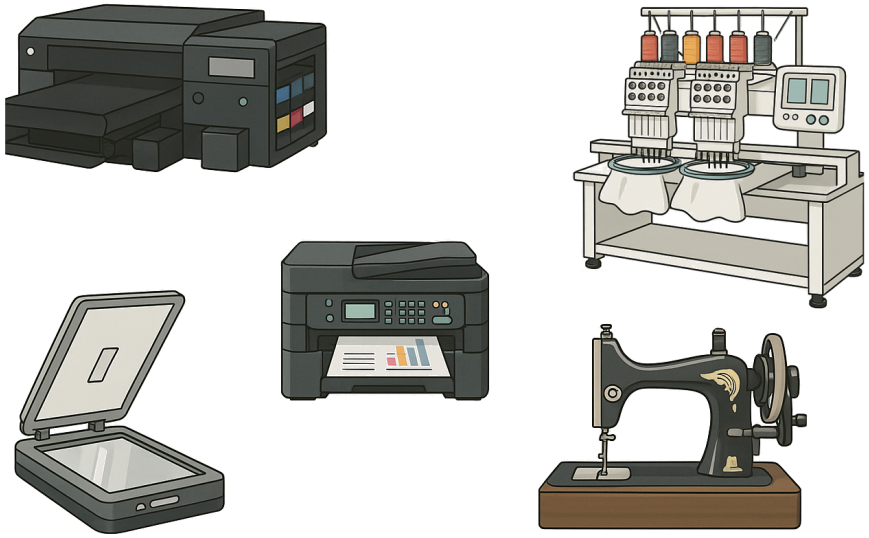


Hardware & software setup

In order to work with your particular equipment, BE EmbroideryStudio needs to be properly configured. You may also want to configure the software to your particular design requirements.

Setting up hardware

You will need to connect peripheral devices for use with BE EmbroideryStudio. These may include digitizing tablets, plotters, printers, appliqué cutters, scanners and embroidery machines. Different devices are set up in different ways – some in MS Windows®, via the **Control Panel**, others within BE EmbroideryStudio itself. See Hardware Setup for details.

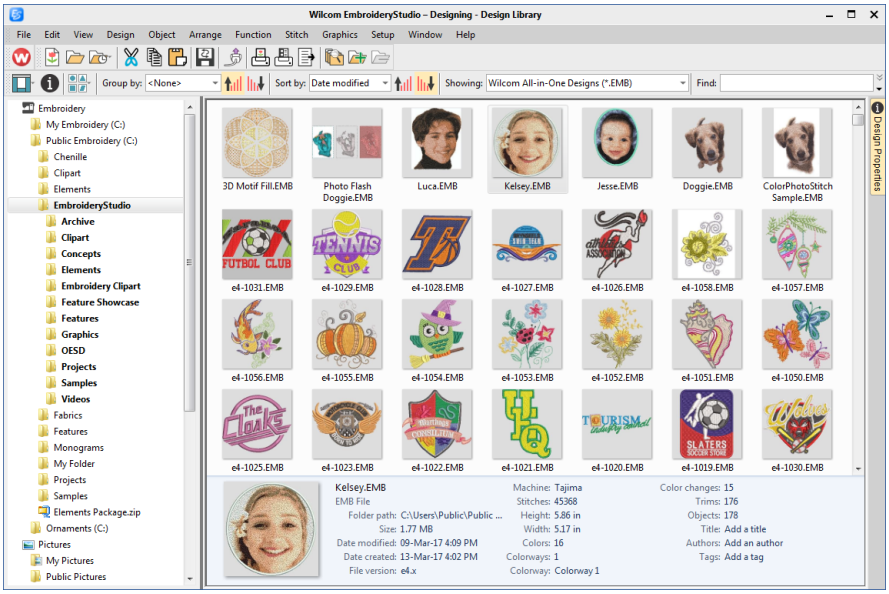


Changing system settings

BE EmbroideryStudio lets you adjust various system settings controlling the appearance of designs on screen, display of design information, the behavior of the design window, and other settings. See System Settings for details.

Managing designs with Design Library

BE EmbroideryStudio comes equipped with its own built-in **Design Library** for managing your embroidery designs across your entire local network. Use it to browse design and artwork files stored on your local PC or company network. **Design Library** capabilities make it fast and practical for daily commercial use, avoiding the need to switch to and from **File Explorer**. It recognizes all file formats used by BE EmbroideryStudio. It also makes it easy to search, sort and browse all embroidery designs on your network.



In a nutshell, **Design Library** lets you:

- Search for designs – including artwork files – anywhere on your local hard drive, network drives, or external devices such as USB or ZIP drive.
- Preview design information in the preview pane.
- Search for designs by various means, including known design information.
- Create an organizing structure for easy categorization.
- Batch-convert selected design files to all commercial embroidery formats such as DST, EXP, SEW, and others.
- Print selected designs or send them to embroidery machine for stitchout.
- Use **Design Library** to handle job orders.

Find embroidery designs anywhere on your hard drive or external storage device and, optionally, add them to your embroidery library. This section describes how to open and view designs in **Design Library** as well as adjusting viewing settings. It also covers browsing for and accessing designs in folders. See Design Management for details.

Note: Design Library helps you manage designs in folders. It is not a multi-user database for company-wide design management. For this type of requirement, refer to the DesignWorkflow User Manual.

PART I
OBJECT-BASED EMBROIDERY



Embroidery design in BE EmbroideryStudio consists of turning basic artwork shapes into embroidery objects. BE EmbroideryStudio allows you to create embroidery objects with artwork as backdrops or by directly converting digital artwork. You can take a mixed mode approach as well, doing the bulk of the design by means of automatic conversion, followed by touch-ups and edits using the suite of BE EmbroideryStudio digitizing tools.

Basic procedures

This section describes how to open BE EmbroideryStudio and start using the commands and tools. It also explains how to open designs as well as create new ones. It describes how to display the grid and rulers, and measure distances on screen. And it also covers how to select machine formats for different output. See Basic Procedures for details.

Viewing designs

This section explains design viewing modes as well as the various design viewing settings, including design colorways. Techniques for viewing the stitching sequence are described as well as how to selectively view design color blocks. Viewing design information, including production worksheets, is also covered. See Viewing Designs for details.

Threads & charts

This section describes how to select colors from the **Color** toolbar as well as how to assign threads to the colors in your design. How to modify thread charts is also covered, as well as creating custom thread charts. See Threads & Charts for details.

Chapter 3

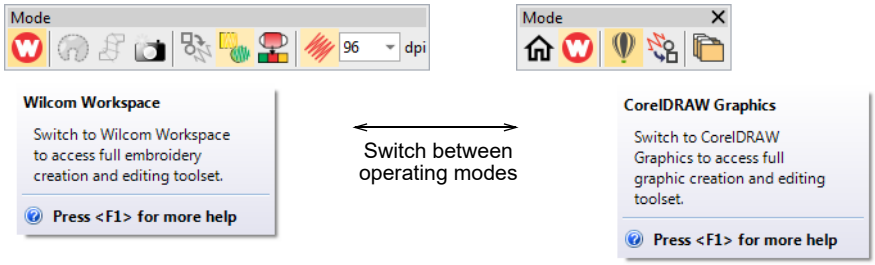
Basic Procedures

BE EmbroideryStudio is an MS Windows®-based product incorporating many of the conventions with which most PC users are already familiar. BE EmbroideryStudio integrates with CorelDRAW® Graphics Suite into a single application, allowing users to create, not just embroidery, but true, multi-decoration designs.



Operating modes

Open BE EmbroideryStudio using the desktop icon or the MS Windows® **Start** menu. The application has one workspace or 'design window' but you interact with it in different operating modes. These can be accessed via the **Modes** toolbar.



The main modes you'll be accessing are:

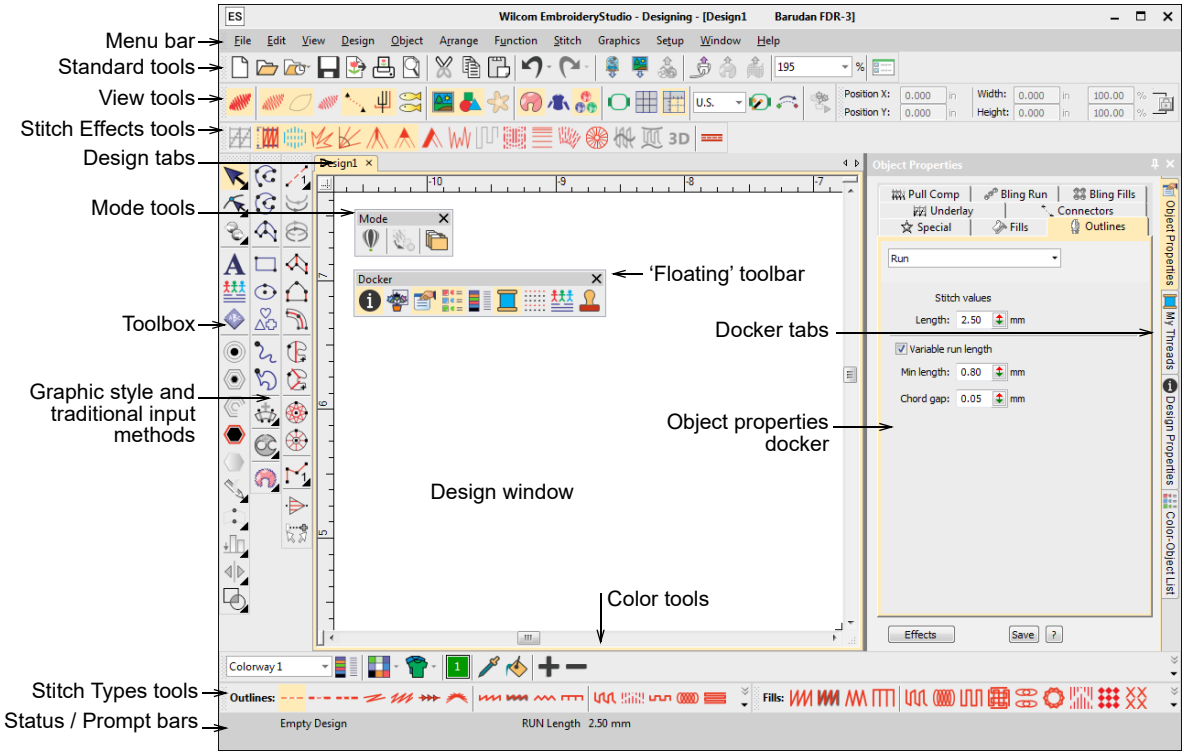
Mode	Function
Wilcom Workspace	This mode allows you to create and edit embroidery objects using an embroidery digitizing toolset.
CorelDRAW Graphics	This mode allows you to create and edit vector objects using the CorelDRAW® Graphics Suite toolset.
Design Library	This mode allows you to manage designs and job orders.

Caution: You need to calibrate your monitor so that designs at 1:1 scale appear at real size. Do this when you first install BE EmbroideryStudio or whenever you change your monitor. See Calibrating the monitor for details.

Wilcom Workspace window

Use Mode > Wilcom Workspace to digitize and edit embroidery designs. Display embroidery as well as artwork. View designs realistically in 3D simulation.

When you open BE EmbroideryStudio, it appears by default in **Wilcom Workspace** window with a new, blank design displayed. This mode allows you to create and edit embroidery objects using the embroidery digitizing toolset. The screen image below shows the more prominent toolbars in BE EmbroideryStudio. Depending on your product level, you will have access to some or all of these options.



Use this mode when you want to create embroidery from digitizing 'backdrops'. Various types of image file can be loaded in BE EmbroideryStudio. **Wilcom Workspace** also offers a graphical representation of what the final embroidery will look like. Use **TrueView™** together with a background fabric to see how your design will look when stitched out. Some of the more prominent **Wilcom Workspace** interface elements include:

Element	Description
Menu bar	This contains the application menus such as File, Edit, View, etc.
Mode toolbar	This contains tools and icons which are visible in both Wilcom Workspace and CorelDRAW Graphics.
Standard toolbar	This contains commonly used tools and commands which are specific to and only visible in Wilcom Workspace.
View toolbar	This contains commands for viewing embroidery designs – e.g. as design outlines, by stitches, by machine functions, as they will stitch out on the fabric – either separately or in combination.
Stitch Types toolbars	This contains tools which determine the stitch types which can be applied to embroidery objects, including Satin, Tatami, Motif Fill, etc.

Element	Description
Stitch Effects toolbar	This contains tools for modifying or improving stitch quality, including applying automatic underlay to selected objects.
Toolboxes	Depending on the product model, there are up to three 'toolboxes' – Toolbox, Graphics Digitizing, and Traditional Digitizing. Between them, toolboxes contain all the embroidery digitizing/editing tools specific to and visible only in Wilcom Workspace.
Color toolbar	This contains the embroidery color palette which is specific to and visible only in Wilcom Workspace.
Status / Prompt bars	These contain current status information and prompts which are visible only in Wilcom Workspace. See below.
Docker	Wilcom Workspace includes 'dockers' – Object Properties, Color-Object List, Color Palette Editor, and others. These stay open as long as you need them.
Design Window	This contains the main work area where you create and edit embroidery objects as well as graphics objects when you switch to CorelDRAW Graphics.

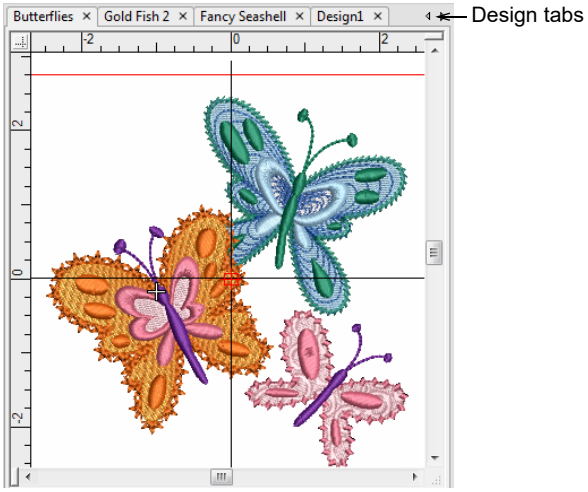
- Customize the design window by showing or hiding the grid, changing the grid dimensions, as well as showing and hiding toolbars.
- Dock or 'float' toolbars and dockers in any configuration that suits. Toolbars are dockable left, right, top and bottom, and can be 'floated' anywhere in the design window.
- BE EmbroideryStudio allows you the choice of large or small button icons with or without text names.

Related topics...

- Access object properties
- Display grids, rulers & guides
- Menus & Toolbars

Design tabs

BE EmbroideryStudio allows you to switch between open designs by means of design tabs. This also makes it easy to copy/paste between designs, including drag and drop operations.

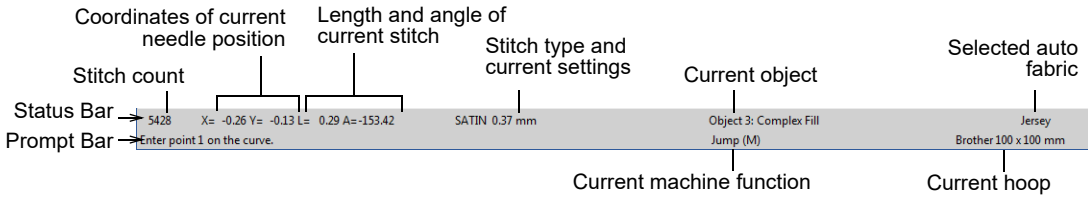


Related topics...

- Set up multiple views
- Menus & Toolbars

Status & Prompt bars

The **Status** and **Prompt** bars at the bottom of the **Wilcom Workspace** design window provides continuous display of current cursor position status as well as instructions for use of selected tools.



Information includes:

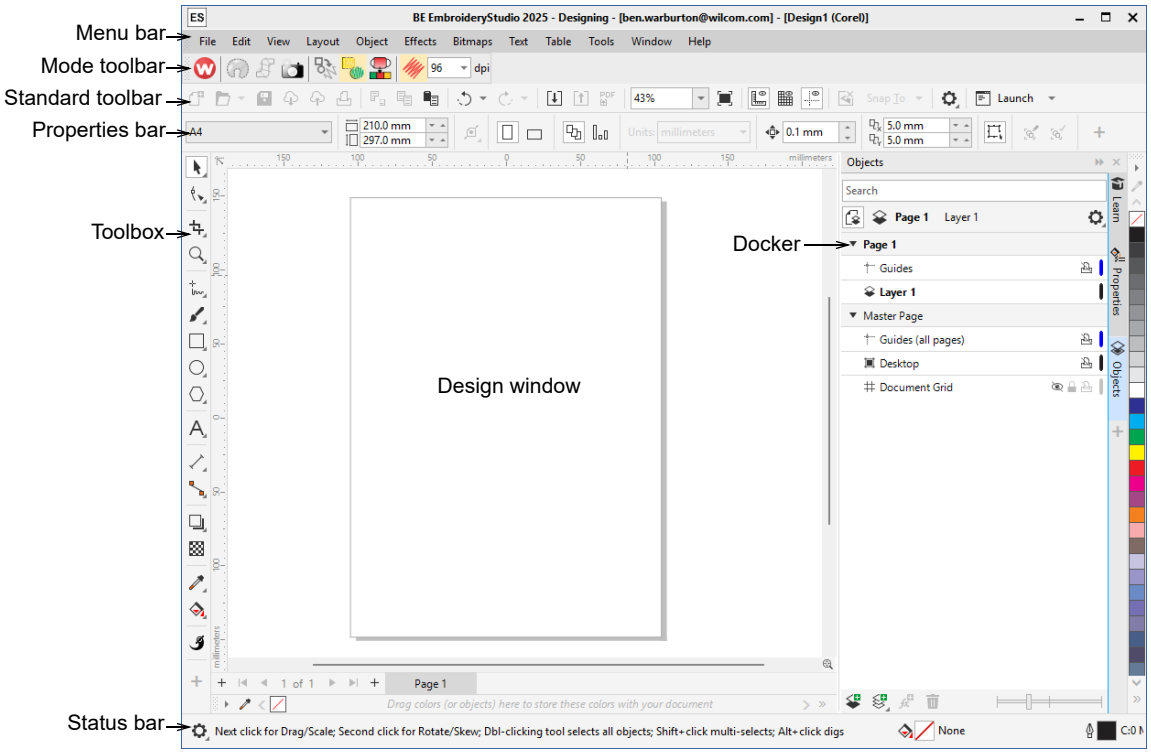
Item	Details
Prompt	Guides you through use of selected functions.
Stitch count	Total number of stitches in design.
Design size	Width and height.
Coordinates	Coordinates of current needle position (X/Y), and length (L) and angle (A) of current stitch.
Current fabric	Fabric settings take into account the type of fabric you are stitching on.

CorelDRAW Graphics window

Use Mode > CorelDRAW Graphics to import, edit or create vector artwork as a backdrop for embroidery digitizing, manual or automatic.

In Graphics mode, click Mode > Show Embroidery to show or hide embroidery components.

CorelDRAW Graphics window includes the entire suite of CorelDRAW® Graphics Suite drawing tools. This mode allows you to create and edit vector graphics using the **CorelDRAW Graphics** toolset which offers many sophisticated techniques for drafting outlines and shapes onscreen.



In addition to the CorelDRAW® Graphics Suite toolset, **CorelDRAW Graphics** provides capabilities to convert vectors and vector text directly to embroidery objects. Imported vector graphics or created text can be converted directly to embroidery designs. You can use **CorelDRAW Graphics** to insert or paste third-party vector graphics such as clipart for use in embroidery designs. Alternatively, insert, paste or scan bitmap artwork for use as digitizing templates or 'backdrops'. Here are some of the prominent **CorelDRAW Graphics** interface elements.

Element	Description
Menu bar	This contains application menus such as File, Edit, View, etc.
Mode toolbar	This contains the universal tools and icons which are visible in both Wilcom Workspace and CorelDRAW Graphics windows.
Standard toolbar	This contains commonly used tools and commands which are specific to and only visible in CorelDRAW Graphics.
Properties bar	This contains the commands and controls that relate to the active tool in the Toolbox or active object in the design window in CorelDRAW Graphics.
Toolbox	This contains the drawing/editing tools specific to and visible only in CorelDRAW Graphics.
Design window	This contains the main work area where you create and edit graphics objects as well as embroidery objects when you switch to Wilcom Workspace.
Color palette	This contains the graphics color palette which is specific to and only visible in CorelDRAW Graphics.
Docker	In CorelDRAW Graphics, this contains graphics-specific dockers.
Status bar	This contains current status information visible only in the CorelDRAW Graphics.

For a detailed description of the CorelDRAW® Graphics Suite interface, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **Help** menu.



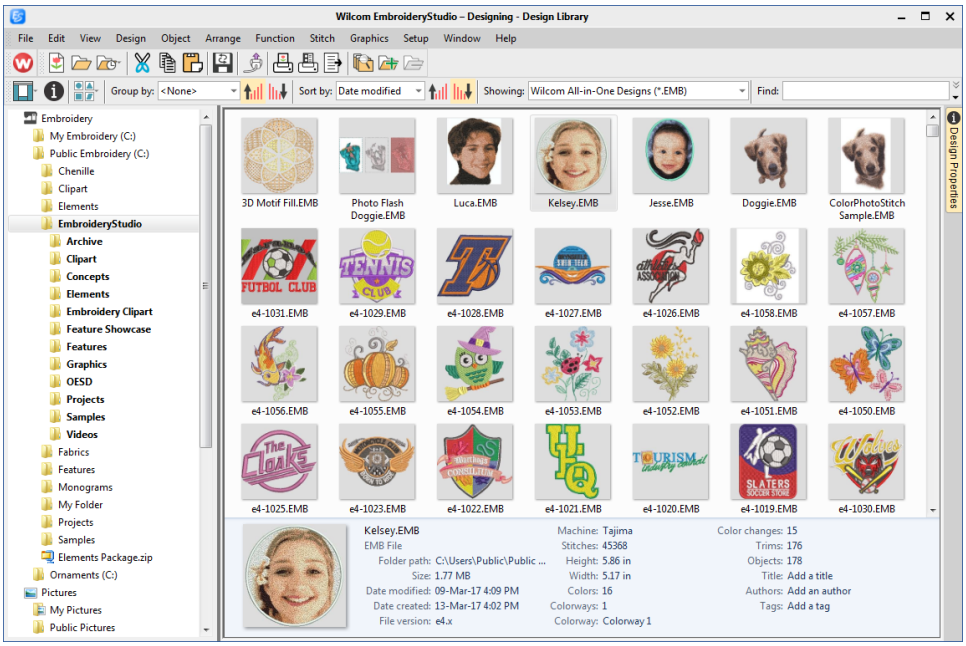
Note: CorelDRAW® needs to be registered before it can be used by BE EmbroideryStudio. Registration provides CorelDRAW® Standard Membership which gives you access to content – clipart, fonts, stock photos, templates – via Corel CONNECT. It also gives you access to the latest CorelDRAW® updates.

Design library



Click Mode > Design Library to open a window from which to search and manage designs and job orders.

Design Library is a design or job order management tool. Use it to browse design and artwork files stored on your local PC or company network. **Design Library** capabilities make it fast and practical for daily commercial use, avoiding the need to switch to and from **File Explorer**. It recognizes all file formats used by BE EmbroideryStudio.



Design Library is installed with sample designs in EMB format. These show various stitching techniques and effects, including 'multi-decoration' and multiple colorways. When starting out as a new user, make sure to spend time exploring these designs.

Toolbars & dockers

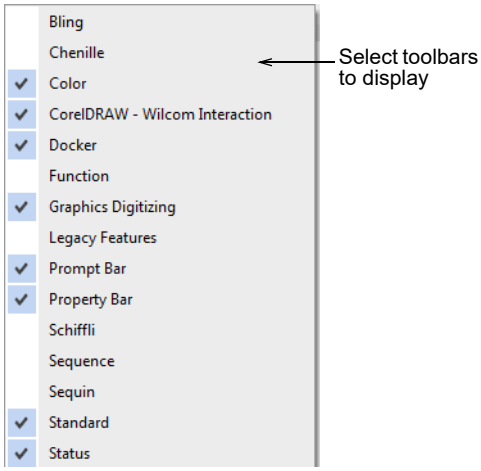
The BE EmbroideryStudio design window provides 'dockers' for key functions. **Wilcom Workspace** has docking panes for **Color-Object List**, **Object Properties**, **Overview Window**, and so on. All panes are dockable on either side of the design window.

Access toolbars

Toolbars provide quick and easy access to most BE EmbroideryStudio commands. Show or hide them at your convenience. As you get more familiar with the system, you may prefer menu and keyboard commands.

To access toolbars...

- Select **Window > Toolbars** or right-click the docking area at the top or left of the design window. The **Toolbars** menu opens.



- Click to activate one or many.

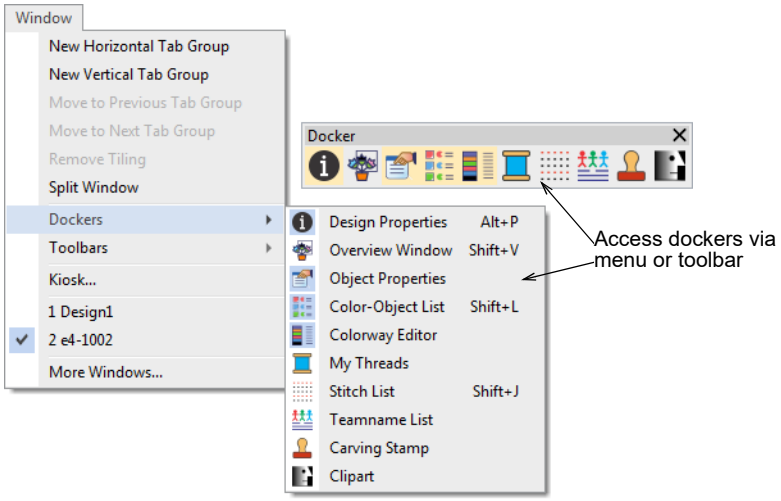
Work with dockers

	Use Docker > Color-Object List to view and sequence design objects.
	Use Docker > Object Properties to preset properties or adjust properties of selected objects.
	Use Docker > Colorway Editor to assign thread colors to color palette and define colorways.

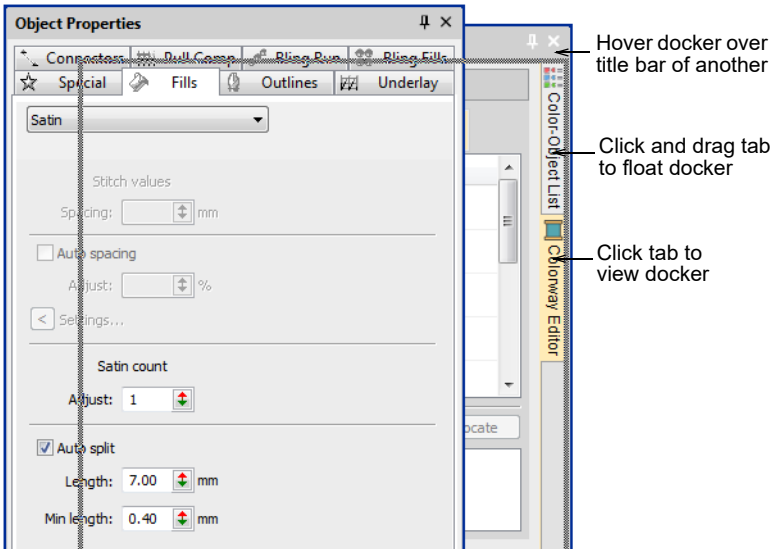
In **Wilcom Workspace** mode, there are three important dockers:

Docker	Description
Object Properties	The most important is the Object Properties docker. Use it together with the Property Bar to access properties of selected embroidery objects.
Color-Object List	The Color-Object List offers an easy way to selectively view and resequence color blocks and objects.
Colorway Editor	When you create a new design, it includes a single default colorway called 'Colorway 1'. The Colorway Editor allows you to edit default colors, add extra color slots as required, and set up additional colorways.

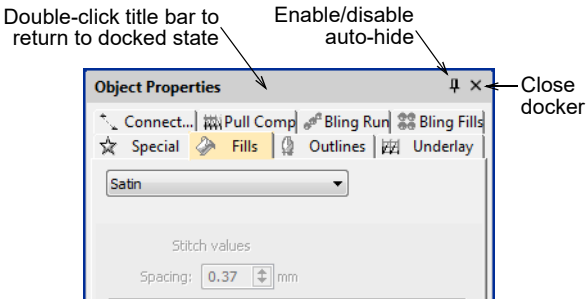
Access dockers via the **Docker** toolbar or **Window** menu. They can be docked on either side of the screen.



All dockers can be fixed or minimized. Dockers may also be 'floated' by dragging the caption bar to the design window or double-clicking it when 'pinned' in place. Dockers can be 'nested' to increase available workspace. When nested, tabs for each docker appear down the side.



Toggle **Auto Hide** next to the **X** close button. Docking panes automatically retract when not in use. By hovering the mouse over the tab, a minimized docker will 'fly out', allowing you to access its functions.



Related topics...

- Access object properties
- View selected color blocks

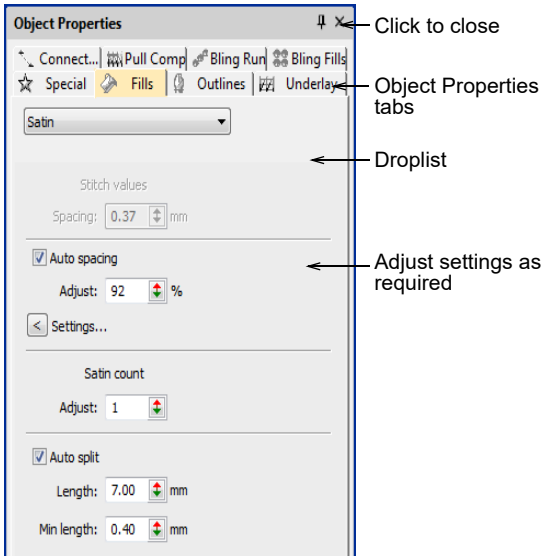
Access object properties

Use Docker > Object Properties to set properties of selected objects.

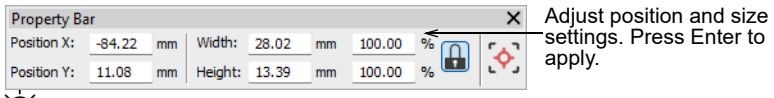
The most important docker is **Object Properties**. Use it together with the **Property Bar** to access the properties of selected embroidery objects.

To access object properties...

- Open the **Object Properties** docker by any of the following means:
  - Click the **Object Properties** toggle.
  - Double-click an object in the design window.
  - Right-click an object and select from the popup menu.
  - Right-click an object in the **Color-Object List** and select from the popup menu.



- Select a tab to access the properties to adjust.
- Adjust general properties – width, height, position – by means of the **Property Bar**. Press **Enter** to apply. Press **Esc** to discard changes.



Tip: You can specify units of measurement when entering values into a measurement control.

Related topics...

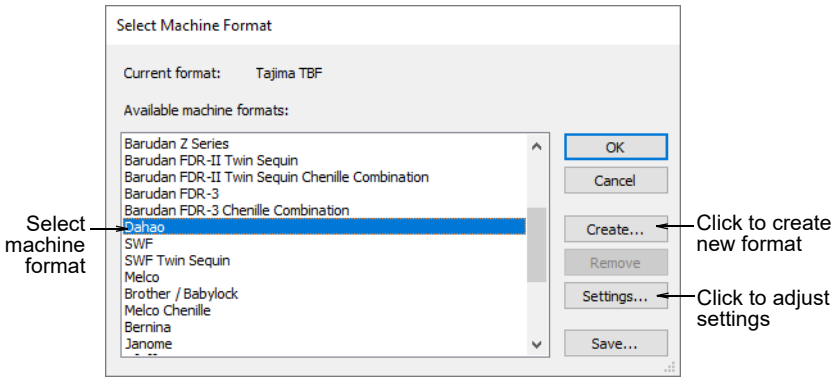
- Set measurement units

Embroidery machine formats

Different embroidery machines speak different languages. They have their own control commands for the various machine functions. When you create a design, you need to select a format corresponding to the embroidery machine you intend to use. BE EmbroideryStudio uses the format to translate digitized designs into a specific machine-readable form. You don't, however, need to change a design's 'native machine format' in order to output to a different machine. If a selected machine format does not support a particular function in the design, it is simply ignored on output.

To select a machine format...

1 Select **Design > Select Machine Format**.



2 Select the required machine format from the list.

Note: You can change the machine format itself if machine values do not correspond precisely to your particular machine. Or you can create a new format based on a selected one.

Embroidery file formats

Embroidery designs are saved in one of two formats – 'design' (outline) or 'machine' (stitch) file format.

Note: For details of the formats supported by BE EmbroideryStudio, see Embroidery file formats.

Design files

Design files, also known as 'all-in-one' files, are high-level formats which contain object outlines, object properties and stitch data. When you open a design file in the software, corresponding stitch types, digitizing methods and effects are applied.



Design files can be scaled, transformed and reshaped without affecting stitch density or quality. After modification, you can choose to save your design to EMB format, or to a different format altogether.

Note: Some design files, such as Wilcom INP and Gunold PCH, contain incomplete information. Old format ESD designs are somewhere between a design file and a machine file. They contain stitch data, information about selected stitch types, densities, and machine functions. They do not, however, contain information about shapes and lines. ESD files require object/outline recognition if you want to perform object editing in BE EmbroideryStudio.

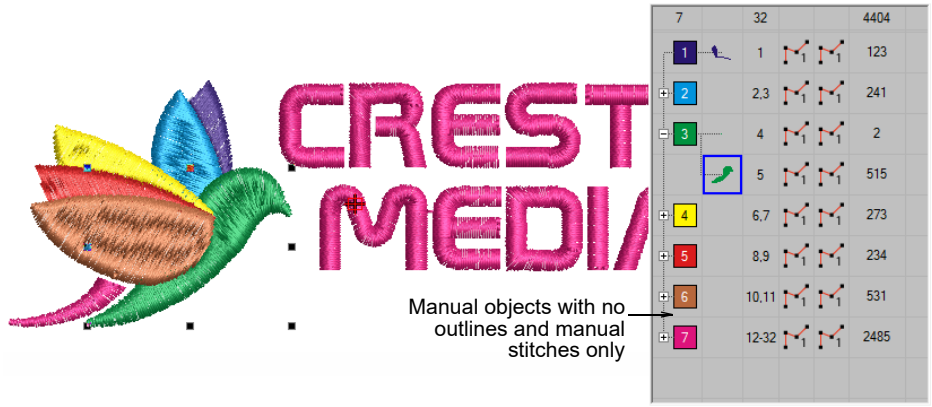
Machine files

Different embroidery machines understand different languages. Each has its own control commands for the various machine functions. Before you can stitch a design, it must be in a format which can be interpreted by the machine. Machine or 'stitch' files are low-level formats for direct use by embroidery machines. They contain only stitch coordinates and machine functions. They are generally created on-the-fly when sending designs to machine. Or they are converted when saving to disk or memory stick.

Manual objects

When they are read into BE EmbroideryStudio, machine files do not contain object information such as outlines or stitch types, but present the design as a collection of stitch blocks called 'manual objects'. Manual objects are created wherever machine functions – e.g. color changes or trims – are detected in the design. They have only general and connector

properties. Manual objects, in turn, consist of individual stitches, called 'manual stitches'.



File sources

While embroidery files are broadly classified as 'design' (outline) or 'machine' (stitch), BE EmbroideryStudio internally tags files as belonging to one of four types – native design (A), imported outlines (B), processed stitches (C), or imported stitches (D).

Grade	Description
A	Pure embroidery file created in BE EmbroideryStudio or similar software. These files contain objects, outlines and stitches.
B	Designs read from an outline format such as GNC and saved in ART / EMB / JAN format. Such designs cannot be read directly by BE EmbroideryStudio but once converted, they are treated as Grade B designs.
C	Designs read from machine files – EXP, DST, PES, etc – where stitches have been converted to objects.
D	Designs read from machine files where stitches have NOT been converted to objects.

Native EMB designs as well as ART and JAN files are all 'Grade A' embroidery formats read and written by BE EmbroideryStudio. They are called 'Grade A' because they contain a complete set of design information in a single file – object outlines, properties, stitches, thread colors, thumbnail image, and comments. There are three other grades of embroidery file. It goes without saying that only Grade A files provide 100% perfect scaling and transformation.

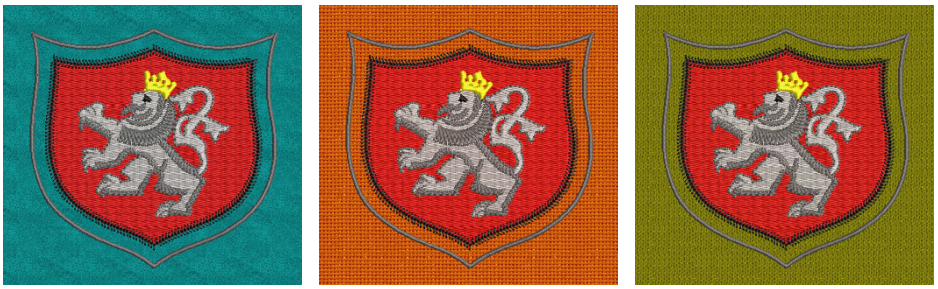
Note: For information about the source of a design file, refer to the **Design Information** docker.

Related topics...

- View design details in BE EmbroideryStudio

Working with design files

BE EmbroideryStudio handles all commercial and home stitch file formats. In fact native EMB files are read and written by leading home embroidery systems.



Whenever you start BE EmbroideryStudio, a new file – **Design1** – is automatically created. By default, **Design1** is based on the NORMAL template. Templates contain preset styles, default settings or objects, to make digitizing quicker and easier. BE EmbroideryStudio provides a set of optimized fabric settings that take into account the type of fabric you are stitching on.

Open designs



Use Standard > Open Design to open an existing design.

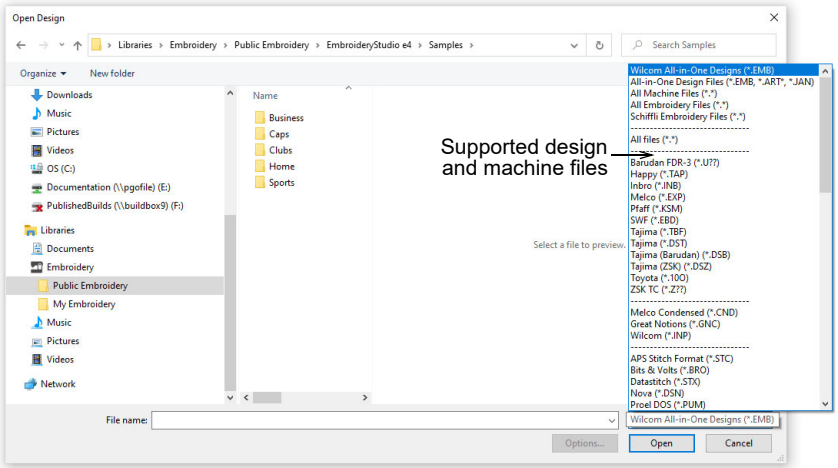


Use Standard > Open Recent Designs to open a design from a list of recently opened designs.

BE EmbroideryStudio opens a comprehensive range of both 'design' and 'machine' files.

To open a design...

1 Click the **Open Design** icon.



2 Navigate to the design folder. The dialog filter defaults to 'Wilcom All-in-One' designs which displays all native EMB design files. Adjust the filter as required...

Filter	Files
All-in-one design files	All design files supported by BE EmbroideryStudio including JAN and ART.
All machine files	Filter by machine file format only. No design files.
All embroidery files	All supported 'design' and 'machine' files.

3 Select a design or designs.

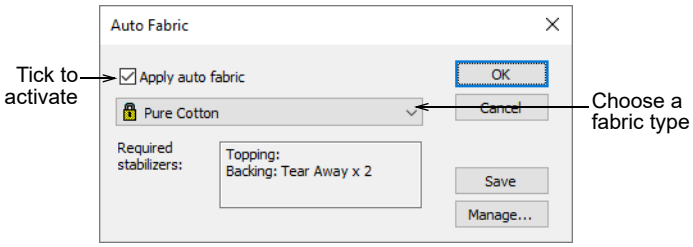
- To select a range, hold down **Shift** then select first and last.
- To select multiple items, hold down **Ctrl** and click.

Tip: For more information about a selected file, right-click and select **Properties** from the popup menu.

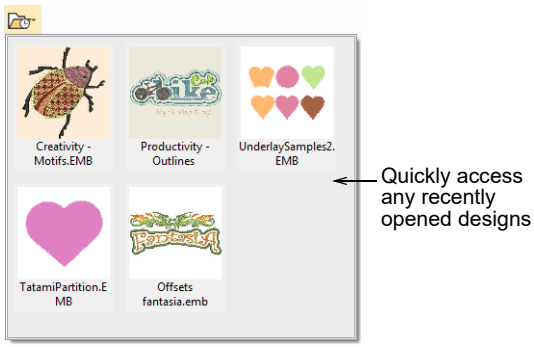
4 For file types other than EMB or ESD, click **Options** and adjust recognition options as preferred.

5 Click **Open**.

6 Optionally, select **Design > Auto Fabric** to apply preferred fabric settings.



7 Whenever you want to work on a recently opened design, use the **Open Recent Designs** for quick access.



8 If the **Backup Copy** option is active, a backup copy of the current design file is automatically created in its **previously** saved form. Access the backup folder via the **File > Open Backup Design** command.

Tip: You can also open designs from proprietary embroidery disks, or read them from paper tape.

Related topics...

- Viewing design information

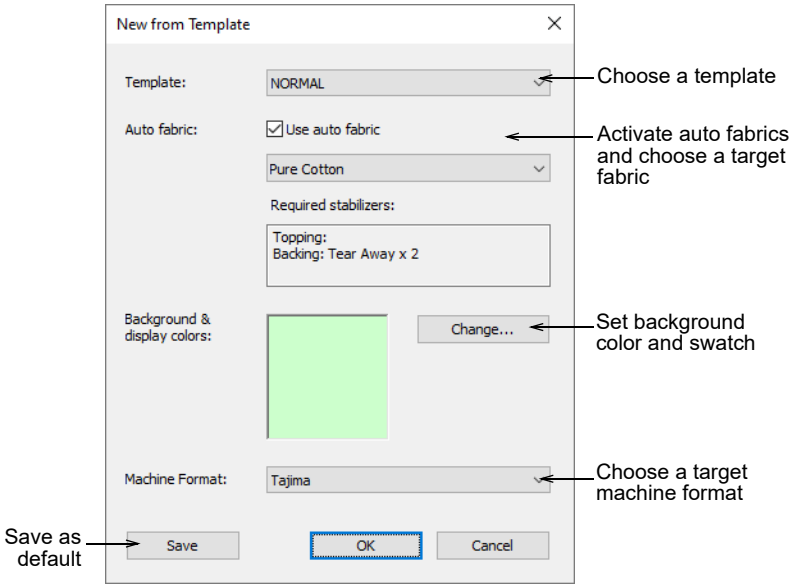
Create designs from templates

Use Standard > New Design to start a blank design based on the currently selected template. Hold down Shift and click to open New from Template dialog.

Templates are special files used to store styles, default properties, as well as fabric settings. Although the NORMAL template settings are suitable for a range of fabrics, selecting an auto fabric further adjusts settings.

To create a design based on a template...

1 Select **File > New from Template** or, holding down the **Shift** key, click **New Design**. The **New from Template** dialog opens.



2 Select a template from the droplist. When you create a file based on a template, its settings are copied to the new design.

3 If you want, additionally, to use fabric settings, tick the checkbox. From the droplist, choose a fabric type nearest the one you intend to work with.

4 Optionally, choose a background to match the selected auto fabric.

5 Choose a target machine from the droplist. You normally decide which machine format to use before you start. However, formats can be changed at any time.

Tip: You can customize or add formats to suit the target machine.

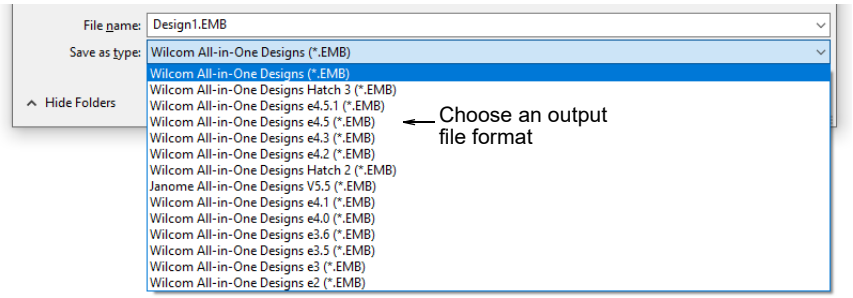
6 Click **OK** to accept. A blank design opens in the design window based on the selected template. Settings will apply to all newly created embroidery objects. Any selected fabric is displayed in the **Status Bar**.

Tip: The **New from Template** option is activated by default. Turn it off if you prefer work without predefined fabric settings.

Save & close designs

Use Standard > Save Design to save the current design. Right-click to open the Save As dialog.

The **Save Design** option allows you to save a design to the latest native EMB 'all-in-one' format. To save designs to previous formats, choose **File > Save As**.

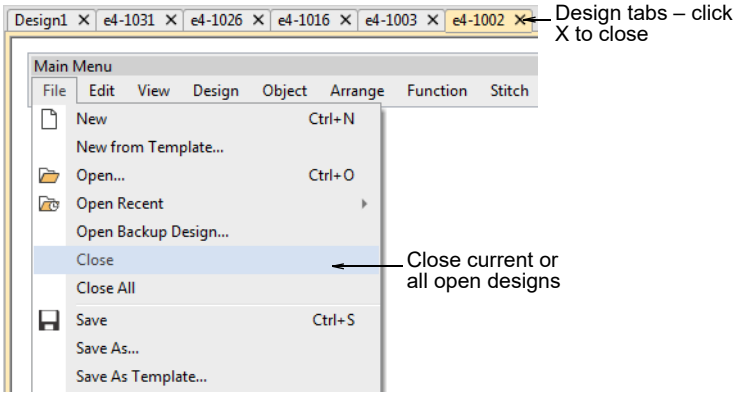


Native EMB files contain a complete set of design information in a single 'all-in-one' file – object outlines and properties, actual stitches and machine functions, thread colors, a picture icon, summary information, and more. Even the original design bitmap image can be included in EMB format. Only native EMB files provide 100% perfect scaling and transformation. BE EmbroideryStudio lets you save designs in various native EMB formats. This can be important if your suppliers or clients use previous versions of Wilcom software.

Caution: If a design feature is not available in the selected file type, it will be converted. For example, **Flexi Split** stitching may be changed to plain tatami. If the design contains a bitmap using a color depth unsupported by the selected file type, it will be removed from the resulting file.

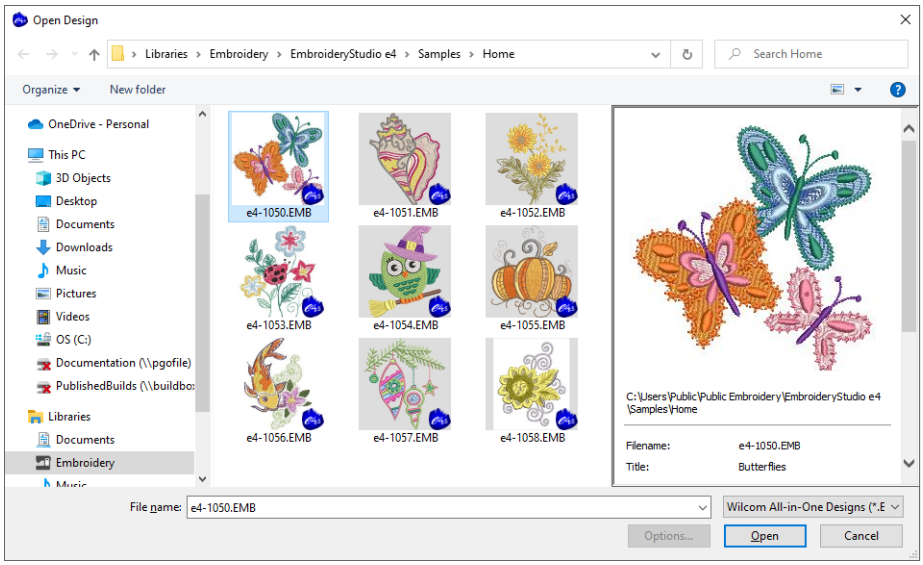
Closing designs

To close designs, use the commands in the **File** menu to close open designs individually or all together. Alternatively, use the design tabs to close open designs.



Design thumbnail display

Design thumbnails reflect display settings at the time of saving. When a design is saved, the design thumbnail is generated using all visible objects as well as the current design background. If you have bitmap or vector display turned on, these too appear in the thumbnail.



Related topics...

- View embroidery components

Send designs as email attachments

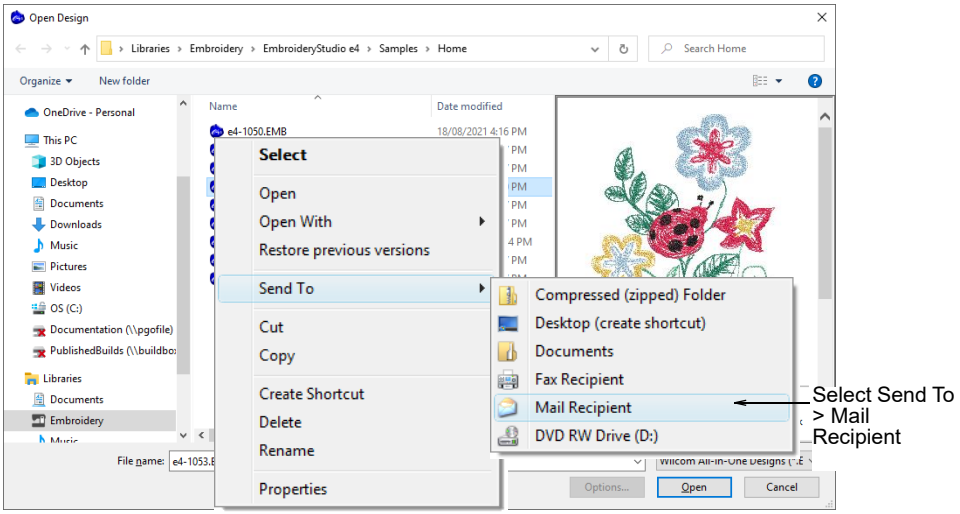
Use Standard > Open Design to send a design as an email attachment.

You can attach designs to emails from the design window or via the **Open Design** dialog.

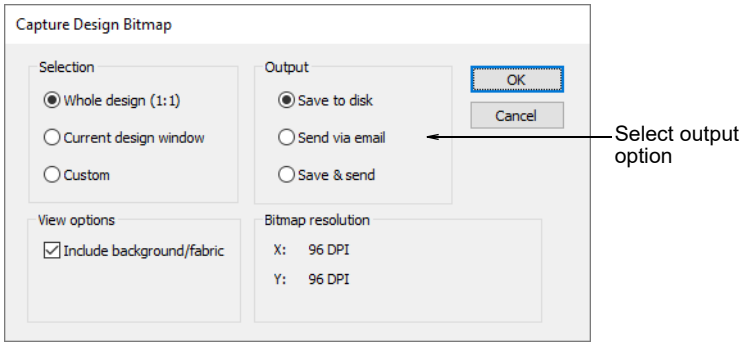
To send designs as email attachments...

- With the design open in the design window, select **File > Send via Email**.
- Alternatively, click the **Open Design** icon. Select the file to send, then right-click it. The popup menu appears. Select **Send To > Mail Recipient**.

  Your default email system is launched and a new email created with the design file attached.

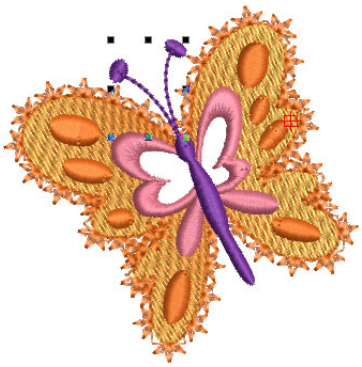


- Enter mailing details and send.
- Optionally, to output a design as a bitmap, select **File > Capture Design Bitmap**.



Selecting objects

BE EmbroideryStudio provides various ways to select embroidery objects. It supports point & click, selection marquee and multiple object selection. The **Color-Object List** provides an easy way to select objects and colors and access their properties.



Tip: Depending on your background, you can change display colors for unsewn stitches, selected objects, object outline, grid and guides. See also Change display colors.

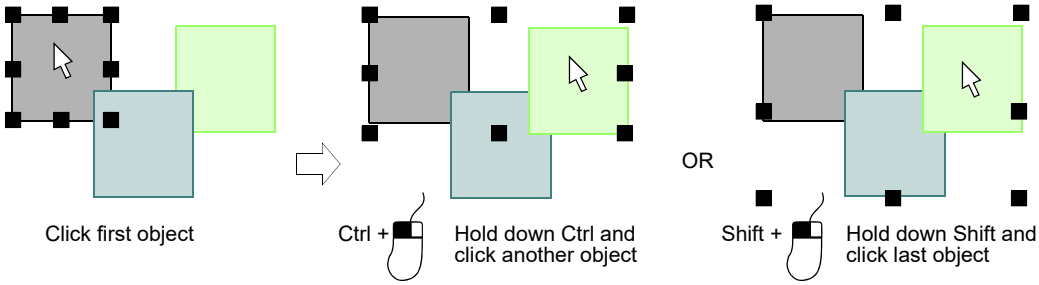
Select objects with selection tools

	Use Select > Select to select individual objects as well as groups or ranges of objects.
	Use Select > Freehand Select to select object at current by drawing a freehand line.
	Click Select > Polygon Select to select objects with a selection marquee.
	Click Select > Polyline Select to draw a line through the object to select.

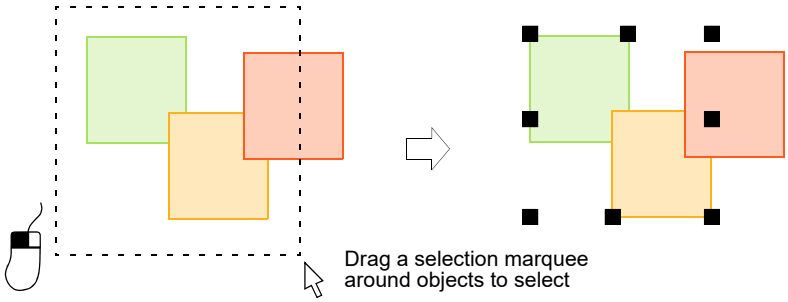
Use selection tools to select individual objects as well as groups or ranges of objects.

To select objects...

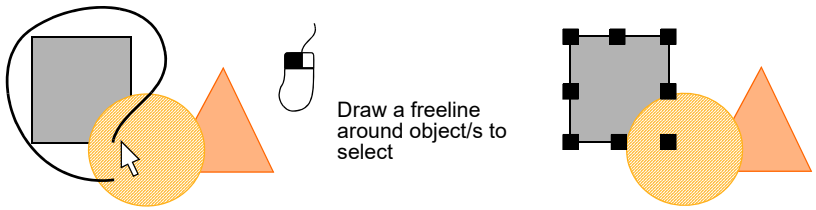
- The simplest way to select an object is to point and click with the **Select** tool activated. Selection handles appear around selected objects.



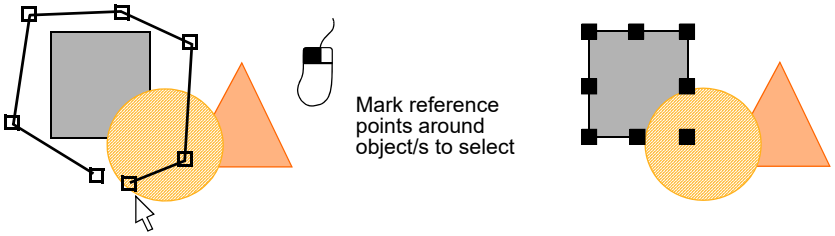
- To select multiple items, hold down **Ctrl** as you click. To select a range, hold down **Shift** as you click.
- Alternatively, drag a selection marquee around the objects you want to select.



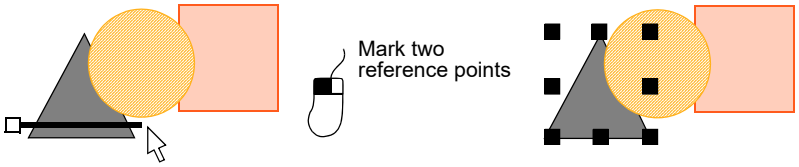
- Where you have a mixture of objects – outline, closed-fill, open-fill – click through holes or gaps to select objects beneath.
- Alternatively, use the **Freehand Select** tool to draw a freeline around the object/s you want to select. Press **Enter** to close.



- Alternatively, use the **Polygon Select** tool to mark reference points around the object/s you want to select. Press **Enter** to close.



- Or use **Polyline Select** to mark two or more reference points to create a line touching all objects you want to select.



- To select an object which is sitting behind another filled object, hold down the **2** key and click until the underlying object is selected.
- To select all objects, select **Edit > Select All** or press **Ctrl+A**. Selection handles appear around the entire design.
- Deselect objects by any of the following means:
  - To remove an object from a selection, hold down **Ctrl** and click.
  - To deselect all, click an empty area of the background or a different object.
  - Alternatively, press **Esc** or **X** to deselect all or select **Edit > Deselect All**.

Tip: BE EmbroideryStudio also provides a method for you to select individual objects within grouped objects. See Select objects within groups for details.

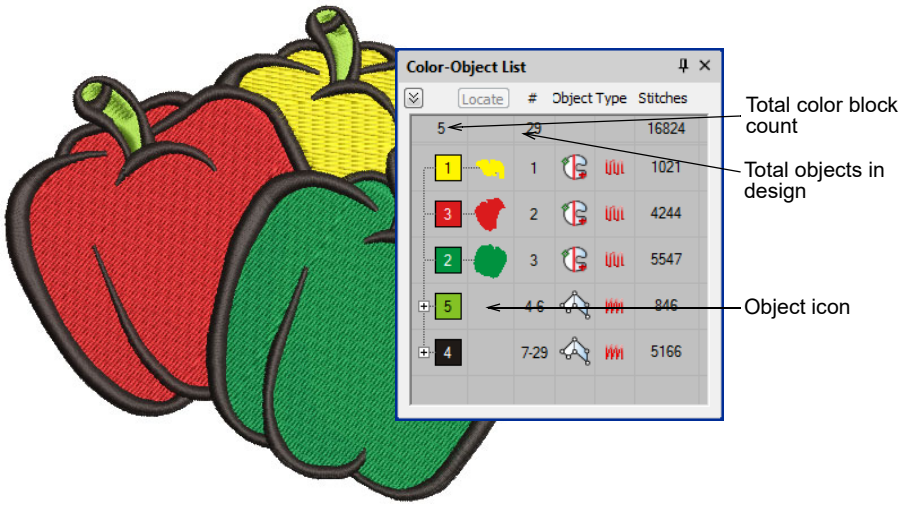
Select objects with Color-Object List

Use Docker > Color-Object List to toggle the Color-Object List on/off. Use it to view and sequence objects in a design.

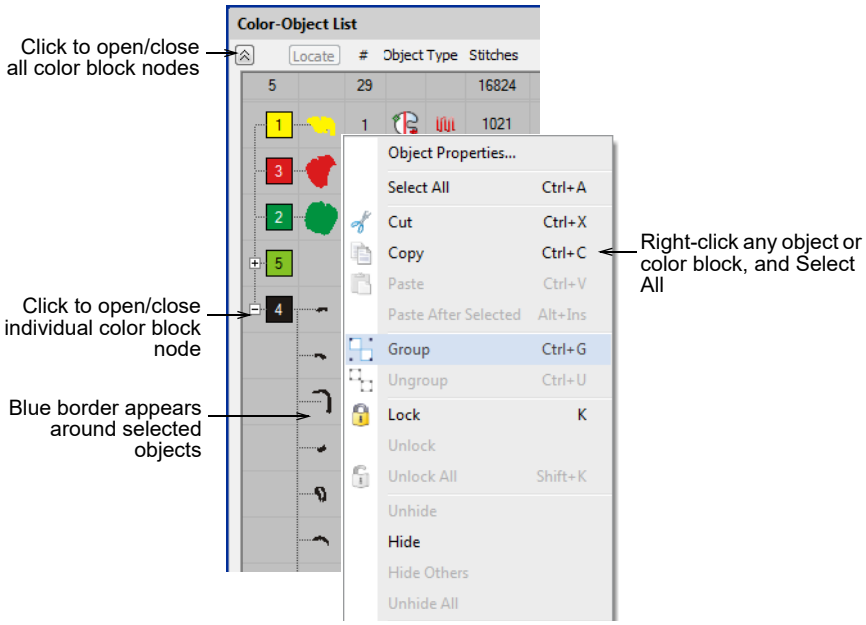
The **Color-Object List** offers an easy way to select objects and selectively view them. It is synchronized with the design window, dynamically updating whenever you edit.

To select objects by Color-Object List...

1 Click the **Color-Object List** icon to open the docker. A separate icon for each color block and each object in the design appears in order of stitching.



2 Click a 'node' to open or close a color block and see its components.



3 Click an icon to select a color block and/or individual objects.

- To select a range of items, hold down **Shift** as you click.
- To select multiple items, hold down **Ctrl** as you click.

- To select all items, right-click and choose **Select All** from the popup menu.
- To deselect, click away from the design.

Note: You can also use the **Color-Object List** to group and lock objects as well as cut, copy and paste, resequence, and branch objects. See Combining Objects for details.

Measurements

BE EmbroideryStudio provides a set of grid lines to help accurately align or size embroidery objects.

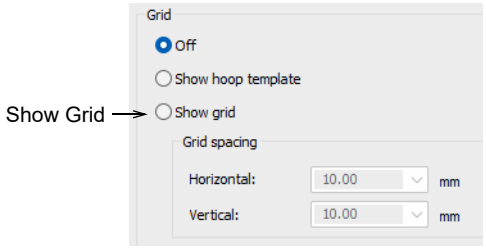
Display grids, rulers & guides

	Click View > Show Grid to show or hide the grid. Right-click for settings.
	Click View > Show Rulers and Guides to show or hide rulers and guides. Right-click for settings.
	Drag the ruler zero point to reset a new ruler zero point.

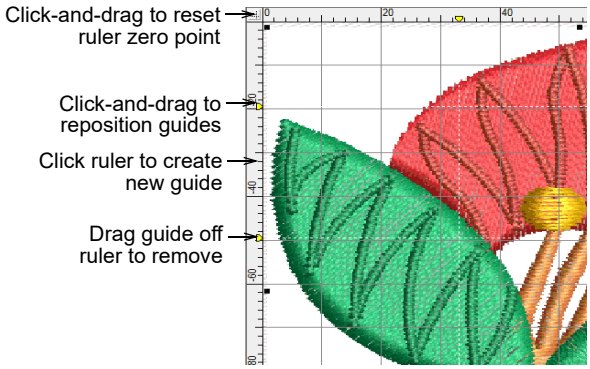
Use grid lines to help accurately align or size embroidery objects. Default grid spacing is 10mm x 10mm. Invoke rulers to accurately position and scale objects. The unit of measurement – mm or inches – defaults to the regional settings in the MS Windows® Control Panel.

To display grids, rulers and guides...

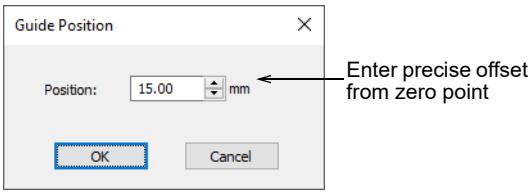
- Click the **Show Grid** icon or press **Shift+G**. Right-click for settings. You can change grid spacing, select a reference point and turn **Snap to Grid** on or off in the **Options** dialog.



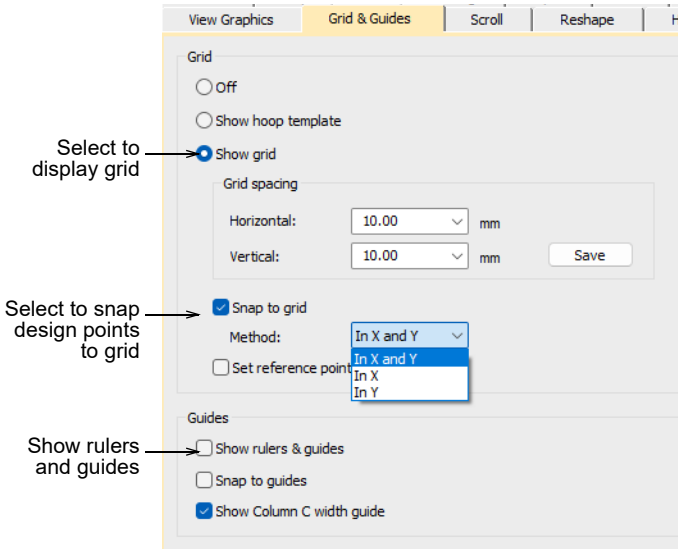
- Click the **Show Rulers & Guides** icon or press **Ctrl+R**.



- Reset the ruler zero point by clicking and dragging the button in the top left-hand corner of the ruler.
- To create a guide, click either ruler – horizontal or vertical – and click-and-drag it into position. Multiple guides can be created and just as easily removed.
- For more accurate positioning of guides, double-click the yellow handle. In the **Guide Position** dialog, enter a precise distance from zero point and click **OK**.



- To remove a guide, drag the yellow guide handle off the design window.
- Optionally, turn on the **Snap to...** feature via the **Options** dialog.



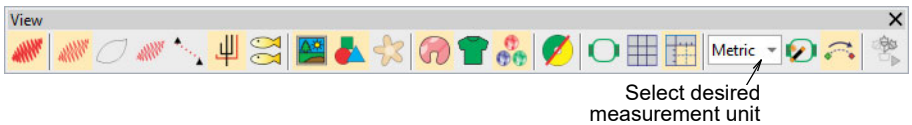
- You can also change the color of grid and guidelines via the **Background & Display Colors** dialog.

Related topics...

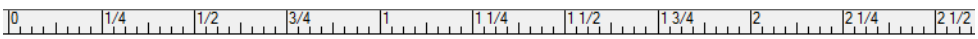
- Change display colors
- Grid display options

Set measurement units

The first time you run BE EmbroideryStudio, the measurement system will default to whatever the operating system is using. However, you can change measurement units from within BE EmbroideryStudio.

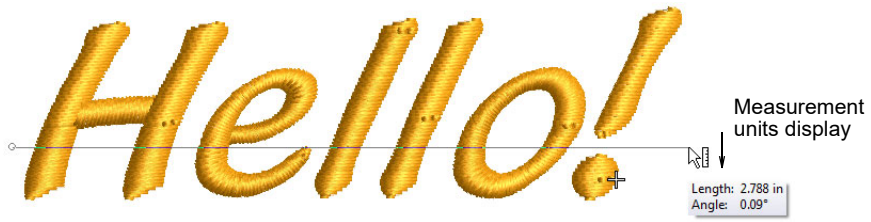


Note: Technically, when you select 'U.S.', you will get the imperial measurement system – inches, feet, and yards. Inch rulers are displayed in 1/16, 1/8, ¼, ½, and 1" divisions. The grid size can be set in decimal inches.

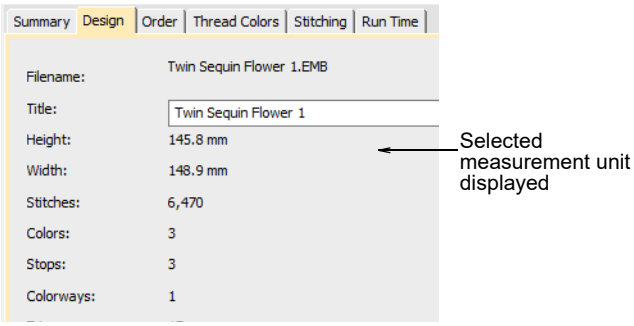


Ripple-on effects

Changing the measurement system will change the units used by most controls.

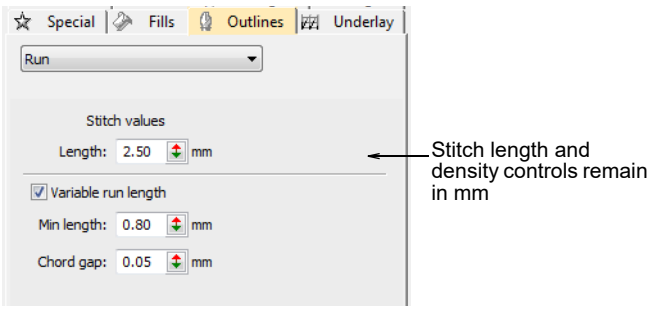


Relevant fields also appear in the selected unit of measurement – e.g. **Design Information** docker as well as **Production Worksheet**.



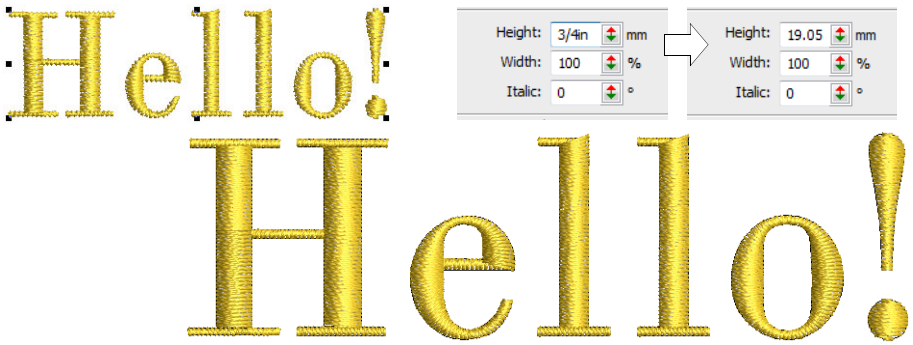
There are, however, exceptions to this rule:

- Stitch List: this used to be displayed in inches for U.S. systems. But these are stitch lengths, so must always be in mm.
- Stitch length and density controls remain in mm regardless of measurement system. These controls reflect the machine functions as industrial machines are always in millimeters.



Specify measurement units on-the-fly

Alternatively, you can specify units of measurement when typing values into a measurement control. BE EmbroideryStudio automatically converts the value.



For example, if a US customer orders lettering in inches – say ¾" – and the digitizing is to be done in metric, you can enter '3/4in' or '3/4 in' into the **Lettering Height** field and it is automatically converted to 19.05mm.

Note: BE EmbroideryStudio supports both proper and improper fractions – e.g. '1 1/3' as well as '4/3'. It does not, however, support mixed units – e.g. 1'3". Nor does it display values as fractions **after** they are entered, only during.

Supported units

Supported units include:

- millimeters, mm
- inches, in
- feet, ft
- yards, yd
- centimeters, cm
- meters, m

Tip: BE EmbroideryStudio also allows entering units in text form, both English and the language the software is currently running in.

Related topics...

- View design details in BE EmbroideryStudio
- Create lettering with object properties

Measure distances on screen

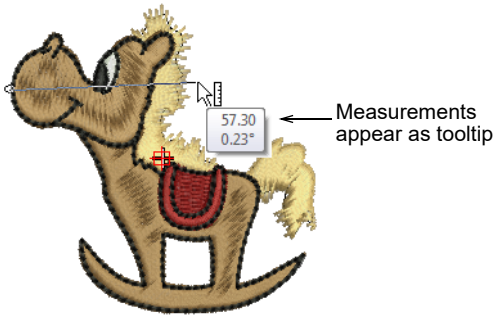
Measure the distance between two points on screen using the **Measure** command. View measurements in the **Status** bar or tooltip.

Tip: For more accurate results, zoom in before you measure. The measurement is always the actual size, and is not affected by the zoom factor.

To measure a distance on screen...

1 Select **View > Measure** or press **M** and click the start point.

2 Move the pointer to the end point and hold the mouse still. If activated, length and angle measurements appear in a tooltip.



The following information displays in the **Status Bar**:

- Position coordinates of the end point (X=, Y=)
- Length of the measured line (L=)
- Angle of the line relative to the horizontal (A=).



Measurements are shown in millimeters or inches according to selection.

3 Press **Esc** again to exit the command.

Chapter 4

Viewing Designs

BE EmbroideryStudio provides many viewing features to make it easier to work with your design. Use zoom and pan functions to study design details. Toggle between 'artistic' and 'technical' views. You can also preview designs in different colors on different fabrics by means of 'colorways'.



BE EmbroideryStudio provides design information in various forms. Approval and production sheets provide essential information such as design previews, size, color sequence information and any special instructions.

Viewing design components

BE EmbroideryStudio provides many viewing modes to make it easier to work with your design. View a design at actual size or zoom in for more details. Pan across instead of scrolling, or quickly change between current and previous views.

Note: You need to calibrate your monitor so that designs at 1:1 scale appear at real size. Do this when you first install BE EmbroideryStudio or whenever you change your monitor. Go to **Setup > Calibrate Screen**.

View embroidery components

When you open an embroidery design in BE EmbroideryStudio, toggles on the **View** toolbar allow you to alternate between 'artistic' and 'technical' views. Use **TrueView** for presentation purposes. You can

include it on approval sheets, or capture it as a bitmap to send via email or publish to a website.



Use these toggles, singly or in combination, to focus on design details. For example, view design outlines, stitches, needle points, or even machine functions such as trims and tie-offs. You can also turn on connectors in stitch view. How you use the view options will depend largely on whether you are editing a design or checking for production readiness.

Note: Design thumbnails reflect display settings at the time of saving. When a design is saved, the design thumbnail is generated using all visible objects as well as the current design background. If you have bitmap or vector display turned on, these too appear in the thumbnail. See also Save & close designs.

Shortcut keys

Available shortcut keys include:

TrueView	Toggle between stitch view and TrueView™.	T
Show Stitches	Toggle embroidery stitching display.	S
Show Outlines	Toggle object outlines.	L

Show Needle Points	Toggle needle points to select stitches for editing.	. (period)
Show Connectors	Toggle connecting stitches to help position entry and exit points.	Shift+C
Show Functions	Toggle display of machine functions such as trims and tie-offs.	Shift+F

Tip: Depending on the design background, you can change display colors for selected objects, unsewn stitches, etc.

Related topics...

- Change display colors

View graphical components

Use View > Show Bitmaps to show and hide bitmap images. Right-click to set image display options.

Use View > Show Vectors to show and hide vector graphics. Right-click to set image display options.

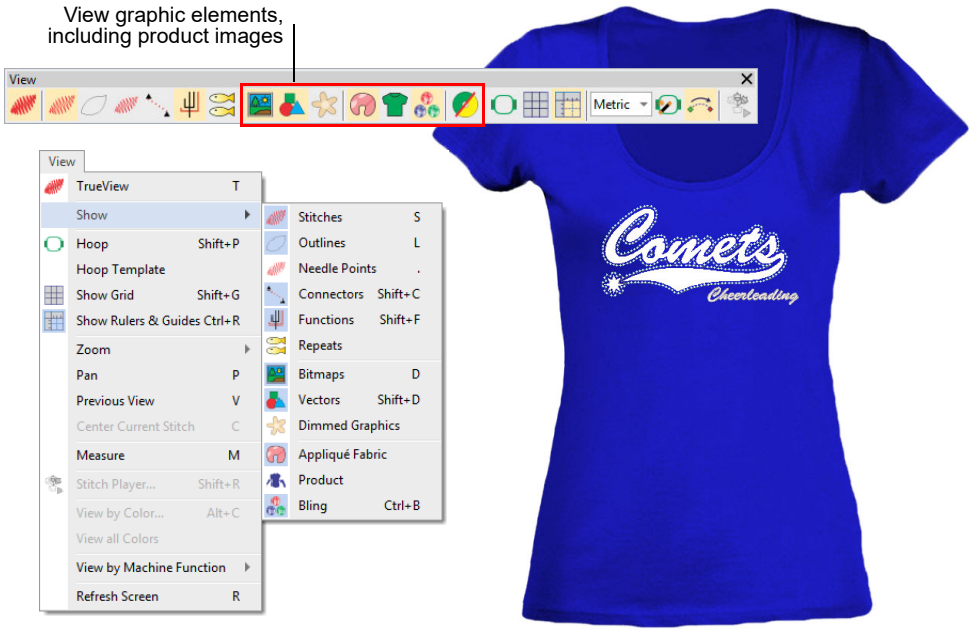
Use View > Dim Artwork to dim graphic backdrops to show stitches more clearly for digitizing.

Use View > Show Appliqué Fabric to toggle the appliqué fabric display on/off.

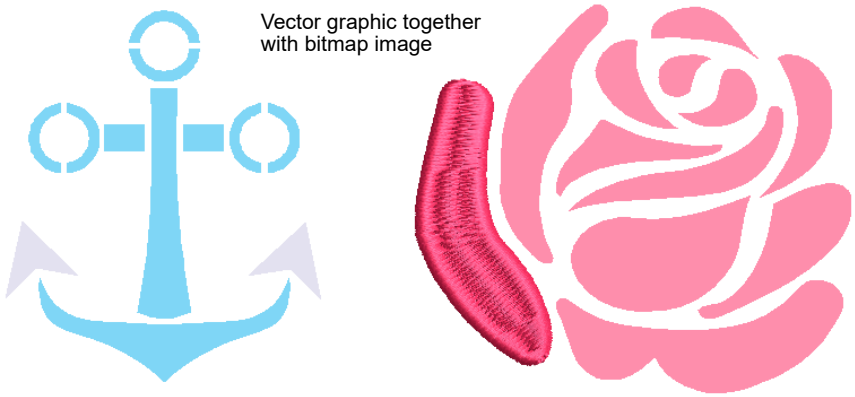
Use View > Show Bling to toggle bling display on/off.

Use View > Show Functions to visualize any sequin or beading components present in the design.

Apart from embroidery, EMB designs may include other components such as bitmap images, vector graphics, appliqué fabrics, product backdrops, and rhinestones or 'bling'. These can also be turned on or off as desired.



- Toggle the **Show Bitmaps** and/or **Show Vectors** icons to selectively view both vector and bitmap images.



- Click **Dim Artwork** to dim the onscreen image to view stitches more clearly when digitizing. The command applies both to bitmap and vector graphics.
- To lock an image in place, select and press **K**.
- Click the **Show Appliqué Fabric** icon to toggle display of appliqué fabric on/off.



Appliqué fabric On



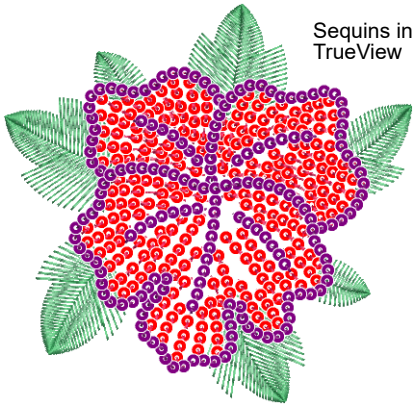
Appliqué fabric Off

- Use **Show Bling** to visualize any bling components present in a design.

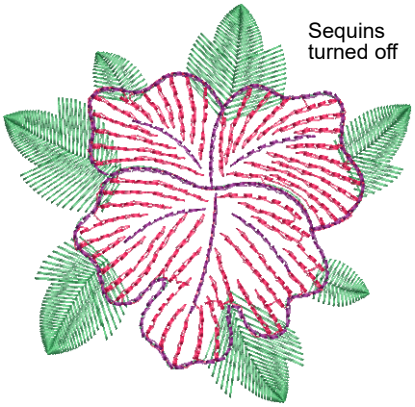


Bling components in TrueView

- Use **Show Functions** to visualize any sequin components present in the design.

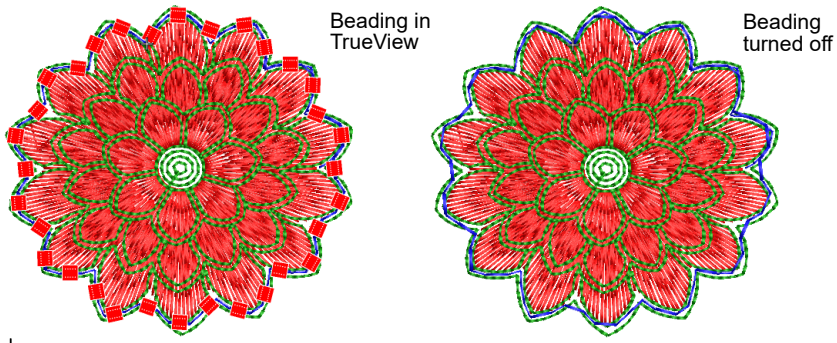


Sequins in TrueView



Sequins turned off

- Similarly, beading can be viewed while **Show Functions** is toggled on.



Tip: Depending on view options set in the **Options** dialog, images display in full color, or dimmed.

Related topics...

Zoom & pan designs

Click Zoom > Zoom to invoke zoom mode. Zoom in or out via left and right mouse clicks, or drag a selection marquee to view design detail.

Click Zoom > Zoom 1:1 to display a design at actual size.

Use Zoom > Zoom In/Out 1.25x to zoom in or out for greater or lesser detail.

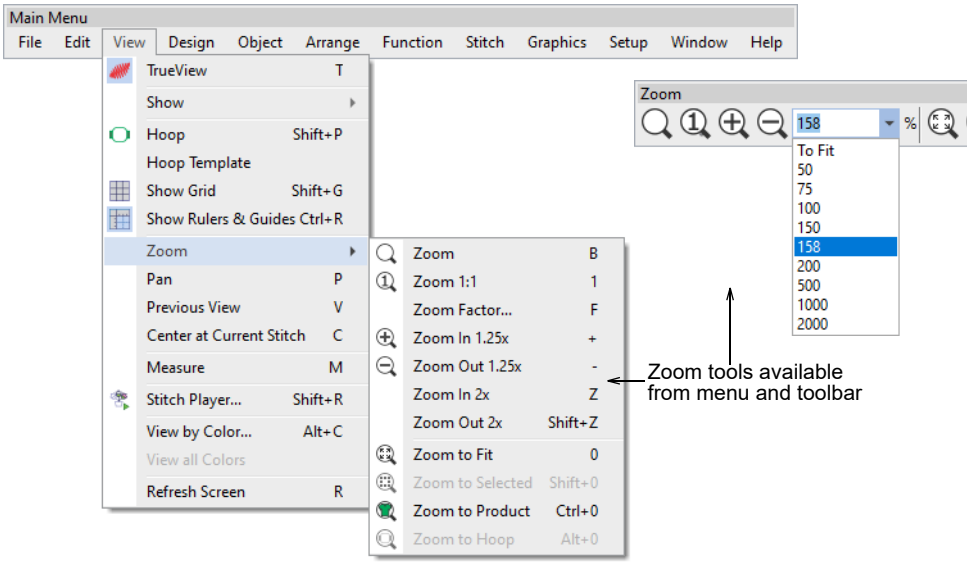
Click Zoom > Zoom to Fit to display the whole design in the design window.

Click Zoom > Zoom to Selected to magnify only selected objects.

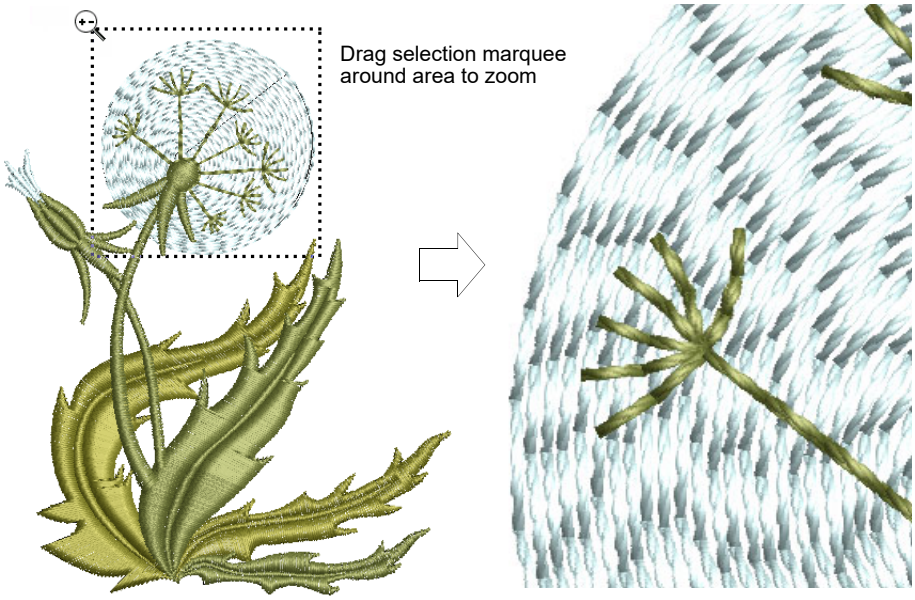
149 Select Zoom > Zoom Factor from the droplist or key in a zoom factor and press Enter.

Zoom tools allow you to magnify your view of the design by zooming in on individual stitches or details. The easiest way to zoom is via mouse wheel. This defaults to 1.25x increments. Zoom behavior can be modified by holding down **Alt**, **Ctrl**, and **Shift** keys while rotating the wheel. Settings can be adjusted in the **Options > Scroll** tab. See also Scroll options.

Zoom tools are also available from the **View** menu and **Zoom** toolbar. Experiment with the available options.

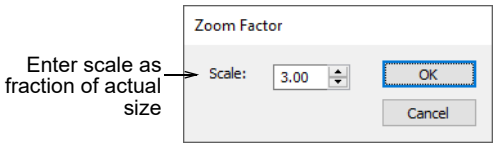


Use shortcuts keys as indicated in the menus. For instance, to zoom in on a section of design, select **View > Zoom** or press **B**, and drag a marquee around the zoom area. To display the whole design, select **View > Zoom to Fit** or press **0**.

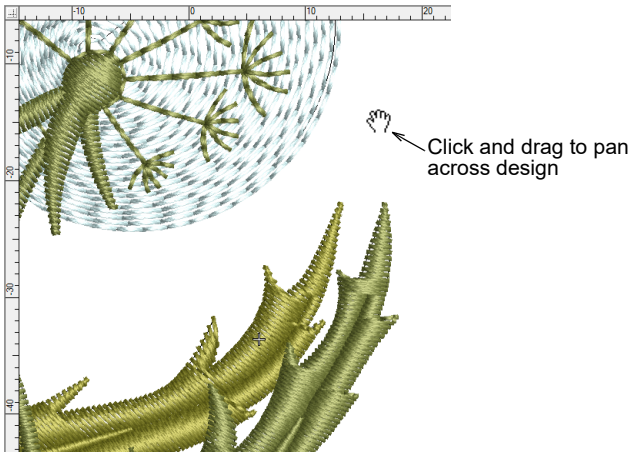


- To display stitches at a particular scale, select a zoom scale from the droplist or key in a zoom factor and press **Enter**. Alternatively, select **View > Zoom Factor** (or press **F**). In the **Zoom Factor** dialog, enter

a scale as a fraction of the actual size, where '1' = '100%', '1.5' = '150%', etc.



- To pan across a design, select **View > Pan** or press **P** and use the 'grabbing hand' tool.

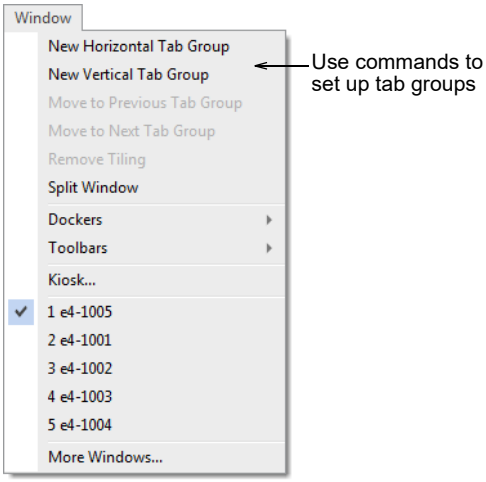


Set up multiple views

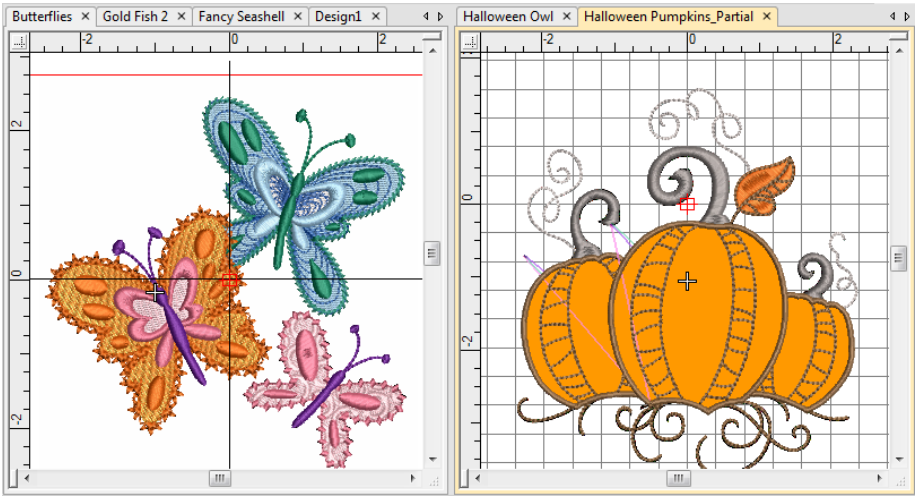
BE EmbroideryStudio gives you multiple views of the same design. It also allows you to switch between open designs by means of design tabs. This also makes it easy to copy/paste between designs, including drag and drop operations.

To set up multiple views...

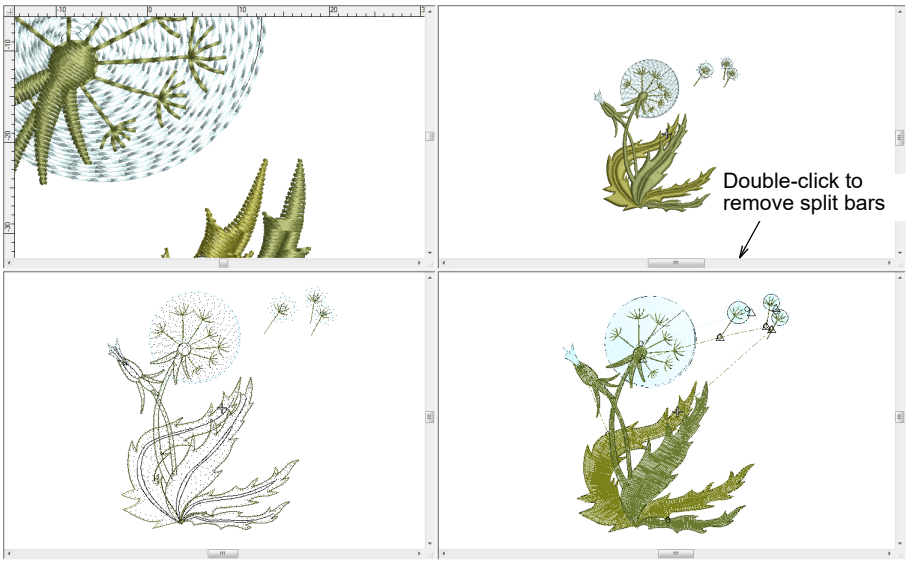
- Use the **Window** menu commands to set up groups of tabs as preferred.



- Set up vertical or horizontal tabbed groups.



- To create multiple views of a single window, use the **Window > Split Window** command. Adjust view settings for each pane.



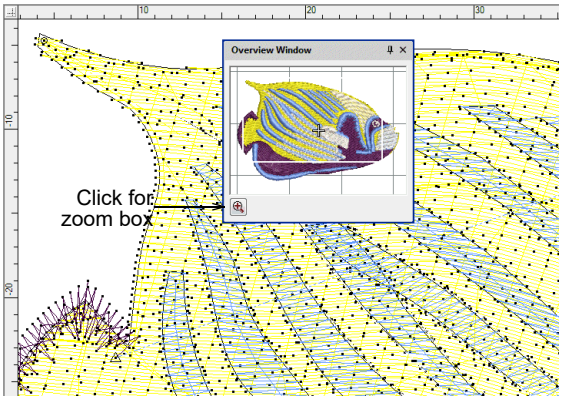
- Use the **Remove Tiling** command to return the design window to normal display mode.

Tip: After certain operations you may need to refresh the screen for a clearer display. Select **View > Refresh Screen** or press **R**.

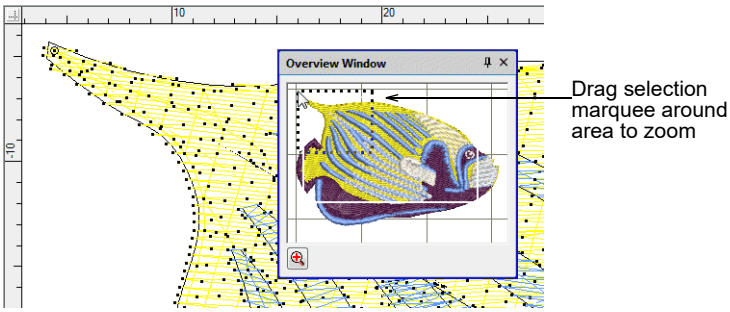
Work with the Overview Window

Use Docker > Overview Window to toggle window display on/off. Use it to view a thumbnail of the design.

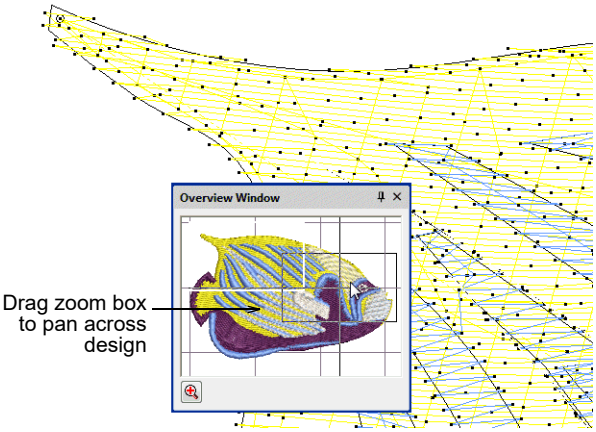
Use the **Overview Window** to view a thumbnail of the design. Use it to pan and zoom the design when working at high zoom factors. Set view settings independently to the design window.



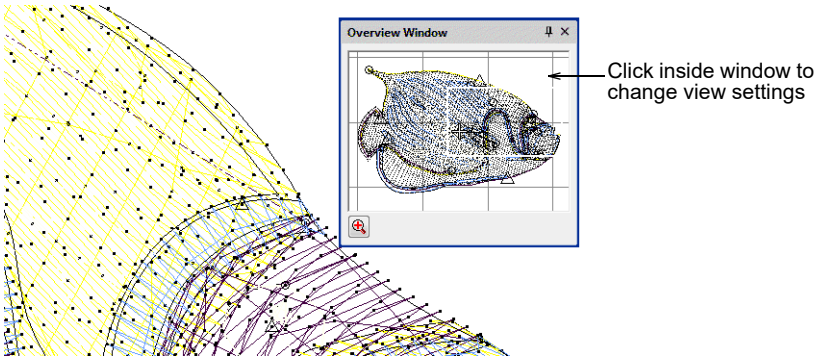
- To zoom in or out, click the **Zoom** button at the bottom of the window and drag a selection marquee around the area to zoom.



- To pan across the design, click and drag the zoom box.



- To change the view settings for the **Overview Window**, click it to make it the active window.

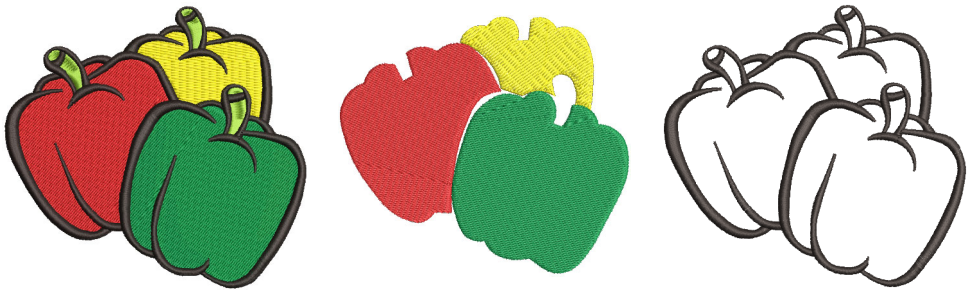


Related topics...

- View embroidery components

Viewing objects & color blocks

BE EmbroideryStudio provides many techniques for selectively hiding or viewing embroidery objects or color blocks.



The **Color-Object List** offers an easy way to selectively view color blocks and embroidery objects. This is useful when re-sequencing.

View selected objects

Use Select > Select to select individual objects as well as groups or ranges of objects.

Use Docker > Color-Object List to toggle the Color-Object List display on and off. Use to view and sequence objects in a design.

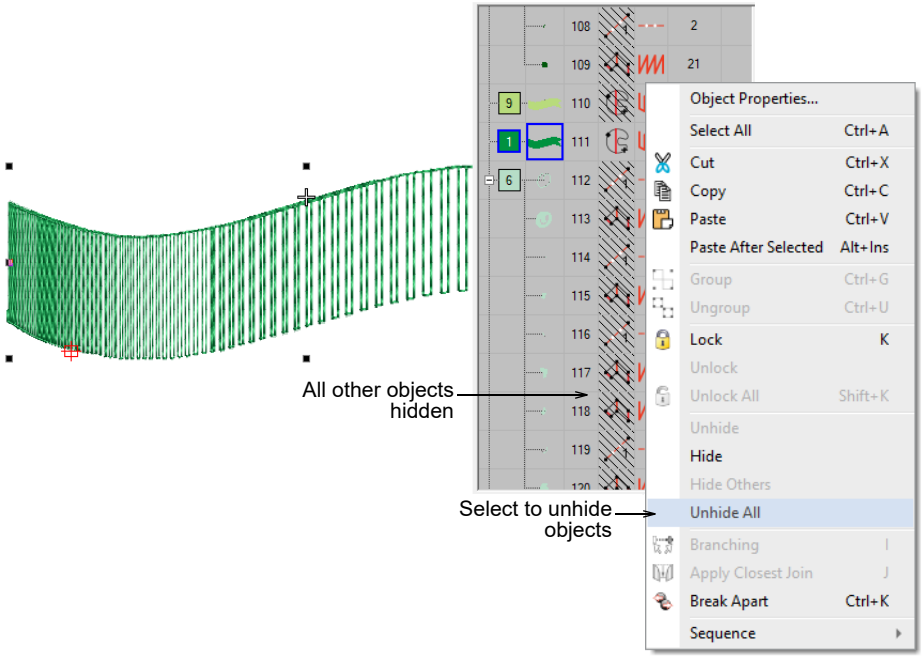
BE EmbroideryStudio provides many techniques for hiding or showing selected embroidery objects in the design window.

To view selected objects...

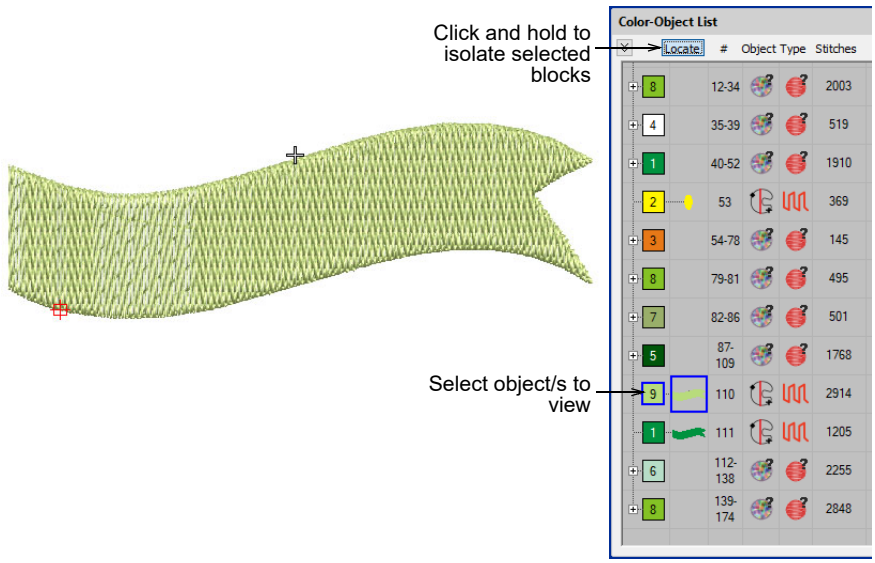
- Select the objects you want to view.



- Press **Shift+S**. All other objects are hidden. They can be revealed again via the **Color-Object List** popup menu.



- To temporarily hide other objects, select the object you want to view and click and hold the **Locate** button.



- To display the selected object full-screen, press **Shift+0** (zero).
- To return to the previous view, select **View > Previous View** or press **V**.
- To re-display the entire design, press **Esc** followed by **Shift+S**.
- To redraw the screen, select **View > Refresh Screen** or press **R**.
- To toggle options for selective display of embroidery objects, select the **Options** icon in the **Standard** toolbar, or select **Setup > Options > View Design** tab.



Options include:

Option	Function
No change	The display remains the same as before.
Show whole design	All embroidery objects in the design are visible.
Show selected objects	Only objects that are currently selected are visible.
Show unselected objects	The reverse of the above option. Only objects that are currently 'unselected' are visible.

Option	Function
Hide whole design	All embroidery objects in the design are hidden.

Related topics...

- Selecting objects

View selected color blocks



Use Docker > Color-Object List to toggle the Color-Object List display on and off. Use to view and sequence objects in a design.

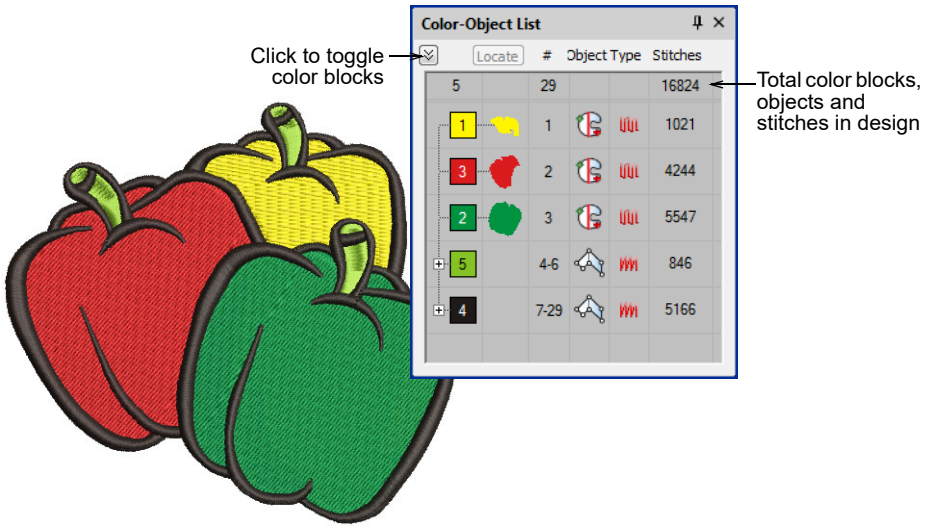


Use Color > Colorway Editor to assign thread colors to color blocks in the design.

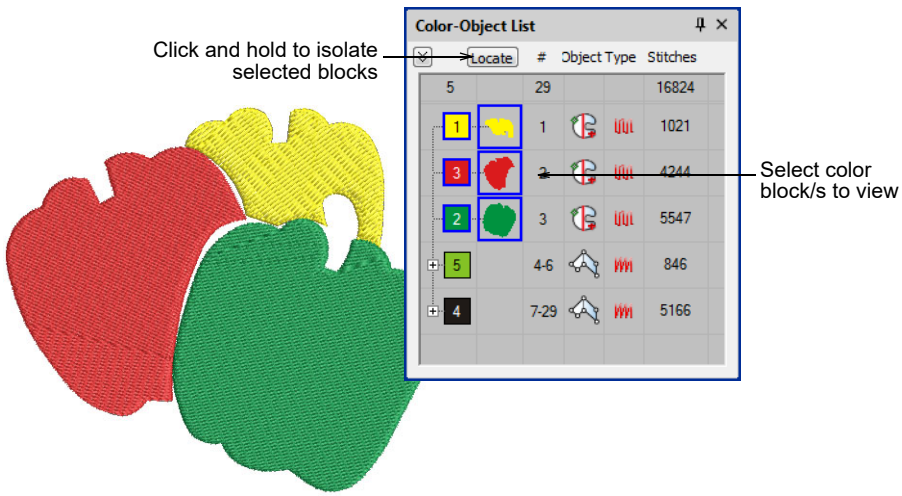
A color block corresponds to a color stop in the design. It may contain a single object or group of like-objects – e.g. 'ropes'. Or it may be comprised of different objects of like-color – e.g. 'ropes and birds'. The **Color-Object List** offers an easy way to selectively view color blocks and embroidery objects. The **View by Color** function also lets you view objects by color. The **Colorway Editor** provides another method for selective viewing of color blocks.

To view selected color blocks...

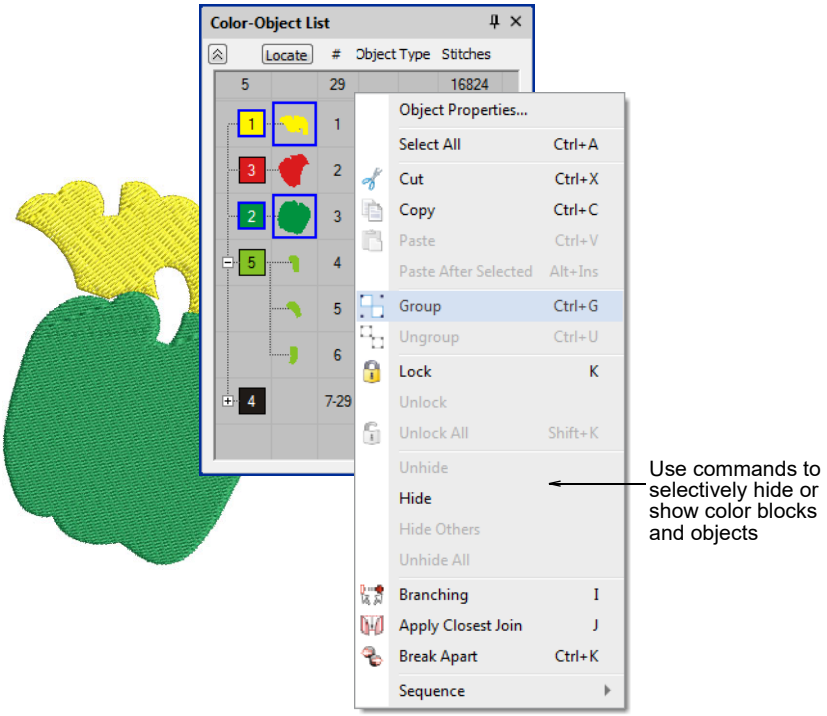
- Click the **Color-Object List** icon. The **Color-Object List** can be docked to the either side of the design window, or floated in any position.
- Click the switch to view the list by color block.



- Select a color block or blocks and click **Locate** and hold.



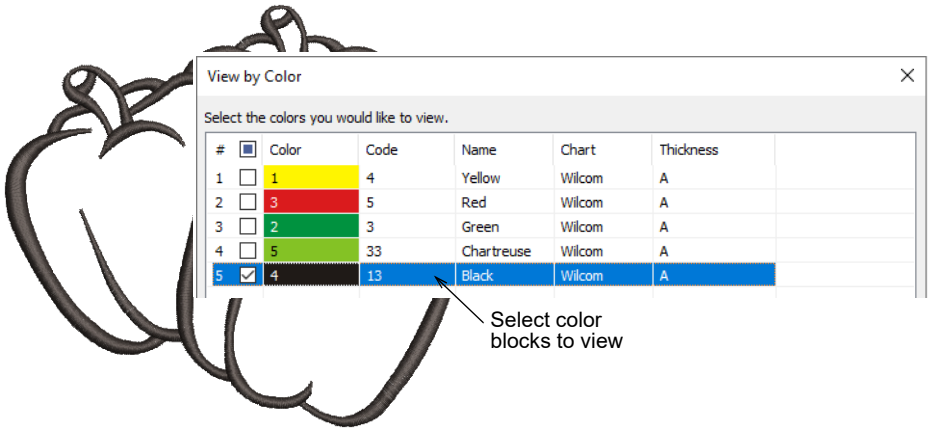
- Selectively hide or 'unhide' selected color blocks and embroidery objects using popup menu commands.



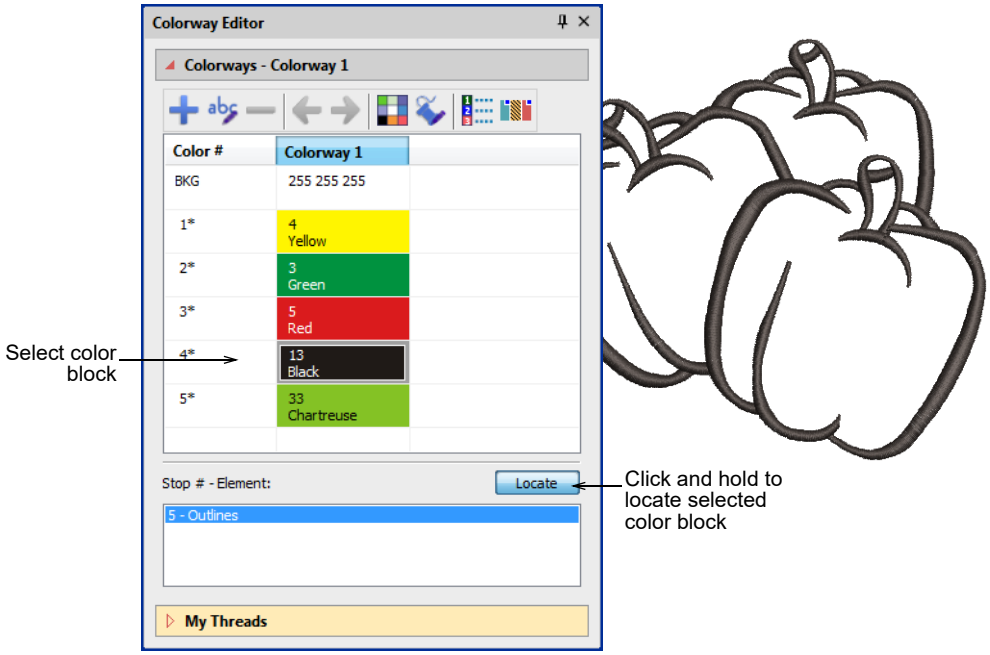
- Alternatively, to isolate a color block in the design window, click and hold it in the **Color** toolbar. First press **Esc** to deselect all objects.



- Alternatively, select **View > View by Color**. Select the colors you want to view. This function will not work with grouped objects.



- Alternatively, click the **Colorway Editor**. Select a color block and click **Locate** and hold.



- To reveal all hidden objects press **Esc** followed by press **Shift+S** or select **View > View all Colors**.

Related topics...

- Selecting objects
- View selected color blocks

Viewing stitching sequence

When checking embroidery designs, you will want to understand the stitching sequence in order to ensure efficient stitchout on the machine. 'Travel' through designs by color block, embroidery object, or even stitch-by-stitch. Alternatively, simulate the stitchout on screen.

Tip: Depending on your design background, you can change display colors for unsewn stitches. See Change display colors for details.

Simulate design stitchouts

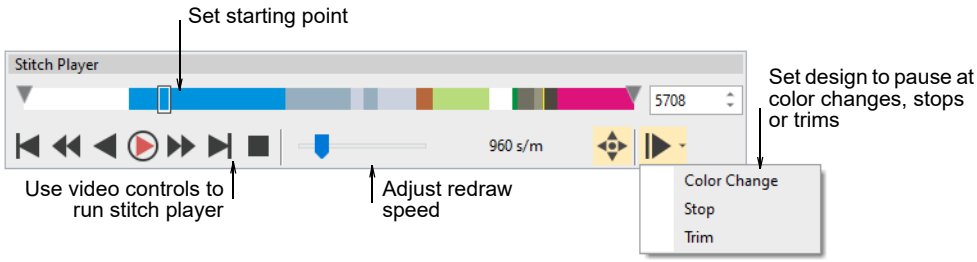
Use View > Stitch Player to simulate embroidery design stitchout on screen.

Stitch Player is an important tool in BE EmbroideryStudio. It lets you simulate the actual embroidery design stitchout on screen. Because **Stitch Player** emulates the movements of the embroidery machine, you are able to make decisions about how to optimize your design in order to lessen the load on the machine. This is important if you intend to make multiple stitchouts.

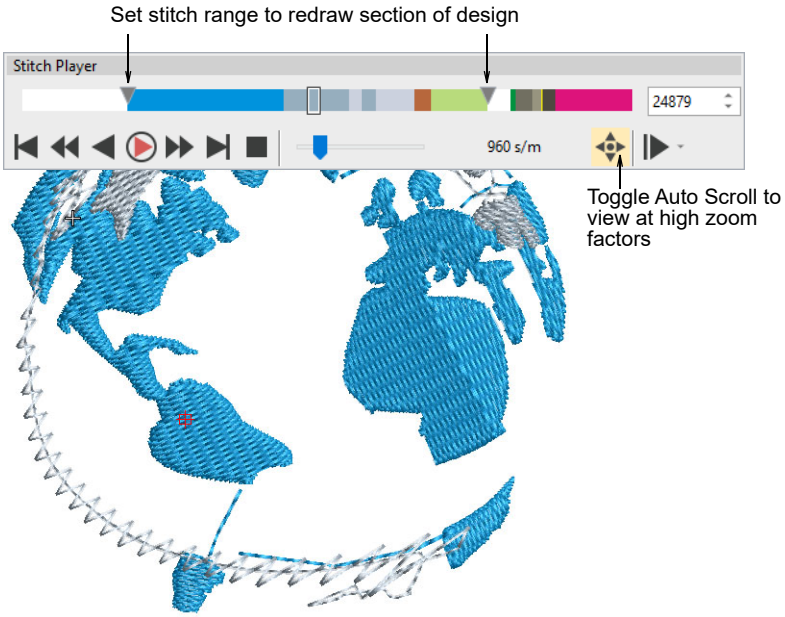


To simulate the design stitchout...

- Choose a design view to visualize your design. **Stitch Player** can be run with or without TrueView™.
- Click **Stitch Player** or press **Shift+R**.



- Use the slider bar to move the starting point.
- Use the controls to stitch forwards or backwards through the design. Typical 'media player' buttons are available for play, pause, rewind operations.
- Use the **Auto Pause** control to set stop points – by color change, stop, or trim.
- To redraw a section of design, specify a start and end stitch using the tabs.



- Use **Auto Scroll** when running **Stitch Player** at high zoom factors.

Tip: Depending on your background, you can change display colors for unsewn stitches, selected objects, object outline, grid and guides.

Related topics...

- Change display colors

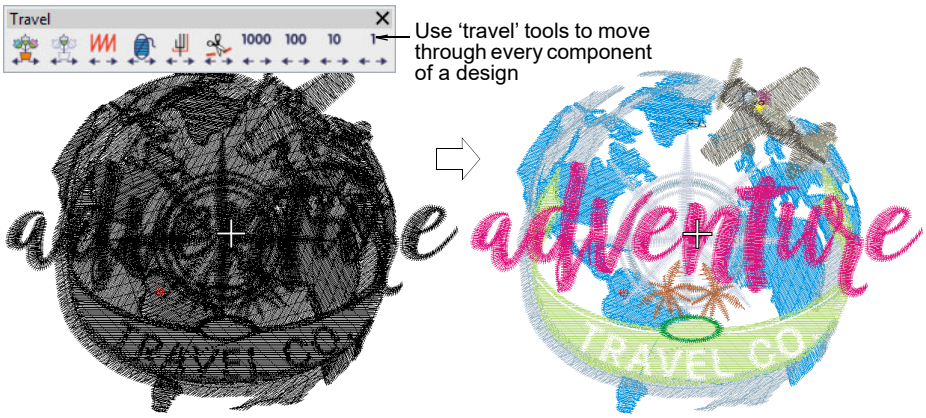
Travel through designs

It is useful to be able to view the stitching sequence color-by-color, object-by-object, or even stitch-by-stitch. The **Travel** toolbar provides all tools required to do so. Travel forwards or backwards with any button by right or left mouse-clicks. Traveling can be initiated from any stitch in the design. The current needle position is marked by a white cross or 'needle

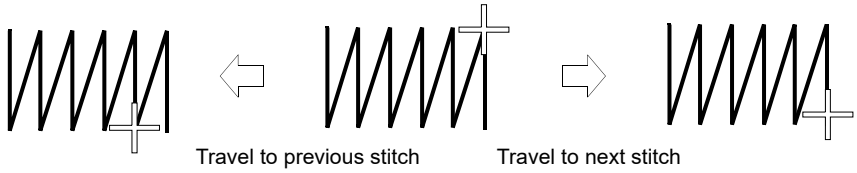
position marker'. The current stitch number is displayed in the **Status Bar**.

To travel through a design...

- Turn off **TrueView™** and press the **Esc** to ensure no object is selected.

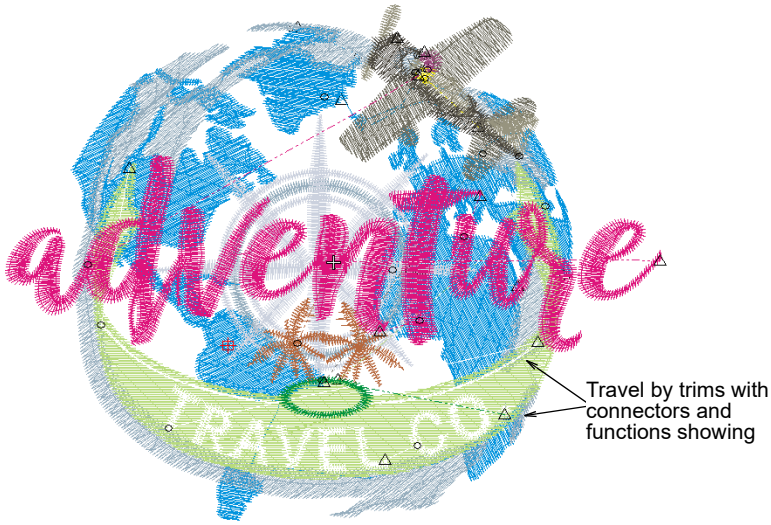


- Travel to the start of the design by clicking the **Start/End Design** icon or pressing the **Home** key.
- Use the **Travel by Stitch** functions to travel forwards or backwards through the stitching sequence. Use left or right mouse-clicks or arrow keys – ← or →, ↑ or ↓. Alternatively, to travel by 1000 stitches, press **Shift + Num+** or **Shift + Num-**.



- To travel by color, click/right-click **Travel by Color**. This is useful if you need to locate a specific color change in order to insert an object or delete it from the stitching sequence.
- To travel by object, click/right-click **Travel by Object**. Alternatively, press **Tab** or **Shift+Tab**.
- To travel by machine function, click/right-click the **Travel by Function** tool. Alternatively, press **Ctrl+Page Up** or **Ctrl+Page Down**. The needle point will stop at every jump, trim, and color change in the design.
- It is sometimes easier to use **Travel by Trim** to travel by trim functions alone – e.g. when checking for unnecessary trims.

Alternatively, press **Ctrl + Left Arrow** or **Ctrl + Right Arrow**. Turn on **Show Connectors** and **Show Functions** to view while traveling.



Tip: While traveling through a design or editing stitches, click the **Select Current** icon or press **Shift+0** to select the object associated with the current cursor position.

Related topics...

- View selected color blocks

Select objects while traveling

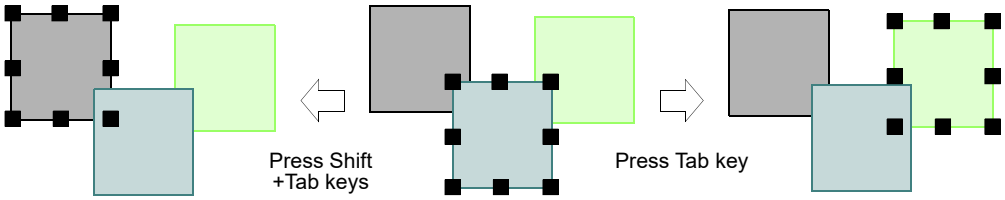
	Click Select > Select together with the Ctrl key to select objects as you travel through a design.
	Left/right-click Travel > Travel by Object to travel to previous or next object.
	Click Select > Select Current to select the object associated with the current cursor position.

Traveling is usually associated with checking the stitching sequence. You can select objects as you 'travel' through a design using the **Ctrl** key.

To select objects while traveling...

- Click the **Select** icon.

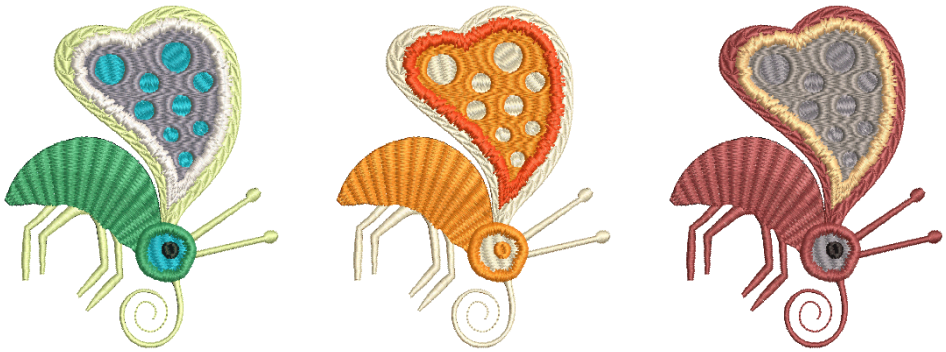
- Use the **Travel by Object** tool or **Tab** and **Shift+Tab** buttons to travel forwards or backwards by object. See Travel through designs for details.



- Click the **Select Current** icon or press **Shift+0** to select the object associated with the current cursor position.
- Hold down the **Ctrl** key to select an object as you travel through it.

Viewing colorways

A 'colorway' is a color scheme or palette of thread colors. It may also include a background color, fabric sample, or a product image. In BE EmbroideryStudio, you can define multiple colorways for the one design. This means you can stitch out the same design in different colors on different fabrics. You can also print multiple colorways, icons of color blocks, and design backgrounds with the production worksheet.



Switch colorways



Use Color > Current Colorway dropdown to select a new color scheme for design.

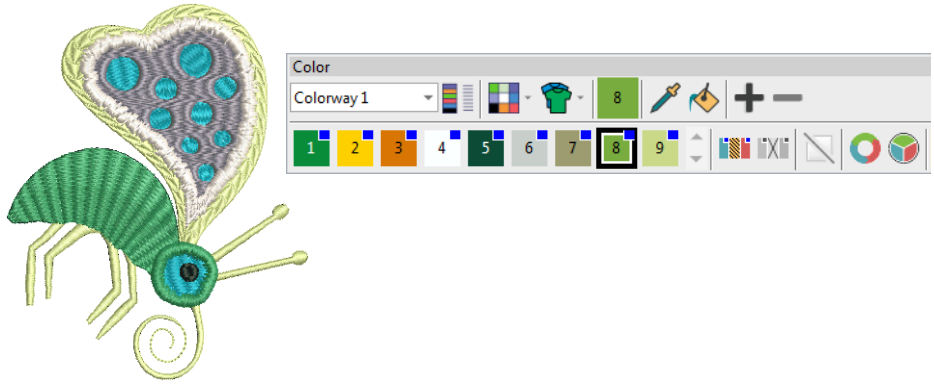


Use Color > Colorway Editor to assign thread colors to slots in the color palette.

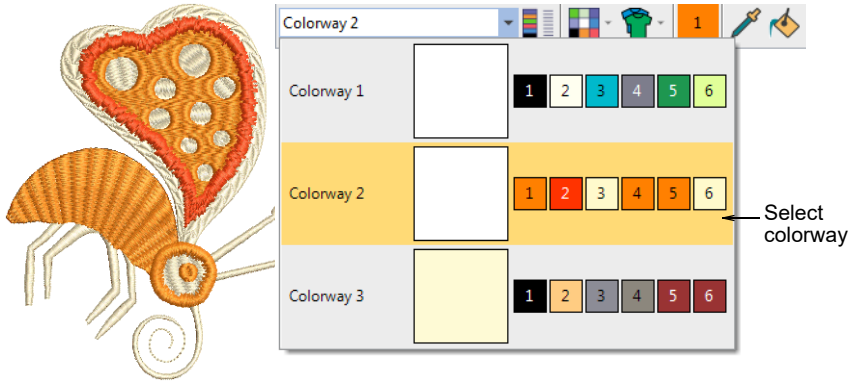
In BE EmbroideryStudio, you can preview the same design in different colors on different fabrics.

To switch colorways...

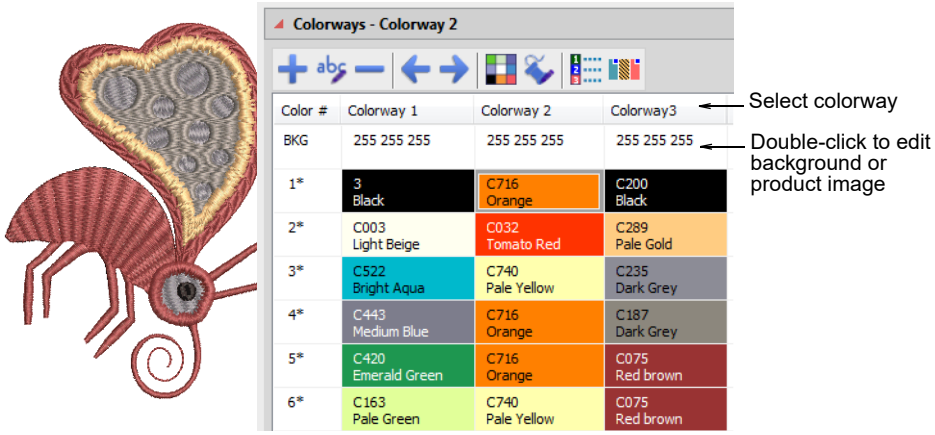
- Open a design with multiple colorways.



- Select a colorway from the droplist.



- Alternatively, use the **Colorway Editor** to toggle between colorways.



Related topics...

- Change backgrounds

Change backgrounds

Click Color > Background & Display Colors split arrow to change the background color of the current colorway.

Use Color > Product Visualizer to choose a garment or product backdrop on which to position your decoration.

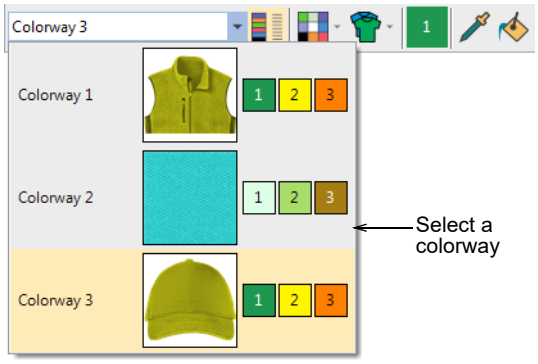
Click View > Show Product to toggle product image on/off. Right-click to open the Product Visualizer docker.

BE EmbroideryStudio lets you set the background color, fabric, or product of each colorway for more realistic previews and presentations.



To change backgrounds...

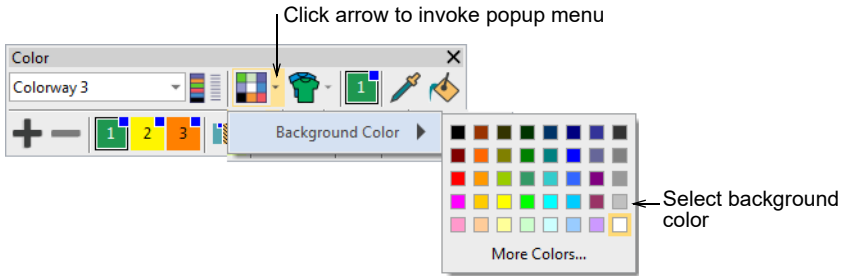
1 Open the design and select a colorway.



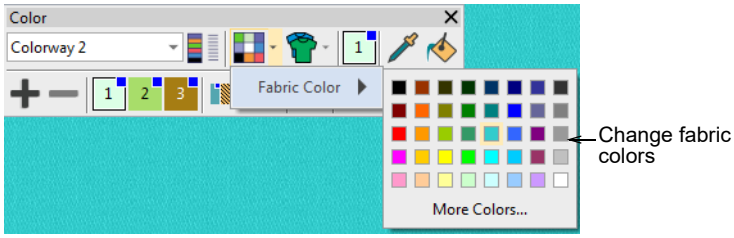
2 Use **View > Show Product** to toggle on or off any product image that may be included in the colorway.

3 Click the droplist next to the **Background & Display Colors** icon.

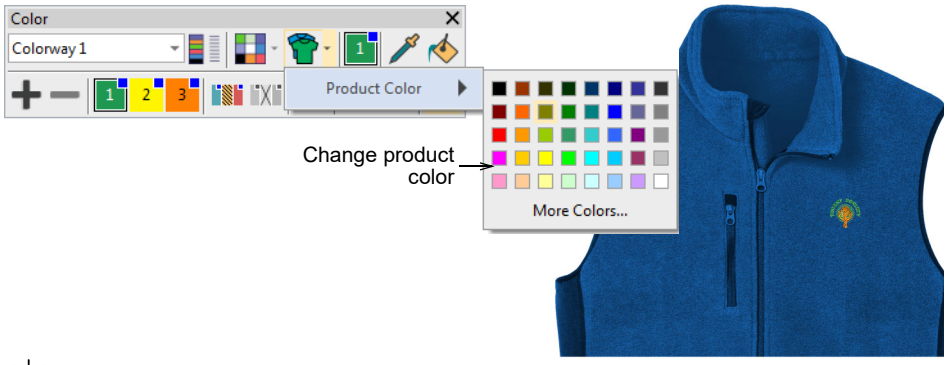
- Change color via the **Background Color** popout menu.



- If your colorway includes a background fabric, change color via the **Fabric Color** popout menu.



4 If your colorway includes an article or product, open the **Product Visualizer** droplist and change color via the **Product Color** popout menu.

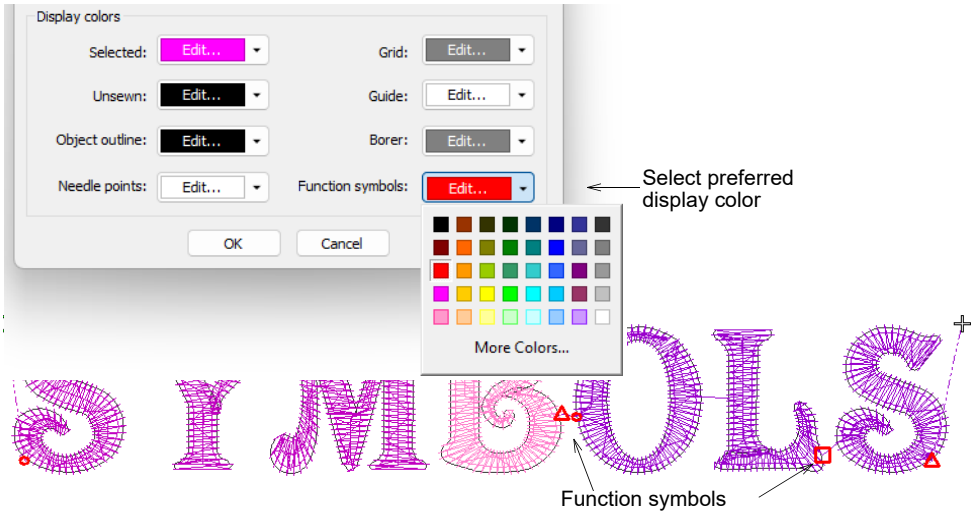


Tip: Click **Background & Display Colors** or **Product Visualizer** icons to preset any of these options.

Change display colors

Use Color > Background & Display Colors (or Colorway Editor docker) to change design background presets for the current colorway.

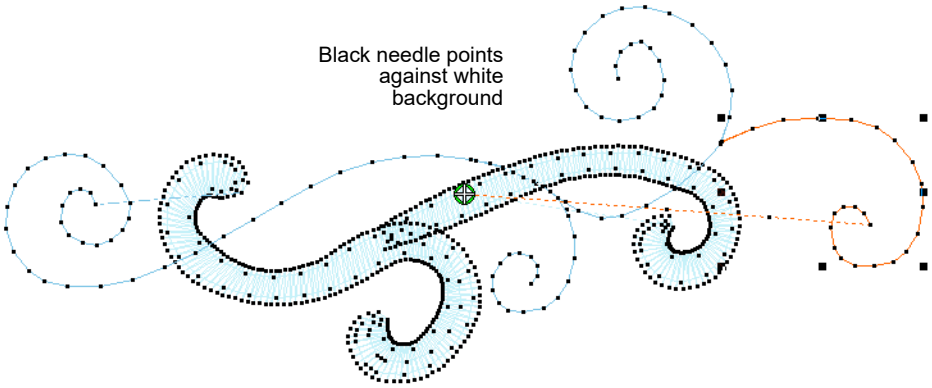
In addition to background color or fabric, display colors for borer holes, selected and 'unsewn' stitches, object outlines and grid are part of the colorway definition. Change them if the default display color is not visible against the current colorway. The **Background & Display Colors** dialog includes a **Display Colors** panel.



Adjust colors as required for:

Display item	Description
Selected	Selected objects or stitches.
Unsewn	Unsewn stitches as they appear when traveling through the design.
Object outline	Object outlines as they appear when Show Outlines is activated. See View embroidery components for details.
Needle points	Change needle point display color according to current background. See also View embroidery components.
Grid	Depending on the colorway, you may need to adjust grid display colors in order to view them against the background color. See also Measurements.
Guides	Depending on the colorway, you may need to adjust guide display colors in order to view them against the background color. See also Measurements.
Borer	Borer points. These are machine functions which only appear when Show Functions is activated. See View embroidery components for details.
Function symbols	Symbols such as trims and tie-offs as they appear in stitch view. Use in conjunction with the Show Functions toggle. See Types of connectors for details.

Display colors are saved with the colorway. You can save the colorway as an EMT template file for use in future designs.



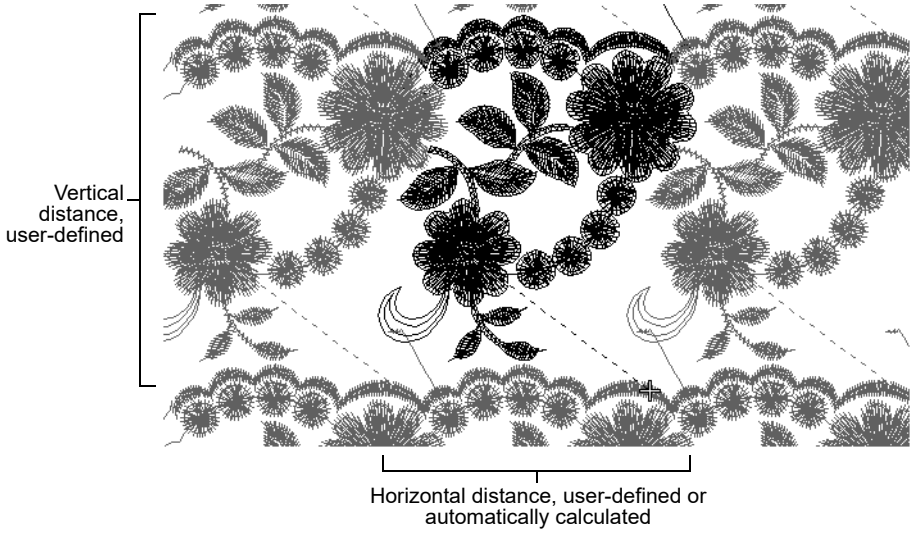
Related topics...

- View embroidery components

Viewing design repeats

Use View > Show Repeats to toggle design repeats display. Right-click for settings.

Many customers make traditional garments such as sarees which employ continuous and sometimes overlapping designs. It is important to be able to see these designs together with their repeats. The **Show Repeats** function displays repeating designs, including sequins, in both **TrueView** and stitch view. You can view a design, even while digitizing, with any number of repeats. The number can be a whole number or fractional.



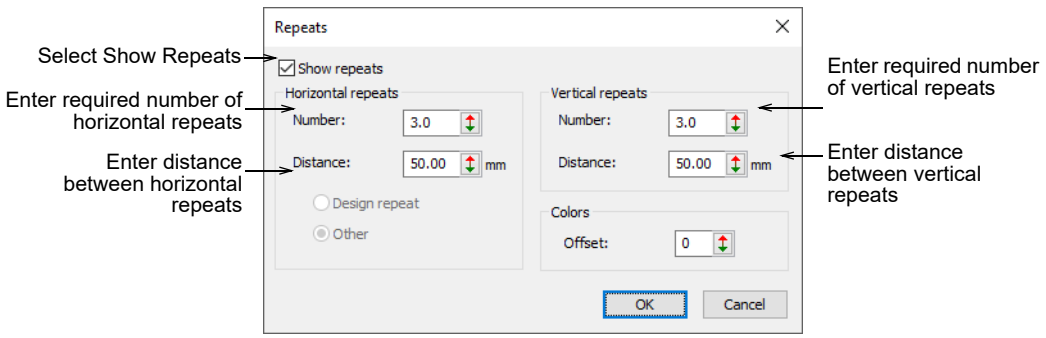
Note: It is important that the artwork you use is properly sized and in the correct horizontal position. Always check the position of your artwork before starting to digitize.

To view design repeats...

1 Set your units of measurement as required.

Note: Stitch length and density controls remain in mm regardless of measurement system. These controls reflect the machine functions as industrial machines are always in millimeters.

2 The first time you use the feature, right-click the **Show Repeats** tool or press shortcut **W** to access the **Repeats** dialog.



3 Select the **Show Repeats** checkbox to activate the feature.

4 Set the distance between horizontal repeats. This will always be expressed in millimeters. Depending on the template, different options are available:

Option	Function
Design repeat	This option is only available with the Schiffli template. Repeat distance is fixed. This is typically a factor – x1, x2, x3, etc – of needle distance. See Schiffli Supplement for details.
Other	When selected, you need to manually enter a repeat distance in mm. This is typically used when doing continuous design work on multihead machines. The figure will generally correspond to the distance between machine heads – e.g. 135 mm – or factors thereof.

5 Enter the number of horizontal repeats. Repeats are balanced around the source design. This means that whole designs are displayed only for odd integer (1, 3, 5) numbers of repeats.

Repeat	Effect
1.0	The original design only is displayed.
1.2	• The original design is displayed, plus • 0.1 of the design on either side of the original.
2.0	• The original design is displayed, plus • 0.5 of the design to either side of the original. The repeat pattern looks like this:][][.
2.9	• The original design is displayed, plus • 0.95 of the design to either side of the original.
3.0	• the original design is displayed, plus • a complete copy of the design to either side of the original. The repeat pattern looks like this: [][][].

- Click **OK** to apply.

Usage tips...

- Vertical distance is not constrained by needle or head distance. Vertical distance will be a function of design height. Set vertical distance and number of repeats as preferred.
- To help distinguish the source design from repeat patterns, Use the **Colors** option to display repeats in different colors. Enter a color offset to indicate where you want to start the first repeat color. Let's say you have a 4-color design using palette colors 1, 2, 3, 4. If you set color offset to 5, repeat colors will display as 5, 6, 7, 8.
- Use the **Show Repeats** icon to toggle design repeats on or off.



Related topics...

- Set measurement units

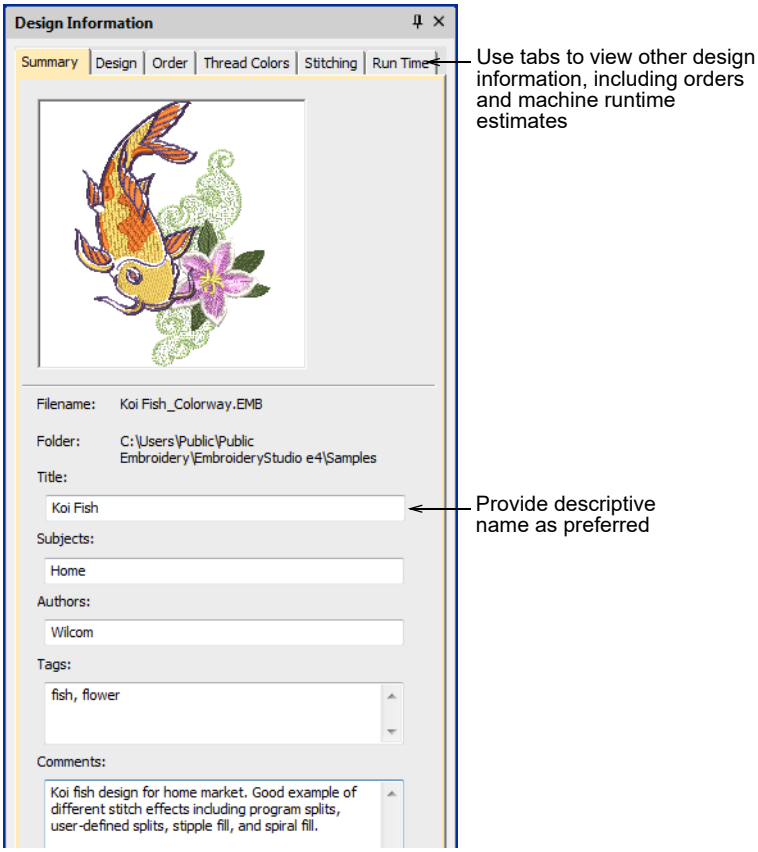
Viewing design information

You can obtain design information in a variety of ways and formats – before opening the EMB file via **File Explorer** and from the **Design Information** docker. See also Preview design reports.

View design details in BE EmbroideryStudio

> Use Docker > Design Information to view and modify design details prior to design approval or stitchout.

You can check design details via the **Design Information** docker. This is always advisable prior to design approval or stitchout. The opening tab contains information about design height, width, stitch count, colors, and so on. On other tabs, summary and order information may be provided by the digitizer or sales team. The information is printed with approval sheets and production worksheets. Choose a file and select **Design > Design Information**.



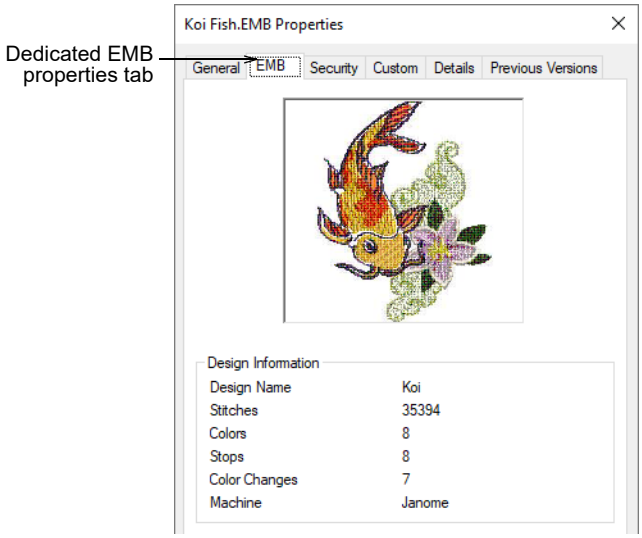
View design details in File Explorer

Even without opening EMB files, you can check software version number and other design details via **File Explorer**. This same dialog can be accessed from within the **Open** dialog in BE EmbroideryStudio as well as the **Design Library**.

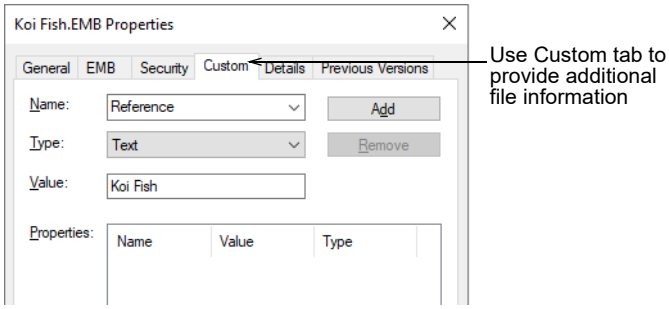
To view design details in File Explorer...

- In **File Explorer**, right-click an EMB file and select **Properties** from the popup menu.

  The **Properties** dialog displays with an **EMB** tab. View general file information, such as file size and modification dates, together with design information such as stitch count, number of stops and color changes, as well as machine format.



- The **Custom** tab shares information with the **Design Information > Summary** docker in BE EmbroideryStudio.



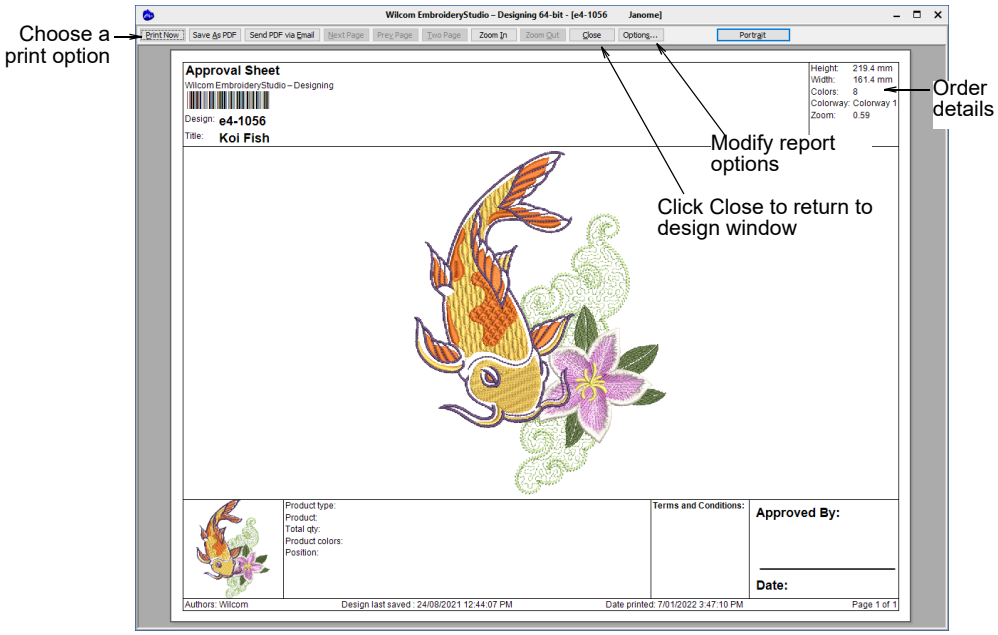
Preview design reports

Click Standard > Print Preview to preview the production worksheet on screen.

Approval sheets and production worksheets contain all or some of the design details contained in the **Design Information** docker. Approval sheets are intended for customers, not production staff. Customers can see what they are ordering and approve accordingly. Production worksheets are intended for production staff. All production-related information, such as bobbin length, design size, garment fabric, etc, is provided.

To preview a design report...

- Click the **Print Preview** icon.



- To change paper orientation, click **Landscape** or **Portrait**. Large designs may be displayed over a number of pages.
- To change included information and set printing/plotting preferences, click **Options**. Here you can choose the report type – e.g. Approval sheet.
- To print the design, choose an option:

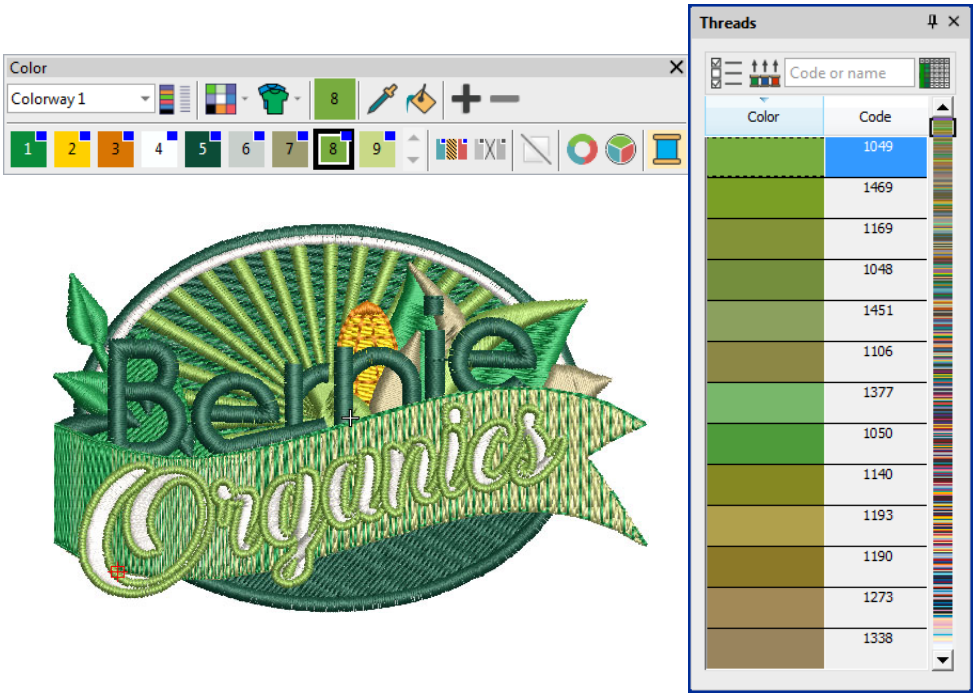
Option	Function
Print Now	Send the design report to your local printer.
Save as PDF	Save the report as a PDF document. You are prompted to save to the hard drive or network location.
Send PDF via Email	Send the report – usually an approval sheet – as a PDF attachment to your local email client.

- To close the preview, click **Close**.

Chapter 5

Threads & Charts

When you digitize, you select thread colors for each object from the **Color** toolbar. The palette contains a selection of thread colors tailored to each design. This color scheme represents the actual threads in which the design will be stitched.



You can select colors from commercial thread charts containing a range of colors from different manufacturers. To save time when setting up new color schemes, you can create your own thread chart using your favorite or most frequently used colors. In BE EmbroideryStudio you can search for particular threads by criteria. Even match threads automatically from selected charts to colors in your design.

This section describes how to select colors from the **Color** toolbar as well as how to assign threads to the colors in your design. How to modify thread charts is also covered, as well as creating custom thread charts.

Thread selection

The color palette contains a selection of colors tailored to each design or colorway. New objects are created using the currently selected color. You can change colors at any stage. Machine functions are automatically inserted in the stitching sequence whenever you assign a color. Typically you will want to assign actual thread colors to the **Color** toolbar in these circumstances...

- When you create a design, it includes a single default colorway. Using the NORMAL template, 'Colorway 1' contains default colors, unassigned to any thread chart.
- When you convert vector graphics in **CorelDRAW Graphics**, colors are appended to the color palette as unassigned RGB values (if **Match to Embroidery Palette** is off).
- When you use the **Color Wheel** to create new color combinations, RGB values are added to the color palette.
- When you auto-digitize a bitmap, RGB values can be automatically matched to actual threads or simply added to the color palette.
- If you read a machine file, unassigned colors will be appended to the color palette.
- If you receive a design which uses colors from a thread chart you don't have, you may want to match them to a preferred thread chart.

In BE EmbroideryStudio you can search for threads in one or several charts and assign them manually or automatically.



Note: Due to the differences in computer monitors and computer video cards, the approximate colors displayed should be used only as guides. Threads should always be matched to the appropriate physical color card.

Select thread colors



Use Color > Pick Color to pick up a color from an existing object and make it current.



Use Color > Current Color to view current color.



Use Color > Apply Current Color to apply the currently selected palette color to embroidery objects.



Use Color > Add Color to add a color to the end of the color palette.

Use Color > Remove Color to remove an unused color from the end of the color palette.

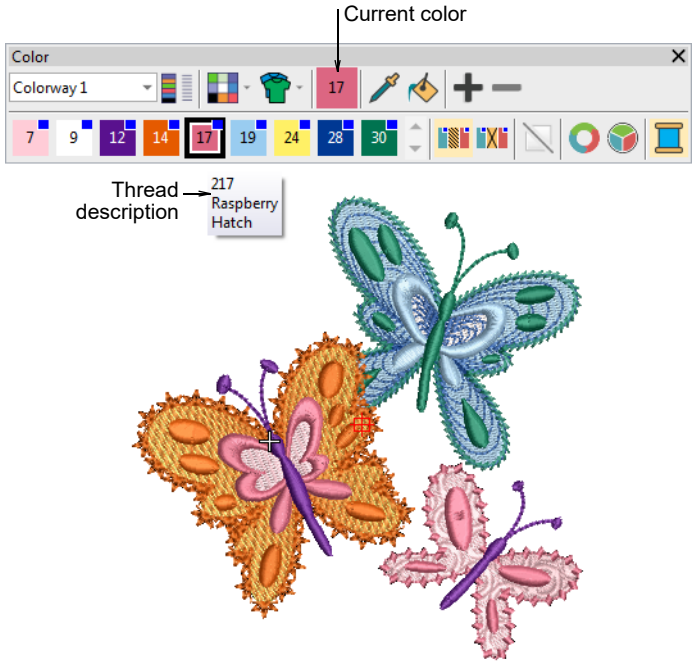
Use Color > Hide Unused Colors to show or hide all unused colors in the color palette.

Use Color > Remove Unused Colors to remove all unused colors from the color palette.

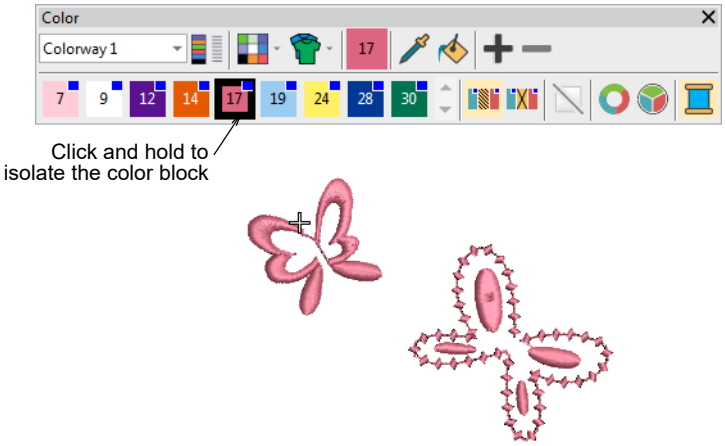
New objects are digitized using the current color on the **Color** toolbar. You can change colors at any time.

To select thread colors...

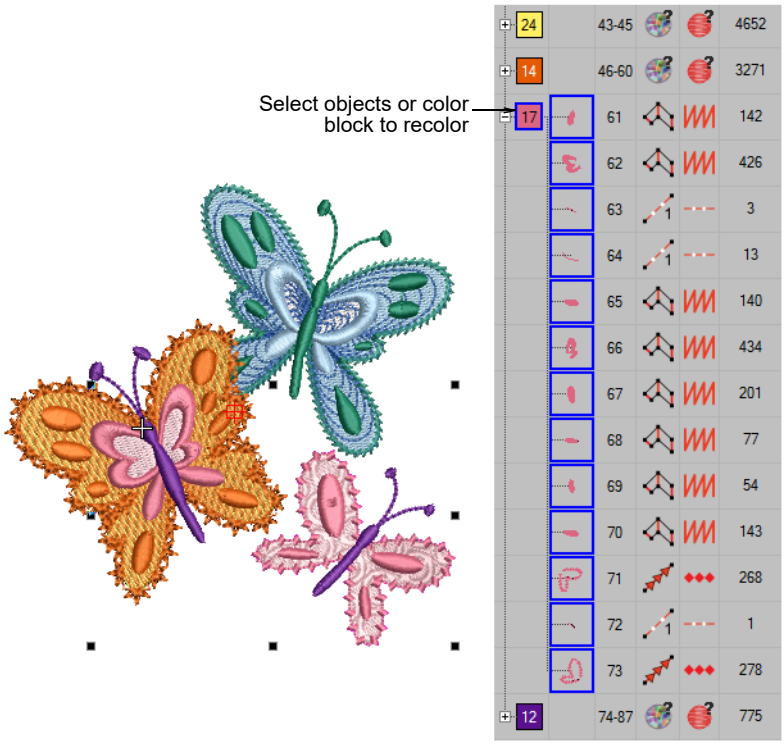
- Press **Esc** to deselect all objects.
- Click a color in the **Color** toolbar to make it current. Alternatively, pick a color from the design with the **Pick Color** tool. The current color is shown on the toolbar and highlighted in the palette with a black square.



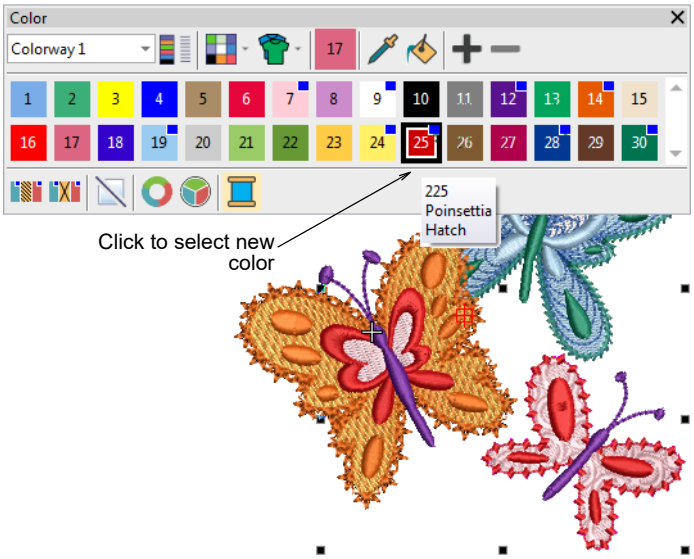
- Hover the mouse pointer over a color to view the thread code, thread name, and thread chart in a tooltip.
- To isolate a color block in the design window, click and hold it in the **Color** toolbar. First press **Esc** to deselect all objects.



- Select object/s you want to recolor. Alternatively, select a color block in the **Color-Object List**.



- Select a color from the palette. Alternatively, transfer a used color to other objects with the **Apply Current Color** tool.



- Use the +/- buttons to add or remove color slots as needed.
- Use the **Hide** or **Remove Unused Colors** controls as preferred to compact the palette.

Related topics...

- Change color schemes

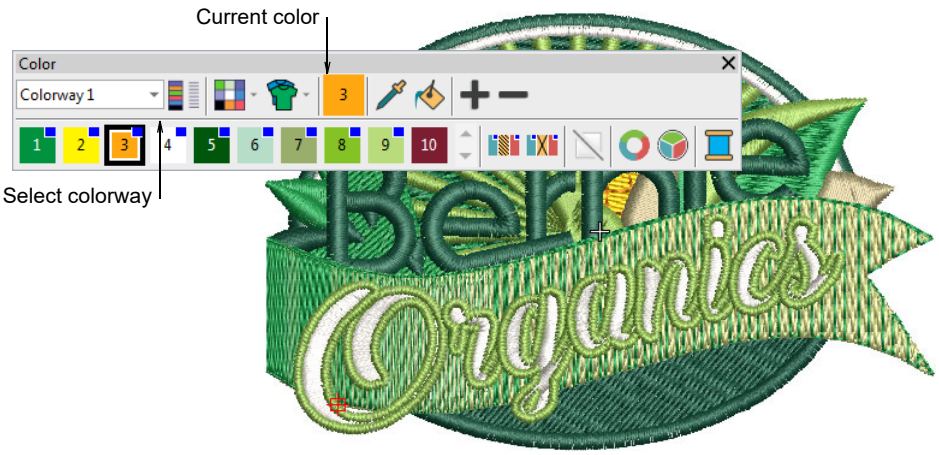
Assign thread colors

	Use Color > Threads to search for and match threads from different charts, and assign for use.
	Use Color > Add Color to add a new color slot to the color palette.
	Use Color > Colorway Editor to assign thread colors to slots in the color palette.
	Use Threads > Select Thread Charts to select the thread chart/s you currently have available for use.
	Use Threads > Assign Thread to assign selected thread to the highlighted color in the current colorway.
	Use Threads > Match All to match threads from the current chart/s to all color slots in the current colorway.

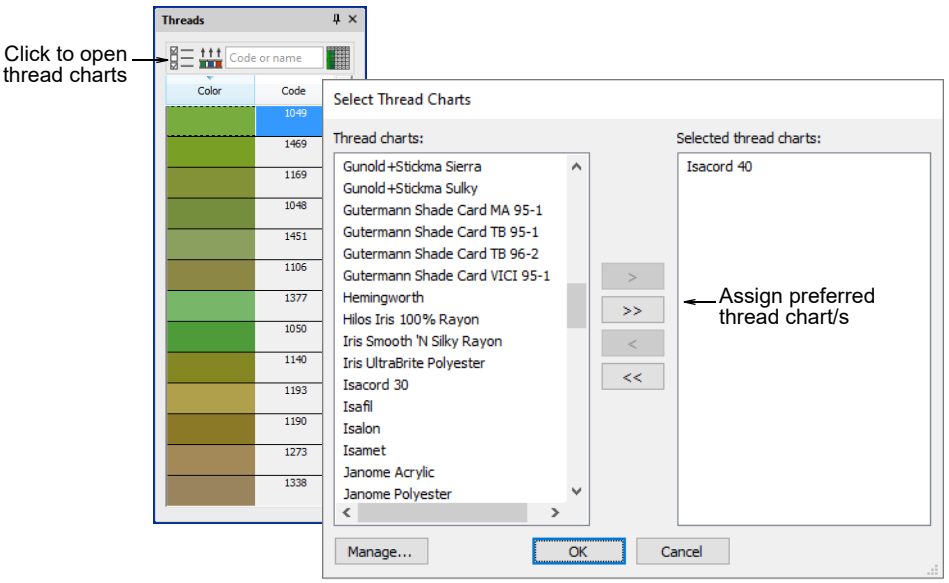
The supplied charts represent the brands of threads that BE EmbroideryStudio supports. Each chart includes a range of thread colors together with code, brand and description. You can search for a thread by code or description and assign it to a selected design color slot. Alternatively, let the software match design colors to threads in the current thread chart/s.

To assign thread colors...

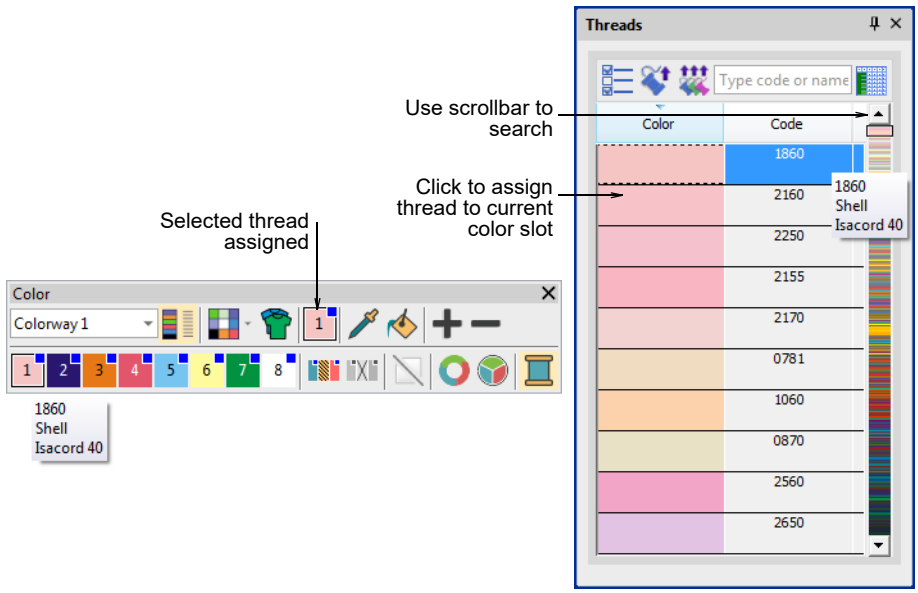
- Press **Esc** to deselect all objects. The currently selected (default) color is shown in the toolbar.



- Select a colorway and click the **Threads** icon. Alternatively, right-click a color in the palette. The docker opens.



- Click the **Select Thread Charts** button to access the thread chart listing.
- Choose the chart/s you prefer or currently have available and click **OK**.
- Click a color in the **Color** toolbar to make it current. The **Threads** list updates automatically.
- Alternatively, click **Add Color** to add a new color slot to the color palette and make it current.



- Use the scrollbar to refine your search. Or, in the **Search** field, enter the first few characters of the required code or name. The code is the identification number of a thread color in a brand. The system searches for the closest match and displays it in the thread color list.
- Double-click or click **Assign Thread** to assign a thread to the current color slot in the current colorway.
- Alternatively, use **Match All** to assign threads from the current chart/s to all color slots in the current colorway.
- Check the thread assignments in the **Color** toolbar by hovering the pointer over the slots.
- Optionally, click **Remove Unused Colors** to remove unused colors.

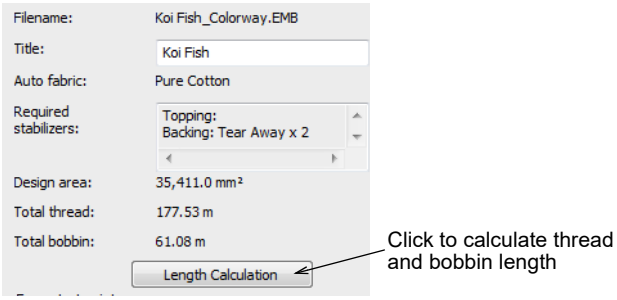
Note: The **Remove Unused Colors** tool is disabled for machine formats that use needle addressing – i.e. that have **Color Change** set as **Needle No** in the **Machine Format Settings** dialog.

Thread usage estimates

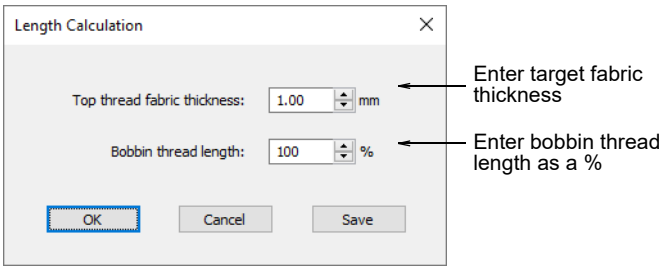
In order to obtain more precise thread usage estimates, you can adjust fabric thickness to suit the target fabric. This may be necessary if you are planning a large production run. Settings are generally fine-tuned on a case-by-case basis. However, adjusted settings can also be saved to the current template.

To estimate total thread usage...

1 Select **Design > Design Information > Stitching** tab.



2 Click **Length Calculation**.



3 Enter the thickness of the target fabric.

4 Adjust the bobbin thread length according to the mixture of thread types in the design.

This factor provides a simple mechanism for a more accurate bobbin thread length estimate. The default value (100%) is suitable for a design with a mixture of stitch types. If the design is all **Run** stitches or all **Tatami**, more bobbin thread will be used and the factor can be increased say to 125%. If the design is all **Satin** stitch, the factor can be reduced to say 65%.

5 Click **OK**. The **Total Thread** and **Total Bobbin** values are adjusted to take into account fabric thickness on total thread requirement.

6 Optionally, click **Save** to save revised settings to the current template.

Related topics...

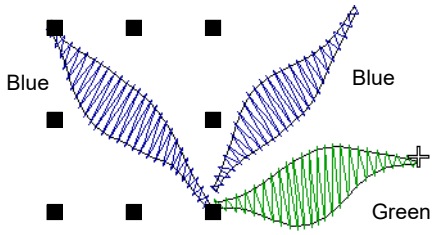
- Working with templates

Recoloring consecutive objects

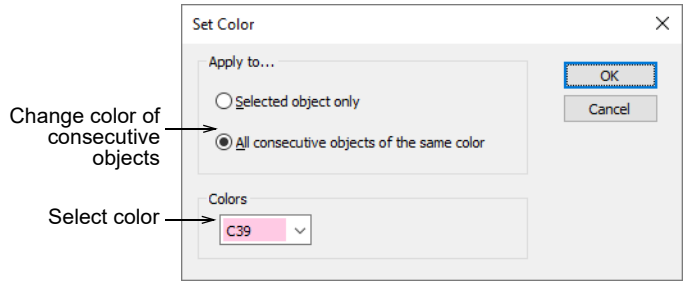
You can change the color of consecutive objects of the same color at the same time.

To recolor consecutive objects...

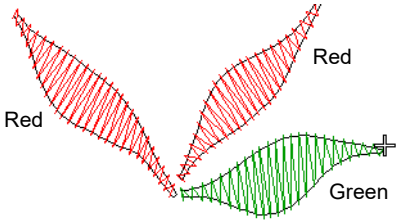
- Select the first object in the sequence to recolor.



- Select **Object > Set Color**. The **Set Color** dialog opens.



- Select the **All consecutive objects of the same color** option.
- Select a color from the list and click **OK**.



Related topics...

- Select objects with Color-Object List

Managing thread charts

Thread charts in BE EmbroideryStudio represent the many different brands and colors of thread available. They may not always be accurate because thread manufacturers often change, delete, and add new colors to their lines. For this reason, you can update charts as necessary.

Edit thread colors



Use Color > Colorway Editor to modify threads in selected colorways.

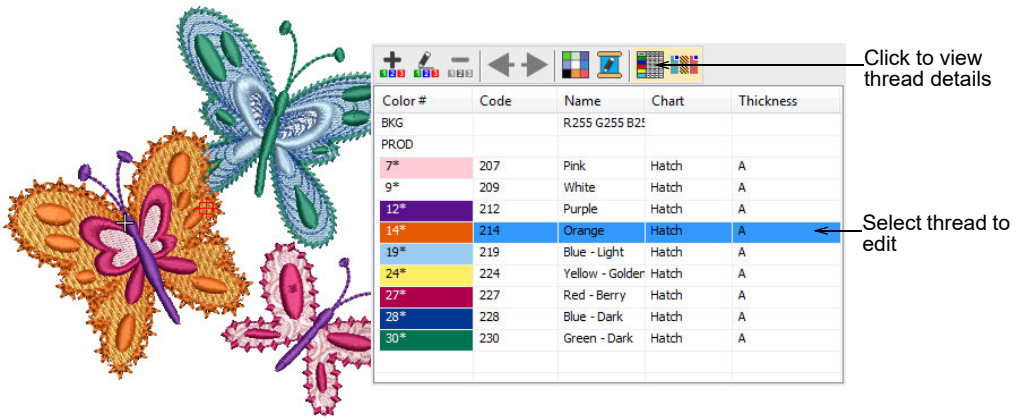


Use Colorway Editor > Edit Color to modify thread information for the currently selected palette color.

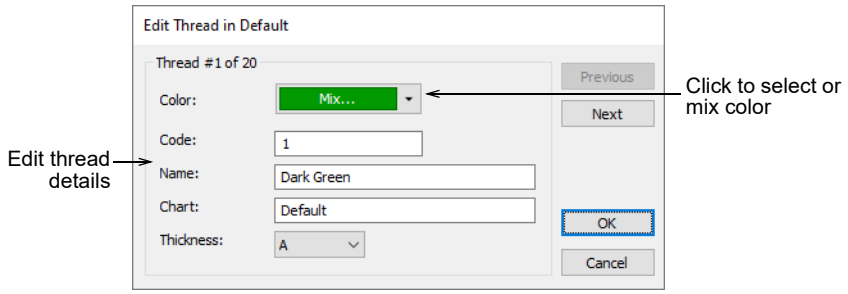
You can always change code, name, chart, thickness or thread colors. For example, in Schiffli work, you may want to change text labels to Parts A, B and C to reflect the pattern arrangements when printing. These labels appear on the production worksheet both in the stop sequence and in **Color Film** printout. Alternatively, you may want to edit colors in a colorway before you assign actual threads.

To edit thread colors...

- Open the **Colorway Editor** and select your colorway. If already open, the **Threads** docker closes automatically.



- Select the thread to edit and double-click or click **Edit Color**. Alternatively, double-click a palette slot in the **Color** toolbar.



- Edit thread details as required.

Note: When a color is changed, all objects using that color update immediately, whether selected or not. All other objects in the design are unchanged.

Related topics...

- Creating colorways
- Assign thread colors
- Modify thread details
- Printing design reports

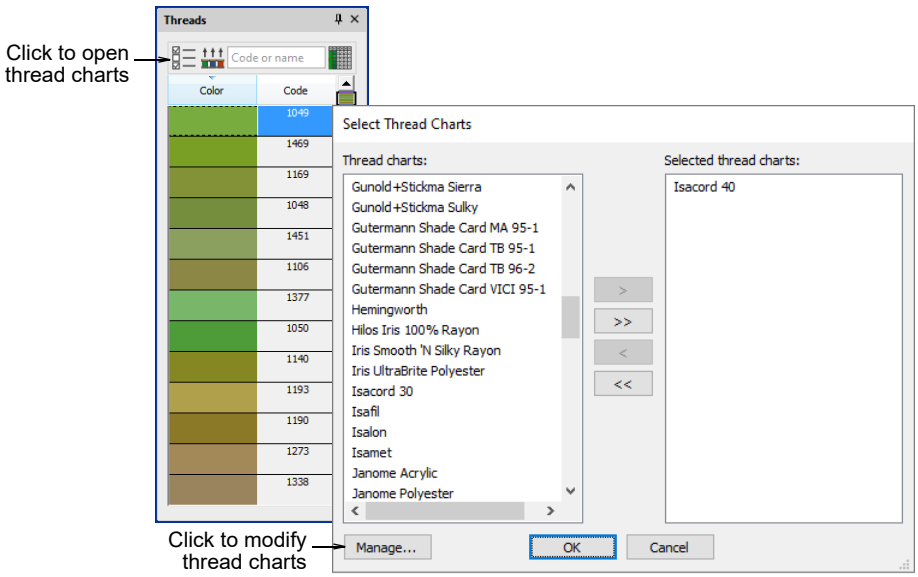
Create & modify thread charts

Use Color > Colorway Editor to create new thread charts.

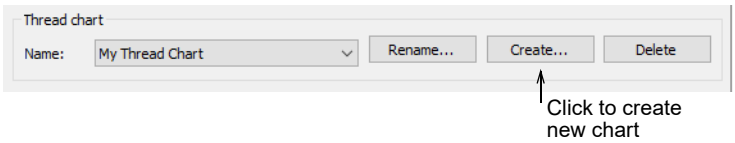
BE EmbroideryStudio lets you define your own charts. When you create a thread chart, you are creating a store of colors for future use. Select names that will help you remember the charts or help you sort frequently-used charts to the top of the list. Rename or remove charts at any time.

To create a new thread chart...

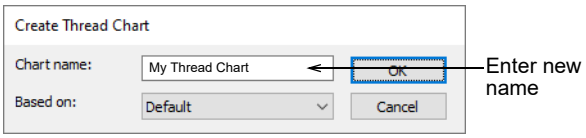
- Select **Manage Thread Charts** via the **Setup** menu. Alternatively, click the **Select Thread Charts** button in the **Colorway Editor**.



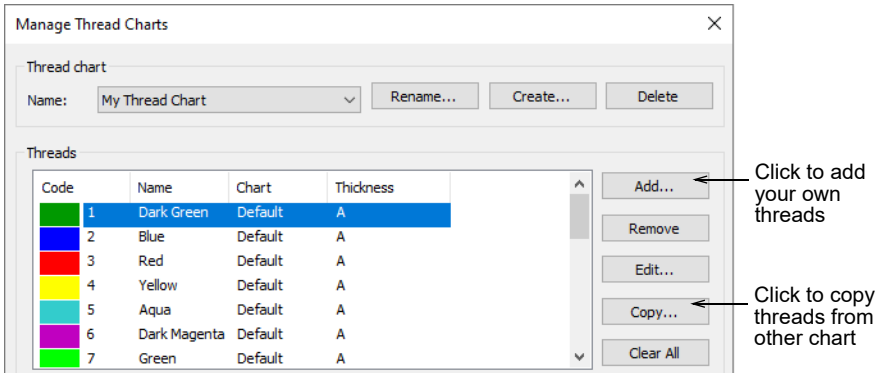
- Click **Manage**. The **Manage Thread Charts** dialog opens displaying the current thread chart.



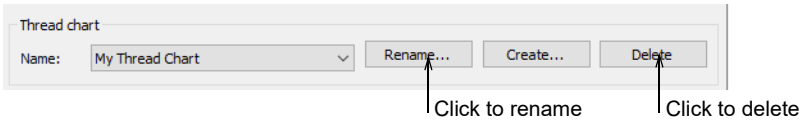
- Click **Create**. The **Create Thread Chart** dialog opens.



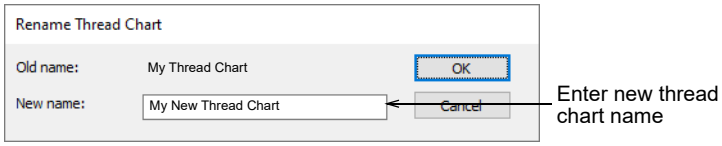
- Enter a name for the chart and click **OK**. The new chart is created, ready for you to add colors.



- Click **Delete** to remove the entire chart.



- Click **Rename** to change names.



Caution: Be careful when deleting thread charts. If you delete the wrong chart you will need to reinstall BE EmbroideryStudio to restore it.

Related topics...

- Modify thread details
- Copy colors between charts
- Definine custom thread chart files

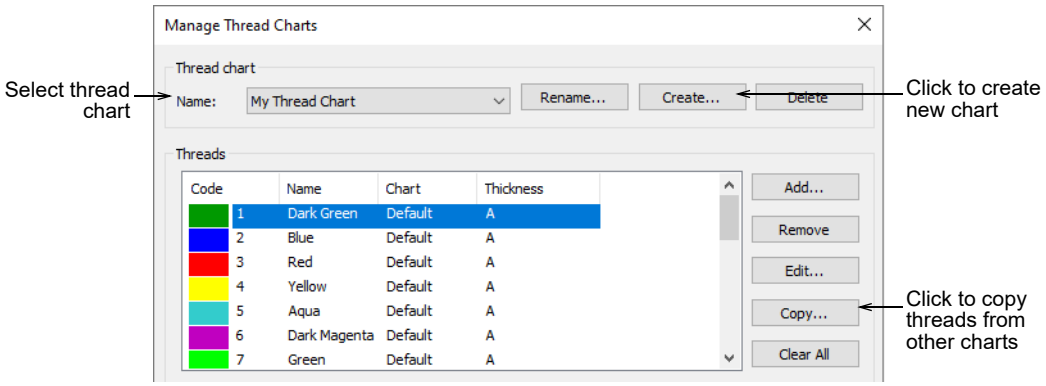
Copy colors between charts

Use Color > Colorway Editor to modify existing charts.

Copy colors between charts to create your own charts from existing threads.

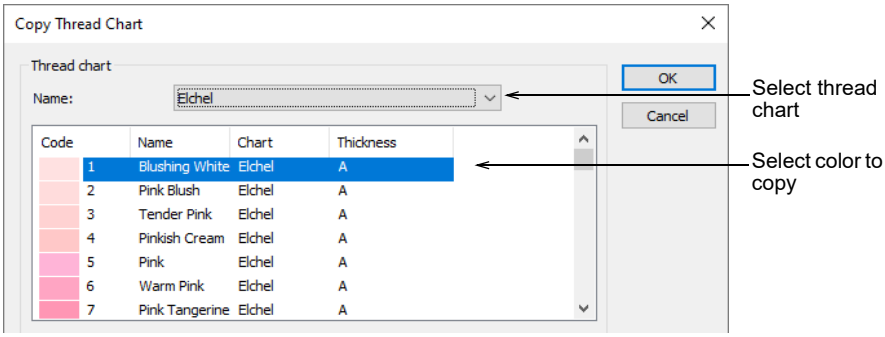
To copy colors between charts...

1 Select **Setup > Manage Thread Charts**. Alternatively, click the **Select Thread Charts** button in the **Colorway Editor** and click **Manage**.



2 Create a new chart or open an existing one from the **Name** list.

3 Click **Copy**. The **Copy Thread Chart** dialog opens.



4 Select the source chart from the **Name** list.

5 Select the color/s you want to copy. Use **Ctrl** or **Shift** keys to copy a group or range of colors.

6 Click **OK**. All colors are copied to the new chart.

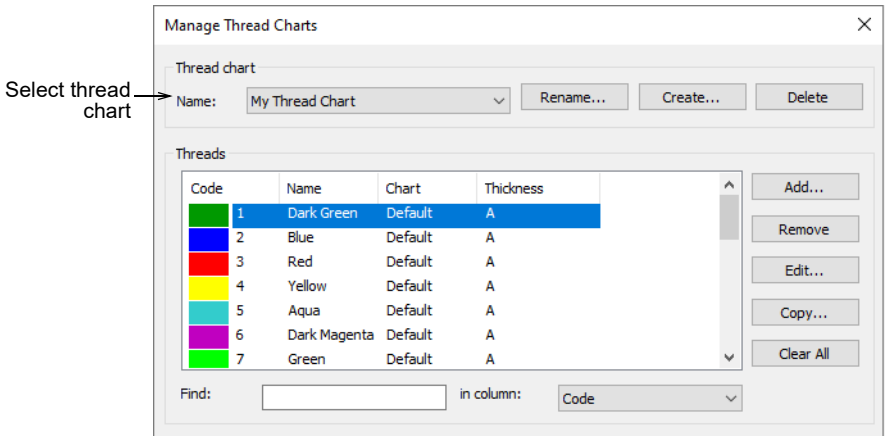
Modify thread details

Use Color > Colorway Editor to modify existing charts.

You can copy colors from other charts or mix them yourself. You can also set the code, description, brand, and thickness of existing threads. Remove obsolete thread colors for good housekeeping.

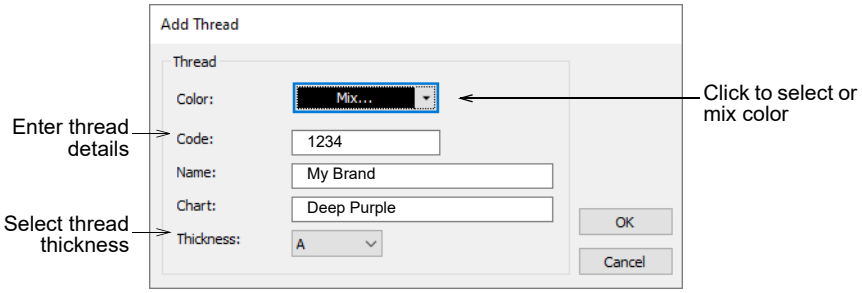
To modify thread details...

1 Select **Setup > Manage Thread Charts**. Alternatively, click the **Select Thread Charts** button in the **Colorway Editor** and click **Manage**.



2 Create a new chart or open an existing one from the **Name** list.

3 Click **Add** to add your own colors or **Edit** to change selected thread details.



4 Enter code, name, and chart for the thread color. Code is the identification number of a thread color in a brand.

5 Select the appropriate thread thickness. These values are added to or subtracted from values used in the Auto Spacing table for specific stitch lengths.

Thickness	Description	Default
A	Normal embroidery thread (approx. denier 40)	0.01
B	Thicker than normal (approx. denier 30)	0.03
C	Finer than normal (approx. denier 80)	-0.03
D	Very fine (approx. denier 100)	-0.06

Tip: Lighter weight threads do not run so well in a production environment as the machines need to be slowed down in order to avoid thread breaks. However, lighter weight threads are good for very small lettering and fine-detail designs.

6 Click **More Colors** in the droplist to see more colors or to mix your own.

7 Remove threads as required:

- Click **Remove** to remove individual threads.
- Click **Clear All** to remove all threads.

Related topics...

- Satin auto-spacing

Definine custom thread chart files

While you can define custom thread charts within BE EmbroideryStudio, you can also share custom charts in CSV format directly. Files need to be configured as shown...

	A	B	C	D	E	F	G	H
1	#	Brand	Thread name	Thickness	R	G	B	
2	1	Wilcom	Blue	A	40	22	111	
3	2	Wilcom	Cyan	A	0	147	221	
4	3	Wilcom	Green	A	0	146	63	
5	4	Wilcom	Yellow	A	255	245	0	
6	5	Wilcom	Red	A	218	27	29	
7	6	Wilcom	Brick Red	A	183	103	60	
8	7	Wilcom	Magenta	A	221	19	123	
9	8	Wilcom	Purple	A	151	69	120	
10	9	Wilcom	Orange	A	231	120	23	

Standard TCH file format

The data that needs to be included is:

- Thread number
- Brand name
- Thread name
- Thread thickness – A, B, C, or D
- Thread RGB value.

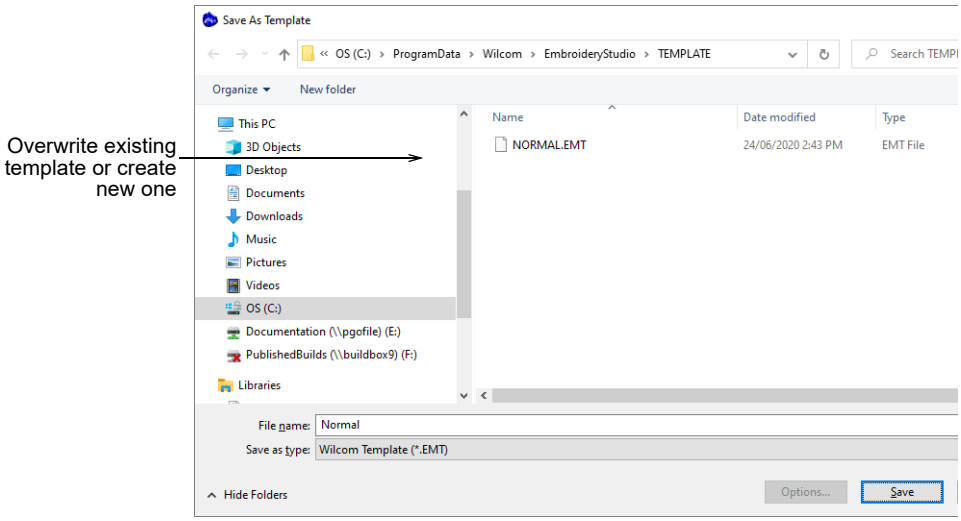
A CSV file formatted in this way can be read directly by the software. However, you need to change the file extension to 'TCH' and save it to the correct custom asset location on your hard drive.

Related topics...

- Asset locations

Save default thread charts to template

You can save your default thread chart by selecting it in the **Colorway Editor** and saving to the NORMAL template. Alternatively you can save a dedicated template for the particular thread chart and stitch settings you are using.



Related topics...

- Working with templates

PART II
HARDWARE & SOFTWARE SETUP

In order to work with your particular equipment, BE EmbroideryStudio needs to be properly configured. You may also want to configure the software to your particular digitizing requirements.



System settings

This section describes how to change the TrueView™ display, grid spacing and positioning, and design window scrolling options. It also describes how to save designs automatically as you work. There is also information about how to adjust the pointer position display, paste position options, and other general options. See System Settings for details.

Hardware settings

This section describes how to set up digitizing tablets and embroidery machines. It also describes how to calibrate the monitor. See Hardware Setup for details.

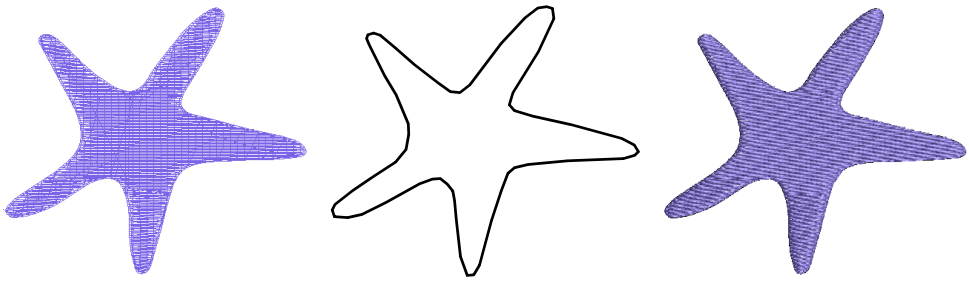
Machine formats

This section describes how to select a machine format for a design and output it using other formats. It also explains how to customize machine formats to meet your machine's specific requirements. See Machine Formats for details.

Chapter 6

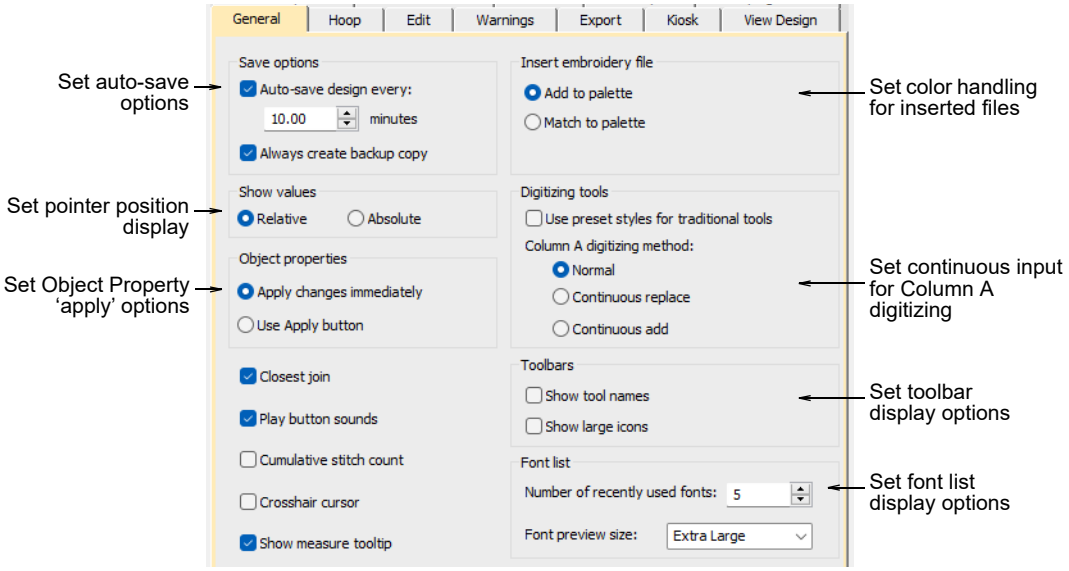
System Settings

BE EmbroideryStudio lets you adjust various system settings controlling the appearance of designs on screen, display of design information, the behavior of the design window, and other settings.



General options

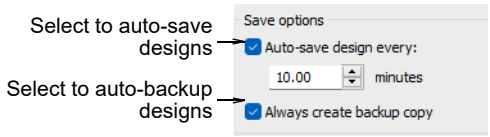
The **General** tab of the **Options** dialog provides a miscellaneous group of system settings including automatic save and backup, pointer position display, color handling for inserted files, paste position options, toolbar display, and others.



Automatic save & backup options

Use Standard > Options to access application options for design view, grid & guides, and other settings.

Save your work automatically at regular intervals using **Auto Save**. This protects you in the event of hardware or software failure.



Auto save

The Auto Save function creates a temporary file with the extension EMA in the RECOVER folder. This is automatically restored when BE EmbroideryStudio is restarted after a computer crash. You can access these files manually by browsing to the RECOVER folder and renaming files from EMA to EMB.

Backup copy

If the **Backup Copy** checkbox is ticked, a backup copy of the current design file is automatically created in its **previously** saved form. This protects you from overwriting the design with unintended changes – e.g. using the **Save** option instead of **Save As** to save a modified design. The backup copy is saved in the BACKUP folder with the original file name and native file format. Access backup files manually by browsing to the BACKUP folder.

Caution: Backup files remain in the BACKUP folder until you delete them. To prevent the folder from using too much hard disk space, delete unwanted files regularly. Backup files should be kept in a separate physical location, preferably off-site. Access the backup folder via the **File > Open Backup Design** command.

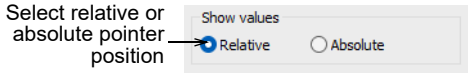
Related topics...

- Asset locations

Pointer position display

Use Standard > Options to access application options for design view, grid & guides, and other settings.

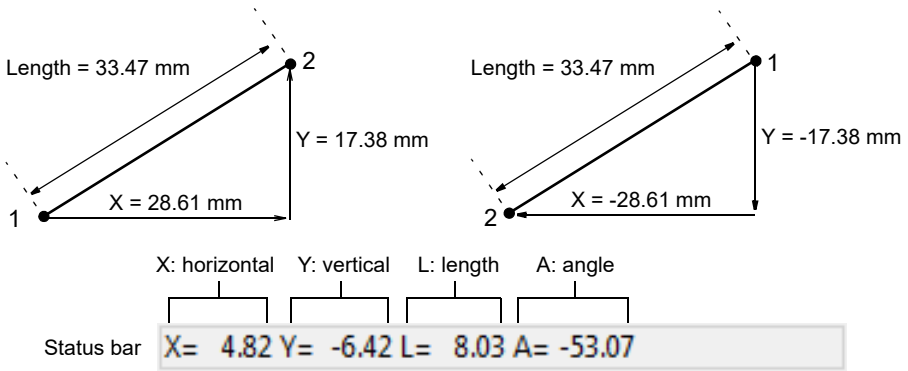
When you move the mouse or digitizer puck, the pointer position is displayed in the **Status** bar at the bottom of the screen. Use the **Options > General** tab to display the pointer position as a relative or absolute value.



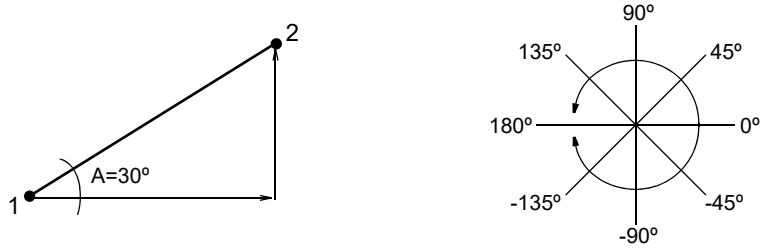
Select a **Relative** or **Absolute** pointer setting:

Option	Function
Relative	Shows pointer position relative to the last digitized point or stitch point. Useful while digitizing or editing stitches.
Absolute	Shows pointer position as an absolute value from the first needle point of the design. Useful for checking that the design fits a given area.

The **X** and **Y** values show the horizontal and vertical distance of the pointer from the relative or absolute point. The **L** value is the length of the line connecting two points, while **A** is the angle of that line, relative to the horizontal. You can measure onscreen distances using the values in the **Status Bar**. You can also use the **Measure** function (M).



A negative **X** value indicates that the second point was placed to the left of the first. A negative **Y** value displays when the second point is below the first. Negative angles indicate angles of more than 180º – e.g. an angle of -60º is equal to 300º.



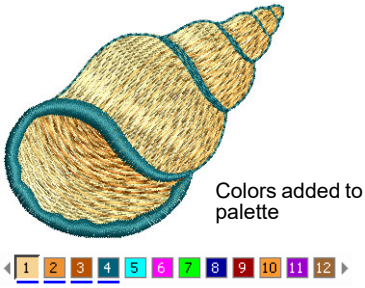
Related topics...

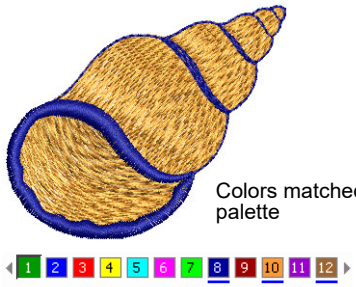
- Measure distances on screen

Thread color handling for inserted files

Use Standard > Options to access application options for design view, grid & guides, and other settings.

Whenever you copy and paste or insert an embroidery design or element from one file to another, the respective color palettes are merged. You have the option of **adding** the source palette to the target palette or of **matching** the source palette to the nearest colors in the target palette.





Click the **Options** icon or select **Setup > Options** and select the **General** tab.



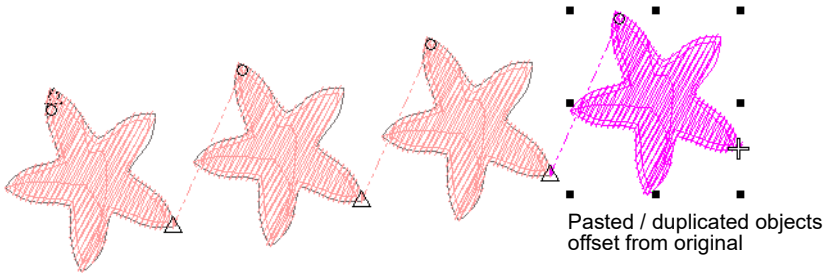
Select an inserted embroidery file option:

Option	Function
Add to palette	Unique colors in the design are added to the current color palette.
Match to palette	When you insert a design, colors are matched to the current color palette. The system finds the nearest match based first on RGB values, and then on Brand and Code.

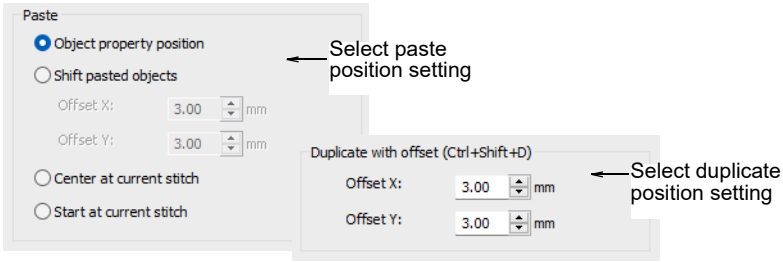
Paste & duplicate options

Use Standard > Options to access application options for design view, grid & guides, and other settings.

You can control where an object is positioned when pasted. If you are pasting within the same design, the default is the same position from which the object was copied or cut. Other options are available.



Click the **Options** icon or select **Setup > Options** and select the **Edit** tab. Set **Paste** and **Duplicate with offset** settings independently of each other as preferred.



Paste settings include:

Option	Function
Object property position	Objects are pasted according to the coordinates in the Object Properties docker.
Shift pasted objects	Objects are pasted slightly offset from their original position. Adjust offset distance as preferred.
Center at current stitch	Objects are centered at the current needle position marker.
Start at current stitch	Objects are positioned after the current needle position marker.

Duplicate position settings apply only to normal **Ctrl+Shift+D** operations. Cloning by right-click and drag will override these settings temporarily. **Ctrl+D** operations will assume the 'quick clone' value.

Note: Paste and duplicate options control the physical position of the object in the design, not its position in the stitching sequence.

Related topics...

- Copy & paste objects
- Duplicate & clone objects

Digitizing presets

Use Standard > Options to access application options for digitizing tools.

The **Continuous Input** setting provides a simple and efficient way of digitizing a single Column A object comprised of separately stitched sections.



Five preset styles are included for use with the 'Use preset styles for traditional tools' option. These apply to the Column A, Column B, Column C, Complex Fill, and Complex Turning tools. When the option is checked, default stitch type and underlay conform to the associated style. If you change stitch type or underlay, this applies throughout the current session. When the checkbox is unticked, current settings are used.

Traditional tool	Cover	Underlay 1	Underlay 2
Column A/B/C	Satin	Edge run	Zigzag
Complex/Turning fill	Tatami	Edge run	Tatami

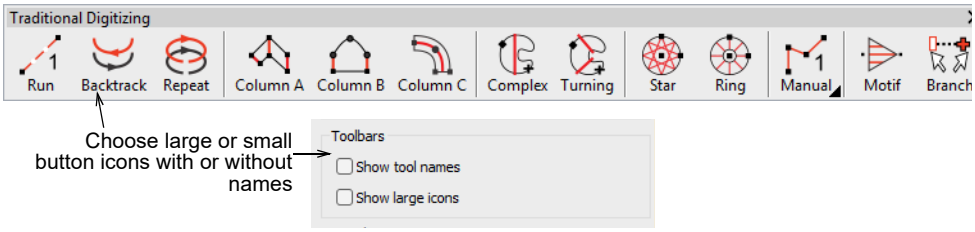
Related topics...

- Embroidery digitizing
- Create smooth joins
- Working with styles

Toolbar display options

Use Standard > Options to access application options for design view, grid & guides, and other settings.

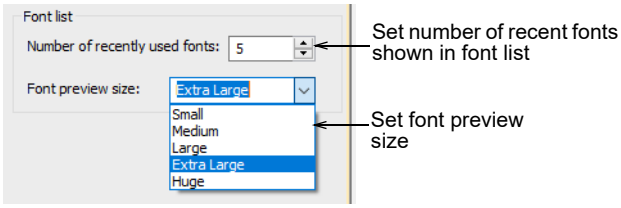
You can adjust toolbar appearance via the **Options > General** tab. Choose between large or small button icons, with or without short names.



Font list display options

Use Standard > Options to access application options for design view, grid & guides, and other settings.

You can set the size of your font preview via the **Options > General** tab. You can also adjust the number of recently used fonts.



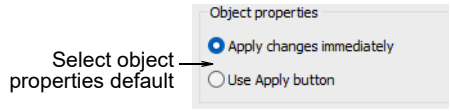
Related topics...

- Select embroidery fonts

Object property apply options

Use Standard > Options to access application options for design view, grid & guides, and other settings.

The most important dialog in BE EmbroideryStudio is the **Object Properties** docker. By default, modified object properties to take effect immediately. Alternatively, set the default to apply changes by means of an **Apply** button at the bottom of the docker. Click the **Options** icon or select **Setup > Options** and select the **General** tab.



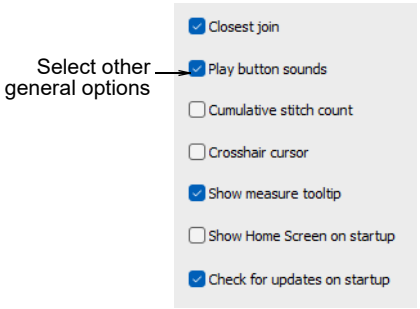
Related topics...

- Access object properties

Other general options

Use Standard > Options to access application options for design view, grid & guides, and other settings.

Miscellaneous other system settings available via the **Options > General** tab:



These options include:

Option	Function
Closest join	The Closest Join method (the default) automatically calculates closest join between objects while digitizing. When deactivated, entry/exit points of all newly digitized objects are set manually. See Embroidery digitizing for details.
Play button sounds	Enables beeping sounds made by the software in response to mouse clicks and pressing Enter or Spacebar keys while digitizing.
Cumulative stitch count	Displays stitch count as a cumulative total in the Stop Sequence tab of the Information docker. See also View design details in BE EmbroideryStudio.
Crosshair cursor	Changes the default cursor pointer to crosshairs for more precise positioning. It is best used together with the grid.
Show measure tooltip	Shows length and angle in a tooltip when measuring distances on screen. See Measure distances on screen for details.

Option	Function
Check for updates	When activated, the software will check at every startup whether updates are available. It will also check whenever you access the My Wilcom page from the Home Screen. When deactivated, you will need to run the Help > Check for Updates command.



Tip: Use the measure tooltip in combination with the crosshair cursor on for more accurate measurements.

View options

You can preset viewing options for embroidery design elements as well as graphics.

Design viewing options

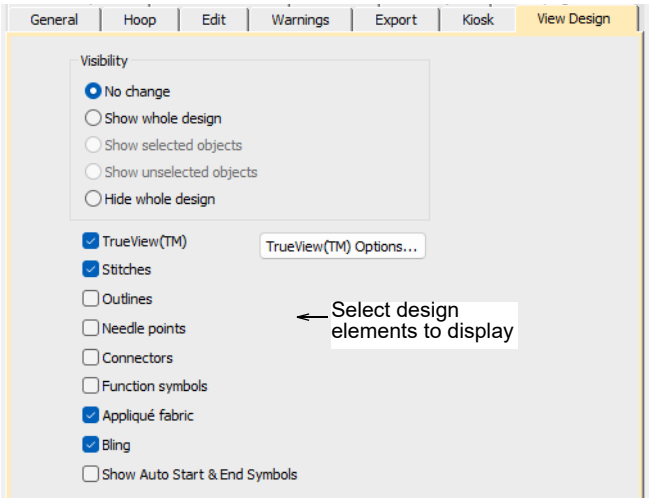


Use Standard > Options to access application options for design view, grid & guides, and other settings.

BE EmbroideryStudio lets you preset options to show or hide design elements such as stitches, outlines, and background fabric. You can also change TrueView™ settings for different viewing effects.

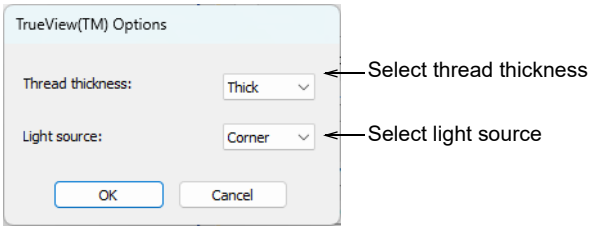
To set design viewing options...

1 Click the **Options** icon or select **Setup > Options** and select the **View Design** tab.

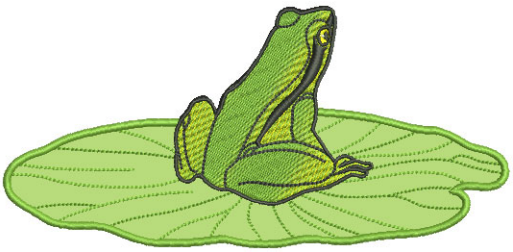


2 Select viewing options to display. These control the same toggles as the **View** toolbar. The difference is that the selections you make here affect default system settings.

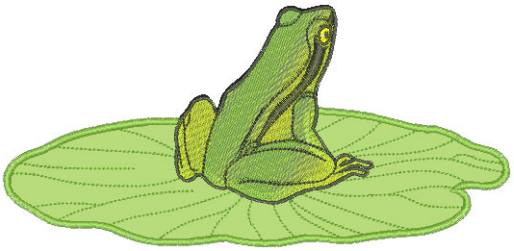
3 Click **TrueView Options** to adjust TrueView™ settings.



4 Adjust thread thickness and light source for preferred TrueView™ appearance. These settings also affect the appearance of printed TrueView™ 'virtual decoration'.



TrueView™ – thick thread, light above



TrueView™ – thin thread, corner light

Note: This **Thread Thickness** setting only affects the TrueView™ display, not actual thread thickness values.

Related topics...

- View embroidery components
- Viewing design components
- Outputting designs as images
- Start & end points

Image viewing options

Use View > Show Bitmaps to show and hide bitmap images. Right-click to set image display options.

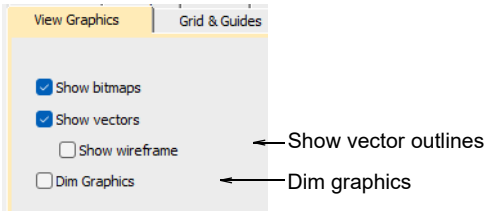
Use View > Show Vectors to show and hide vector graphics. Right-click to set image display options.

Use View > Dim Artwork to dim graphic backdrops to show stitches more clearly for digitizing.

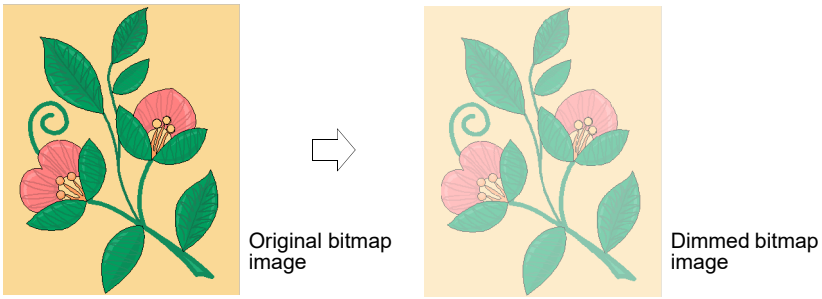
You can dim bitmap image backdrops to make it easier to view stitches. You can also show colored vector graphics as outlines only.

To set image viewing options...

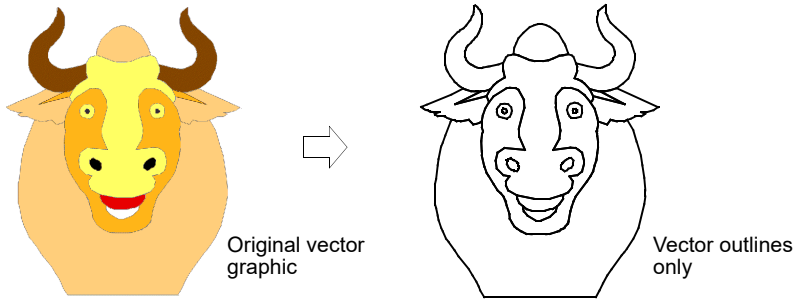
- Right-click either the **Show Bitmap** or **Show Vectors** icon. The **Options > View Graphics** dialog opens.



- To dim a bitmap image backdrop, select the **Dim Graphics** checkbox.

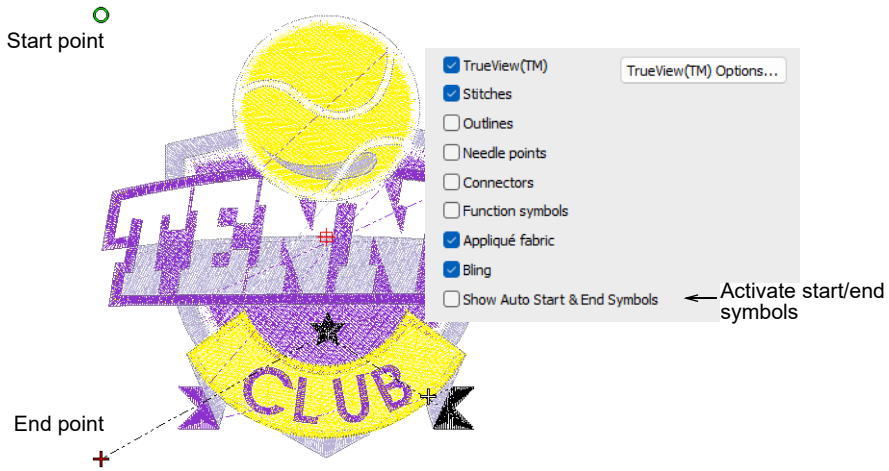


- To view a colored vector graphic as outlines, select the **Show Wireframe** checkbox.



Show auto-start & end points

The stitch cursor always appears at the end of the last digitized object. Activate auto-start and end symbols via the **Options > View Design** tab. A green circle indicates the start point while a red plus sign (+) indicates the end point.



Related topics...

- Start & end points

Grid display options

BE EmbroideryStudio provides a set of grid lines to help accurately align or size embroidery objects. The **Show Rulers and Guides** feature lets you accurately place and align objects. When a design is saved, the ruler zero point and guide positions are saved with it.

Grid display options

Click View > Show Grid to show or hide the grid. Right-click for settings.

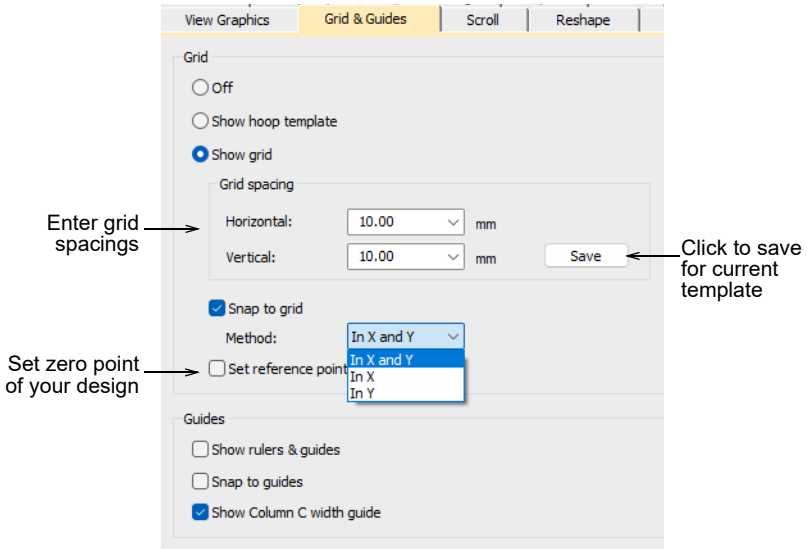
Click View > Show Rulers and Guides to show or hide rulers and guides. Right-click for settings.

Drag the Ruler Zero Point to reset a new ruler zero point.

Adjust grid spacing depending on the size of design you are working with. Use the **Snap to Grid** feature to align objects with the nearest grid lines. Checkboxes control the same toggles as the **View** toolbar. The difference is that the selections you make here affect default system settings next time you run BE EmbroideryStudio.

To adjust grid display...

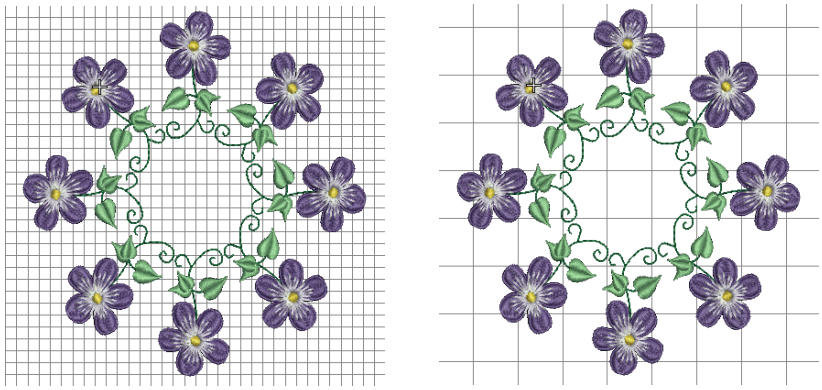
1 Right-click **Show Grid**. The **Options > Grid & Guides** dialog opens.



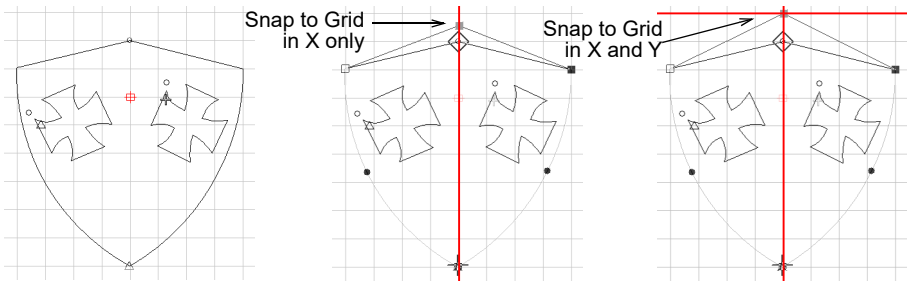
2 Choose a grid type:

- Optionally, select the **Hoop Template** display. Templates can be used instead of grids. The template, especially when printed in the worksheet, provides a means for aligning the design in the hoop at the correct location and orientation.
- Alternatively, select the **Show grid** option. This activates spacing settings.

3 Enter **Grid Spacing** values for horizontal and vertical grid lines. To save grid spacing to the current template, click **Save**.



4 Select the **Snap to Grid** checkbox as required. Reference points, control points or leading edges of objects snap to grid during digitizing, sizing, reshaping, or positioning operations.



5 Choose a snap method. You can choose whether to activate in X or Y axes or both.

6 Select the **Set Reference Point** checkbox to set the zero point of the rule. For example, you can set the grid reference point to the design center. This is easier and faster than moving the whole design. When you close the dialog, you are prompted to mark the zero point of your design.

Tip: To temporarily disable **Snap to Grid** as you digitize, hold down **Alt**.

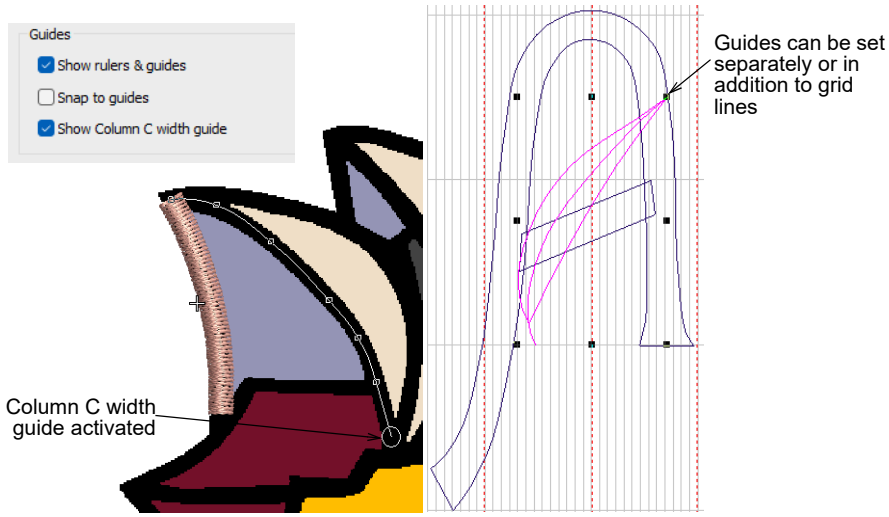
Related topics...

- Display grids, rulers & guides
- Center design & hoop in design window

Ruler & guide display options

Right-click View > Show Rulers & Guides to set the Snap to Grid and Snap to Guides options.

Rulers and guides are activated by the **Show Rulers & Guides** toggle. The unit of measurement – mm or inches – defaults to the regional settings in the MS Windows® Control Panel. The ruler scale adjusts with the current zoom setting. Guides can be used separately or in addition to grid lines for detailed work.



Snap to Guides can be set for guides independently of grid lines. Reference points, control points or leading edges of objects snap to guides during digitizing, sizing, reshaping, or positioning operations. To temporarily disable **Snap to Guides** as you digitize, hold down **Alt**.

The **Show Column C Width Guide** option activates a special cursor with the **Column C** tool. A circle appears at the cursor position corresponding to the width setting in the **Object Properties** docker. This is useful when digitizing a border based on a background image. When the offset is biased, two circles are shown, one for each side.

Note: To gain the benefit of the width guide, you must accept the current width setting by pressing **Enter**, rather than digitizing reference points after finishing the centerline.

Related topics...

- Display grids, rulers & guides
- Set measurement units

Hoop display options

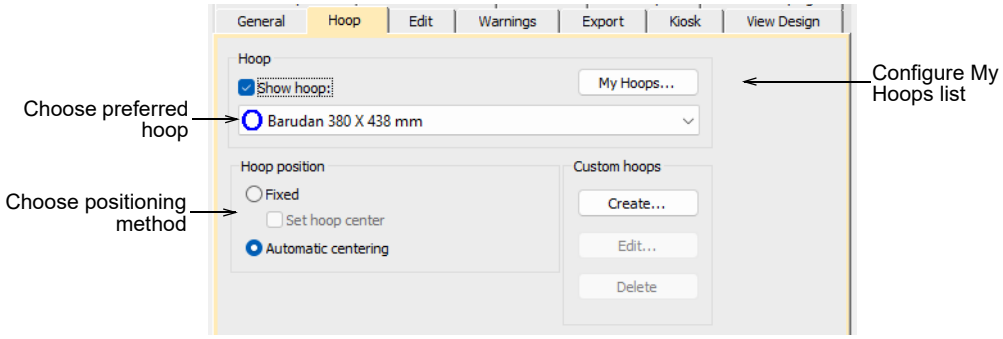
Fabrics must be hooped before stitching out on the machine. Devices made from wood, plastic, or steel, hoops are used to tightly grip fabric and stabilizer between an inner and outer ring. Designed to hold fabric taut against the machine bed for embroidering, they attach to the machine's frame. BE EmbroideryStudio allows you to select from a wide range of standard factory-supplied hoops. Define your own hoops using circle, oval, rectangle, and other shapes.



Hoop lists

	Use Standard > Options to access application options for design view, grid & guides, and other settings.
	Click Hoop > Hoop Options to configure hoop lists, change hoop position settings, and define custom hoops.
	Click Hoop > Show Hoop to turn hoop display on or off. Right-click to change hoop settings.

A range of commercial brands is available in BE EmbroideryStudio for a wide variety of machines and design types. The **My Hoops** option allows you to define a filtered list of those hoops you have available for use. If you are using a hoop not appearing in the hoops list, the **Options > Hoop** dialog also lets you define your own and save for later use.



BE EmbroideryStudio provides options for auto-centering hoops around the geometric center of the design or start needle position. You can also turn off auto-centering to ensure the hoop does not move from its original position. You can also define a point on the design that the hoop will center around.

Related topics...

- Hoop lists
- Hoop selection
- Hoop placement
- Custom hoops

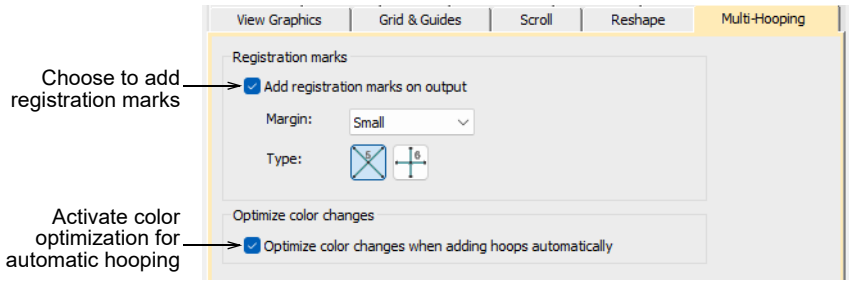
Multi-hooping options

Use Standard > Options to access application options for design view, grid & guides, and other settings.

Toggle Hoop > Hooping Mode on to access the multi-hooping toolset.

Use Hooping Mode > Multi-Hooping Options to check your hooping settings.

BE EmbroideryStudio provides a dedicated **Hooping Mode** toolbar which allows you to specify multiple hoopings for large designs, both manually or automatically. In order to align consecutive hoopings during stitchout, you can include registration marks for each hooping via the **Multi-Hooping** tab of the **Options** dialog.



It is important to minimize color changes in a design. If you activate color optimization in the **Multi-Hooping** tab, this is automatically applied to the design when generating automatic hoopings.

Related topics...

- Automatic multi-hooping
- Adding registration marks

Scroll options

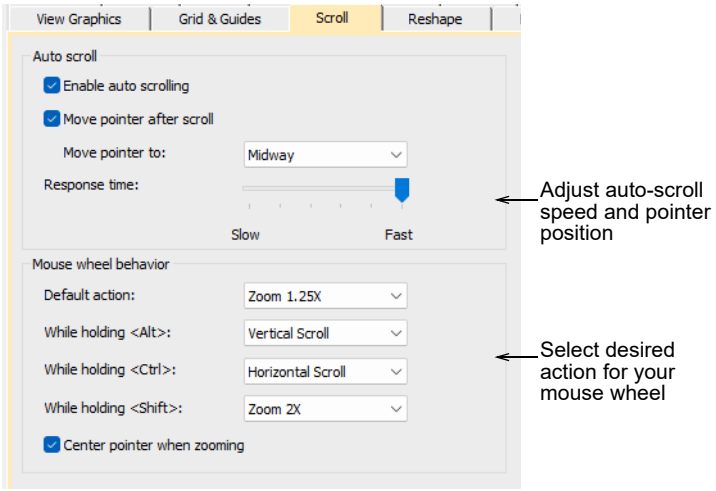


Use Standard > Options to access application options for design view, grid & guides, and other settings.

The **Options > Scroll** tab lets you to control mouse pointer and mouse wheel behavior. Use **Auto Scroll** to scroll automatically while digitizing. This can be more convenient than using panning or scroll bars, especially when working on large designs. The dialog also lets you set four different mouse wheel behaviors.

To set scroll options...

1 Click the **Options** icon or select **Setup > Options** and select the **Scroll** tab.



2 Adjust **Auto Scroll** options as needed. The effect only becomes apparent when you start to digitize. The design window automatically follows the current cursor position.

Option	Function
Auto scroll	Tick to enable automatic scrolling while digitizing.
Move pointer after scroll	Set pointer position after each scrolling action:
	Center: Use this setting for large movements.
	Midway: Use this setting for smaller movements – e.g. when zooming into a small area of the design.
	Corner: Use this setting for slow scrolling.
Response time	Adjust scrolling speed.

Tip: Hold down the **Shift** key to temporarily deactivate **Auto Scroll**. Use the **Ctrl+Shift+A** key combination to toggle **Auto Scroll** on/off.

3 Tick **Center pointer when zooming** to ensure that the pointer stays centered on screen at all times.

Reshape options

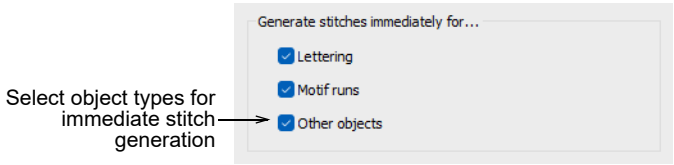
Right-click Reshape > Reshape Object to set reshaping options.

Stitch generation during reshaping operations can slow down your system. **Reshape** options let you choose whether stitches are generated immediately or only after **Enter** is pressed. This tab also controls node

dragging behavior in **Reshape** operations as well as re-sequencing behavior in cutting operations with the **Knife** tool.

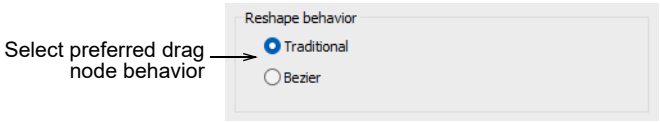
To set automatic stitch generation options...

1 Right-click the **Reshape Object** icon. The **Options > Reshape** dialog opens.

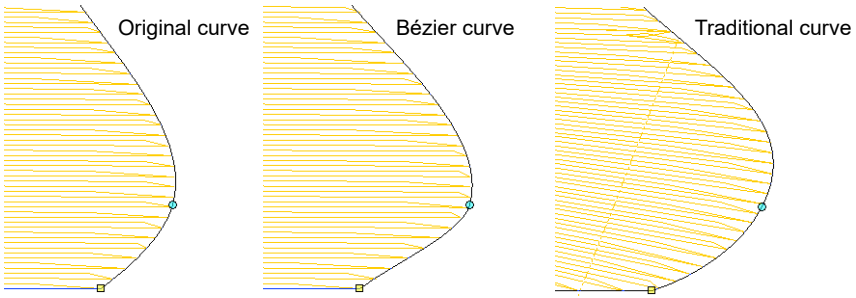


2 Select options for generating stitches immediately after reshaping operations – i.e. for lettering objects, motif runs, and/or other objects. If left unchecked, any reshaping changes made are not updated until **Enter** is pressed.

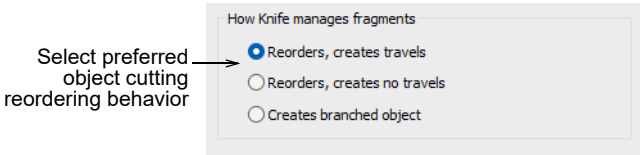
3 Select your preferred left mouse drag node behavior – **Traditional** or **Bézier**.



Generally, 'bézier' node dragging preserves the shape of the curve more closely.



4 Select your preferred object-cutting reordering behavior.



BE EmbroideryStudio sorts object fragments resulting from cutting operations with the **Knife** tool into a closest-join sequence that preserves the source object's entry and exit points. There are three possible ways of reordering fragment objects:

- Reorder and create travel runs between objects separated by gap.
- Reorder, trimming between separated objects where necessary, but creating no travel runs.
- Combine fragments into a single branched object corresponding to the source object.

The option you choose will affect all **Knife** tool cutting operations.

Tip: The **Break Apart** tool allows you to split branched objects, including objects resulting from cutting operations, into their component parts.

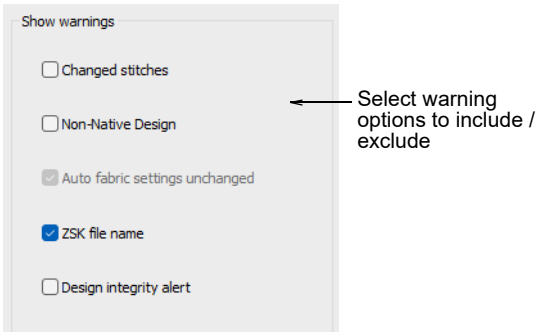
Related topics...

- Reshape objects with Bézier controls
- Cut shapes manually
- Break apart composite objects

Warning options

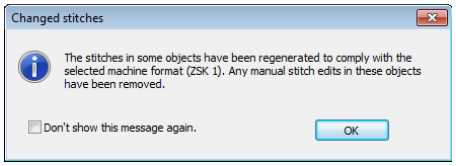
Use Standard > Options to access application options for design view, grid & guides, and other settings.

Some warning messages may become distracting. You may want to switch such warnings off but still be able to re-activate them at a later time. The **Options** dialog includes a **Warnings** tab which allows you to re- or de-activate specific warning messages as desired.

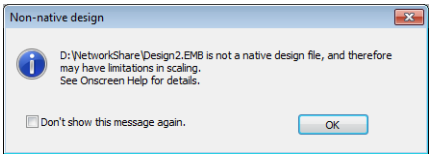


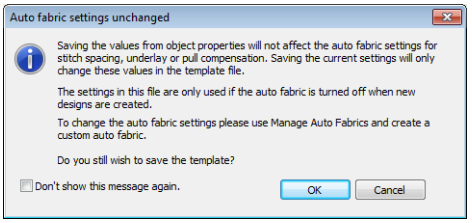
Warning messages include:

- **Changed Stitches**: This appears when sending designs to **Stitch Manager**, depending on whether stitches need to be regenerated to comply with a changed machine format.

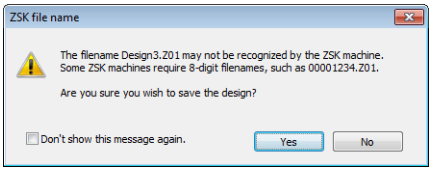


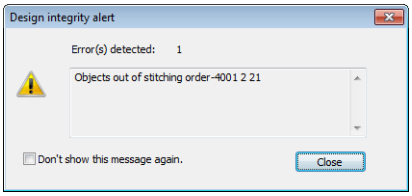
- **Non-Native Design**: This appears when opening 'machine files' of unknown origin. Machine files cannot be scaled by more than approximately ±5% since their stitch count does not change. By contrast, design or 'outline' files such as native EMB, can be scaled by any factor as stitches are dynamically regenerated.





- **Fabric Settings Unchanged**: This appears if you have chosen to work with an auto-fabric and wish to save changes made to object properties. Any changes are saved to the template, not to the fabric itself. Such changes are overridden by current fabric settings.
- **ZSK File Name**: This appears if you try to save a design to ZSK TC format with an alphanumeric file name. ZSK machines require 8-digit filenames.





- **Design Integrity Alert**: This appears if the software detects a problem with the design file. If you see an alert, you should use **Undo** to return the design to an error-free state. Save the design. Then save a separate instance of the design up to the point the alert is generated. Send both designs to Wilcom Support for analysis.

Note: Turning off this message also turns off design integrity checking.

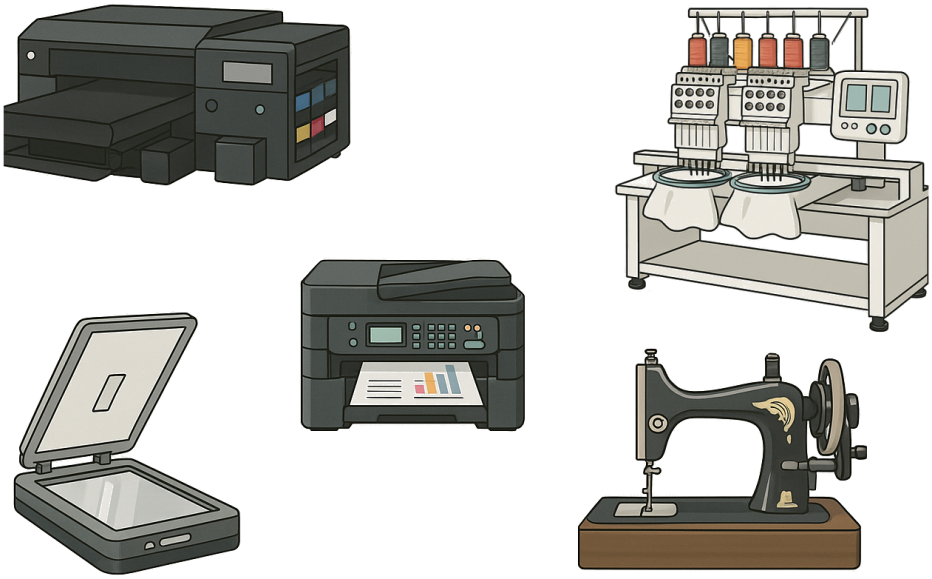
Related topics...

- Send designs to Stitch Manager
- Working with fabrics
- Embroidery file formats

Chapter 7

Hardware Setup

You will need to connect peripheral devices for use with BE EmbroideryStudio. These may include digitizing tablets, plotters, printers, appliqué cutters, scanners and embroidery machines. Different devices are set up in different ways – some in MS Windows®, via the **Control Panel**, others within BE EmbroideryStudio itself.



BE EmbroideryStudio provides alternate means for sending designs directly to machine. Depending on your hardware, you can send designs directly using **Stitch Manager**, **Machine Manager**, or **Connection Manager**. **Machine Manager** is described in a separate **Supplement**.

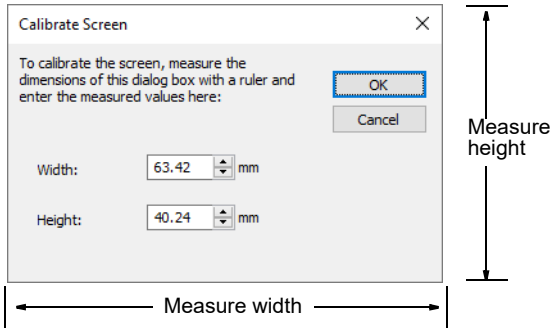
Tip: The number of available ports limits the number of devices you can connect. If additional ports are required, you can add them. Multi-port serial cards can also be used. See a PC technician about your requirements.

Calibrating the monitor

You need to calibrate your monitor so that designs at 1:1 scale appear at real size. Do this when you first install BE EmbroideryStudio or whenever you change your monitor.

To calibrate the monitor...

1 Select **Setup > Calibrate Screen**.



2 Measure the height and width of the dialog box.

3 Enter the measurement in the **Width** and **Height** fields.

4 Click **OK**.

Related topics...

- Viewing Designs

Peripheral device connections

Peripheral devices can be connected to your computer via USB port, serial port, parallel port, specialized network card, or Ethernet network. Local area networks (LANs) commonly use Ethernet networks for machine connection.

Note: For instructions on connecting devices to your computer and setting up in MS Windows®, see the documentation for the device as well as your MS Windows® documentation.

USB ports

Most machines now use USB port connection. They appear just like a disk drive on your PC so there is no need to configure communication parameters as for serial or parallel port connections. Some machines such as Janome MB-4 and Barudan are supplied with propriety connection software. BE EmbroideryStudio supports connection to these

machines via the **Connection Manager** option. See Setting up machines for Connection Manager for details.

Serial ports

PC serial COM ports are male connectors, and can be either 9-pin or 25-pin. They are named COM1, COM2, COM3, etc. You must be able to identify the ports on your computer. (If in doubt, consult a PC technician.) When you set up a device that is connected via a serial port, you need to enter the serial port settings in BE EmbroideryStudio as part of the setup procedure. See also Enter serial port settings.

The following table provides standard settings for various devices. They are a guide only. Settings for the same device may vary according to manufacturer. Check the documentation supplied with the device before setting up.

Device	Port	Baud	Hand-shaking	Data bits	Stop bits	Parity
Digitizer	COM1	9600	None	8	1	None
Plotter	COM2	9600	XOn/XOff	8	1	None
Tape Punch	COM2	4800	XOn/XOff	8	1	None
Tape Reader	COM2	4800	XOn/XOff	8	1	None
Embroidery Machine	COM2	9600	Hardware	8	1	None



Tip: The number of available ports limits the number of devices you can connect. If additional ports are required, you can add them. Multi-port serial cards can also be used. See a PC technician about your requirements.

Setting up machines for Connection Manager

Newer machines use USB port connection. They appear as a disk drive on the PC. As such there is no need to set up communication parameters as for serial or parallel port connections. Some machines such as Janome MB-4 and Barudan LEM, are supplied with propriety connection software. To integrate with BE EmbroideryStudio, the relevant software needs to be installed on the same machine. Discuss with your machine supplier for details.

Set up machines

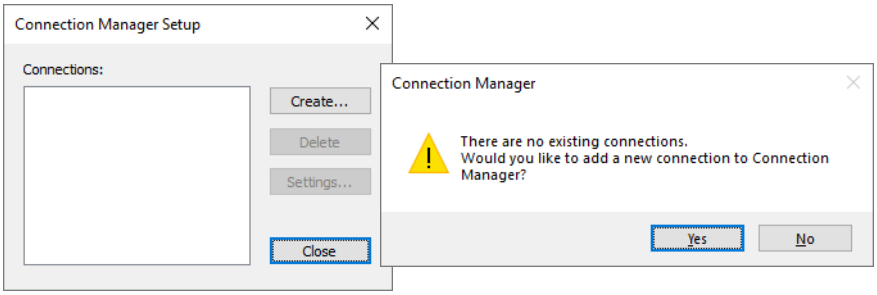


Use Standard > Send to Connection Manager to connect to supported machines via proprietary machine software.

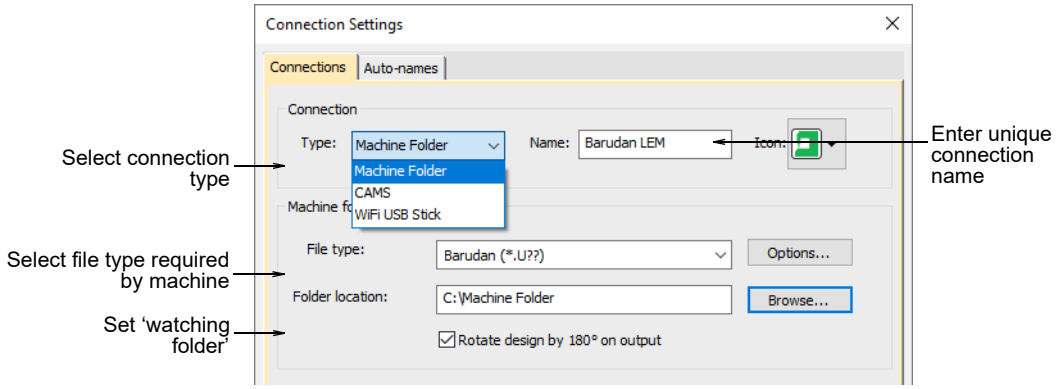
BE EmbroideryStudio supports various machine models. Some can be connected by cable directly to your PC via USB port. Others require files to be placed in a specific network location or 'watching folder'. Older-style machines do not support direct connection but they do read ATA PC cards and/or USB memory sticks. **Connection Manager** provides a method of connection to machines that appear as removable media or make use of third-party connection software. Once set up in BE EmbroideryStudio, a single click is sufficient to send the design to machine.

To set up a machine...

1 Select **Setup > Connection Manager Setup**. Alternatively, click the **Send to Connection Manager** icon on the **Standard** toolbar. If no connections currently exist, a message appears.



2 Click **Yes** or **Create** to start setting up your connections. The **Connection Settings** dialog opens.

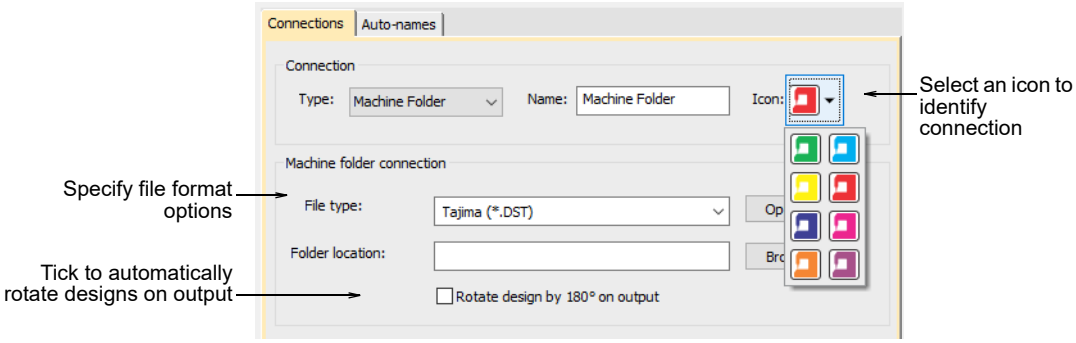


3 Select the connection type. Choose from:

- Machine folder – e.g. Barudan DFS, HappyLink/LAN, Brother PR series, etc
- Janome MB-4
- CAMS (rhinestone placement machine).

4 Enter a unique name for the connection. This identifies the quick-access button on **Standard** toolbar and appears in the tooltip.

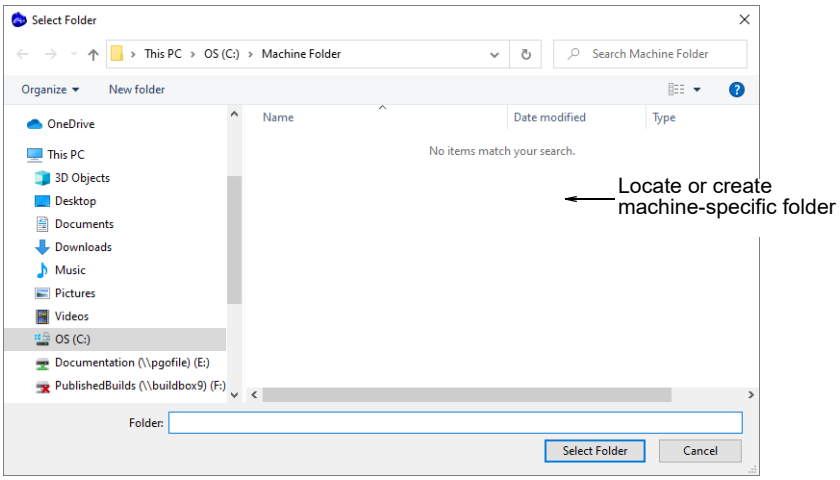
5 Choose an icon to identify the specific connection.



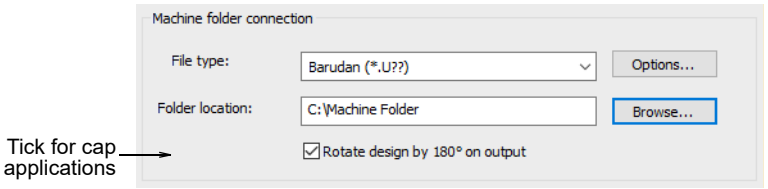
6 Select the file type required by the machine. Depending on the chosen file type, the **Options** button may become available. This allows you to set up specific file format options from within **Connection Manager** without having to go to the **Save As** dialog.

7 Enter or browse to a folder location on the network or PC which has been set up for the specific machine.

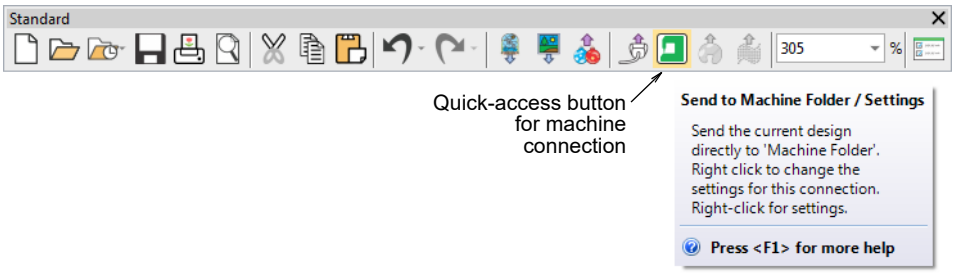
For example, if you choose to connect to a Barudan LEM design server, this allows you to set up a 'watching folder' which the server monitors for design files (U?? format). It then systematically converts to PRJ for machine communication. When you output a design, **Connection Manager** saves it to this folder in the specified format.



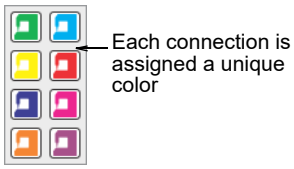
8 Optionally, tick the checkbox to rotate designs by 180º on output for cap applications. If ticked, all designs sent to that connection will be automatically rotated.



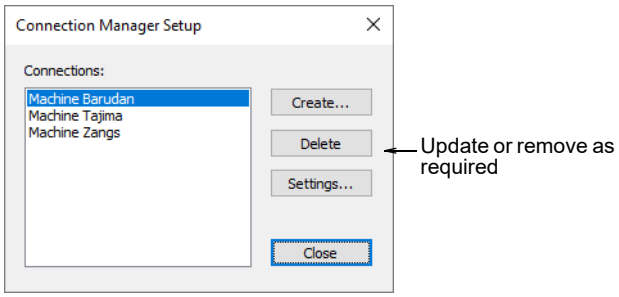
9 Click **OK** when complete. The new connection appears on the **Standard** toolbar.



10 Repeat steps to set up more machine connections. As more machines are created, more quick-access buttons are added to the **Standard** toolbar. Each can be assigned its own identifying color.



All machines connections you define are listed in the **Connection Manager Setup** dialog. From here they can be updated or removed from the system.

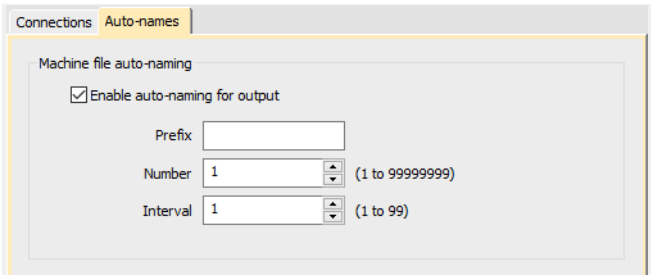


Related topics...

- Save & close designs
- Send designs to Connection Manager
- Send bling to CAMS machine

Automatic machine file naming

Connection Manager provides an option for automatic machine file naming. When enabled, the specified filename format is used for all machine connections established in **Connection Manager**.



Where...

Setting	Details
Filename format	Filenames take the format <prefix><number>.<extension>
Prefix	ASCII only, no Unicode characters. No Windows reserved characters. Length limit 8 characters.
Number	Numeric only. This sets the starting number. Range 1–99,999,999.
Interval	Interval is numeric only and sets the number to increment each time a file is generated – e.g. '5', '10', etc. Range is 1–99.

Note: When enabled, Kiosk also uses this auto-name specification for all machine files. If not enabled, it uses the kiosk machine file definition.

Related topics...

- Lettering Kiosk

Setting up machines for Stitch Manager

Before sending designs via **Stitch Manager**, you must first configure the machine in BE EmbroideryStudio. Add machines, change existing machine settings, or delete machines no longer in use. Newer machines use USB connection. BE EmbroideryStudio supports connection to these machines via the **Connection Manager** option.

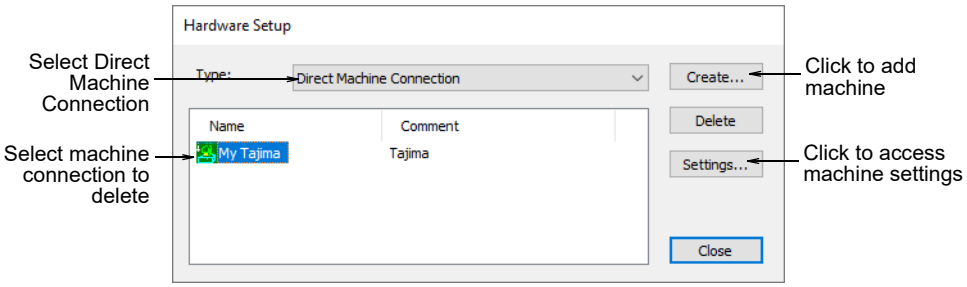
Set up machines

Use Legacy Features > Hardware Setup to set up a machine connection with name, port, and protocol.

To set up a machine you need to define a name, the port it is attached to, and the protocol it uses. For every machine, you need to select the machine format it supports.

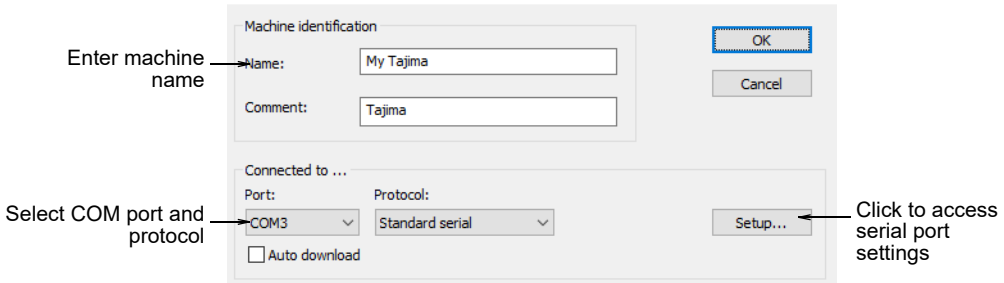
To set up machines...

1. Connect the embroidery machine using the instructions that came with the machine. Carefully note the port settings.
2. Run BE EmbroideryStudio. The port settings must now be entered in BE EmbroideryStudio **Hardware Setup**.
3. Select **Legacy Features > Hardware Setup**.



4. From the **Type** list, select **Direct Machine Connection**.
   - To add a new machine, click **Create**.
   - To change the settings of an existing machine, select it, then click **Settings**.

   The **Embroidery Machine Connection** dialog opens.



5. Use the **Name** and **Comment** fields to uniquely identify the machine connection.

6 From the **Port** list, select the serial (COM) or parallel (LPT) port to which the machine is connected.

7 From the **Protocol** list, select the protocol for the connection between the computer and embroidery machine.

See the documentation supplied with the embroidery machine to determine the appropriate connection.

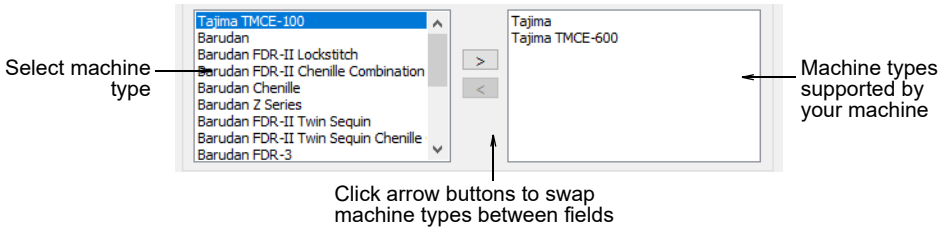
8 Click **Setup** to access the serial port settings.

These settings **must** be the same as those set on the embroidery machine, or BE EmbroideryStudio will not be able to communicate with it.

9 Select **Auto Download** to directly download designs to the assigned machine. Deselect it to confirm before sending.

10 In the **Machine Type** panel, select the compatible machine formats.

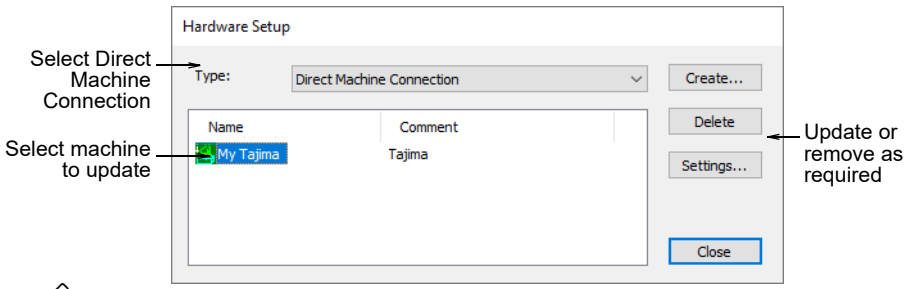
To do this, select compatible machine types in the **Available** list, and click > to move them to the **For this machine** list.



Note: Machine format values can be added or changed if required.

11 Click **OK** to return to the **Hardware Setup** dialog.

12 Click **Close**. All machine connections you define are listed in the **Hardware Setup** dialog. From here they can be updated or removed from the system.



Note: Once machine setup is complete, you can stitch out a design via **Stitch Manager without** changing the original design format.

Related topics...

- Peripheral device connections

- Serial ports
- Send designs to Stitch Manager
- Custom machine formats

Enter serial port settings

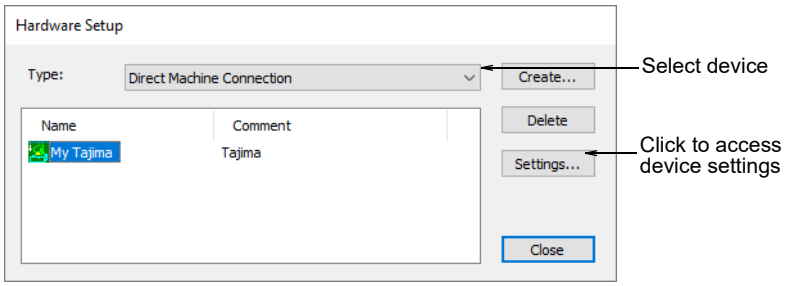
Use Legacy Features > Hardware Setup to set up a machine connection with name, port, and protocol.

PC serial COM ports are male connectors, and can be either 9-pin or 25-pin. They are named COM1, COM2, COM3, etc. When you set up a digitizer or machine that is connected via a serial port, you need to enter the serial port settings in BE EmbroideryStudio.

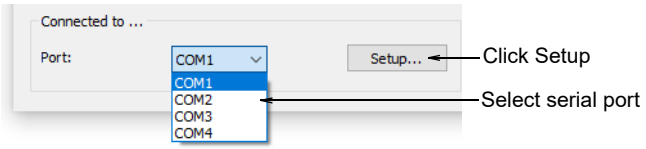
Note: You must be able to identify the ports on your computer. If in doubt, consult a PC technician.

To enter serial port settings...

1 Select **Legacy Features > Hardware Setup**.

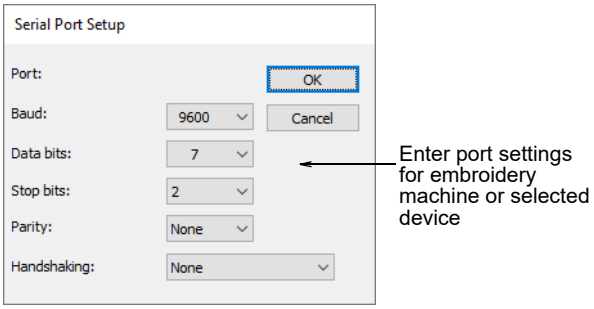


2 Select a device from the **Type** list and select an item in the **Name** column, then click **Settings**. The **<Device> Setup** dialog opens.



3 In the **Connected To** panel, select a serial port from the **Port** list.

4 Click **Setup**. The **Serial Port Setup** dialog opens.



5 Enter the **Baud** rate, **Data Bits**, **Stop Bits** and **Parity** and **Handshaking** settings for the device.

6 Click **OK**.

Note: The port settings **must** match those of the embroidery machine or selected device. The type of handshaking **must** match the type of cable you are using. Check the communications setup section of the documentation that came with the device.

Related topics...

- Connecting digitizing tablets
- Serial ports

Runtime estimates

BE EmbroideryStudio provides a **Runtime Analyst** feature for calculating estimated running times for embroidery files using specified RPM values and other runtime parameters. These are used on a design-by-design basis to determine scheduling, running costs, and payments for production staff. Output can be used by any third-party software such as ERP or accounting systems.

Typical usage

Information can be made available to various stakeholders for payroll, estimations, and scheduling. For instance:

- The designer creates a new design and saves as EMB and/or machine file such as U11.
- BE EmbroideryStudio automatically calculates running time.
- Calculated results are saved to CSV file in a designated file location.
- The payroll department accesses the CSV file and calculates pay rates for the design. For example:

- A payroll clerk may need to find out what the runtime will be for a given job in order to pay the machine operator.
- A manager may need to provide an accurate runtime estimate for any given design so the payroll department is able to process machine operator payments.

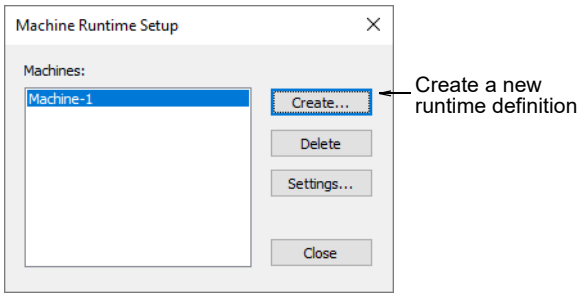
- The ERP system accesses the CSV file for estimation and scheduling purposes.
- Runtime information may be communicated to a machine operator who needs to know the runtime estimate for a specific job.

Configure machine runtime settings

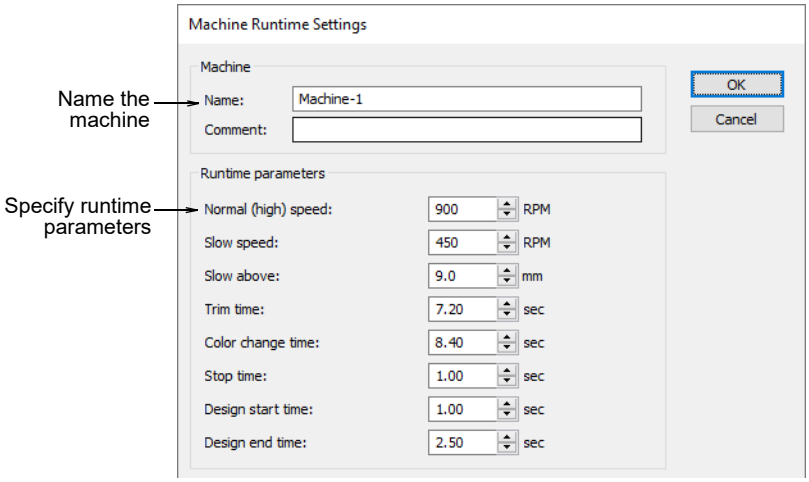
You can set up multiple named machines for the purposes of runtime analysis with specific parameters such as 'fast speed', 'slow speed', 'trim time', 'color change time', etc.

To configure machine runtime settings...

1 Select **Setup > Machine Runtime Setup**. Or run the command from the **Design Information > Runtime** tab. The **Machine Runtime Setup** dialog opens. The dialog lists all machines currently defined for the purposes of runtime analysis.



2 Click **Create** to set up a new runtime definition. The **Machine Runtime Settings** dialog opens.



3 Use the **Name** and **Comment** fields to uniquely identify the machine or machine class.

The class may be based on machine model. However different machines of the same model may be set up for different purposes – e.g. to run at different speeds. If so, you'll need to set up different classes to suit.

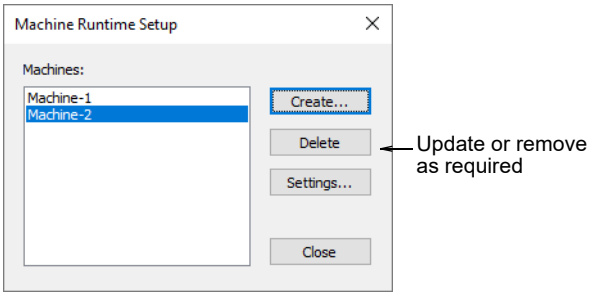
Note: Machine types set up here are independent of machines defined in **Connection Manager Setup** or **Embroidery Machine Connection** dialogs.

4 Create a runtime definition for the machine. Parameters are based on machine specs, controller feedback, and/or empirical observation:

Option	Function
Normal (high) speed	The speed at which the machine normally sews. Normally available from machine specs.
Slow speed	The slowest speed at which the machine runs. Normally available from machine specs.
Slow above	The length of stitch above which the machine slows down. This value is automatically adjusted according to speed settings, in particular slow speed. Should be available from the machine specs.
Trim time	The time the machine takes to perform a trim. May be available from machine specs or empirical observation.
Color change time	Same as for trim time.

Option	Function
Stop time	Time spent stopping in order to place fabric, foam, etc. This is normally determined through empirical observation. The number of heads on the machine will be a determining factor – e.g. 16 heads x 6 secs each.
Design start time	Time the machine takes to go from stop to normal speed – e.g. it may stitch a number of slow stitches to start off. May be available from machine specs or empirical observation.
Design end time	Stopping time – the machine may slow down and then travel to the center of the hoop before actually stopping.

5 Click **OK**. All machines or machine classes you define are listed in the **Machine Runtime Setup** dialog. From here they can be updated or removed from the system.



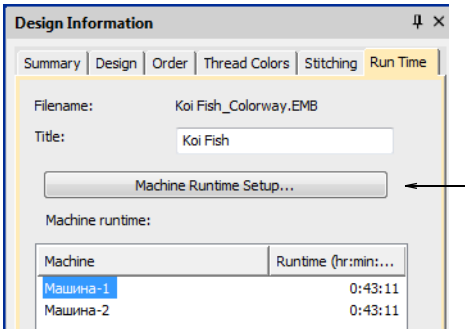
Output design information to CSV

> Use Docker > Design Information to view and modify design details prior to design approval or stitchout.

Design information, including runtime estimates and relevant parameters, can be output to CSV file for later use by third-party applications. New data is appended to the file.

Estimated running times

Once your machines or machine classes have been defined, estimated running time for a specific embroidery file is displayed in the **Design Information > Runtime** tab. This tab lists available machines together with estimated runtimes for the current design.

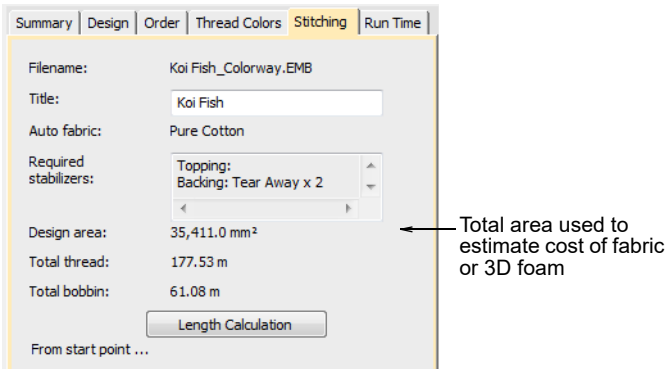


Related topics...

- Runtime tab

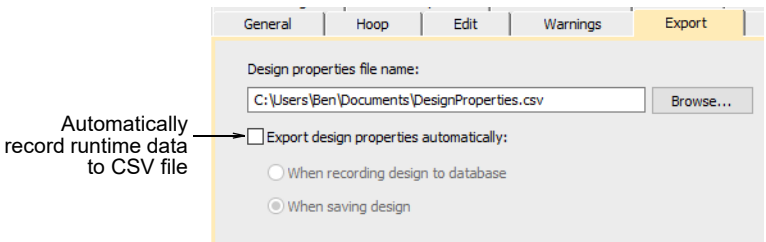
Cost of fabric parameters

An **Design Area** field on the **Stitching** tab shows the total design area. It is calculated by multiplying design width and height, not actual stitched area. This figure is used to estimate the cost of fabric or 3D foam that can be used in the design.



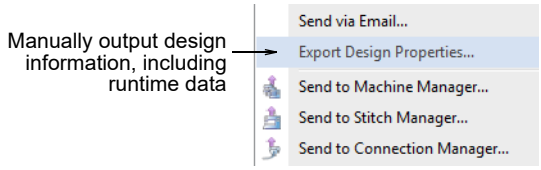
Export options

Design information can be written whenever the design is saved or recorded to DesignWorkflow database. An **Options > Export** tab allows you to preset these options.



Manual export

The **File > Export Design Information** command allows you to output current design information and machine runtime settings to CSV file.



The CSV output file includes the following fields. The first group derives from the **Design Information > Design** and **Stitching** tabs. The second group derives from **Machine Runtime Settings**.

Field	Description
Date	Date and time of exporting properties.
Design data	**Derived from design tab**
File name	Name design saved under.
Machine format	Machine format of design.
Stitches	Total number of stitches in design.
Colors	Total number of thread colors in design.
Color changes	Total color changes – may or may not coincide with number of colors.
Stops	Number of machine stops in design.
Trims	Number of trims in design.
Sequins	Number of sequins in design.
Bling	Number of individual rhinestones in design.
Height (mm)	Height of sewing area - derived from design extents.
Width (mm)	Width of sewing area - derived from design extents.
Stitching data	**Derived from stitching tab**
Total thread (m)	Total length of thread used in design.
Design area (mm^2)	Area covered by design - calculated according to design extents.
Runtime data	**Derived from runtime settings tab**
Below / Above	Number of stitches stitched at slow and high speed according to ‘slow above’ parameter. Combined numbers should equate to ‘Stitches’ value.
Machine	Machine as shown on Machine Runtime Setup dialog. If there are multiple machines defined, a separate line entry appears for each.

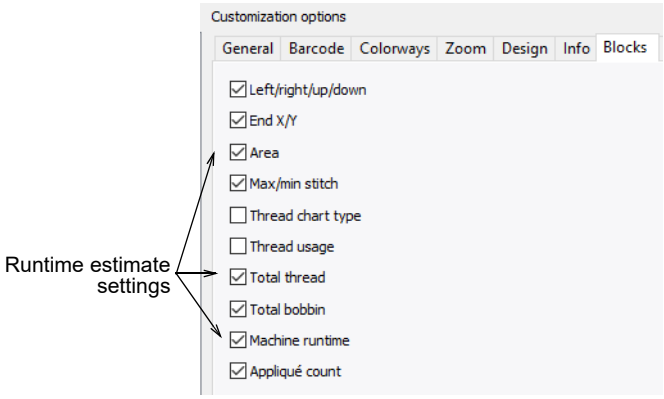
Field	Description
Normal (high) speed (RPM)	Runtime setting as shown on Machine Runtime Settings dialog.
Slow speed (RPM)	Ditto
Slow above (mm)	Ditto
Trim time (sec)	Ditto
Color change time (sec)	Ditto
Stop time (sec)	Ditto
Design start time (sec)	Ditto
Design end time (sec)	Ditto
Runtime (min:sec)	Calculated runtime of this design according to particular machine as shown on Design Information > Runtime tab. If there are multiple machines defined, a separate line entry appears for each.

Related topics...

- Viewing design information

Print runtime estimates

The **Production Worksheet** prints runtime information. Three fields pertaining to the information appear under the **Blocks** tab – 'Area', 'Total thread' and 'Machine runtime'.



The **Machine runtime** checkbox is only available if the feature is available in the software. If there are no machines set up, checking 'Machine runtime' has no effect as there is nothing to print. **Total thread**

prints the information of the same name in the **Design Information** docker. This information is included in both **Production Worksheet** and **Production Summary**.

Related topics...

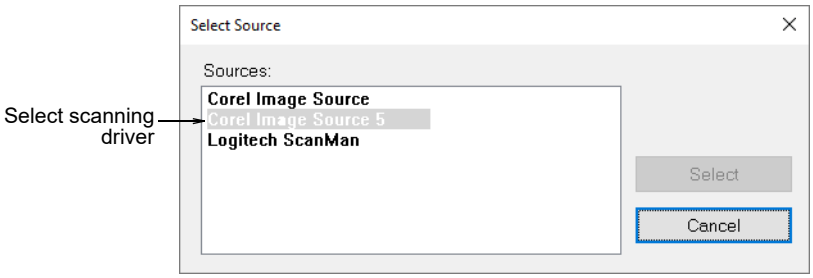
- Viewing design information
- Customizing design reports
- Printing design reports

Setting up scanners

BE EmbroideryStudio supports WIA-compatible scanners. Some scanners will not work with BE EmbroideryStudio because they require their own scanner software. If this is the case with your scanner, use your scanner software for scanning, save the image to your hard drive, then load the image into BE EmbroideryStudio.

To set up scanners...

1. Connect the scanner using the accompanying instructions.
2. Set it up in MS Windows® using the accompanying instructions and/or the Microsoft MS Windows® documentation.
3. Start BE EmbroideryStudio.
4. Select **Setup > Scanner Setup**. The **Select Source** dialog opens displaying a list of scanner drivers loaded on your computer.



5. Select the scanning driver to use, then click **Select**.

Note: If you have trouble with scanning after re-starting BE EmbroideryStudio, there may be a conflict with previously installed scanner drivers. Re-install BE EmbroideryStudio and test the scanner. If the selected scanner driver does not work in BE EmbroideryStudio, select another scanner driver from the list. There are usually two installed for each scanner.

Connecting digitizing tablets

You can use a digitizing tablet and puck with BE EmbroideryStudio as an alternative to digitizing directly on-screen. To use a tablet, you place an enlargement drawing on the active area, and use the puck to mark reference points.



Digitizing tablet with pressure sensitivity and pen tilt sensitivity

Caution: BE EmbroideryStudio cannot use the MS Windows®-compatible drivers of some tablets – e.g. GTCO and Calcomp tablets. Earlier versions of WinTab do not free up the COM port, even when it is not in use. This means BE EmbroideryStudio is unable to communicate with the digitizing tablet. Check with the tablet manufacturer to obtain a version of tablet software which will free the port when not in use. Alternatively, the software may disable or uninstall WinTab, or use another COM port when working with BE EmbroideryStudio.

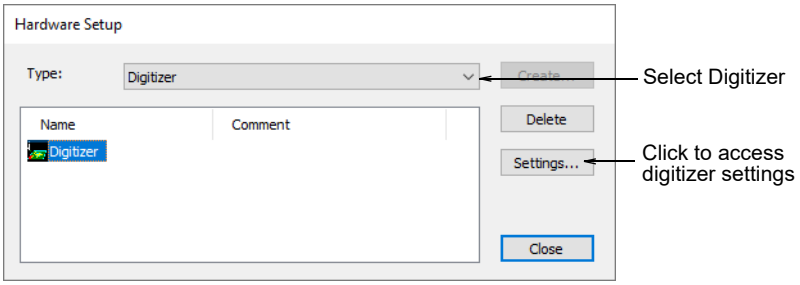
Set up digitizing tablets

Use Legacy Features > Hardware Setup to set up a machine connection with name, port, and protocol.

BE EmbroideryStudio can only support one tablet at a time. The format and the preferred pointer display mode must be specified.

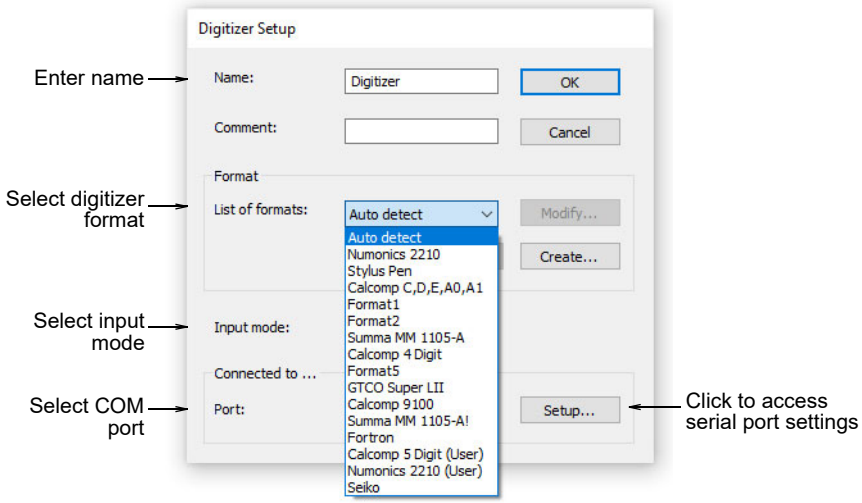
To set up a digitizing tablet...

1. Connect the digitizing tablet and puck using the accompanying instructions, and run BE EmbroideryStudio.
2. Select **Legacy Features > Hardware Setup**.



3 From the **Type** list, select **Digitizer**.

4 Click **Settings**. The **Digitizer Setup** dialog opens.



5 Use the **Name** and **Comment** fields to uniquely identify the digitizing tablet.

6 In the **Format** panel, select a digitizer format.

Select from standard digitizer formats or select **Auto Detect** to automatically match the format to the connected digitizer. Not all digitizers can be automatically detected by BE EmbroideryStudio. For these tablets, you can define a new format or modify existing format settings.

7 From the **Input Mode** list, select **Point** or **Stream**.

This setting **must** be the same as the one you specified on the digitizing tablet:

Mode	Function
Point	In this mode, the pointer position on screen is only updated when you click a button on the puck.

Mode	Function
Stream	In this mode, the pointer position is continuously updated. When you move the digitizer puck on the tablet, the pointer moves on screen.

8 From the **Port** list, select the COM port to which the digitizer is connected.

Digitizing tablets generally connect to COM1 but can connect to any available serial COM port.

9 Click **Setup** to access the serial port settings. These settings **must** be the same as those set on the digitizing tablet, or BE EmbroideryStudio will not be able to communicate with it.



Note: If you use **Stream** mode, you need to set the digitizer to transmit at 20 data packets per second or less. The baud rate for the digitizing tablet and serial port must both be set to 9600 baud.



Caution: To avoid loss of data at high speed, it is important to set up the tablet correctly. If it can only transmit at greater than 20 data packets per second, reduce the baud rate of the tablet from 9600 baud to 2400 baud.

10 Click **OK** then **Close**.

Related topics...

- Customize digitizing tablet formats
- Serial ports

Customize digitizing tablet formats

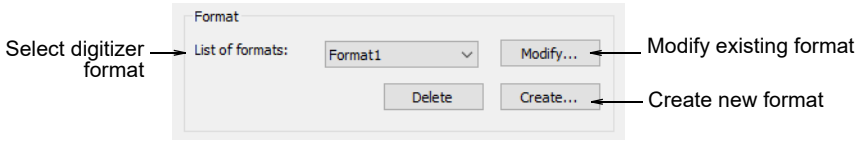
If the digitizing tablet format you require is not preset in BE EmbroideryStudio, you can create a new format, or modify an existing format to match the output of your tablet. Before starting, review the digitizing tablet documentation.



Caution: This functionality is provided for advanced users with knowledge of the data protocols supported by their digitizing tablet. Only use it if your digitizing tablet does not work with any existing formats.

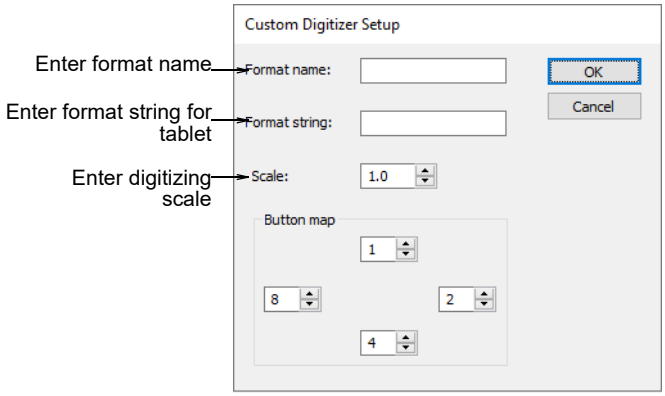
To customize a digitizing tablet format...

1 Access the **Digitizer Setup** dialog.



2 In the **Format** panel:

- To modify an existing format, select the format and click **Modify**.
- To define a new format, click **Create**. The **Custom Digitizer Setup** dialog opens.



3 In the **Format Name** field, enter a name for the new or modified format.

4 In the **Format String** field, enter the format string your digitizing tablet outputs.

Obtain this information from the digitizing tablet documentation.

5 In the **Scale** field, enter the scale at which you are digitizing. For example, a scale of 3.0 means your on-screen design will be one third the size you digitize on the tablet.

6 Click **OK**.

Related topics...

- Set up digitizing tablets

Prepare enlargement drawings

When you digitize with a tablet, you use an enlargement drawing to trace the shapes and outlines of the design in the same way you use backdrops on-screen. Before you start, you need to prepare the enlargement drawing.

To prepare an enlargement drawing...

1 Convert the artwork to a technical drawing.

Generally the drawing will be three times larger than the final embroidery.

Tip: If the drawing is in hard copy, scale it using a transparency projector or photocopier. If you used a graphics application to create the artwork, scale it before you print it out.

2 Modify the drawing to make it suitable for embroidery:

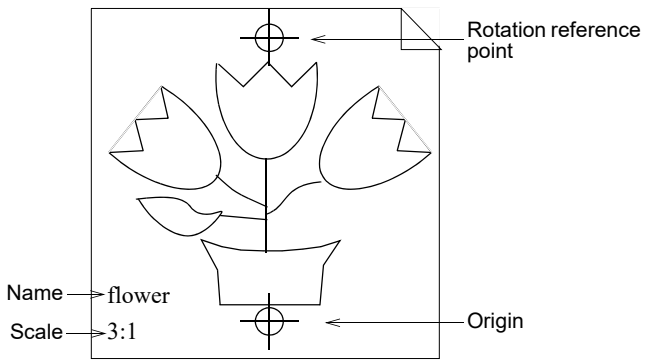
- Define shapes that can be easily filled with stitches.
- Overlap and distort shapes to compensate for push-pull.
- Draw digitizing guidelines – e.g. stitch angle lines.

3 Draw origin and rotation reference points.

These points set the position and orientation of the enlargement drawing on the digitizing tablet.

Tip: If the drawing is bigger than the digitizing tablet, enter additional points to help you shift the drawing as you digitize.

4 Write the name and scale of the enlargement drawing for future reference.



Related topics...

- Shift enlargement drawings

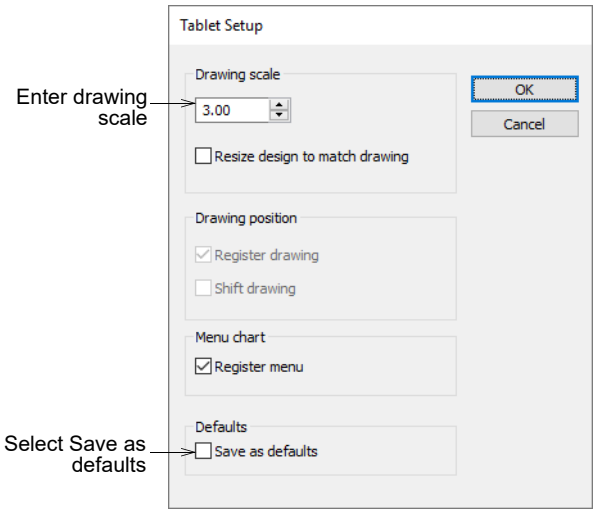
Register enlargement drawings

When you place an enlargement drawing on the digitizing tablet, you need to register it so BE EmbroideryStudio can interpret the design. To register an enlargement drawing, enter the scale, and digitize the origin

and rotation points on the tablet. The origin and rotation points should be marked on the enlargement drawing. If they are not, you need to draw them in.

To register an enlargement drawing...

1 Select **Setup > Tablet Setup**.

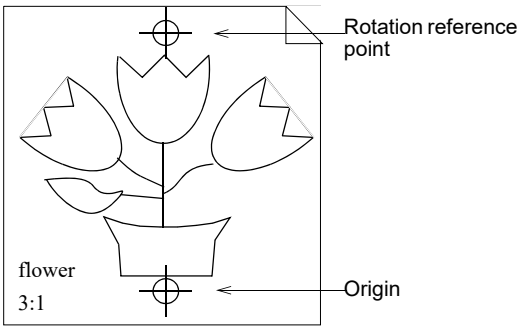


2 In the **Drawing Scale** panel, enter the scale of the enlargement drawing. To calculate the scale, divide the height the enlargement drawing by the required height of the final embroidery. Enlargement drawings are generally prepared at a scale of **3.00**.

3 Tick the **Save as defaults** checkbox. This saves the registration information for this drawing so you do not have to re-register each time you resume digitizing.

4 Click **OK** and place the enlargement drawing on the digitizing tablet.

5 Click the origin and rotation points of the drawing with **Button 1** of the digitizing puck. This completes the registration.

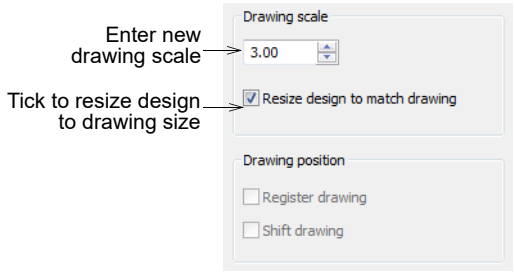


Change drawing scales

You can change drawing scale during digitizing. When you change scale, BE EmbroideryStudio automatically resizes object outlines and regenerates the stitches.

To change the drawing scale...

1 Select **Setup > Tablet Setup**.



2 Enter the new drawing scale. To calculate the scale, divide the height the enlargement drawing by the required height of the final embroidery. Enlargement drawings are generally prepared at a scale of **3.00**.

3 Tick the **Resize Design to Match Drawing** checkbox.

4 Tick the **Register Drawing** checkbox.

5 Click **OK**.

6 Digitize the origin and the rotation reference points to re-register at the new size. The design is resized to the new scale.

Shift enlargement drawings

If the drawing is bigger than the digitizing tablet, you can move it across the tablet and continue digitizing. To move a drawing you need to draw, and digitize, two additional reference points.

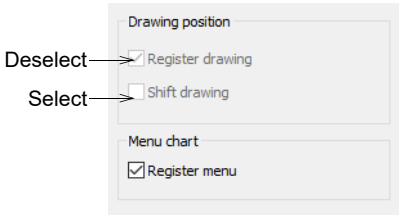
To shift an enlargement drawing...

1 Draw additional reference points on the enlargement drawing.

Position the points so that they will be on the active part of the digitizing tablet both before and after the move.

Tip: If you are shifting the drawing up or down, draw the additional reference points horizontally. If you are shifting left or right, draw them vertically.

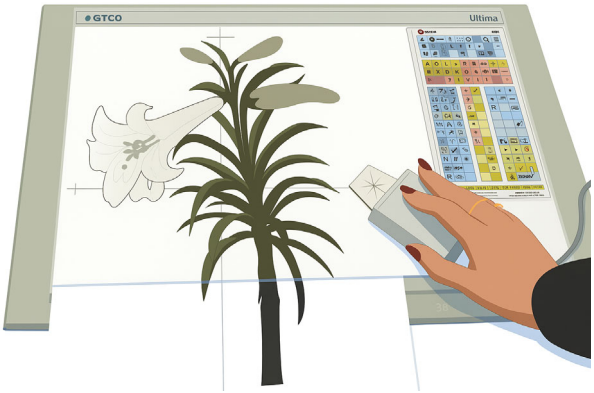
2 Select **Setup > Tablet Setup**.



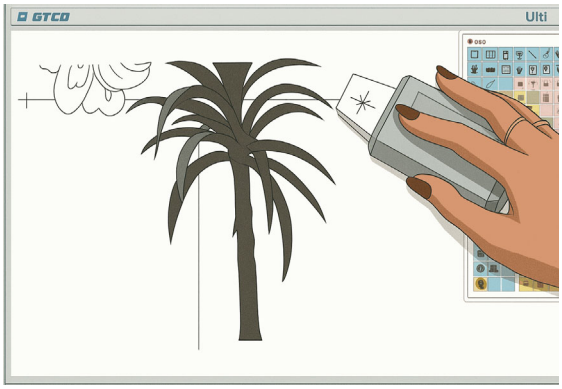
3 Tick the **Shift Drawing** checkbox.

4 Untick the **Register Drawing** checkbox and click **OK**.

5 Click the reference points with **Button 1** on the digitizing puck.



6 Move the drawing so that the part you want to digitize next is over the active area of the digitizing tablet.



7 Click the reference points again. The drawing is re-registered in the new position.

Use digitizing pucks

With a digitizing tablet, you generally use a puck instead of a mouse to mark reference points.

To use a digitizing puck...

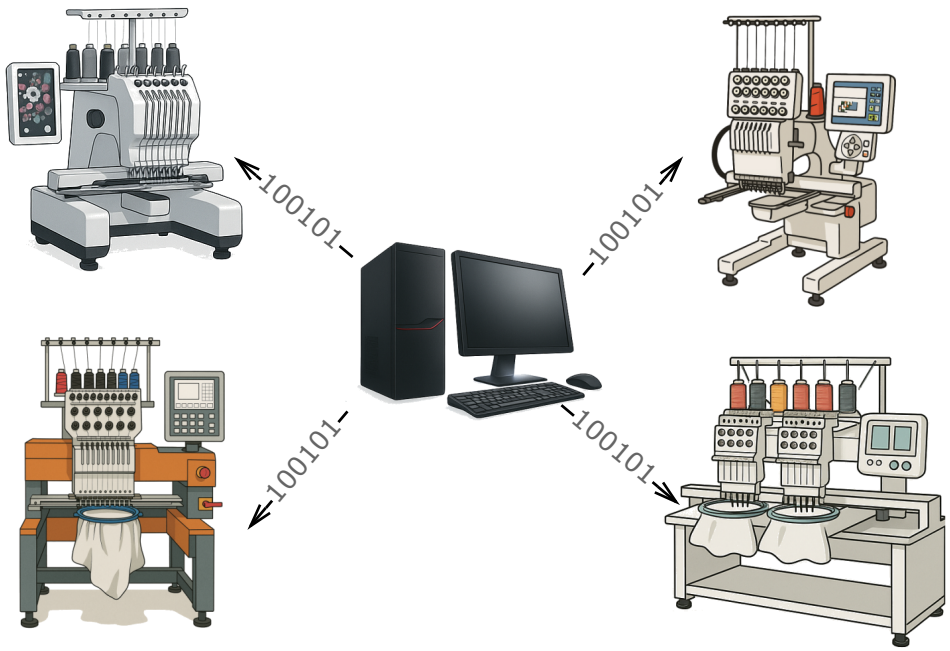
- Position the cross-hairs of the puck over a point on the enlargement drawing then press one of the four buttons.

Function	Button	Mouse or keyb'd equivalent	Description
Digitize corner point	1	[	Digitize corner reference point when digitizing outlines.
Digitize curve point	2	]	Digitize curve reference point when digitizing outlines.
Terminate omitting last stitch	3	M	• Terminate input omitting last stitch – i.e. the fill is terminated on the opposite side as the last input point. • Toggle between selected fill stitch type and input method, and the Run input tool.
Terminate including last stitch	4	R	• Terminate input including last stitch – i.e. the fill is terminated on the same side as the last input point. • Toggle between selected fill stitch type and input method, and the Manual input tool.

Chapter 8

Machine Formats

Different embroidery machines speak different languages. They have their own control commands for machine functions. Before you can stitch a design, it must be in a format which can be understood by the machine. When you select a machine format, BE EmbroideryStudio uses it to translate digitized designs into a specific machine-readable form. If required, you can customize machine formats to meet specific machine requirements.



Standard machine formats

Different machines require different settings. When you select a machine format, BE EmbroideryStudio uses it to translate digitized designs into a specific machine-readable form. Common formats include Barudan, Brother, Happy, Marco, Meistergram, Melco, Pfaff, Stellar, Tajima, Toyota, Ultramatic and ZSK. Typical modifiable values include stitch and jump length, trim functions and color change functions.

Note: Not **all** values described here are available for all machine formats. See your embroidery machine manual for details.

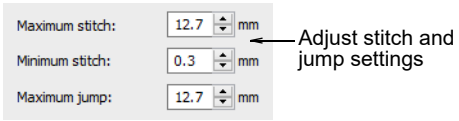
Stitch & jump length settings

With most machines you can set maximum frame movement, minimum stitch length to recognize, and automatic jump length.

To set stitch and jump length...

1 Open a design.

2 Access the **Machine Format Settings > Standard** dialog. Only fields relevant to the selected machine format will appear.



3 In the **Maximum Stitch** field, enter the maximum stitch length to allow.

The value you enter depends on the tape code used by your machine:

- Binary coding system: 12.7 mm – e.g. Barudan machines
- Ternary coding system: 12.1 mm – e.g. Tajima machines.

4 In the **Minimum Stitch** field, enter the minimum stitch length to allow.

This sets the default **Small Stitches** value. Generally the minimum stitch length is increased for dense materials and thick threads to prevent thread breakage.

5 In the **Maximum Jump** field, enter the maximum jump length to allow.

This sets the default Auto Jump value. Shorter jump values generally improve stitch quality and reduce wear on the machine but may increase stitch-out time.

6 Click **Save** then **Close**.

Related topics...

- Embroidery machine formats
- Eliminating small stitches

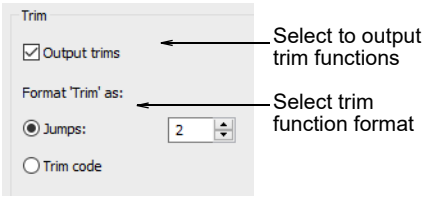
Trim functions

With some machine formats you can specify how to format and interpret trim functions. Some machines recognize specific Trim codes. Others interpret multiple Jumps as Trim functions. Machines without an automatic trimmer may not know how to interpret Trim functions, and may even shift the design when a trim code is encountered. For these machines you need to deselect the **Output Trims** checkbox so that Trim functions are ignored when the design is stitched.

To set trim functions...

1 Open a design.

2 Access the **Machine Format Settings > Standard** dialog. Only fields relevant to the selected machine format will appear.



3 In the **Trim** panel, select the **Output Trims** checkbox to include trim functions when outputting to the selected machine.

If you deselect the checkbox, trim functions are not removed from the design but simply ignored during output.

4 Specify the trim format to use:

Option	Function
Jumps	Use for machines that interpret multiple jumps as trims. Enter the required number of jumps.
Trim code	For machines that interpret explicit trim commands.

5 Click **Save** then **Close**.

Related topics...

- Embroidery machine formats

Color-change functions

Machines interpret Color Change functions differently – either as a Needle Number or Stop function. Basically, the following rules apply:

- Single-needle machines simply stop when a Color Change or Stop function is encountered.

- Some multi-needle machines default to the next color without stopping.
- Some multi-needle machines support direct needle addressing.

Stop functions

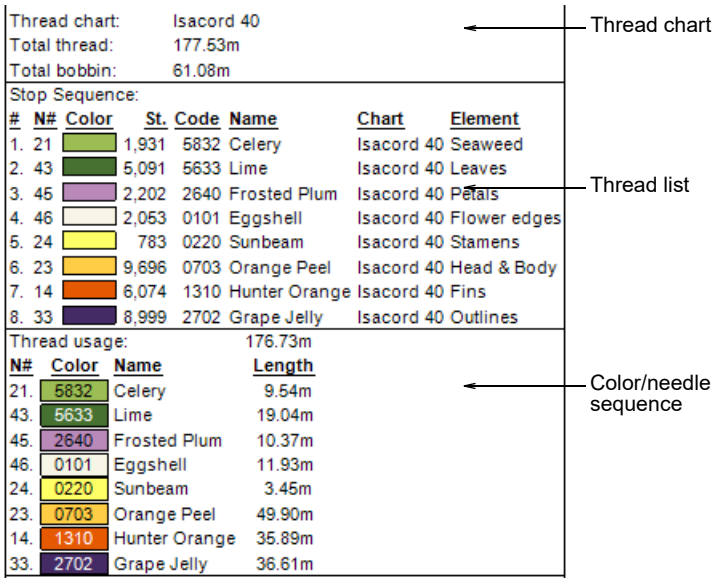
Stop functions allow the operator to manually change threads. They are generally used with machines that only have one needle. Stop functions are sometimes combined with Jump functions to indicate color changes.

Color-change functions

For those machines that support them, Color Change functions tell the machine to move to the next needle whenever a CC function is encountered. The machine must have the correct thread colors loaded according to the production worksheet.

Needle-number functions

For needle addressing machines, each color 'slot' on the color palette corresponds to a needle number. Needle Number functions are sometimes combined with Jump functions to indicate color changes.

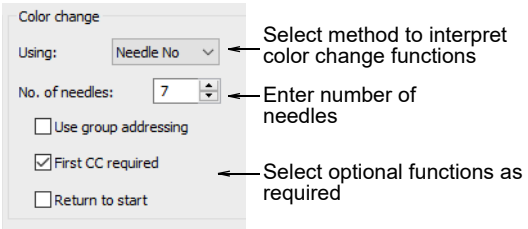


For needle addressing machines, you need to specify how many needles are on the machine. This tells the machine how often it needs to stop for the operator to change threads. For example, for a design with 15 colors to be stitched out on a machine with five needles, it must stop after every three color changes in order for the operator to change threads.

To set color change functions...

1 Open a design.

2 Access the **Machine Format Settings > Standard** dialog. Only fields relevant to the selected machine format will appear.



3 In the **Color Change** panel, select a method for interpreting color-change functions:

Method	Converts color-change functions to...
Needle no	Needle Number functions
Stops	Stop functions
Stop & jump	Stop and Jump functions
Needle no & jumps	Needle Number and Jump functions

4 For needle-addressing machines, enter the number of needles on the machine in the **No of Needles** field.

5 Optionally, select the **Use Group Addressing** checkbox.

Some machines can group two heads together so you can stitch a design using needles from both heads. For example, if a machine has two heads and nine needles per head, the machine moves the hoop from the first head under the second head, which allows you to stitch 18 colors without a manual change.

Note: If this is the case, enter the **combined** number of needles on the machine in the **No of Needles** field.

6 Optionally, select the **First CC required** checkbox.

Some machines require a **First CC** code to initialize the machine and bring the head back to the first color change needle position.

7 Optionally, select the **Return to Start** checkbox.

This returns the needle to the start of design, preparing the machine for the repeat run.

8 Click **Save** then **Close**.

Related topics...

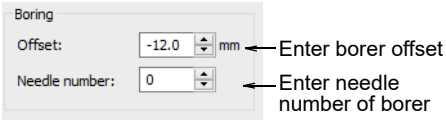
- Embroidery machine formats

Borer functions

Some embroidery machines are equipped with a borer. The borer often replaces one of the needles. You need to specify the needle position of the borer and its offset value. Borers are often 'knife' attachments where the cutting position is offset ±12 mm from the main needle. Before the machine starts, the frame moves so that the borer is in the correct position. This extra frame movement compensates for the borer offset. Some machines automatically adjust for this offset when a Borer In function is encountered. These machines should have an offset value of 0. Similarly, if you are using a boring needle (instead of a knife), you do not need an offset value. See your machine manual for details.

To set borer functions...

1. Open a design.
2. Access the **Machine Format Settings > Standard** dialog. Only fields relevant to the selected machine format will appear.



3. In the **Boring** panel, enter the required borer offset.
   - If your machine automatically inserts an offset when a Borer In function is encountered, enter an offset of 0 mm.
   - If your machine requires an offset value, enter an offset of ±12.0 mm.
4. Enter the needle number to which the borer is attached.
5. Click **Save** then **Close**.

Related topics...

- Embroidery machine formats
- Multihead boring

End-of-design functions

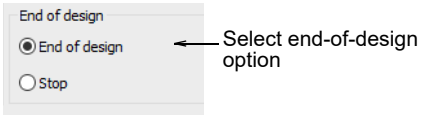
Some machines require an explicit **End of Design** function code in order to recognize when the end of the design has been reached. Some machines do not understand the **End of Design** function code, requiring

a **Stop** code instead. For example, Tajima machines recognize the explicit **End of Design** function code while Happy machines require a simple Stop.

To set end-of-design functions...

1 Open a design.

2 Access the **Machine Format Settings > Standard** dialog. Only fields relevant to the selected machine format will appear.



3 In the **End of Design** panel, select the appropriate option for your machine:

Option	Function
End of design	Some machines require an explicit End of Design function code – e.g. some Tajima machines.
Stop	Some machines require a Stop code instead – e.g. Happy machines.

4 Click **Save** then **Close**.

Related topics...

- Embroidery machine formats
- Start/end-of-design sequence

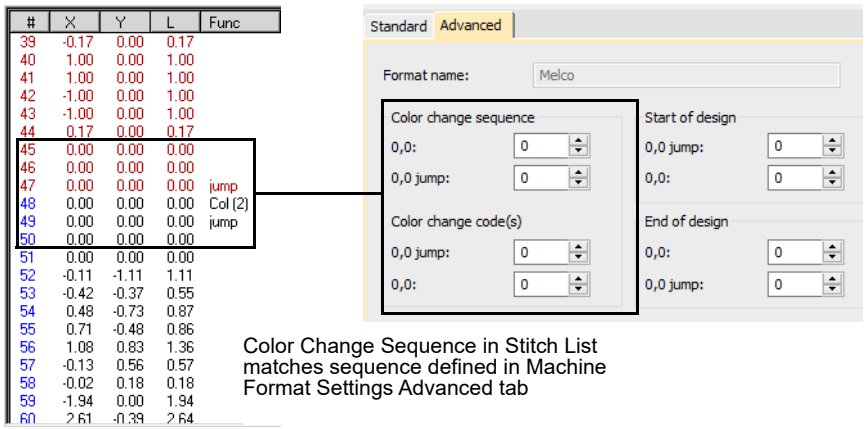
Advanced machine formats

The **Advanced** tab provides access to additional machine format options. Again, the available settings depend on the selected machine format. You can set the color change sequence, insert special codes for start or end of a design, and enter speed settings. There are also miscellaneous settings, including whether to change fabric tension during boring, and whether to rewind tape when stitching is complete. Use the **Machine Format Settings** dialog to define values to allow when outputting to a specific machine format.

Note: Not **all** values described here are available for all machine formats. Use these instructions to enter values that apply to your selected format. Only change **Advanced** values if you are familiar with the codes used by your embroidery machine. See your embroidery machine manual for more information.

Color-change sequence

Some machines cannot interpret color-change functions unless they form part of a 'color change sequence' made up of empty stitches and empty jumps before and after each color change. Check your machine requirements to determine whether you need to enter color-change sequence values.



Color Change Sequence in Stitch List matches sequence defined in Machine Format Settings Advanced tab

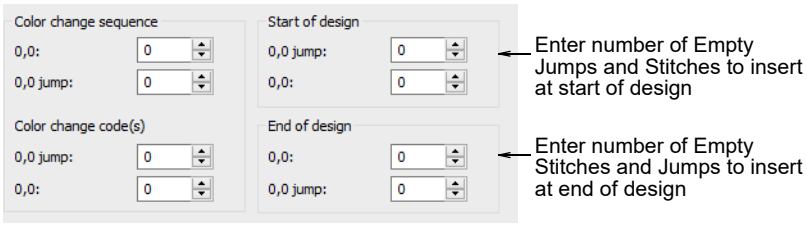
In the **Advanced** tab, the **Color Change Sequence** panel reads from top to bottom, in the order the codes appear in the sequence. The first two fields show the number of empty stitches and empty jumps to insert **before** the color change. The other fields show the empty jumps and empty stitches to insert **after** the function.

Related topics...

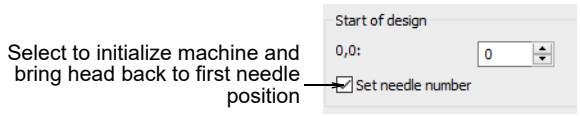
- Embroidery machine formats

Start/end-of-design sequence

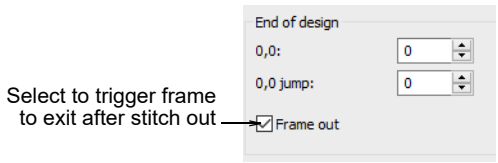
In addition to an End of Design function, some machines require extra empty stitches and empty jumps in order to stitch the start and end of a design. Other machines require a Stop function. Depending on the machine type, you may also require functions to initialize the machine or trigger a frame-out after stitching.



Where available, the **Set Needle Number** option initializes the machine and brings the head back to the first color change needle position.



Where available, the **Frame Out** option triggers the frame to exit after stitching the design.



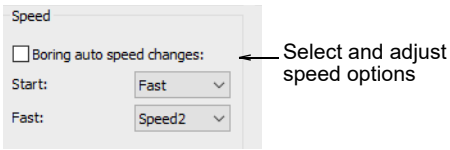
Note: Remember that these fields show the number of **extra** codes you want to insert in addition to default settings.

Related topics...

- Embroidery machine formats

Speed options

Some machines can stitch at different speeds. Depending on your machine, you may then be able to select different speeds to use when you start stitching or for when the borer is engaged.



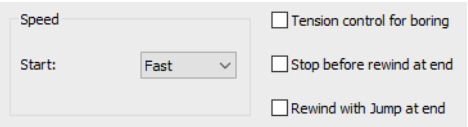
Where available, the **Boring Auto Speed Changes** option in the **Advanced** tab slows the machine automatically whenever the borer is engaged. From the **Start** list, select the preferred starting speed – **Fast** or **Slow**. From the **Fast** list, select the faster setting on your machine – **Speed 1** or **Speed 2**. Check your machine manual for details.

Related topics...

- Embroidery machine formats

Miscellaneous advanced options

Depending on the machine format, you may also be able to select whether to reduce the tension on the fabric while boring, and indicate whether to rewind the tape when stitching is complete.



Where available, set the following as needed:

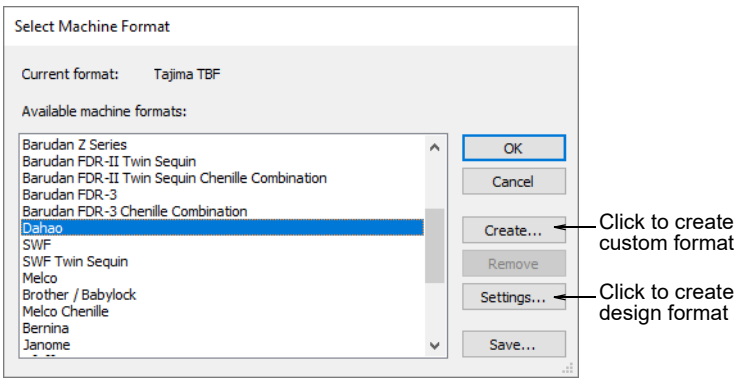
Option	Function
Tension control for boring	This option reduces the fabric tension when the borer is engaged.
Stop before rewind at end	This option stops the machine at the end of the design and rewinds the tape.
Rewind with Jump at end	This option inserts a jump at the end of the design and rewinds the tape.

Related topics...

- Embroidery machine formats

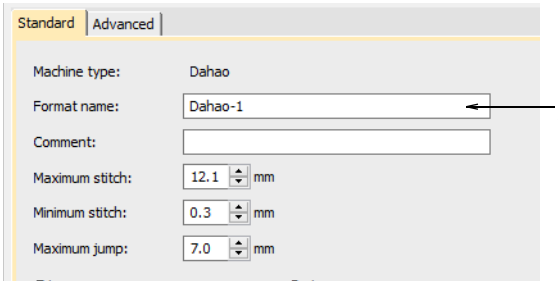
Custom machine formats

BE EmbroideryStudio provides standard formats for most machines. However, if your machine is different, you may need to customize the machine format settings. For example, if you have different models of the same type of embroidery machine, different functions may require different values.



Creating custom formats

You can create a new machine format based on a standard machine format, and make it available to all designs.



- In the **Format Name** field, enter a name for the new format – e.g. **Melco-1**.
- In the **Comment** field, enter any information that will help you identify the machine format – e.g. **No Trim**.
- Adjust **Standard** and **Advanced** machine format settings as needed.

Creating design-specific formats

You can create a custom machine format for use with the current design. You cannot change the **Name** or **Comment** fields. The custom machine format is automatically named using the original machine format and design name – e.g. **Melco-Design1**.

Note: If necessary, you can update the standard machine format itself. However, you should only do this if the original values are no longer used.

Related topics...

- Embroidery machine formats
- Standard machine formats
- Advanced machine formats

PART III
EMBROIDERY DIGITIZING

In BE EmbroideryStudio, you build designs from basic shapes or 'embroidery objects'. These are like ordinary vector objects in that they have certain defining characteristics or 'properties' such as color, size, position, and so on. They also have properties unique to embroidery such as stitch type and density.



Stitch types

This section explains how to select stitch types for your various fills, including how to create Satin fills, Tatami, Motif, and Contour fills, and how to adjust stitch settings for best results. It also describes how to create Zigzag and E Stitch fills and borders. See Stitch Types for details.

Digitizing shapes

This section discusses the automatic conversion of vector to embroidery objects. It also deals with manual digitizing methods, including digitizing free shapes, simple borders, and complex column shapes. See Digitizing Shapes for details.

Object properties

This section explains how to change property settings in a design, as well as how to apply and adjust fabric settings. It also explains how to create and maintain styles and templates in BE EmbroideryStudio. See Object Properties for details.

Colorways

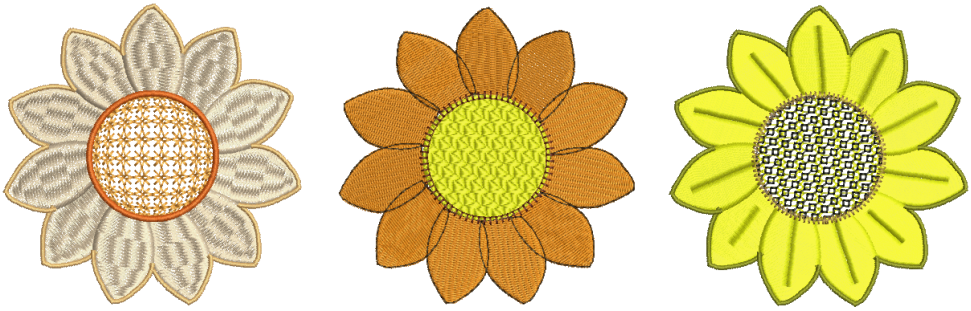
When digitizing, you select colors from the color palette. This contains a selection of colors which can be tailored to each design or color scheme. The particular 'colorway' represents the actual thread colors in which a

design will be stitched. You can define multiple color schemes and switch between them. See Colorways for details.

Chapter 9

Stitch Types

All embroidery objects in BE EmbroideryStudio contain defining settings or properties. Some, such as size and position, are common to all objects, while others are specific to object type. The most important property of all is stitch type. The software uses object outlines and the associated stitch type to generate stitches. Whenever you reshape, transform or scale an object, stitches are regenerated according to current settings.



Stitch types divide broadly into two categories – outlines and fills. Different stitch types suit different shapes. Some stitch types are suitable for both outlines or fills. Others are dedicated to one or other purpose. A stitch type can be selected together with a digitizing method or applied afterwards. Whenever you create an object from scratch, it takes the currently selected stitch type.

Simple outlines

BE EmbroideryStudio provides tools for creating outline stitching of varying thicknesses and styles. They are typically used to add borders and pickout runs. There are tools for creating simple run stitching as well as a wide variety of decorative outlines. Outline stitch types can be interchanged.



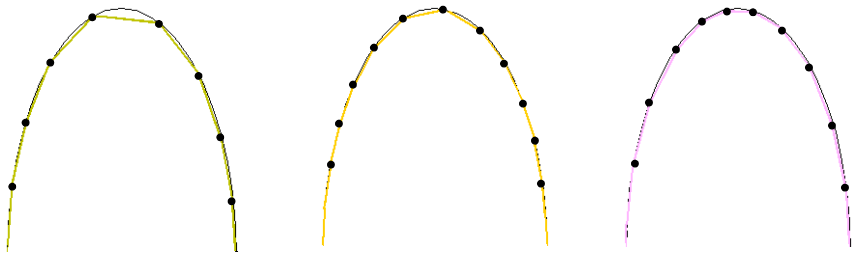
Simple run stitching

Use Outlines > Run to place a row of single run stitches along a digitized line. Right-click for settings.

Use Outlines > Triple Run to place a triple row of run stitches along a digitized line. Right-click for settings.

Use Outlines > Sculpture Run to create a thick-thin outline alternating single and triple stitches for a hand-stitched look.

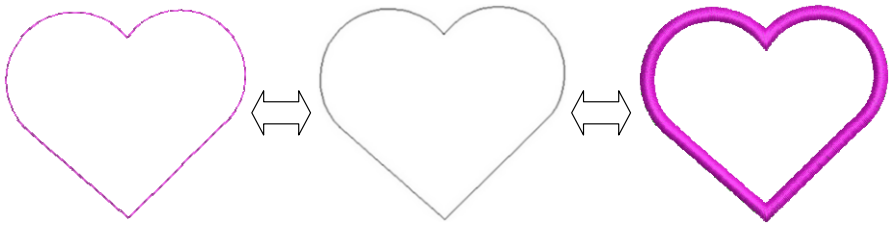
Use **Run** to digitize lines of simple run stitching. Use **Triple Run** for emphasis. This stitch type is typically used for thicker borders and outlines. **Sculpture Run** creates thick-thin alternating single and triple stitching for a hand-stitched look. Adjust stitch length, chord gap, stitch repetitions, and other settings via the **Object Properties** docker.



Usage tips...

- Both **Traditional Digitizing** and **Graphics Digitizing** toolbars contain tools for digitizing outlines. These tools place a row of stitching along a digitized line.
- BE EmbroideryStudio provides tools for automatically generating outlines.

- Use **Backtrack** and **Repeat** to reinforce outlines while specifying the direction of the stitching.
- Swap outline types at any time, including vector outlines. Vector objects of course have no stitch properties. Satin outline width can be controlled via object properties or using the **Reshape** tool.



Related topics...

- Digitizing outlines & details
- Creating vector shapes in BE EmbroideryStudio
- Reinforcing outlines
- Generating outlines & offsets
- Reshape Column C objects

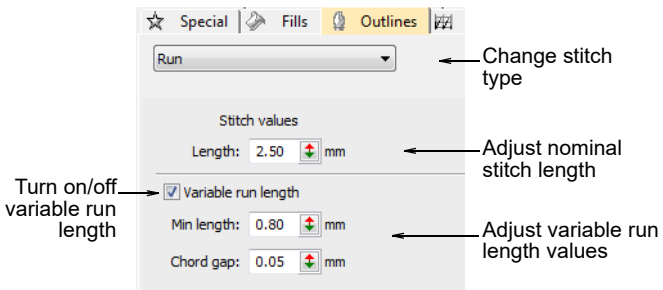
Stitch length settings

Use Outlines > Run to place a row of single run stitches along a digitized line. Right-click for settings.

For run stitch and other outline stitches, stitch length can be adjusted to suit the shape.

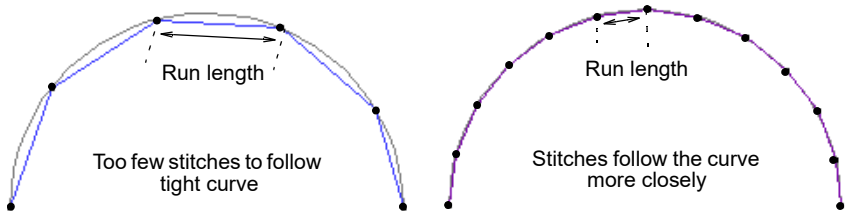
To adjust stitch length...

1 Right-click the icon to access object properties.



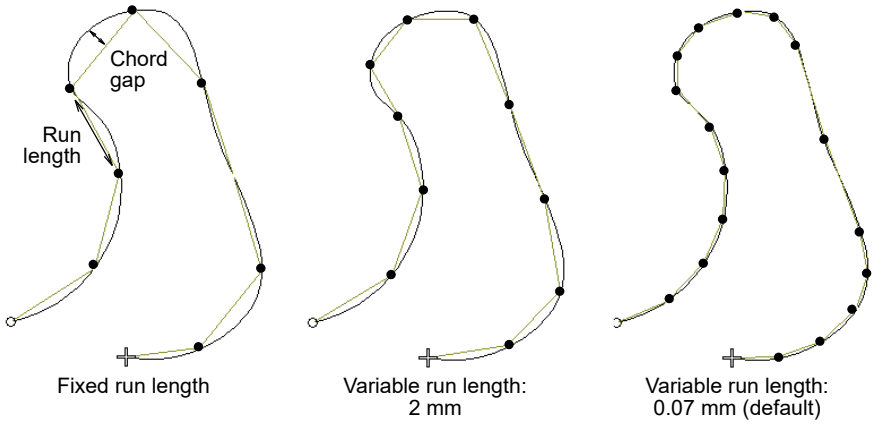
2 To set a fixed stitch length, adjust the **Length** field. For sharp curves, reduce length – e.g. 1.8 mm – so that the stitches follow the line more

closely. Mimic hand-made embroidery by increasing length to, say, 4.0 mm.



3 Alternatively, automatically shorten stitches to follow tight curves with the **Variable Run Length** option.

4 In the **Chord Gap** field, enter the maximum distance to allow between the digitized outline and the stitches.

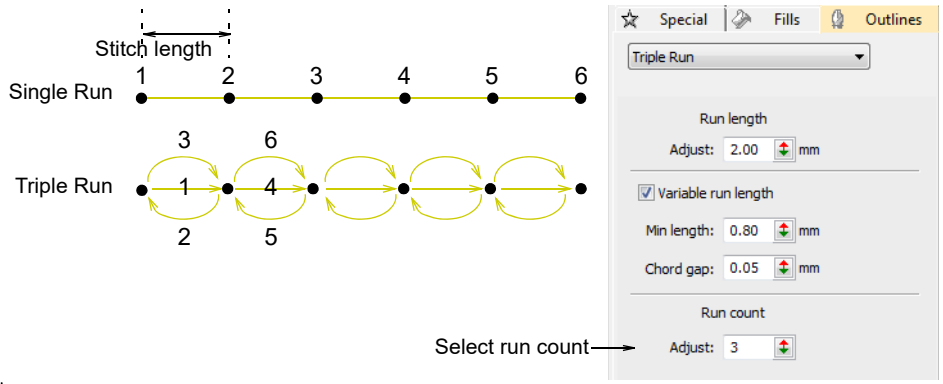


5 In the **Min Length** field, enter the minimum stitch length to allow. Stitch length will not reduce to less than this value, even if the chord gap is exceeded.

Run count setting

Use Outlines > Triple Run to place a triple row of run stitches along a digitized line. Right-click for settings.

By default, **Triple Run** repeats each stitch three times. You can change the number of repetitions by adjusting the **Run Count** value.

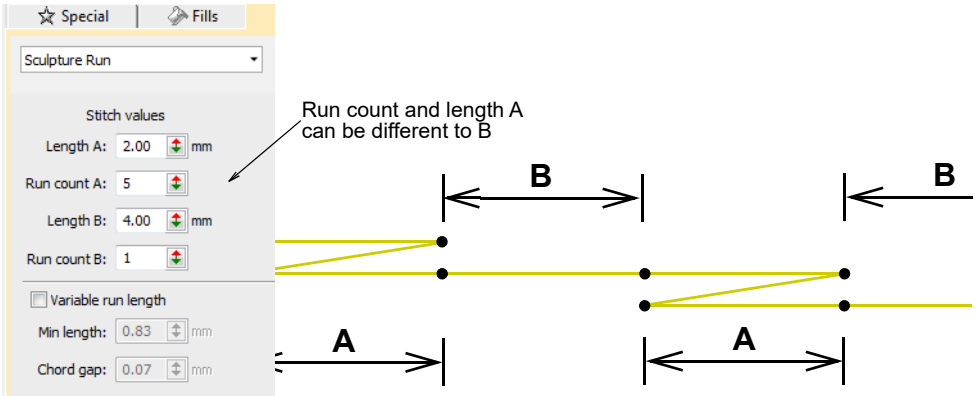


Tip: Use **Backtrack** and **Repeat** to reinforce outlines while specifying the direction of the stitching. See Reinforcing outlines for details.

Sculpture run settings

Use Outlines > Sculpture Run to create a thick-thin outline alternating single and triple stitches for a hand-stitched look.

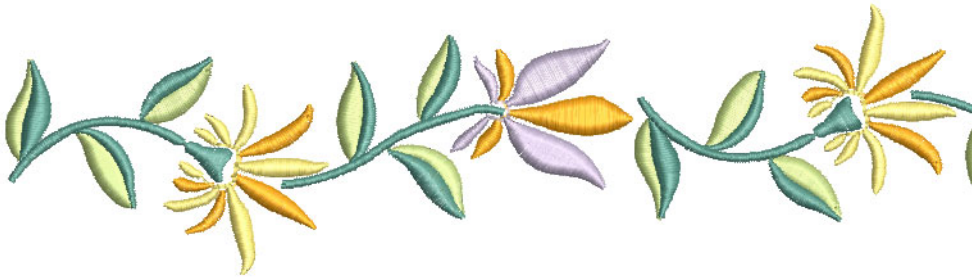
Sculpture Run provides independent stitch length parameters for alternating stitches. This is handy for creating a hand-stitched look. Apply to open or closed shapes. Default alternating values are equal but can be independently set – e.g. A=2.5 mm and B=1.5 mm. Also, the number of A/B repeats can be independently set. The default setting is #A=3, #B=1.



Satin stitching

Satin is one of those stitch types which can be used for thicker borders or for fills. It is well-suited to narrow shapes where each stitch spans the

width of the column. Because there are generally no needle penetrations breaking up the fill, satin stitch gives a glossy, high-quality appearance.



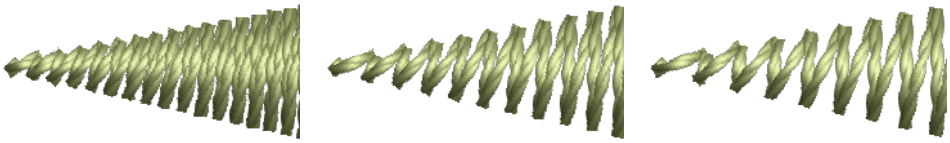
Tip: The Auto Split and Auto Jump features help you to control long satin stitches. See Optimizing long satin stitches for details.

Apply satin stitch with auto spacing

Use Fills > Satin to apply satin stitch to new or selected narrow columns and shapes. Right-click for settings.

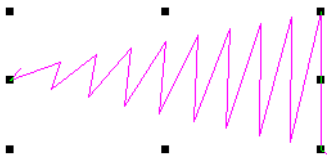
Use Outlines > Satin to create thicker borders or columns of even thickness. Right-click for settings.

If a **Satin** shape is too wide, stitches may be loose or fail to cover the fabric properly. Conversely, in narrow columns, stitch density may be too great and needle penetrations damage the fabric. You can adjust stitch density by setting a fixed spacing or allowing **Auto Spacing** to calculate spacings wherever column width changes.

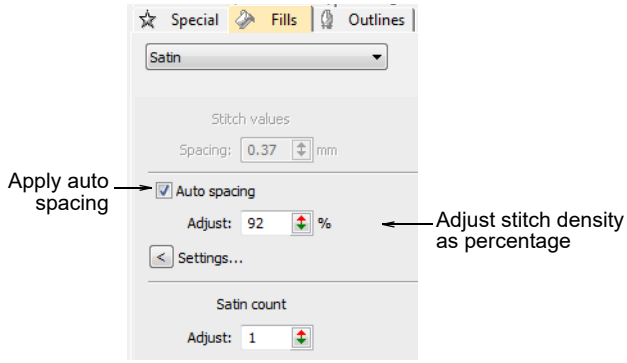


To apply satin stitch with auto spacing...

1 Select a digitizing method, select **Satin**, and create your embroidery object. Alternatively, select an existing embroidery object and click **Satin**.

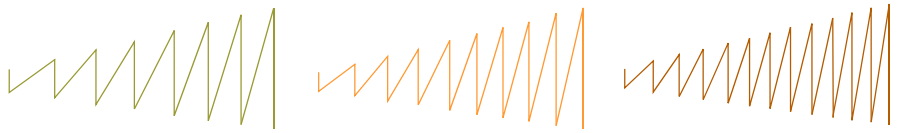


2 Right-click the **Satin** icon to access object properties.



3 Select **Auto Spacing** if not already checked.

4 Adjust **Stitch Density** for more or less open fills.



>100% – fewer stitches | 100% – no adjustment | <100% – more stitches

Density is given as a percentage of preset values:

- To decrease, increase the percentage – e.g. to 110-115%.
- To increase, decrease the percentage – e.g. to 90-85%.

75% generally produces high quality embroidery. An increased stitch count means the design will take longer and be more expensive to stitch.

Note: For more precise results, adjust **Auto Spacing** settings. See Satin auto-spacing for details.

Apply satin stitch with fixed spacing

Use Fills > Satin to apply satin stitch to new or selected narrow columns and shapes. Right-click for settings.

Use Outlines > Satin to create thicker borders or columns of even thickness. Right-click for settings.

In BE EmbroideryStudio, **Auto Spacing** is activated for most object types. For most purposes, this option avoids thread breaks and creates visually appealing columns of satin stitches. Sometimes, however, you may want to control the exact spacing of satin columns. Fixed spacing is sometimes used, for example, for decorative effects – e.g. very open

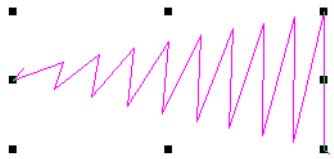
spacing over, say, a tatami background. These effects cannot be achieved with **Auto Spacing**.



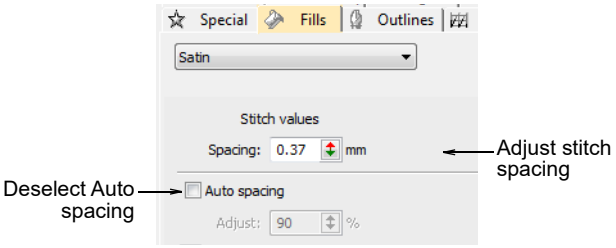
Tip: If you are using a digitizing tablet, you can quickly switch between preset styles with different spacing settings. Each button on the puck accesses the next preset style. For example, clicking button 1 accesses <PRESET_SATIN_1>.

To apply satin stitch with fixed spacing...

1 Select a digitizing method, select **Satin**, and create your embroidery object. Alternatively, select an existing embroidery object and click **Satin**.



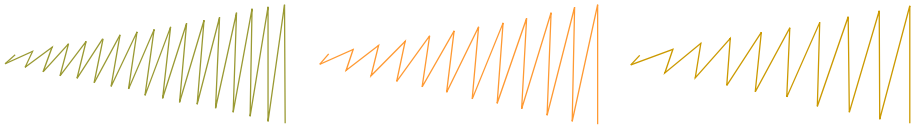
2 Right-click the **Satin** icon to access object properties.



3 Deselect **Auto Spacing**.

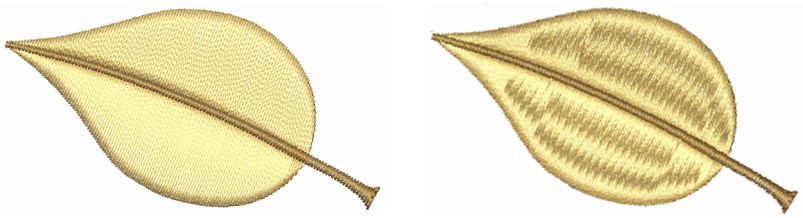
4 In the **Spacing** field, enter a fixed spacing:

- To increase density, enter a smaller value.
- To reduce density, enter a larger value.



Stitch spacing 0.5 mm | Stitch spacing 0.7 mm | Stitch spacing 0.9 mm

Tip: Auto Split is used primarily to prevent long stitches in wide columns. It can also be used as an alternative to tatami fill. **Auto Split** looks more satin-like and works well with turning stitches, creating soft lines and a little more depth. By contrast, tatami is flat and can show unwanted patterns with tight curves.



Related topics...

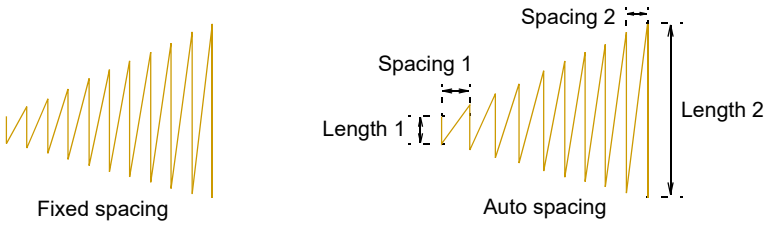
- Embroidery digitizing
- Optimizing long satin stitches
- Raised satin

Satin auto-spacing

Use Fills > Satin to apply satin stitch to new or selected narrow columns and shapes. Right-click for settings.

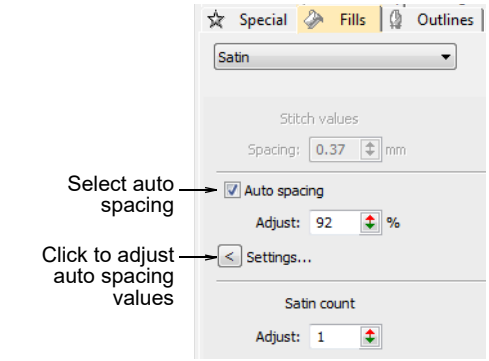
Use Outlines > Satin to create thicker borders or columns of even thickness. Right-click for settings.

Adjust **Auto Spacing** to specify how rapidly spacing changes and by how much. You can also specify spacing offsets to adjust for different thread types. These settings are intended for digitizing experts. You will usually want to save modified settings to a template.

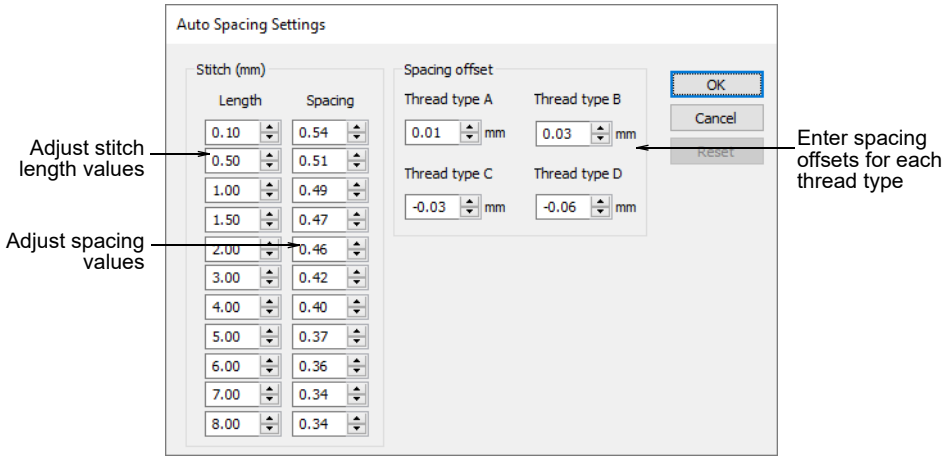


To adjust auto-spacing settings...

1 Right-click the **Satin** icon to access object properties.

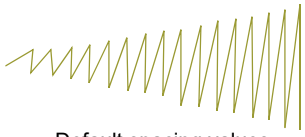


2 Click **Settings**. The **Auto Spacing Settings** dialog opens.



3 Adjust stitch settings in the **Stitch** panel:

Setting	Function
Length	These values define the increments by which spacing is adjusted. The smaller the distance between each length, the more rapidly stitching changes from open to dense. Each length must be greater than the preceding.
Spacing	These values define the spacing corresponding to each stitch length. See below.



Default spacing values



Custom spacing values

4 Adjust spacing offsets for different thread types. The offset determines the amount by which stitch settings will be adjusted for different thread thicknesses.

Thickness	Description	Default
A	Normal embroidery thread (approx. denier 40)	0.01
B	Thicker than normal (approx. denier 30)	0.03
C	Finer than normal (approx. denier 80)	-0.03
D	Very fine (approx. denier 100)	-0.06



Note: You assign the thread type in the **Add Thread** dialog. Stitch spacing of the assigned thread type is automatically adjusted according to the values set there.

5 Click **OK**.

Related topics...

- Working with templates
- Modify thread details

Satin stitch count

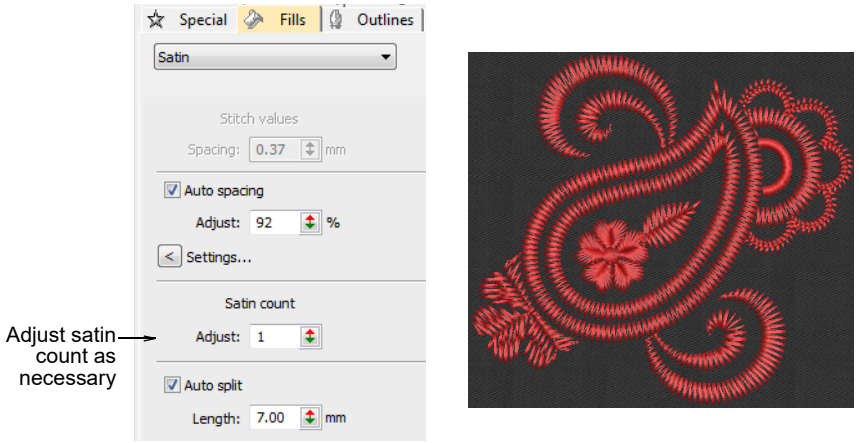


Use Fills > Satin to apply satin stitch to new or selected narrow columns and shapes. Right-click for settings.



Use Outlines > Satin to create thicker borders or columns of even thickness. Right-click for settings.

Satin stitch count may be adjusted for use with different thread types and thicknesses. It is sometimes used for folkloristic designs to mimic handmade embroidery that uses thicker thread. Simply enter the number of repetitions in the **Satin Count** field.



Usage tips...

- Using a value higher than 10 may cause thread breaks, depending on the design, fabric, or thread tension.
- When you increase satin stitch count, you should also increase the spacing to avoid bunching and thread breaks.

Related topics...

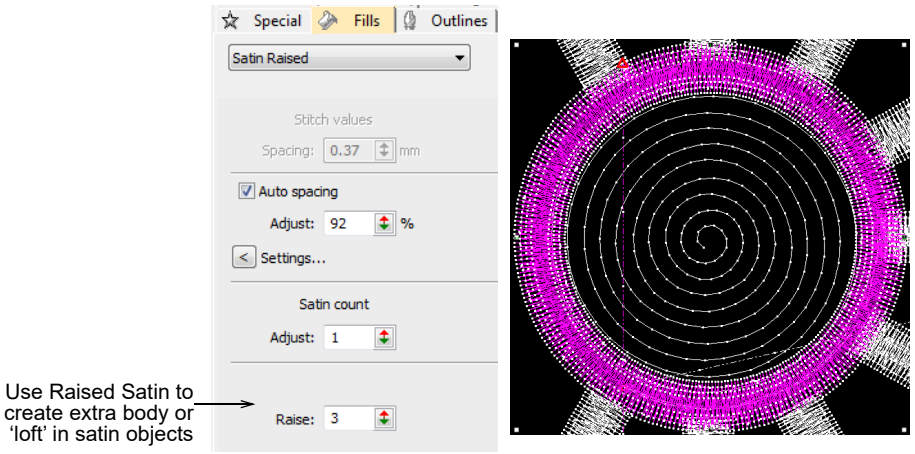
- Optimizing long satin stitches
- Applying stitch types & effects to lettering

Raised satin

Use Fills > Satin Raised to create raised surfaces – can be applied to lettering or used with trapunto for quilting effects. Right-click for settings.

Use Outlines > Satin Raised to create raised satin borders – can be used with outlines for quilting effects. Right-click for settings.

In addition to normal satin stitching, BE EmbroideryStudio provides raised satin, both for outlines and fills. The resulting embroidery consists of multiple satin layers which add dimension and a raised tactile surface to your designs. Of course it uses a lot more stitches.



Typically, **Raised Satin** is used to create extra body in narrow satin objects for visual effect and to provide a raised or 'sculpted' surface. It mimics the padded satin stitch which is manually done on machine.



Raised Satin can also be used with delicate handcraft- and heirloom-type designs. When done by hand, these all employ a narrow satin padded fill. It can also be applied successfully to some styles of font or used for narrow columns of even width.



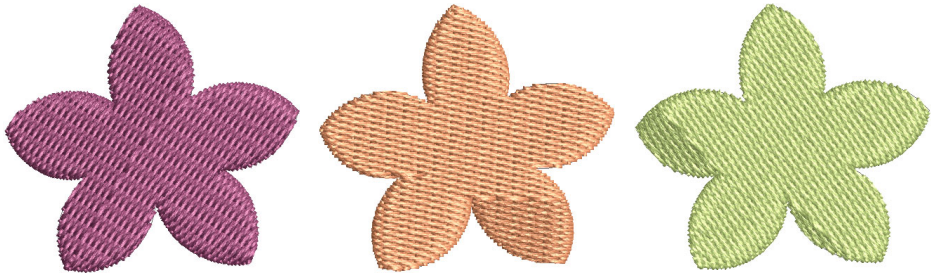
Usage tips...

- **Raised Satin** is best applied to objects 7mm wide or less. This is a safe average for most machines. Indicative settings for best 'loft' are 0.30mm manual for satin spacing with 3 or 4 layers. Or rely on auto spacing for most object shapes.

- The width of a raised satin object must be less than maximum width your machine can stitch. This will be different for some machines. Refer to your machine documentation.
- You may need to turn off automatic underlay when using **Raised Satin**.

Tatami stitching

Tatami stitch consists of rows of run stitches and is suitable for filling large shapes. Stitch offsets in each row are used to eliminate horizontal split lines.

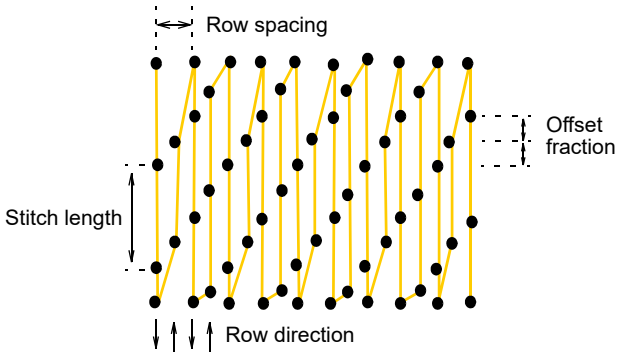


Tatami density

Use Fills > Tatami to create fills for larger irregular shapes. Right-click for settings.

Use Outlines > Tatami to create borders or columns of even width for different needle penetration patterns.

Tatami stitch density is determined by the distance between each row of stitches. Sometimes row spacing is increased to create more open stitching for backgrounds and special effects.

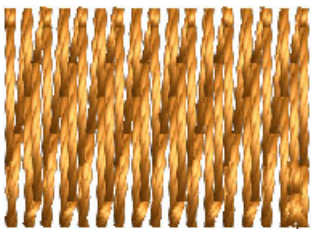


Tip: When you increase stitch spacing, **Auto Underlay** should be turned off. If too open, you may also find that travel runs and overlapping segments spoil the effect. The **Trapunto** effect automatically moves underlying travel runs to the edges of an object so that they can't be seen.

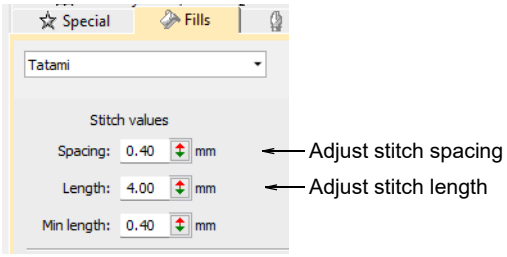
To set tatami density...

1 Select the digitizing method you want to use – e.g. **Complex Turning**.

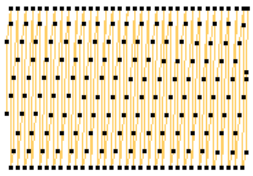
2 Select **Tatami** and create an embroidery object. Alternatively, select an existing embroidery object and click **Tatami**.

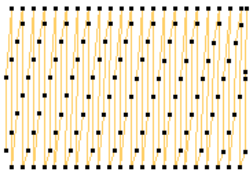


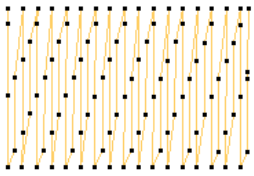
3 Right-click the **Tatami** icon to access object properties.



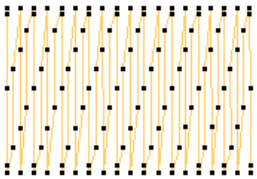
4 Adjust **Spacing** as required. For increased density, enter a smaller value. For more open stitching, enter a larger value.


Spacing: 0.4 mm

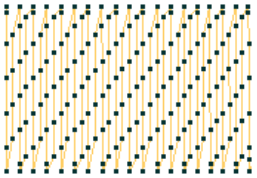

Spacing: 0.6 mm


Spacing: 0.8 mm

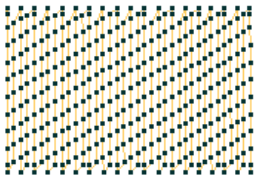
5 Adjust **Length** as required.



Length: 4.5 mm

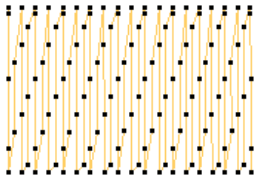


Length: 2 mm

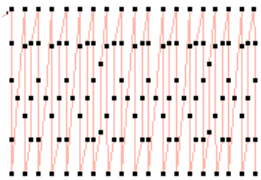


Length: 1 mm

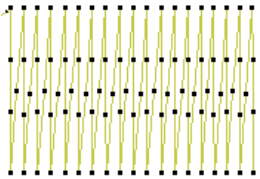
6 In the **Min length** field, enter the length of the shortest stitch to be generated.



Length: 4 mm
Minimum stitch: 0.4 mm



Length: 4 mm
Minimum stitch: 0.8 mm



Length: 4 mm
Minimum stitch: 1.2 mm

7 Adjust other settings as desired.

Related topics...

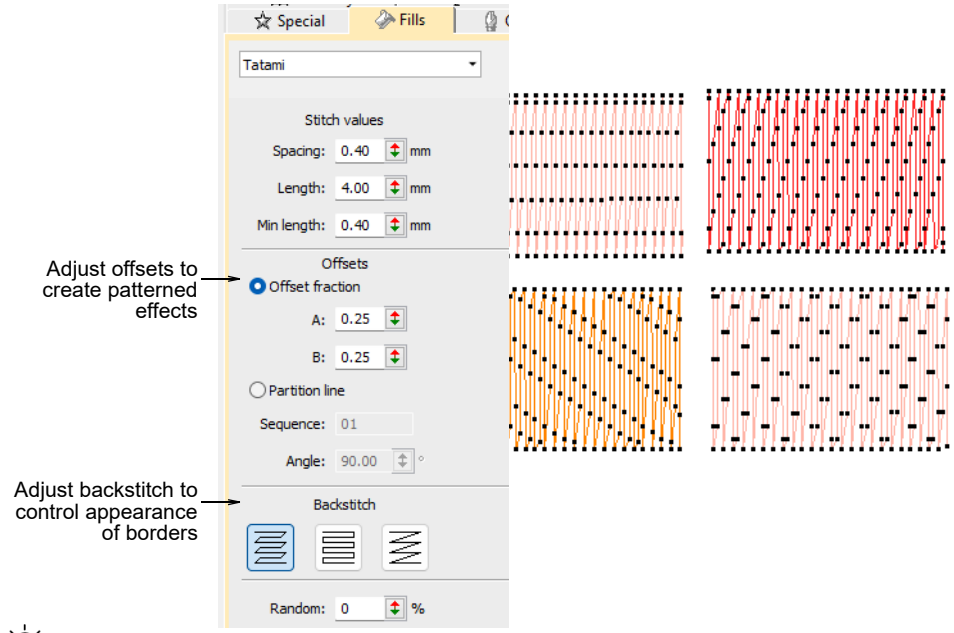
- Embroidery digitizing
- Object property apply options
- Trapunto open stitching

Other tatami settings

Tatami settings also allow you to control needle offsets for more even distribution of needle points or for patterned effects. Choose a different backstitch type to control edge stitching.

Offsets

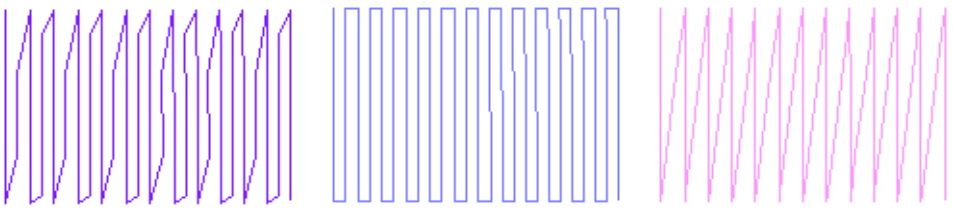
With tatami fills you can specify how each row is offset in order to create patterns formed by needle penetrations. You do this by adjusting either offset fractions or partition lines.



Tip: Using a **Random** factor you can eliminate the split line patterns formed by regular needle penetrations and distribute stitches randomly inside a shape.

Backstitch

Tatami backstitch is the term used for every second row of stitches in a tatami fill. There are three types available – **Standard**, **Borderline**, and **Diagonal**.



Standard backstitch | Borderline backstitch | Diagonal backstitch

The table below describes the differences:

Type	Notes
Standard backstitch	Because the rows are different lengths, there are fewer small stitches at the edge of the shape, reducing possible damage to the fabric. Standard backstitch is suitable for high density fills.

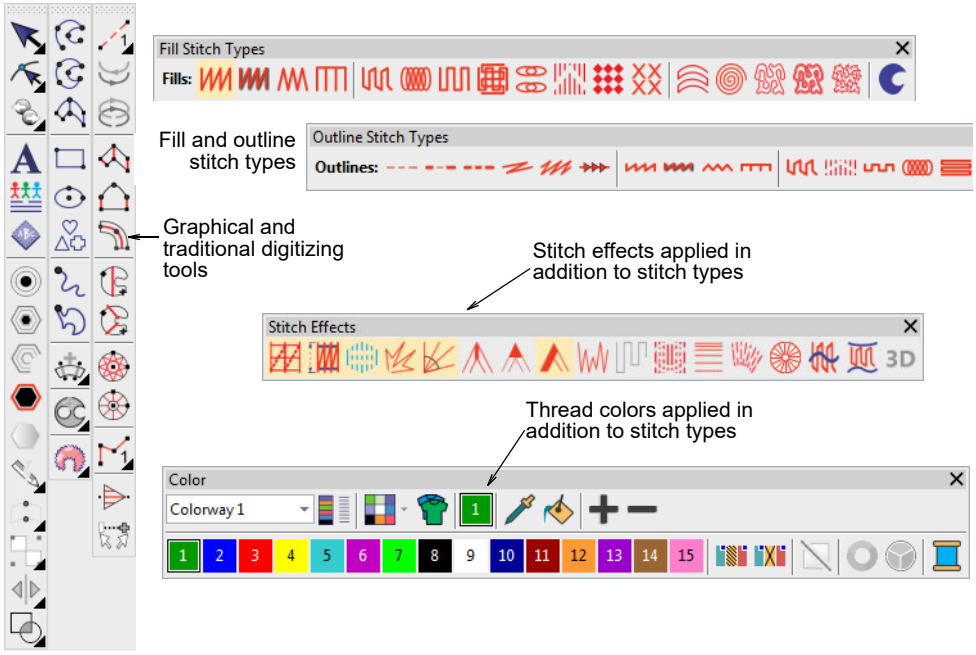
Type	Notes
Borderline backstitch	With lower density fills, borderline backstitch creates a smooth, well-defined edge. Borderline backstitch is also called Trapunto style.
Diagonal backstitch	The backward rows are diagonal, directly connecting the forward rows. Diagonal backstitch is suitable for turning shapes, and gives good results with Jagged Edge.

Related topics...

- Creating textures with tatami offsets
- Create random patterns
- Trapunto open stitching
- Jagged edges

Decorative embroidery

BE EmbroideryStudio provides many techniques for embellishing the basic stitch types covered in this section. Some are treated as stitch types in their own right – both outline and fill – and appear on the **Stitch Types** toolbars. Others can be applied as stitch effects. In all cases, the digitizing techniques are similar. See also Digitizing Shapes.



Decorative outlines

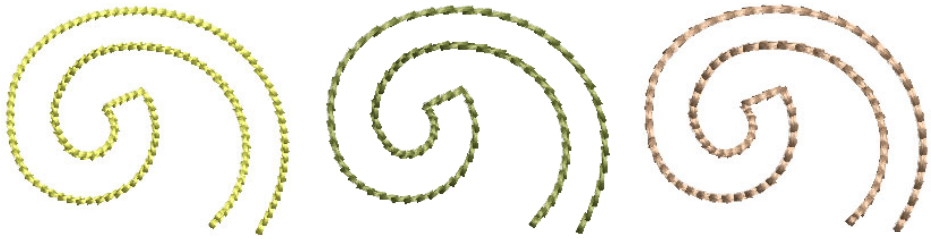
Use Outlines > Backstitch to place a row of backstitches along a digitized line. Right-click for settings.

Use Outlines > Stemstitch to place a row of stemstitches along a digitized line. Right-click for settings.

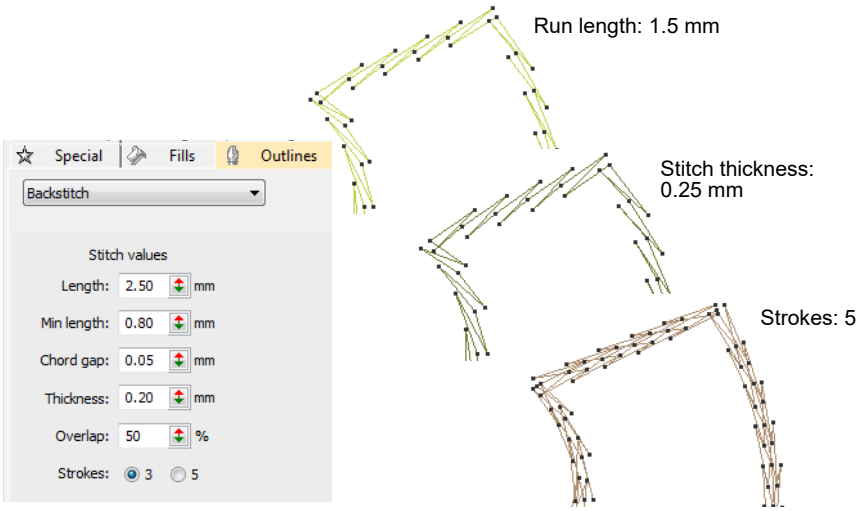
While run stitching is typically used for borders and pickout runs, there are other stitch types for creating decorative outlines. Backstitch is an older-style, adaptable stitch which can be used for delicate outlines. Stemstitch is thicker and can be used to mimic hand-sewn embroidery. Digitize decorative outlines as you would a **Run** stitch outline.

To create decorative runs...

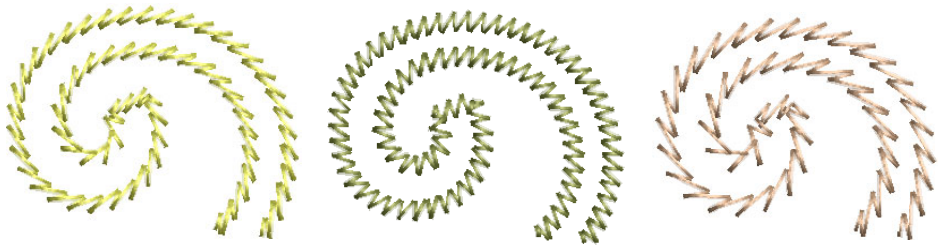
- For more delicate outlines, use **Backstitch**. Backstitch is an older-style, adaptable stitch which follows intricate curves well.



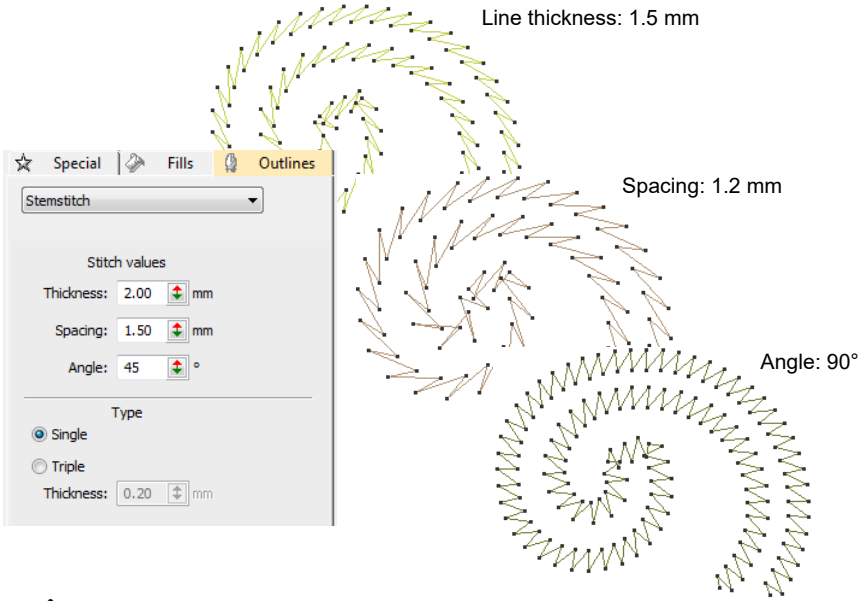
- **Backstitch** settings allow you to specify exact stitch length, chord gap, thickness and overlap values as well as number of strokes. **Length**, **Min Length**, and **Chord Gap** values work like the **Variable Run Length** option.



- For thicker, decorative lines, use **Stemstitch**. Stemstitch can be used to mimic hand-sewn embroidery. It is used for stems and vines with other decorative stitches, or as an outline for satin or motif fills.



- **Stemstitch** settings allow you to specify exact stitch and line thickness, spacing and overlap values as well as thickness (number of strokes).



Note: For **Triple** stitching, you can also adjust **Stitch Thickness**.

Related topics...

- Embroidery digitizing
- Digitizing outlines & details
- Converting designs with CorelDRAW Graphics

Border stitching



Use Outlines > Zigzag to create open borders or columns of even width for an open ‘sawtooth’ effect. Right-click for settings.

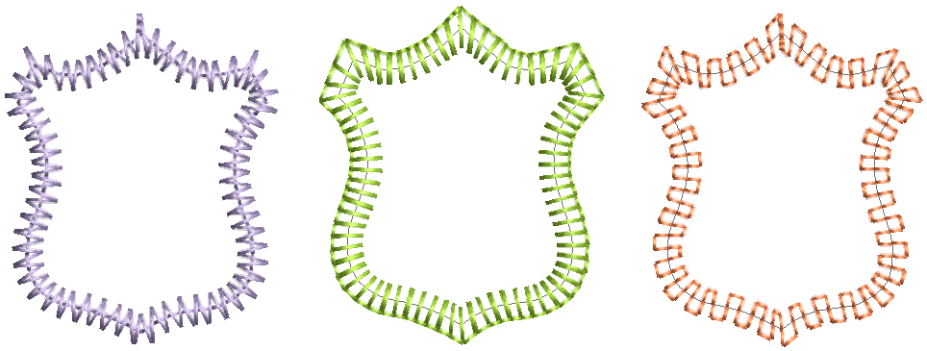


Use Outlines > E Stitch to create open borders or columns of even width for an open ‘comb’ effect. Right-click for settings.



Use Outlines > Square to create open borders or columns of even width for an open ‘toothed’ effect. Right-click for settings.

The **Stitch Types** toolbars include **Zigzag**, **E Stitch**, and **Square**. All can be used to create borders around appliqués and other embroidery objects. They can also be used for decorative effects or open fills where fewer stitches are required. Zigzag and double zigzag stitches are also frequently used as underlays. See also Decorative borders.



Patterned stitching

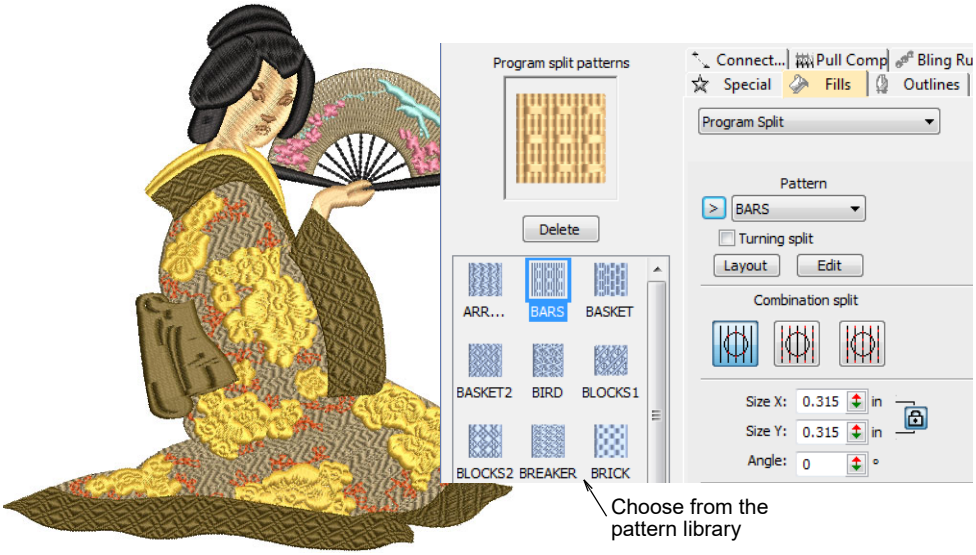


Use Fills > Program Split to create decorative fill stitches where needle penetrations form a tiled pattern.



Use Outlines > Program Split to create borders or columns of even width for decorative needle penetration patterns. Right-click for settings.

BE EmbroideryStudio provides tools for creating patterns with needle penetrations. Apply offset fractions or partition lines to tatami fills for a variety of split-line effects. Alternatively, use **Program Split** or **Flexi Split** to create decorative fills from predefined patterns. Select from the library or create your own. The **Carving Stamp** feature allows you to define patterns using a ‘carving stamp’ as a template. Use it also to create your own split lines when you want to add detail to filled objects. See also Patterned Stitching.

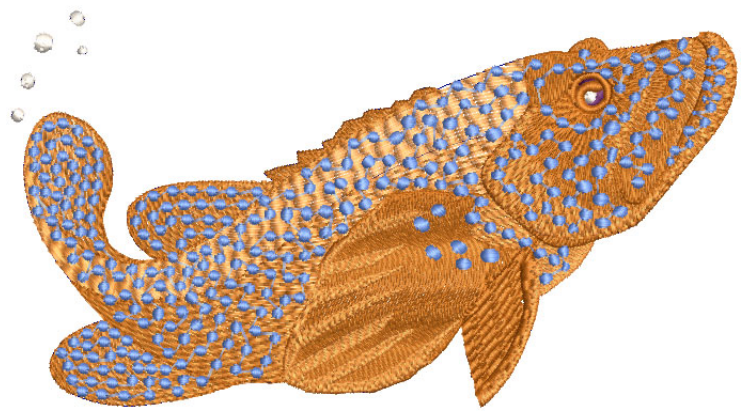


Related topics...

- Creating textures with tatami offsets
- Creating textures with program splits
- Creating patterns with custom splits
- Creating patterns with carving stamps

Curved stitching

BE EmbroideryStudio provides a variety of stitch types and techniques for creating curved stitching effects. These follow the contours of a shape and can be used to give a sense of depth and movement to your stitching. Some can be used with borders as well as fills. See also Curved Stitching.



Curved stitch effects covered in the related topics below include:

Feature		Overview
	Contour	Stitches follow the contours of a shape, creating a contoured, light and shade effect.
	Offset	Similar to Contour in following the contours of a shape. It can be used in combination with turning stitches.
	Spiral Fill	Works best with simple shapes without holes or islands. Use it with either fixed or variable length run stitching.
	Radial Fill	Generates radial turning stitching in several stitch types such as Satin, Tatami and Program Split.
	Flexi Split	Decorative effect where one or more lines of a program split pattern are molded to the object shape.
	Florentine / Liquid	Create interesting curved effects by getting needle penetrations to follow the contour of digitized lines.

Related topics...

- Contoured fills
- Offset fills
- Spiral fills
- Radial fills
- Flexi-splits
- Curved fills

Specialty stitching

BE EmbroideryStudio provides many specialty effects and stitch types to create artistic fills. These can be used to create more organic, naturalistic stitching. They can be used to create textures like feathers or wool. Use them also to create open stitching with low stitch counts. See also Specialty Stitching.



Specialty stitch effects covered in the related topics below include:

Feature		Overview
	Freehand	Create designs with a hand-drawn appearance, something which is difficult to achieve through conventional digitizing methods. See Freehand embroidery for details.
	Hand Stitch	Create hand-stitch effects which combine randomized stitch length, angle and count. See Hand stitch effect for details.
	Jagged Edge	Create rough edges, shading effects, or imitate fur and other fluffy textures. See Jagged edges for details.
	Stipple	Create textured fills of run stitching which meanders more or less randomly within a border. See Stippling effects for details.
	Maze Fill	Create maze-like stitching which follows object contours for open fills. See Maze fills for details.
	String	Ideally suited to creating craftstitch fills as well as delicate borders. Can be used as a border for fixing ornamental mirrors and sequins. See String stitching for details.
	Zigzag	Create fills or open borders or columns of even width for an open ‘sawtooth’ effect. See Decorative borders for details.
	E Stitch	Create fills or open borders or columns of even width for an open ‘comb’ effect. See Decorative borders for details.
	Trapunto	Move internal travel runs to the edges of an object so that they can’t be seen through open stitching. See Trapunto open stitching for details.

Feature		Overview
	Accordion Spacing	Vary stitch spacing between dense and open fill, producing gradient and shading effects. See Accordion spacing for details.
	Color Blending	Like Accordion Spacing but used to create color blends where two colors are merged from one to another using a mixture of dense and open fill. See Color blends for details.
	Chenille	Incorporate stitch patterns traditionally associated with chenille work – Square, Double Square, Coil, and Island Coil. See Chenille patterns for details.
	Cross Stitch	Fill large areas with cross stitching on an invisible grid that applies to all design objects. See Cross stitch fills for details.

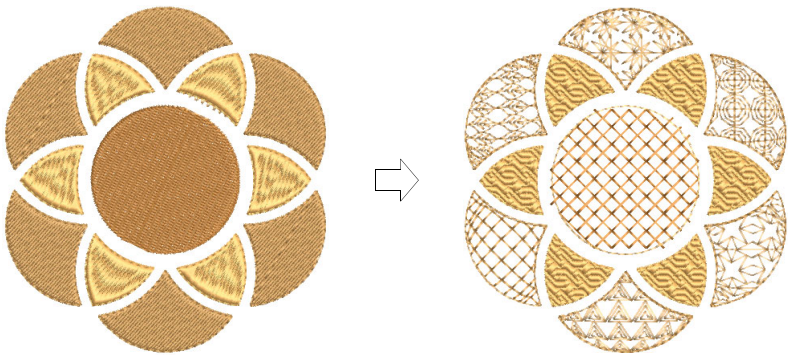
Motif stitching

Use Outlines > Motif Run to create a string of motifs along a digitized line.

Use Fills > Motif Fill to create decorative fills using embroidery motifs to form repeating patterns. Right-click for settings.

Use Traditional Digitizing > Use Motif to add motifs to design one-by-one. Rotate, scale, or mirror as you add.

Motifs are predefined design elements, such as hearts, leaves or border patterns. They generally consist of one or more simple objects, and are stored in a special motif set. Motifs can be used for ornamental outlines and patterned fills. Use the ones provided with the software or create your own. Motifs can be scaled, rotated and mirrored in the same way as other objects. You can even use them to create interesting three dimensional effects. See also Motif Stitching.





Note: Auto Underlay is deactivated with this feature and stitch angle has no effect.

Related topics...

- Selecting & placing motifs
- Motif runs
- Motif fills

Chapter 10

Digitizing Shapes

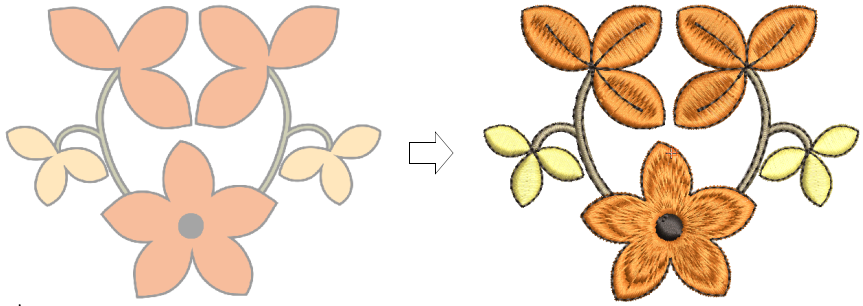
In BE EmbroideryStudio, you build designs from basic shapes or embroidery objects. These are like ordinary vector graphics in that they have defining characteristics or 'properties' such as color, size, position, and so on. They also have properties unique to embroidery such as stitch type and density. The most important property of an embroidery object is its stitch type. Different stitch types are suited to different shapes.



Tip: BE EmbroideryStudio also lets you convert vector objects directly to embroidery objects. In fact, entire vector designs can be converted to embroidery. See also Convert objects with CorelDRAW Graphics.

Embroidery digitizing

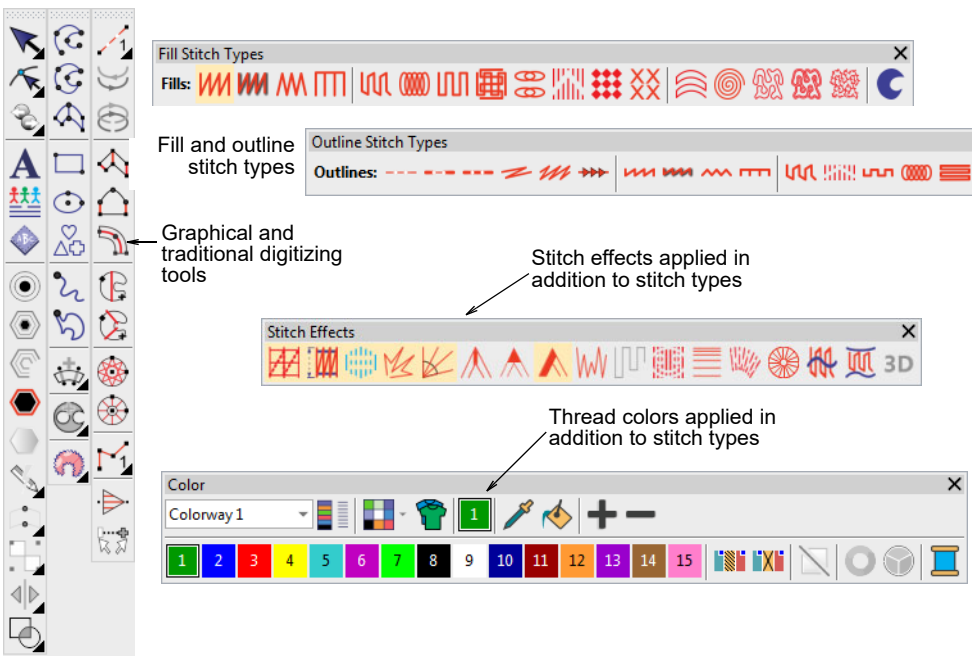
The process of creating embroidery objects on screen is called 'digitizing'. Like design creation in **CorelDRAW Graphics**, this involves the use of 'input' or 'digitizing' methods. In fact, digitizing tools in BE EmbroideryStudio can be used to generate both embroidery objects and vector objects.



Tip: The CorelDRAW® Graphics Suite of curve-line digitizing tools such as **B-Spline Curve**, **Freehand**, **Bézier**, **Pen**, etc, are very useful. Objects created with these tools can be converted directly to embroidery. See also Convert objects with CorelDRAW Graphics.

Digitizing methods

BE EmbroideryStudio provides an outline/fill digitizing paradigm similar to **CorelDRAW® Graphics Suite** and other graphics applications. This makes embroidery digitizing easy for those coming from a graphic design background. It also makes it easy to convert between outlines and fills generally. For those coming from an embroidery background, the toolset also provides traditional 'power digitizing' methods professional digitizers are familiar with.



Digitizing toolset

The toolset you will typically use for digitizing work includes some or all of the following:

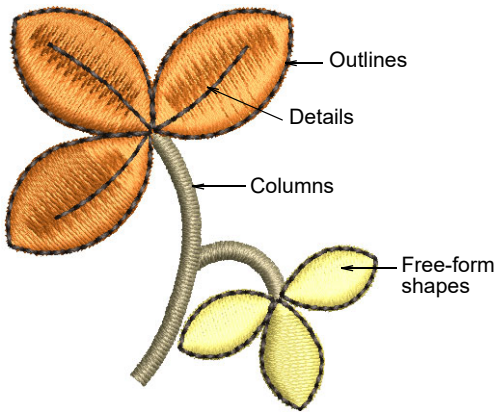
Toolbar	Function
Graphics Digitizing	Select a digitizing method – either graphical or traditional, open or closed.
Traditional Digitizing	
Outlines	Select a stitch type – either outline or fill. Both open and closed shapes may be treated as outlines. Only closed shapes can be used in conjunction with fill stitching.
Fills	
Stitch Effects	Select a stitch effect to apply as you digitize – e.g. smart corners. These can be modified at any time.
Color	Select a thread color to apply as you digitize. Colors in the palette may or may not be assigned to actual threads. It makes no difference when you digitize.

Graphics digitizing

The graphics approach to digitizing is similar to **CorelDRAW® Graphics Suite** or other graphics applications. It provides one set of tools to create shapes which can be stitched as outlines or fills. You assign a stitch type to a shape by selecting from the **Stitch Types** toolbars.

Traditional digitizing

Traditional digitizing methods divide into three main categories – 'free shapes', 'column shapes', and 'outlines'.

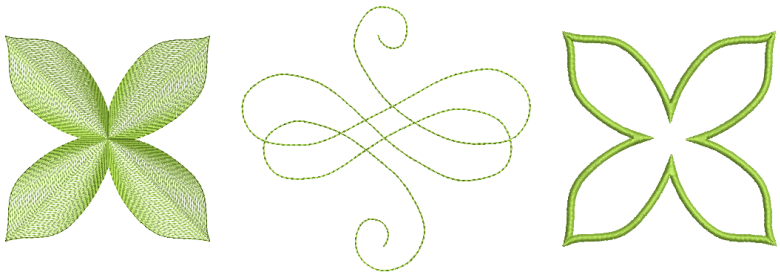


BE EmbroideryStudio also provides special time-saving input tools for creating stars and rings. See Digitize stars & rings for details.

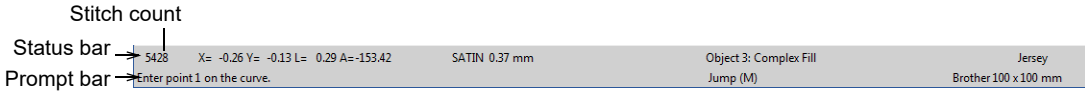
Tip: Traditional methods also include 'manual' digitizing tools. Use these to add individual stitches, either singly or three stitch layers at a time. See Digitize stitches for details.

Digitizing methods

Different digitizing tools are suited to different shapes or design elements. Whichever approach you take – graphical or traditional – methods divide broadly into two categories – open or closed – and two types – outline or fill. No stitch type, effect, or thread color is set in stone. Object properties can be modified at any time.

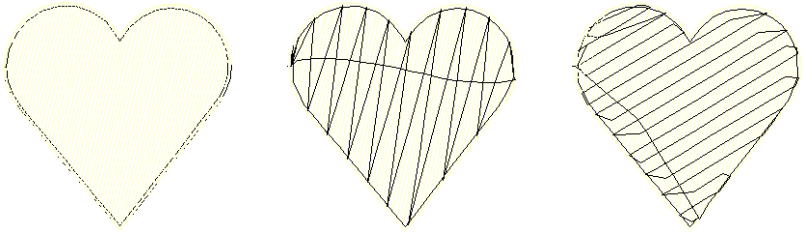


Whenever you select a traditional digitizing tool, instructions in the **Prompt Bar** guide you through the process. Because these tools use an embroidery digitizing paradigm, you may be prompted to add multiple boundaries for holes, stitch angles, and/or start and end points. Refer to the prompts until the tool becomes familiar to you.



Underlays

Embroidery appearance and quality depends a lot on underlay which serves as a foundation for cover stitching. Underlay settings are stored with each object in the same way as other object properties. They are regenerated whenever the object is scaled or transformed. When **Auto Fabric** is turned on, a default underlay is applied, based on fabric settings. When **Auto Fabric** is turned off, an underlay is still applied but it is based on the digitizing method.



Usage tips...

- Change settings of most tools by right-clicking and adjusting values in the **Object Properties** docker.
- Use the **Prompt Bar** to help you digitize.
- If you make a mistake, press **Backspace** to delete the last point.
- Press **Esc** to undo all new points. Press **Esc** again to exit digitizing mode.
- Use **Auto Scroll** to scroll automatically within the design window while digitizing.
- Hold down the **Shift** key to temporarily deactivate **Auto Scroll**.
- Use the **Ctrl+Shift+A** key combination to quickly toggle **Auto Scroll** on/off.

Tip: The **Show Repeats** function displays repeating designs, including sequins, in both **TrueView** and stitch view. You can view an existing design, even while digitizing, with any number of repeats.

Switching between fill & outline

You can switch between a fill stitch input method and **Digitize Run** or **Manual** by means of shortcut keys.

- Press **Enter** to switch between a fill stitch digitizing method and **Manual**.
- Press **Spacebar** to switch between a fill stitch digitizing method and **Digitize Run**.

Tip: After digitizing, most object types can be easily inter-converted.

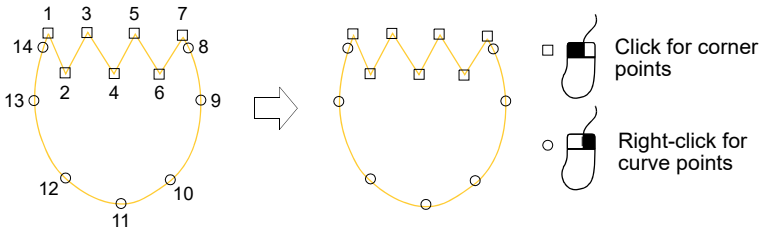
Related topics...

- Viewing design repeats
- Creating free-form shapes
- Digitizing regular columns
- Simple outlines

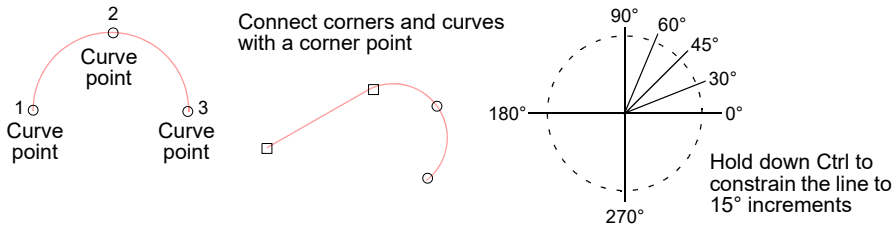
- Stabilizing with underlays
- Digitize stars & rings
- Freehand embroidery
- Digitize stitches
- Keyboard Shortcuts

Reference points & reshape nodes

Once you have selected a digitizing method, you create shapes by marking points along an outline.

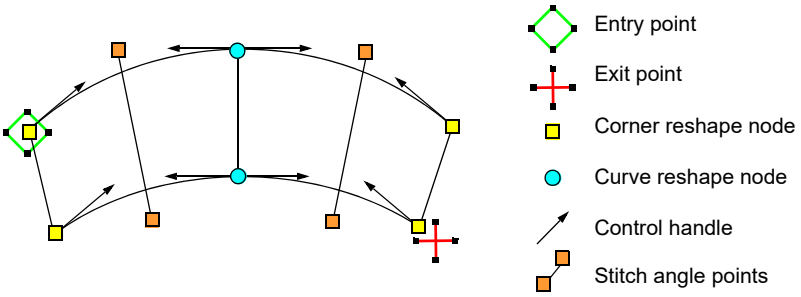


Use the left mouse button for corner points and right mouse button for curve points. Bézier control handles are available when you come to modify a shape.



A few general rules apply:

- To constrain the line to 15° increments, hold down **Ctrl** as you digitize.
- For a perfect circular arc, mark three points with a right-click, and press **Enter**.



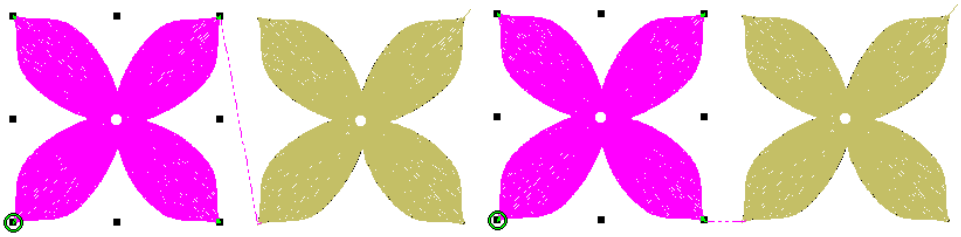
The reference points you mark when digitizing a shape become its 'control points'. These vary slightly with the object type. Most points can be added, deleted, or moved. Corner and curve points can be interchanged. Some control points such as entry and exit points cannot be deleted.

Related topics...

- Reshaping & Splitting Objects
- Reshaping objects

Join methods

When you are digitizing closed objects, the **Closest Join** method automatically calculates connector points. When deactivated, all newly digitized objects are joined by the **As Digitized** method. This means that you manually specify entry and exit points while digitizing.



Tip: The **Apply Closest Join** feature allows you to (re-)apply closest join to objects after editing.

Related topics...

- Other general options
- Apply closest join

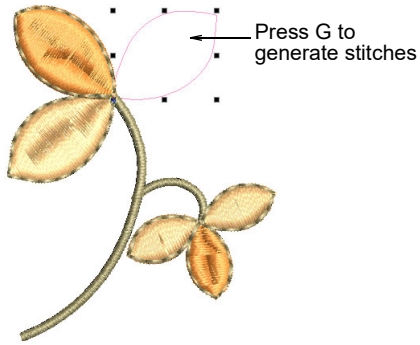
Generate stitches

Use Stitch > Generate Stitches to generate stitches for selected objects.

With **Generate Stitches** on (the default), stitches are calculated for new objects whenever you press **Enter**. They are also updated whenever you scale, transform or move the object. If speed is an issue, you can digitize objects with **Generate Stitches** off.

To generate stitches...

- To generate stitches for new or selected objects, select **Stitch > Generate Stitches** or press **G**.



- To remove stitches, or digitize without generating stitches, deselect **Stitch > Generate Stitches** or press **G** again.

Tip: Make sure **Show Outlines** is selected, otherwise stitchless objects will not be visible.

Related topics...

- Reshape options
- Change backgrounds

Digitizing with graphical tools

The graphics approach to digitizing is similar to **CorelDRAW® Graphics Suite** or other graphics applications. Assign a stitch type to shapes from the **Stitch Types** toolbars. Graphics digitizing tools are set to default values. To adjust the resulting objects, use the stitch angle, reshape, and hole tools.

Note: The **Graphics Digitizing** toolbar also contains 'freehand' tools to create 'drawing' embroidery outlines and fills directly on screen. See Freehand embroidery for details.

Related topics...

- Digitize regular shapes
- Digitize open & closed shapes

Digitize regular shapes

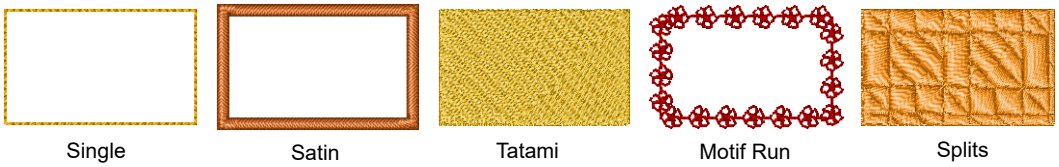
Use Graphics Digitizing > Rectangle to digitize rectangle or square objects. Press <Ctrl> for a square. Use floating toolbar for rounded corners.

Use Graphics Digitizing > Ellipse to digitize ellipse or circle objects.

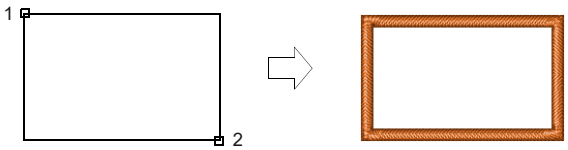
BE EmbroideryStudio provides digitizing tools for quickly creating regular shapes such as circles and squares, ovals and rectangles.

Squares & rectangles

Digitize squares and rectangles with a few clicks of the **Rectangle** tool. Use any fill or outline stitch type.

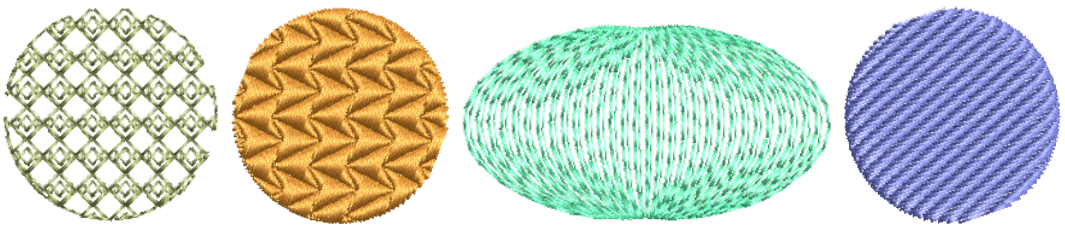


Click to mark a corner. Drag the pointer and click to define the opposite corner. To create a square, hold the **Ctrl** key down whilst dragging the pointer.



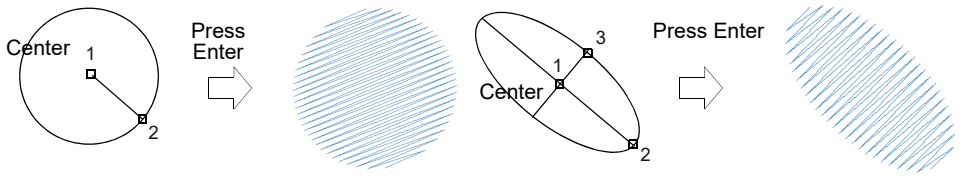
Circles & ovals

Digitize filled circles and ellipses with a few clicks with the **Ellipse** tool. You can use any stitch type, including outlines. Contour stitch looks most effective with long, narrow ovals.



To digitize circles or ellipses, click to mark the center and click again to set the radius, and press **Enter**. This point becomes the entry point. To

create an oval, click a third time to mark the second radius point, and press **Enter**.



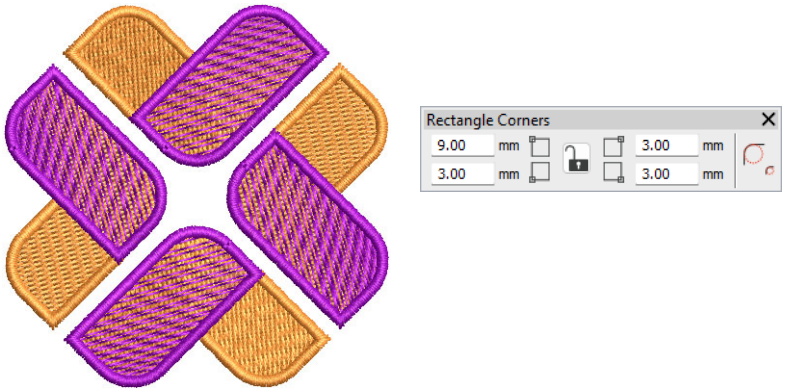
Related topics...

- Stitches

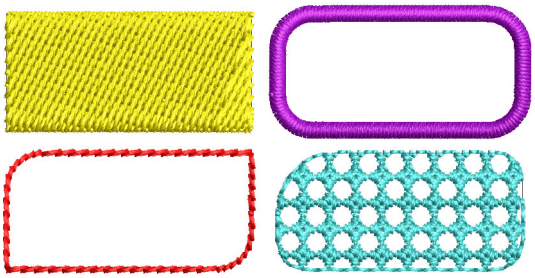
Create rounded rectangles

Use Graphics Digitizing > Rectangle to digitize rectangle or square objects. Press <Ctrl> for a square. Use floating toolbar for rounded corners.

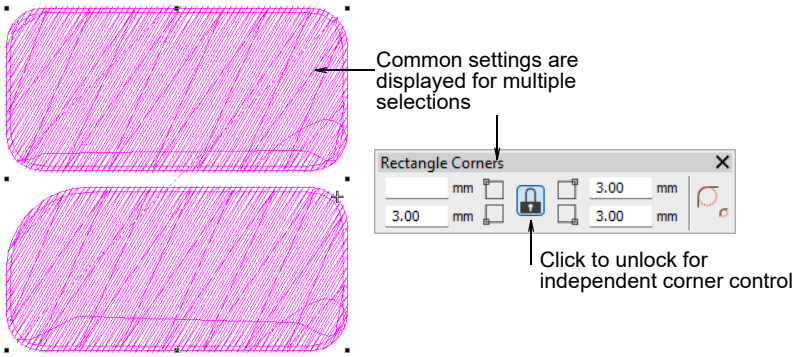
Rounded corners may appear in many different logos and designs. To achieve the result manually is time-consuming, as is editing. When the **Rectangle** digitizing tool is selected or if a rectangle object is selected in **Reshape** mode, a **Rectangle Corners** floating toolbar appears. This gives you independent or group control over corner radius.



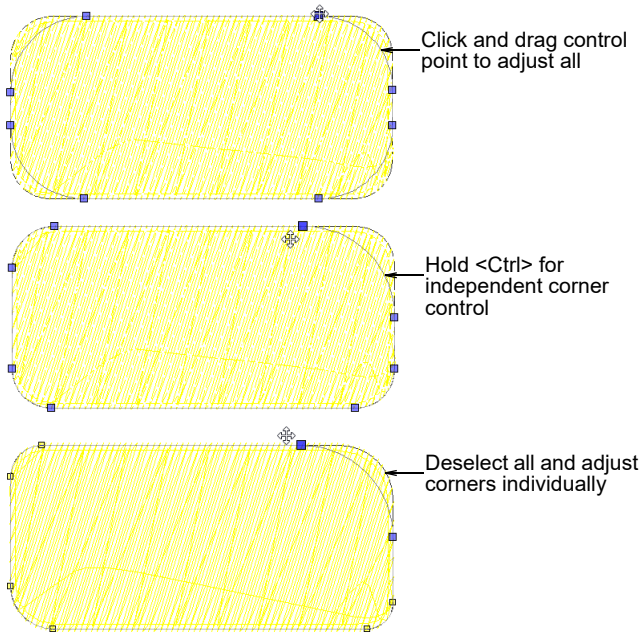
Create objects with rounded corners using any fill or outline stitch type.



The controls on the **Rectangle Corners** toolbar work like those on the CorelDRAW® **Property** bar. Turn off the lock toggle for independent control of each corner radius. When selecting multiple objects with rounded corners, the **Rectangle Corners** toolbar shows common settings where possible.



For interactive control over rounded corners, select the object in **Reshape** mode. All control points are selected by default. Click and drag any control point to adjust all. Hold down the **Ctrl** key for independent corner control. Alternatively, deselect all, then select corners individually.

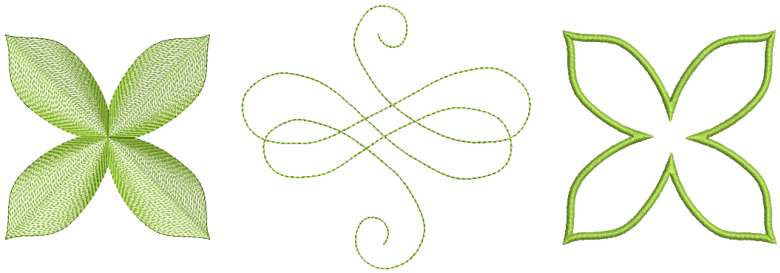


Digitize open & closed shapes

Use Graphics Digitizing > Digitize Open Shape to digitize open shapes. Press <Ctrl> to constrain.

Use Graphics Digitizing > Digitize Closed Shape to digitize closed shapes. Press <Ctrl> to create a square.

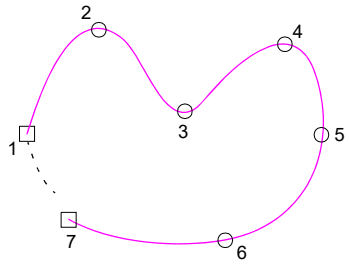
Use the **Digitize Open Shape** tool to digitize open shapes with any kind of outline stitch. **Digitize Open Shape** places a row of stitches along a digitized line. This tool is typically used to add borders or details to designs. Digitize free-form closed shapes with the **Digitize Closed Shape** tool. This tool can be used with either outline or fill stitch types.

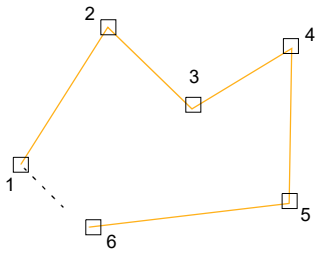


Tip: To create both an outline and a fill, create the fill first, then select and duplicate the object and convert the duplicate to an outline, which is stitched after the fill.

To digitize an open or closed shape...

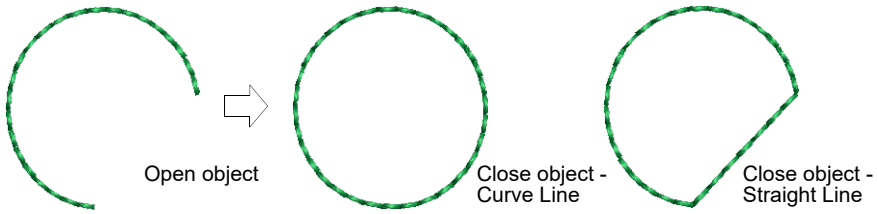
- Select a tool – open or closed shape – together with a suitable stitch type – outline for open, outline or fill for closed.
- Choose a color from the **Color** toolbar. The palette contains a selection of colors which can be tailored to each design or color scheme.
- Digitize the shape by marking reference points:
  - Click to enter corner points.
  - Right-click to enter curve points.





Tip: Follow the prompts in the **Prompt Bar** to help you digitize. If you make a mistake, press **Backspace** to delete the last reference point, then continue adding reference points or press **Esc** to delete all the points so you can start again.

- Press **Enter** to complete a shape. With the **Digitize Closed Shape** tool, the shape will be closed with the same type of reference point as the last you digitized – i.e. corner or curve. To close with a different type of reference point, mark the last on top of the first and press **Enter**.
- If you decide to close an open object, use **Edit > Close Shape...** commands to close using straight or curved points.



- Press **Esc** to deselect the tool.

Note: By default, objects are joined by the **Closest Join** method. If deactivated, all newly digitized objects are joined by the **As Digitized** method. This means you need to specify entry and exit points, following prompts in the **Prompt Bar**.

Related topics...

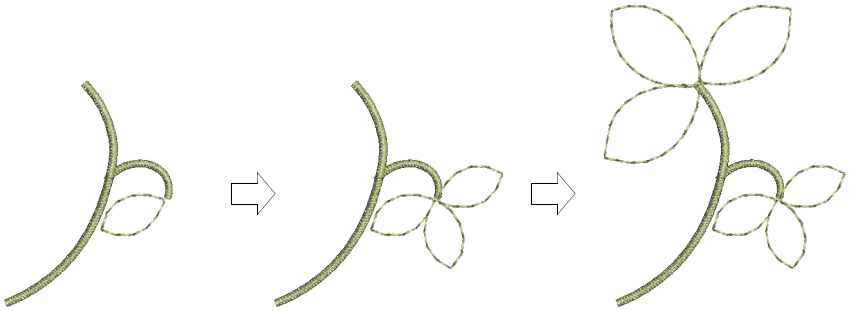
- Thread selection
- Other general options
- Stitches
- Minimizing connectors

Digitizing outlines & details

Use Outline > Digitize Run to place a row of single or triple run stitches along a digitized line.

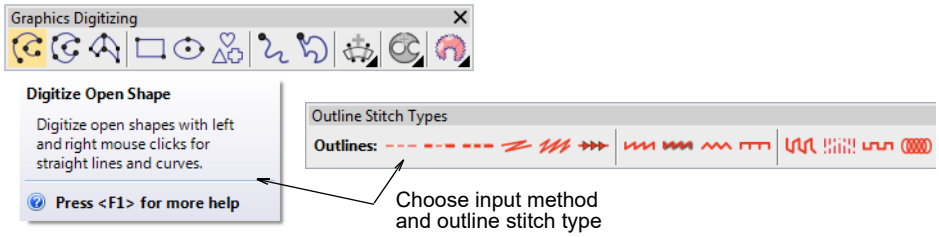
BE EmbroideryStudio provides tools for creating outline stitching of varying thickness and styles. These tools place a row of stitching along a

digitized line. They are typically used for adding outlines and details. They can also be used for decorative effect.

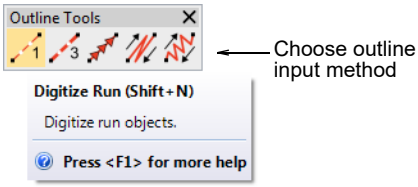


To digitize outlines and details...

- Select a suitable input tool together with an outline stitch type.



- Alternatively, choose a traditional outline input method from the **Outline** tools.



- In addition to **Run** and **Triple Run**, traditional methods include:

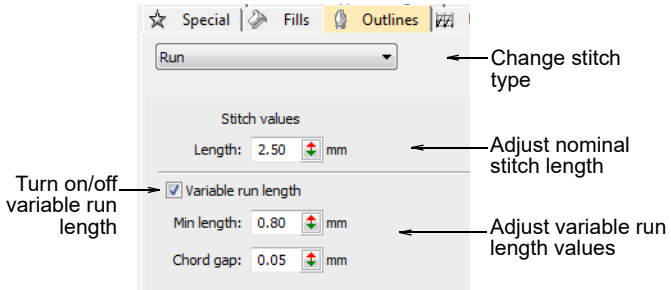
	Use Motif Run to place a row of motifs along a digitized line.
	Use Backstitch to place a row of backstitches along a digitized line.
	Use Stemstitch to place a row of stemstitches along a digitized line.

- Choose a color from the **Color** toolbar. You can change colors at any time.
- Digitize the shape by marking reference points:
  - Left-click for corner points.

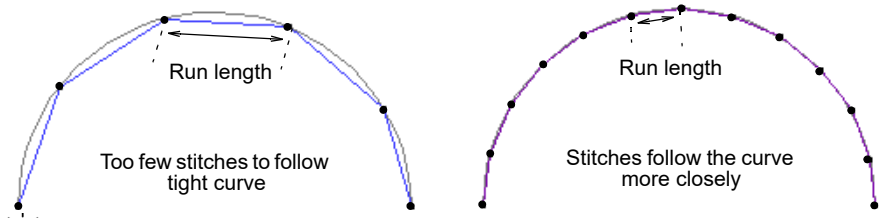
- Right-click for curve points.
- To constrain the line to 15° increments, hold down **Ctrl** as you digitize.
- For a perfect circular arc, mark three points with a right-click.
- Where curves connect – either to a straight line or another curve – click to mark the connection point.

Tip: If you make a mistake, press **Backspace** to delete the last point. Press **Esc** to undo all new points. Press **Esc** again to exit digitizing mode.

- Press **Enter** to finish.
- To view stitches better, use the **View** toolbar to turn on or off backdrops.
- Optionally, use **Edit > Close Shape...** commands to close an object using straight or curved points.
- Optionally, double-click the object to access object properties.



- To set a fixed stitch length, adjust the **Length** field. For sharp curves, reduce length – e.g. 1.8 mm – so that the stitches follow the line more closely. Alternatively, automatically shorten stitches to follow tight curves with the **Variable Run Length** option.



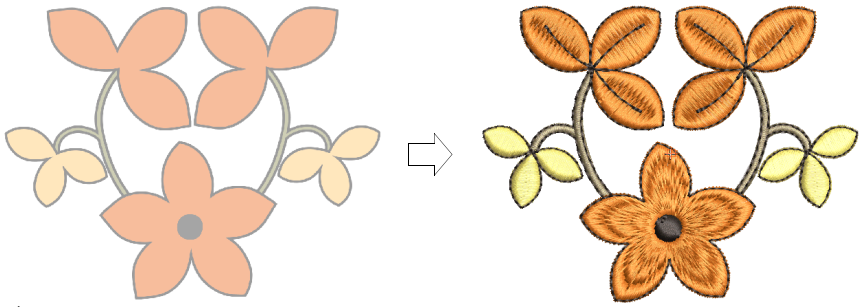
Tip: Use **Auto Scroll** to scroll automatically within the design window while digitizing. Hold down the **Shift** key to temporarily deactivate **Auto Scroll**. Use the **Ctrl+Shift+A** key combination to quickly toggle **Auto Scroll** on/off.

Related topics...

- Simple outlines
- Thread selection
- Other general options
- View graphical components
- Scroll options
- Minimizing connectors

Digitizing regular columns

Use **Column C** to digitize columns and borders of fixed width. **Column C** is usually used with satin stitch but other outline stitch types are available for use. See also Satin stitching.



Tip: You can toggle between **Column C** and **Digitize Run** by pressing the **Spacebar**. See also Convert objects with CorelDRAW Graphics.

Create columns & borders

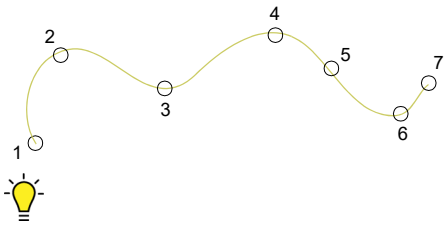
Use Traditional Digitizing > Column C to digitize columns or borders of fixed width. Right-click for settings.

Digitize columns and borders of fixed width with the **Column C** tool.

To create columns and borders...

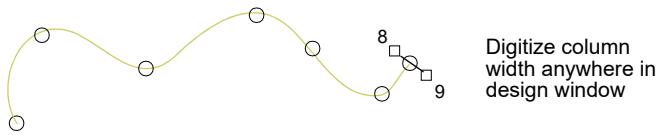
1. Insert some artwork to use as a digitizing backdrop.
2. Select a color and stitch type – e.g. Satin.
3. Select **Column C** and mark corner or curve points around the outline of the shape.
   - Click to enter corner points.

- Right-click to enter curve points.

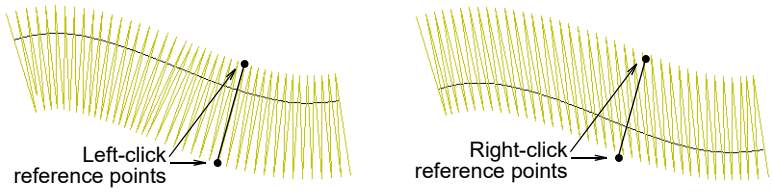


Tip: The **Show Column C width guide** setting in the **Options** dialog activates a special cursor. This is useful when digitizing a border based on a background image.

4. To close the shape, enter the last point on top of the first.
5. Press **Enter**.
6. Specify column width:
   - To use the default width – as set in the **Object Properties > Special > Column C** docker – press **Enter**.
   - To specify a width, mark two additional points. By default, stitches are positioned around the center of the digitized line.



   - To specify an offset, right-click reference points instead of left-clicking.



7. Press **Enter** to finish.

Related topics...

- Stitch Types
- Ruler & guide display options
- Reshape Column C objects

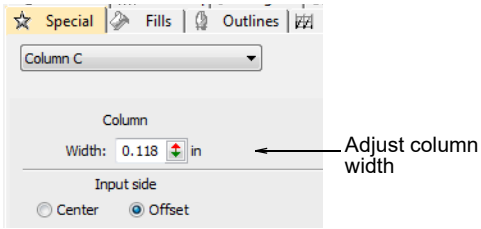
Adjust column width & offset

Use Traditional Digitizing > Column C to digitize columns or borders of fixed width. Right-click for settings.

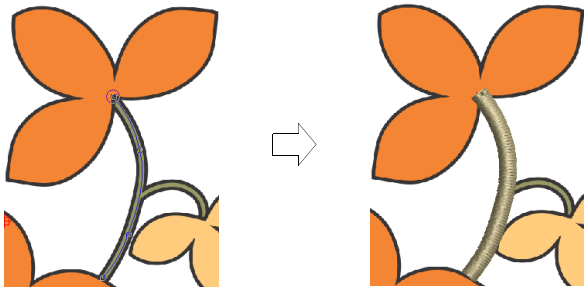
By default, stitches are positioned around the center of an Column C object. Set an exact offset via **Object Properties**. You can also set an exact width.

To adjust column width and offset...

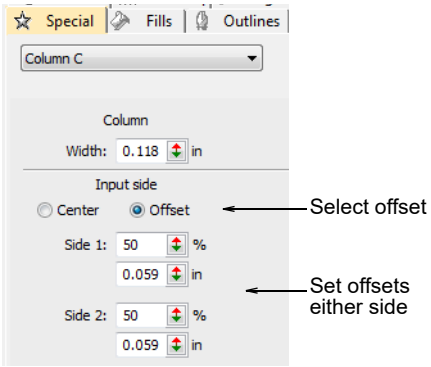
- Double-click an Column C object or right-click the tool to access object properties.



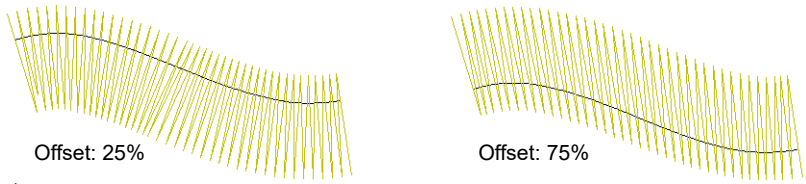
- Enter a column **Width**.



- In the **Input Side** panel, select **Offset**.



- Set an offset in either **Side 1** or **Side 2** field.



Tip: You can also change the width of Column C objects by adjusting control points with the **Reshape** tool.

Related topics...

- Ruler & guide display options
- Reshaping objects

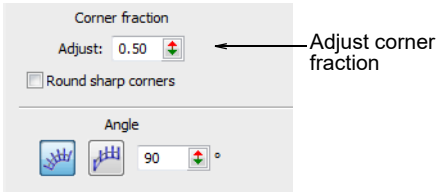
Set corner fractions

Use Traditional Digitizing > Column C to digitize columns or borders of fixed width. Right-click for settings.

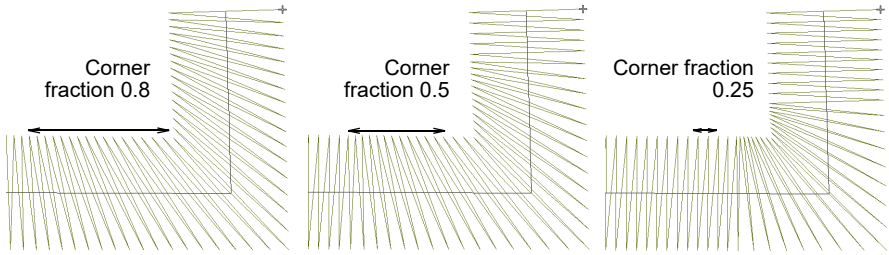
With sharp curves, spacing which provides adequate coverage on the outside edge may cause bunching along the inside edge. This may cause thread breakage when stitching out. You can control the way stitches turn in Column C objects by adjusting the 'corner fraction'.

To set corner fractions...

1 Double-click a Column C object or right-click the tool to access object properties.



2 Enter a new corner fraction in the **Corner Fraction** field.
   - Increasing the fraction spreads the turn over more stitches.
   - Decreasing the fraction reduces the number of stitches that turn.



Tip: Round Sharp Corners is also available for Column C objects to give you the option of sharp or round points.

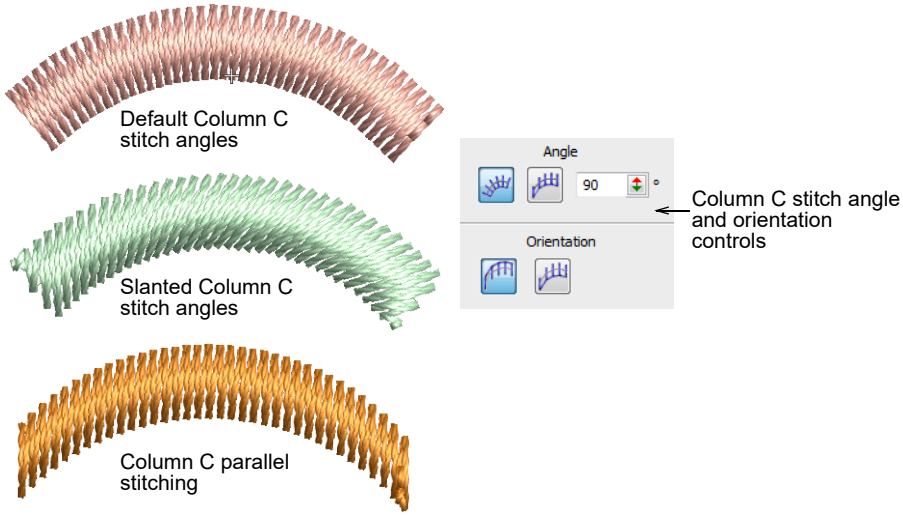
Related topics...

- Round sharp corners

Set angles & orientation

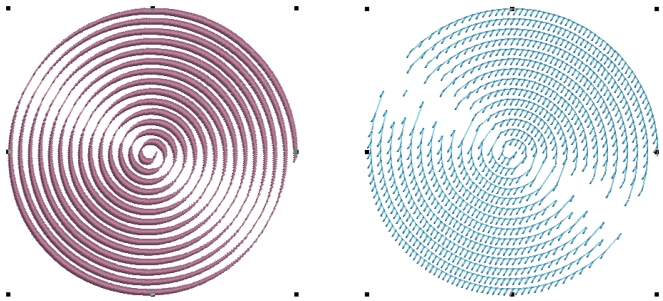
Use Traditional Digitizing > Column C to digitize columns or borders of fixed width. Right-click for settings.

The **Column C** tool provides control of stitching angle and orientation.

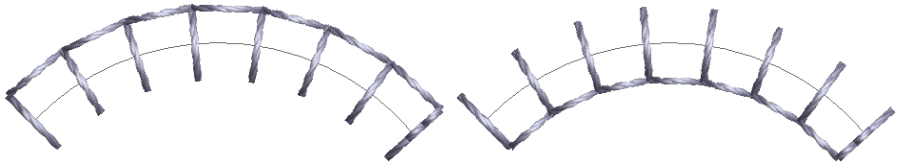


Angle and **Orientation** controls allow you to:

- Control the angle of stitches relative to baseline.
- Create parallel stitching and control the angle relative to the horizontal. Use it to create calligraphy-like stitching in conjunction with **Freehand**.



- Control orientation to set which side to start stitching on. This is most useful for **E Stitch**.



Related topics...

- Freehand embroidery
- Reshape Column C objects

Digitizing irregular columns

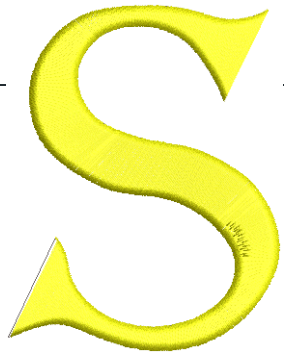
In addition to **Column C**, both **Traditional Digitizing** and **Graphics Digitizing** toolbars provide tools for creating column shapes and borders of varying width.

Note: BE EmbroideryStudio lets you convert between Complex Fill and Column A or Column B objects. See Converting designs with CorelDRAW Graphics for details.

Digitize columns of varying width

	Use Traditional Digitizing > Column A to create columns of varying width and stitch angle. Right-click for settings.
	Use Graphics Digitizing > Digitize Column to create columns of varying width and stitch angle. Right-click for settings.
	Use Reshape > Keep/Omit Last Stitch to set the last stitch in selected column (A/B) shapes.

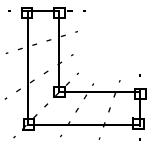
Use the **Column A** or **Digitize Column** tools to digitize columns of varying width and stitch angle.



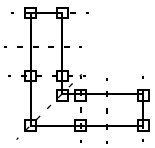
To digitize columns of varying width...

1. Click the **Column A** or **Digitize Column** icon.
2. Select a color and stitch type – e.g. Satin.
3. Digitize the column by marking points on alternate sides of the column.
   - Click to enter corner points.
   - Right-click to enter curve points.

   The control points in a pair do not have to be the same type. For example, one can be a corner point, the other a curve.



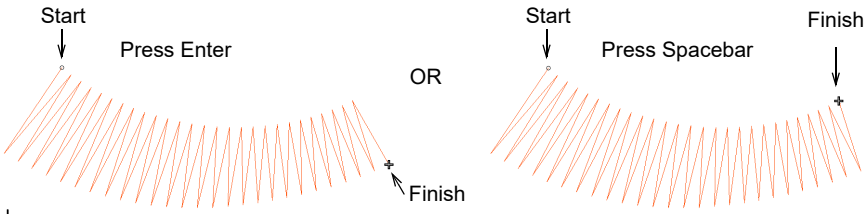
Stitches change angle through the entire shape



Stitches remain parallel between parallel stitch angles

Tip: If you make a mistake, press **Backspace** to delete the last point. Press **Esc** to undo all new points. Press **Esc** again to exit digitizing mode.

4. When you have finished digitizing, either:
   - Press **Enter** to keep the last stitch and place the exit point at the last point you digitized, or
   - Press **Spacebar** to omit the last stitch and place the exit point on the opposite side of the column.



Tip: With the object selected, click **Keep/Omit Last Stitch** buttons to toggle between the two.

Related topics...

- Stitch Types

Create smooth joins

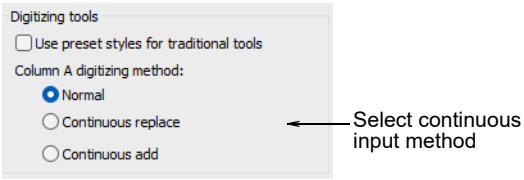
Use Traditional Digitizing > Column A together with 'continuous input' to create single objects comprising separately stitched sections.

Use Standard > Options to access application options for design view, grid & guides, and other settings.

The 'continuous input' option provides a simple and efficient way of digitizing a single Column A object comprised of separately stitched sections. The objects so created can be deleted or edited using standard reshape tools.

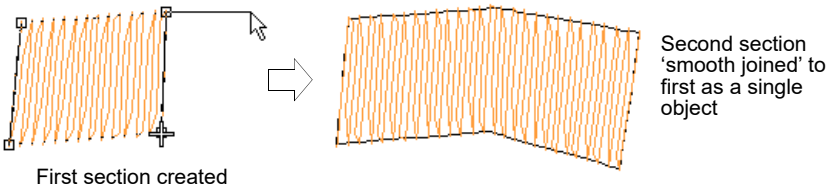
To create smooth joins...

1 Click the **Options** icon or select **Setup > Options** and click the **General** tab.

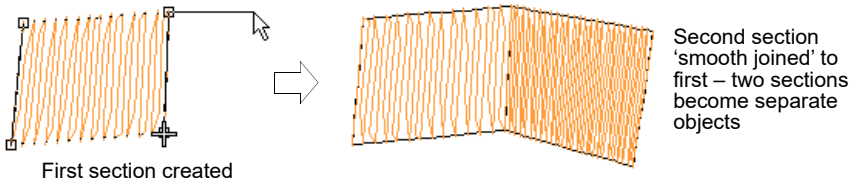


2 Select a continuous input method:

- **Normal**: Use this for non-continuous input.
- **Continuous replace**: Use this to continue digitizing the same object after each **Enter** keypress. Any properties you change during digitizing will affect the entire object, not just the section you are working on.



- **Continuous add**: Use this to join objects of different size where different stitch types are used – e.g. a narrow section of satin stitch joining to a larger section of tatami.



3 Click **OK**.

4 Digitize the Column A object. When you press **Enter**, the digitized object fills with stitches. The input tool is still active.

5 If you are using **Continuous Add** mode, you can select another stitch type at this point.

Tip: To stop the screen scrolling while moving the mouse, hold down **Shift** and click the stitch type button you require.

6 Recommence digitizing where you left off and press **Enter** when you have finished.

If you are using **Continuous Add** mode, the new section is a new object. This means that, while the two sections are smoothly joined, they can have different properties, including stitch type.

Tip: To start a new object without joining to the previous object, click the **Column A** icon again.

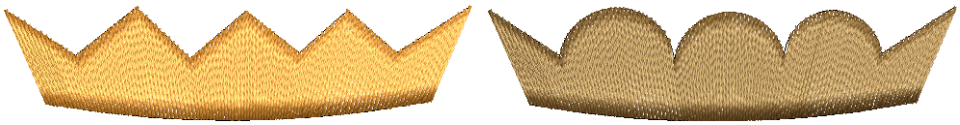
Related topics...

- Digitize columns of varying width

Digitize columns of turning stitches

Use Traditional Digitizing > Column B to create asymmetrical columns of turning stitches, where opposite sides are different shapes. Right-click for settings.

Use the **Column B** tool to digitize shapes where one side is different to the other, especially where one side requires more points than the other. Stitches turn evenly throughout the entire shape.



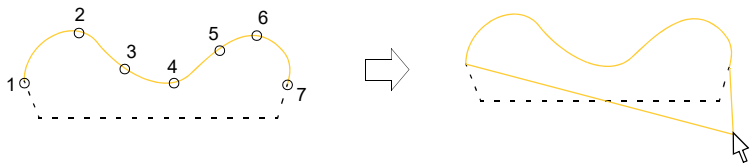
To digitize asymmetric columns...

1 Click the **Column B** icon.

2 Select a color and stitch type – e.g. Satin.

3 Digitize the first side of the shape – i.e. top or left – by marking points.

- Click to enter corner points.
- Right-click to enter curve points.

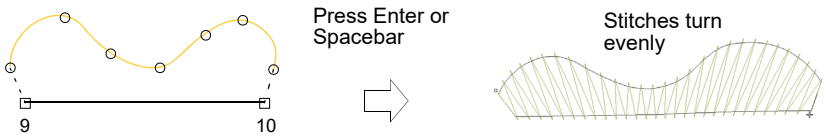


Tip: If you make a mistake, press **Backspace** to delete the last point. Press **Esc** to undo all new points. Press **Esc** again to exit digitizing mode.

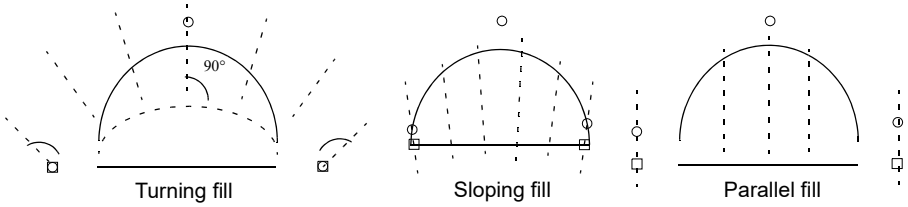
4 Press **Enter**.

An elastic line attaches to the pointer, ready for you to digitize the second side of the shape.

5 Digitize the second – i.e. bottom or right – side of the object.



Tip: Stitch angles vary from tightly turning fills to parallel fills, depending on the ends of the shape – the more 'pointy', the tighter the stitch angles.



6 When you have finished digitizing the shape, either:

- Press **Enter** to keep the last stitch and place the exit point at the last point you digitized, or
- Press **Spacebar** to omit the last stitch and place the exit point on the opposite side of the column.

Related topics...

- Stitch Types

Creating free-form shapes

In BE EmbroideryStudio, you digitize free shapes with turning stitches with the all-purpose **Complex Turning** tool. Use the **Complex Fill** tool for free shapes with fixed stitch angles. By digitizing further internal boundaries, you can create shapes with holes in them.



Boundaries in complex shapes should not overlap or intersect. The shapes below, for example, cannot be successfully digitized.



Boundaries overlap | Boundary overlaps itself | Hole within hole

Tip: You can create new objects from existing boundaries using the **Fill Holes** feature. Alternatively, you can use other objects to cut holes. See Removing underlying stitching and Fill holes for details.

Digitize free-form shapes

Use Traditional Digitizing > Complex Fill to digitize filled shapes with a single stitch angle. Right-click for settings.

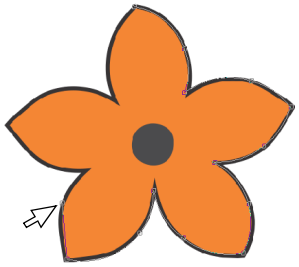
Use Traditional Digitizing > Complex Turning to digitize filled shapes with turning stitch angles. Right-click for settings.

Digitize free-form shapes with **Complex Fill** or with **Complex Turning**. The method is essentially the same:

- Digitize the shape
- Define entry and exit points
- Define stitch angle/s. **Complex Turning** lets you create multiple stitch angles.

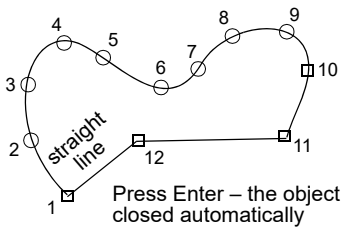
To digitize a free-form shape...

1. Insert artwork to use as a digitizing backdrop. Make sure **Show Bitmaps** or **Show Vectors** are toggled on or press **0** (zero) to see artwork on screen.
2. Select a color and stitch type.
3. Select a tool and mark corner or curve points around the outline of the shape.
   - Click to enter corner points.
   - Right-click to enter curve points.

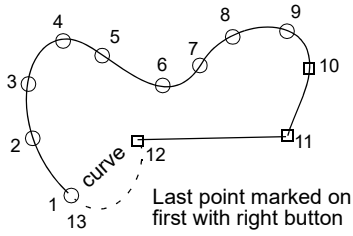


Tip: If you make a mistake, press **Backspace** to delete the last point. Press **Esc** to undo all new points. Press **Esc** again to exit digitizing mode.

4. Close the shape:
   - To close with the same type of point as the last entered – i.e. corner or curve – press **Enter**.
   - To close using a different type of point, mark the last on top of the first and press **Enter**.

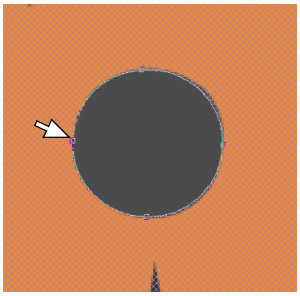


Press Enter – the object is closed automatically

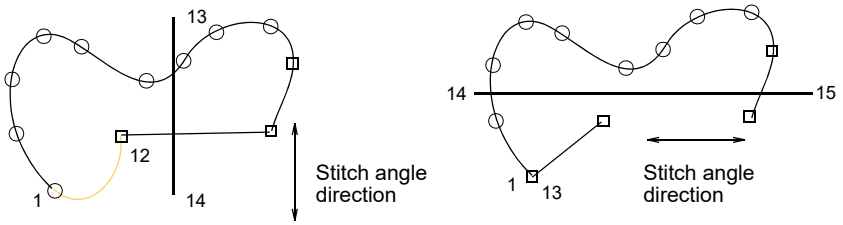


Last point marked on top of first with right button

5. Optionally, digitize additional (internal) boundaries in the same way and press **Enter**.



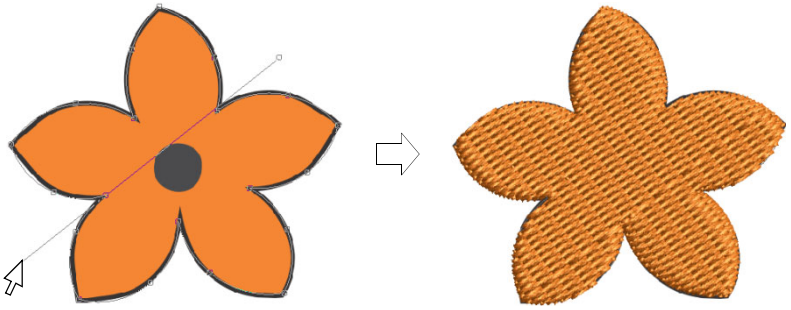
6 Define entry and exit points by marking two points outside the object boundary and press **Enter**. The **Closest Join** method (the default) automatically calculates closest join between objects while digitizing. When deactivated, entry and exit points need to be set manually.



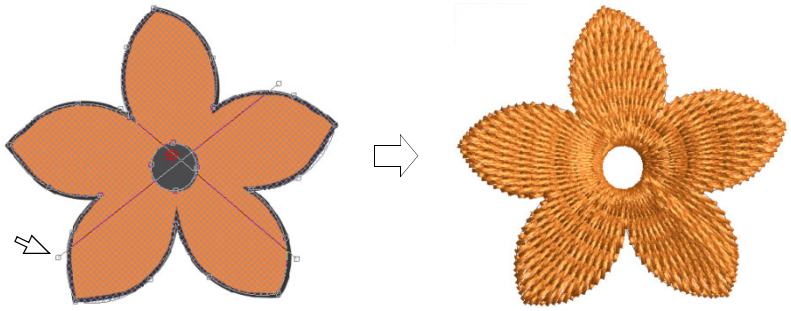
Tip: If you choose to digitize entry/exit points manually, place them opposite each other on the boundary in order to minimize travel stitching. Then define the stitch angle to be perpendicular to the line between entry and exit points.

7 Mark stitch angles:

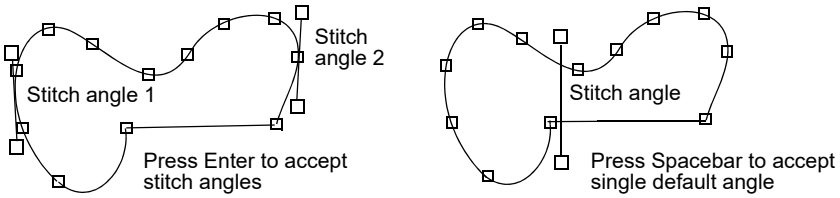
- If you are using **Complex Fill**, mark two points.



- If you are using **Complex Turning**, add more stitch angles as desired. Stitch angles may intersect over any holes you have digitized.



- Alternatively, press **Enter** to accept calculated stitch angles. Or press **Spacebar** to discard calculated stitch angles and accept a single default stitch angle.



Tip: You can adjust and/or add stitch angles using the **Reshape Object** tool.

8 Press **Enter**. Free shapes generally stitch out in several segments, joined by travel runs. However, all segments and boundaries are part of the same object.

Tip: To view stitches better, toggle off **Show Bitmaps** (press **D**).

Related topics...

- View graphical components
- Stitch Types
- Thread selection
- Add holes to free-form shapes
- Other general options
- Adjusting stitch angles
- Stabilizing with underlays

Add holes to free-form shapes

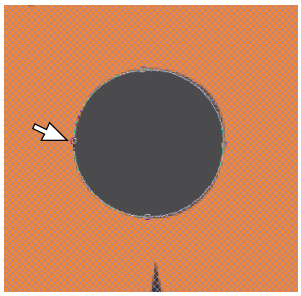
Use Traditional Digitizing > Complex Fill to digitize filled shapes with a single stitch angle. Right-click for settings.

Use Traditional Digitizing > Complex Turning to digitize filled shapes with turning stitch angles. Right-click for settings.

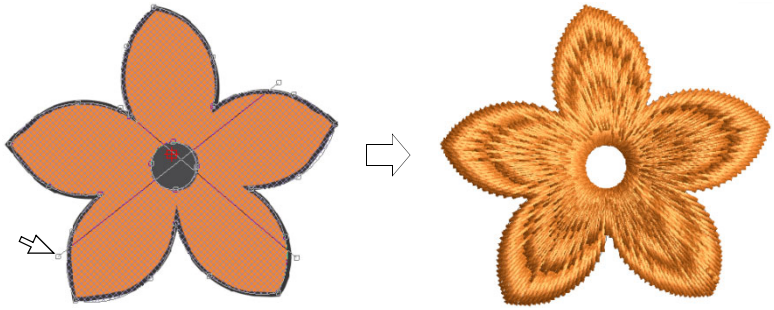
While BE EmbroideryStudio provides dedicated tools for cutting and filling holes in existing objects, it also lets you add holes to closed shapes as you digitize.

To add holes to free-form shapes...

- Use one of the free-form digitizing tools to create your shape. Simply follow the prompts to add holes as you digitize. Alternatively, select the final object and click the associated free-shape tool. Points display around the object outline.
- Digitize additional holes making sure they do not overlap. Press **Enter** each time.



- If you make a mistake, press **Backspace** to delete the last point. Press **Esc** to undo all new points.



- When you have digitized all additional holes, press **Enter** again.

Tip: To remove unwanted holes, select the object and use the **Reshape Object** tool to delete control points around the hole.

Related topics...

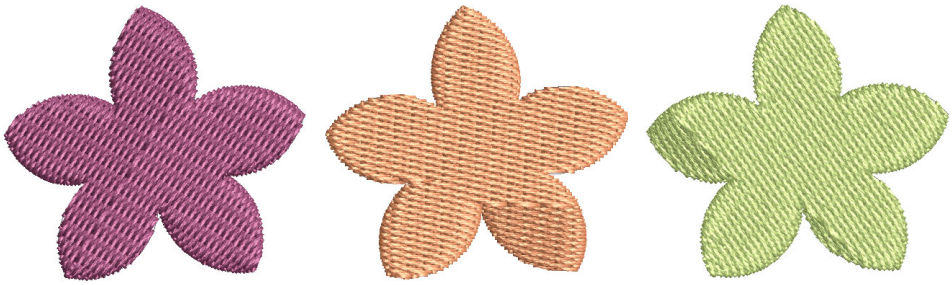
- Adding & filling holes
- Reshaping objects
- Removing underlying stitching

Set nominal angles

Use Traditional Digitizing > Complex Fill to digitize filled shapes with a single stitch angle. Right-click for settings.

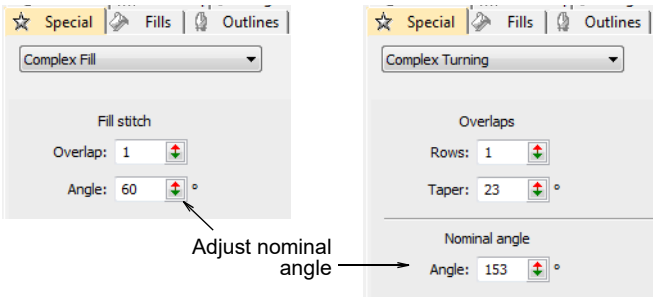
Use Traditional Digitizing > Complex Turning to digitize filled shapes with turning stitch angles. Right-click for settings.

You can change the stitch angle of Complex Fill objects using object properties. By definition, Complex Turning objects contain multiple stitch angles. However, they also have a property called the 'nominal angle'.

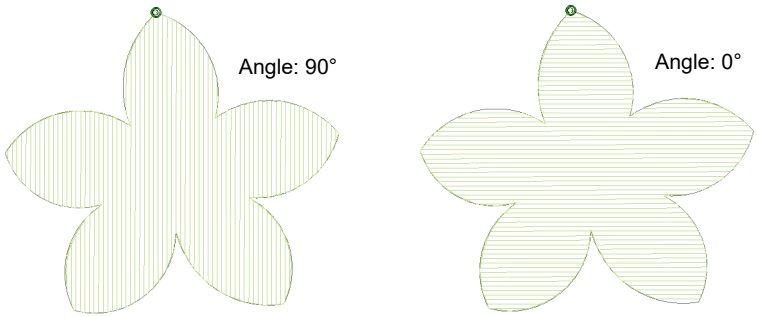


To set the nominal angle...

- Double-click a free-shape object to access object properties.



- In the **Angle** or **Nominal Angle** field, enter a stitch angle.



Note: The 'nominal angle' in a Complex Turning object only takes effect if multiple stitch angles are irreconcilable – it then reverts to parallel stitching in the direction of the nominal angle. The nominal angle also affects certain underlay styles.

Tip: You can adjust stitch angles of free-form objects interactively using the **Stitch Angles** tool.

Related topics...

- Stabilizing with underlays
- Adjusting stitch angles

Adjust segment overlaps

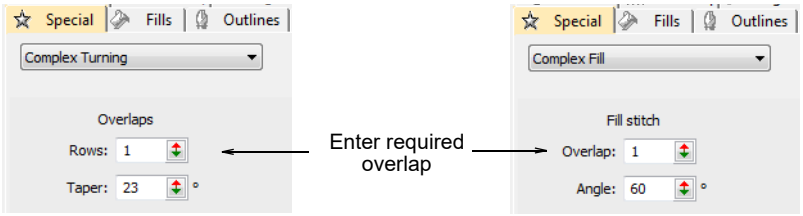
Use Traditional Digitizing > Complex Fill to digitize filled shapes with a single stitch angle. Right-click for settings.

Use Traditional Digitizing > Complex Turning to digitize filled shapes with turning stitch angles. Right-click for settings.

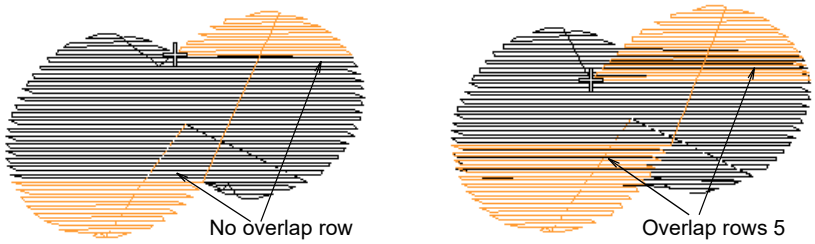
Free shapes generally stitch out in several segments, joined by travel runs. Where segments within an object meet, the push-pull effect on the fabric during stitching may cause gaps to appear. These gaps can be prevented by adding overlapping rows.

To adjust segment overlaps...

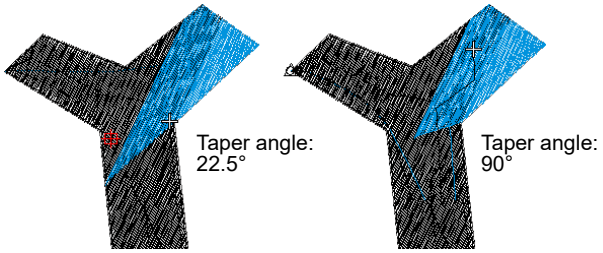
- Double-click a free-shape object to access object properties.



- Adjust the number of overlapping rows where segments join. An overlap of '1 row' means no overlap between segments. An overlap of '2 rows' means that the segment is extended by one extra row of stitches.



- With Complex Turning objects, you can also adjust the taper angle. This value limits the width of overlaps. It defaults to 22.5° with a range of 15° to 90°.



Adjust travel margins

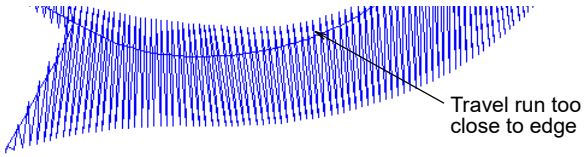


Use Traditional Digitizing > Complex Turning to digitize filled shapes with turning stitch angles. Right-click for settings.

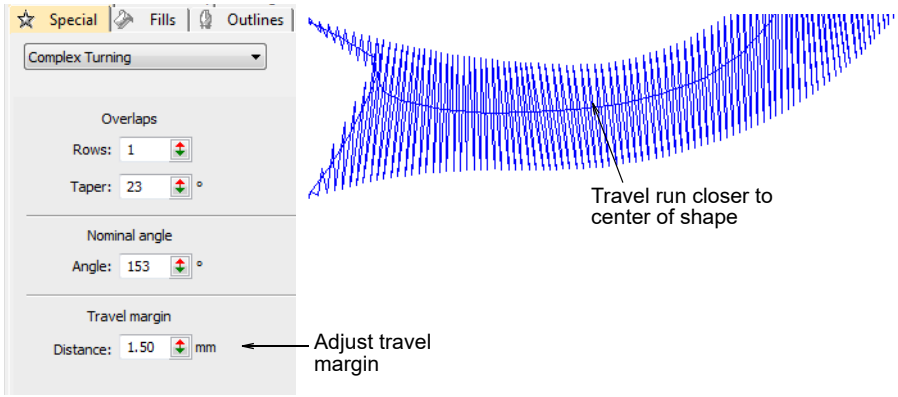
When dealing with complex shapes with multiple segments, you may want to keep travel runs away from the boundary for various reasons. If, for instance, you are using **Jagged Edge** effect, the travel might become visible through shortened stitches. For this reason, you can specify a margin.

To adjust travel margins...

- Select an object.



- Right-click the **Complex Turning** icon to access object properties.



- Adjust the travel margin in the **Distance** field.

Chapter 11

Object Properties

Every object you create in BE EmbroideryStudio has a unique set of properties that are stored with it whenever you save the design. These properties define general characteristics such as size and position, as well as embroidery-specific characteristics such as stitch type and density. The stitch properties determine how stitches will be regenerated when you reshape, transform or scale the object.



This section explains how to change property settings in a design, as well as how to apply and adjust fabric settings. It also explains how to create and maintain styles and templates in BE EmbroideryStudio.

Basic concepts

Base properties or 'defaults' are stored with the design template and form the basis of all new designs. These may be overridden by fabric settings which are adjusted to suit different fabric types. These in turn may be overridden by individual property settings.

Actual settings

Each object has its own unique set of properties. Actual object properties are those settings stored with each object in the design. These may or may not be the same as the defaults.

Default settings

Default or starting property settings are the ones stored with the design template and/or selected fabric (if activated). These are automatically applied to any newly created objects in the design.

Current settings

You can define 'current' settings to influence all the objects you create in the current design. Simply change property settings in the **Object Properties** docker with no objects selected. These settings then apply to all new objects.

You generally change them to save time when digitizing. For example, you may preset Tatami stitch spacing to use a specific density for all new Tatami objects you create. Alternatively, you can make a selected object's 'actual' properties 'current' for all new objects. You can also apply current settings to existing objects.

When you close a design, current settings are not automatically saved to the template. You can save them as the new default settings of the current template or to another template altogether. Or you may be able to save them as a custom fabric.

Fabric settings

Matching object properties to the intended fabric is critical for good quality designs. Fabric settings are a subset of settings stored in the template which are fine-tuned to different fabric types. Although the NORMAL template settings are suitable for a range of fabrics, selecting a matching fabric automatically customizes object properties to the intended fabric.

Styles

A style is a group of property settings stored under a unique name. You can save any combination of settings to a style. This makes it easy to apply these settings to selected embroidery and lettering objects. When you apply a style to an object, style settings replace current properties. Any properties not specified by the style, retain their current settings.

Templates

Templates are special files used to store styles, default properties, as well as default fabric settings. Use templates when digitizing frequently-used design types to save time re-adjusting current property settings.

Working with object properties

When you start a new design, BE EmbroideryStudio uses the default settings associated with the chosen fabric (if activated). Other property settings are stored with the design template. You can override most settings on an object-by-object basis. For this reason, BE EmbroideryStudio distinguishes three sets of object properties – **default**, **actual** and **current**.

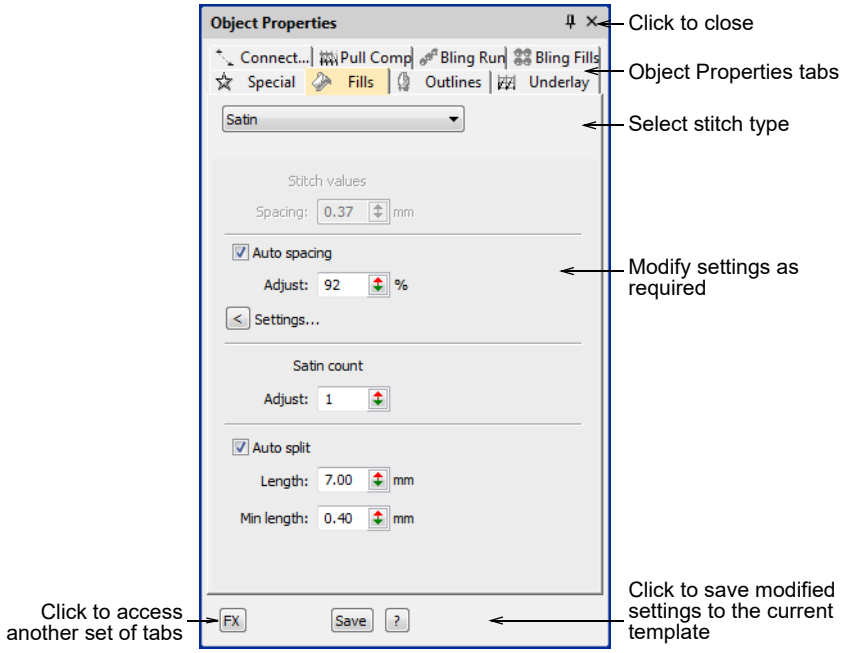
Change current settings

Use Docker > Object Properties to preset properties or adjust properties of selected objects.

Whenever you change current settings, these automatically apply to any new objects you create. If you know which settings you require before digitizing, you can preset them.

To change current settings...

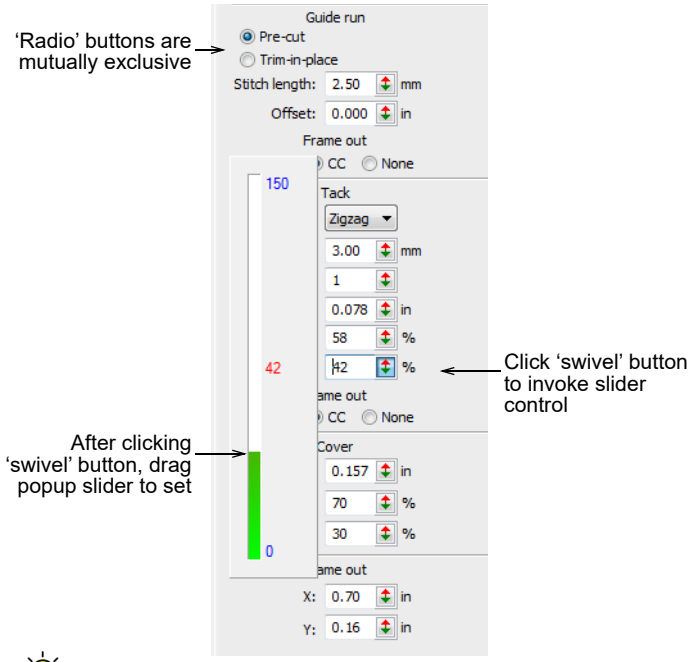
1 With no objects selected, click the **Object Properties** icon.



2 Select a tab to view current settings – e.g. **Fills**.

3 Select an item from the droplist – e.g. **Fills > Satin** – to access those properties.

4 Use droplists, radio buttons and checkboxes to choose options. Key in precise values or use the popup slider.

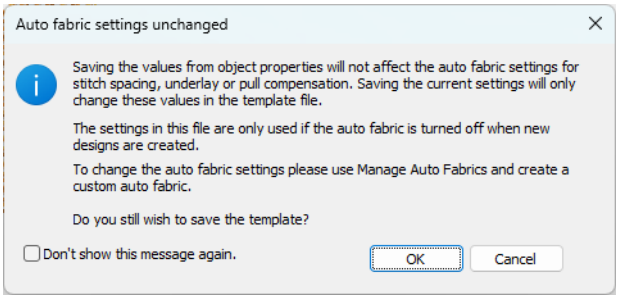


Tip: The slider has two operating modes – **Normal** and **Accelerated**. Holding down the **Ctrl** key puts it in **Accelerated** mode.

5 Click the **FX** button to access a further set of tabs and modify settings as required.

6 Press **Enter** to confirm changes. Modified settings are now current for all new objects. You can apply them to existing objects by means of the **Apply Current Properties** tool.

7 Optionally, click **Save**. The object properties are saved to the **current** template. These will apply to new objects in any design based on this template unless overridden by fabric settings.



Change object properties

Use Docker > Object Properties to preset properties or adjust properties of selected objects.

You can change an object's properties at any time without affecting those of any other object **not** currently selected. Some properties can be modified on screen – for example, you can change size by scaling an object with selection handles. Other properties, such as stitch spacing or length, are modified via the **Object Properties** docker.

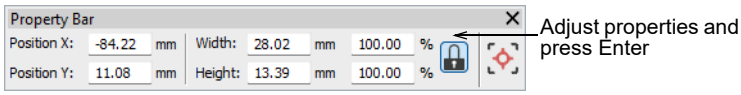
To change object properties...

1 Select the object/s whose properties you want to change.

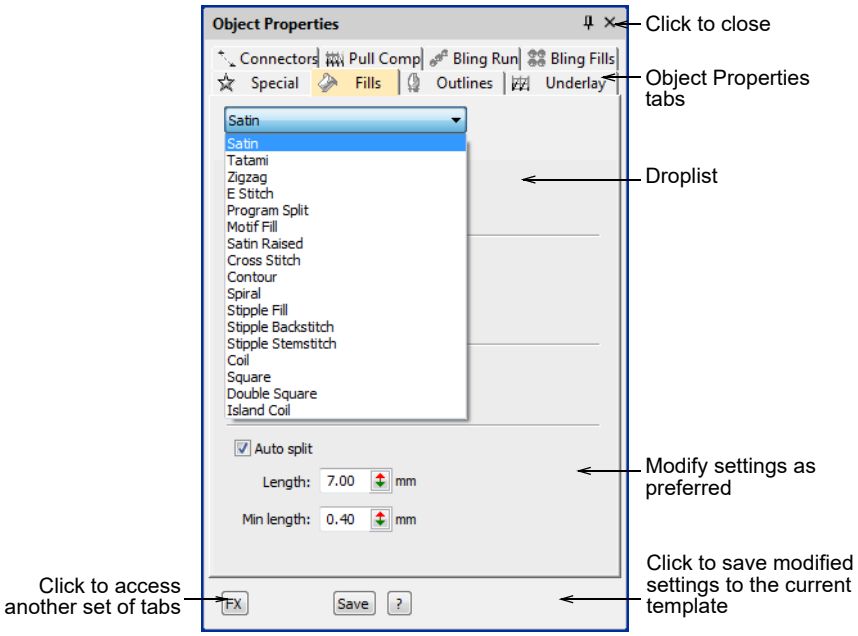


2 Use any of the interactive techniques for scaling, transforming, or reshaping selected object/s.

3 Adjust general properties – width, height, position – by means of the **Property Bar**. Press **Enter** to confirm or **Esc** to discard.



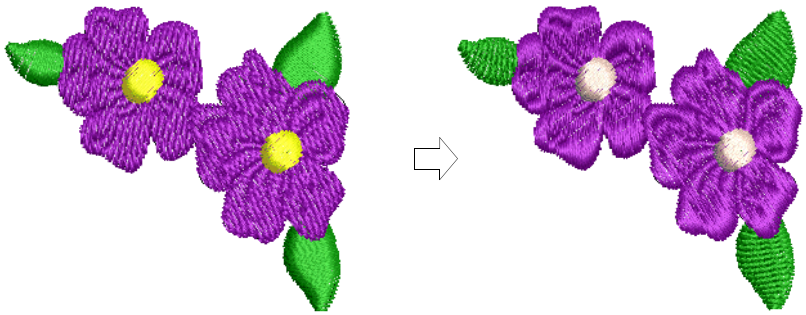
4 Double-click an object to access object properties.



5 Select a tab to access available properties.

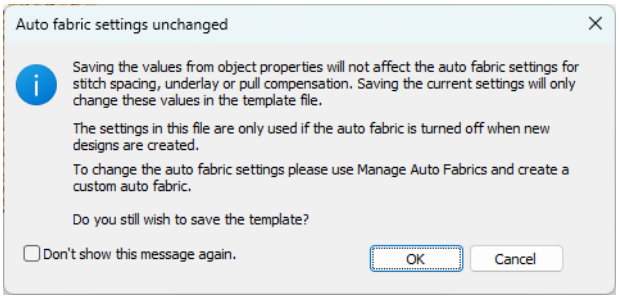
6 Click the **FX** button to access a further set of tabs.

7 Press **Enter** to apply changes to selected object/s.



Usage tips...

- If you select more than one object, the **Object Properties** docker only displays settings relevant to all. If selected objects have different values for the same setting – e.g. stitch length – the field will be blank. If you enter a new value, it applies to all selected objects.
- Some properties, such as **Auto Underlay**, are applied by means of toolbar buttons. When the button is selected, that tool's settings are current.
- Optionally, click **Save**. The object properties are saved to the **current** template. These will apply to new objects in any design based on this template unless overridden by fabric settings.



Related topics...

- Access object properties
- Transforming Objects
- Working with templates
- Reshaping & Splitting Objects

Copy properties



Click Styles > Make Properties Current to make the properties of a selected object current for the design.

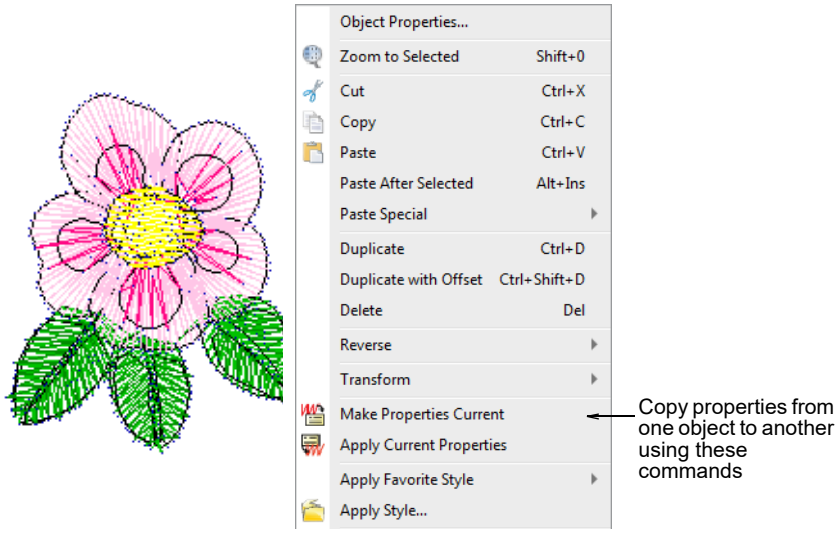


Use Styles > Apply Current Properties to apply current settings to selected objects.

You can make a selected object's 'actual' properties 'current' for all new objects or apply them to existing objects.

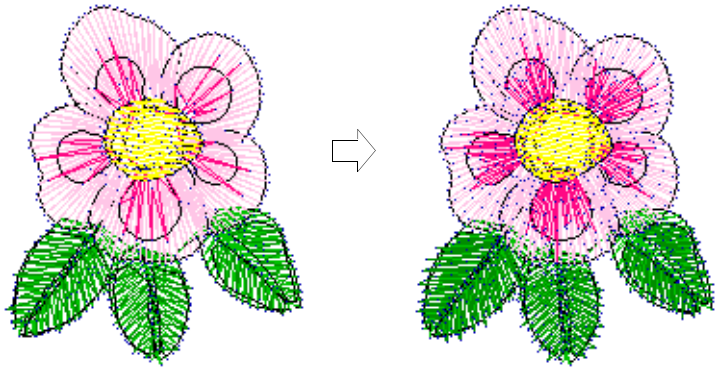
To copy properties...

1. Select the object whose properties you want to make current.
2. Click the **Make Properties Current** icon. Alternatively, right-click the selected object and choose the **Make Properties Current** command in the popup menu.



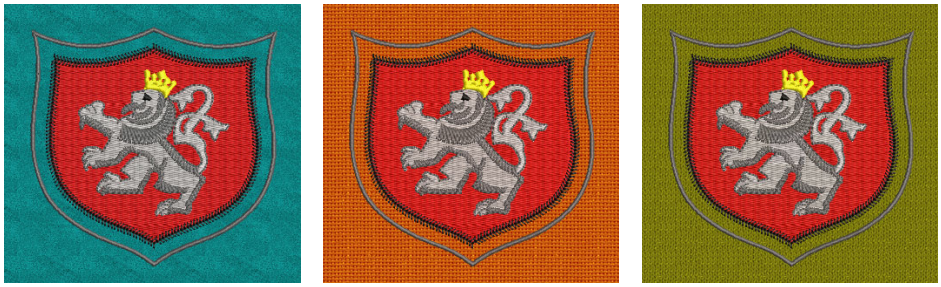
3 Select the object/s whose properties you want to change.

4 Click the **Apply Current Properties** icon. Alternatively, right-click the selected object and choose the **Apply Current Properties** command in the popup menu.



Working with fabrics

Embroidery stitches pull fabric inward where the needle penetrates. This can cause fabric to pucker and gaps to appear. For an object to sew out correctly, it must have correct stitch spacing, sufficient pull compensation together with a suitable underlay for the combination of cover stitch type, object type, object shape and fabric.



BE EmbroideryStudio provides a set of optimized fabric settings that take into account the type of fabric you are stitching on. Fabrics are a critical element of designs and are controlled separately from template values. Fabric settings are fewer in number than those contained in templates.

Change fabrics

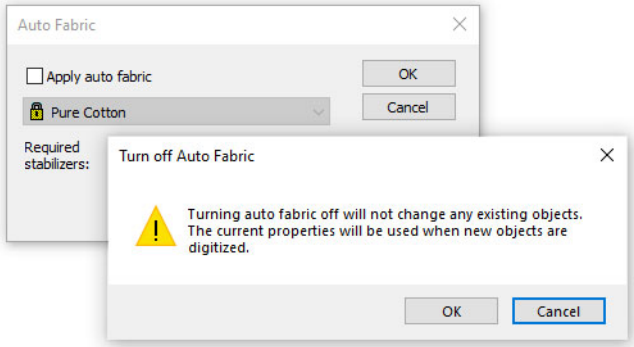
Normally you choose a fabric when you start a design although you can change it at any stage. Fabric settings affect all object types other than motif fills, appliqué, and run stitches.

To change fabrics...

1 Select **Design > Auto Fabric**.



2 Tick the **Apply Auto Fabric** checkbox to activate the feature. Conversely, you can turn off auto fabrics at any stage. You are prompted to confirm the decision.

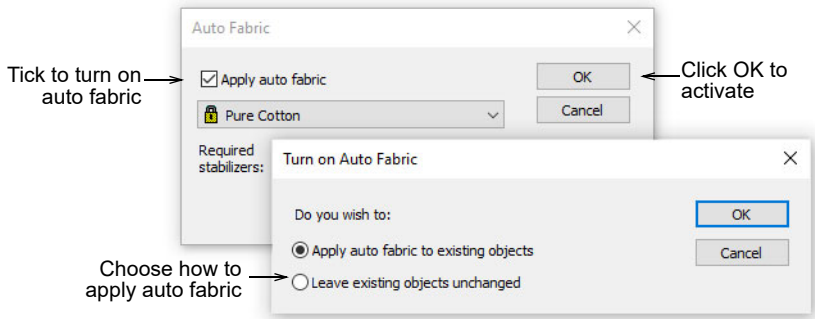


3 From the list, choose a fabric type matching or nearest to the fabric you intend to work with.

4 Click **OK**. The selected fabric is displayed in the **Status** bar.

Usage tips...

- If you choose to apply an auto fabric to a design with no previous fabric, you are prompted to apply it to new objects only or to existing objects as well.



- Changing the current **Auto Fabric** will affect all colorways in the design. However, the converse is not the case. While colorways allow you to select different fabric swatches for different colorways, these have no bearing on **Auto Fabric** settings. However, the background **Fabric** option is 'aware' of **Auto Fabric** selection. Consequently, the **Browse** button takes you to an assortment of swatches relevant to your current fabric selection.

Related topics...

- Create designs from templates
- Pull compensation

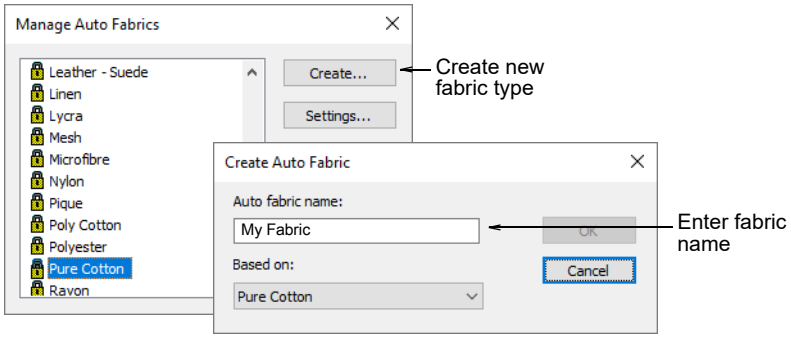
Manage fabrics

In addition to predefined fabric settings, you can create your own custom fabrics to suit particular needs. You can also modify, rename or delete custom fabrics.

To create a new fabric...

1 Select **Setup > Manage Auto Fabrics**.

If you already have custom fabrics defined, you have the option of editing, renaming, or deleting.



2 To create a new fabric type, click **Create**.

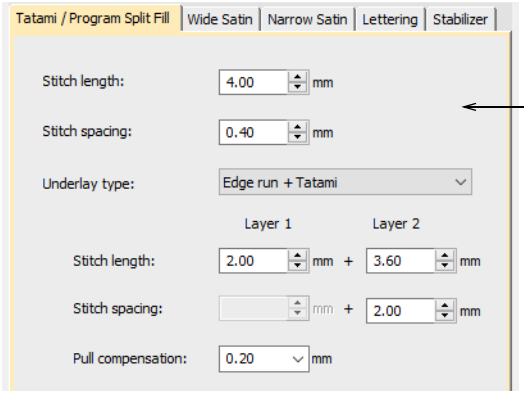
3 Enter a new fabric name. If you want to base the new fabric on default settings, select blank.

4 Click **OK**.

The **Auto Fabric Settings** dialog opens. This dialog allows you to set the fabric values for four object groups – Tatami/Program Split, Wide Satin, Narrow Satin, and Lettering – as well as enter details of any recommended stabilizers.

To set tatami/program split values...

1 Click the tab to access **Tatami/Program Split Fill** settings. These will become the defaults for Tatami and Program Split objects.

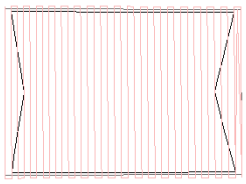


2 Adjust **Length** and **Spacing** settings for your Tatami / Program Split Fill objects as required:

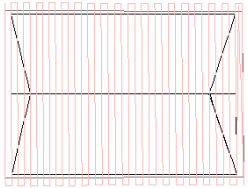
- **Tatami** stitch consists of rows of run stitches and is suitable for filling large, irregular shapes. See Tatami stitching for details.
- **Program Split** is a decorative stitch type. Use it to fill wide and large areas with artistic effects while keeping the appearance of a solid field of stitching. See Creating textures with program splits for details.

3 Set a suitable underlay type for Tatami/Program Split objects. See Stabilizing with underlays for details.

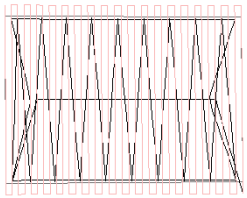
4 Set a pull compensation allowance for these objects. See Pull compensation for details.



Fabric: Denim
Pull Comp: Low



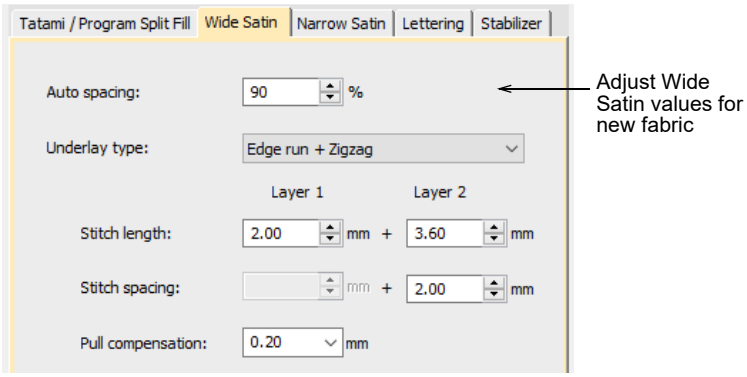
Fabric: Silk
Pull Comp: Medium



Fabric: Terry Toweling
Pull Comp: High

To set satin object values...

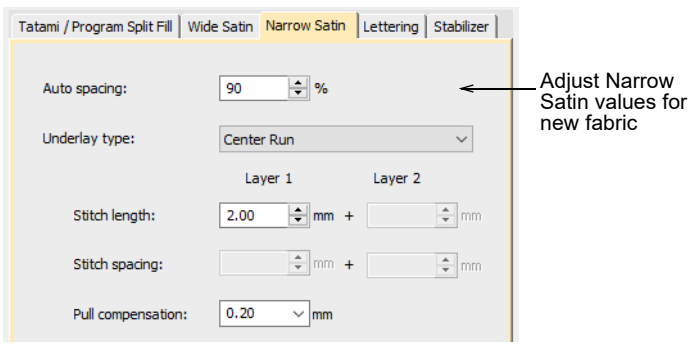
1 Click the tab to access **Wide Satin** settings. These settings will become the defaults for larger Satin objects.



2 Adjust the **Wide Satin** settings as you did for Tatami / Program Split objects. See Satin stitching for details.

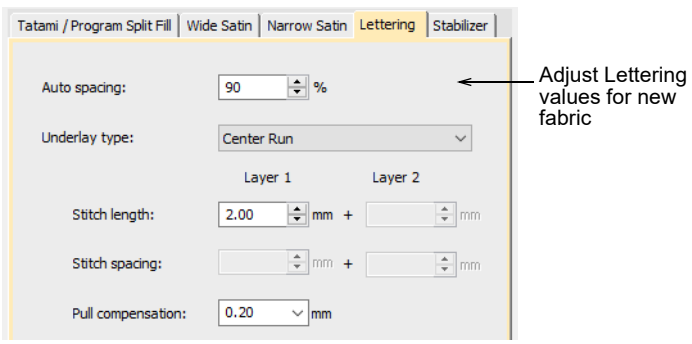
Instead of **Stitch Length** and **Stitch Spacing** settings, you have a single density setting which is controlled by a slider bar.

3 Click the tab to access the **Narrow Satin** settings and adjust as you did for Wide Satin objects. Generally, narrow objects will require a different underlay type. See Satin stitching for details.



To set lettering object values...

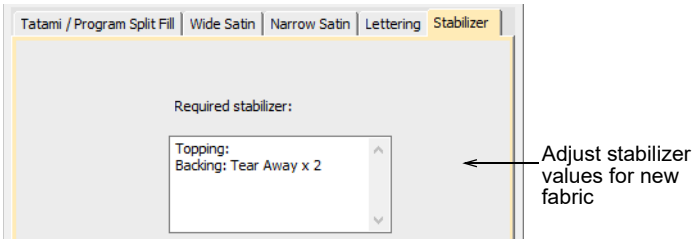
1 Click the tab to access **Lettering** settings.



2 Adjust settings as you did for Satin objects. See Applying stitch types & effects to lettering for details.

To set stabilizer settings...

1 Click the tab to access **Stabilizer** settings.



2 Key in one or more recommended stabilizer(s) together with a description or any other relevant information for the custom fabric. This information will be displayed in the **Auto Fabric** dialog. See Change fabrics for details.

Working with styles

A style is a group of property settings stored under a unique name. This makes it easy to apply them to selected embroidery and lettering objects. Use the **Styles** toolbar to apply styles to selected objects. The tools also allow you to set and apply current settings. Styles you tag as 'favorites' are each assigned an icon on the toolbar.



Styles are stored with the design template. The NORMAL template provides a selection of preset styles for you to use. Each template may contain specific styles for different types of embroidery. See also Working with templates.

Apply styles

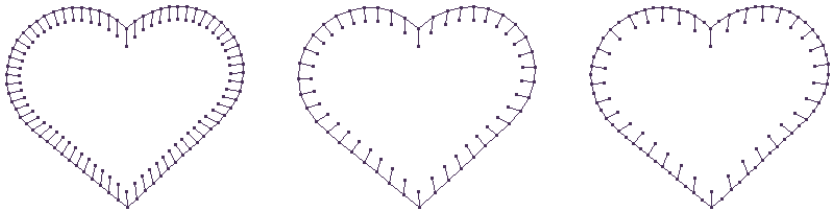
Use Styles > Apply Style to apply a style from the template to new or selected objects.

Use Styles > Favorite Styles to apply preferred styles to new or selected objects.

When you apply a style, the settings overwrite current settings. Any properties not specified in the style, retain their current settings.

To apply styles...

- If available, click the **Favorite Style** icon assigned to the style you want to use.
  - If an object is selected, the style settings are applied to it alone.
  - If no object is selected, the style settings become **current** and apply to any new objects you create.

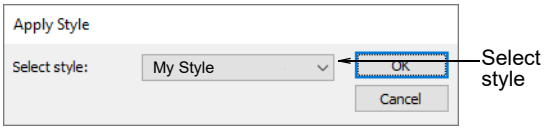


Style 1, E stitch spacing 0.75 mm

Style 2, E stitch spacing 1.25 mm

Style 3, E stitch spacing 1.75 mm

- Alternatively, click the **Apply Style** icon.



- Select a style from the droplist and click **OK**.

Tip: If you are using a digitizing tablet, you can quickly switch between preset styles. Each button on the puck accesses the next preset style with different spacing settings. For example, clicking button **1** accesses <PRESET_SATIN_1>.

Related topics...

- Working with object properties
- Assign favorites

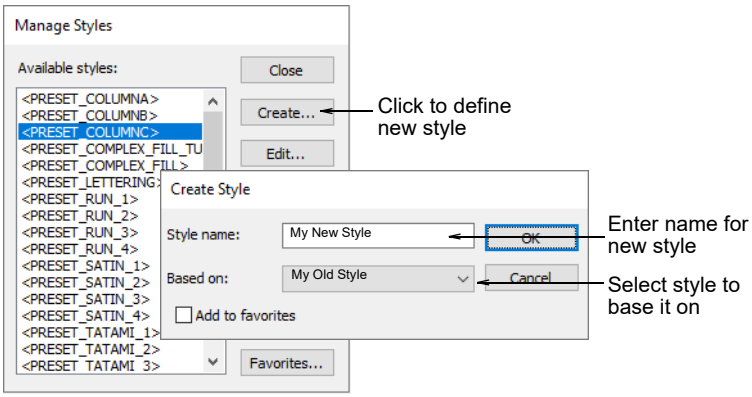
Define styles

Define new styles for a design template, either from scratch or based on an existing style or object. New styles are saved to the current template.

To define a style...

1. To base the new style on an existing object, select it now. To base it on **current** settings, make sure no objects are selected.

2 Select **Setup > Manage Styles**.



3 Click **Create**.

4 Enter a new style name. Choose how you want to base your style:

- If you want to base the new style on default settings – current or selected object – select blank.
- If you want to base it on an existing style, select from the droplist.

5 If you want the new style to be added to the **Style** toolbar, tick the **Favorites** checkbox.

6 Click **OK**. The **Object Properties** docker opens.

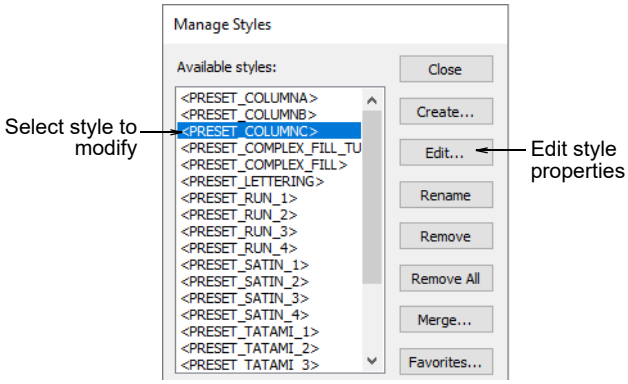
7 Update properties as required.

- If you want to apply current settings, click **Apply**.
- Otherwise, update those settings you want to change. You don't have to enter values in **all** fields, only those you specifically wish to store.

8 Press **Enter**. The new style is saved to the current template.

Modify styles

The **Setup > Manage Styles** function allows you to modify styles, including the factory presets in the NORMAL template. You can merge settings from one style to another. You can rename a style without affecting its settings. You can also remove any unwanted styles from a template.



Select a style from the list and modify using the available buttons:

Function	Description
Edit	Edit styles as you would a selected object. See Change current settings for details.
Rename	Rename a style at any time. Select names that will help you remember the style or help you sort frequently-used styles to the top of the list.
Remove / All	Remove unwanted styles from the current template. The style is removed from the list of style names. To remove all styles from a template click Remove All.
Merge	Copy settings from one style to another via the Merge With Style dialog. When you merge, settings from the second style overwrite the first.
Favorites	You can assign up to ten favorite styles to tool icons on the Styles toolbar. See Assign favorites for details.

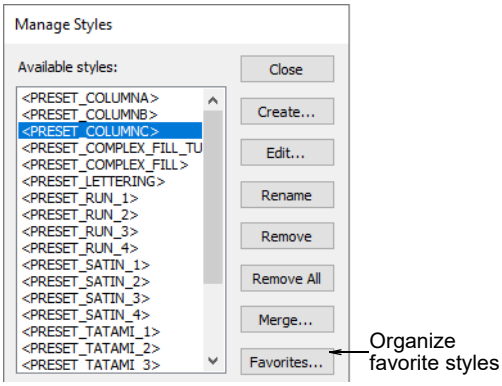
Tip: At some stage, you may want to revert to the original style settings in the NORMAL template. See Revert to the NORMAL template for details.

Assign favorites

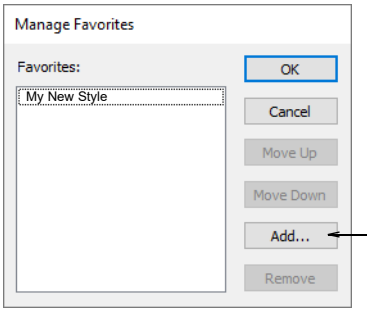
You can assign up to ten favorite styles to tool icons on the **Styles** toolbar. To apply the style, you then simply select the tool.

To assign a favorite style...

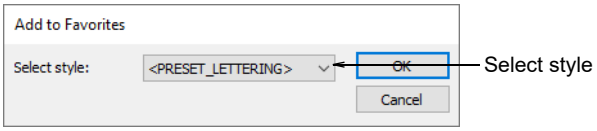
1 Select **Setup > Manage Styles**.



2 Click **Favorites**. The **Manage Favorites** dialog opens.



3 Click **Add**. The **Add To Favorites** dialog opens.



4 Select a style from the droplist and click **OK**.

5 Change the order in which the favorites will appear on the **Styles** toolbar using **Move Up** and **Move Down**.

6 Close out the dialogs. Styles are assigned in the order they appear in the **Manage Favorites** dialog. The tool tip for each button shows the style name.

Working with templates

Templates are special files used to store fabrics, styles and default settings. Use templates when digitizing frequently-used design types so that you do not have to set the current settings every time. For example, a template may include standard objects and sample lettering. It may simply have preferred stitch settings, lettering font and size, and colors

set as current settings. Or it may have special density, pull compensation or underlay settings to suit different fabrics.

The NORMAL template

The NORMAL template is the default template supplied with the software. It contains current property settings as well as a selection of preset styles. These styles include variations on the current property settings. For example, <PRESET_SATIN_1> and <PRESET_SATIN_2> contains different stitch spacing settings for Satin stitches. You can view and modify the settings for these styles at any time. See Modify styles for details.



Note: If necessary, you can revert to the original NORMAL template after modifying it. See Revert to the NORMAL template for details.

Using design templates

When you start a new design from the **File > New from Template** menu, a list of the available templates appears in the **New from Template** dialog. If you select the **New Design** tool on the **Standard** toolbar, the NORMAL template is applied by default. See Create designs from templates for details.

Save current properties to a template

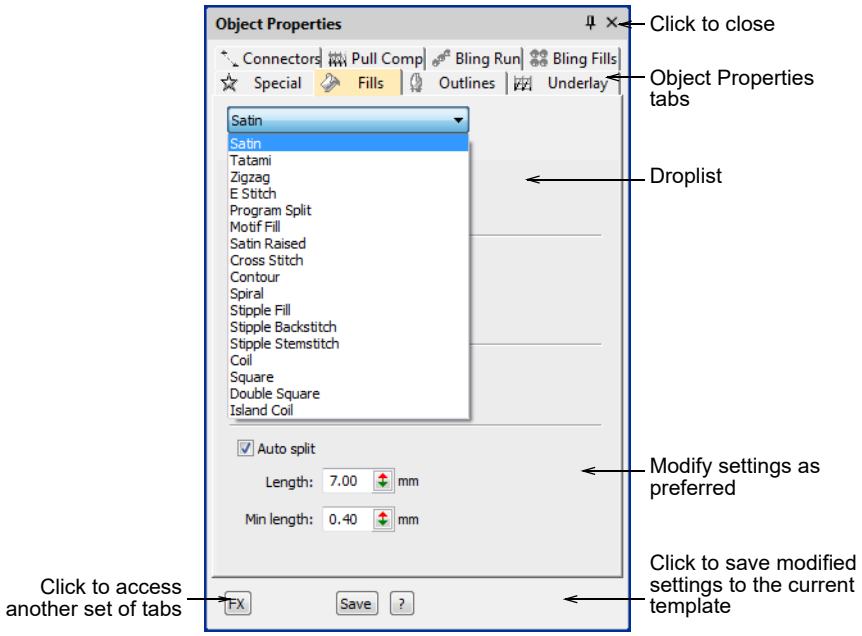


Use Docker > Object Properties to preset properties or adjust properties of selected objects.

You can easily save current settings to the current template.

To save current properties to a template...

1. To use the **current** property settings, deselect all objects, then click the **Object Properties** icon.
2. Open the **Object Properties** docker.



3 Make any further adjustments as required.

4 Click **Save**. Current settings are saved to the template as the new defaults.

Tip: To save more than one set of property settings to the template, save them as styles.

Related topics...

- Working with object properties
- Define styles

Create design templates

You create templates from designs containing the required objects and property settings. Simply save the design, or elements of it, as a template. Templates look the same as design files, but use the file extension **EMT**.

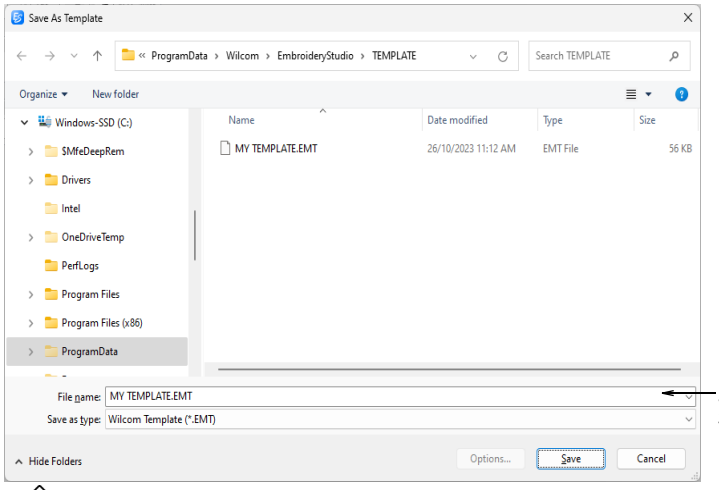
To create a design template...

1 Start a new design or open an existing one.

2 Adjust the property settings, styles, and effects as required.

3 Add the objects and lettering to be included in the template. For instance, you may want to include sample lettering using different baselines. Simply overtype the sample text when using the template.

4 Select **File > Save As Template**. The **Save As Template** dialog opens onto the **Template** folder.



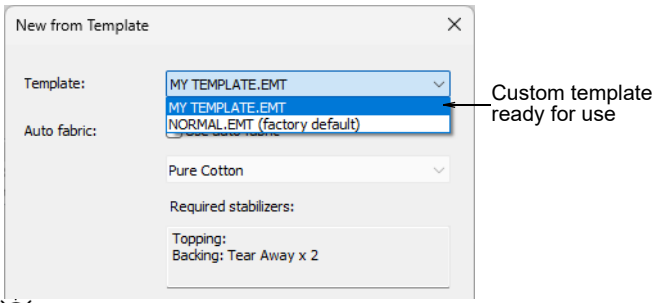
Note: The dialog opens to this folder...

`C:\ProgramData\Wilcom\EmbroideryStudio\TEMPLATE`

Design templates must be saved here or they will not appear in the template list when you start a new design.

5 Select **Wilcom Template (EMT)** from **Save as type** list.

6 Enter a name and click **Save**. The template is ready for use.



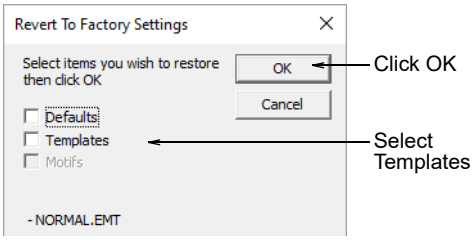
Tip: The **File** menu provides separate commands for saving monogram and team name templates. See related topics.

Revert to the NORMAL template

If you modify the NORMAL template supplied with BE EmbroideryStudio, you can revert to the original version. A factory copy is always maintained so that the NORMAL template can be restored.

To revert to the NORMAL template...

1. Close BE EmbroideryStudio.
2. Click the Windows **Start** button and navigate to the **Wilcom EmbroideryStudio** group.
3. Select **Revert**. The **Revert to Factory Settings** dialog opens.

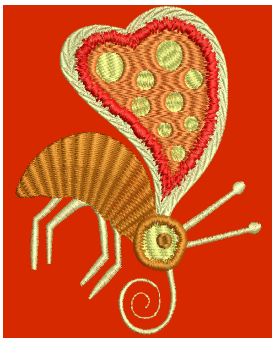


4. Select the **Templates** checkbox and click **OK**. The original settings for the NORMAL template are restored.

Chapter 12

Colorways

When digitizing, you select colors from a color palette. These can be tailored to each design or color scheme. The particular 'colorway' represents the actual thread colors in which a design will be stitched. BE EmbroideryStudio lets you define multiple color schemes and switch between them.





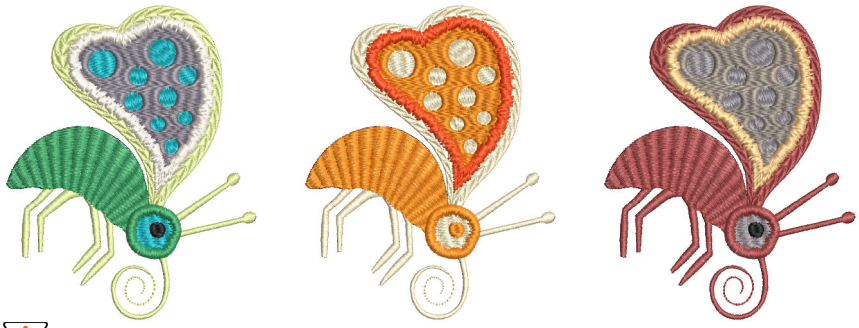
For each colorway you define, you can select colors from commercial thread charts or define your own. Search for particular threads by specific code. Locate thread colors based on closest match across one or several thread charts.

BE EmbroideryStudio also lets you set the background color, fabric, or product of the current colorway for more realistic previews and presentations. The background and product are saved with the colorway.

Note: You can also print multiple colorways, design background and product, and icons of color blocks in the production worksheet. See also Printing design reports.

Creating colorways

BE EmbroideryStudio provides various techniques for selecting and changing colorways manually or generating them automatically.



Caution: Due to differences in computer monitors and video cards, onscreen colors should only be used as guides. Always check thread colors against the actual thread chart you intend to use.

Add colorways

Use Color > Colorway Editor to add or edit colorways.

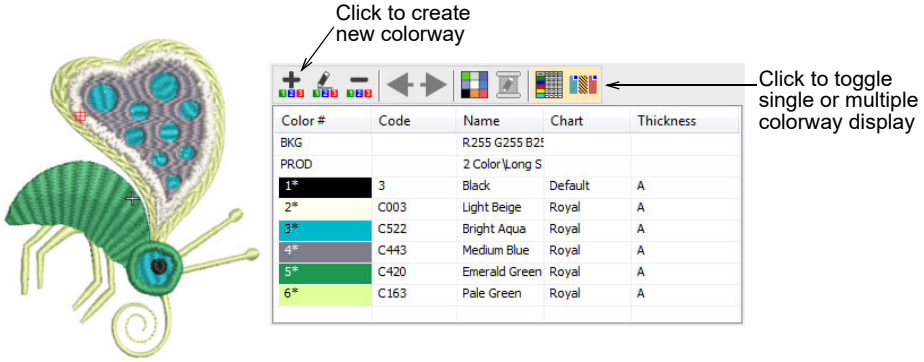
Use Colorway Editor > Create Colorway to add a new colorway to the design.

When you create a new design, it contains a single default colorway called 'Colorway 1'. You can add a virtually unlimited number of colorways to the design using the same or different thread sets. Preview designs in different colors on different fabrics. Colorways are saved with the design in EMB format. They can also be saved to an EMT template file for use in future designs. They cannot, however, be saved with machine files.

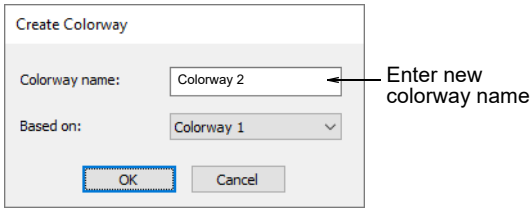
Tip: Other settings are included as part of the colorway definition – background color, fabric, or product, as well as display colors for borer symbols, unsewn stitches, selected objects, object outlines and the grid.

To add a colorway...

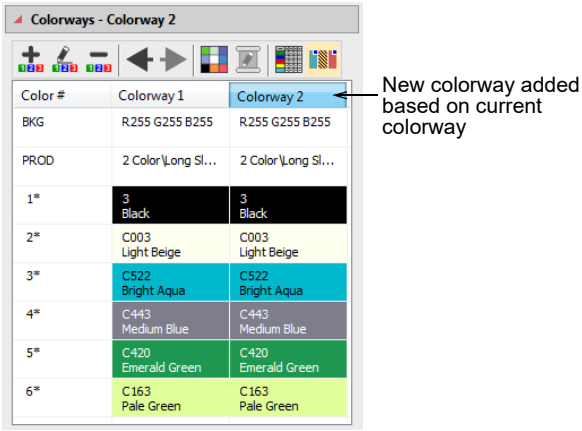
1 Open the design and click the **Colorway Editor** icon.



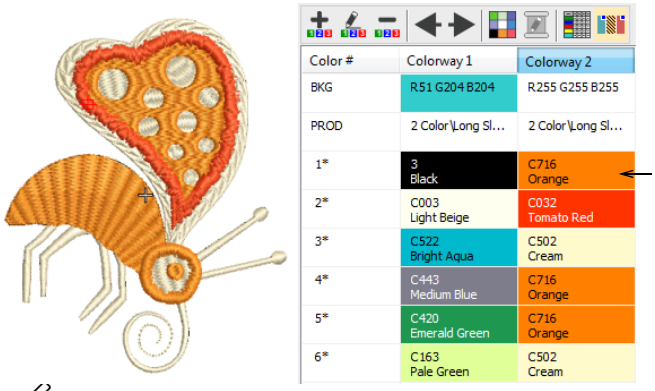
2 Click the **Create Colorway** icon.



3 Enter a new colorway name – e.g. 'Colorway 2'. The new colorway will use the current colorway as a starting point.



4 Assign colors from available threads to selected color slots.



Note: As dark-colored threads cover light-colored fabrics better than vice versa, different densities may be required when changing from one colorway to another. Colorways do not automatically compensate for different densities. These must be adjusted manually.

5 Use the internal toolbar to edit:

	Give the colorway a unique name for easy identification in the droplist and production worksheet – e.g. a name which reflects the background fabric.
	Remove a colorway from the design.
	Change the colorway background fabric and/or color.

Usage tips...

- If you change the background in **Colorway 1** and save it to your template, it will display like this at start up.
- You can also match thread colors from imported graphics – vector or bitmap.

Related topics...

- Viewing colorways
- Assign thread colors
- Add & match image colors
- Set fabric backgrounds
- Printing design reports
- Working with templates

Change color schemes

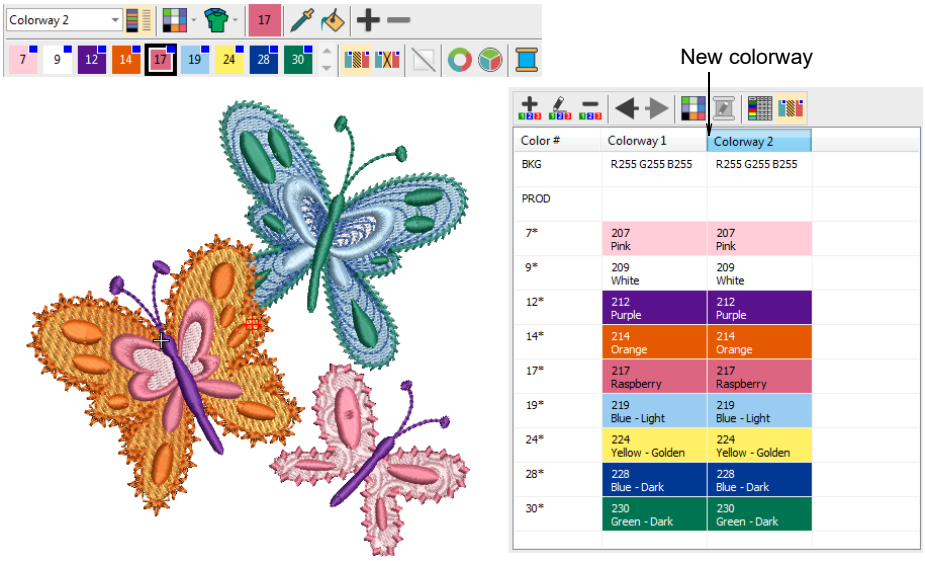
Use Color > Cycle Used Colors to cycle through combinations of used colors. Right- or left-click.

Use Color > Color Wheel to access Color Wheel to test combinations of related colors.

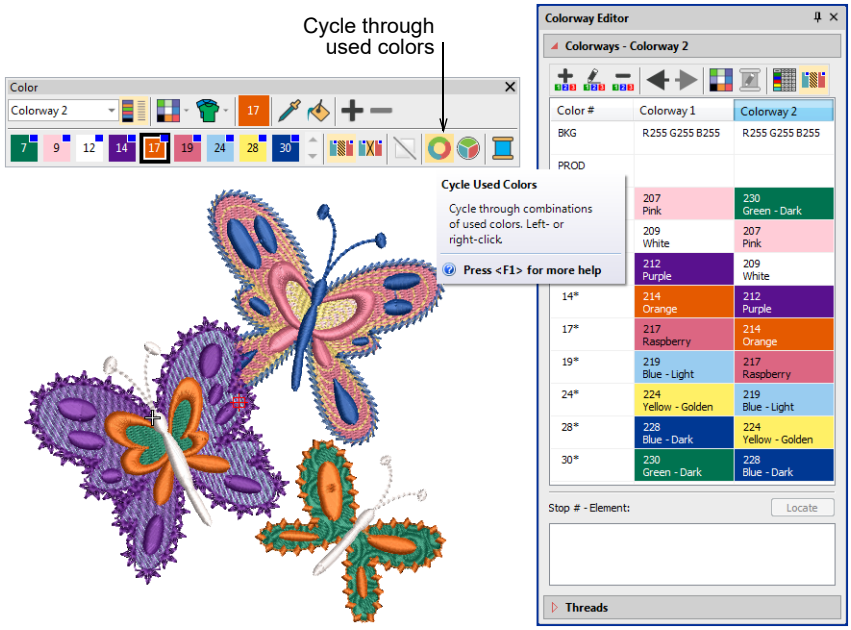
The color tools allow you to quickly re-color entire designs. Their main purpose is to create new 'colorways' quickly and easily in order to 'spice up' old designs or place them on a different fabric.

To change color schemes...

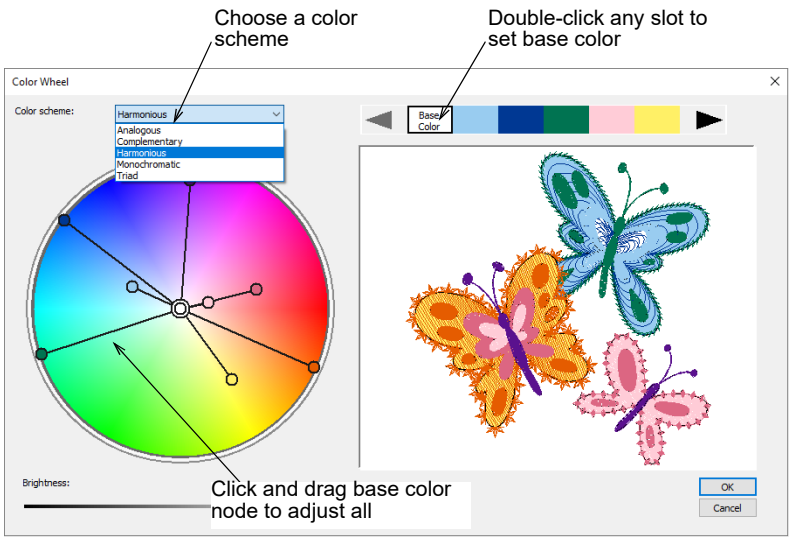
1 Optionally, add a new colorway for your new color scheme. See Add colorways for details.



2 Use the **Cycle Used Colors** tool to try out different combinations using threads already in the design.

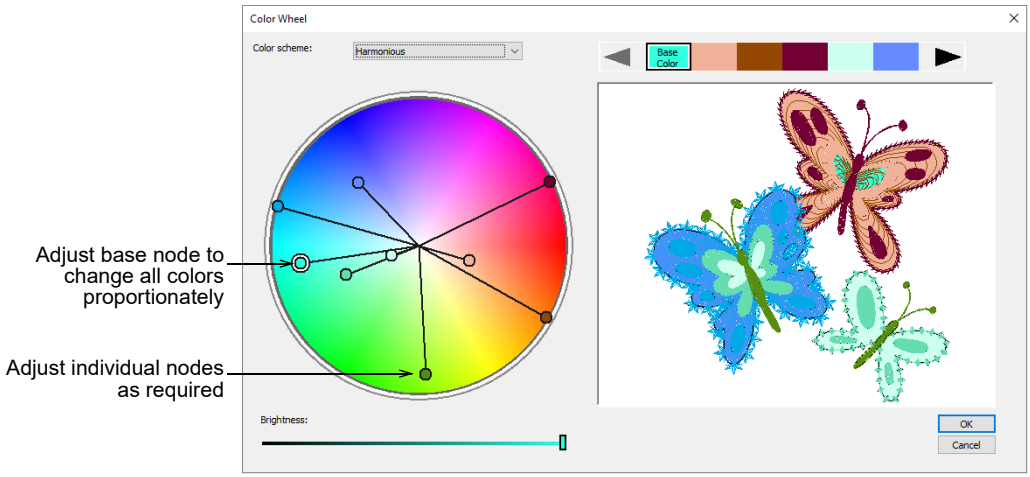


3 Alternatively, select **Color Wheel**. This allows you to cycle through many color combinations using preset color schemes including **Analogous**, **Complementary**, **Harmonious**, etc.



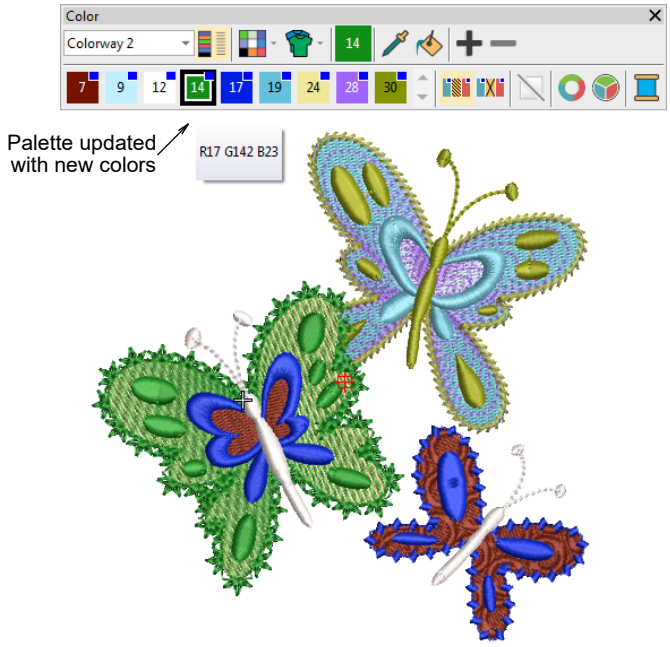
4 Click and drag the 'base color' node to test combinations against different background colors. You can make any color the base color by double-clicking in the palette at the top of the dialog.

5 Each color node can be further individually adjusted.



6 To adjust the brightness of the entire design, select the base color node and adjust the **Brightness** control.

7 Click **OK** to apply changes. New colors are added to the palette as RGB values.



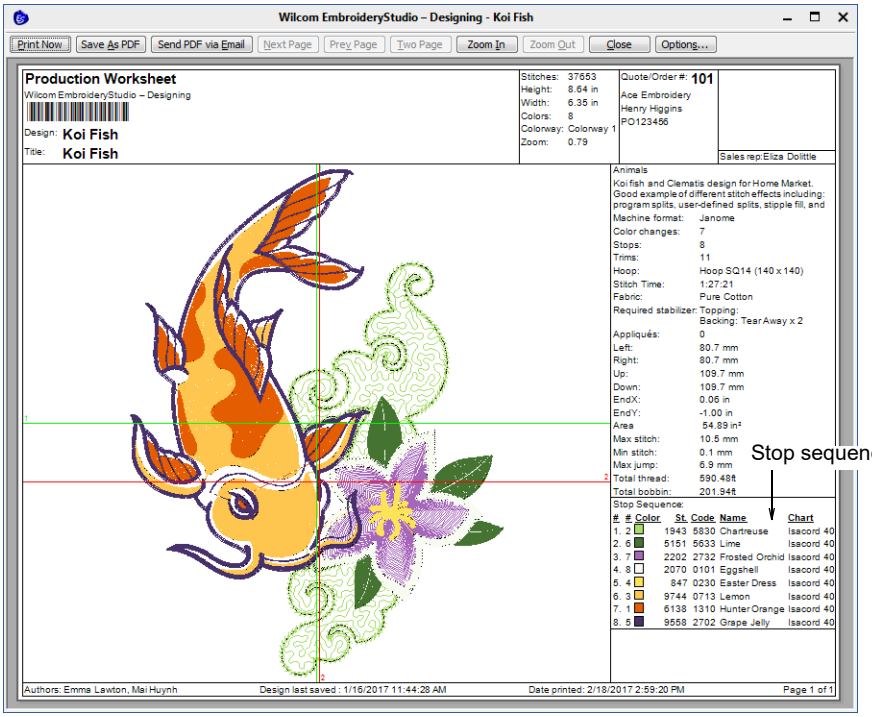
8 Match and assign thread colors manually or use the **Match All** function.

Related topics...

- Assign thread colors

Color blocks & stop sequence

A color block corresponds to a color change in the design. It may be comprised of one or more same-color objects. These may form a single group – e.g. 'ropes' – or more – e.g. 'ropes and birds'. Each color block, or 'element', can be given a descriptive name for easy identification. These can be included on the production worksheet. Together this information is known as the 'stop sequence'. The operator generally uses it to ensure that correct colors are used in the correct sequence during production.

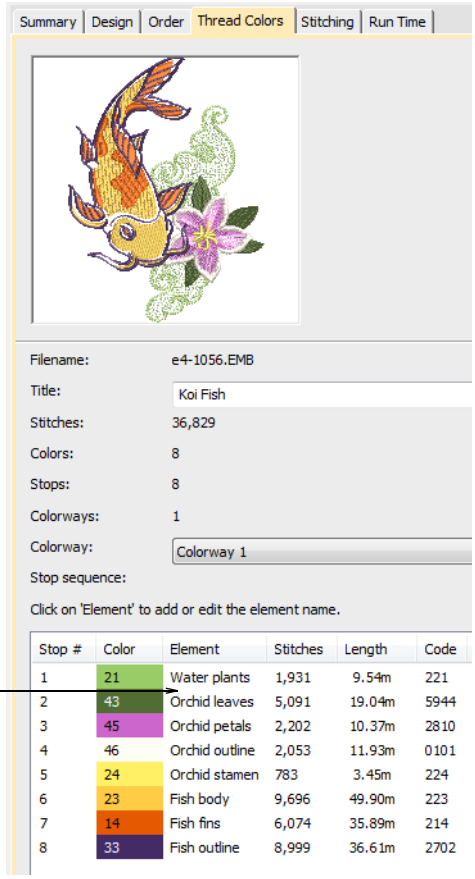


Note: The **Color-Object List** shows the same sequential list of objects, grouped by 'color block'.

Design thread colors

Use Docker > Design Information to view and modify design details prior to design approval or stitchout.

The **Thread Colors** tab displays the color sequence and stitch counts for each design 'element'. Elements equate to color changes. The tab also provides thread usage estimates which may be used for costings as well as production requirements.



Data is extracted from the design file and, apart from the **Element** column, cannot be modified.

Field	Function
Filename	File name of the selected design. This will often be a number or alphanumeric format for easy cataloging.
Title	Defaults to filename. Add a more descriptive name for easy searching. This name appears on the approval sheet or worksheet.
Stitches	Indicates total stitch count for design.
Colors	Indicates number of thread colors involved in the design.
Colorways	Number of colorways in the design.
Current colorway	Use the droplist to change colorways, if available. When choosing a different colorway, the thumbnail and stop sequence list are updated.

The table at the bottom lists all color changes in the design as they will appear on the production worksheet. It provides the following details:

Field	Function
Stop #	The machine stop corresponding to the color change.
Color	Indicates color slot number of the color in color palette.
Element	User-defined name to identify each color block.
Stitches	There is a stitch count for each element in the design. You can show this as a discrete stitch count or a cumulative stitch count.
Length	Meterage of thread required per color.
Code	Color code as registered in the thread chart.
Name	Color name appearing in thread chart.
Chart	Brand name of thread chart used.
Thickness	A: Normal embroidery thread (approx. denier 40) B: Thicker than normal (approx. denier 30) C: Finer than normal (approx. denier 80) D: Very fine (approx. denier 100)

Related topics...

- Name design elements
- Assign thread colors
- Thread usage estimates
- Modify thread details
- Other general options

Name design elements



Use Docker > Colorway Editor to add or edit colorways.

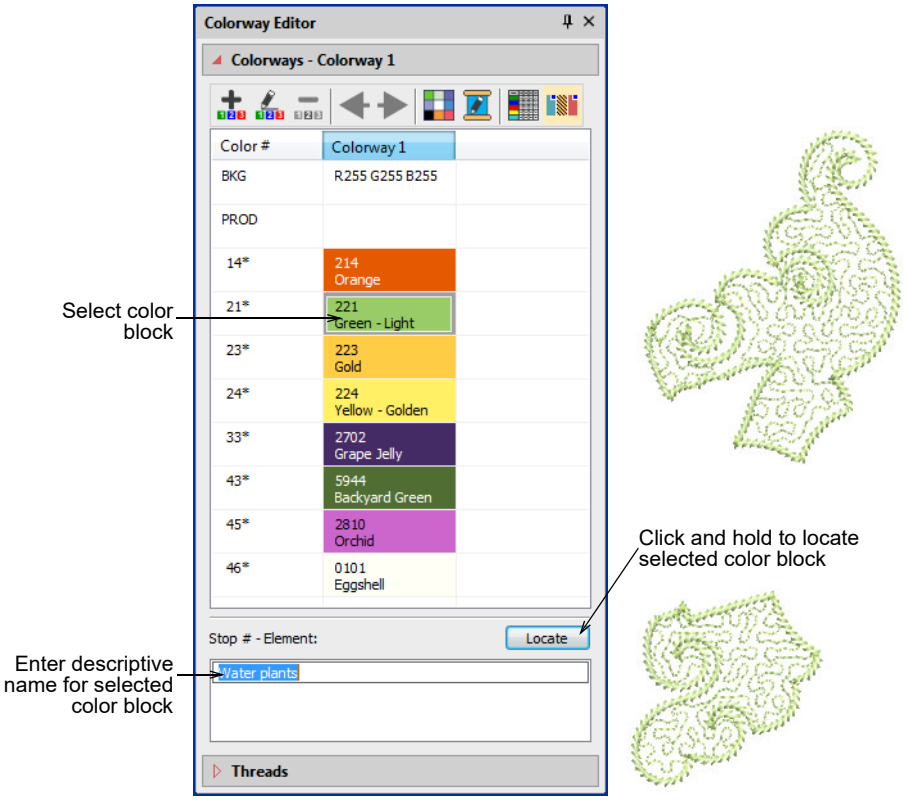


Use Docker > Design Information to view and modify design details prior to design approval or stitchout.

You can view color blocks in the **Colorway Editor**. Named color blocks are known as design 'elements'. This information is saved with the design and printed on production worksheets as an aid for machine operators.

To name design elements...

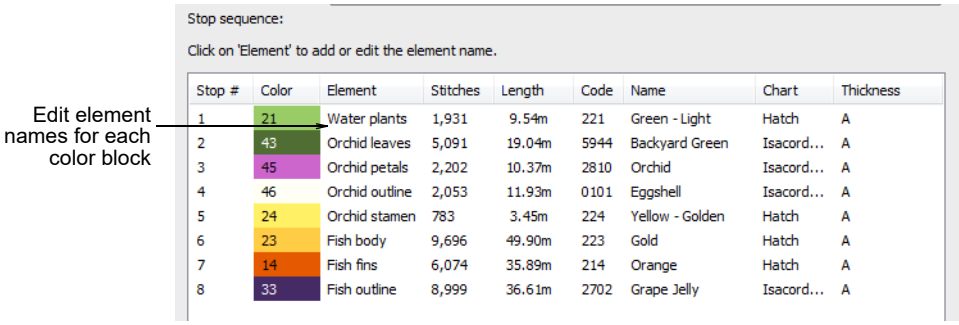
1 Click the **Colorway Editor** icon to access the **Colorway Editor**.



2 Select a color and click and hold **Locate** to view in isolation. Elements corresponding to the color are listed below. If there is more than one, select and click **Locate**.

3 Double-click the **Element** field and enter a descriptive name – e.g. 'Stems'.

4 To check design elements, select **Design > Design Information > Thread Colors**.



5 In the **Element** fields, edit names for each color block as desired. This information can be included on the production worksheet.

Related topics...

- Assign thread colors
- View selected color blocks
- Printing design reports
- Customizing design reports

Split color blocks



Use Color > Colorway Editor to assign thread colors to slots in the color palette.



Use Color > Split Palette Color to create a new color slot with the same thread specification as the selected slot.

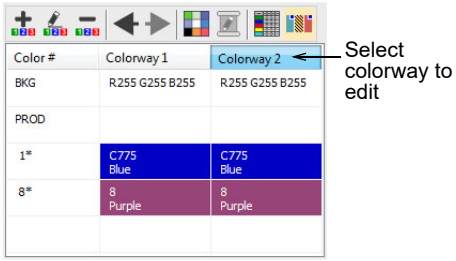
A color block corresponds to a color stop in the design. It may comprise a single object or group of like-color objects – e.g. 'ropes and birds'. In one colorway you may want to assign the same thread to all items in the color block, while in another you may want to assign different colors. The **Split Palette Color** tool makes this possible.

To split a color block...

1 Open the design and select a colorway.

2 Open the **Colorway Editor**.



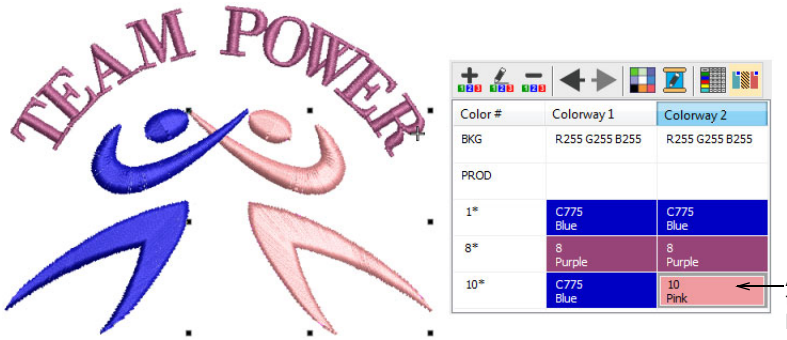


3 Create a new colorway or select one to edit.

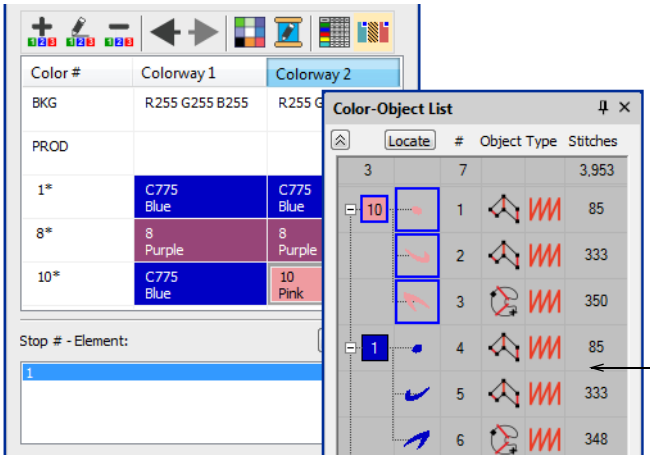
4 Select the object/s you want to split. The **Split Palette Color** button is activated.



5 Click the **Split Palette Color** icon. A new color slot of the same color is added to the color palette. Selected objects are assigned to the new palette position.



6 Assign a new color to the slot. The colors of other colorways remain unaffected. By default, the new color slot is placed at the end of the palette. This, however, does not affect the stitching sequence.



Related topics...

- Assign thread colors

Fabric & product backgrounds

BE EmbroideryStudio lets you set background color, fabric, or product backdrop for more realistic previews and presentations. The background is saved with the colorway.



Tip: While you can change background colors, fabrics, and even products, this does not automatically affect current fabric settings. See Working with fabrics for details.

Set fabric backgrounds

Use Color > Background & Display Colors (or Colorway Editor docker) to change design background presets for the current colorway.

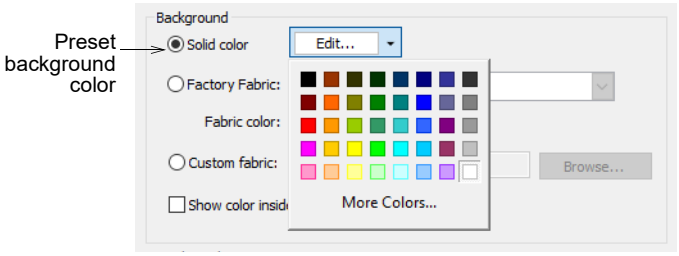
BE EmbroideryStudio lets you set the colorway background for more realistic previews and presentations. These can be included on approval or production sheets. Choose from an assortment of swatches, or if you have your own, import them into your design. Almost any artwork can be used – photos, magazine pictures, clipart images, and even fabric samples. The background is saved with the colorway.

To set the background...

1 Open the design and select a colorway.

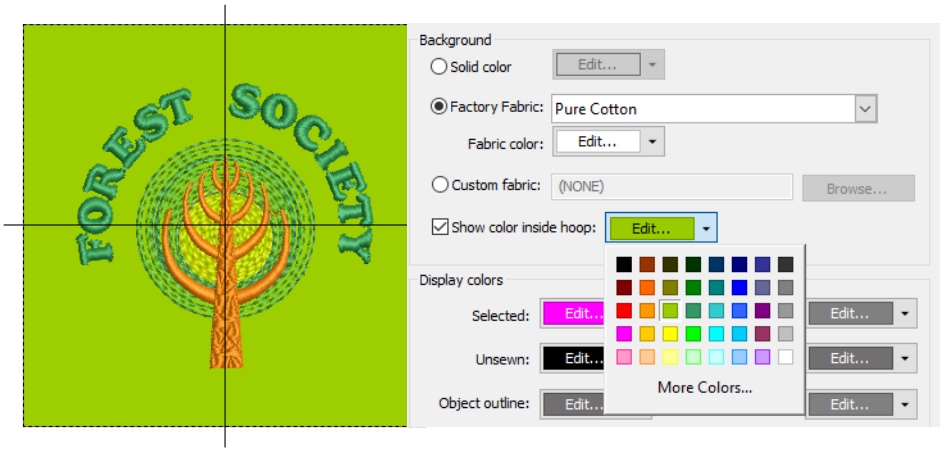


2 Click **Background & Display Colors** icon.

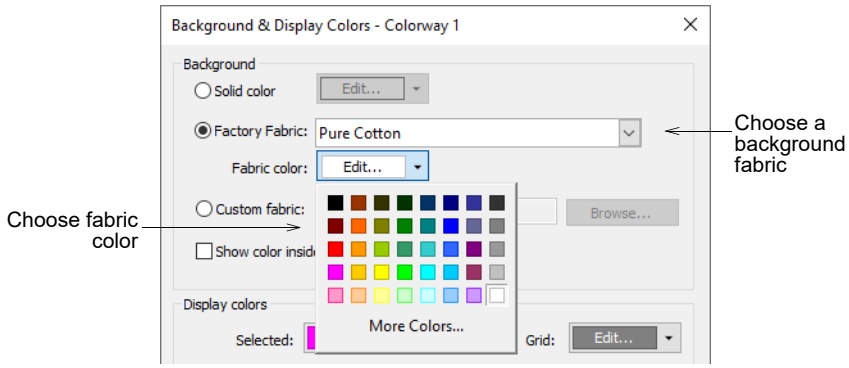


3 To set a background color, select from the palette in the droplist.

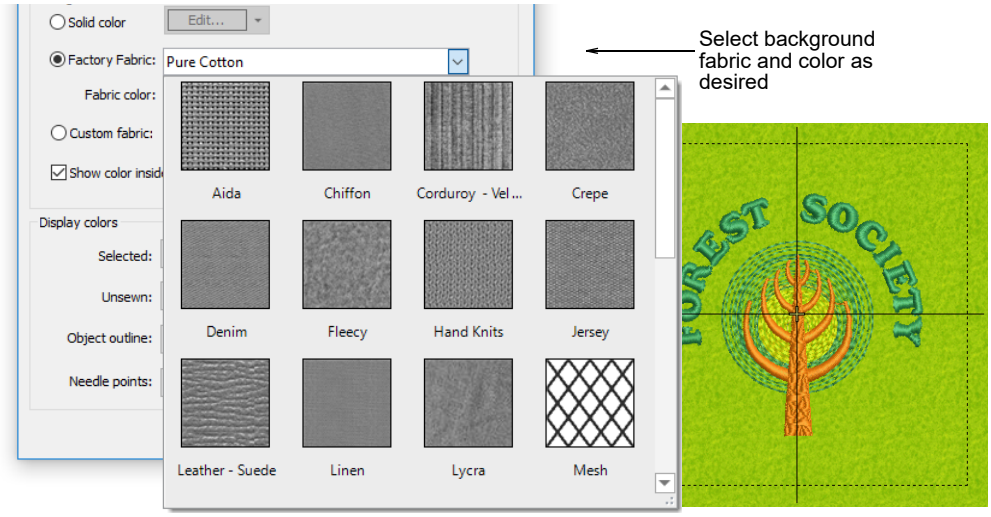
You can, if you prefer, color only the background inside the hoop, leaving the rest of the design window a neutral color.



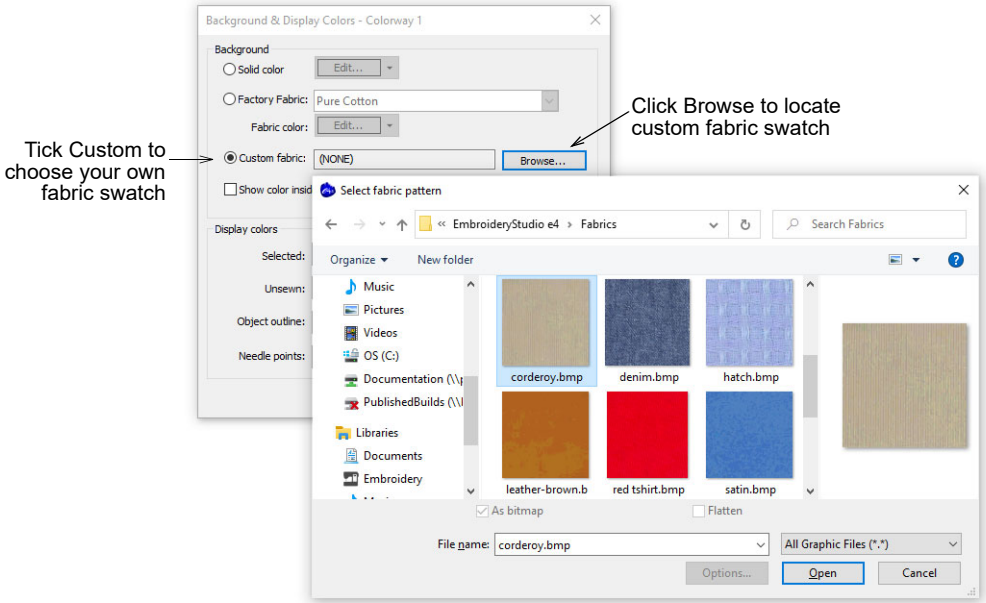
4 To set a background fabric, select **Factory Fabric**.



5 Click the **Fabric** droplist for more options.



6 Alternatively, to choose a custom swatch, select **Custom Fabric** and click **Browse**.



7 Click **OK**.



Note: If you change the background in **Colorway 1** and save your template, it will always display like this at start up.

Related topics...

- Add colorways
- Working with fabrics
- Visualize products
- Preparing artwork for scanning

Visualize products



Use Color > Product Visualizer to choose a garment or product backdrop on which to position your decoration.



Click View > Show Product to toggle current product display. Right-click for Product Visualizer settings.



Use Zoom > Zoom to Product to view the entire product in the design window.

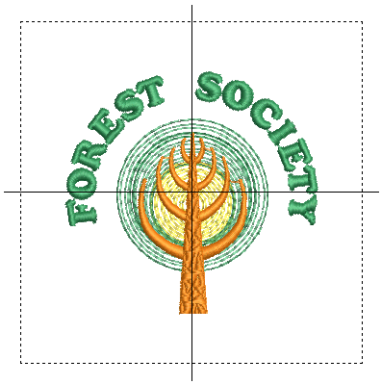
BE EmbroideryStudio allows you to choose a garment or product backdrop on which to position decorations. This feature is mainly used to display location, size and overall appearance for visualization and customer approval purposes. Production worksheets provide an option to print approval sheets with or without garment backdrops.



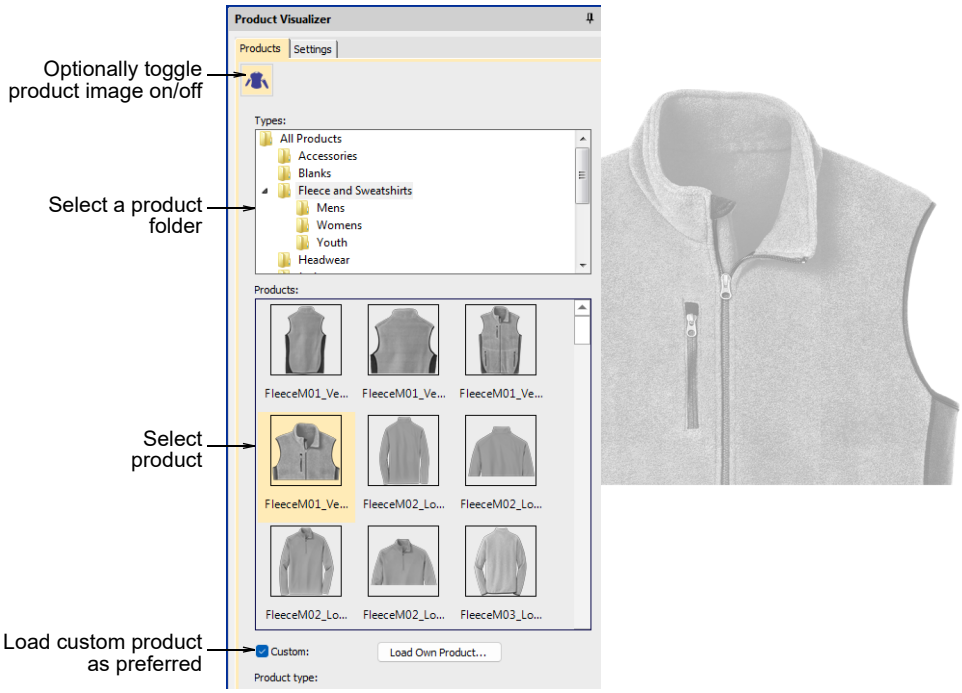
Choose colors for each product type. The software provides a library of garments of common brands and styles. Up to three layers of color are supported for multi-color garments.

To visualize a product...

1 Open the design and select a colorway.



2 Click the **Product Visualizer** icon. The docker appears.



3 Select a category and click a garment or product to select. The product image is centered in the design window at the default scale.

4 Optionally, a **Custom** option allows you to import custom product images. These need to be prepared as grayscale images. They need to be correctly sized.

5 Switch to the **Settings** tab. This lets you color, size, and position the product in the design window.



6 Scale the product image as necessary. Scale should be adjusted according to actual garment size – XS, S, M, L, XL, or XXL.

7 Optionally, use the **Smart Tape** function to measure, say, shoulder size against the ruler. Adjust the **Length** field and press **Apply** to resize the product image accordingly. Use the **Keep proportions** setting as appropriate.



8 Finally, position the design on the product image. Press **Ctrl+A** to select and drag or use arrow keys to nudge.

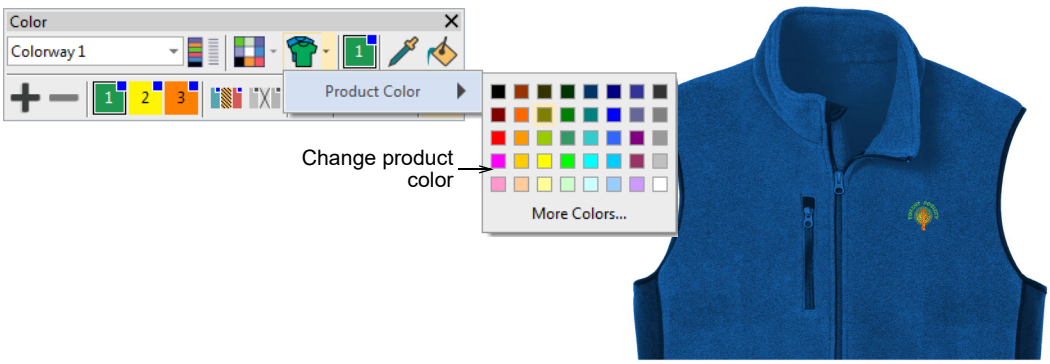


9 Alternatively, position the product image in relation to the design. By default, the center is placed at the design origin. The 'X' and 'Y' fields display 0,0.

- Enter values directly into the 'X' and 'Y' fields to move the image center to the new location.
- Use the nudge control buttons to move the image incrementally.

Usage tips...

- To toggle the product background on/off, click the **Show Product** icon.
- To change colors 'on-the-fly', use the **Product Visualizer** droplist and change fabric colors via the **Product Color** popout menu.



Related topics...

- Printing design reports
- Product Backdrops

PART IV
MODIFYING DESIGNS

After digitizing a design, you can modify it as a whole, edit individual objects or even individual stitches.



Combining objects

This section describes how to combine objects and designs by copying and pasting, duplicating, and inserting techniques. It also describes how to resequence objects by cut-and-paste, by color, and with the Color-Object List. Automatic branching of grouped objects is also covered. See Combining Objects for details.

Transforming objects

This section describes how to position objects, how to lock and group, align and space objects, as well as how to scale, rotate, skew, and mirror objects in a design. See Transforming Objects for details.

Productivity techniques

BE EmbroideryStudio provides input tools for stars and rings and other preset shapes. There are special tools for cutting holes in objects as well as filling them. There are also tools for generating outlines based on existing shapes. In addition, BE EmbroideryStudio provides powerful tools for mirroring and reflecting selections or entire designs. See Productivity Techniques for details.

Reshaping & splitting objects

This section describes how to reshape objects with control points, how to break up objects, how to adjust and add stitch angles, as well as how to change entry and exit points of objects in a stitching sequence. It also covers conversion of one embroidery object to another. See Reshaping & Splitting Objects for details.

Chapter 13

Combining Objects

BE EmbroideryStudio provides various techniques for combining and sequencing objects. You can add to designs by duplicating and copying objects. Resequence objects in designs to minimize color changes and optimize production.



The stitching sequence naturally occurs in the order in which an embroidery design is digitized or assembled. When converting a graphic design to an embroidery design, BE EmbroideryStudio decides the stitching sequence according to its own internal logic. Either way, you may, for reasons of aesthetics or production efficiency, want to adjust it.

The **Color-Object List** displays a sequential list of objects grouped by object and color. It provides an easy way to group, cut, copy and paste, and resequence selected objects and color blocks.

Combining objects & designs

Objects can be combined to create composite designs. They can be inserted from disk, copied and pasted via the MS Windows® clipboard for, or duplicated within the same design.



Insert designs

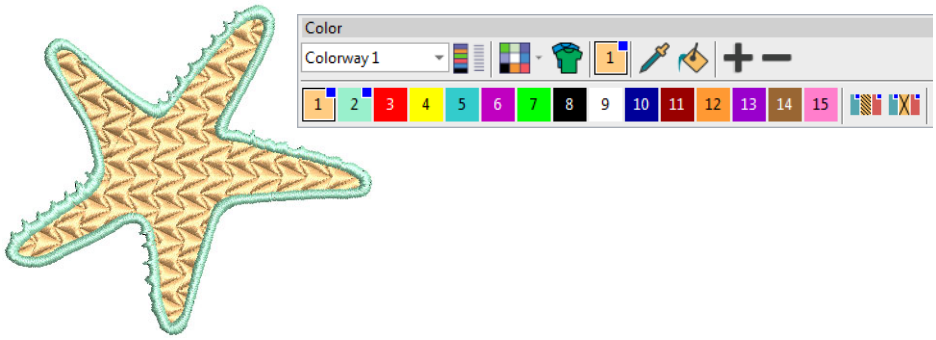
Click Standard > Import Embroidery to import embroidery design file into current design.

BE EmbroideryStudio lets you insert one design into another. The two (or more) designs can then be saved as a combined design. When you insert a design into another, the two color palettes are combined. Colors with the same RGB values are automatically identified as having the same thread color. If you want to preserve them as separate colors, you need to change one or other before importing.

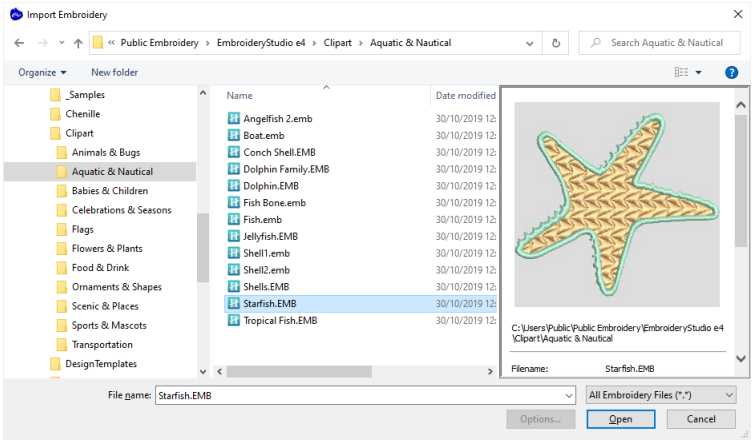
Tip: If you don't know the origin of a design you are editing, you can insert it into a blank design file so that it acquires known fabric settings.

To insert designs...

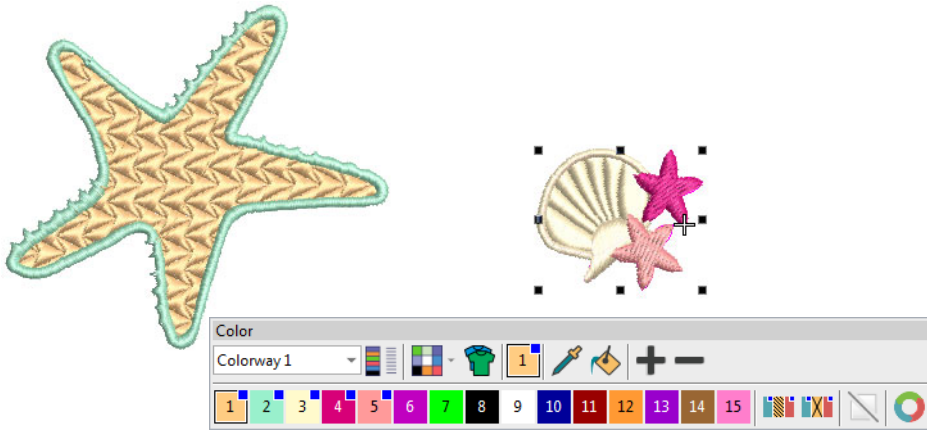
1. Open the source design.
2. Optionally, travel to the position in the stitching sequence where you want to insert the design. Otherwise, the inserted design will be placed at the end of the stitching sequence.



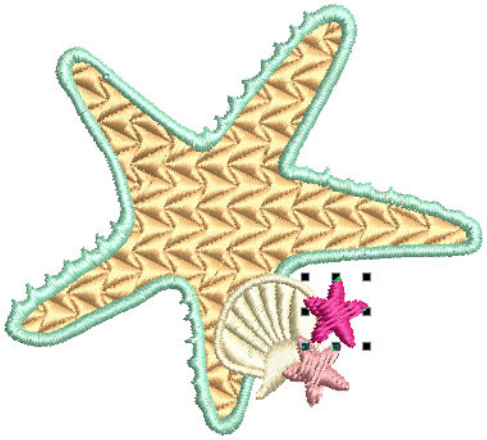
3. Select **Standard > Import Embroidery**. File type defaults to the native 'all-in-one' EMB format but any supported embroidery file can be used.

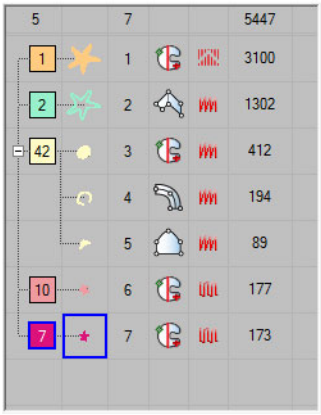


4 Select the design file to insert, and click **Open**. The design is inserted at the current needle position. By default, colors are added to the palette.



5 Scale and position the inserted design as required. To ensure that all the objects in the inserted design stay together, group it first.





6 Sequence colors for efficient stitchout.

Note: The **Options > General** tab provides another setting – 'Match to palette' – which matches inserted design colors to the current palette.

Related topics...

- Inserting designs with Embroidery Clipart
- Thread color handling for inserted files
- Sequencing embroidery objects
- Transforming Objects

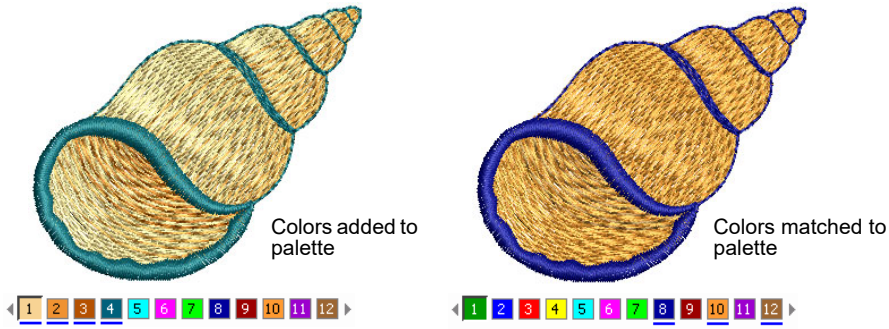
Copy & paste objects

	Click Standard > Cut to remove selected objects to the clipboard.
	Click Standard > Copy to copy selected objects to the clipboard.
	Click Standard > Paste to paste copied objects to a design.

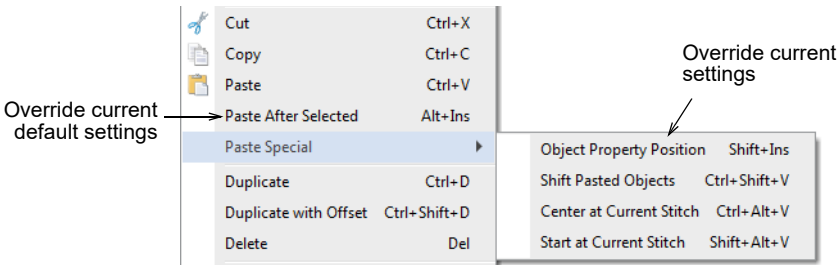
You can copy objects to create multiple, identical objects, or to insert objects from other designs. Cut-and-paste action changes the stitching sequence in the design.

To copy and paste objects...

- Select the object (or objects) and click **Copy** or press **Ctrl+C**. The selected object is copied to the clipboard.
- Optionally, change **Insert Embroidery File** options via the **Options > General** dialog. By default, when you insert a design, colors are added to the color palette.



- Optionally, change **Paste** options via the **Options > Edit** dialog.
- Optionally, travel to the position in the stitching sequence where you want to insert the object/s. Otherwise, it will be placed at the end of the stitching sequence.
- Click the **Paste** icon. The object is pasted according to current settings.
- Alternatively, use the **Paste After Selected** command to override current defaults and paste directly after the selected object in the stitching sequence.



- Alternatively, use the **Paste Special** flyout to override current paste position settings. Shortcut keys are available. Make sure there is only one copy of an object at any one position. If an object is pasted twice in the same position, it will be stitched twice.

Related topics...

- Paste & duplicate options

- Thread color handling for inserted files
- Sequencing embroidery objects
- Transforming Objects

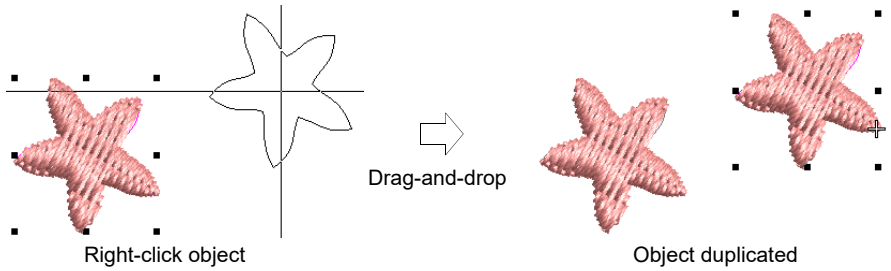
Duplicate & clone objects

Use Select > Select to select and clone objects.

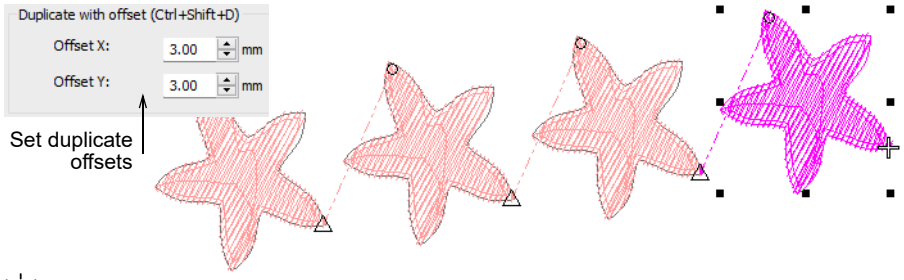
Objects can be duplicated rather than copied. When duplicated, the object is not copied to the clipboard. This preserves the current contents of the clipboard. They can also be 'cloned'.

To duplicate or clone objects...

- Select an object or objects.
- Optionally, travel to the point in the stitching sequence where you want to place the duplicate. Otherwise, the duplicate object will be included at the end of the stitching sequence.
- It is handy to be able to 'quick clone' objects. Select the object and, holding down the right mouse button, drag to a new position. Hold down **Ctrl** to constrain movements horizontally or vertically.



- Optionally, select **Edit > Duplicate** or press **Ctrl+D** to keeping duplicating the last cloned object. This means you can step-repeat duplicate objects.
- Optionally, press **Ctrl+Shift+D** to duplicate with a preset offset. Adjust this setting via the **Options > Edit** dialog.



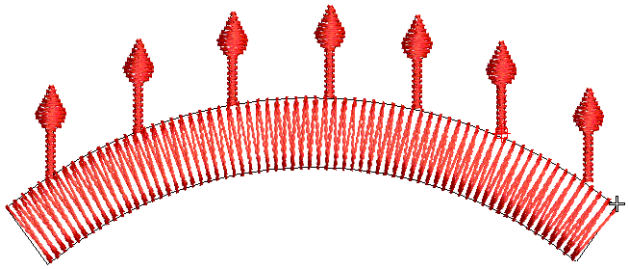
Tip: Clone objects to another window by the same method. To temporarily deactivate automatic scrolling, hold down the **Shift** key while dragging. Use the **Window > New Tab Group** commands to view multiple design tabs at the same time.

Related topics...

- Paste & duplicate options
- Travel through designs
- Set up multiple views

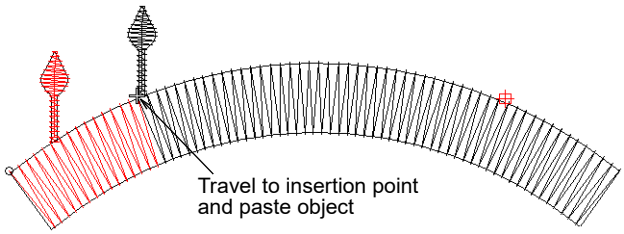
Nest objects

BE EmbroideryStudio lets you 'nest' one object inside another at an exact point of the stitching sequence. This feature is useful with motifs and other designs where long connectors may be generated. It also helps reduce overall numbers of objects, minimizing trims and tie-offs.



To nest objects...

1 Travel through the object until the needle position marker is positioned where you want to insert the new object.



2 Either digitize the new object or copy and paste. The object is 'nested' inside the stitching sequence. All required functions are automatically added.

3 Use arrow keys to fine-tune placement of the new object.

Related topics...

- Paste & duplicate options

Grouping & locking objects

BE EmbroideryStudio lets you group objects together for group modifications. Ungroup whenever you need to work with the component objects. You can also lock objects to prevent them from being moved or modified by accident.

Group & ungroup objects

 Use Arrange > Group to group selected objects.

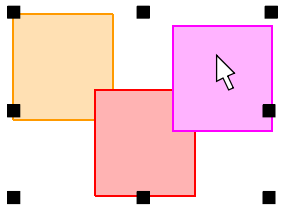
 Use Arrange > Ungroup to ungroup selected objects.

Group objects, or an entire design, to keep them together for moving, scaling and transforming actions. With grouped objects you can also apply global changes, saving time and ensuring consistency. When you have finished making changes to a group, you can ungroup and work with the component objects.

To group or ungroup objects...

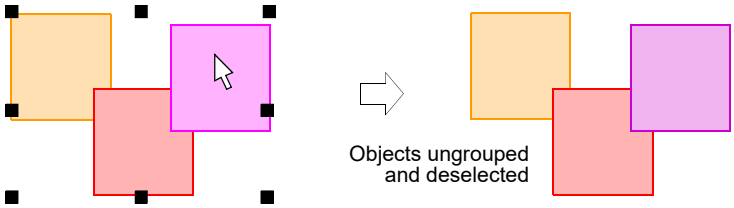
- Select objects and click the **Group** icon or press **Ctrl+G**.

  Selected objects are combined. This group can be selected, moved, resized and transformed as a single object.

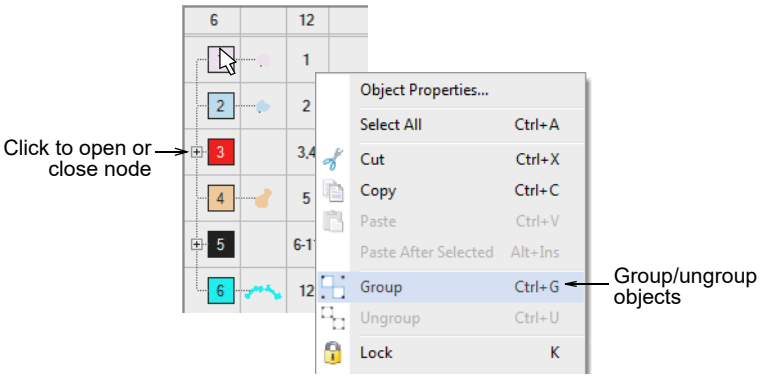


Select, move, resize, or transform grouped objects as single object

- To ungroup, select and click **Ungroup** or press **Ctrl+U**.



Tip: The **Color-Object List** provides an easy way to select objects in designs and access their properties. Use it to group, lock, and hide objects.



Related topics...

- Select objects with selection tools
- Sequence with the Color-Object List

Lock & unlock objects

Use Arrange > Lock to lock selected objects.

Use Arrange > Unlock All to unlock all locked objects in a design.

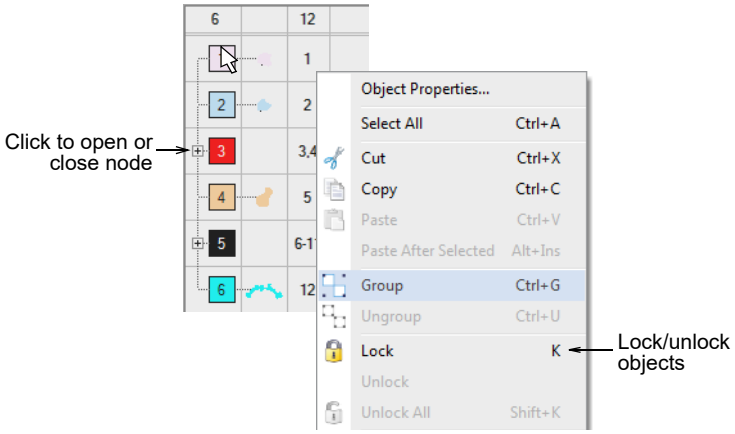
Lock objects to prevent them from being moved or modified by accident. For example, locking backdrop images holds them in place as you digitize, transform or reshape the embroidery objects near them.

To lock or unlock objects...

- Select objects and click the **Lock** icon or press **K**.

  Selection handles disappear, indicating that the object can no longer be selected or modified.
- To unlock objects, click the **Unlock All** icon or press **Shift+K**.

Tip: The **Color-Object List** provides an easy way to select objects in designs and access their properties. Use it to group, lock, and hide objects.



Related topics...

- Select objects with selection tools
- Sequence with the Color-Object List

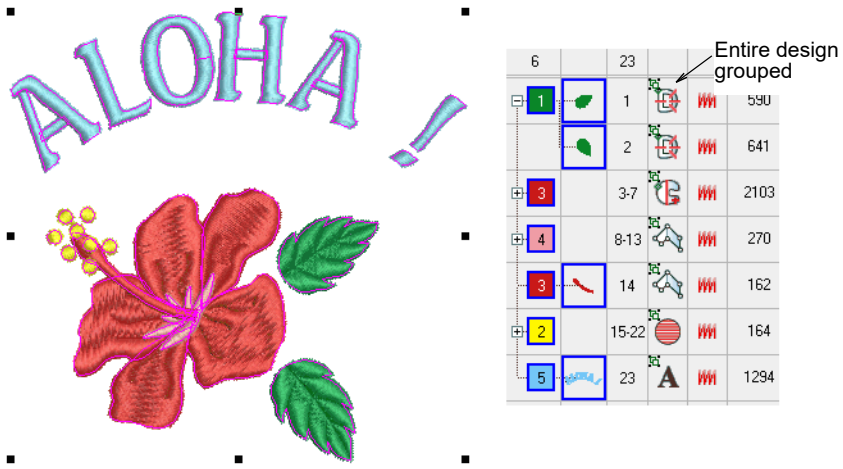
Select objects within groups

Use Select > Select to select individual objects as well as groups or ranges of objects.

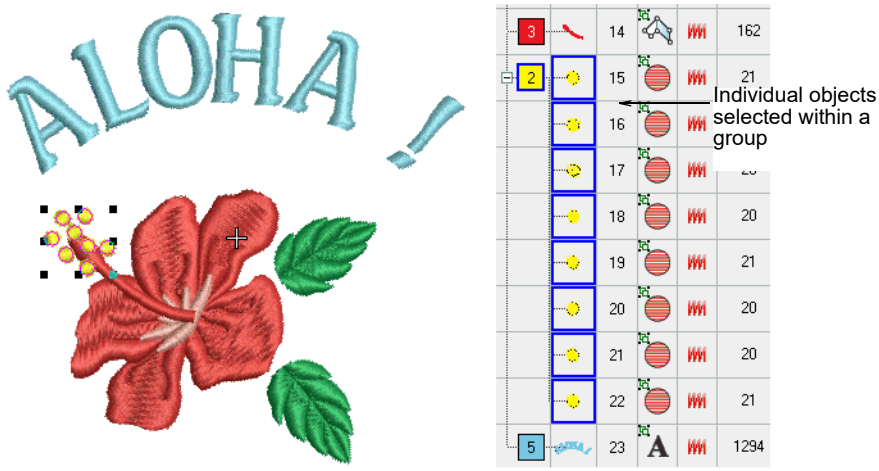
BE EmbroideryStudio provides a method for selecting individual objects within object groupings. This is handy if you want to make changes 'on-the-fly' without first having to ungroup and then regroup objects.

To select objects within groups...

- Click the **Select** icon or press **0**.



- Use **Alt+Click** to select a single object within a group.
- Use **Ctrl** or **Shift** keys in combination with **Alt** to select multiple objects or a range of objects within a group.



- Use **Alt+Drag** to select by 'selection marquee'.
- Use **Alt+Polygon/Polyline** to isolate objects as you select.
- Within the **Color-Object List**, use the same techniques to:
  - Select a single object/color within a group (Alt+Click).
  - Add/remove a single object/color within a group (Alt+Ctrl+Click).
  - Select a range of objects/colors within a group (Alt+Shift+Click).

Note: Once an object (or more) is selected, all properties, stitching and otherwise, can be changed 'inside' the group without the need to ungroup/regroup.

Related topics...

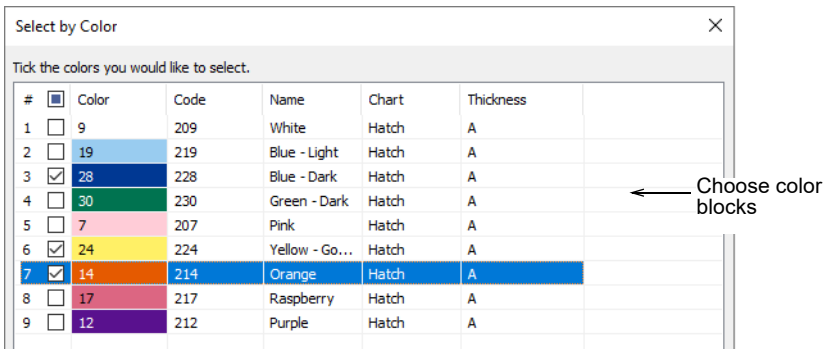
- Select objects with selection tools

Selecting objects by color or stitch type

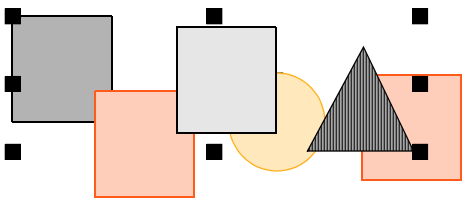
You can select embroidery objects of the same color or stitch type with a single command.

To select objects by color or stitch type...

1 Select **Edit > Select by Color**.

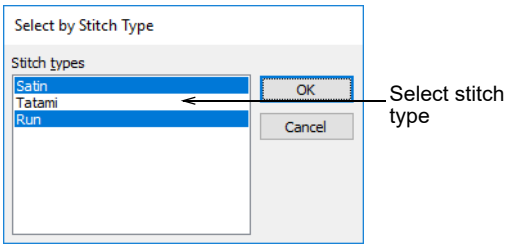


2 Select color blocks from the list and click **OK**. All objects using the selected colors are selected in the design.

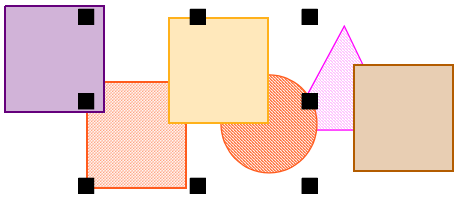


To select objects by stitch type...

1 Select **Edit > Select by Stitch Type**. The **Select by Stitch Type** dialog opens.



2 Select a stitch type from the list.
   - To select a range of stitch types, hold down **Shift** as you click.
   - To select multiple stitch types, hold down **Ctrl** as you click.
3 Click **OK**. Objects using the selected stitch types are selected in the design.

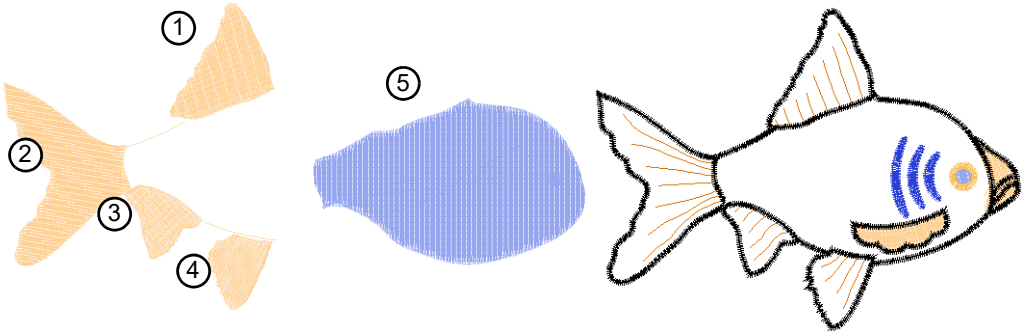


Related topics...

- View selected color blocks
- Sequence with the Color-Object List

Sequencing embroidery objects

The embroidery objects comprising a design form a 'stitching sequence'. It is good practice to analyze and plan design shapes and stitching sequence in advance. Shapes need to be clearly defined to make them easy to embroider. The best shapes have relatively constant width, with smooth edges, no sharp turns and no small, protruding details. Details should always be stitched last.



If you are digitizing manually in **Wilcom Workspace**, objects are stitched in the order in which they were created. If you have converted a design directly from **CorelDRAW Graphics** to **Wilcom Workspace**, BE EmbroideryStudio uses automatic sequencing to determine the stitching sequence. You can always manually adjust the sequence to improve the stitchout – e.g. to minimize color changes.

Tip: Entry and exit points should also be checked when resequencing objects in a design. See also Adjust entry/exit points. See also Minimizing connectors.

Sequence by cut-and-paste

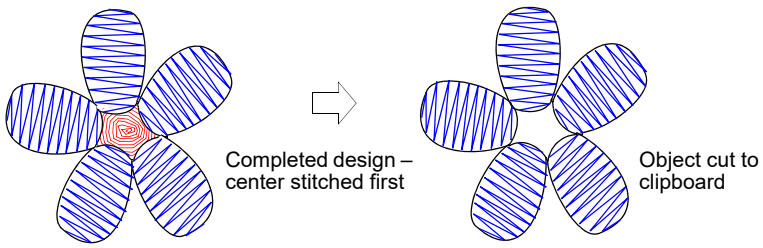
Click Standard > Cut to cut a selected object or objects and place them on the clipboard.

Click Standard > Paste to paste copied objects in the design.

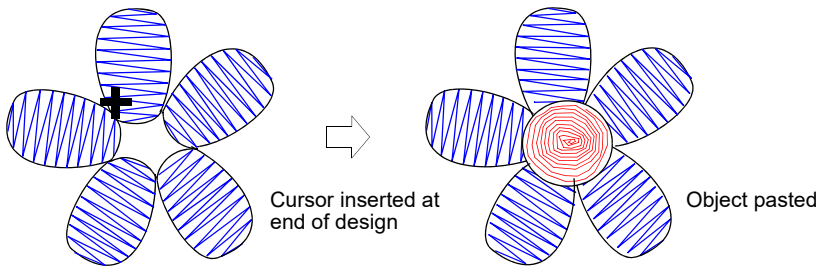
You can resequence objects by cutting an object from the design and pasting it back at a different point in the sequence. This does not change its physical location.

To sequence objects by cut-and-paste...

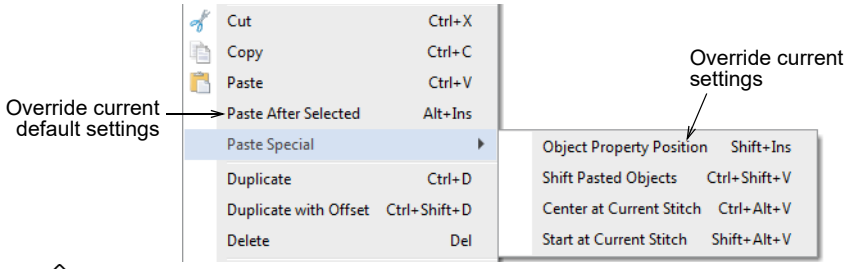
1. Select the object (or objects) to resequence.
2. Click the **Cut** icon. The selected object is removed to the clipboard.



3. Travel to the point in the stitching sequence where you want to paste the object. You can place it between other objects or 'nest' it within another object.
4. Click the **Paste** icon. The object is pasted according to current settings.



- Alternatively, use the **Paste After Selected** command to override current defaults and paste directly after the selected object in the stitching sequence.



Note: Make sure there is only one copy of an object at any one position.

If an object is pasted twice in the same position, it will be stitched twice.

Related topics...

- Viewing stitching sequence
- Nest objects
- Paste & duplicate options

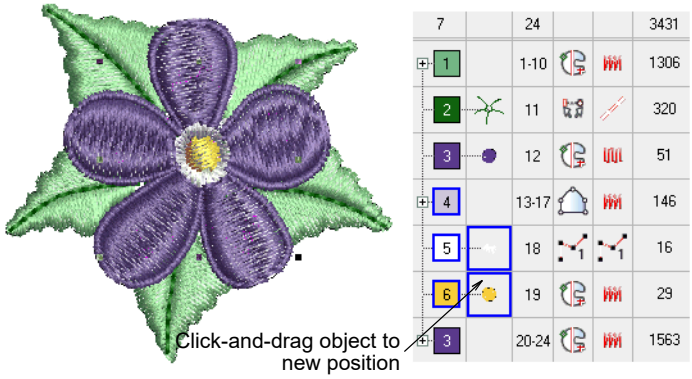
Sequence with the Color-Object List

Use Docker > Color-Object List to resequence objects.

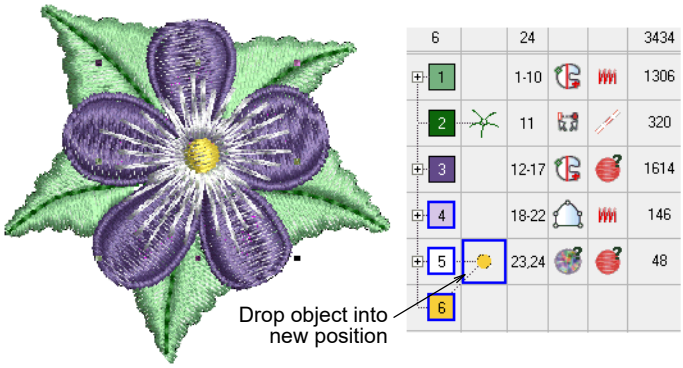
The **Color-Object List** provides an easy way to select objects in designs and access their properties.

To sequence with the Color-Object List...

1 Click the **Color-Object List** icon.



2 Select the color block or object to resequence.
   - To select a range of items, hold down **Shift** as you click.
   - To select multiple items, hold down **Ctrl** as you click.
3 Click-and-drag selected objects to reposition them.



Tip: You can also use the **Color-Object List** to group, lock, and hide objects.

Related topics...

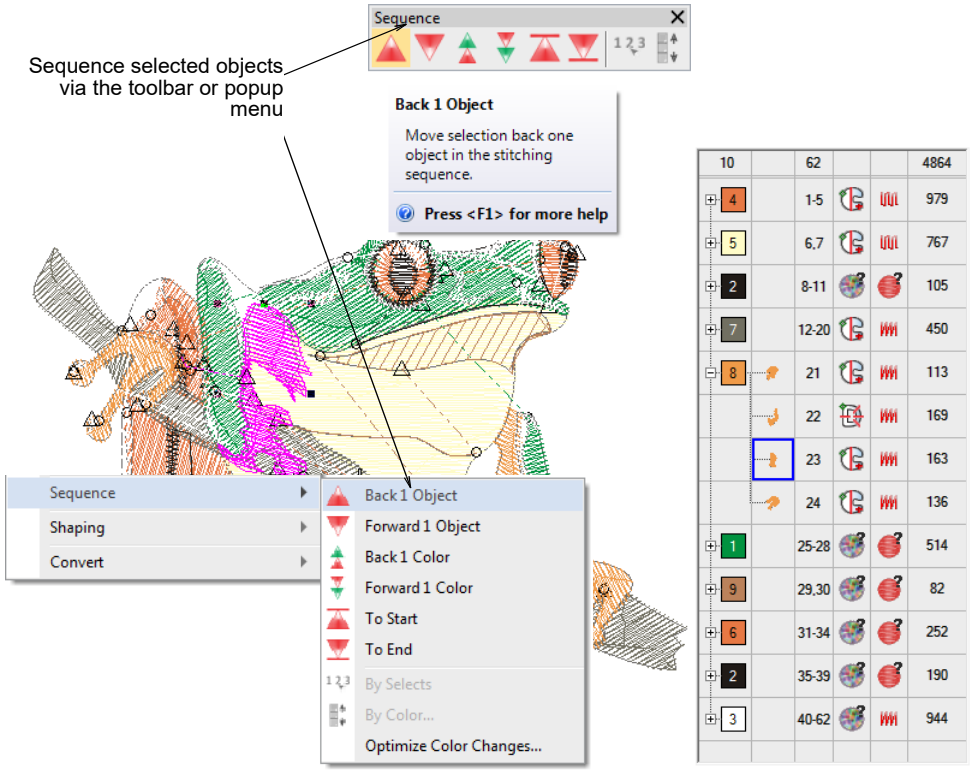
- Grouping & locking objects
- Copy & paste objects
- Adjust entry/exit points
- Minimizing connectors

Sequence selected objects

Use Sequence > Back 1 Object to move a selection back one object in the stitching sequence.

	Use Sequence > Forward 1 Object to move a selection forward one object in the stitching sequence.
	Use Sequence > Back 1 Color to move a selection back one color in the stitching sequence.
	Use Sequence > Forward 1 Color to move a selection forward one color in the stitching sequence.
	Use Sequence > Move to Start to move a selection to start of stitching sequence.
	Use Sequence > Move to End to move a selection to end of stitching sequence.

The **Sequence** toolbar provides a convenient means for sequencing selected objects. Use it in conjunction with the **Color-Object List**. Alternatively, use the popup menu **Sequence** option to resequence objects 'on-the-fly'. The same options can be accessed from the **Color-Object List** popup menu.



Tip: Entry and exit points should also be checked when you are resequencing objects in a design.

Related topics...

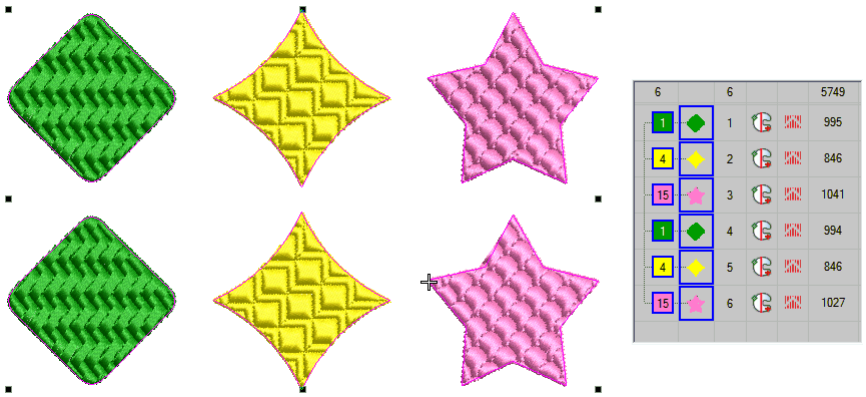
- Adjust entry/exit points
- Minimizing connectors

Auto-sequence entire designs

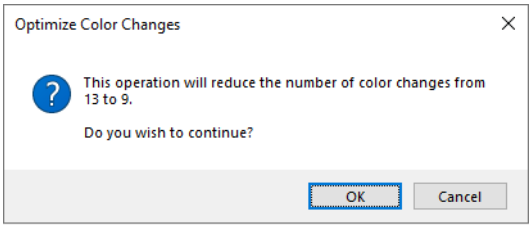
The **Optimize Color Changes** feature improves the quality and efficiency of the stitchout by minimizing the number of color changes and trims. All existing overlaps are preserved by the operation. Grouped objects are not ungrouped but different colored objects are optimally sequenced regardless of grouping.

To auto-sequence an entire design...

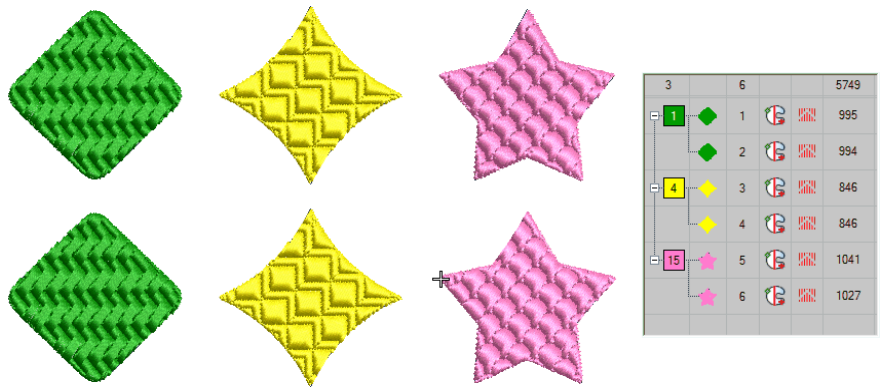
- Open or create a design and select objects to resequence.



- Select **Arrange > Sequence > Optimize Color Changes** or use the popup menu in the **Color-Object List**.



- Click **OK** to confirm. The system analyzes all selected objects and calculates optimal color changes and trims.



Tip: The **Undo** command will reverse the effect of any sequencing changes.

Related topics...

- Adjust entry/exit points
- Minimizing connectors

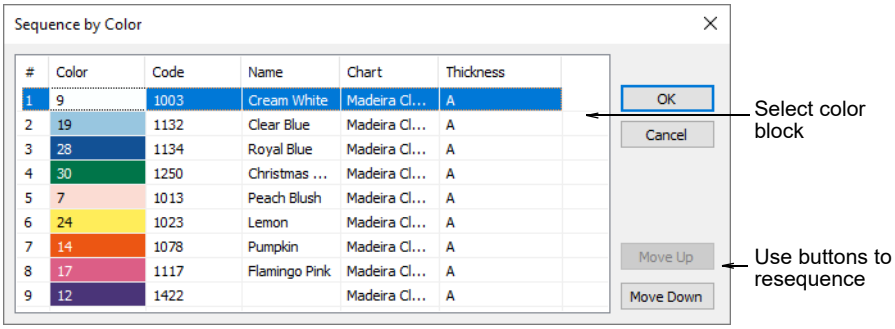
Sequence by color

Use Sequence > Sequence by Color to resequence all blocks of like color.

The **Sequence by Color** feature lets you resequence all objects in a design by color. This technique resequences **all** color blocks of the same color.

To sequence by color...

1. Select the objects to resequence or press **Ctrl+A** to select the entire design.
2. Click the **Sequence by Color** icon or select **Arrange > Sequence > By Color**. The **Sequence by Color** dialog opens listing colors in the selected objects.



3 Select a color and click **Move Up** or **Move Down** to change its position in the sequence.

Note: If you need to sequence separate color blocks, use the **Color-Object List**.

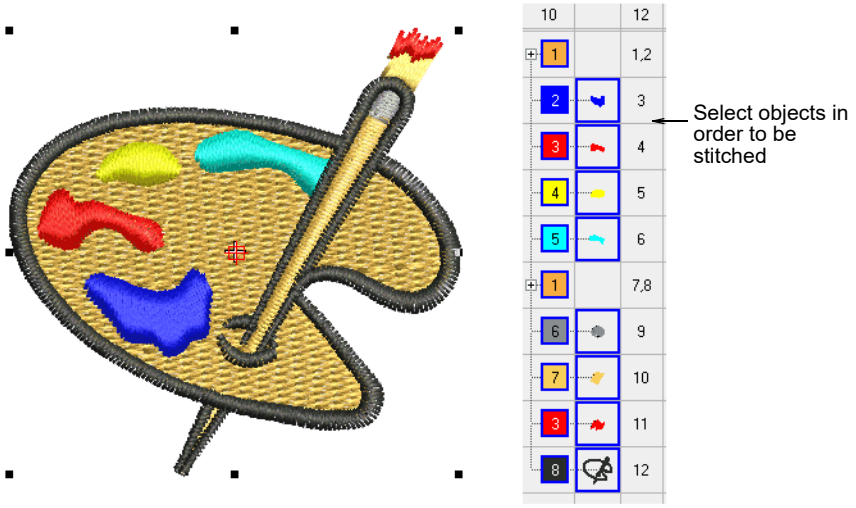
Sequence by selection order

Use Sequence > Sequence by Selects to resequence objects in the order selected.

You can resequence objects by selecting them in the required stitching order.

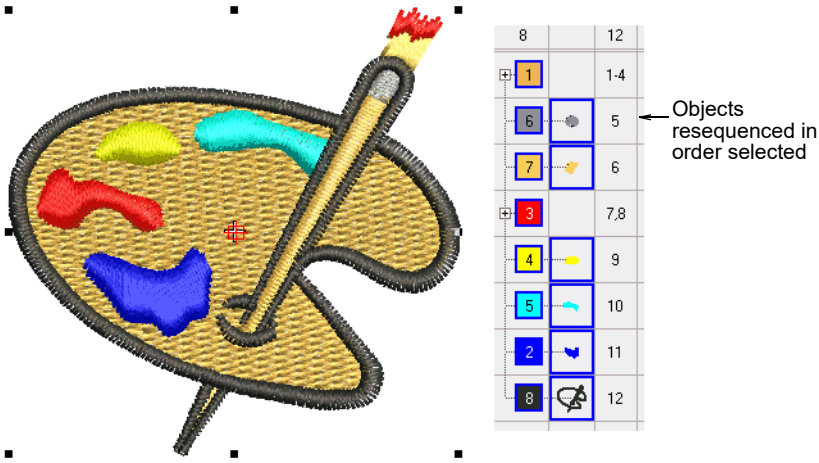
To sequence objects by selection order...

1 Select the first object you want to resequence.



2 Holding down **Ctrl**, select subsequent objects. Select each object in the order you want it to stitch out. Do this directly on-screen or via the **Color-Object List**.

3 With objects still selected, select **Arrange > Sequence > By Selects** or click the **Sequence by Selects** icon. The objects are resequenced in the selection order.



Tip: Entry and exit points should also be checked when you are resequencing objects in a design.

Related topics...

- Adjust entry/exit points
- Minimizing connectors

Sequence by number

Use Docker > Color-Object List to resequence objects.

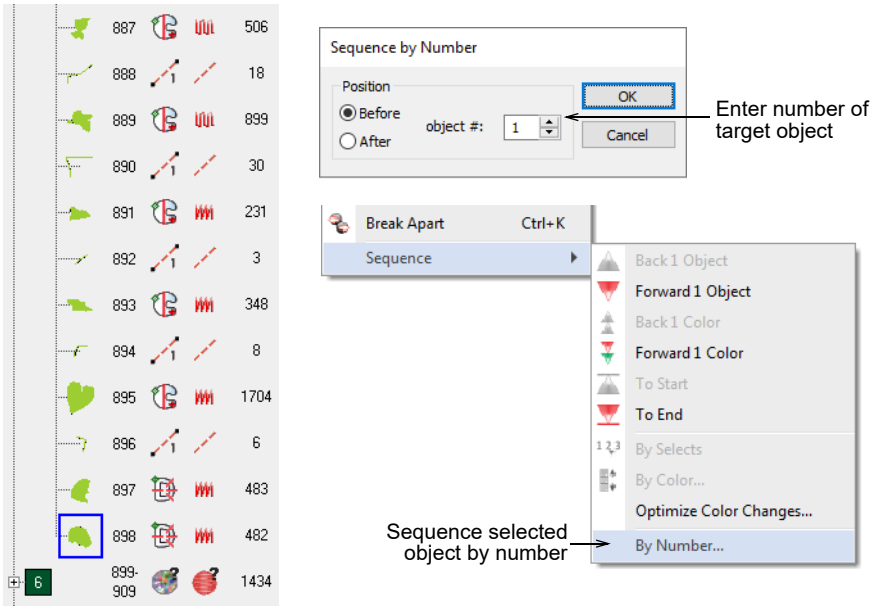
You can resequence objects numerically in the **Color-Object List**. Use it to move an object to a position between consecutive members of a color block. This technique is used primarily with designs containing many objects where precise object sequencing is important.

To sequence objects by number...

1 Click the **Color-Object List** icon.

2 Right-click an object in the list.

3 Select **Sequence > By Number** from the popup menu. The **Sequence by Number** dialog opens.



4 Enter the number of the object **before** which you want to position your selected object.

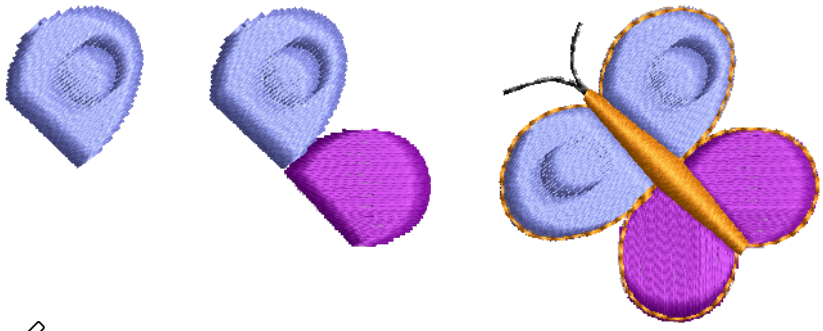
Note: If you prefer to position the selected object **after** a selected number – e.g. to make it the last object in the list – select **After** position.

5 Click **OK**. The selected object will be placed in the new position and all other objects resequenced accordingly.

Chapter 14

Transforming Objects

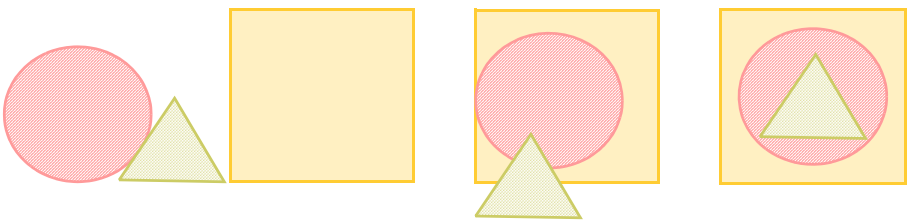
Change position, size and orientation of objects by moving, scaling and transforming them. Modify objects directly on screen or via their object properties. Mirror objects or entire designs. Create design 'wreathes' or borders. Create design arrays for efficient stitchout.



Note: The scalability and stitching quality of a design ultimately depend on its original source – **Native Design**, **Imported Outlines**, **Processed Stitches**, or **Imported Stitches**. Only EMB designs contain the complete set of design information required for 100% perfect scaling and transformation. See also Embroidery file formats.

Arranging objects

Position objects using the mouse to drag and drop, or 'nudge' them with arrow keys. Alternatively, specify X:Y coordinates in the **Property bar**. BE EmbroideryStudio also provides tools to align objects relative to each other, or distribute them evenly within the design.

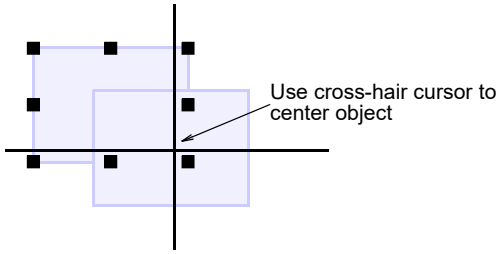


Position objects

The simplest way to move an object is to drag-and-drop to a new position.

To position objects...

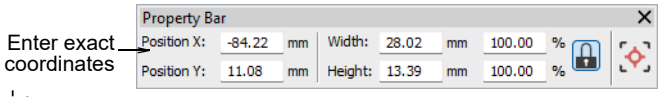
- Select the objects to move and click-and-drag to a new position.



- For more accurate positioning, use the arrow keys to 'nudge' selected objects.

Tip: With no objects selected, using arrow keys will travel through the design.

- For even more accurate positioning, enter X:Y coordinates in the **Property Bar**. The selection is centered over the coordinates you set.



Tip: Zoom in to make small adjustments. The distance the object moves depends on the current zoom factor.

Related topics...

- Select objects with selection tools

Align objects

Use Arrange > Align Left to left-align selected objects.

Use Arrange > Align Centers Vertically to align the centers of selected objects vertically.

Use Arrange > Align Right to right-align selected objects.



Use Arrange > Align Top to top-align selected objects.



Use Arrange > Align Centers Horizontally to align the centers of selected objects horizontally.



Use Arrange > Align Bottom to bottom-align selected objects.

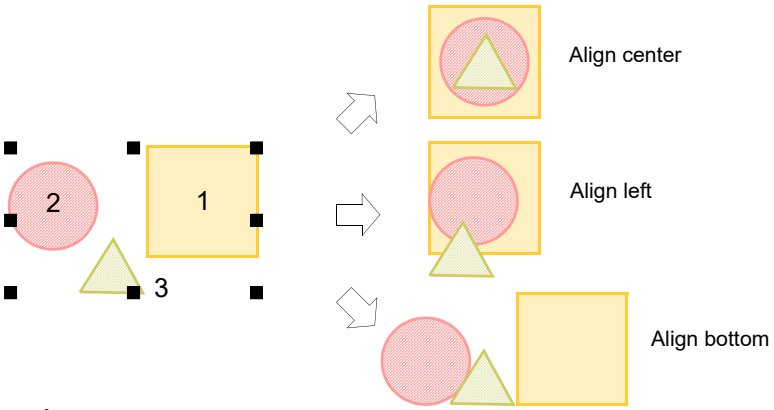


Use Arrange > Align Centers to align selected objects through their centers.

You can align selected objects to the left, right, top, bottom or center of a specified object.

To align objects...

- Select the objects you want to align.
- Select the object you want to align with.
- Click an alignment tool or select **Arrange > Align > ...**.





Note: Objects are aligned with the last selected object. When all objects are selected using **Ctrl+A** or a selection marquee, they are aligned with the last object in the sequence.

Related topics...

- Select objects with selection tools

Distribute objects evenly

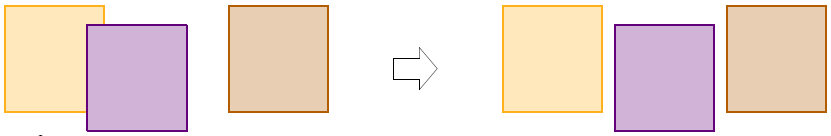
Use Arrange > Space Evenly Across to distribute selected objects evenly across the screen.

Use Arrange > Space Evenly Down to distribute selected objects evenly down the screen.

You can automatically distribute selected objects with even spacing between them, both vertically or horizontally.

To distribute objects evenly...

- Select the objects you want to distribute.
- Click a spacing tool or select **Arrange > Space Evenly > ...**.



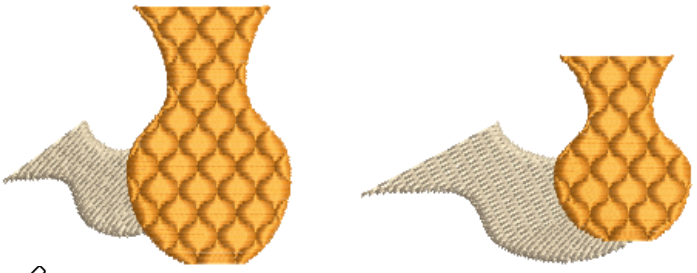
Note: The tools all become enabled when three or more objects are selected.

Related topics...

- Select objects with selection tools

Scaling objects

You can scale objects by dragging selection handles, specifying exact dimensions in the **Property bar**, or by setting a distance between reference points on the design. As an object is scaled, the stitch count changes to preserve the current spacing.



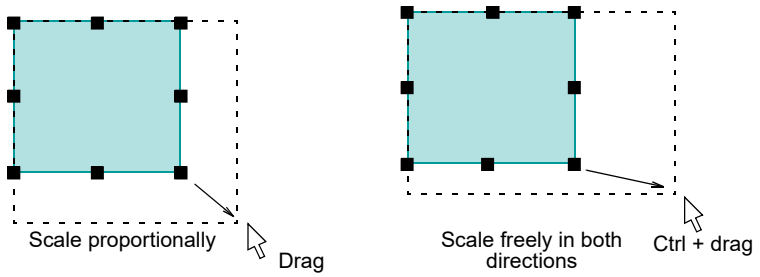
Note: Only EMB designs contain the complete set of design information for 100% perfect scaling and transformation.

Scale objects interactively

You can change height and width of an object, or scale it proportionally using selection handles. Scale objects individually, or select multiple objects and scale them together. Use the tooltips as a guide.

To scale objects interactively...

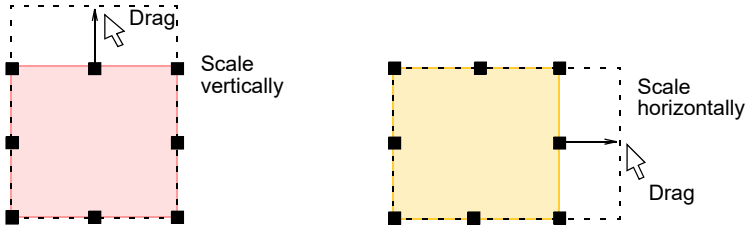
- Select the objects to scale.



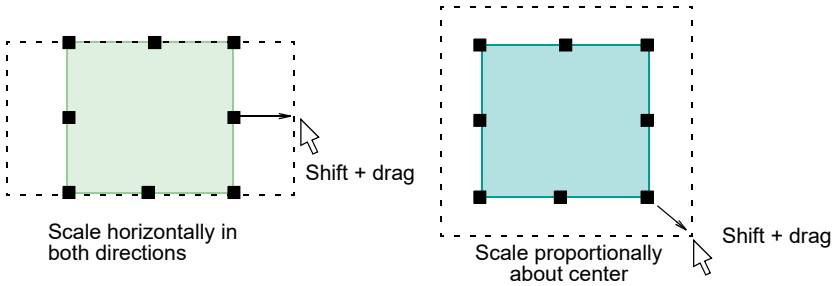
- To scale height and width proportionally, use a corner handle.

Tip: By default, objects scale proportionally. To scale freely in vertical and horizontal planes, hold down **Ctrl** as you drag.

- To change the height or width, use the center handles.



- To scale proportionally around an anchor point, hold down **Shift** as you drag.



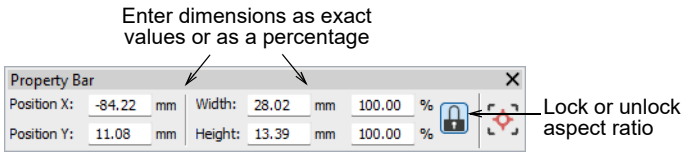
Scale objects numerically

You can scale artwork, selected objects or a whole design by means of object properties. With design files (EMB), this allows stitches to be regenerated while preserving the original stitch density. An exact size may not be achieved due to pull compensation being added to stitches after scaling operations.

Caution: If you scale a machine file by more than ±10%, however, changes to stitch density will affect the design quality.

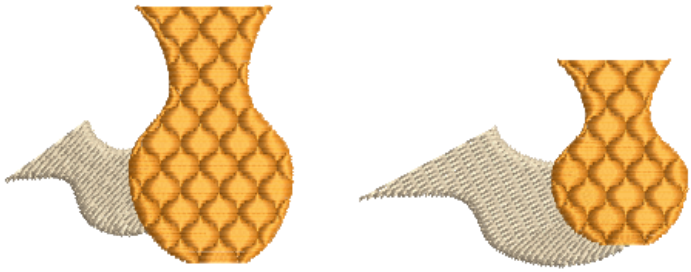
To scale objects numerically...

1. Select the objects or design to scale.
2. In the **Property Bar**, either:
   - Enter an exact height and width, or
   - Enter the new height and width as a percentage of current dimensions.



Tip: Toggle the **Proportional Scaling** button to lock or unlock aspect ratio.

3. Press **Enter** to apply.



Vase scaled
Width: 120% Height: 140%

Shadow scaled
Width: 140% Height: 120%

Note: After scaling, the new object size is reset to 100%.

Related topics...

- Embroidery file formats

Scale objects by reference line



Use Transform > Transform by Reference Line Numerically to transform selected objects using a combination of reference points and numeric values.

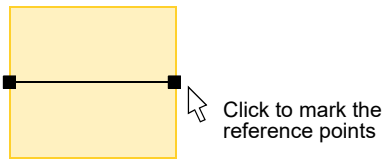
You can scale an object or design by marking reference points and specifying a line length.

To scale an object by reference line...

1 Select the objects or design to scale.

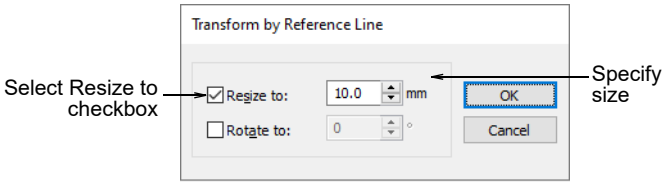
2 Select **Edit > Transform > Transform by Reference Line Numerically**.

You are prompted to enter start and end points. You will have already decided which two points in the object or design will form the reference line.



3 Click to mark the reference points. Press **Ctrl** to constrain the angle of the axis to 15° increments.

4 Alternatively, press **Enter** twice to use the default reference line. The **Transform by Reference Line** dialog opens.



5 Select the **Resize to** checkbox, and enter the required distance between reference points.

6 Click **OK**.

Make objects the same size



Click Arrange > Make Same Width to scale an object or design to the same width as a reference object.



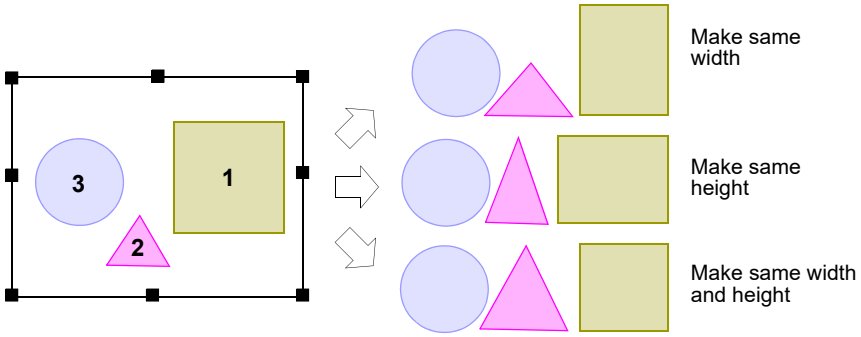
Click Arrange > Make Same Height to scale an object or design to the same height as a reference object.

Click Arrange > Make Same Width and Height to scale an object or design to the same size as a reference object.

You can scale objects to the same size as a reference object. Resize height or width or both.

To make objects the same size...

1 Select the objects to resize.
2 Select the object that is the size you require.
3 Click a sizing tool or select **Arrange > Make Same Size > ...**.



Note: Objects are resized with reference to the last object selected. If all objects are selected by using **Ctrl+A** or a selection marquee, they are resized with reference to the last object in the sequence.

Rotating objects

You can rotate objects directly on screen or by setting an exact rotation angle.



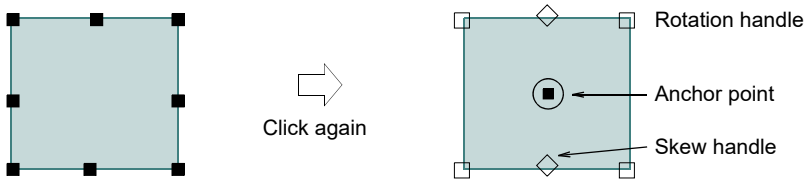
Rotate objects interactively

When you select an object, selection handles display at its extremities. When you click the object again, the handles change to rotation handles. Use the tooltips as a guide.

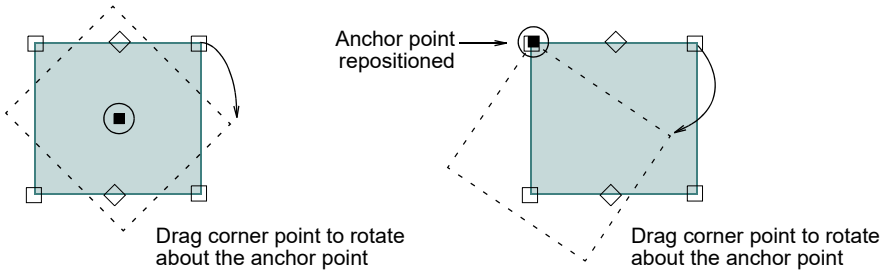
To rotate objects interactively...

1 Select the objects to rotate.

2 Click a second time. Rotation handles appear at the corners and an anchor point at the center.



3 Optionally, drag the anchor point to any position.



4 Click-and-drag a rotation handle in either direction.

Rotate objects numerically

Click Transform > Rotate Right 15° to rotate selected objects by 15° in a clockwise direction.

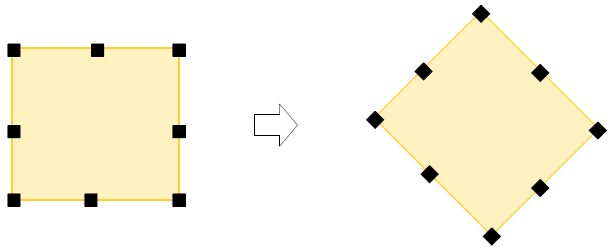
Click Transform > Rotate Left 15° to rotate selected objects by 15° in a counter-clockwise direction.

Use Transform > Rotate to rotate selected objects by an exact amount (in degrees).

You can rotate selected objects in 15° increments or by entering an exact value using the **Transform** toolbar.

To rotate an object numerically...

- Select objects to rotate.
- To rotate in 15° increments, click one of the **Rotate 15°** icons.



- To rotate by an exact amount, enter an exact angle in the **Rotate** field and press **Enter**.

Rotate objects by reference line

Use Transform > Transform by Reference Line Freely to rotate selected objects with the aid of reference points alone.

The **Transform by Reference Line Freely** tool lets you rotate selected objects with the aid of reference points alone. This technique is useful if you want to duplicate and rotate objects around an anchor point – e.g. the petals of a flower.

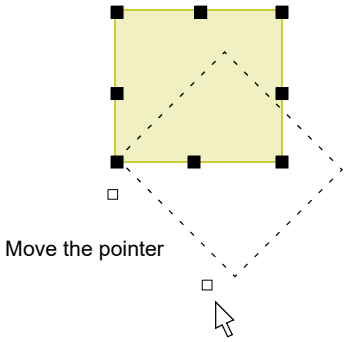
To rotate an object by reference line...

1 Select objects to rotate.

2 Select **Edit > Transform > Transform by Reference Line Freely**.

3 Follow the prompt line:

- Click the first reference point. This becomes the anchor point for the rotation.
- Click a second reference point. An outline attaches to the pointer.



- Optionally, press **Ctrl** to constrain the angle of the axis to 15° increments.
- Click the anchor point. The pointer then aligns itself with the second reference point.
- Click a guide point for the required rotation position. Use coordinates on the **Status** bar for exact alignment.

Rotate objects by reference line and angle

Use Transform > Transform by Reference Line Numerically to transform selected objects using a combination of reference points and numeric values.

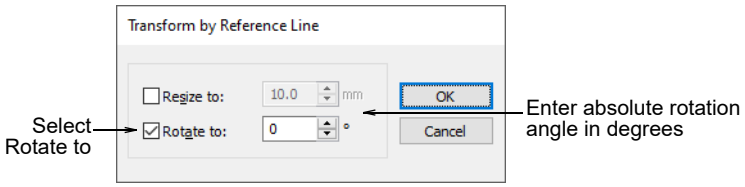
The **Transform** tool provides another method for transforming selected objects using a combination of reference points and numeric values. This provides a very accurate technique for rotating selected objects.

To rotate objects by reference line and angle...

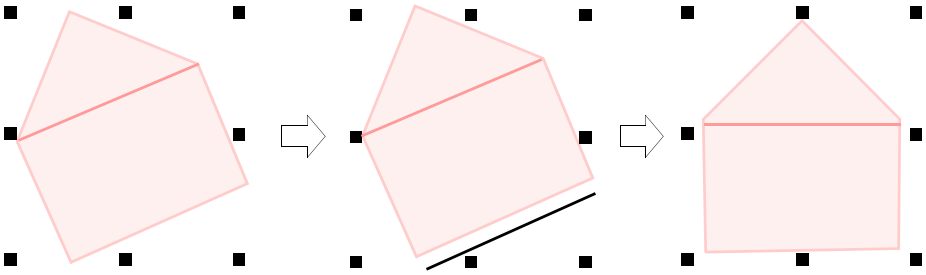
1 Select the objects to rotate.

2 Decide which two points in the object or design will form the reference line. This should be a significant line – e.g. one which must be perfectly horizontal or vertical in the final design.

3 Select **Edit > Transform > Transform by Reference Line Numerically**.



4 Select the **Rotate to** checkbox, and enter the rotation angle of the reference line. For example, to rotate the image so it aligns with the horizontal axis, enter a value of 0°. The **Angle** field accepts angles from 0 to ±180 degrees.



Select rotation angle – e.g. 0°

Digitize reference line – align with base of object

Reference line set to angle specified in dialog

5 Click **OK**.

6 Click to mark the start and end points of the reference line.

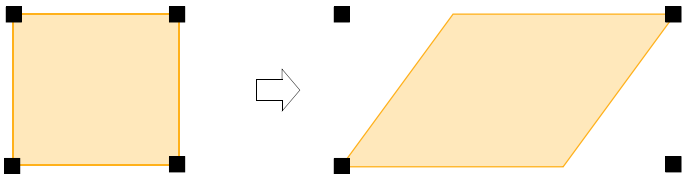
Press **Ctrl** to constrain the angle of the axis to 15° increments. Alternatively, press **Enter** twice to use a horizontal reference line by default.

Skewing objects



Use Transform > Skew to skew selected objects by an exact amount (in degrees).

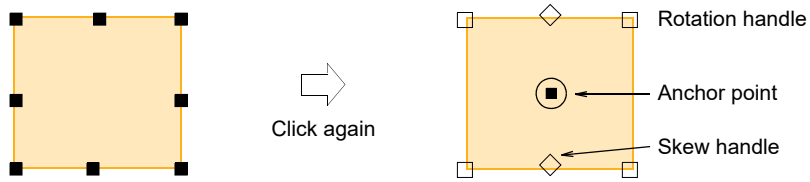
You can skew objects directly on screen or by setting an exact skew angle.



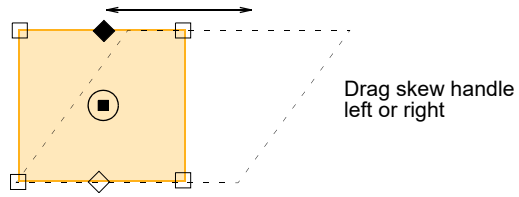
To skew objects...

1 Select the objects to skew.

2 Click the object a second time. Skew handles are diamond-shaped and appear at the center-top and bottom of the object.



3 Drag handles left or right.



Tip: Alternatively, to skew by an exact amount, enter an exact angle in the **Skew** field on the **Transform** toolbar and press **Enter**.

Mirroring objects

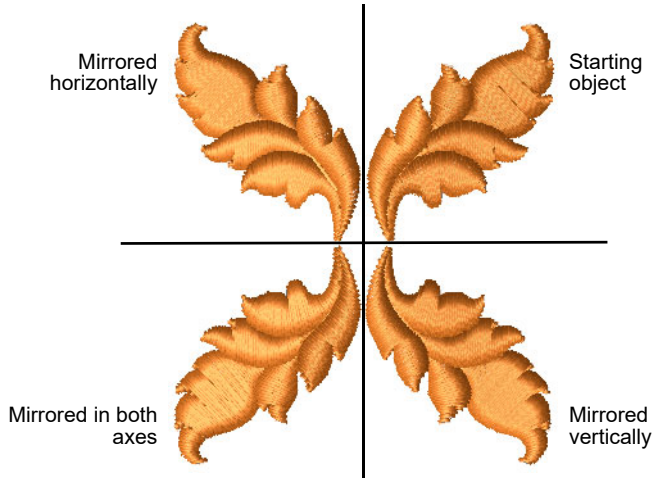
Fashion and textile designs often use copied and mirrored design elements. In BE EmbroideryStudio you can mirror objects horizontally or vertically by means of the **Transform** toolbar. You can also mirror around a defined axis using a reference line.

Tip: The **Mirror Merge** tools allow you to duplicate and transform selected embroidery objects, as well as merge them into a single object. This feature is often used in making fashion or textile designs. See Mirroring & reflecting selections for details.

Flip objects horizontally & vertically

	Click Transform > Mirror Horizontal to flip selected objects in the horizontal plane.
	Click Transform > Mirror Vertical to flip selected objects in the vertical plane.

You can mirror selected objects horizontally or vertically using the **Mirror** tools. Select objects to mirror and click a **Mirror** icon. For productivity, shortcut keys are available for mirror operations.



Related topics...

- Create multiple reflections

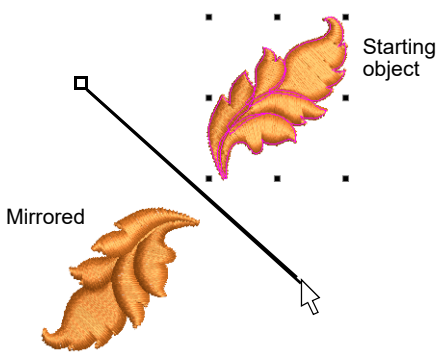
Mirror objects around an axis

Use Transform > Mirror by Reference Line to mirror objects around a defined axis using a reference line.

Use **Mirror by Reference Line** to mirror objects around a reference line.

To mirror objects around an axis...

1. Select the objects to mirror.
2. Select the **Mirror by Reference Line** icon or select **Edit > Transform > Mirror by Reference Line**.



3. Click to mark two reference points of the mirror axis.
4. Press **Ctrl** to constrain the angle of the axis to 15° increments.

Chapter 15

Productivity Techniques

Specialized features help to save digitizing time. BE EmbroideryStudio provides input tools for stars and rings and other preset shapes. Add decorative borders from a **Borders** library. BE EmbroideryStudio provides special tools for cutting holes in objects as well as filling them. There are also tools for generating outlines based on existing shapes.



In addition, BE EmbroideryStudio provides powerful tools for mirroring and reflecting selections or entire designs for the creation of decorative wreaths or borders. The same toolset can be used to create perfectly symmetrical objects or designs. Alternatively, create arrays of designs, such as badges, automatically resequenced for faster stitchout.

Adding preset shapes

BE EmbroideryStudio provides a number of productivity tools for quickly creating predefined shapes for use as borders and design objects, both embroidered and vector. These tools can be particularly useful for logo design and embroidered badge work.



Add design borders

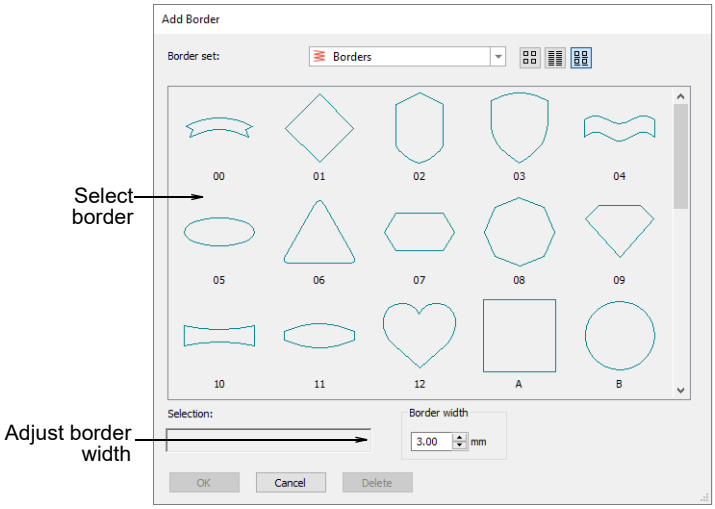
Use Toolbox > Add Borders to add borders to designs (or selected objects) with or without lettering.

Add decorative borders such as rectangles, ovals, and shields to designs or selected objects using the **Borders** library.



To add decorative borders to designs...

1 Open a design and click the **Add Borders** icon.



Tip: By selecting individual objects, you can add borders to these rather than the entire design.

2. Select a border and adjust **Border Width** as required. The default is 3.00 mm.
3. Click **OK**.
4. Edit borders in the normal way – change thread color, adjust border size, etc.

Tip: By default, borders scale proportionally. To resize proportionally around a central anchor point, hold down **Shift** as you drag. To scale freely in vertical and horizontal planes, hold down **Ctrl** as you drag.

Digitize stars & rings

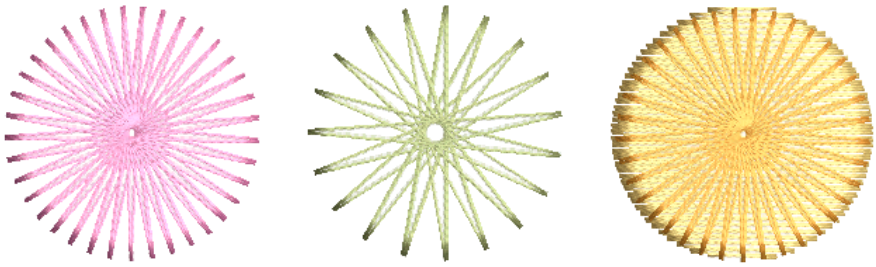
Use Traditional Digitizing > Star to digitize star shapes filled with Zigzag stitching.

Use Traditional Digitizing > Ring to digitize circle and oval-shaped rings.

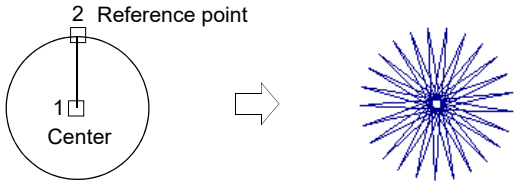
The **Traditional Digitizing** toolbar provides special time-saving tools for creating embroidered rings and stars or 'French dots'.

Stars

Digitize circles and ovals which use turning zigzag stitches to create a 'Star' or 'French dot' using the **Star** tool.

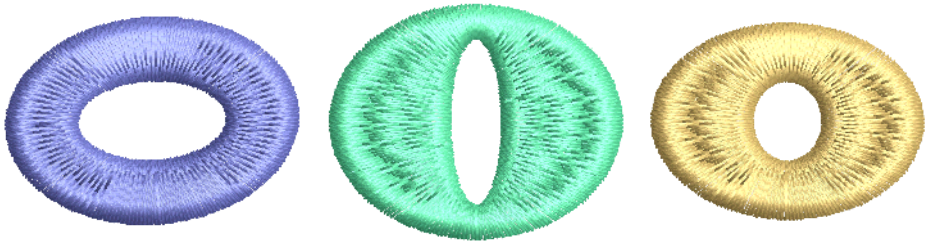


To digitize stars, click to mark the center and click again to set the radius. This point becomes the entry point. To create an oval star, mark a second radius point, then press **Enter**.

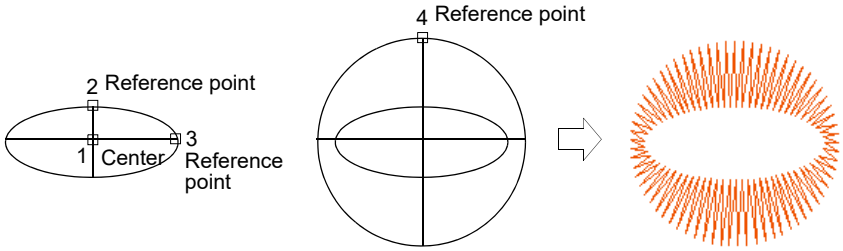


Rings

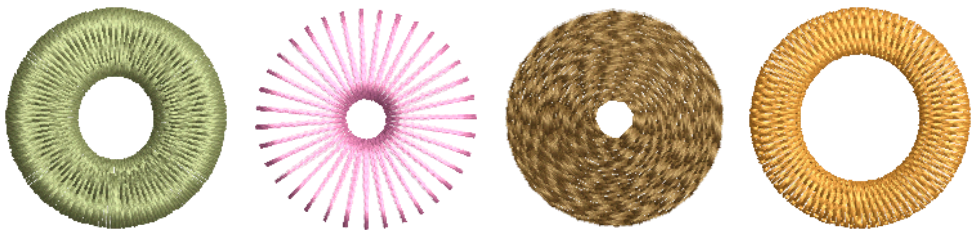
Create rings by digitizing circles and ovals within each other using the **Ring** tool. Use different combinations of inner and outer boundary shapes to create different effects.



To digitize rings, digitize the inner boundary of the ring first either as a circle or an oval. Digitize the outer boundary of the ring in the same way and press **Enter**.



You can digitize rings with a variety of fill stitch types. Contour stitch is well suited to rings, as it runs stitches around the ring in a spiral pattern.



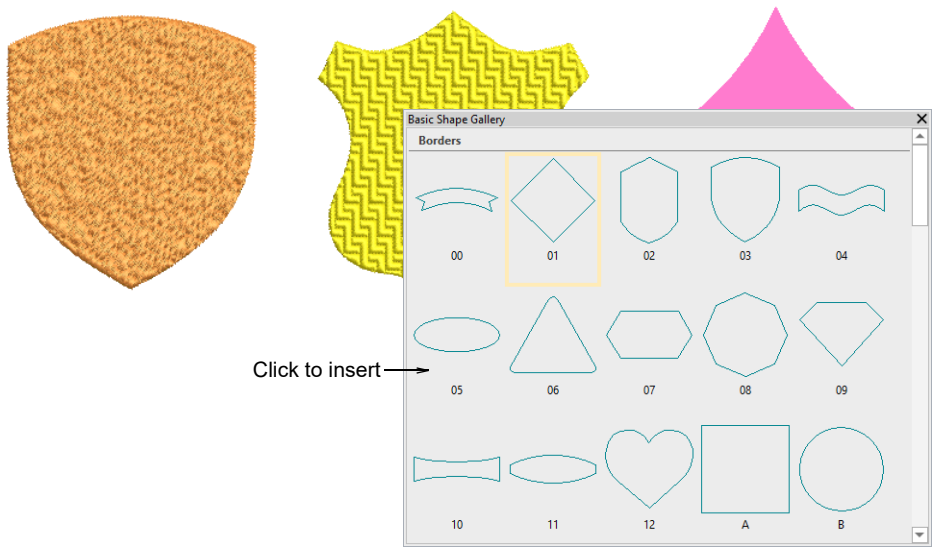
Related topics...

- Reshaping stars & rings

Digitize basic shapes

Use Graphics Digitizing > Basic Shapes to digitize basic shapes. Press <Ctrl> to maintain aspect ratio. Press <Shift> to center at the first point.

The **Graphics Digitizing** toolbar provides a dedicated **Basic Shapes** tool which allows you to quickly create design objects from a library of preset shapes. These can be created as vector objects, or you can apply the full range of outline and fill stitch types. These can be useful when creating logo designs or embroidered badges. Available shapes are exactly the same as for preset borders. Use **Ctrl** and **Shift** keys, alone or in combination, to maintain aspect ratio and center point.



Related topics...

- Reshaping objects

Adding & filling holes

BE EmbroideryStudio provides special tools for cutting holes in objects as well as filling them.

Add & remove holes

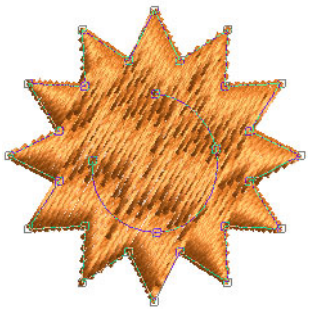
Use Graphics Digitizing > Hole > Add Holes to cut holes in filled objects.

Use Graphics Digitizing > Hole > Remove Holes to remove holes from selected objects.

With BE EmbroideryStudio you can cut holes in selected closed objects with a single stitch angle using the **Add Holes** tool. The complementary **Remove Holes** tool allows you to remove unwanted holes in closed objects.

To add or remove holes...

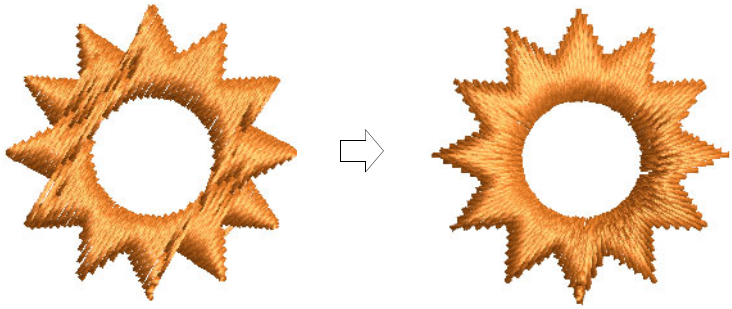
1. Select the object to modify.
2. Click the **Add Holes** icon. Reference points display around the object outline.
3. Digitize additional boundaries for the object. Press **Enter** after each boundary.



4. Press **Enter**.

Usage tips...

- Optionally, add turning stitch angles to the object.



- To remove all internal boundaries from a closed object, select it and click **Remove Holes**.

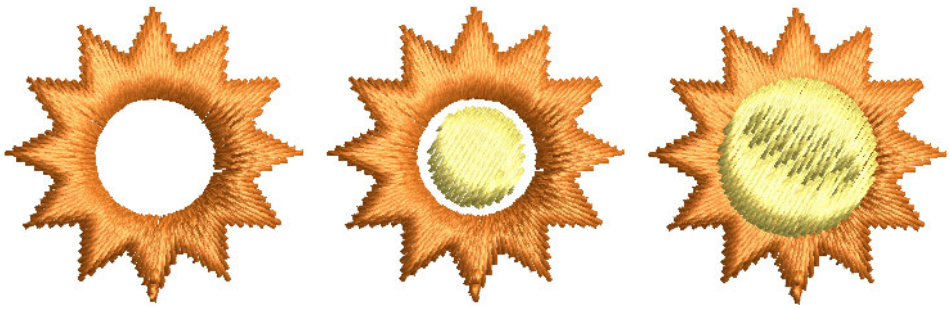
Related topics...

- Add holes to free-form shapes
- Removing underlying stitching
- Adjusting stitch angles

Fill holes

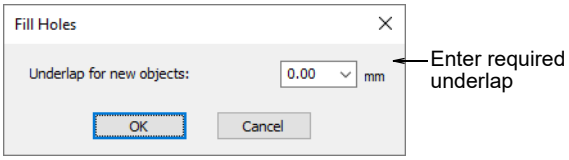
Use Graphics Digitizing > Hole > Fill Holes to fill holes formed by existing boundaries, without having to re-digitize the shape – choose to fill the hole exactly or offset it.

Create new objects with the **Fill Holes** feature. This lets you fill holes formed by existing boundaries, without having to re-digitize the shape.

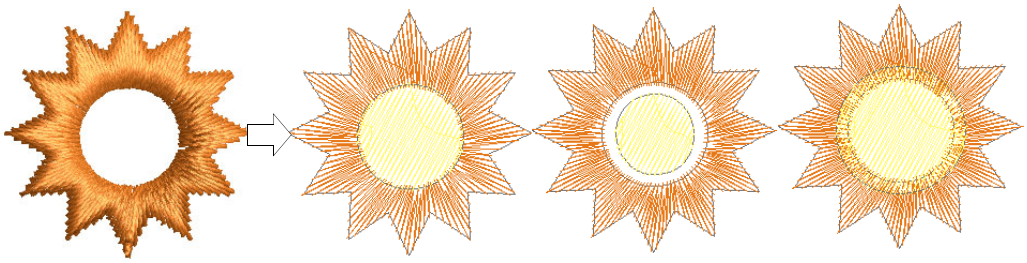


To fill holes...

1 Select a source object and click the **Fill Holes** icon.



2 Enter an **underlap** value.

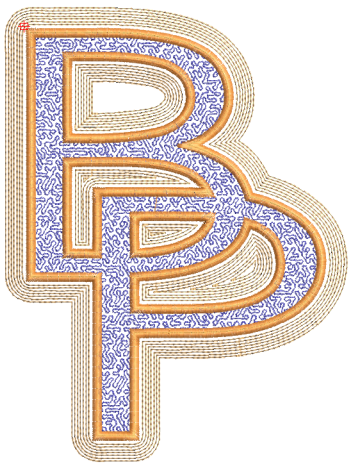


- To cover holes exactly, accept the default value of **0.00**.
- To leave a gap between the filled holes and the original object, enter a negative underlap – e.g. **-1.00**.
- To overlap the filled holes and the original object, enter a positive underlap – e.g. **1.00**.

3 Click **OK**. All newly created objects are filled with the current fill stitch settings, stitch angle and thread color. Each new object is an independent object and is placed immediately after the source object in the stitch sequence.

Generating outlines & offsets

BE EmbroideryStudio provides tools for quickly generating outlines and filled areas based on existing boundaries. The **Outlines & Offsets** feature creates outlines and offset objects from closed objects with both fixed and variable spacings.



Simple offsets

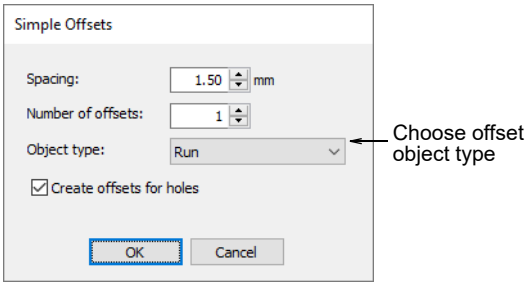
Use Toolbox > Simple Offsets to create simple outlines for any filled embroidery or closed vector object.

When available, the **Simple Offsets** feature allows you to quickly create outline stitching around selected objects or entire designs with a variety of outline styles.



To create outlines and borders...

1 Select a source object/s and click the **Simple Offsets** icon.

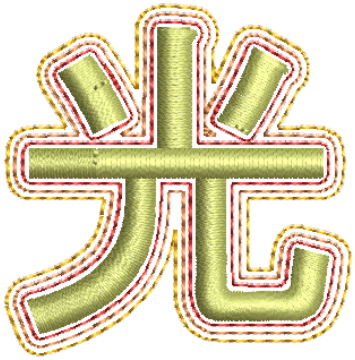


2 Adjust the settings as required:

Option	Function
Spacing	Set an outline offset in mm. This may be zero or even a negative value.
Number of offsets	Specify multiple outlines – up to 99.
Object type	Choice of outline object types: Run, Triple Run or Column C.
Offsets for holes	Option to exclude or include outlines for any holes in the selected object.

3 Click **OK** to apply settings. The design outline is stitched in the current palette color using current properties. Change settings as required.

Tip: You can use **Simple Offsets** to create outlines around entire designs, including lettering.



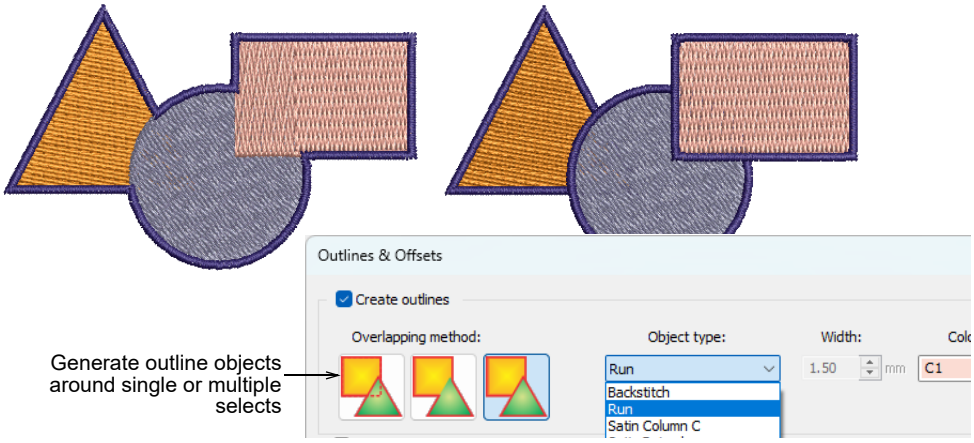
Create outlines & offsets

Use Toolbox > Outlines & Offsets to create outlines and offsets of any type for any filled embroidery or closed vector object.

Use the **Outlines & Offsets** tool to add outline stitching to selected objects or entire designs with a complete range of outline styles. Any closed shape can be used, including vector objects, runs, or any filled shapes.

Outlines

The **Outlines & Offsets** dialog divides into two panels for outlines and offsets. Use the outlines panel to generate outlines around single or multiple selected objects. The droplist includes the full range of outline stitch types. For each selected object, the software generates outlines and inserts them immediately after in the stitching sequence.

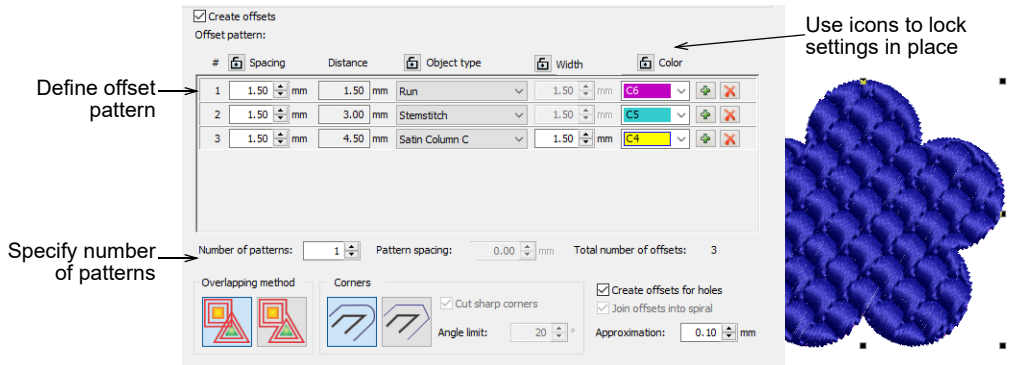


The **Overlapping Method** determines how outlines will overlap:

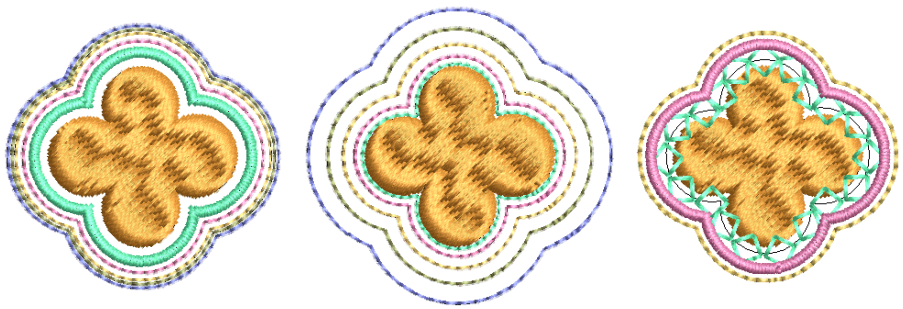
Overlap method	Details
Individual	All generated outlines are full outlines.
Common	Intersecting outlines are combined into a single outline.
Trimmed	Overlapped portions are trimmed by overlapping objects.

Offsets

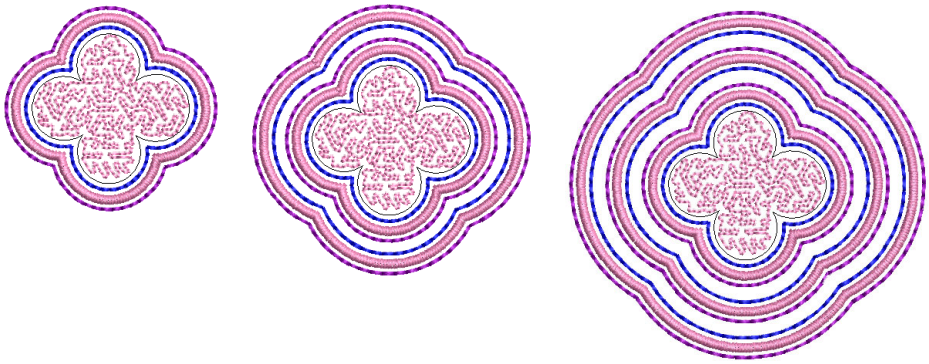
The offsets panel allows you to generate single or multiple offsets in any combination of styles, colors, and spacings. Any closed shapes can be used, including vector objects, runs, or any filled shapes. You have the option of preserving source objects.



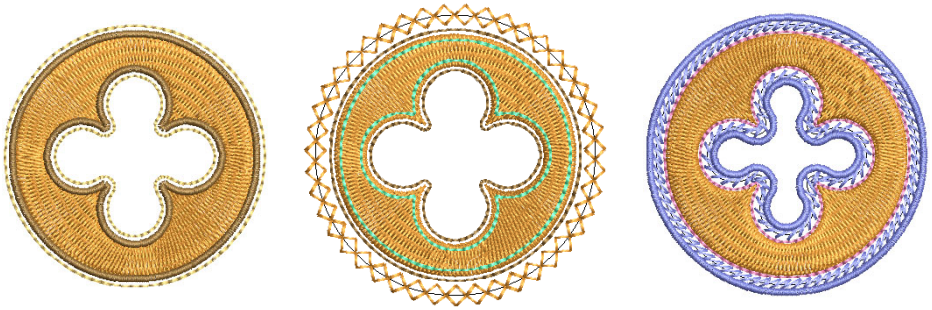
- Tick **Create offsets** and define an offset pattern in the **Offset Pattern** panel. Each row defines a single offset. For each, specify an object type – e.g. Run – a spacing in millimeters – e.g. 1mm – and a color. Remember that each spacing is calculated from the previous object.



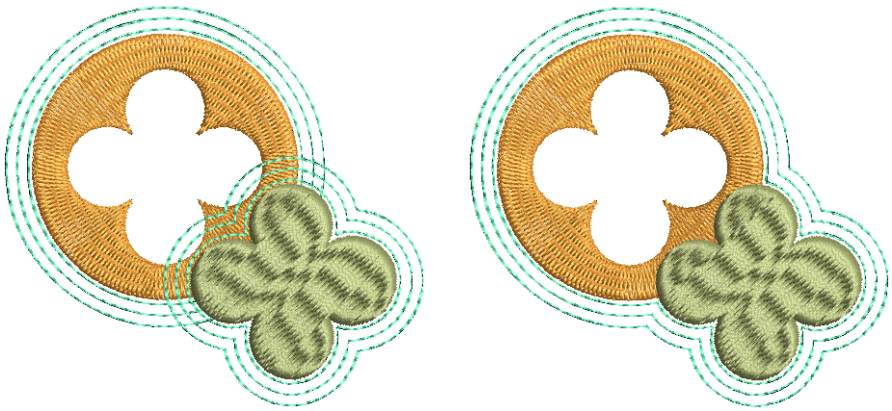
- Use the + buttons to add offsets to a pattern. Use the **Lock** icons to lock settings in place.
- Specify pattern repeats in the **Number of patterns** field. Adjust spacing between pattern repeats in the **Pattern spacing** field.



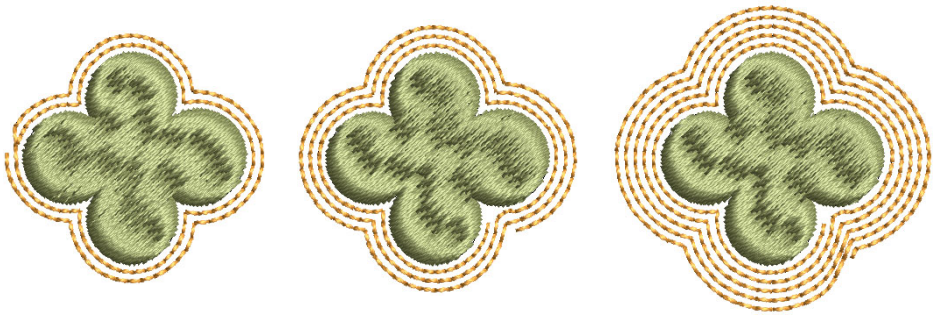
- Tick the **Create offsets for holes** checkbox as appropriate.



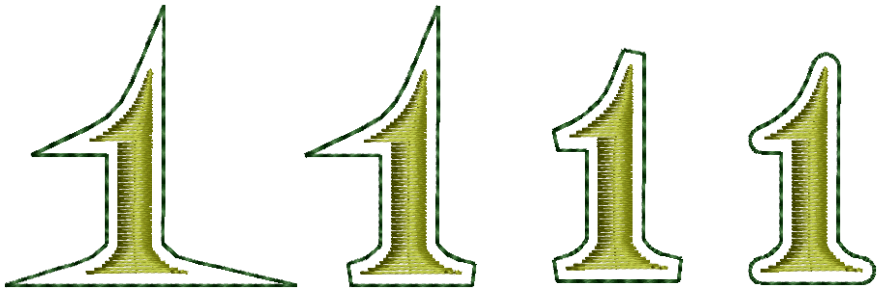
- Use the **Overlapping method** options to determine offsets for multiple selections.



- Tick the **Join offsets into spiral** checkbox to create a continuous spiral around the source object.



- Select rounded or squared corners as preferred. The squared option allows you to adjust the angle limit – first select **Cut Sharp Corners** and set required angle value.



- Adjust the **Approximation** setting as required. This controls the smoothness of the generated object outline – the larger the value, the more approximate the curve. If the value is set to zero, the generated outline is unsmoothed. This is suitable for use with cutting machines.

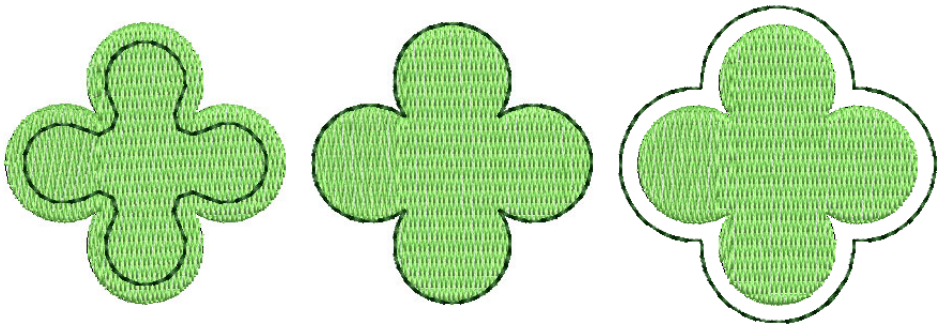


Note: By default, source objects are preserved. If you choose not to, the offset object replaces the original in the same position in the stitching order. Start and end points of the resultant object will be as close as possible to those of the source object.

Create negative offsets

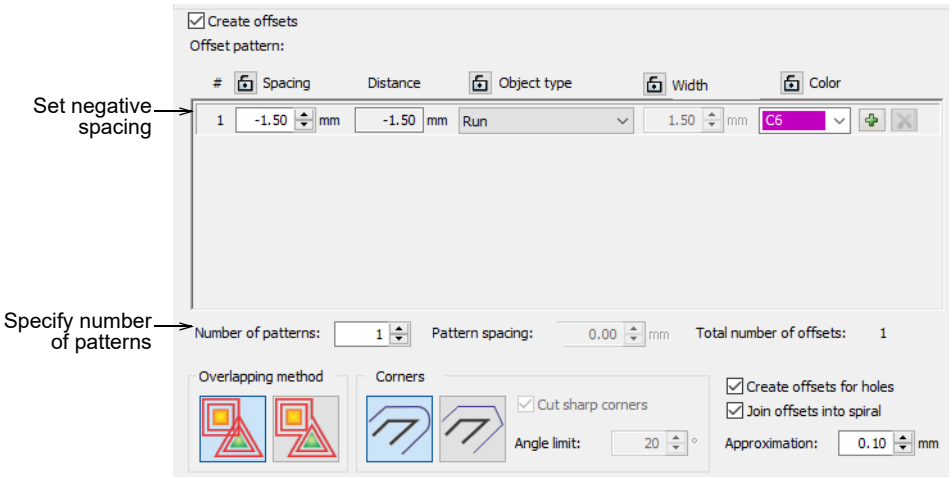
Use Toolbox > Outlines & Offsets to create outlines and offsets of any type for any filled embroidery or closed vector object.

The **Outlines & Offsets** tool allows you to specify both negative and positive offsets.



To create negative offsets...

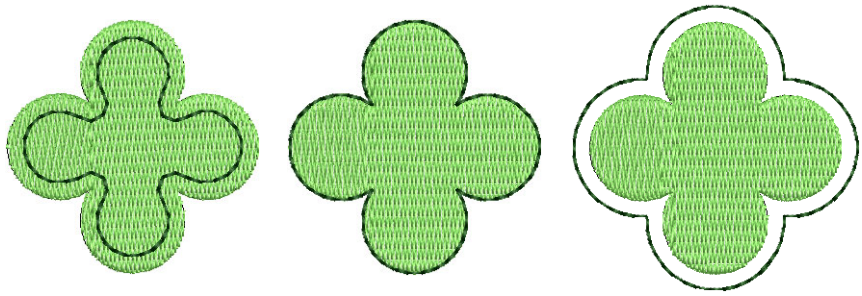
1 Select a source object/s and click the **Outlines & Offsets** icon.



2 Tick **Create offsets** and define a simple offset object in the **Offset Pattern** panel.

3 Set the required offset in millimeters:

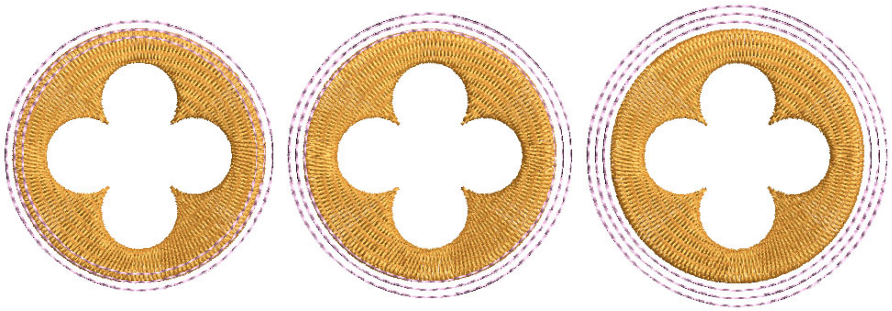
- To center the offset object over the original, enter a value of **0.00**.
- To position the offset object outside the original, enter a positive offset – e.g. **1.00**.
- To position the offset object inside the original, enter a negative offset – e.g. **-1.00**.



Negative Offset Zero Offset Positive Offset

4 If you want multiple offsets, enter a value in the **Number of patterns** field.

5 Select **Pattern spacing** and enter the required offset in millimeters. Offsets are always offset in a positive direction, even if you have entered a negative number. Spacing is calculated from the previous object, not the source object.

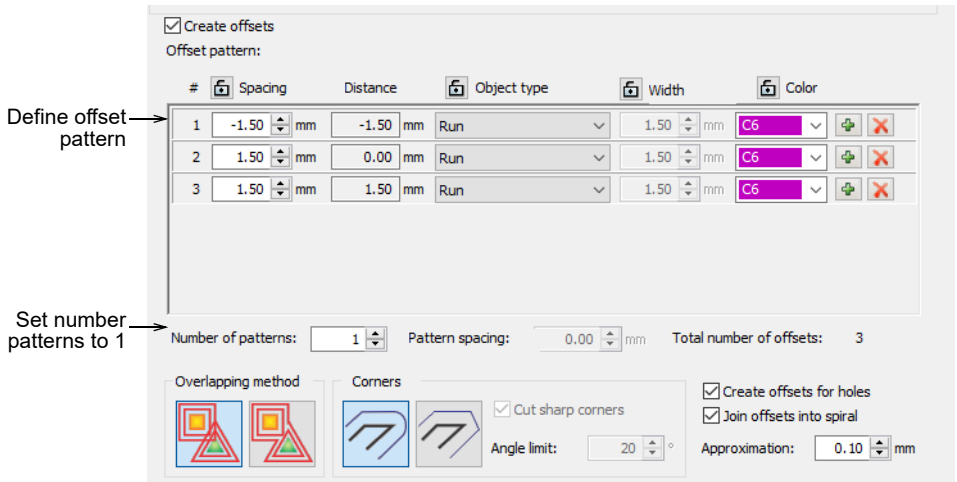


Offset spacing: -1.5mm
Number of patterns: 3
Pattern spacing: 3mm

Offset spacing: 0mm
Number of patterns: 3
Pattern spacing: 1.5mm

Offset spacing: 1.5mm
Number of patterns: 3
Pattern spacing: 0mm

Note: As an alternative to the above technique, you can define your negative offsets entirely as a single offset pattern. Note how you set up the spacings.

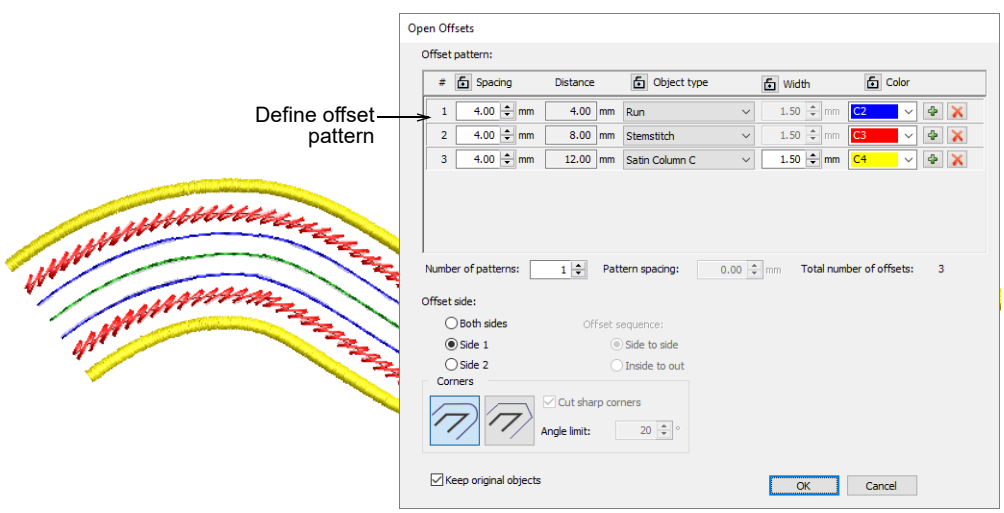


Create offsets with open objects

Use Toolbox > Open Offsets to create precise offsets for any open embroidery or vector object.

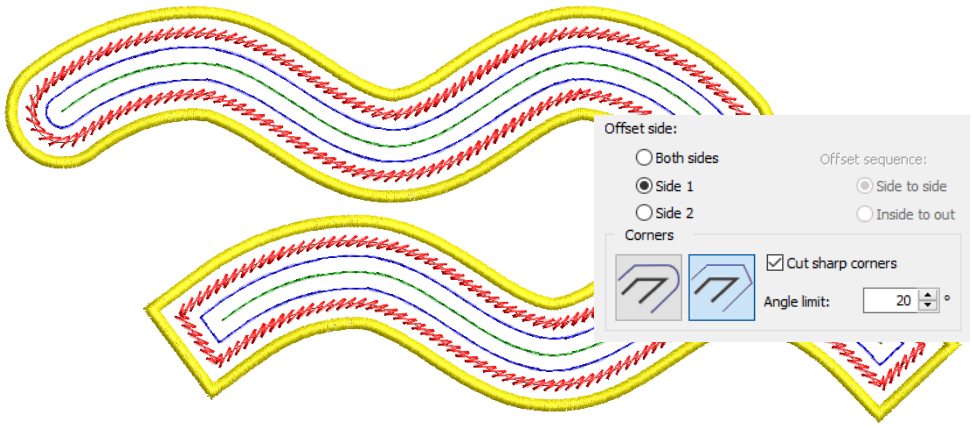
Use Toolbox > Outlines & Offsets to create closed offsets for open embroidery or vector objects.

The **Open Offsets** tool allows you to generate parallel offsets from any open shape. Offset lines are calculated at a specified distance for a specified number, one side or other side, or both sides.



You can use the **Outlines & Offsets** tool with open objects to create closed offsets as shown. Select rounded or squared corners as preferred.

The squared option allows you to adjust the angle limit – first select **Cut Sharp Corners** and set required angle value.



Mirroring & reflecting selections

The **Mirror Merge** tools allow you to duplicate and transform selected objects, as well as merge them into a single object. Use them to create wreaths or decorative borders. Or use them to create perfectly symmetrical objects. Color blocks are automatically resequenced to minimize unnecessary color changes.



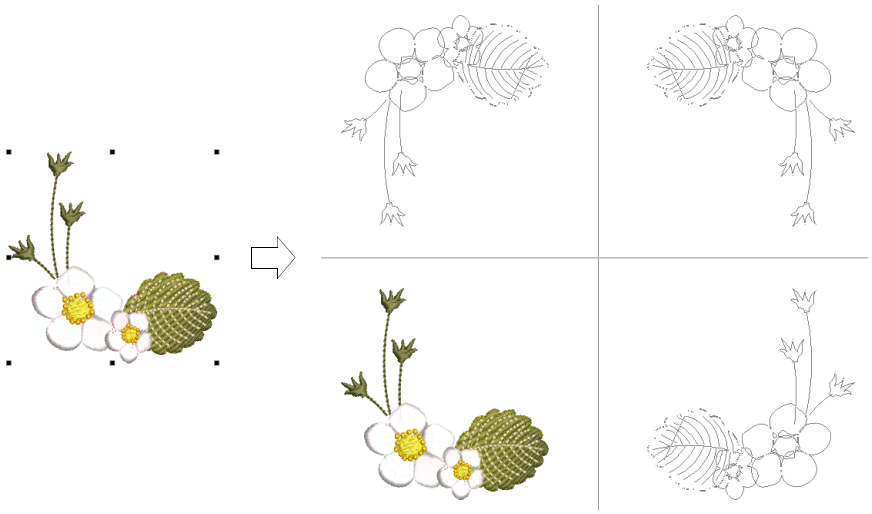
Mirror selections horizontally & vertically

Use Mirror Merge > Mirror Copy Horizontal to duplicate and mirror objects or designs in the horizontal plane.

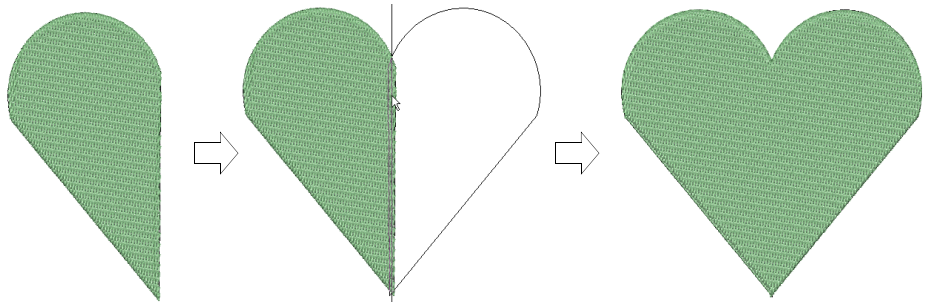
Use Mirror Merge > Mirror Copy Vertical to duplicate and mirror objects or designs in the vertical plane.

Use Mirror Merge > Mirror Copy Horizontal & Vertical to duplicate and mirror objects or designs simultaneously in both planes.

Use the **Mirror Copy Horizontal** and **Vertical** tools to duplicate and mirror selections simultaneously. Simply select objects and click a tool to duplicate and mirror in any plane. Click to mark the reflection point and press **Enter** to confirm.



The **Mirror Merge** tools can also be used, as the name suggests, to merge mirrored objects into a single object. If duplicates overlap the original, you are prompted to merge objects. Use this feature to merge duplicates into a perfectly symmetrical object such as a face or heart.



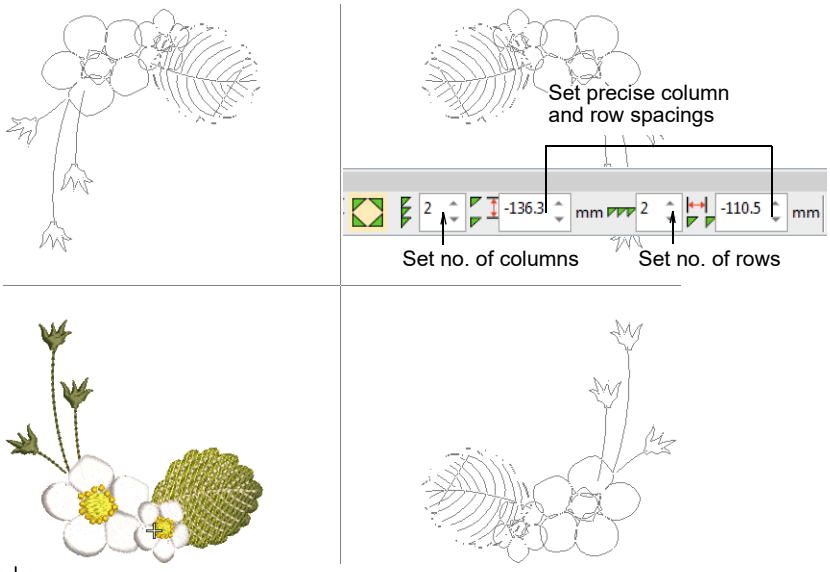
Create multiple reflections

Use Mirror Merge > Reflect to duplicate and mirror objects or designs.

Use the **Reflect** tool to duplicate and mirror designs simultaneously. Set any number of rows or columns. The feature is often used in making fashion or textile designs. The limit for allowable wreath points is 100.

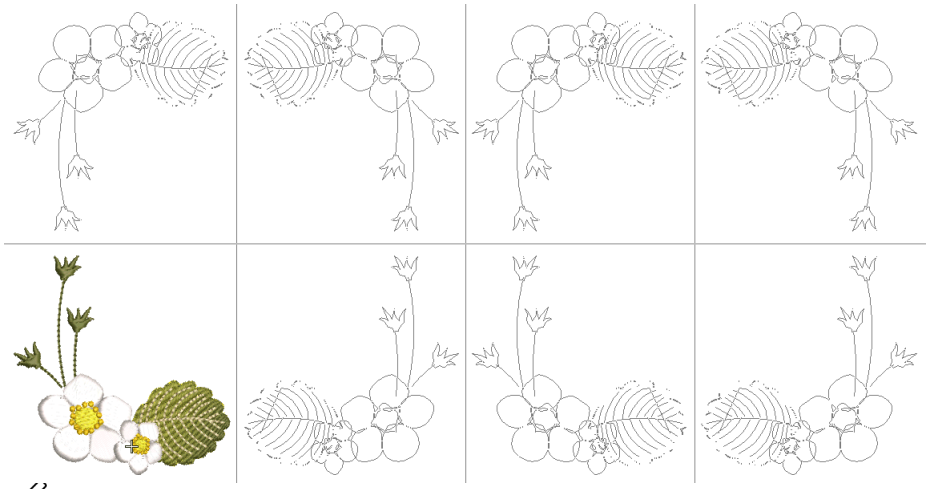
To create reflected objects...

1. Select the object or design.
2. Click the **Reflect** icon. The associated settings are activated.
3. Move the pointer to position duplicates.



Tip: Press **Shift** to disable **Auto-Scroll** while using **Mirror Merge**.

4. Adjust the number of columns and rows required in the settings toolbar. Tab from field to field to enter values.
5. For more precise positioning, adjust spacing settings. Press **Enter** to confirm.
6. Click to mark the reflection point and press **Enter** to confirm.



Note: Color blocks are automatically resequenced to minimize unnecessary color changes.

Related topics...

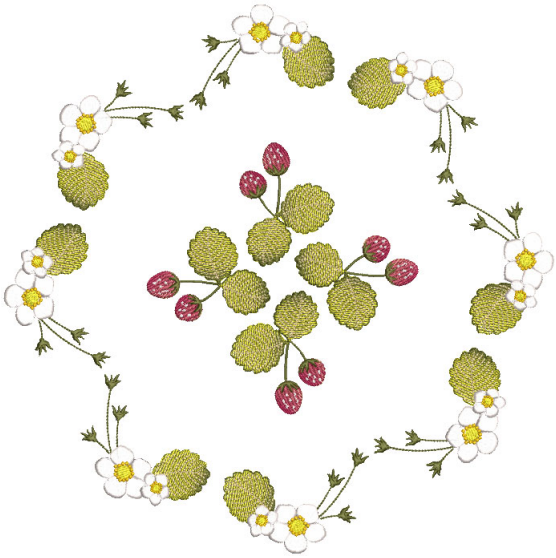
- Duplicate & clone objects

Create wreaths

Use Mirror Merge > Wreath to duplicate objects around a center point.

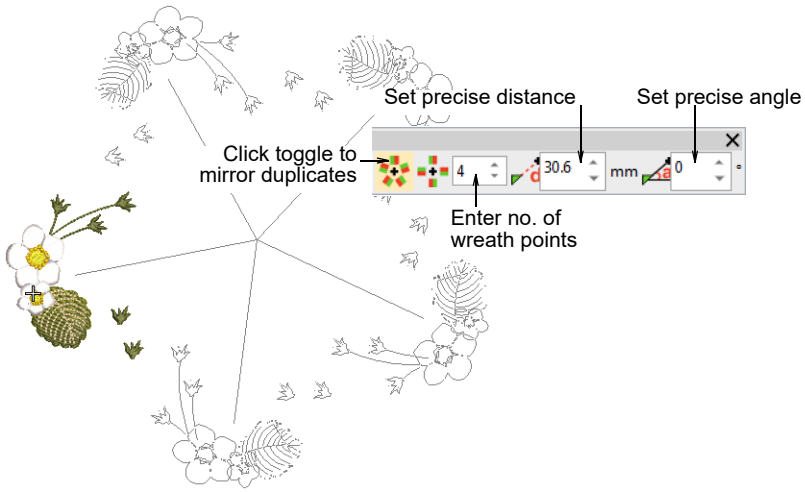
Use Mirror Merge > Kaleidoscope to duplicate and mirror paired objects in a wreath.

Use the **Wreath** tool to duplicate objects around a center point. The **Kaleidoscope** toggle mirrors the selection as well. Color blocks are automatically resequenced to minimize unnecessary color changes.



To create wreaths...

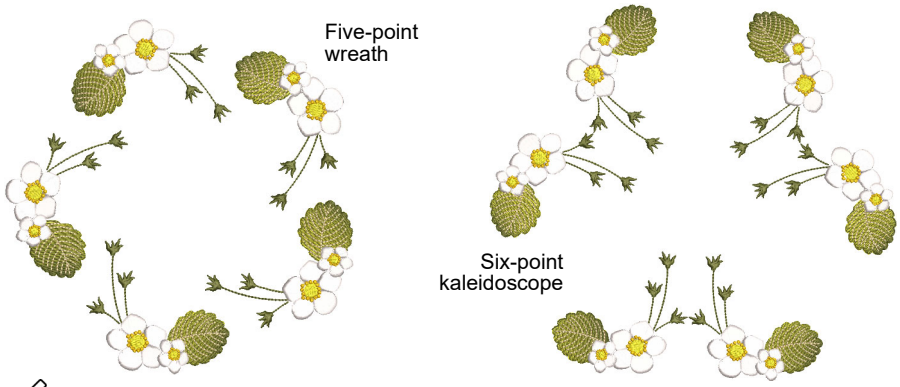
1. Select the object or design.
2. Click the **Wreath** icon. The associated settings are activated.
3. Move the pointer. Optionally, click the **Kaleidoscope** toggle to mirror duplicates.
4. Enter the number of wreath points. Because objects are mirrored, **Kaleidoscope** works best with an even number.



5. Move the pointer to position duplicates. Hold down **Ctrl** to constrain the reference line to 45° increments.
6. For more precise positioning, adjust **Distance** and **Angle** settings. Tab from field to field to enter values. Press **Enter** to confirm.

Note: Distance and angle are measured from the center of the source to the center of the wreath or kaleidoscope.

7 Click to mark the reflection point and press **Enter** to confirm. The selection is duplicated and distributed around the center point.



Note: If the duplicates overlap the original, you are prompted to merge objects.

Creating design arrays

Use Mirror Merge > Array to duplicate designs, such as badges, re-sequencing color blocks for efficient multiple design stitchouts.

Use the **Array** tool to create multiple copies of designs, such as badges, spaced in rows and columns for faster stitchouts. Color blocks are automatically resequenced to minimize unnecessary color changes.

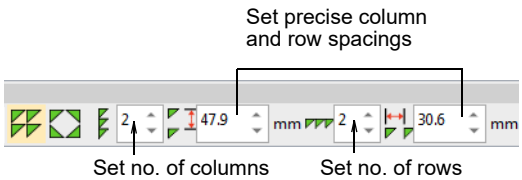
To create design arrays...

1 Select the object or design.

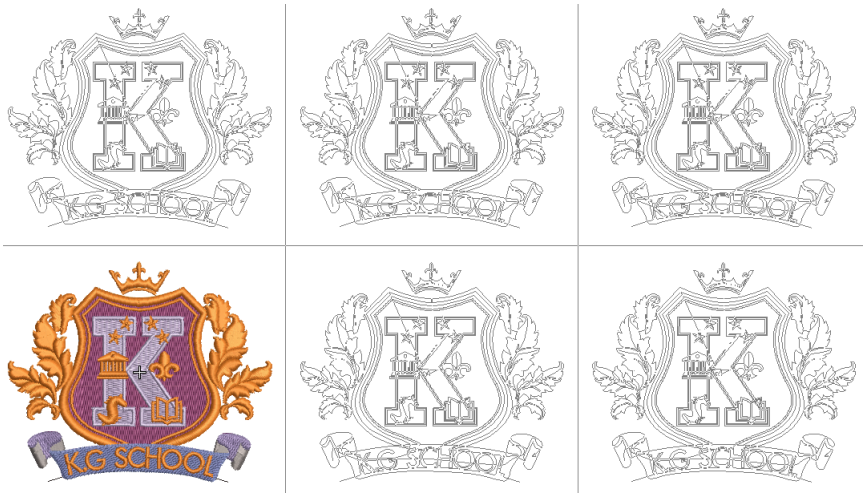
2 Click the **Array** icon. The associated settings are activated.

3 As you move the pointer, duplicate outlines move accordingly. Press **Shift** to disable **Auto-Scroll** while using **Mirror Merge**.

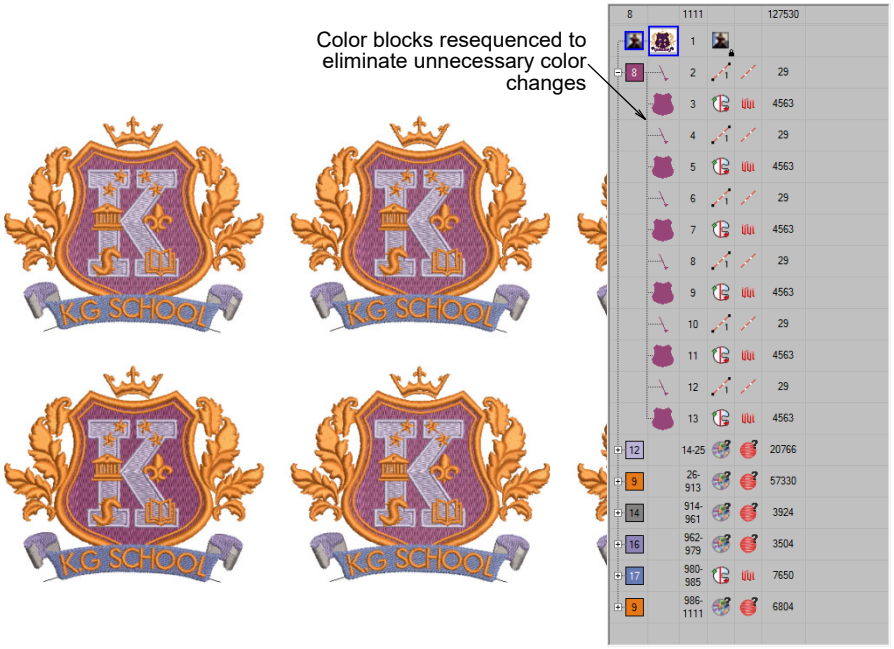
4 Set the number of columns and rows. Tab from field to field to enter values.



5 Move the pointer to position duplicates.



6 Click to mark the anchor point or press **Enter** to confirm.

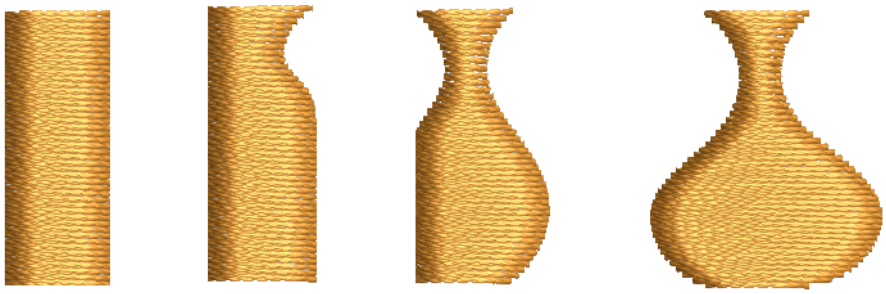


7 Optionally, for more precise positioning, adjust spacing settings. Press **Enter** to confirm.

Chapter 16

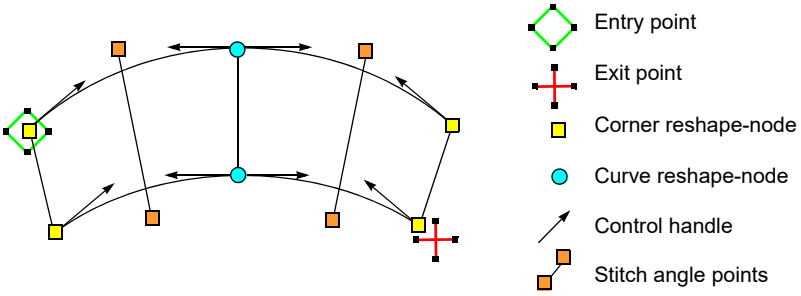
Reshaping & Splitting Objects

BE EmbroideryStudio offers a number of techniques for reshaping embroidery objects, all with the one tool. Sometimes you may need to cut, split or break up complex or compound objects in order to fine-tune them. Various tools are available for this purpose. As well as reshaping object outlines, you can add and adjust stitch angles, a property unique to embroidery objects. You can also change the entry and exit points of individual objects which is important if you are digitizing manually or resequencing embroidery objects.



Reshaping objects

The reference points you mark when digitizing a shape become its 'control points'. Most control points can be added, deleted, or moved. Corner and curve points can be swapped. Some, such as entry and exit points, cannot be deleted.



View control points


Use Reshape > Reshape Object to reshape selected objects, edit stitch angles, and adjust entry/exit points.


Use Reshape Views > Show Reshape Nodes to toggle on/off reshape nodes for selected objects.


Use Reshape Views > Show Bézier Handles to toggle on/off Bézier handles for selected objects.

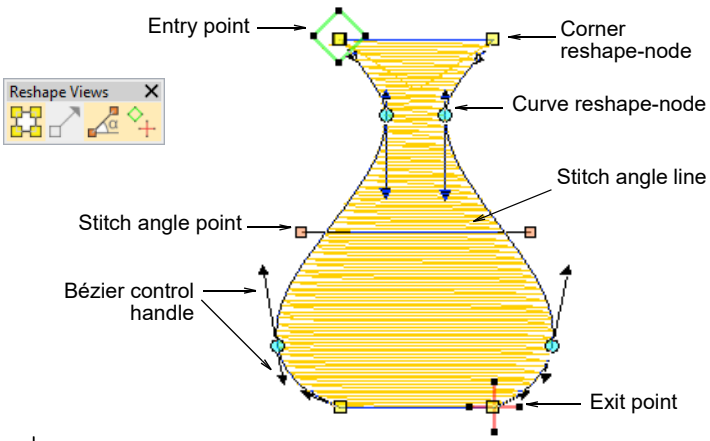

Use Reshape Views > Show Stitch Angles to toggle on/off stitch angles for selected objects.


Use Reshape Views > Show Entry/Exit Points to toggle on/off entry/exit points for selected objects – respectively, green diamond and red cross markers.

The **Reshape Object** tool is important in BE EmbroideryStudio. Use it whenever you want to change object shapes. Use it also to edit stitch angles as well as entry and exit points.

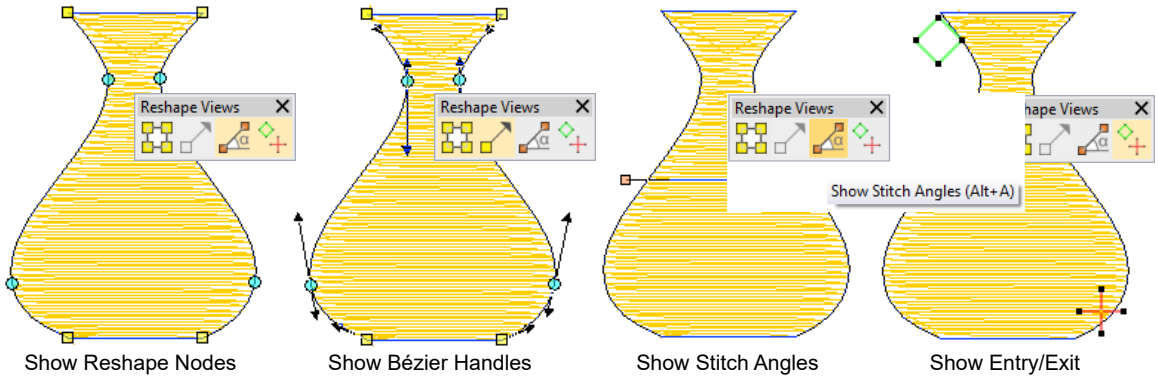
To view control points...

1 Select an object and click **Reshape Object**. Control points appear together with **Reshape Views** toolbar.



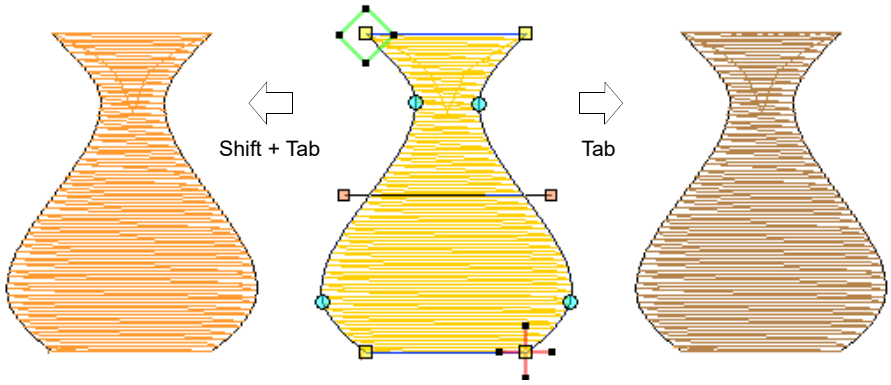

Tip: Most control points can be added, deleted, or moved. Corner and curve points can be swapped. Entry/exit points, however, cannot be deleted.

2 Use the **Reshape Views** toolbar to selectively display control points.



- **Show Reshape Nodes**: Use hotkey combination **Alt+N** to toggle. See Reshape objects with reshape-nodes for details.
- **Show Bézier Handles**: See Reshape objects with Bézier controls for details. See also Reshape options.
- **Show Stitch Angles**: Use hotkey combination **Alt+A** to toggle. See Adjusting stitch angles for details.
- **Show Entry/Exit**: See Adjust entry/exit points for details.

3 To view next or previous objects, press **Tab** or **Shift+Tab** keys. Any changes to objects are confirmed.



Related topics...

- Reshape objects with reshape-nodes
- Reshape objects with Bézier controls
- Reshape options
- Adjusting stitch angles
- Smoothing curves

Reshape objects with reshape-nodes

Use Reshape > Reshape Object to reshape selected objects by means of control points.

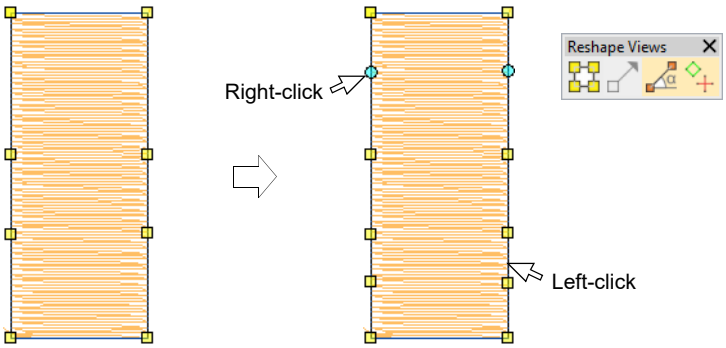
Use Reshape Views > Show Reshape Nodes to toggle reshape-node display when using the Reshape Object tool.

Use View > Show Stitches to toggle embroidery stitching display on or off.

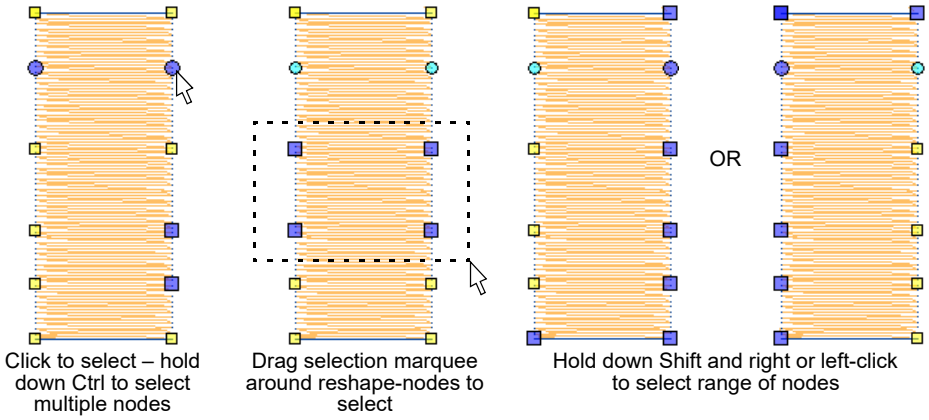
Change object shapes with the **Reshape Object** tool.

To reshape objects with reshape-nodes...

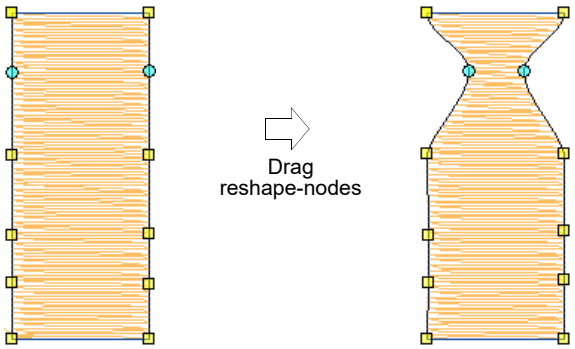
1. Select an object and click **Reshape Object**. Control points appear together with **Reshape Views** toolbar.
2. Toggle on **Show Reshape Nodes** and toggle off other icons.
3. Optionally, press **S** to turn off stitch display and turn back on when you are ready to regenerate stitches.
4. Add nodes as required:
   - Left-click to add a corner node.
   - Right-click to add a curve node.



5. Select reshape-nodes as follows:
   - Click a single node.
   - Click-and-drag a selection marquee around a group of nodes.
   - Use **Ctrl** or **Shift** keys to select multiple nodes. Left-clicking or right-clicking in closed shapes reverses the direction of the selection.

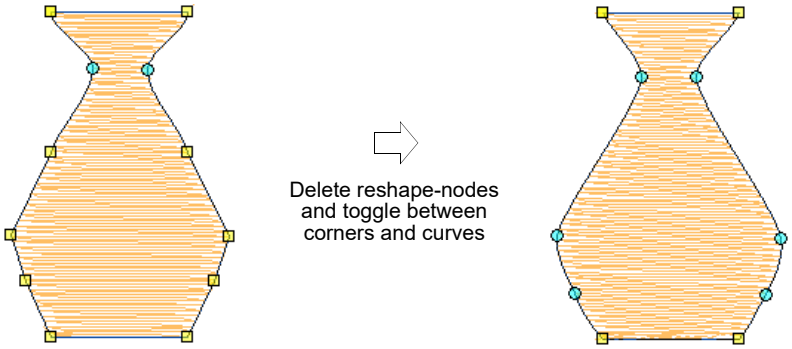


6 Adjust reshape-node position by dragging along the outline.



Usage tips...

- Use the arrow keys to 'nudge' selected nodes.
- Press **Delete** to remove unwanted nodes.



- Press **Spacebar** to toggle between corner and curve nodes.
- Press **Esc** to cancel changes. Press **Esc** again to exit **Reshape** mode.

- You can also adjust stitch angles as well as change entry and exit points.

Related topics...

- Reshape objects with Bézier controls
- Reshape options
- Adjusting stitch angles

Reshape objects with Bézier controls



Use Reshape > Reshape Object to reshape selected objects by means of control points.



Use Reshape Views > Show Reshape Nodes to toggle reshape-node display when using the Reshape Object tool.

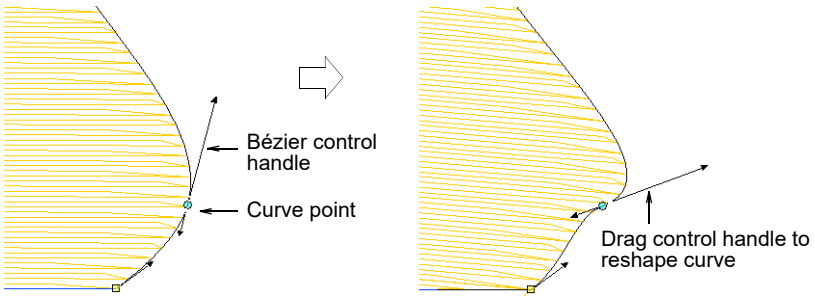


Use Reshape Views > Show Bézier Handles to toggle Bézier control handle display when using the Reshape Object tool.

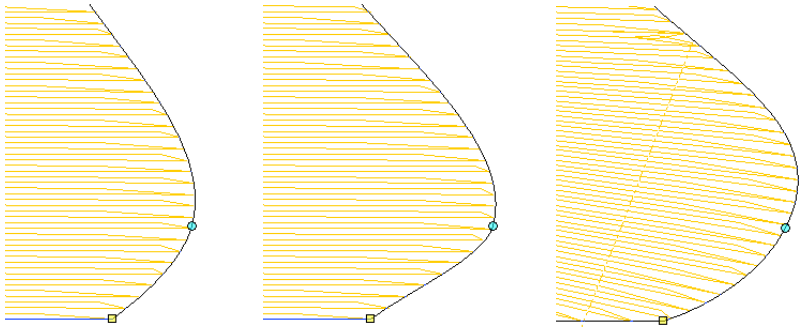
When BE EmbroideryStudio converts a vector graphic, it preserves nodes and control points. CorelDRAW® Graphics Suite uses Bézier curves. In **Wilcom Workspace** you can work with reshape-nodes or Bézier control points.

To reshape objects with Bézier controls...

1. Select an object and click **Reshape Object**. Control points appear together with **Reshape Views** toolbar.
2. Toggle on **Show Reshape Nodes** together with **Show Bézier Handles**.
3. Reshape objects in one of two ways:
   - Drag the control handle to reshape the curve around reshape-nodes.



   - Adjust reshape-node position by dragging along the outline.



Note: Generally, bézier node dragging preserves the shape of the curve more accurately.

4 Release the mouse and/or press **Enter** to finish. Again depending on system settings, stitches are generated as soon as the reshape-nodes are moved or after **Enter** is pressed.

Tip: Press **Spacebar** to toggle between corner and curve reshape-nodes.

Related topics...

- Reshape options

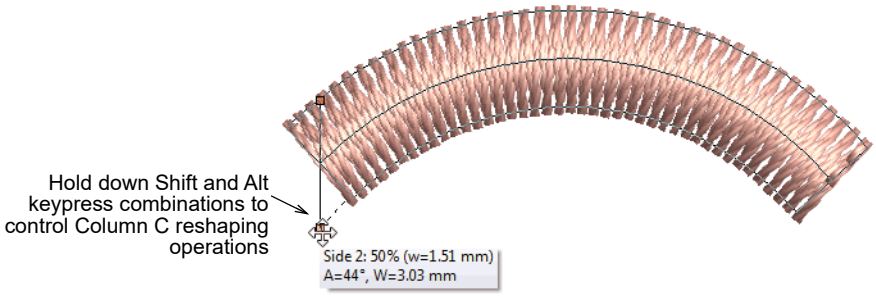
Reshape Column C objects

Use Reshape > Reshape Object to add stitch angles to selected objects.

Reshaping operations for Column C objects are handled a little differently to other embroidery objects.

To reshape Column C objects...

- With the **Reshape** tool activated, drag reshape handles to control object width.



- Hold down **Alt** and drag to adjust offsets.
- Hold down **Shift** and drag to adjust angles.

Related topics...

- Digitizing regular columns
- Set angles & orientation
- Ruler & guide display options

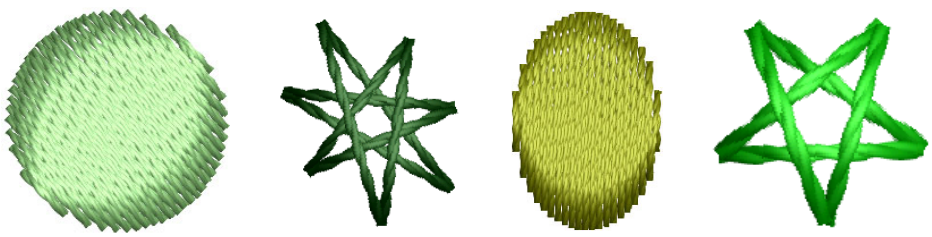
Reshaping stars & rings

For objects created with the **Star** or **Ring** tools, reshape using default control points only.

Reshape star objects

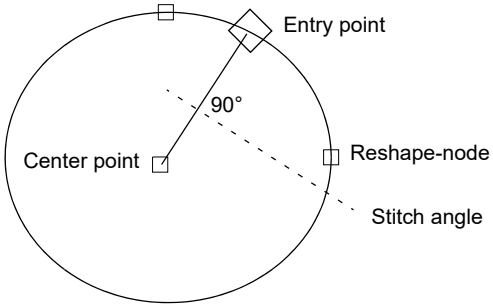
Use Reshape > Reshape Object to reshape circle and star objects.

Change circle/star objects from circles to ovals using the **Reshape Object** tool.

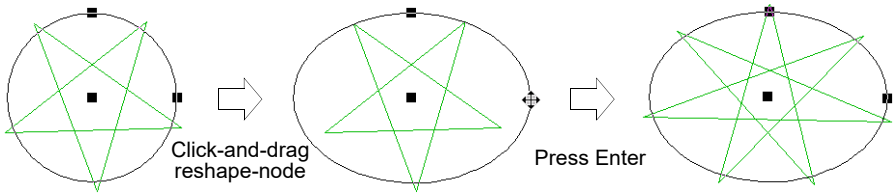


To reshape star objects...

1 Select an object and click **Reshape Object**. Circle/star objects have two reshape-nodes (for radius and orientation), a center point (to reposition), and an entry point.



2 Use reshape nodes to change object radius, orientation, and position.



3 Press **Enter**.

Usage tips...

- Change the stitch angle of circle objects by moving the entry point.
- To scale a circle without changing it to an oval, select it with the **Select** tool, and use selection handles.

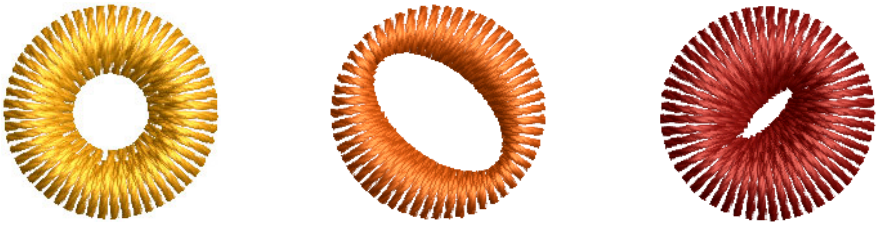
Related topics...

- Digitize stars & rings

Reshape ring objects

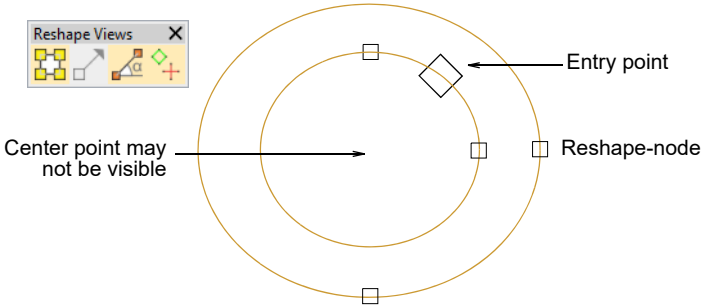
Use Reshape > Reshape Object to reshape ring objects.

You can reshape the inner and outer boundaries of ring objects with the **Reshape Object** tool.

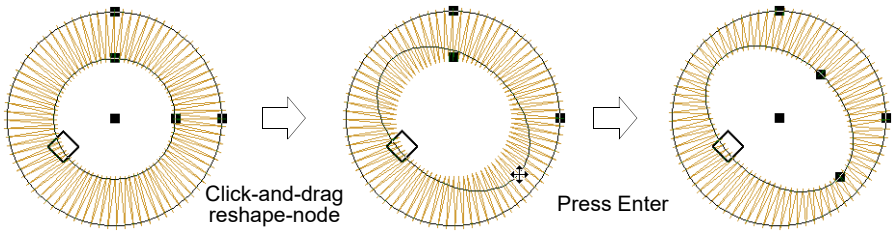


To reshape ring objects...

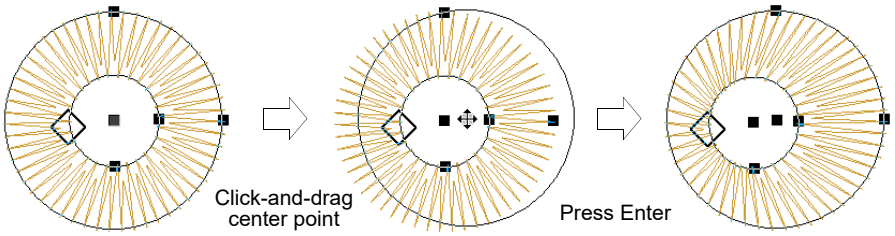
1 Select an object and click **Reshape Object**.



2 Use reshape nodes to change object radius, orientation, and position.



3 Use reshape nodes to offset boundaries. Center points are generally on top of each other to begin with, and may not be visible.



Related topics...

- Digitize stars & rings

Applying envelopes

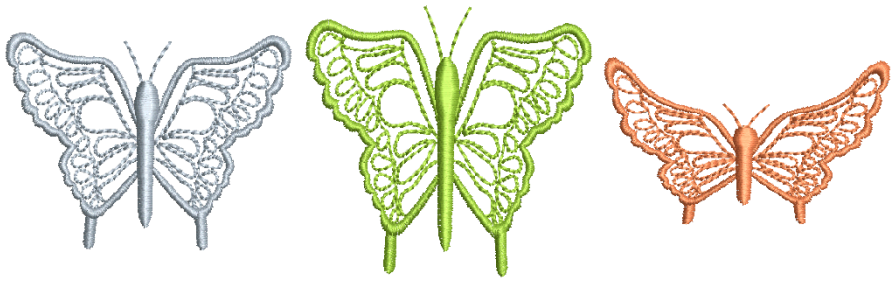
Apply Envelope > Bridge Envelope to make objects bulge or arch.

Apply Envelope > Pennant Envelope to make objects compress.

Apply Envelope > Perspective Envelope to make objects stretch.

Apply Envelope > Diamond Envelope to make objects bulge or compress.

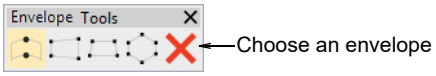
Four types of **Envelope** effect are available – **Bridge**, **Pennant**, **Perspective** and **Diamond**. Envelopes are typically applied to lettering objects, but they can also be applied to other types of embroidery object.



To apply an envelope...

1 Select the lettering object you want to distort. To apply an envelope to several objects, group them first, then apply the envelope.

2 Select **Edit > Envelope**.

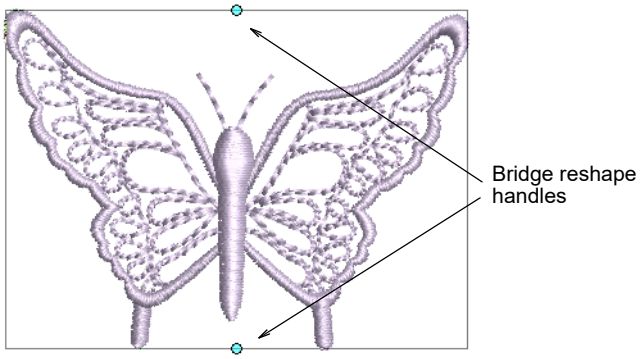


3 Select an envelope type from among the following alternatives:



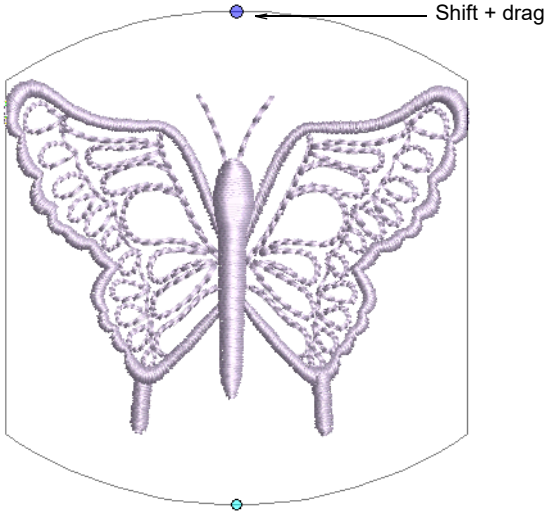
Bridge Pennant Perspective Diamond

Shaping handles display around the envelope outline.

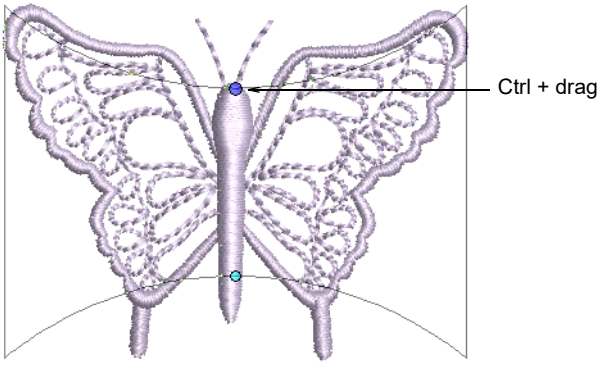


4 Drag handles up or down to shape the object.

- To move two handles in opposite directions, hold the **Shift** key down while dragging.



- To move handles in the same direction, hold down the **Ctrl** key while dragging.



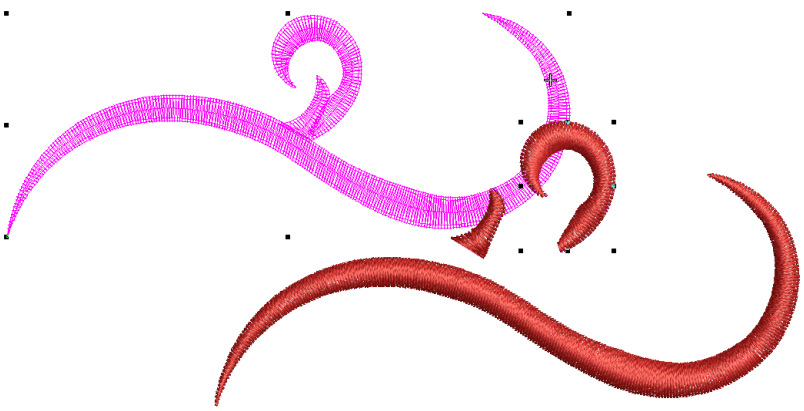
5 Press **Esc** to finish.

Related topics...

- Creating special effects with lettering art

Splitting objects

BE EmbroideryStudio lets you split branched objects – monograms, appliqués, lettering, etc – into their components. You can even split manual objects with **Process Stitches** in order to convert sections to outline objects.



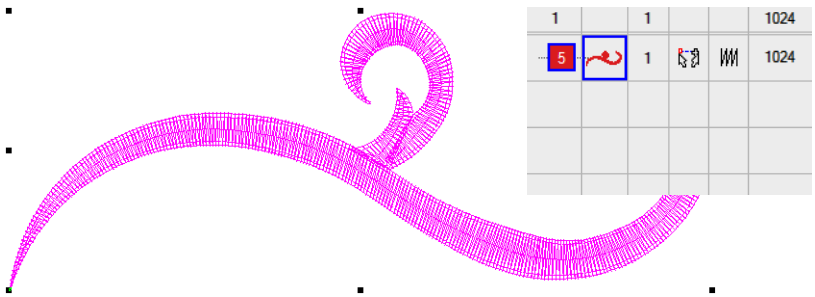
Break apart composite objects

Use Edit > Break Apart to split composite objects – monograms, appliqués, lettering, etc – into component objects. Also available via the Arrange menu.

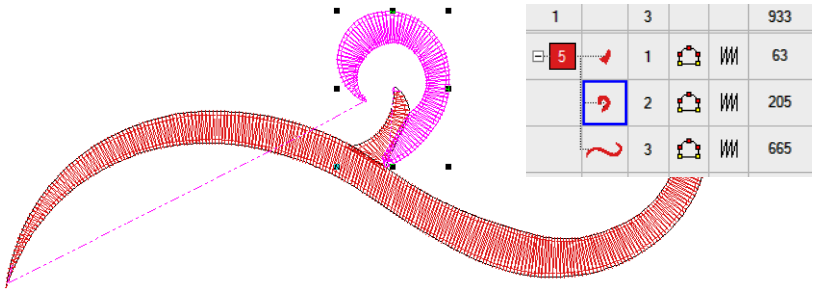
The **Break Apart** tool allows you to break up composite objects – monograms, appliqués, lettering, etc. The effect on these objects is similar to ungrouping.

To break apart a composite object...

1 Select the object you want to break apart – e.g. branched object, appliqué, monogram, lettering, etc.



2 Click the **Break Apart** icon or select **Arrange > Break Apart**. The branched object is split into component objects.



Usage tips...

- To modify component objects – e.g. to change the stitching sequence of monogram borders – use the **Color-Object List** to ungroup and resequence.
- Applying the **Break Apart** function to a lettering object breaks it into a logical stitching sequence while maintaining lettering object characteristics.
- When saved into earlier versions of the software, monograms, appliqués, lettering, and blackwork runs may be subjected to the **Break Apart** procedure by default.

Related topics...

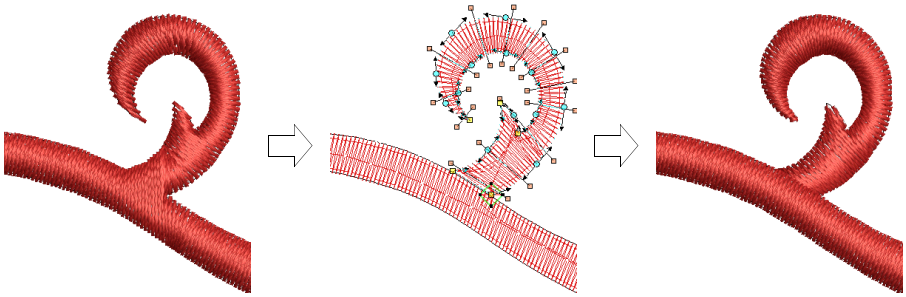
- Splitting objects
- Breaking apart lettering

Cut shapes manually



Use Edit > Knife to cut objects along a digitized line, preserving stitch settings and colors in resulting objects.

The **Knife** tool is used to manually cut filled shapes into smaller fragments. It has the advantage over **Split Object** and **Divide** tools of allowing you to digitize temporary cut lines. Cut objects are generated with stitching – parallel or turning – appropriate to their shape. The tool cuts both filled and 'fillable' vector objects as well as embroidery objects. Run objects can also be cut with the **Knife** tool.

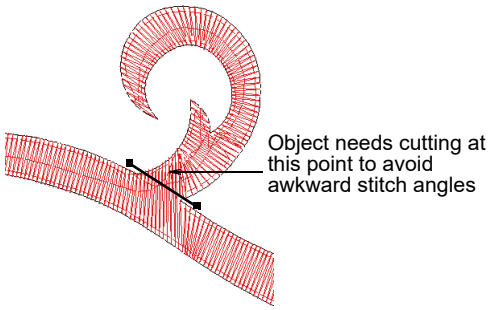


The **Knife** tool has two modes of operation:

- With nothing selected, it will cut **all** objects under the knife.
- With selected objects, it will only cut those within the selection.

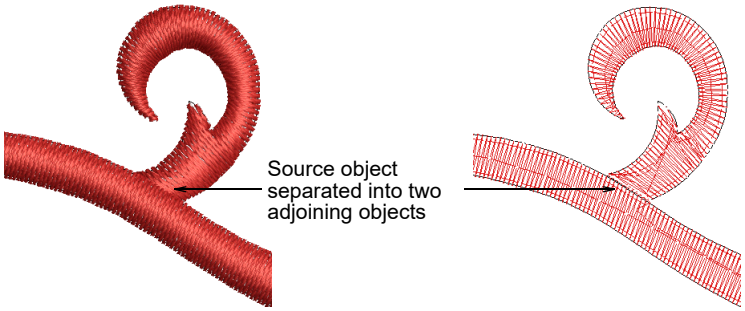
To cut shapes manually...

1 Select one or more suitable objects for cutting.



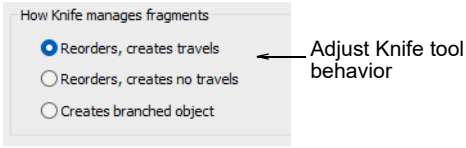
2 Click the **Knife** tool. The cursor changes to a knife icon.

3 Digitize a cutting line – left-click for corner points, right-click for curve points – and press **Enter**.

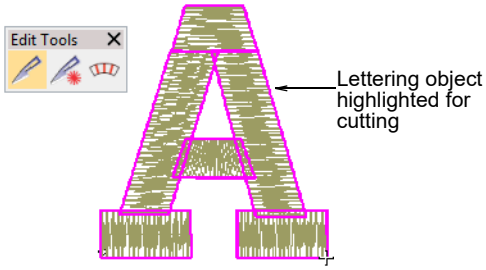


4 Manually adjust object overlaps using the **Reshape Object** tool.

Note: By default BE EmbroideryStudio orders fragments into a closest-join sequence that preserves the source object's entry and exit points. The **Options > Reshape** dialog offers other ways of managing cut fragments.



Note: When you select a lettering object to cut, the object is highlighted with a thick magenta outline. See Converting TrueType fonts to embroidery for details.



Related topics...

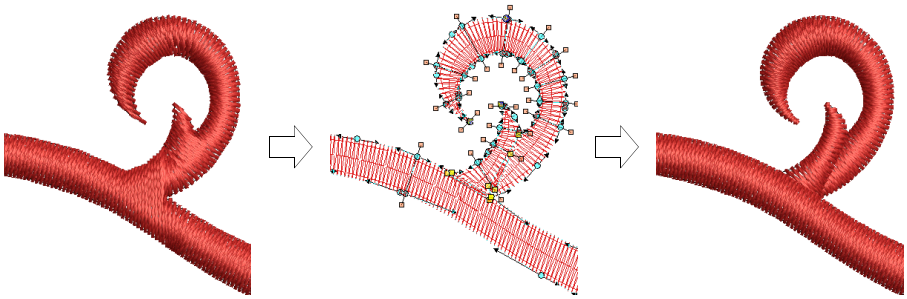
- Split vector & embroidery objects
- Shaping objects
- Reshape options
- Reshape objects with reshape-nodes

Cut shapes automatically



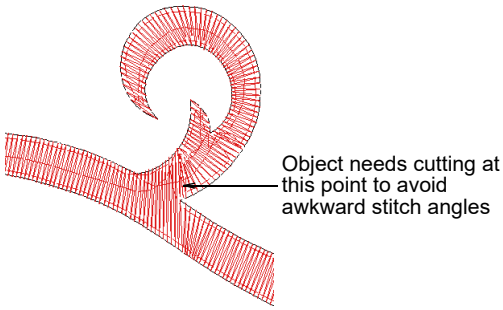
Use Edit > Automatic Knife to automatically slice Complex Fill and Complex Turning embroidery objects into smaller turning stitch and single angle objects with automatic overlaps.

The **Automatic Knife** tool assists semi-automated digitizing of vector artwork. When objects have clean boundaries, BE EmbroideryStudio fragments them automatically and generates good quality stitching in most cases. It also operates on Complex Fill and Complex Turning embroidery objects.



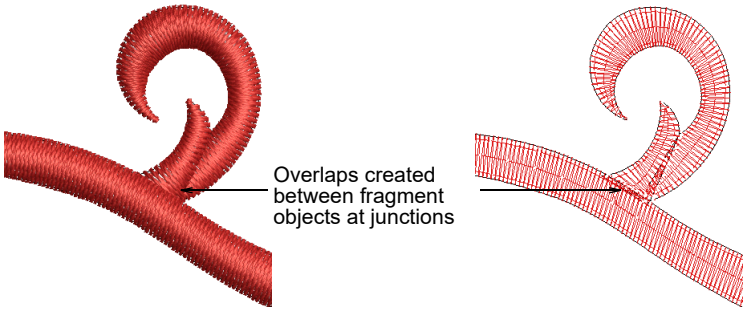
To cut shapes automatically...

1 Select one or more suitable objects for cutting.



2 Click the **Automatic Knife** icon.

BE EmbroideryStudio cuts the selected object automatically, discarding any unwanted fragments.



For each source object, BE EmbroideryStudio:

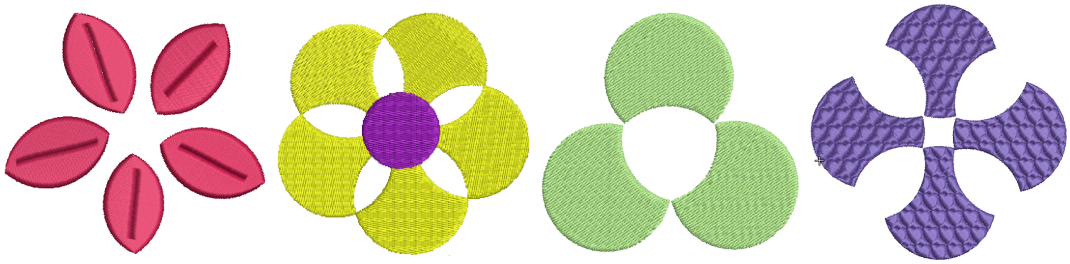
- Creates turning-stitch objects as well as single-angle objects where appropriate.
- Creates overlaps at junctions between objects.
- Branches adjoining objects.

Related topics...

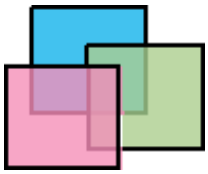
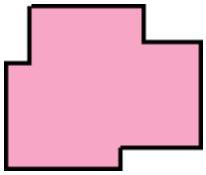
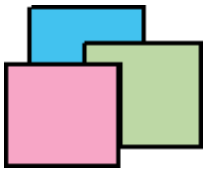
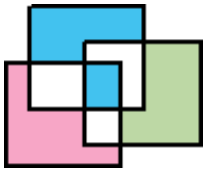
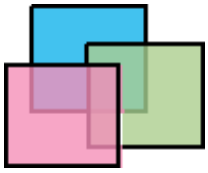
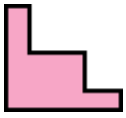
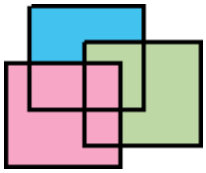
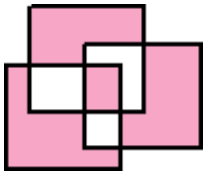
- Automatic branching
- Break apart composite objects

Shaping objects

When working with overlapping vector or embroidery objects, you can merge, trim or split them using the **Shaping** tools. All 'shaped' embroidery objects convert to Complex Fill or Complex Turning. Vector objects remain as vector objects unless combined with embroidery objects. You have the option of preserving source objects. You also have the option of adding overlaps to objects resulting from **Flatten** or **Divide** operations.



Shaping tools summary table

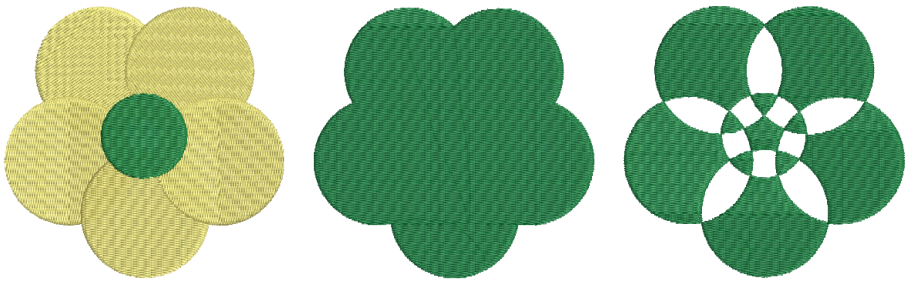
Source	Tool	Result	Description
	Weld		Selected objects are combined into a single object. The resulting object takes the properties – stitch color and type, etc – of the topmost object.
	Flatten		Only areas unique to each selected object are retained. All overlapping areas are removed.
	Intersect		Only areas common to all selected objects are retained. All non-overlapping areas are removed.
	Exclude		Areas where pairs of selected objects overlap are removed, starting from the topmost object.
	Front-Back		The topmost object is retained, but all of the areas overlapping with other selected objects are removed.
	Back-Front		The bottommost object is retained, but all of the areas overlapping with other selected objects are removed.
	Divide		The objects are split wherever overlaps occur and all hidden areas are removed.
	Combine		Areas where pairs of selected objects overlap are removed, starting from the topmost object. All resulting objects share the properties – stitch color and type, etc – of the topmost object.

Merge vector & embroidery objects

Use Shaping > Weld to merge overlapping objects into a single 'flattened' object.

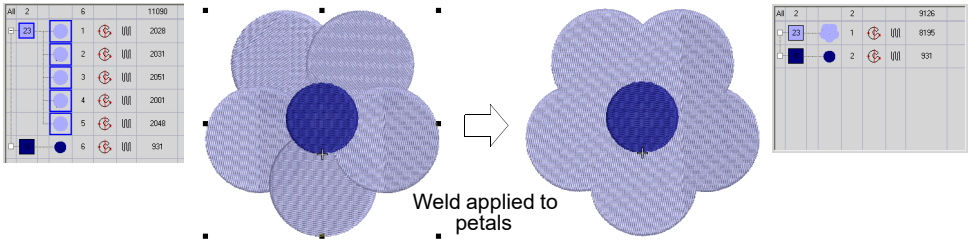
Use Shaping > Combine to merge the properties of overlapping objects and trim overlapping areas.

Merge selected objects using the **Weld** or **Combine** tools.

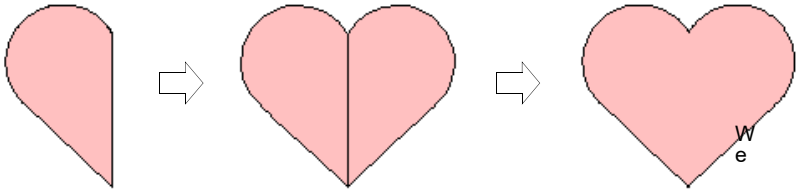


To merge vector and embroidery objects...

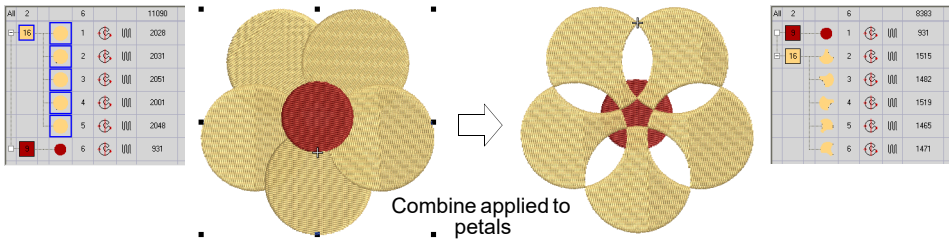
- Select vector or embroidery objects to shape.
- Use **Weld** to merge overlapping objects into a single 'flattened' object.



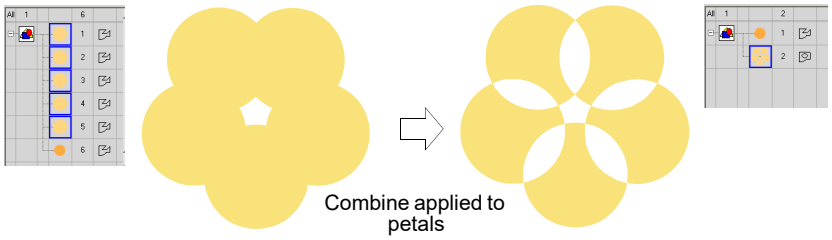
- Make symmetrical shapes by digitizing one half, duplicating and reflecting, then welding the duplicate shapes.



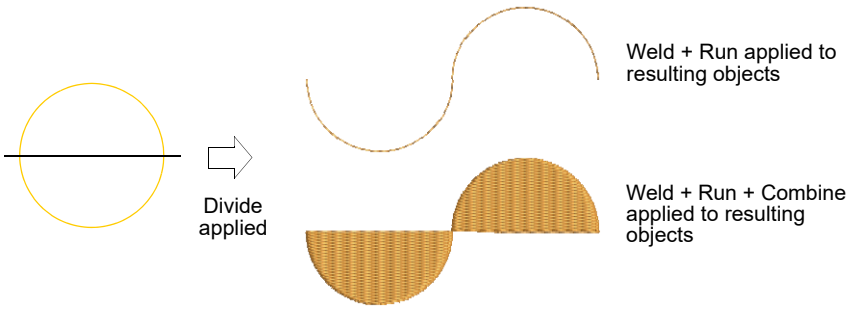
- Use **Combine** to convert embroidery objects into multiple objects sharing the properties – stitch color and type, etc – of the **topmost** object.



- If drawing tools are used as the input method, **Combine** converts vector objects to a single complex shape.



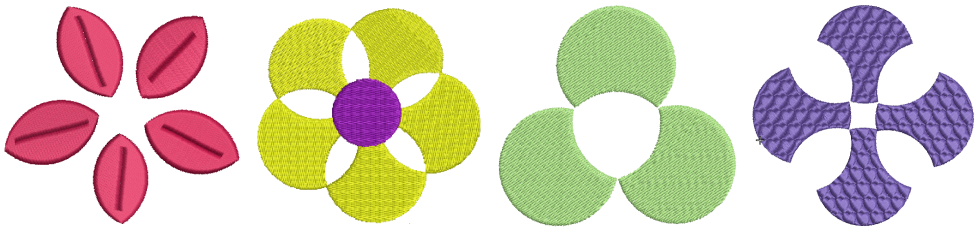
- Cut objects in half by drawing a line through them and applying **Divide**. Apply **Combine** to create closed objects or **Weld** to fuse two objects.



Trim vector & embroidery objects

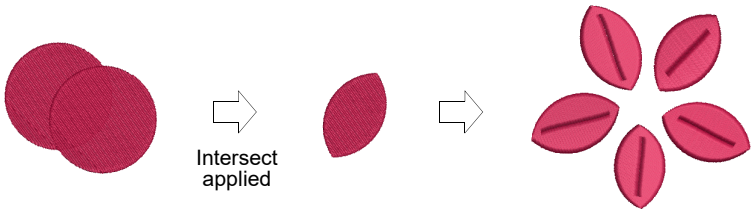
	Use Shaping > Intersect to trim overlapping areas so that only those intersected by all selected objects remain.
	Use Shaping > Exclude to trim overlapping objects and preserve their individual properties.
	Use Shaping > Front-Back to trim overlapping objects so that only non-overlapped areas of the topmost object remain.
	Use Shaping > Back-Front to trim overlapping objects so that only non-overlapped areas of the bottommost object remain.

Trim selected objects using the **Intersect**, **Exclude**, **Front-Back** or **Back-Front** tools.

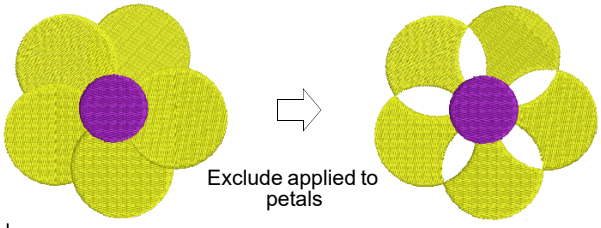


To trim vector and embroidery objects...

- Select vector or embroidery objects to shape.
- Use **Intersect** to trim overlapping areas so that only those intersected by **all** selected objects remain.

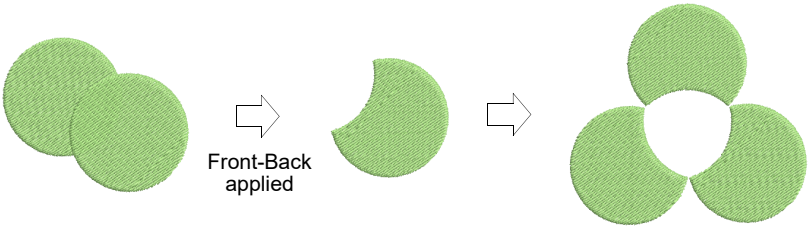


- Use **Exclude** to trim overlapping objects and preserve their individual properties. The result is similar to **Combine** except that object properties are not merged.

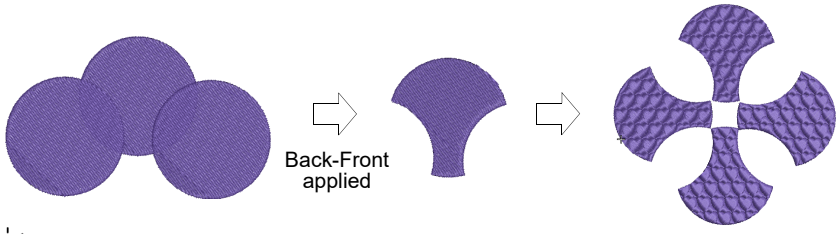


Tip: Use **Exclude** to cut holes in complex fill objects.

- Use **Front-Back** to trim overlapping objects so that only non-overlapped areas of the topmost object remain.



- Use **Back-Front** to trim overlapping objects so that only non-overlapped areas of the bottommost object remain.



Tip: Use the **Remove Overlaps** feature to maintain shapes but remove the underlying layer of stitching.

Related topics...

- Removing underlying stitching

Split vector & embroidery objects



Shaping > Overlap to adjust the overlaps of objects resulting from ...ten or Divide shaping operations.

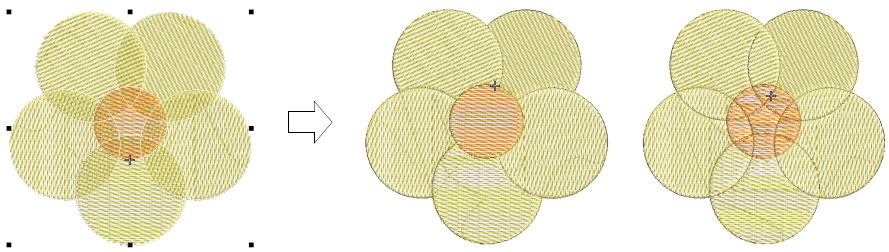


Use Shaping > Flatten to trim all overlaps while retaining the original objects.



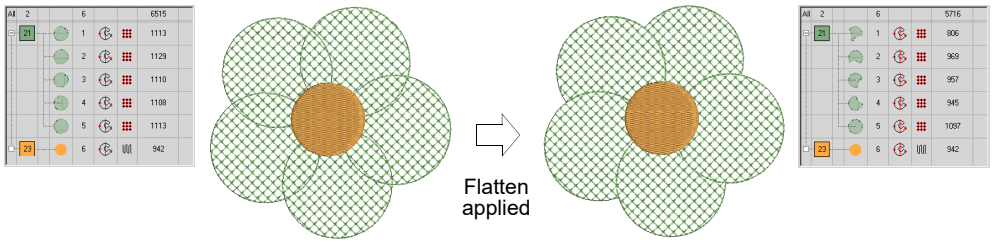
Use Shaping > Divide to split selected objects into separate adjoining objects wherever they intersect with other selected objects.

Split selected objects using the **Flatten** or **Divide** tools. These tools preserve the outlines of the original shapes. The **Overlap** setting allows you to add overlaps to objects resulting from **Flatten** or **Divide** shaping operations.

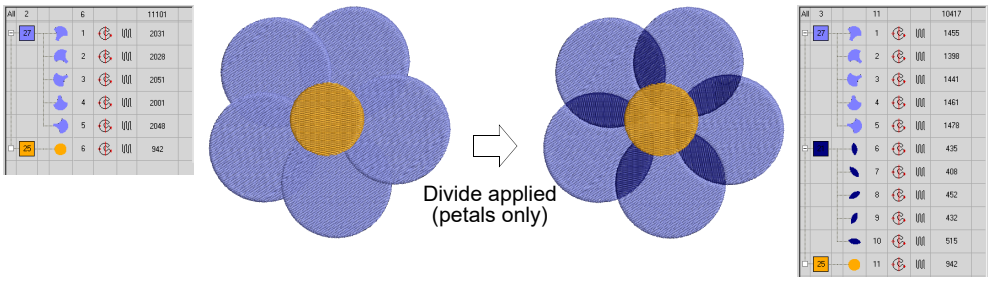


To split vector and embroidery objects...

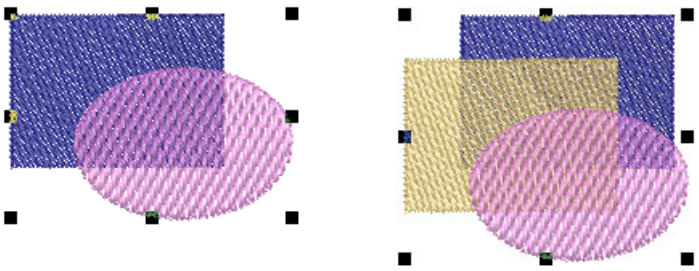
- Select the vector or embroidery objects to shape.
- Click **Flatten** to trim all overlaps while retaining the original objects.



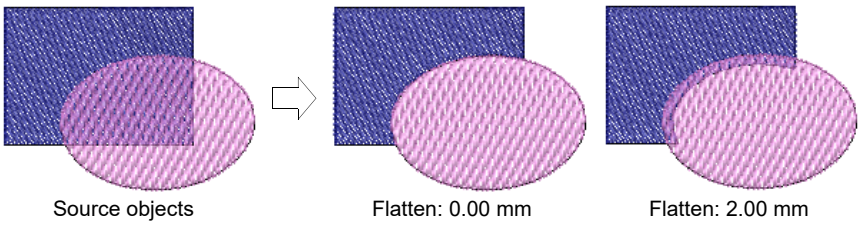
- Click **Divide** to split selected objects into separate adjoining objects. All overlapped areas become discrete objects.



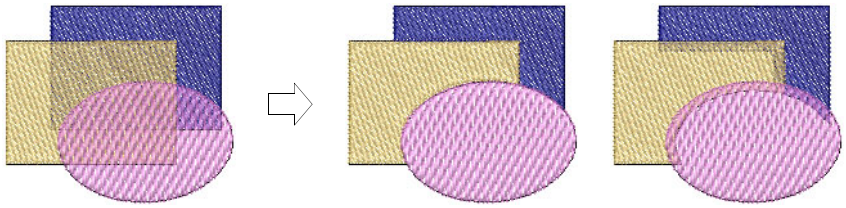
- Use the **Overlap** feature to add overlaps to the objects resulting from **Flatten** or **Divide** shaping operations.



- The **Overlap range** is from 0.00 to 5.00 mm with increments of 0.01 mm. The default overlap is 0.50 mm.



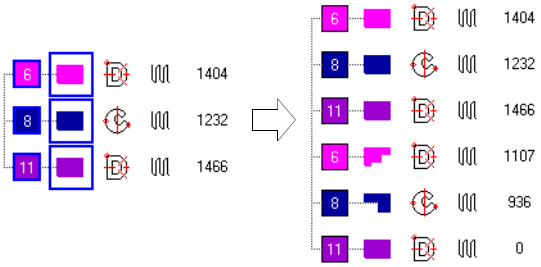
- The border of a third object in the stitching order is extended where it touches the other two layers of objects. And so on.



Preserve original objects

Use Shaping > Keep Original Objects to keep the source objects after shaping.

The **Keep Original Objects** is a toggle which affects the behavior of all the other shaping tools. While it is active, all selected source objects of all shaping operations are preserved. The resultant objects are inserted **after** the last source object in the stitching sequence.



PART V
STITCH QUALITY



BE EmbroideryStudio provides many settings to ensure high quality stitchout on any fabric. For instance, to sew out correctly, an object must have correct stitch spacing, sufficient pull compensation together with a suitable underlay for the combination of cover stitch type, object type, object shape and fabric. **Auto Fabric** provides a set of customized fabric settings so the software will take into account the type of fabric you are stitching on. However, you can override these on an object-by-object basis as necessary. See also Working with fabrics.

Embroidery reinforcement

This section describes how to set and adjust automatic underlays. It covers the use of laydown stitching to flatten the nap of textured fabrics like terry toweling and fur. It also deals compensating for fabric stretch with automatic pull compensation. See Embroidery Reinforcement for details.

Stitch quality

This section describes how to adjust stitch density as well as eliminate small stitches. It also explains controlling corner stitching and reducing stitch bunching. Optimizing long satin stitches is also covered. See Stitch Quality for details.

Embroidery connectors

This section describes how to add connectors, tie-offs and trims to your designs. It also describes adjusting settings for automatic connectors, including the stitch length for travel runs. It also deals with setting automatic start and end points. See Embroidery Connectors for details.

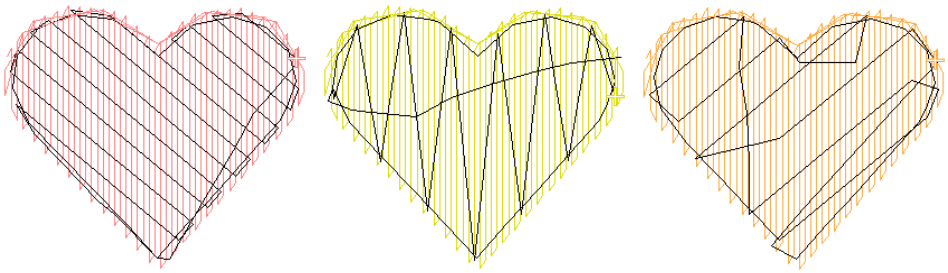
Stitches & machine functions

This section deals with selecting and editing stitches, and converting selected stitches to objects. It also includes instructions for inserting, checking, editing and clearing manually-inserted functions. How to edit stitches and functions using the Stitch List is also covered. It also explains manual digitizing techniques. See Stitches & Machine Functions for details.

Chapter 17

Embroidery Reinforcement

Embroidery stitches pull fabric inward where needles penetrate. This can cause fabric to pucker, stitch bunching, and/or unsightly gaps to appear in the embroidery. BE EmbroideryStudio includes many techniques for achieving smooth, even placement of stitches, and the elimination of gaps in designs.



For an object to sew out correctly, it must have correct stitch spacing, sufficient pull compensation, together with a suitable underlay for the particular combination of cover stitch type, object type, object shape, and fabric.

Note: BE EmbroideryStudio provides a set of optimized fabric settings that take into account the type of fabric you are stitching on. These settings are all object properties, some of which are entirely automated and some which you have control over. See Object Properties for details.

Reinforcing outlines

Sometimes you need to control stitching direction in order to minimize trims, push-pull effect, improve stitching efficiency, and/or reinforce outlines. **Backtrack** and **Repeat** allow you to reinforce outlines while specifying stitching direction. The **Reverse Curves** command allows you to reverse stitching direction without duplication.

Backtrack & repeat

Use Traditional Digitizing > Backtrack to reinforce an outline, stitching it in the reverse direction to the original.

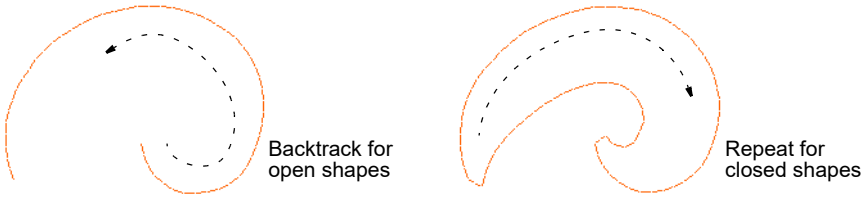
Use Traditional Digitizing > Repeat to duplicate an outline in the same direction – typically used with closed shapes.

Use **Backtrack** and **Repeat** to reinforce outlines while specifying the direction of the stitching.

- **Backtrack** is typically used with open shapes and stitches in reverse direction to the original. It makes outlines thicker without creating unwanted connecting stitches.
- **Repeat** is typically used with closed shapes and duplicates the original stitch direction. If you use it with open shapes, a connecting stitch is inserted from the end to the start of the object. This will require trimming.

To reinforce outlines...

1. Select the object (or objects) to reinforce. Both tools are enabled when any of the outline stitch types are selected.
2. Choose the best tool for the task, depending on whether you have chosen an open or closed object. Generally:



3. Check that the object has been duplicated by the following means:
   - Check the stitch count in the **Status Bar**.
   - Use **Stitch Player** or travel through the stitches.

Note: If you use **Repeat** for open shapes, a connecting stitch is inserted from the end to the start of the next object which will require trimming.

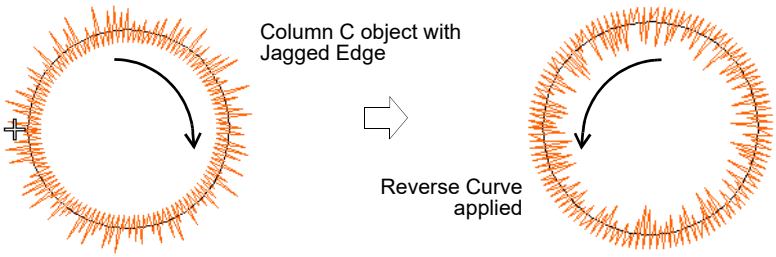
Related topics...

- Simulate design stitchouts
- Viewing stitching sequence

Reverse curves

Use Edit > Reverse > Reverse Curves to reverse stitch direction in vector or closed embroidery objects.

Stitching direction can affect embroidery quality because of the push-pull effect. The **Reverse Curves** command lets you control the push-pull effect by reversing stitch direction. It can be applied to open as well as closed outline objects. To reverse stitch direction, select an object and apply **Edit > Reverse Curves**. The command is also available from the popup (right-click) menu.



Reverse Curves can be applied to Run, E Stitch, Column C, Motif Run, and Sequin Run. It can also affect the stitching direction of Jagged Edge, Contour Stitch, Tatami offsets, and Flexi Split patterns.

Tip: Vector objects too can be reversed. The effect on vector objects is only visible when they are converted to embroidery.

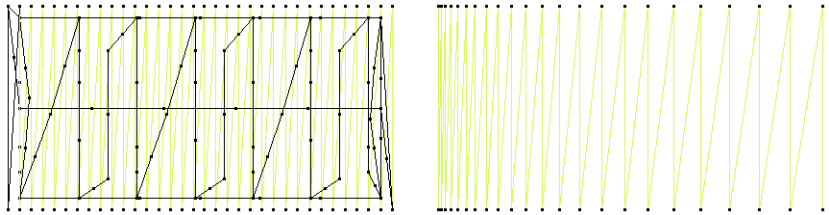
Stabilizing with underlays

Embroidery appearance and quality depends a lot on underlay which serves as a foundation for the cover stitching. Without an underlay, embroidery lies flat on the underlying fabric which can often show through. New digitizers might be tempted to increase stitch density but it is much more effective to apply an automatic underlay. Although it increases the stitch count, underlay helps to stabilize fabrics and reduce puckering and pulling especially on larger designs. It also provides 'loft', raising cover stitches and preventing them from sinking into soft fabrics. It can also prepare a napped fabric by flattening it.

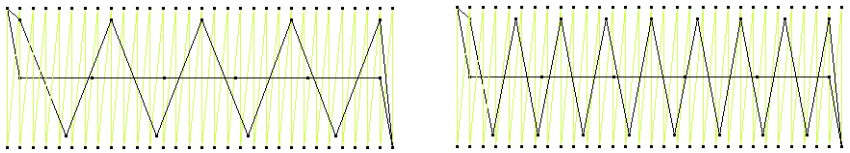
Automatic underlays

Use Stitch Effects > Auto Underlay to strengthen and stabilize embroidery designs with automatic underlays. Right-click for settings.

The **Auto Underlay** tool is a toggle that allows you to apply automatic underlay to new or selected objects. Underlay is selected by default. Use the toggle to turn it off as needed. For instance, when applying an effect, such as **Gradient Fill**, you will probably want to turn off underlay altogether.



When turned on, default underlay settings adjust to suit the selected stitch type and object shape. Underlay stitching provides similar settings to cover stitch except that default stitch spacing is much wider.

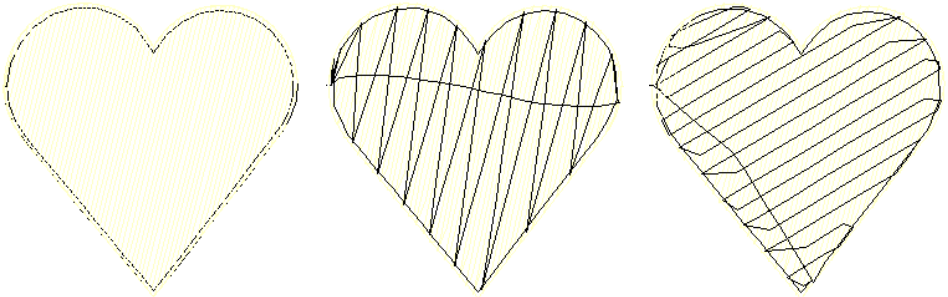


Stitch spacing: 3.0 mm

Stitch spacing: 1.5 mm

Underlay types

Different underlays suit different shapes and different fabrics. Larger areas and stretchy fabrics such as knits and pique generally need more underlay than smaller areas and firm fabrics such as drill or leather. Smaller objects may use a single layer of underlay. Larger objects may combine two layers.



Underlay settings are stored with each object the same way as other object properties. They are regenerated whenever the object is scaled or transformed. They are stored separately from, and do not affect, cover stitch settings.

Default underlay values

Default underlay values are derived from three possible sources:

- When **Auto Fabric** is turned on, a default underlay is applied, based on current fabric settings.
- When **Auto Fabric** is turned off and the 'use preset styles' option is turned on, style definitions are used. See Digitizing presets for details.
- When **Auto Fabric** is turned off and the 'use preset styles' option is turned off, template values are used. See Working with templates for details.

Related topics...

- Digitizing presets
- Working with fabrics
- Working with object properties
- Setting lettering underlay

Apply automatic underlay

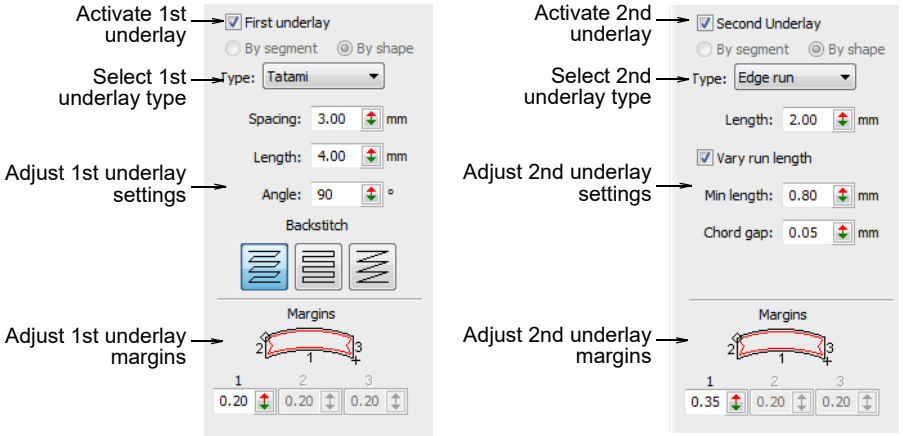


Use Stitch Effects > Auto Underlay to strengthen and stabilize embroidery designs with automatic underlays. Right-click for settings.

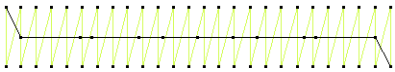
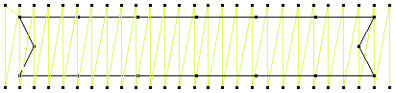
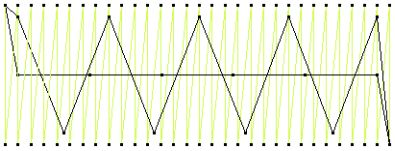
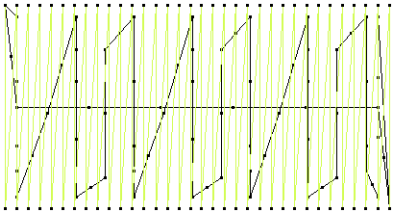
BE EmbroideryStudio provides a wide selection of underlay types to choose from. Use a single layer of underlay, or for more support, combine two underlay types. The underlay you choose is determined by the shape and size of object, fabric type, and purpose it is to serve.
BE EmbroideryStudio lets you set values to suit different fabrics, lettering appearance and size.

To apply automatic underlay...

1 Toggle underlays on/off with the **Auto Underlay** button.
   - Without objects selected, right-click the **Auto Underlay** icon to change current settings.
   - With objects selected, right-click the **Auto Underlay** icon to change settings for those objects.



2 If not already checked, tick the relevant underlay checkbox – first and/or second – and make a selection from the droplist. This allows you to apply dual underlays to design objects. A typical combination might be **Edge Run** with **Tatami** or **Zigzag** for larger objects. As a rule of thumb...

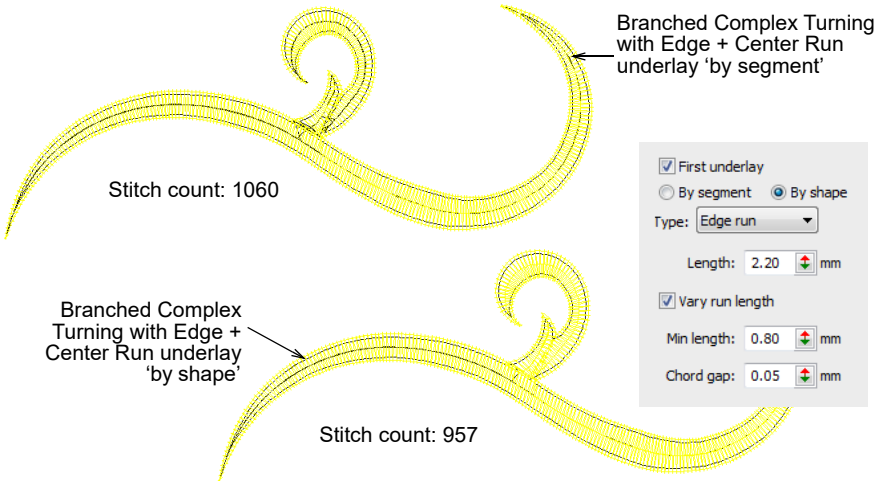
Underlay type		Purpose
Center Run underlay		Use to stabilize narrow columns – e.g. 2-3mm wide.
Edge Run underlay		Use to stabilize somewhat larger shapes such as letters.
Zigzag underlay		Use zigzag underlay stitching to support wide columns. You can set stitch length properties for zigzag underlay. The stitch length is the length of each zigzag stitch.
Tatami underlay		Tatami underlay is used to stabilize large, filled shapes. It resembles an extremely open tatami fill stitch, where rows of stitches are placed across the object to create the support.

Related topics...

- Working with fabrics
- Working with object properties

Underlay by segment or by shape

Free shapes generally stitch out in several segments, joined by travel runs. However, all segments and boundaries are part of the same object. Except for lettering objects, underlay is normally applied segment-by-segment before any cover stitches are sewn.



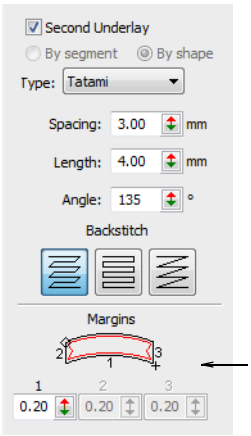
'By shape' underlay is applied to lettering objects by default. However, it can also be applied to objects such as Complex Turning as well as branched objects. This has the effect of calculating an underlay for the whole shape rather than each segment. This in turn reduces bunching, travel runs, and overall stitch count. Depending on the size of object, however, registration issues may come into play.

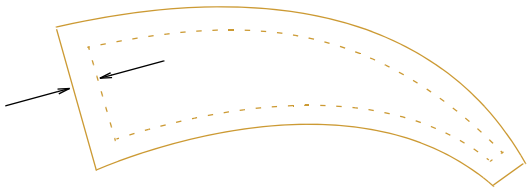
Underlay margins



Right-click Stitch Effects > Auto Underlay to adjust underlay margins.

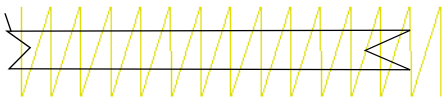
The underlay margin is the distance between an object outline and the edge of the underlay. Increase this margin to prevent underlay stitches from extending outside the cover stitches.



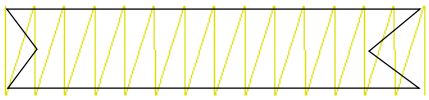


Adjust margins to prevent underlay stitches from extending too far

- For Column A, Column B, Column C and Lettering objects, enter margins in the **1:**, **2:** and **3:** fields, using the diagram as a guide.
- For Complex Fill objects, enter a margin in the **1:** field only. Values in the other fields will be ignored.

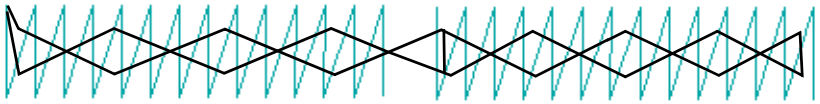


Mgn 1: 0.8 mm, Mgn 2: 0.2 mm, Mgn 3: 0.4 mm



All margins: 0.1 mm

- If you are joining two columns, use a negative value at the joining end. The underlay will extend outside the cover stitching, allowing for smooth joining of the columns.

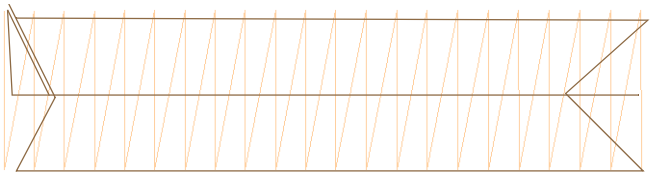


Two columns joined

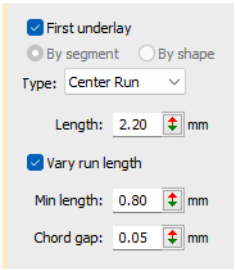
Run stitch underlay settings

Right-click Stitch Effects > Auto Underlay to adjust Center Run and Edge Run underlay settings.

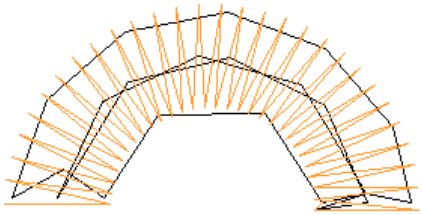
Center Run places a row of stitches along the center of a column. It is used to stabilize narrow columns – e.g. 2-3 mm wide. **Edge Run** places stitches around the edge of an object. Use Edge Run together with the zigzag or tatami underlays when digitizing large shapes.



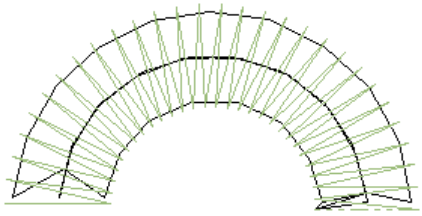
Center Run and Edge Run underlays used together



- Enter a stitch length for each underlay type. The samples below show the difference between fixed and variable run lengths.



Edge Run and Center Run underlay with 2.5 mm stitch length



Edge Run and Center Run underlay with variable run length

- Adjust stitch length to ensure underlay stitches follow curves and are not visible in the final embroidery.

Option	Function
Length	Sets the maximum length of each stitch.
Vary run length	If enabled, specify minimum stitch length and chord gap values. The chord gap is the distance between digitized curve and underlay stitch. This determines how closely stitches follow digitized lines.

Related topics...

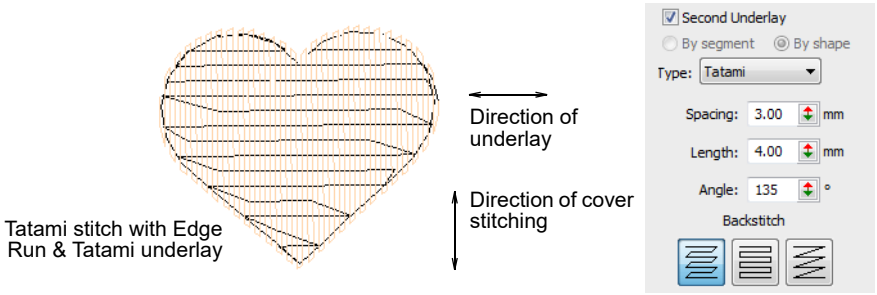
- Adjust column width

Tatami underlay settings

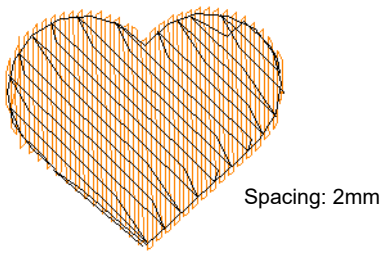


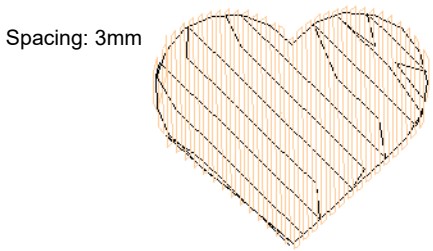
Right-click Stitch Effects > Auto Underlay to adjust tatami underlay settings.

Tatami underlay is used to stabilize large, filled shapes. It resembles an extremely open tatami fill stitch, where rows of stitches are placed across the object to create the underlay. **Tatami** underlay is often used together with **Edge Run**, especially for Complex Fill objects under tatami cover stitching.

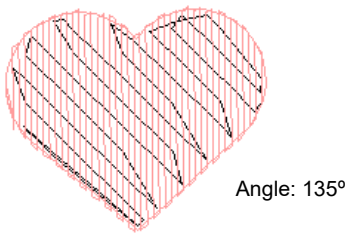


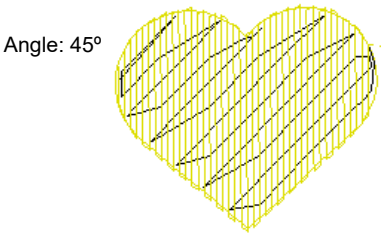
- Adjust stitch spacing and length settings for tatami underlay in the same way as for tatami fill stitches.



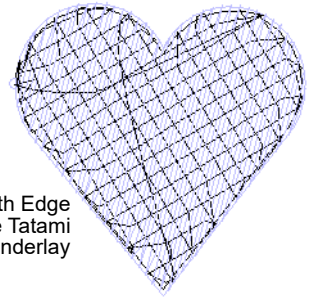


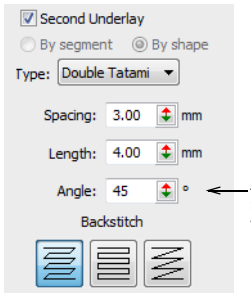
- Select the backstitch type you require and, for Complex Fill objects, set the stitch angle of the underlay stitches. Underlay stitch angle should run counter to cover stitching.





- For extra support with very soft or elastic fabrics, try using **Double Tatami** in combination with **Edge Run**. Adjust stitch angle so that **Double Tatami** provides symmetrical slanting in forward and backward directions. This should result in a 'cross-hatch' effect. In addition, it can give a raised surface similar to 'puff embroidery'.





Tip: Increase the margin as necessary to prevent underlay stitches from extending outside the cover stitches.

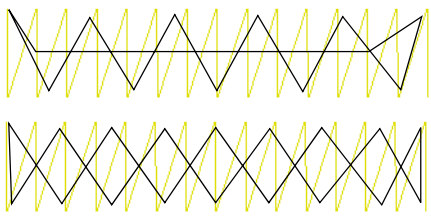
Related topics...

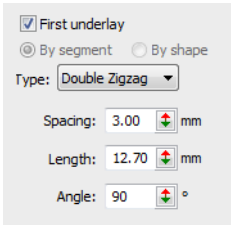
- Tatami density
- Other tatami settings
- Object property apply options
- Underlay margins

Zigzag underlay settings

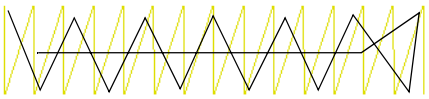
Right-click Stitch Effects > Auto Underlay to adjust Zigzag and Double Zigzag underlay settings.

Use **Zigzag** and **Double Zigzag** underlay stitching to support wide columns. You can combine Zigzag or Double Zigzag with Center Run or Edge Run underlays. These underlays are best used under Satin cover stitching.

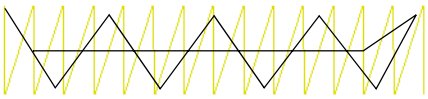




Adjust the required spacing and length for each underlay type.

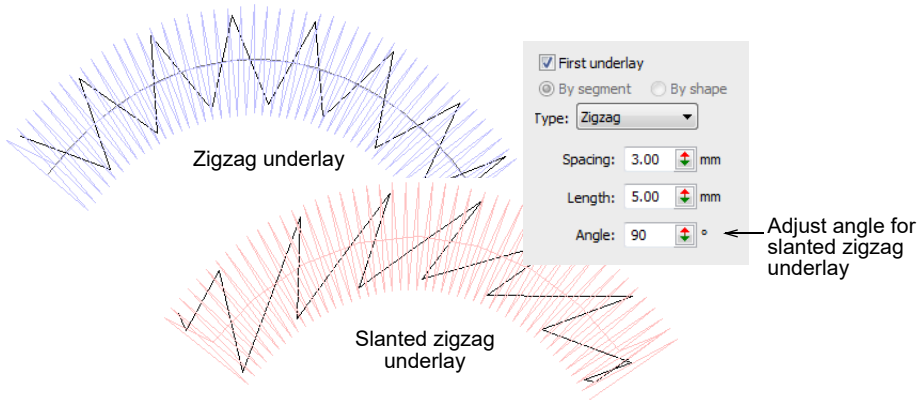


Spacing: 3.0 mm

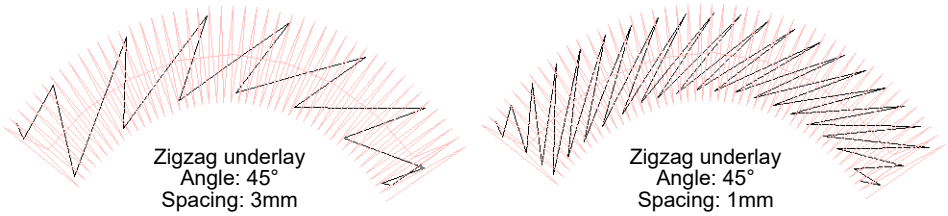


Spacing: 4.0 mm

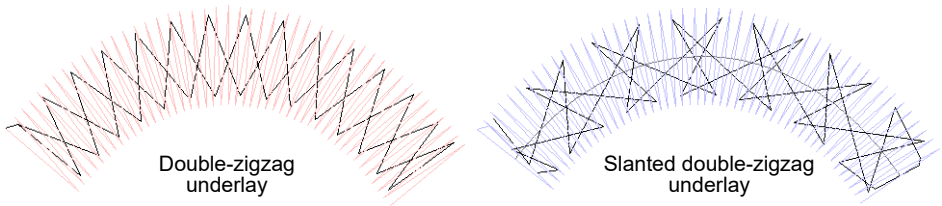
BE EmbroideryStudio allows you to slant **Zigzag** underlay to create what is sometimes called 'stemstitch underlay'. This can be applied to Column A, B, C, and lettering objects.



Normal zigzag underlay runs in a similar direction to satin cover stitching causing it to 'sink'. **Double Zigzag** provides symmetrical slanting in forward and backward directions resulting in a 'cross-hatch' effect. This may provide more support than single zigzag. In addition, it can give a raised effect similar to 'puff embroidery'.



Double Zigzag too can be slanted to create even more loft.



Caution: When using very small angles for slanted underlays, they can extend outside object boundaries.

Related topics...

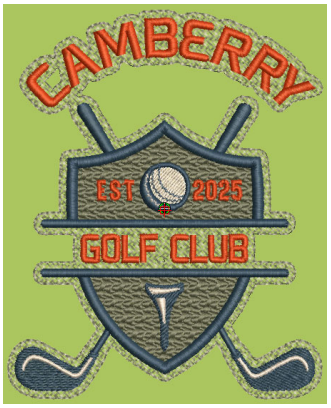
- Adjust column width
- Underlay margins

- Setting lettering underlay
- Open stitching

Laydown stitch

The **Laydown Stitch** feature automatically generates a light fill to flatten the nap of textured fabrics like terry toweling and fur so that embroidery is not lost in the nap. An example would be the creation of a monogrammed terry toweling bath robe.





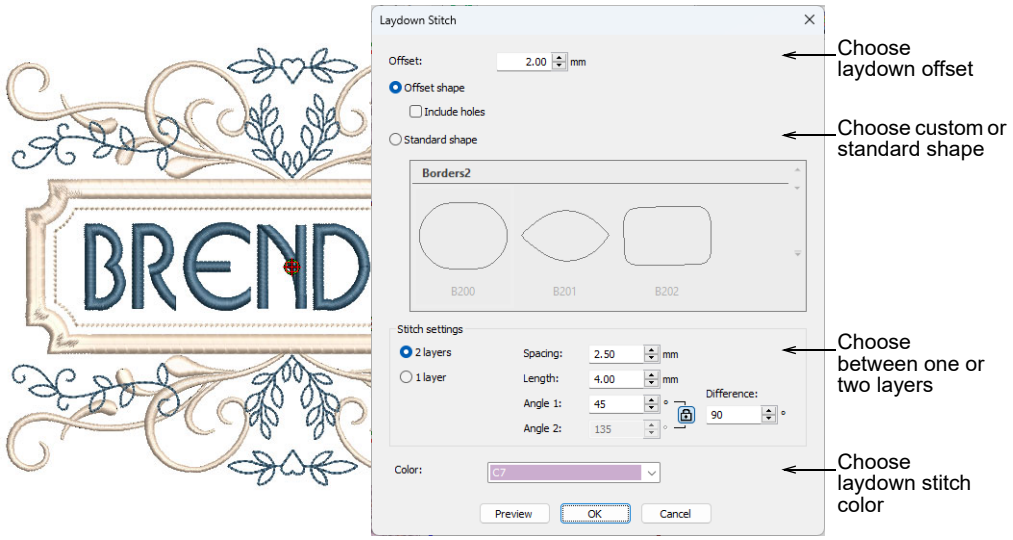
Generate laydown fills

Use Toolbox > Laydown Stitch to generate a light fill to flatten the nap of textured fabrics like terry toweling for subsequent embroidery.

The **Laydown Stitch** tool automatically generates a light fill to flatten the nap of textured fabrics like terry toweling and fur so that embroidery is not lost. The tool includes a dedicated stitch type that can have one (1) or two (2) layers with adjustable stitch spacing, length and angle.

To create a laydown fill...

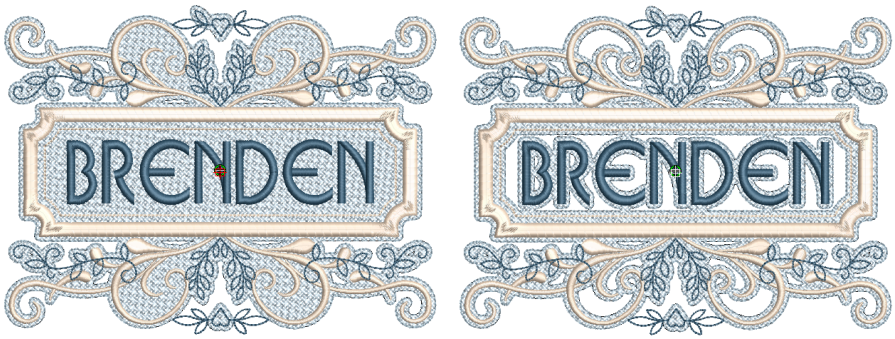
1 If you intend to create a laydown fill for an entire design, simply click the **Laydown Stitch** icon. Alternatively, select a specific object or objects first.



2 Choose a laydown offset – e.g. 2mm. This allows a margin between selected object/s and layout boundary.

3 Choose a laydown style:

- If **Offset shape** is selected, a laydown fill will be generated conforming to the boundary of the design or selected object/s. Optionally, include holes if you want the nap to show through the non-embroidered sections.



Holes excluded | Holes included

- If **Standard shape** is selected, choose one from the border gallery.

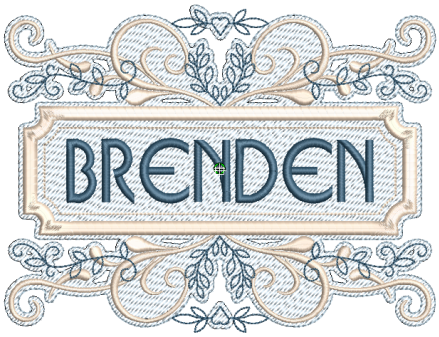


Note: When using **Standard Shapes**, some irregular shapes may cause a larger offset than expected. Once created, you can select and resize the shape to the desired size.

4 Choose the number of layers you want to include in the laydown fill. This will depend on the density of the fabric nap.



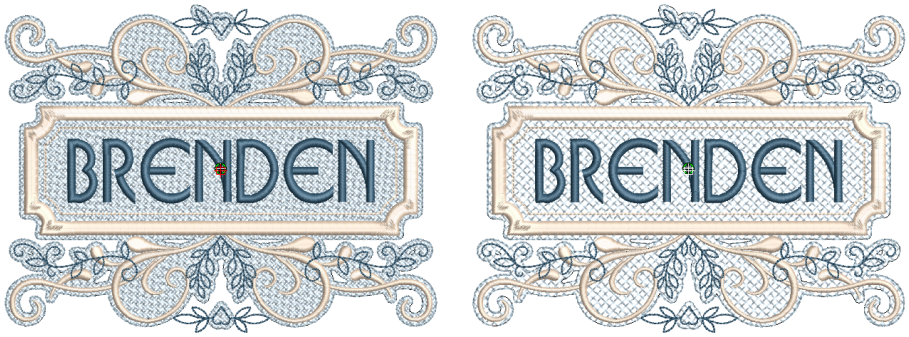
Two layers



One layer

Tip: Click **Preview** to generate the fill without closing. Move the dialog as necessary. Persist until you are happy with the result.

5 Adjust the spacing and length settings for a more or a less dense fill. This again will depend on nap density.



More dense fill | Less dense fill

Note: If **2 layers** is selected, the second layer will take the same stitch settings as the first but the stitch angle will be determined by **Angle 2**.

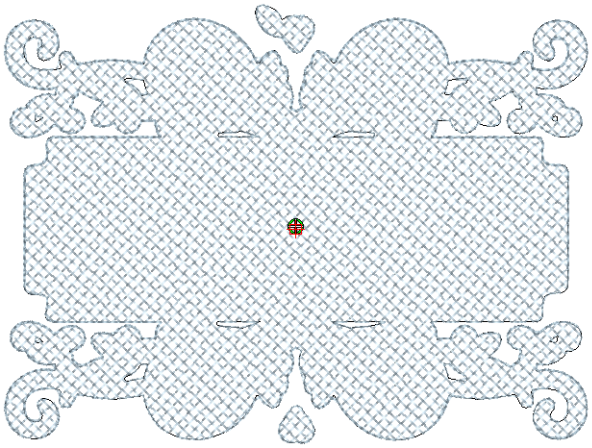
6 Optionally, adjust opposing angle settings if using two layers of stitching. The default is 90° (perpendicular).

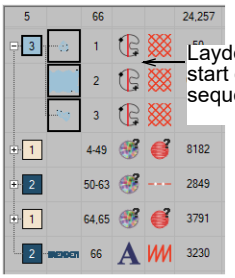


Tip: Laydown stitch angles can be adjusted at any time via the **Object Properties > Fill** tab. The **Stitch Angle** setting under the **Stitching** tab has no effect on laydown stitching.

7 Choose a laydown stitch thread from the **Color** droplist. Generally, you will want your laydown fill to blend with the intended fabric. Alternatively, if you choose a standard border shape for instance, you may want to highlight the shape in a contrasting color.

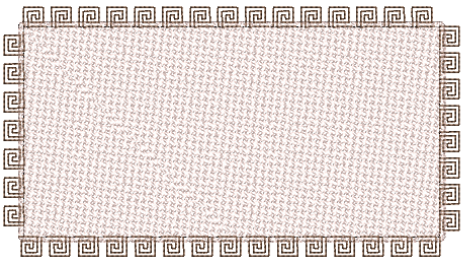
8 Click **OK** to confirm and regenerate. The resultant laydown object is placed at the start of the stitching sequence.



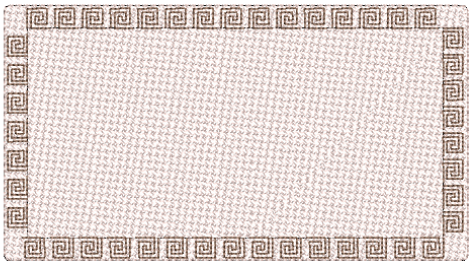


Usage tips...

- **Laydown Stitch** ignores motif shapes when generating stitching for motif outlines or borders of monogramming objects. Instead, stitching is generated based on the object outline. You may need to manually resize to obtain the result you want.

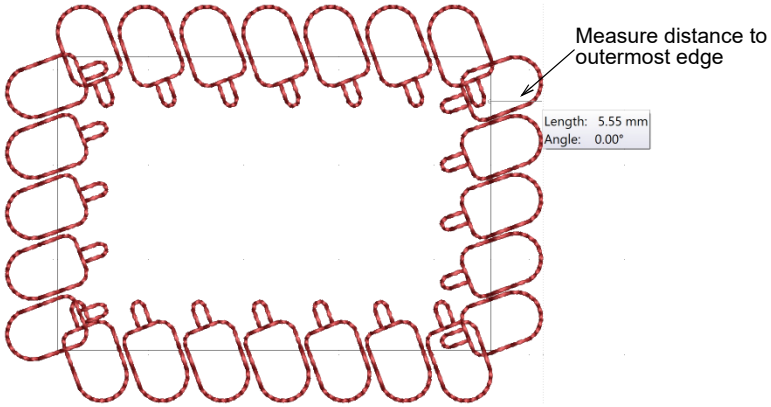


Laydown fill generated within object outline

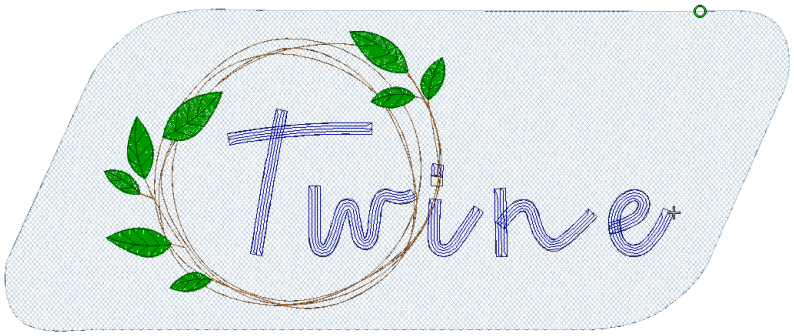


Laydown fill resized to cover motif border

- Assess where the motif sits on the digitized line and measure the distance to the outermost edge of the motif. Use this value to adjust the laydown stitch offset to ensure it covers the motif outline.



- **Laydown Stitch** can also be applied to keyboard design collections. However, it may not always give you the desired effect, particularly if letters contain a lot of open spaces. Sometimes you can increase **Laydown Stitch** offset to obtain the desired effect.



- Laydown can be used on its own as an 'avoid stitch'. Here we see how **Laydown** stitch is used to form the background while the toweling pokes through to form an integral part of the design, similar to Chenille. Simple outlines frame the rest of the design.



Related topics...

- Monogramming
- Using KDCs as embroidery fonts

Create global underlays



Use Stitch Effects > Auto Underlay to toggle automatic underlays on or off.



Use Toolbox > Outlines & Offsets to create outlines and offsets of any type for any filled embroidery or closed vector object.

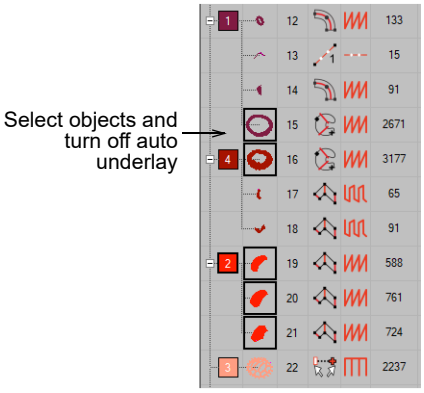


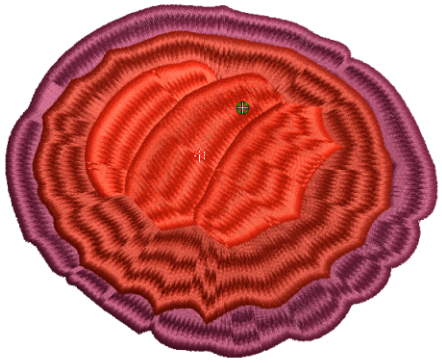
Use Fills > Laydown to generate a light fill to flatten the nap of textured fabrics like terry toweling and fur for subsequent embroidery.

With BE EmbroideryStudio, auto underlay is usually applied object-by-object. Default settings are determined by object size and shape and the current auto fabric. Sometimes, however, you may want to apply a global underlay to a group of objects. Here we see how to use **Outlines & Offsets** with **Laydown** stitch type to create a global underlay.

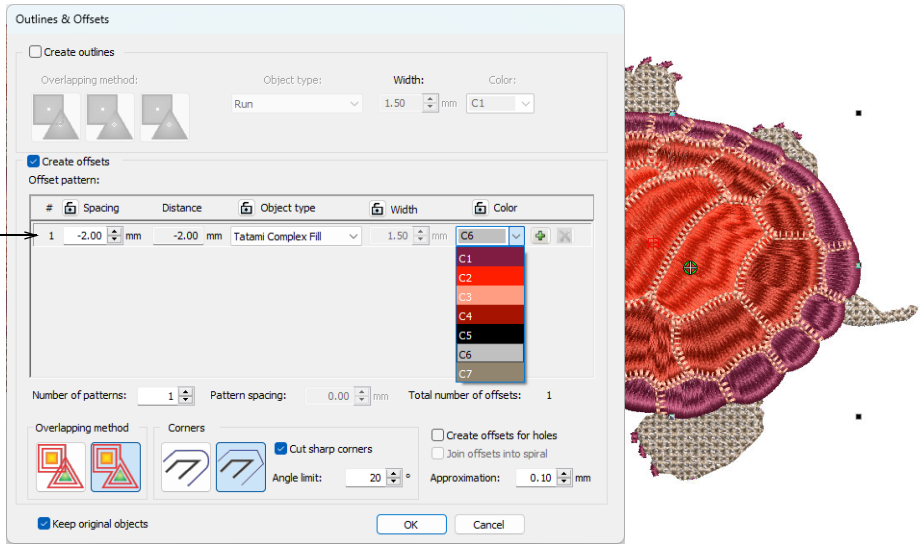
To create a global underlay...

1 Select the objects and toggle **Auto Underlay** to turn off auto underlay.

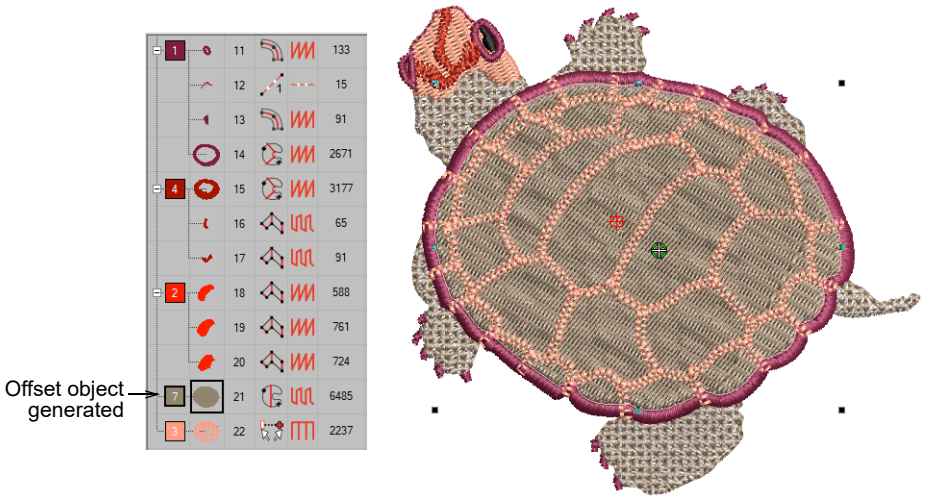




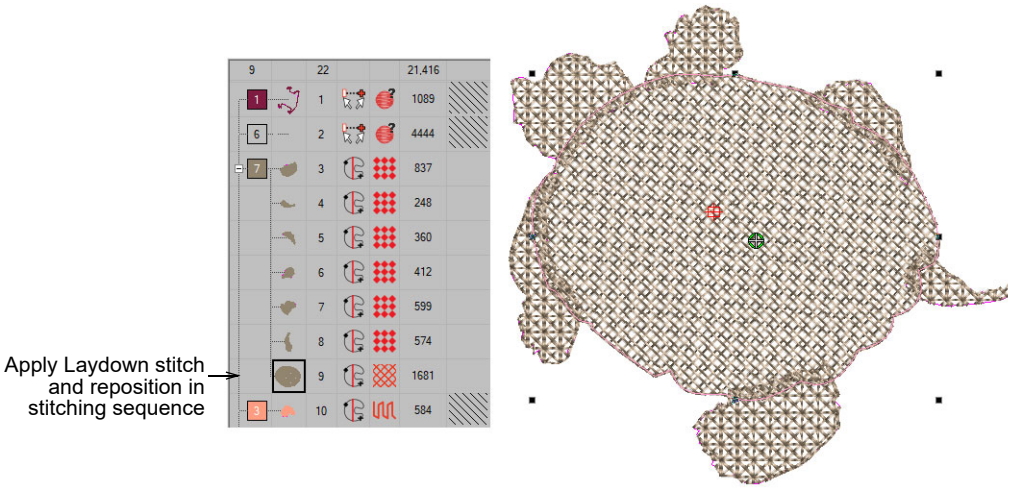
2 Use **Outlines and Offsets** to create a Complex Fill object, offset by, say, -2mm. Choose the color you want to use for the underlay.



3 Click **OK** to generate. An offset object is generated for these objects and placed after them in the stitching sequence.

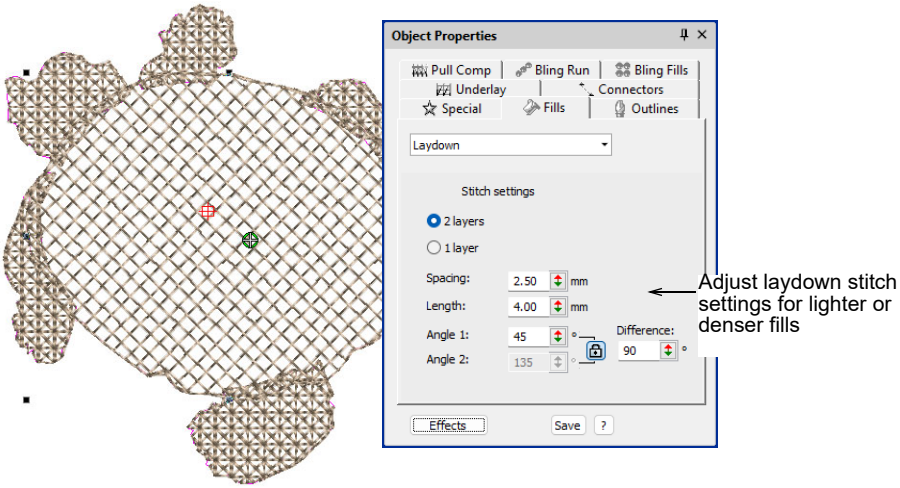


4 Apply **Laydown** stitch type and re-position the underlay in the stitching sequence.

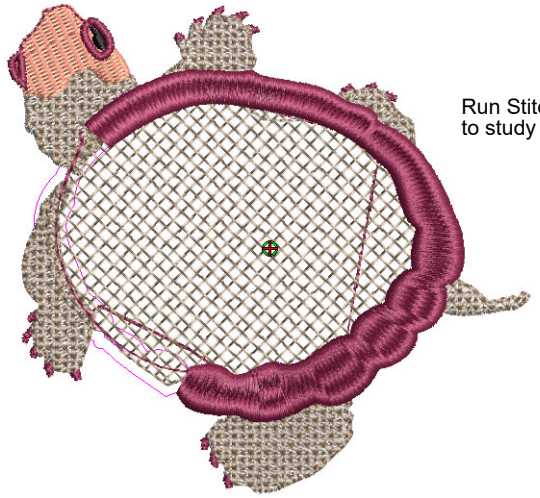


5 Double-click to access object properties and adjust as necessary.

Object properties are the same as stitch settings available in the **Laydown Stitch** dialog. Adjust density for lighter or heavier naps. In two-layer fills, default stitch angles are set at 90° (perpendicular) to each other. Adjust as preferred.



6 Apply closest join and run **Stitch Player** to study the stitchout.

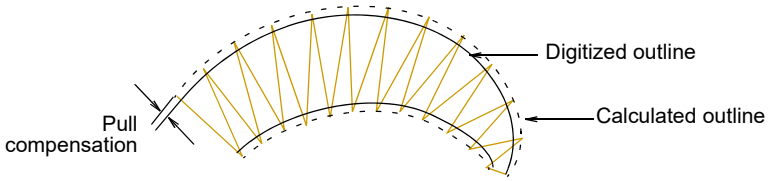


Related topics...

- Simulate design stitchouts
- Generating outlines & offsets
- Apply closest join

Pull compensation

Embroidery stitches tend to pull fabric inwards where the needle penetrates. This can cause fabric to pucker and gaps to appear in the embroidery. Experienced digitizers can manually compensate for pull by overlapping objects as they digitize. Automatic pull compensation, however, counters the pull effect by 'overstitching' outlines of filled shapes on the sides where the needle penetrates.



Adjust overstitching by varying pull compensation in the **Object Properties** docker. This is handy if you want to stitch a design on fabrics with varying degrees of stretch.

Tip: Applying underlay stitching, and using appropriate backing and topping when stitching out can also reduce the push-pull effect.

Apply automatic pull compensation

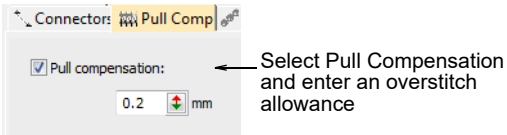


Use Stitch Effects > Pull Compensation to automatically compensate for fabric stretch. Right-click for settings.

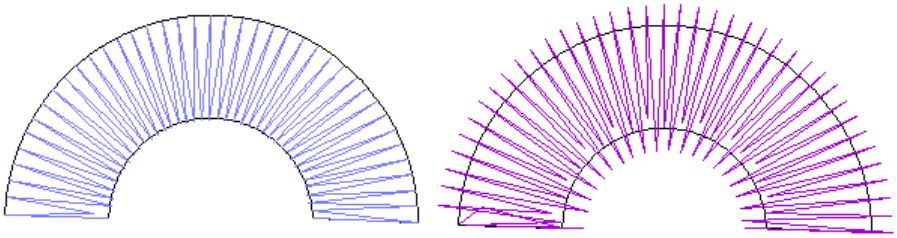
Apply automatic pull compensation to objects in your design and adjust as part of your quality checks prior to stitchout.

To apply automatic pull compensation...

- Toggle automatic pull compensation on/off via the **Pull Compensation** button.
- Without objects selected, right-click the **Pull Compensation** icon to change current settings.
- With objects selected, right-click the **Pull Compensation** icon to change settings for those objects.



- Enter an overstitch allowance (in millimeters).



Pull Compensation: 0.0 mm

Pull Compensation: 0.6 mm

Appropriate settings vary with the type of fabric – stretchy, pile, etc – hooping method – tight or loosely hooped – and size of embroidery object – wide or narrow columns. Use the following table as a guideline.

Fabric	Pull compensation (mm)
drills, cotton	0.20
T-shirt	0.35
fleece, jumper	0.40
lettering	0.2 - 0.3

Related topics...

- Working with fabrics
- Working with object properties

Adjust column width



Right-click Stitch Effects > Pull Compensation to adjust column width setting.

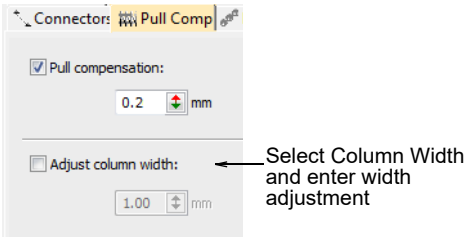
The **Column Width** setting adjusts the width of columnar shapes, allowing you to change the column width at every point by a constant amount in the direction of stitching. The purpose is to 'fatten' or 'thin' a column, for example, in order to create 'bold' lettering. See also Format lettering.



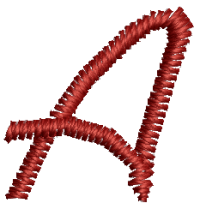
Tip: Reduce column width if you need to allow the underlay to extend outside the object boundary.

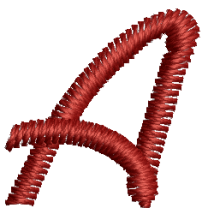
To adjust column width...

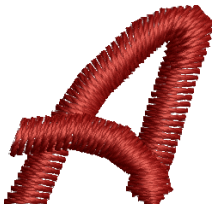
- Right-click the **Pull Compensation** icon to access object properties.



- Select the **Column Width** checkbox and adjust as necessary.


Column width: -1


No adjustment


Column width: +1

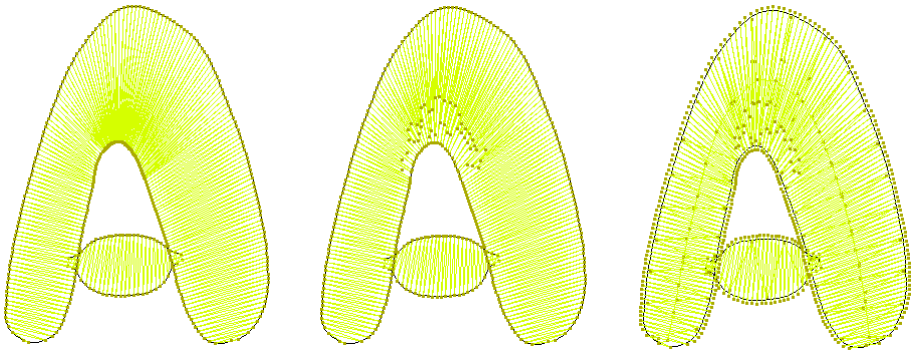
Related topics...

- Apply automatic pull compensation

Chapter 18

Stitch Quality

When it comes to embroidery production, the current stitch density may not be perfect for certain fabrics or threads. Or you may want to make production cheaper by reducing overall stitch count. After scaling operations, for example, designs may contain small stitches which can damage fabric and cause thread or needle breakage. Sharp corners may cause stitch bunching which can create hard spots in the embroidery and damage fabric or needle.



Embroidery machines have a maximum possible stitch length which is determined by the physical frame movement. If long satin stitches exceed this, they are broken into smaller stitches.

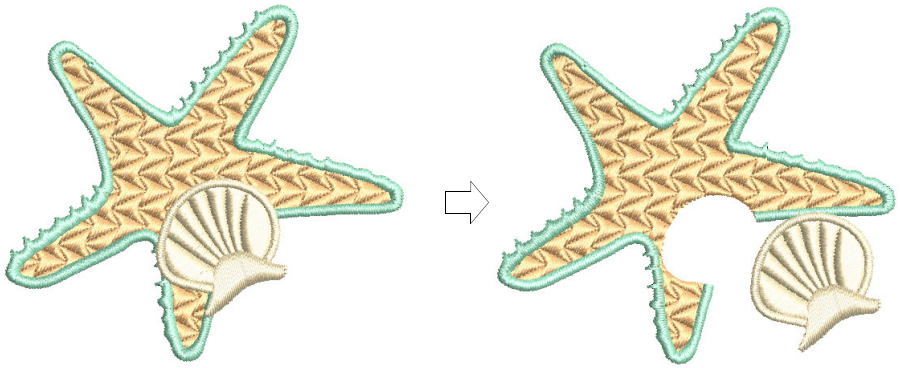
BE EmbroideryStudio helps you resolve all these issues with a number of specialized techniques for optimizing stitching quality for different design types and production requirements.

Removing underlying stitching



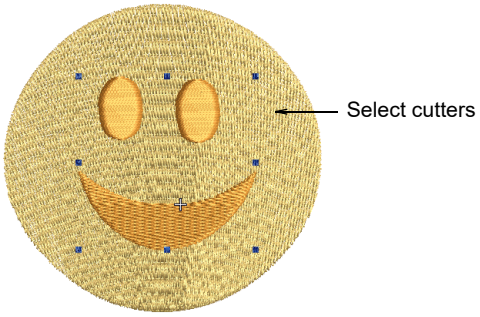
Use Appliqué > Remove Overlaps to remove underlying layer of stitching in overlapping objects using the selected object as a 'cutter'. Right-click for settings.

Use the **Remove Overlaps** command to remove underlying stitching in overlapping objects. This helps to reduce stitch count and prevent a build-up of stitches.

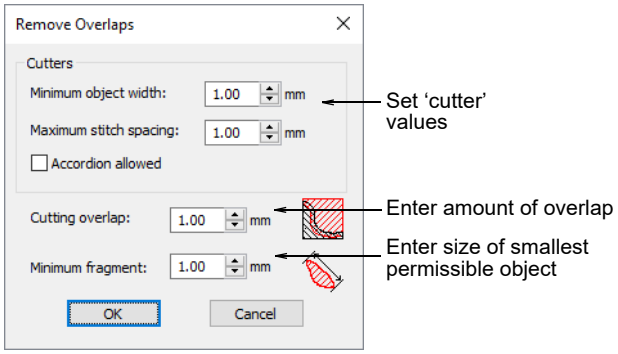


To remove underlying stitching...

1 Select one or more 'cutters'.



2 Click the **Remove Overlaps** icon. Underlying stitching is removed using default settings. Alternatively, select **Arrange > Remove Overlaps** to access settings or right-click the tool.



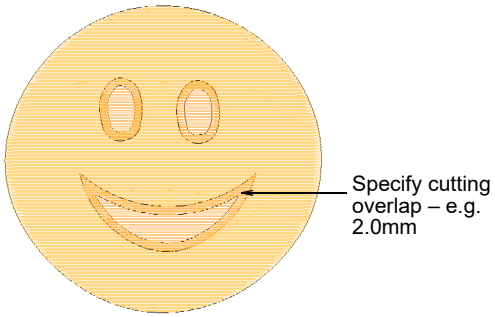
3 In the **Cutters** panel, adjust minimum object width and maximum stitch spacing as desired.

These settings are useful if, for example, you choose an entire design as a cutter and wish to exclude objects, such as borders or details, less

than a certain width. The **Maximum Stitch Spacing** setting allows you to exclude background stitches of a certain density.

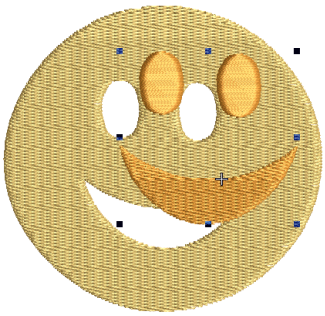
4 Select **Accordion Allowed** to include accordion spacing objects. By default, the software treats these objects as backgrounds and excludes them from the cutting operation.

5 Enter the amount of overlap required in the **Cutting Overlaps** field.



6 In the **Minimum Fragment** field, enter the size of the smallest object that will be produced after cutting. This eliminates the generation of small objects and unnecessary color changes.

7 Click **OK**. Underlaying stitching is removed.



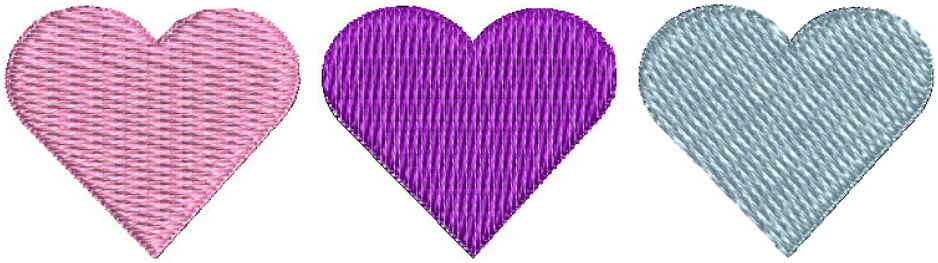
Tip: You can use an entire design as a cutter excluding objects, such as borders or details, less than a certain width.

Related topics...

- Create partial cover appliqué

Adjusting stitch angles

Stitch angle adjustments depend on object type. With complex fill objects you can set a single stitch angle for the entire object. You can add multiple stitch angles with the **Stitch Angles** tool. You can also adjust stitch angles with the **Reshape Object** tool.

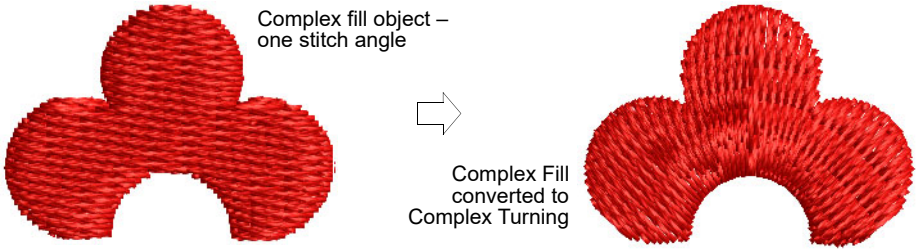


Add angles in stitch angles mode

Use Graphics Digitizing > Stitch Angles to add stitch angles to selected objects.

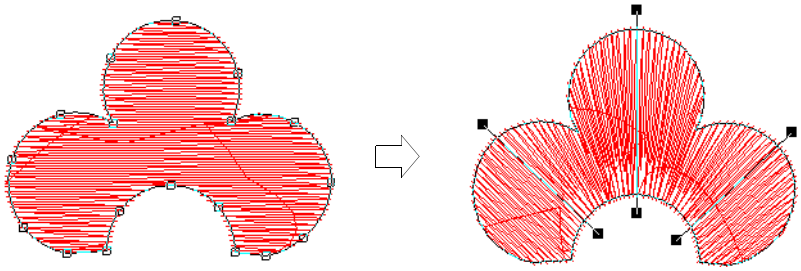
Use Graphics Digitizing > Remove Stitch Angles to remove stitch angles from closed objects with turning stitches.

Add stitch angles to most embroidery objects interactively using the **Stitch Angles** tool. Create embroidery objects by adding stitch angles directly to vector objects.



To add stitch angles in stitch angles mode...

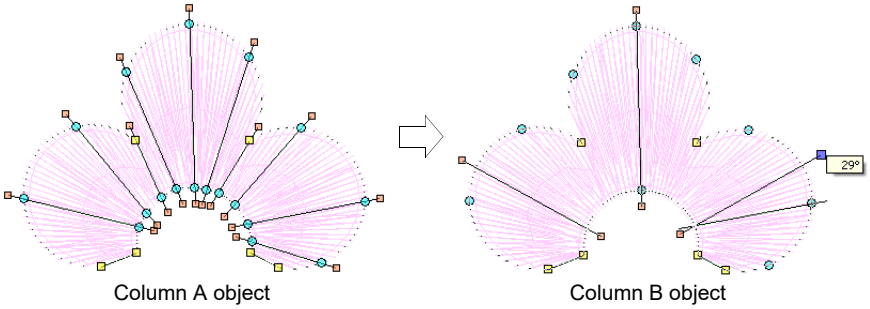
1 Select an object and click **Stitch Angles**.



2 Digitize stitch angles so that they intersect two sides of the object.

3 Press **Enter**. The object is displayed in **Reshape** mode.

4 Holding down the **Ctrl** key, click the outline wherever you want to place an additional stitch angle.



Note: To remove all except the default stitch angle, select the object and click **Remove Stitch Angles**.

Add stitch angles in reshape mode

Use Reshape > Reshape Object to add stitch angles to selected objects.

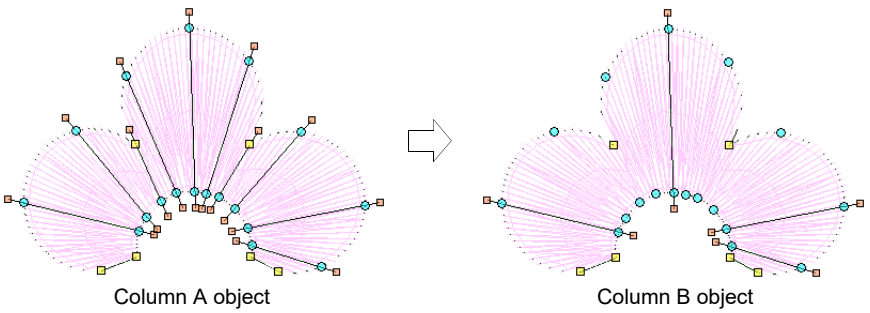
Use Reshape Views > Show Stitch Angles to toggle stitch angle display when using the Reshape Object tool.

Adjust or add stitch angles to embroidery objects interactively using the **Reshape Object** tool.

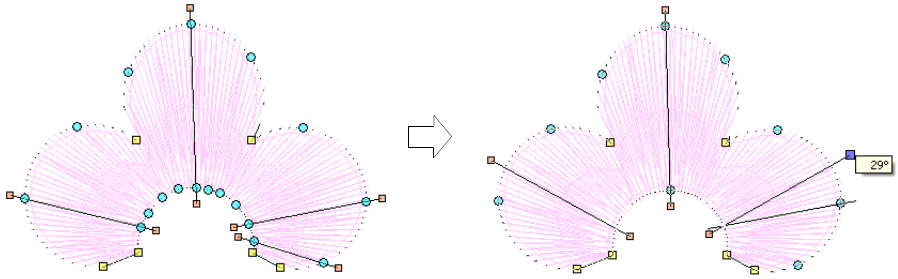
To add stitch angles in reshape mode...

1 Select the object.

2 Click the **Reshape Object** icon and click **Show Stitch Angles** to view only these control points.



3 Click-and-drag stitch angle points to adjust.



Column A object

Column B object

Tip: Column A objects automatically convert to Column B as soon as you add or adjust a stitch angle. You cannot add stitch angles to complex fill objects in **Reshape** mode.

4 Holding down the **Ctrl** key, click the outline wherever you want to place an additional stitch angle.

Related topics...

- Converting designs with CorelDRAW Graphics

Adjusting stitch densities

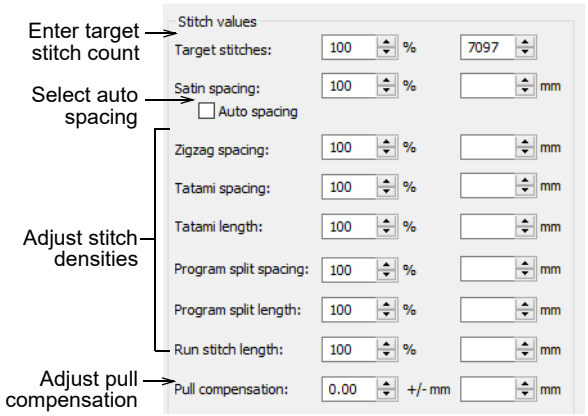
Use Stitch > Process Stitches to adjust stitch density of and/or scale the whole or selected parts of a design.

You may need to change stitch density in order to stitch on a different fabric or with a different thread. Or you may want to make production cheaper by reducing the overall stitch count. The **Process Stitches** feature lets you change the density of all stitch types (except manual stitch) across the whole or selected parts of a design. It also lets you adjust the density of selected stitch types. You can even use the feature to scale a design.

To adjust overall stitch density...

1 Select the design or objects you want to process.

2 Click **Process Stitches** icon.

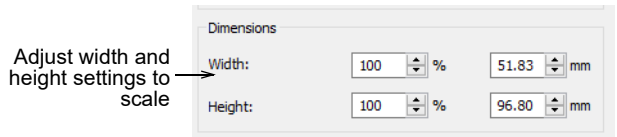


3 In the **Stitch Values** panel:

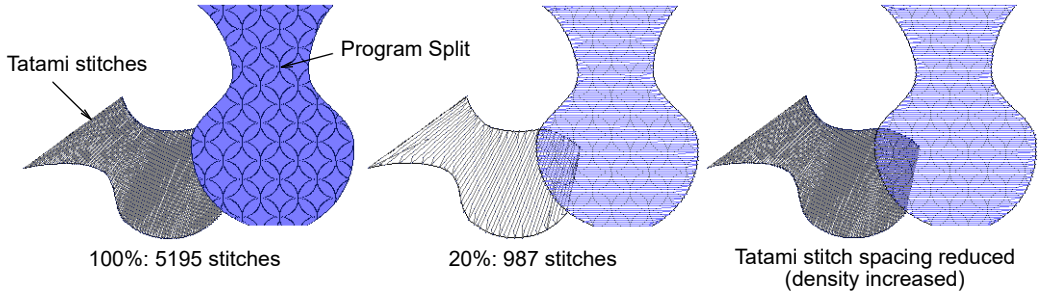
- Enter **Target Stitches** either as a percentage or absolute value. This automatically adjusts density of each stitch type required to achieve the target stitch count.
- Optionally, adjust density for each stitch type. You can select spacing or length as a percentage of the original – from 10% to 1000% – or as an absolute value – e.g. in millimeters. If you do not want to change the density of a certain stitch type, leave it as 100%.
- Select the checkbox if you want to use Auto Spacing for satin stitching. If the checkbox is cleared, Auto Spacing will be removed from all selected satin objects and will change to fixed spacing. If the checkbox is dimmed, original Auto Spacing values are retained.

4 In the **Pull Compensation** field, enter an amount by which to overstitch (or understitch) in order to compensate for fabric pull.

5 In the **Dimensions** panel, adjust **Width** and **Height** values to scale selected objects.



6 Click **OK** to apply. Stitches for Tatami, Satin, Run, Zigzag, and Program Split objects are regenerated.



Note: If a design was originally created in BE EmbroideryStudio, or was converted into objects, changes you make through the **Process Stitches** dialog will change properties of selected objects. You can check changes via the **Object Properties** docker.

Related topics...

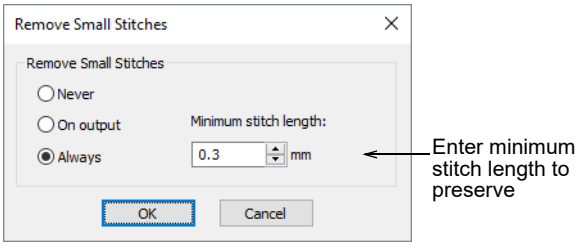
- Satin stitching
- Working with fabrics
- Pull compensation
- Scale objects numerically

Eliminating small stitches

Small stitches can damage fabric and cause thread or needle breakage. Before you stitch out, unwanted small stitches can be automatically removed. The filter can be applied continuously, on output only, or never.

To eliminate small stitches...

1 Select **Design > Remove Small Stitches**.



2 Choose your preferred option:

- When set to 'Always', the filter will be automatically applied in the background whenever objects are edited or digitized.
- When set to 'On Output', the filter is only applied when printing or outputting files.

3 Enter the minimum stitch length you want to preserve.

4 Click **OK** to confirm. Check the **Status Bar** for the new stitch count.

Related topics...

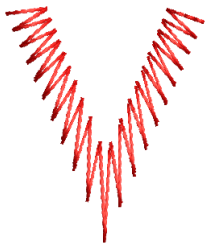
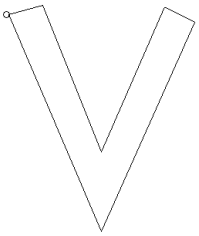
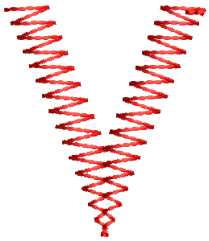
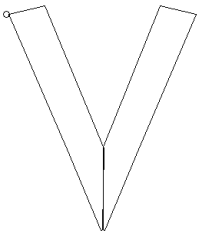
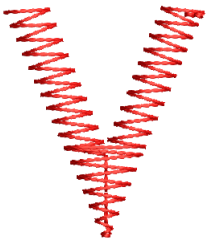
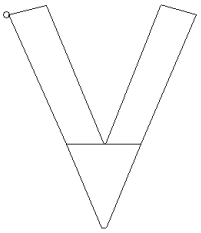
- Other general options

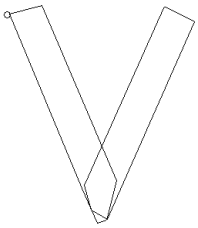
Controlling corner stitching

The quality and style of corners is important in borders and appliqué, and satin column sewing in general. Sharp corners may cause stitch bunching which can create hard spots in the embroidery and may damage fabric or needle. The Smart Corners feature helps you control sharp corners in Column A and Column C objects.

Corner handling methods

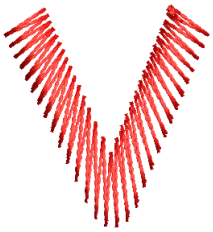
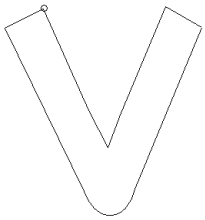
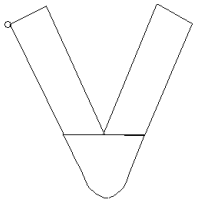
The following approaches can apply to both appliqué and standard satin (Column C) columns.

Method	Sample	Outline	Description
No corner			Stitches curve around corners – standard Column C corner handling.
Mitre corners			Corners are formed by two segments that join in a sharp point.
Cap corners			Corner is capped by an extra segment – cap stitching remains parallel to the column.

Method	Sample	Outline	Description
Lap corners			Corner broken into two segments.

Corner rounding

A **Round Sharp Corners** option is available for Column C objects which can also be applied to sharp corners. The option is only available in conjunction with the Smart Corners effect. It is typically used with the **Cap Corner** option.

Method	Sample	Outline	Description
Rounded corner			Corner is sewn in one segment, with turning stitching, forming a round corner on the outer boundary.
Rounded cap corner			The corner is sewn in three segments forming a round corner on the outside boundary.

Apply smart corners

 Use Stitch Effects > Mitre Corners to create sharp lines at intersections of two columns. Right-click to adjust settings.

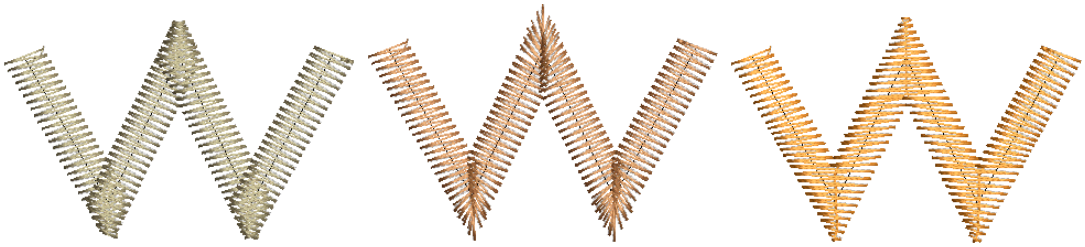
 Use Stitch Effects > Cap Corners with very sharp corners to generate fewer stitches. Right-click to adjust settings.

 Use Stitch Effects > Lap Corners for ‘Tidori’ style stitching. Right-click to adjust settings.

Use the **Smart Corners** feature to reduce the number of stitches and risk of bunched, distorted embroidery in sharp corners. **Mitre Corners** creates a sharp line at the intersection of two columns. Use it primarily for corner angles of 20° to 45°. **Cap Corners** is suitable for very sharp corners as it generates fewer stitches. **Lap Corners** is suitable for 'Tidori' style stitching. It can be applied to Column C and appliqué objects.

To apply smart corners...

- Click a **Smart Corners** icon with or without objects selected. With no objects selected, smart corners are automatically generated for all new objects. Corners are based on current properties.



- Click again to turn off the effect.

Note: You can also combine **Smart Corners** in Column C objects with sharp corner rounding.

Related topics...

- Adjust smart corner settings
- Round sharp corners
- Appliqué Embroidery

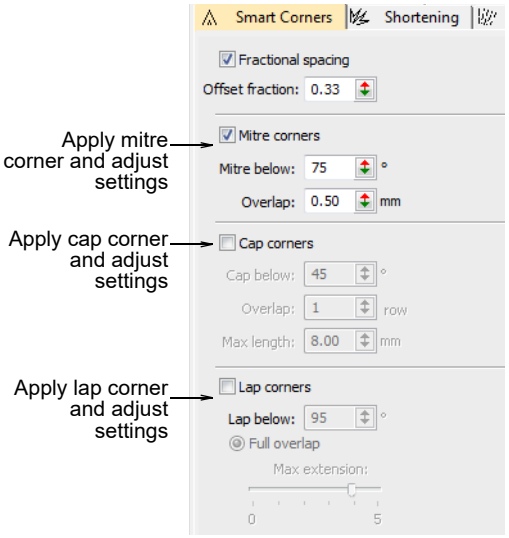
Adjust smart corner settings

Use Stitch Effects > Mitre Corners to create sharp lines at intersections of two columns. Right-click to adjust settings.

Use Stitch Effects > Cap Corners with very sharp corners to generate fewer stitches. Right-click to adjust settings.

Use Stitch Effects > Lap Corners for 'Tidori' style stitching. Right-click to adjust settings.

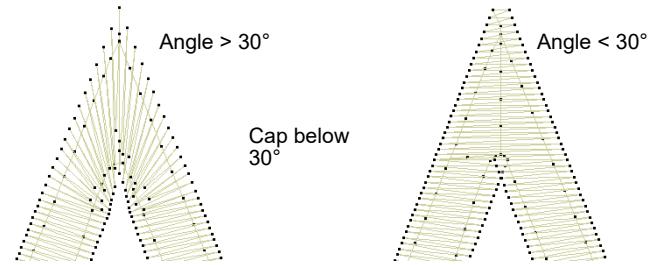
You can set different angles at which **Smart Corners** will be applied, and specify overlap and stitch length allowances. Right-click a **Smart Corners** icon to access object properties.



Cap corners

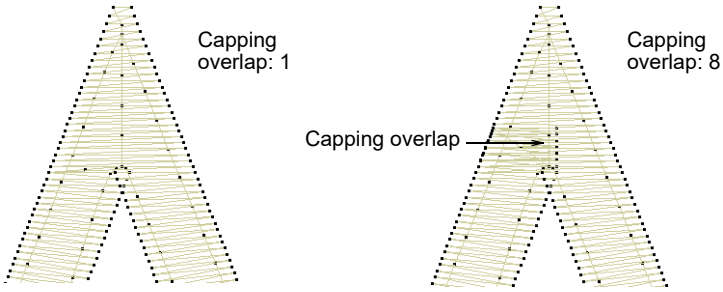
Cap provides the following settings:

- **Cap below**: angle below which to apply capped corners – any corners greater than this are not capped. The default is cap below 20°.



Tip: If **Mitre Corners** is also selected, the cap angle is usually smaller than the mitre angle.

- **Overlap**: number of overlapping rows to allow where the sections of the cap join.

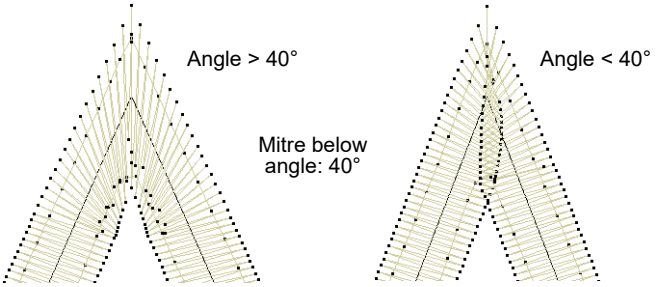


- **Max length**: maximum length of cap stitches. **Cap Corners** with stitches exceeding this length will become **Mitre Corners**. This prevents long and short stitches appearing next to each other.

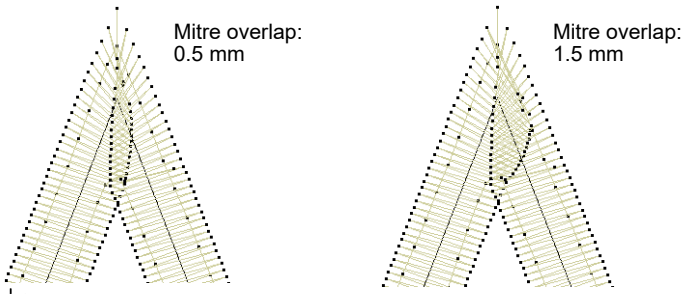
Mitre corners

Mitre provides the following settings:

- **Mitre below**: angle below which to apply **Mitre Corner** – any corners greater than this are not mitred. The default is lap below 45°.



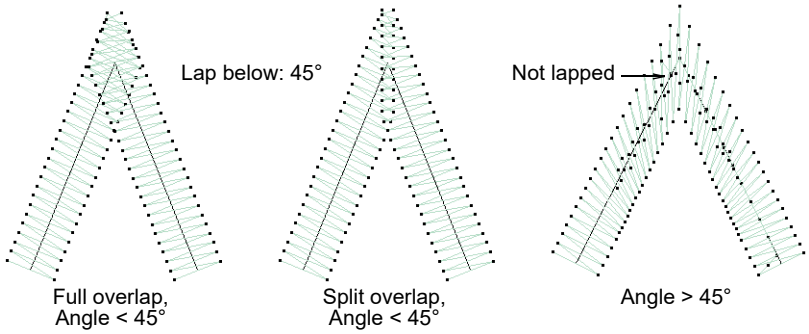
- **Overlap**: distance by which stitches are allowed to overlap in the center of the corner.



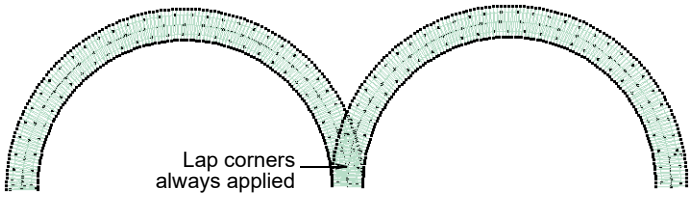
Tip: You can use **Mitre Corner** and **Cap Corner** options together. For example, you may want a corner less than 75° to be mitred but less than 45° to be capped.

Lap corners

The **Lap Corners** feature provides good technical stitching in tight corners, as well as creative stitching effects. You have a choice of full overlap or split overlap methods, object-by-object. The split overlap method provides a variable amount of overlap at the corner. The **Lap Below** setting applies to either method and defines the angle below which **Lap Corner** will take effect. Any corners greater than this are not lapped. The default is lap below 110°.

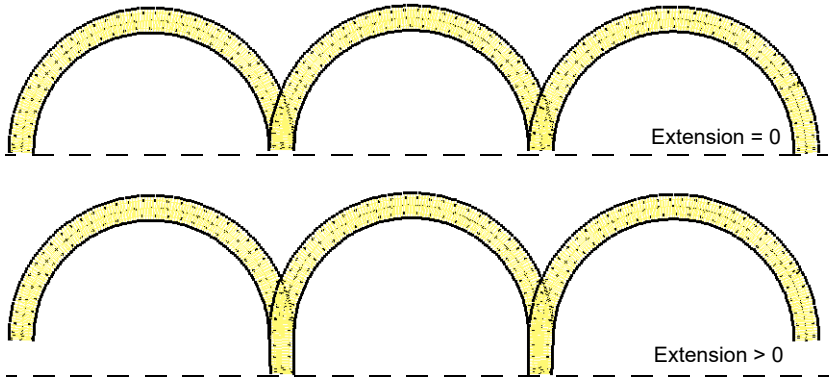


With scalloped shapes, lap corners will always be applied since the corner angle approaches zero.



Full overlap

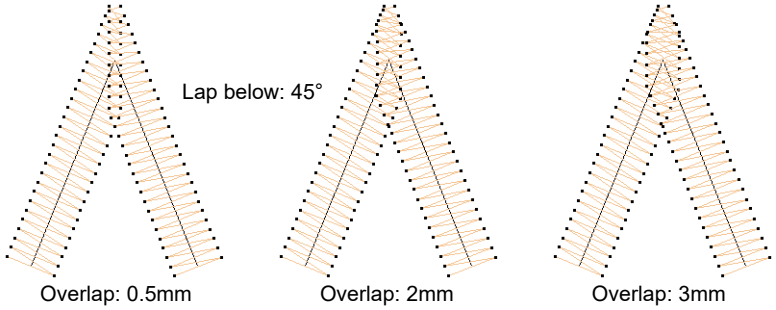
Full Overlap provides a **Max Extension** setting. Technically, this is the extension of the corner point from the curve as a percentage of width. When set to zero, this setting achieves a blunting effect.



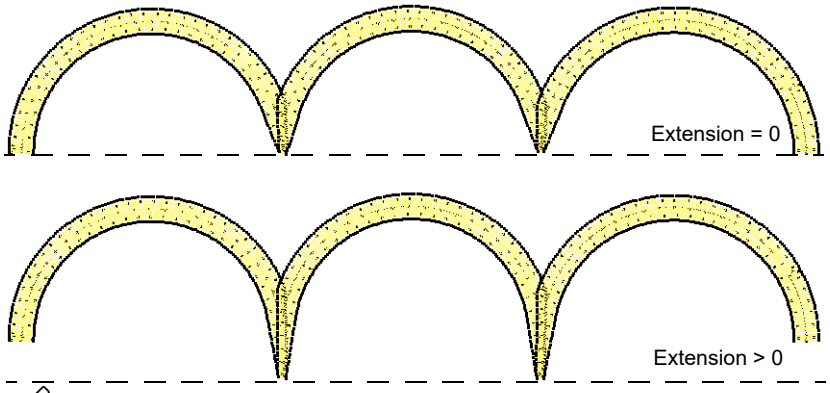
Split overlap

When enabled, **Split Overlap** provides the following settings:

- **Overlap**: This setting provides a selectable amount of overlap between the two parts of a lapped corner. The effect is similar to a mitre corner but with different stitching.



- **Max curve extension**: extension of corner point from curve as a percentage of width. Curve shapes can have flat full or selectable pointed split overlaps. This parameter achieves a blunting effect, with similar practical application as round sharp corners.



Note: The **Lap Corners** effect is incompatible with mitre or cap corners. Turning it on will switch off the other two.

Related topics...

- Set corner fractions

Round sharp corners



Right-click Traditional Digitizing > Column C to set sharp corner rounding.

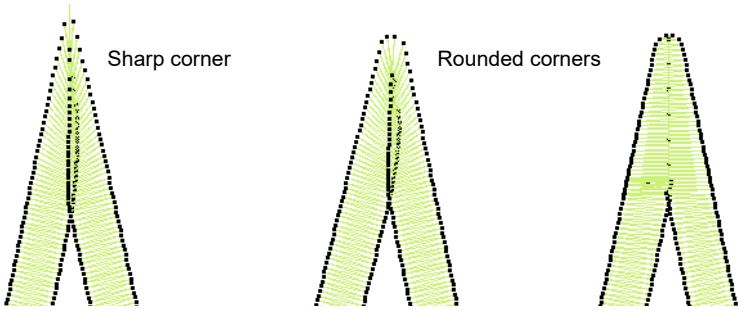
A **Round Sharp Corners** option is available for Column C objects and can be applied to sharp corners. The option is only available in conjunction with the Smart Corners effect. It is typically used with the **Cap Corner** option.

To round sharp corners...

1 Double-click a Column C object or right-click the tool to access object properties.



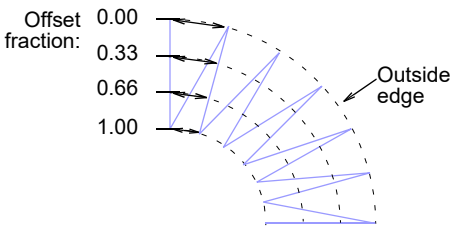
2 Select the **Round Sharp Corners** checkbox.



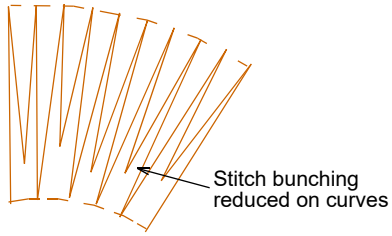
Reducing stitch bunching

Standard stitch spacing is calculated at the outside edge of a shape. With sharp curves, spacing which provides adequate coverage on the outside edge may cause bunching along the inside edge. This may cause thread breakage when stitching out. The longer the stitches, the worse the problem.

With **Fractional Spacing**, BE EmbroideryStudio calculates spacing settings from a specified point called the 'offset fraction'. Changing it adjusts stitch spacing at inside and outside edges.



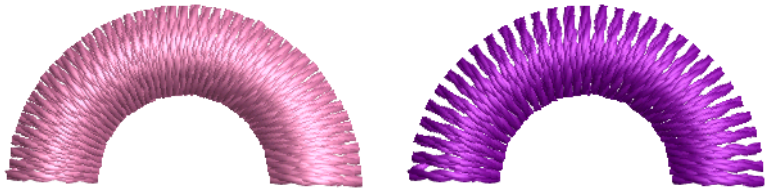
Stitch **Shortening** reduces the length of some stitches in sharp turns so that needle penetrations are distributed evenly, creating smoother stitching.



Apply fractional spacing

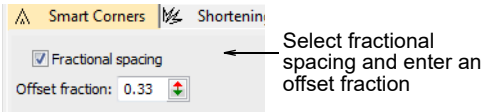
Use Stitch Effects > Fractional Spacing to even out stitch density along outside and inside edges. Right-click to adjust fractional spacing settings.

Apply fractional spacing to curved shapes to even out stitch density along outside and inside edges. Fractional spacing is particularly useful for columns of satin stitches with sharp turns. For best results, combine stitch shortening and fractional spacing effects.



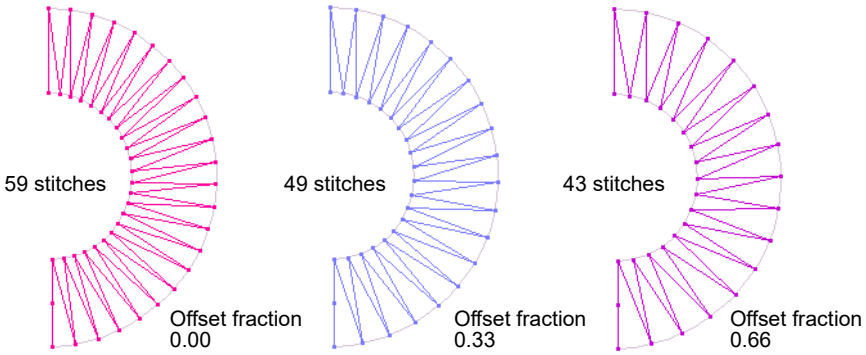
To apply fractional spacing...

1 Right-click the **Fractional Spacing** icon with or without objects selected to access object properties.



2 Select the **Fractional Spacing** checkbox.

3 In the **Offset Fraction** field, enter an offset as a fraction of column width, where the outside edge is **0.00** and inside edge **1.00**.

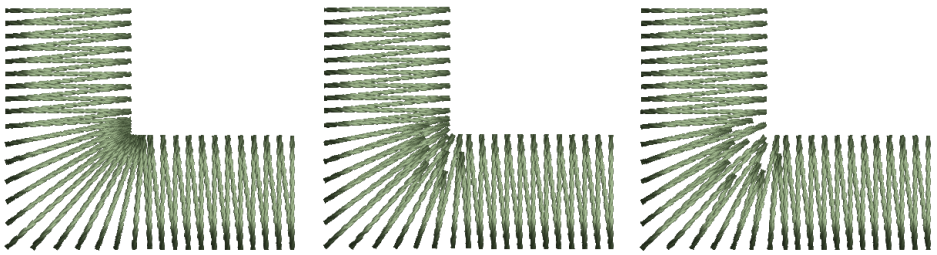


Tip: An offset fraction of 0.33 generates fewer stitches than standard spacing, reducing bunching along the inside edge. An offset fraction of 0.66 eliminates bunching on the inside edge, but may produce insufficient stitches to cover the fabric.

Apply stitch shortening

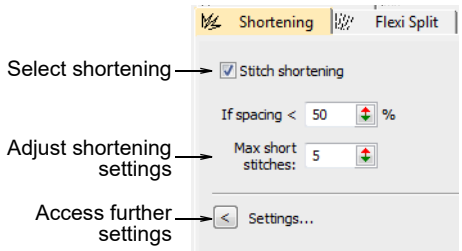
Use Stitch Effects > Shortening to reduce stitch bunching in tight curves by shortening some stitches on the inside edge. Right-click to adjust stitch shortening settings.

Apply stitch shortening to sharp corners to decrease density on the inside edge. Default settings suit most designs. Advanced users can override with custom settings.

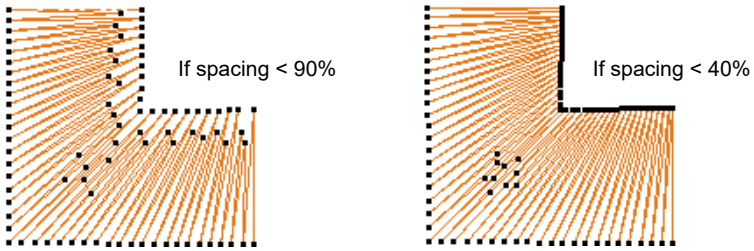


To apply stitch shortening...

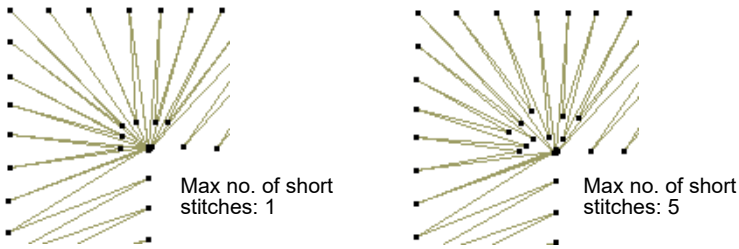
1 Right-click the **Shortening** icon with or without objects selected to access object properties.



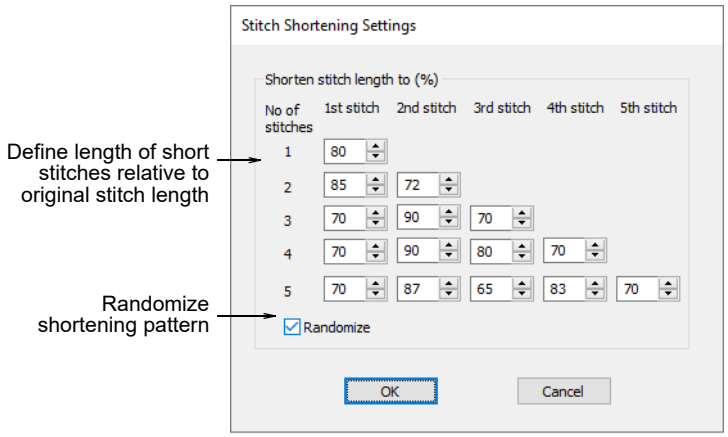
2 In the **If spacing <** field, enter the minimum spacing permitted between stitches (as % of nominal spacing) before automatic shortening takes effect.



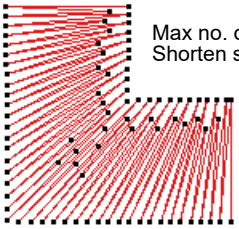
3 Enter the maximum number of consecutive short stitches to allow, up to a limit of five. A higher number allows smoother distribution of needle penetrations in tight curves and reduces stitch bunching.



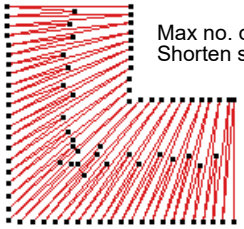
4 Click the **Settings** button. The **Stitch Shortening Settings** dialog opens. Here you can define individual lengths of consecutive short stitches as a percentage of the original.



- A value of 80% means that stitches are shortened **to** 80% of the original length, not **by** 80%. The smaller the percentage, the shorter the stitch.

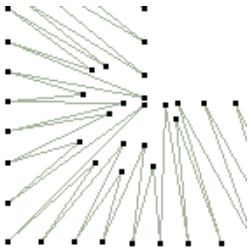


Max no. of short stitches: 1
Shorten stitch length to: 80%

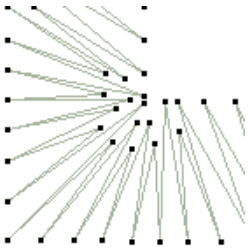


Max no. of short stitches: 1
Shorten stitch length to: 50%

- If you allow three short stitches, you need only fill in the first three rows. If you allow five short stitches, fill in all five rows. If only one short stitch is generated between normal stitches, the value in Row 1 will apply. If two consecutive short stitches are generated, the values in Row 2 will apply to 1st and 2nd stitch respectively. And so on up the scale.



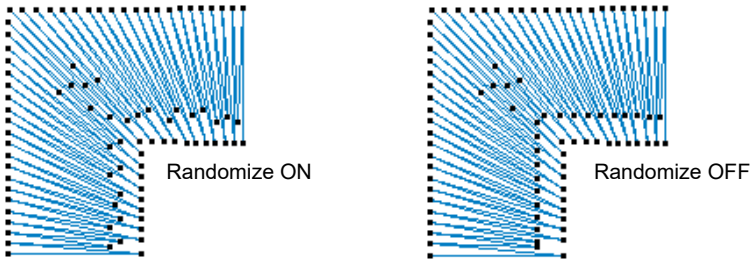
Max no. of short stitches: 5
Shorten stitch length to: 50%
Row 1: 90
Row 2: 70 60
Row 3: 55 85 55
Row 4: 55 85 75 55
Row 5: 55 70 45 70 55



Max no. of short stitches: 5
Shorten stitch length to: 50%
Row 1: 80
Row 2: 85 70
Row 3: 70 90 70
Row 4: 70 90 80 70
Row 5: 70 85 65 85 70

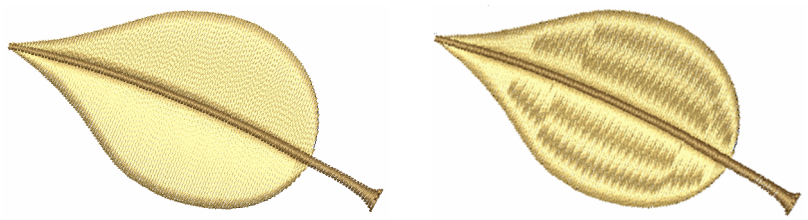
Tip: For best results use a jagged pattern between consecutive stitches.

5 Select the **Randomize** checkbox to randomize the shortening pattern values. This will eliminate unwanted lines appearing in regular curves.

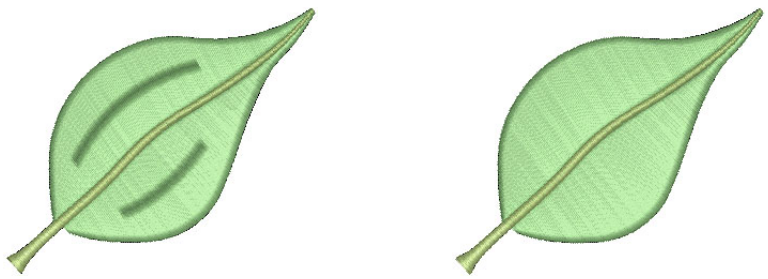


Optimizing long satin stitches

Embroidery machines have a maximum possible stitch length which is determined by the physical frame movement. If a stitch exceeds this, it is generally broken into smaller stitches of equal length. The line formed by needle penetrations can affect the appearance of the embroidery, especially satin fills. **Auto Split** breaks long satin stitches into shorter ones. It also distributes needle penetrations in a random pattern so that they do not form a line down the middle of the shape.



If you want to preserve the satin effect – for example, if only a few stitches are too long – you can use **Auto Jump** instead. This preserves long stitches in an object by turning them into a series of jumps. **Auto Split** must be turned off for **Auto Jump** to take effect. **Auto Jump** is applied by default to connectors.



Note: The maximum frame movement is defined in the software by format values. See Standard machine formats for details.

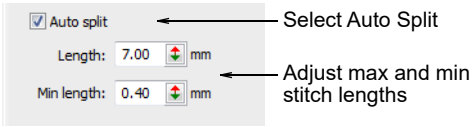
Split satin stitches

Right-click Fills > Satin to apply Auto Split to new or selected satin objects.

Auto Split is used primarily to prevent long stitches in wide columns. It can also be used as an alternative to tatami fill. **Auto Split** looks more satin-like and works well with turning stitches, creating soft lines and a little more depth. By contrast, tatami is flat and can show unwanted patterns with tight curves.

To split satin stitches...

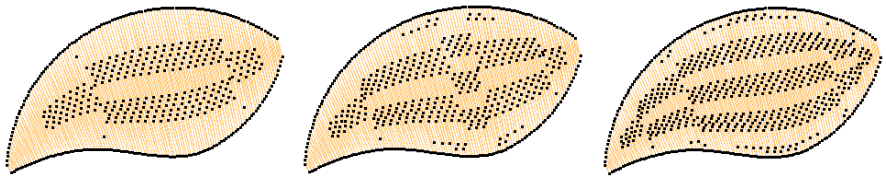
1 Right-click the **Satin** icon with or without objects selected to access object properties.



2 Select the **Auto Split** checkbox.

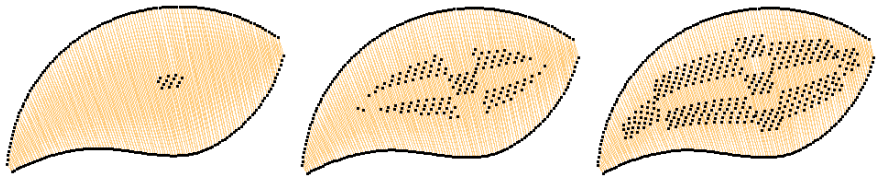
3 Enter a maximum satin stitch length to allow before **Auto Split** is applied.

Stitches that exceed this value will be split into smaller stitches. This value can be smaller than the maximum stitch generally used in the design.



Tip: Use a length of 7.00 mm to preserve the satin effect.

4 In the **Min length** field, enter the shortest stitch that can be generated when using **Auto Split**.

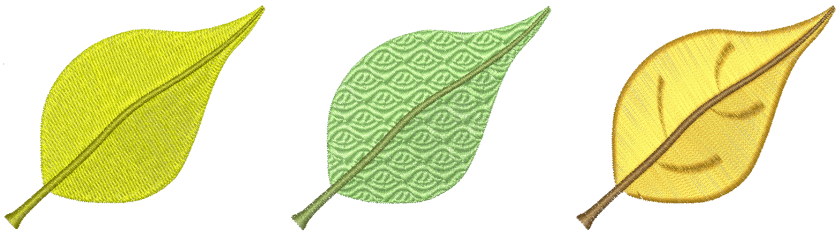


Length: 4 mm
Min length: 5 mm

Length: 4 mm
Min length: 3 mm

Length: 4 mm
Min length: 1 mm

Tip: As an alternative to **Auto Split**, try a textured tatami fill or Program Split. Or, use **User Defined Split** to manage split lines in satin fills.



With Tatami

With Program Split

With User Defined Split

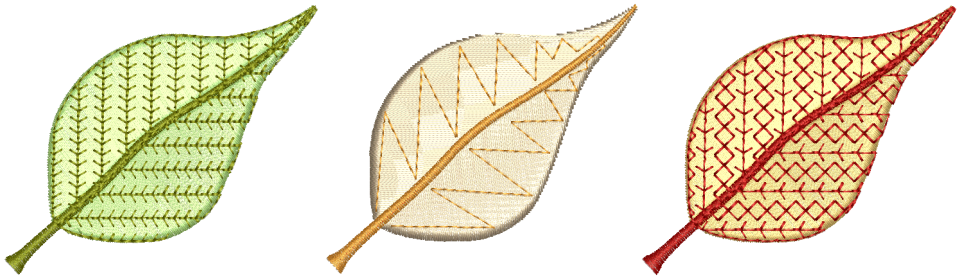
Related topics...

- Use jumps as connectors
- Patterned Stitching

Preserve long stitches

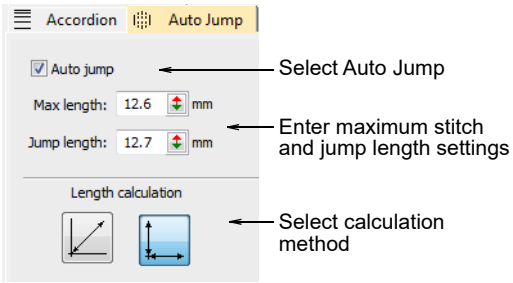
Use Stitch Effects > Auto Jump to preserve long stitches in new and selected objects. Right-click to adjust settings.

Apply **Auto Jump** to satin objects with stitches that exceed the maximum stitch length. If the cover stitches are short, extending them with a jump makes them looser and thus more effectively raised off the fabric. **Auto Jump** can be used, for example, with manually digitized underlays. It can also be used to create quilted effects, for example, by applying it to satin areas that are over-stitched with Run stitch or Motif Fill.



To preserve long stitches...

1 Right-click the **Auto Jump** icon with or without objects selected to access object properties.



2 Select the **Auto Jump** checkbox.

3 In the **Max length** field, enter the maximum stitch length to allow. Stitches exceeding this value will have **Auto Jump** applied.

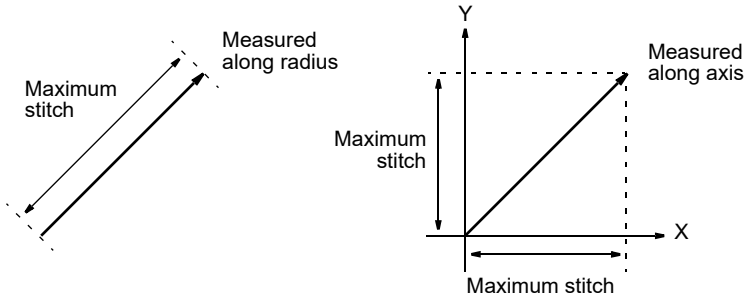
Note: This value must be smaller than or equal to the maximum stitch length possible for the selected format.

4 Adjust **Jump length** as required.

Smaller jumps increase the time required to stitch out, but move the frame more smoothly across the design.

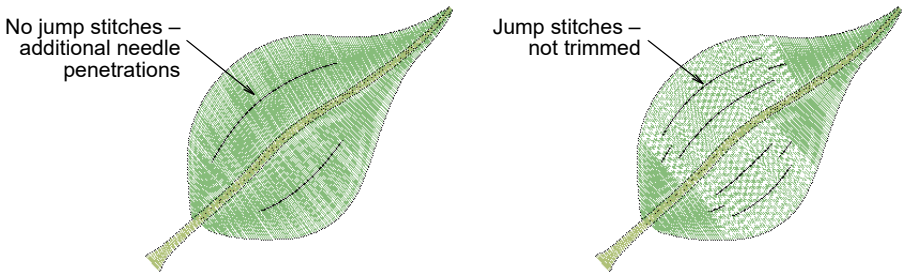
5 Choose a **Length calculation** method:

Option	Function
Along radius	Measures the distance between two consecutive needle penetrations.
Along axis	Measures either the horizontal or vertical movement required for the stitch.



Usage tips...

- The option you select depends on the way your machine measures stitch length. See your machine documentation for details.



- Many machines trim by jumps. Thus, to prevent the trimmers being activated, usually only one or two jumps between needle penetrations may be used.

Related topics...

- Stabilizing with underlays
- Trim functions
- Standard machine formats

Chapter 19

Embroidery Connectors



Connectors link objects in a design. They can be run stitches or jumps. Travel runs are also used to connect segments **within** filled objects.

You can use automatic settings to generate connectors, trims and tie-offs, or add them manually. You can change connector settings for a whole design or selected objects. If you prefer to add tie-offs and trims as you digitize, you can turn off automatic connectors altogether. For Schiffli work, for example, you are advised to add connectors manually rather than rely on automatic settings.

BE EmbroideryStudio also allows you to create 'branched objects'. Like-objects are thereby resequenced, connectors minimized, components grouped, and stitches regenerated. Underlay can be applied to all.

You can also set first and last stitches of a design. This makes it easy to position the needle before stitching, and reduces the chance of it hitting the frame.

This section describes how to add connectors, tie-offs and trims to your designs. It also describes adjusting settings for automatic connectors, including the stitch length for travel runs. It also deals with setting automatic start and end points.

Types of connectors

The type of connector you use depends on whether you want it to be visible in the final design. The default connector setting in BE EmbroideryStudio is for jumps.

Jumps

Jumps move the frame from one part of the design to another without needle penetrations. You can use automatic jumps as connectors between embroidery objects. The connecting thread generally needs to be tied-off and trimmed. The default connector jump length is the same as that set for Auto Jump.



Tip: You can also digitize jumps manually using the **Penetrations** function or with **Manual** stitch.

Runs

Travel runs are typically used to connect segments of complex shapes. They can also connect adjacent objects. Because runs are not trimmed, they may be visible in the final embroidery. If objects are adjacent and connectors will be hidden, they can be used. You can change the stitch length of travel runs to ensure they do not protrude from the cover stitching. You may also adjust the travel run length to reduce the stitch count.



Note: While you can control the properties of run connectors **between** objects, you generally cannot control connectors **within** objects. Lettering and motif run objects are the exception.

Tie-ins

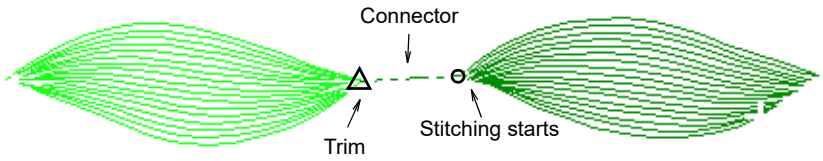
Tie-in stitches are inserted at the start of objects to prevent stitches from unraveling. They are inserted inside the shape on the second stitch. You generally use them when the previous connector is trimmed.

Tie-offs

Tie-offs are generally placed before trims to prevent stitches from unraveling. You can adjust connector settings to automatically add tie-offs under certain conditions, or add them manually. You can also include trim functions so machines with trimmers cut the thread automatically.

Trims

If you are using a machine with an automatic trimmer, the trim function causes the thread to be cut after a tie-off. In the software, trims are represented by a triangle with a small circle at the point where stitching starts again. The trimmed connector appears as a dotted line. You can adjust connector settings to automatically add trims, or add them yourself.



Related topics...

- Add jumps with penetrations off
- Digitize stitches
- Adjusting travel run stitch length

Using automatic connectors

BE EmbroideryStudio lets you generate automatic connectors based on settings in the **Object Properties > Connectors** docker. You can change connector settings for a whole design or selected objects. If you prefer to add tie-offs and trims as you digitize, you can turn off automatic connectors altogether. For Schiffli work, you are advised to add connectors manually rather than rely on the automatic settings. Automatic connectors are turned off in the Schiffli template. See Adding connectors manually for details.

Tip: The **Branching** feature lets you digitize like-objects – e.g. the fingers of a hand – without having to think about the most efficient stitching sequence and joins. See Automatic branching for details.

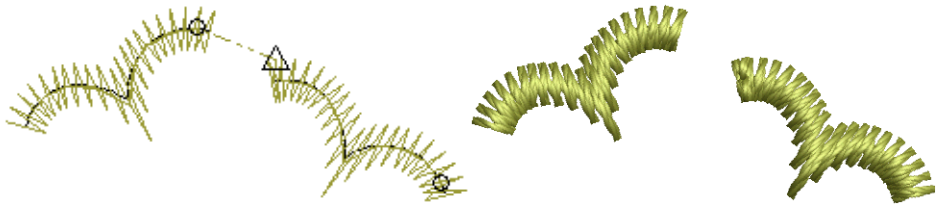
Use jumps as connectors

Use Docker > Object Properties to toggle the Object Properties docker on/off. Use it to set jumps as connectors.

Click View > Show Connectors to toggle connecting stitch display on/off to help determine start and end points.

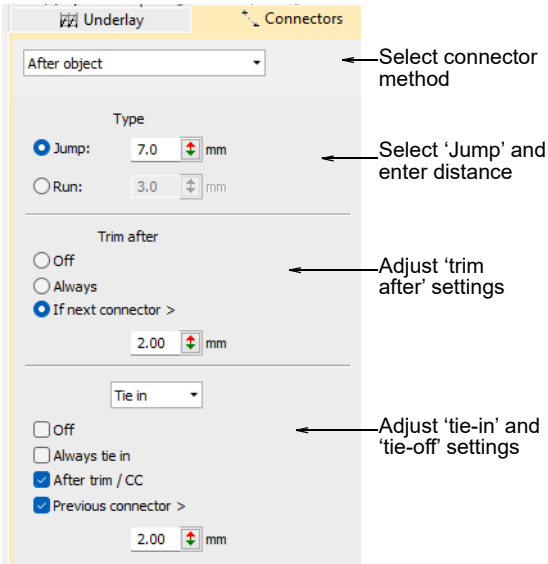
Use View > Show Functions to toggle display of machine functions such as trims and tie-offs.

You can use automatic jumps as connectors between embroidery objects. Jumps move the frame from one part of the design to another without needle penetrations. You generally need to tie-off and trim the connecting thread.



To use jumps as connectors...

1 Click the **Object Properties** icon and select the **Connectors** tab.



2 Select a connector method:

Option	Function
After object	Adjust connectors immediately following the current object.
Inside object	Adjust connectors joining components of lettering objects or motif runs. This setting also applies to disconnected parts of branched objects. It does not apply to segments within an object.

3 Select **Jump** and enter a distance for each frame movement. Shorter jump values generally improve stitch quality and reduce wear on the machine but may increase stitch-out time.

4 Adjust trims and ties as required:

Option	Function
Trim after	You can choose to turn off automatic trimming, to always trim connecting stitches, or to trim only when the connecting stitch is longer than a specified value.

Option	Function
Tie in	Tie-in stitches are inserted at the start of objects to prevent stitches from unraveling. You generally use them when the previous connector is trimmed.
Tie off	With trims, stitches need to be tied off so the thread can be trimmed without unraveling. Select between automatic tie-off methods to set preferred default.

Tip: You can also digitize jumps manually using the **Penetrations** function.

Related topics...

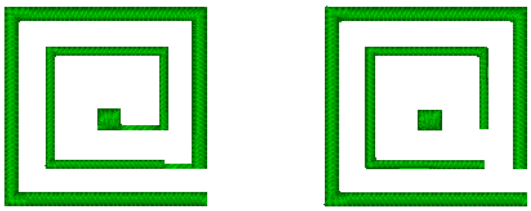
- Adjusting travel run stitch length
- Stitch & jump length settings
- Add jumps with penetrations off

Use runs as connectors

Use Docker > Object Properties to toggle the Object Properties docker on/off. Use it to set runs as connectors.

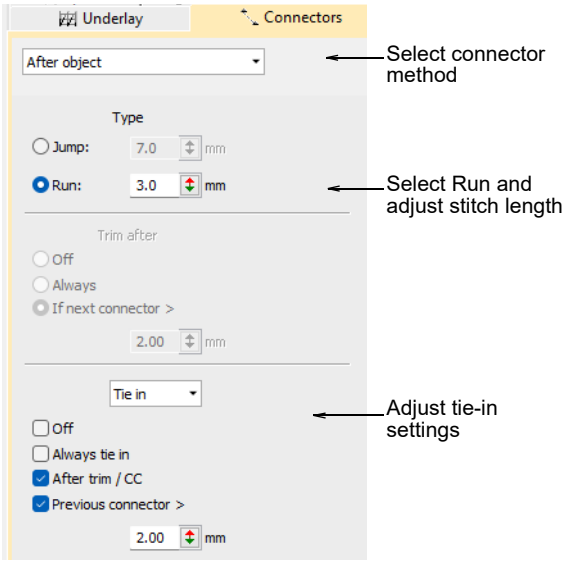
Click View > Show Connectors to toggle connecting stitch display on/off to help determine start and end points.

You can use runs of single stitches to connect objects in a design. Because runs cannot be trimmed, they are visible on the final embroidery, unless another object is digitized to cover them.



To use runs as connectors...

1 Click the **Object Properties** icon and select the **Connectors** tab.



2 Select a connector method:

Option	Function
After object	Allows you to adjust settings of connectors immediately following the current object.
Inside object	Allows you to adjust settings of connectors joining letters within a lettering object, and motifs within motif runs. This setting also applies to disconnected parts of branched objects. It does not apply to segments within an object.

3 Select **Run** and enter a length for the connecting run stitches.

4 Adjust **Tie In** settings as required. The **Tie Off** and **Trim After** options are disabled as they do not apply to travel runs.

Related topics...

- Adjusting travel run stitch length

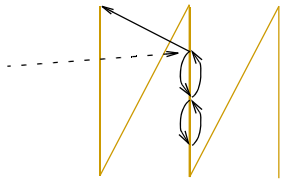
Automatic tie-in settings

Use Docker > Object Properties to toggle the Object Properties docker on/off.

Click View > Show Connectors to toggle connecting stitch display on/off to help determine start and end points.

Use View > Show Functions to toggle display of machine functions such as trims and tie-offs.

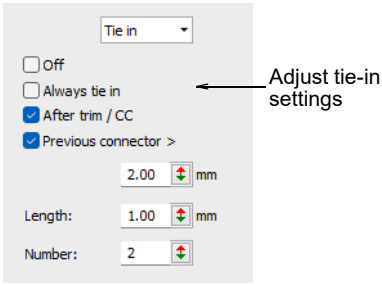
Tie-in stitches are inserted at the start of objects to prevent stitches from unraveling. They are inserted inside the shape on the second stitch. You generally use them when the previous connector is trimmed.



To adjust tie-in settings...

1 Click the **Object Properties** icon.

2 Select the **Connectors** tab.



3 Select **Tie In** from the list and select a tie-in option:

Option	Function
Off	No tie-ins are inserted.
Always tie in	Tie-ins are inserted before the object.
After Trim/CC	Tie-ins are inserted after trims and color changes.
Previous connector	Tie-ins are inserted when the previous connector exceeds the length you specify.

4 Set tie-in values:

Option	Function
Length	Determines length of tie-in stitches.
Number	Determines number of tie-in stitches to generate.

Automatic tie-off settings



Use Docker > Object Properties to toggle the Object Properties docker on/off.

With trims, stitches need to be tied off so the thread can be trimmed without unraveling. Select between automatic tie-off methods to set preferred default.

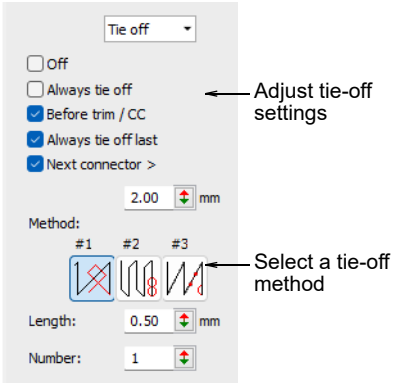


Method 2 is generally more visually pleasing on smaller objects and satin columns. With this method, however, stitches sew on top of each other with the consequent risk of thread breakage. On larger areas, the safer alternative is Method 1. Method 3 provides an alternative method for hiding tie-offs along existing stitch lines.

Tip: For narrow shapes or columns – e.g. small lettering – use only one tie-off stitch. You may also decrease the stitch length.

To adjust tie-off settings...

1 Click the **Object Properties** icon and select the **Connectors** tab.



2 In the **Tie Off** panel, select a tie-off option:

Option	Function
Off	No tie-off is inserted. By selecting this option, you need to add tie-off functions manually. See Add tie-offs for details.
Always tie off	A tie-off is inserted after the object.
Before trim / color change	A tie-off is inserted before a trim or color change.
Always tie off last	A tie-off is inserted if the object is the last one in the design.
Next connector longer than	A tie-off is inserted if the next connector exceeds the specified length.

3 Select a default tie-off method. The system will apply this method where it can but switch where necessary, depending on stitch spacing and type.

Method	Function
1	Adds a specified number of small stitches between the last two stitching lines. Generally used with dense fills.
2	Adds a specified number of small stitches up and back down the last stitching line. Generally used with open fills where it is less visible.
3	Splits the second-last stitching line into three equal stitches. Also adds a specified number of small stitches back up the last stitching line.

4 Set the tie-off values:

Option	Function
Length	Determines length of tie-off stitches.
Number	Determines number of tie-off stitches to generate.

Automatic trim settings



Use Docker > Object Properties to toggle the Object Properties docker on/off.

You can choose to turn off automatic trimming, to always trim connecting stitches, or to trim only when the connecting stitch is longer than a specified value.

To adjust automatic trim settings...

1 Click the **Object Properties** icon and select the **Connectors** tab.



2 In the **Trim After** panel, select a trim option:

Setting	Function
Off	No trims are inserted. This feature is useful if trimming causes your machine to slow down, or the needle to lose the thread. You can either add trim functions yourself, or trim the final embroidery by hand.
Always trim	Trims are inserted after the object.

Setting	Function
Trim if next connector >	Trims are inserted if connectors exceed the specified length.



Tip: Usually, connectors shorter than 3 mm are not visible on the final embroidery. You may sometimes require a smaller value – e.g. if the thread color contrasts with the background color.

Adding connectors manually

You can add tie-offs and trims to a design manually using the **Tie Off**, **Trim** and **Empty Stitch** tools. While generally not recommended and less efficient than using automatic connectors, this method does give you more control over the final design. For example, some machine formats are unable to read functions that appear on a normal stitch. For these machines, you need to add trim, tie-off and other machine functions to an **Empty Stitch** or **Empty Jump**. You may also need to add one or more empty stitches or empty jumps to either side of a function for the machine to read it correctly.



Note: For Schiffli work, you are advised to add connectors manually rather than rely on the automatic settings. Automatic connectors are turned off by default in the Schiffli template.

Add tie-offs



Click View > Show Connectors to toggle connecting stitch display on/off to help determine start and end points.

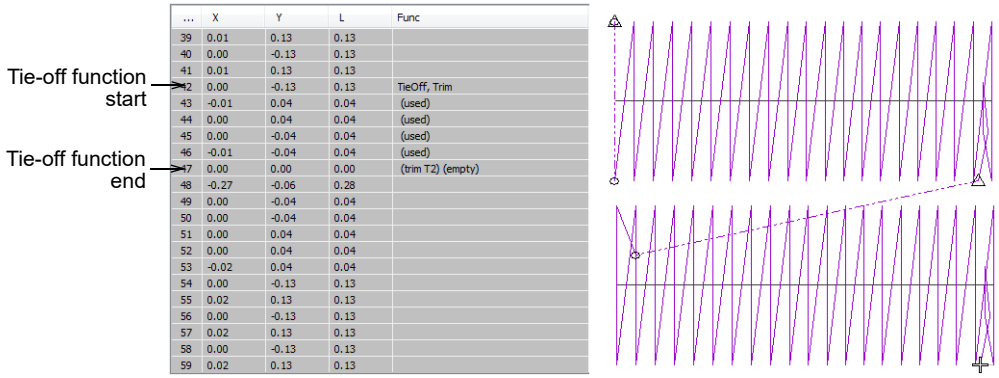


Click Function > Insert Tie-Off to insert a tie-off.

You can add tie-offs in your design using the **Tie-Off** tool. This provides a semi-automated technique for adding tie-offs as an alternative to digitizing them with manual stitches. Tie-offs are usually added before a trim at the end of an object. Generally you will follow a tie-off with a trim.

To add a tie-off...

1. Travel to the object you want to tie-off.
2. Click the **Insert Tie-off** icon. A **Tie-off** function is inserted.



The default number of tie-off stitches is two. This means the needle backtracks twice and returns to the insertion point. Adjust this value in the **Object Properties > Connectors** docker.

Tip: You can also insert machine functions manually using the **Insert Machine Function** dialog.

Related topics...

- Viewing stitching sequence
- Add trims
- Insert machine functions
- Automatic tie-off settings

Add trims

Click Function > Insert Trim to insert a trim.

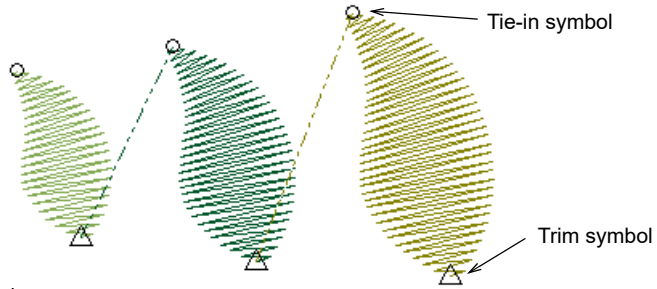
You can add trims in your design using the **Trim** tool. When you add a trim in this way, the trim function is added to the current stitch. Some machines require empty stitches or empty jumps on either side of the trim. If this is the case for the machine you want to stitch to, you will need to insert them.

Tip: Make sure that all stitches you trim have been tied in and off, otherwise stitches will not be secured.

To add a trim...

1 Travel to the needle position where you want to trim the thread.

2 Click the **Insert Trim** icon. A trim function is inserted at the current needle position.



Tip: You can also insert machine functions manually using the **Insert Machine Function** dialog.

Related topics...

- Travel through designs
- Insert machine functions

Add empty stitches & jumps

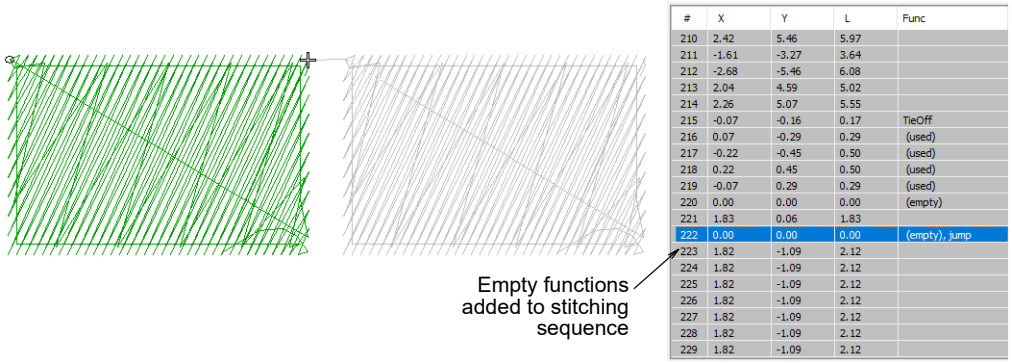
Click Function > Insert Empty Stitch to insert an empty stitch.

Click Function > Insert Empty Jump to insert an empty jump.

Empty stitch is a tight (zero length) lockstitch used together with, or as an alternative to, tie-in and tie-off stitches. Use empty stitches instead of tie-ins or tie-offs for objects filled with light density stitching where standard tie-ins and tie-offs may be visible. Also, use empty stitches or empty jumps when required by the selected machine format.

To add empty stitches and jumps...

1 Travel to the needle position where you want to trim the thread.
2 Click the **Insert Empty Stitch** icon to insert an empty stitch.
3 Click the **Insert Empty Jump** icon to insert an empty jump.



#	X	Y	L	Func
210	2.42	5.46	5.97	
211	-1.61	-3.27	3.64	
212	-2.68	-5.46	6.08	
213	2.04	4.59	5.02	
214	2.26	5.07	5.55	
215	-0.07	-0.16	0.17	TieOff
216	0.07	-0.29	0.29	(used)
217	-0.22	-0.45	0.50	(used)
218	0.22	0.45	0.50	(used)
219	-0.07	0.29	0.29	(used)
220	0.00	0.00	0.00	(empty)
221	1.83	0.06	1.83	
222	0.00	0.00	0.00	(empty), jump
223	1.82	-1.09	2.12	
224	1.82	-1.09	2.12	
225	1.82	-1.09	2.12	
226	1.82	-1.09	2.12	
227	1.82	-1.09	2.12	
228	1.82	-1.09	2.12	
229	1.82	-1.09	2.12	

Tip: You can also insert machine functions manually using the **Insert Machine Function** dialog.

Related topics...

- Travel through designs
- Insert machine functions

Add jumps with penetrations off

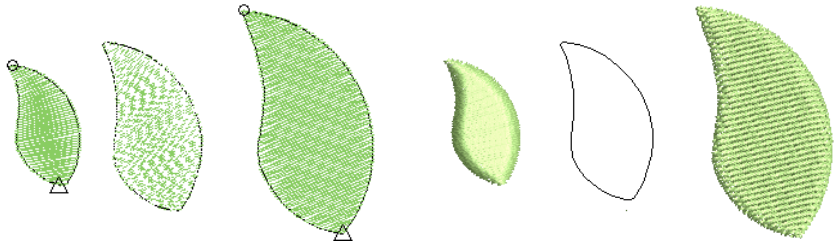
Deselect Function > Penetrations to create jumps with needles or borers out.

You can create jump connectors manually in a design by digitizing with penetrations off. The **Penetrations** tool prevents the needle from penetrating the fabric, forcing the machine to move across the design in a series of jumps. You can use **Penetrations** with any input method.

To add a jump with penetrations off...

1. Select an input method – e.g. **Run**.
2. Deselect **Penetrations**.
3. Digitize the connector in the usual way for the selected input method.

   The jumps are saved together as an embroidery object.



Adjusting travel run stitch length

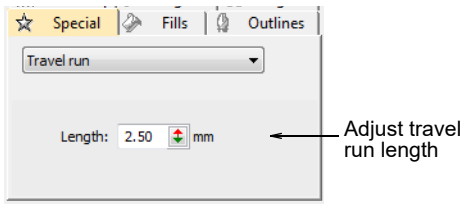
Use Docker > Object Properties to toggle the Object Properties docker on/off. Use it to set the travel run stitch length.

Travel runs are usually used to connect segments within filled objects. They are usually covered by fill stitches when the object is stitched out. You can adjust the travel run length to reduce the stitch count.

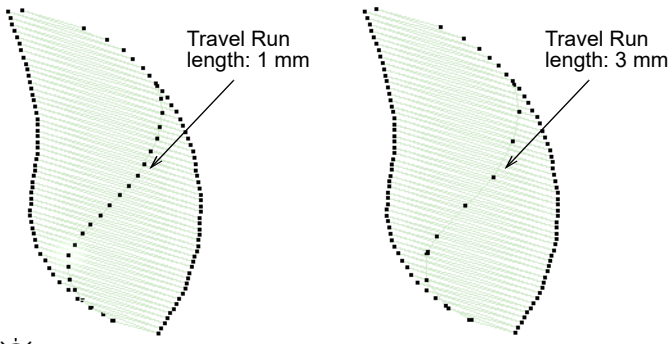
To adjust travel run stitch length...

1 Click the **Object Properties** icon.

2 Select the **Special** tab and **Travel Run** from the list.



3 Enter a value in the **Length** field as required.



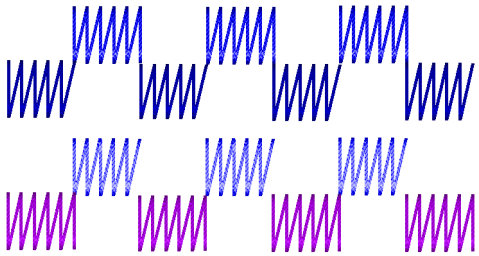
Tip: Increase stitch length to reduce the stitch count. Travel Run automatically varies the stitch length on tight curves.

Keeping or omitting last stitches

Click Reshape > Keep Last Stitch to keep the last stitch in a column.

Click Reshape > Omit Last Stitch to omit the last stitch in a column.

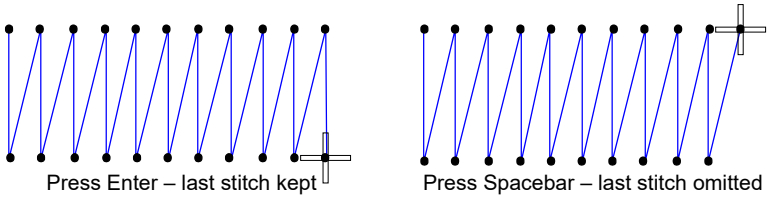
If you are digitizing adjoining columns, you can keep or omit the last stitch in the first column to achieve a smoother join or shorter connecting stitches.



Note: This feature only applies when the exit point is at the end of the column – i.e. the default exit point. Moving the exit point using the **Reshape Object** tool overrides the **Keep Last Stitch/Omit Last Stitch** command.

To keep or omit the last stitch...

- To keep the last stitch, select the object and click the **Keep Last Stitch** icon.
- To omit the last stitch, select the object and right-click the **Omit Last Stitch** icon.



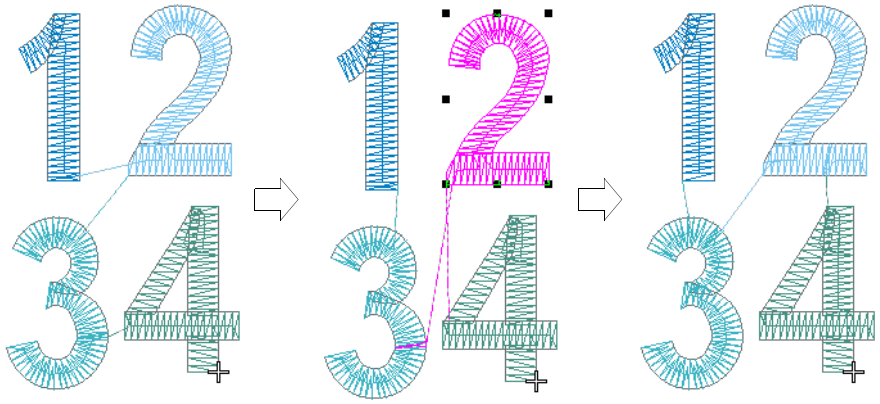
Tip: Alternatively press **Spacebar** to omit the last stitch or **Enter** keep it.

Related topics...

- Apply closest join

Minimizing connectors

Designs stitch out more efficiently when the connectors between objects are short. This also reduces the number of trims in a design.
BE EmbroideryStudio has a **Closest Join** method which is set via the **Setup (or Standard toolbar) > Options > General** tab. When activated (the default), entry and exit points of objects are automatically placed when the user digitizes new objects.

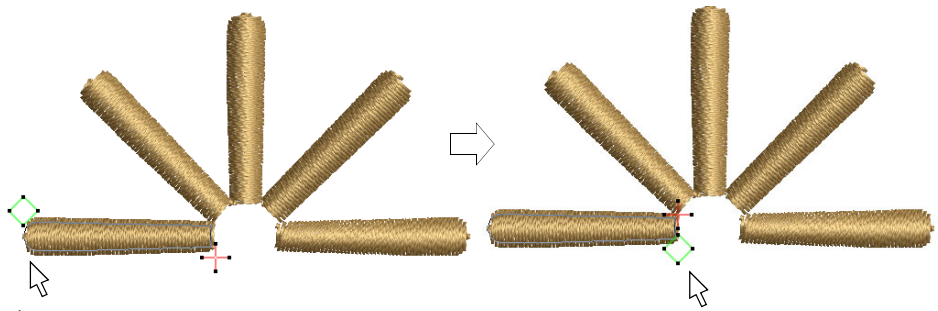


However, closest joins are **not** automatically maintained when objects are moved, re-sequenced, or edited. The **Apply Closest Join** feature allows you to (re-)apply closest joins to objects after editing.
BE EmbroideryStudio also allows you to manually change entry and exit points of individual objects.

Adjust entry/exit points

	Use Reshape Object to adjust the entry and exit points of selected objects.
	Use Reshape Views > Show Entry/Exit Points to toggle entry/exit point display when using the Reshape Object tool.

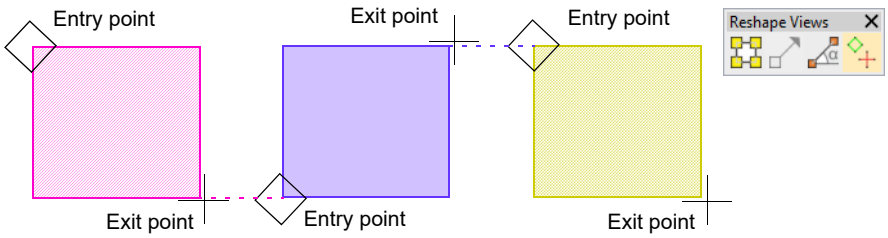
BE EmbroideryStudio allows you to manually change entry and exit points of individual objects. Entry and exit points should always be checked if you are re-sequencing objects in a design.



Tip: Closest joins are not automatically maintained when objects are moved, re-sequenced, or edited. The **Apply Closest Join** feature allows you to automatically re-apply closest joins to objects after editing.

To adjust entry/exit points...

- Select an object and click **Reshape Object**.
- Click **Show Entry/Exit** to view only entry and exit points.
- To view next or previous objects, press **Tab** or **Shift+Tab** keys. Any changes to objects are confirmed.
- Select entry or exit points of adjoining objects and drag into close proximity.



- Press **Enter**.

Tip: If you are digitizing adjoining columns, optionally keep or omit the last stitch in the first column to achieve a smoother join or shorter connecting stitches.

Related topics...

- Sequencing embroidery objects
- Keeping or omitting last stitches
- Other general options

Apply closest join

Use Arrange > Apply Closest Join to (re-)apply closest join to objects after editing.

The **Closest Join** feature automatically calculates the closest join between consecutive objects, saving you having to think about entry and exit points. The command can be accessed via:

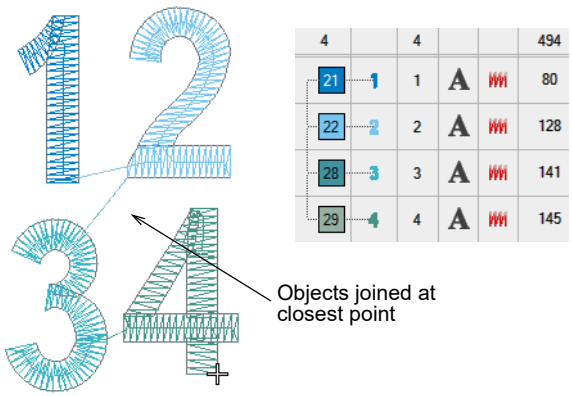
- Toolbar button on the **Arrange** toolbar
- **Arrange** menu
- Design window popup menu
- Color-Object List popup menu
- Shortcut key (J)

Note: The **Apply Closest Join** command is only enabled when two or more consecutive objects are selected.

To apply closest join...

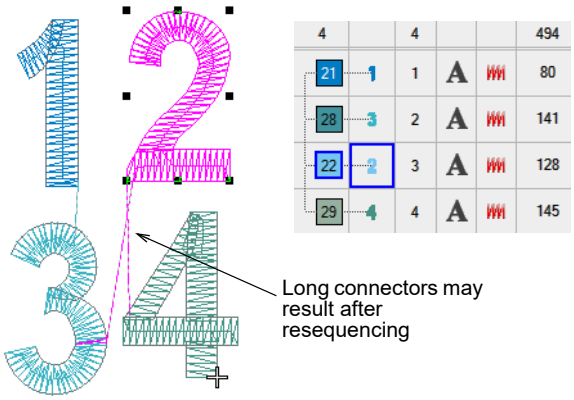
- Digitize embroidery objects as required.

  If the **Closest Join** method has been activated via the **Setup (or Standard toolbar) > Options > General** docker, entry and exit points of objects are automatically joined at the closest point.



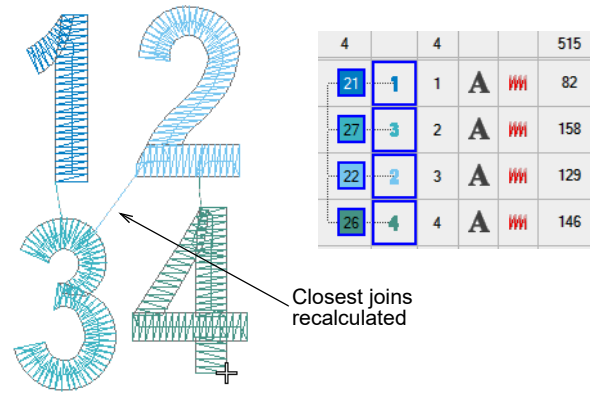
- Move, reshape, and/or resequence objects in the design as required.

  Closest join is not recalculated automatically – long connectors may result.

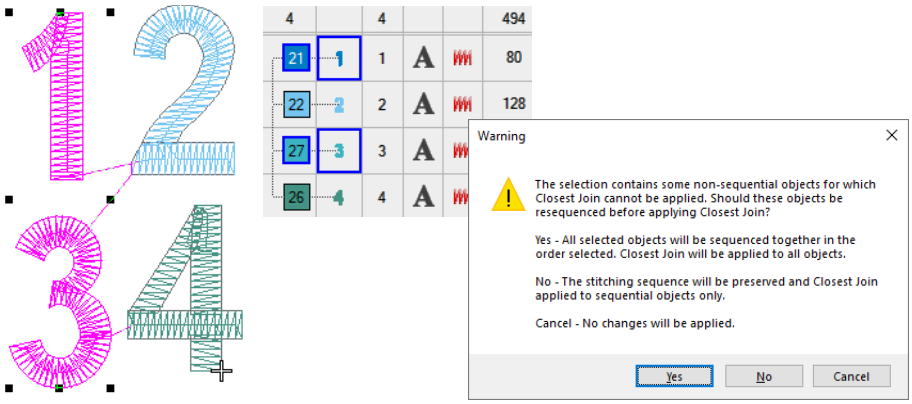


- Select all objects in the sequence and reapply closest join – click **Apply Closest Join** or choose the command from the popup menu.

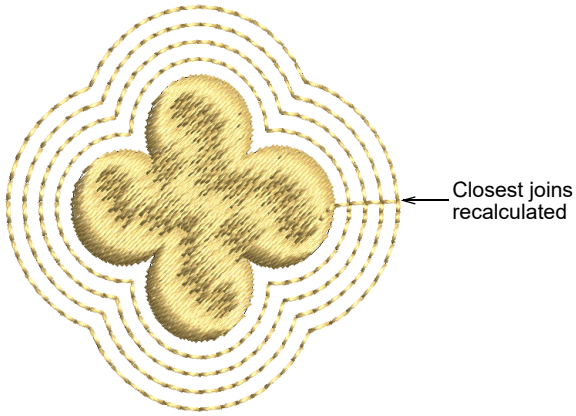
  Selected embroidery objects are regenerated and **Closest Join** applied.



Caution: Any non-sequential embroidery objects in the selection will cause a message to be displayed:



Tip: Apply **Closest Join** also to generated offset objects.



Related topics...

- Other general options
- Generating outlines & offsets

Closest join limitations

The **Apply Closest Join** feature is not applicable to all objects in all circumstances. Note the following limitations.

Stitch regeneration

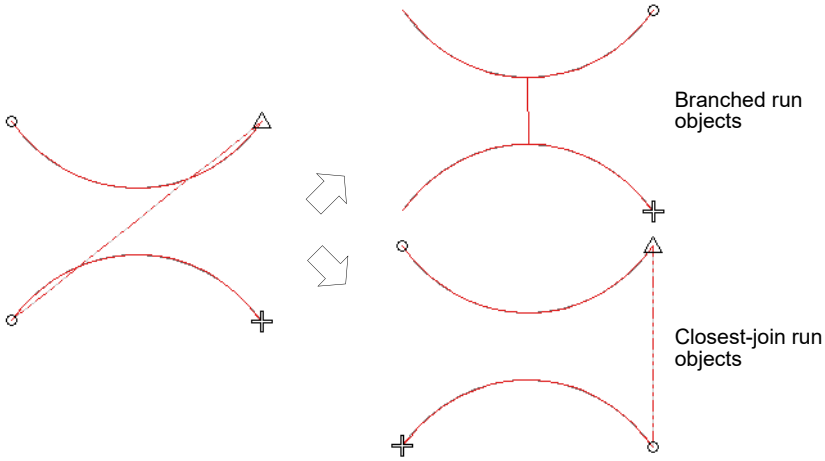
Closest Join requires the complete stitch regeneration of the objects – the whole object, not just connectors. Stitch regeneration has its limitations:

- Recognized objects – i.e. opened from machine files – may generate poor or incorrect embroidery.
- Manual (unrecognized) objects cannot be changed by stitch regeneration. Thus **Closest Join** will not work properly for them.
- Manual stitch edits to objects will be lost.
- Inserted and recognized machine functions may be mistakenly regenerated on the underlay.
- Nested objects are not supported. They will become un-nested and placed after the object in which they were originally nested. This may not produce ideal sequence.

Run objects

The **Closest Join** technique is not as powerful as **Branching** for run objects. **Closest Join** will not produce a nicely-merged double-run, so

connectors are only possible at the ends of the run, not in the middle. The best it can do is swap the ends of the runs.



Automatic branching

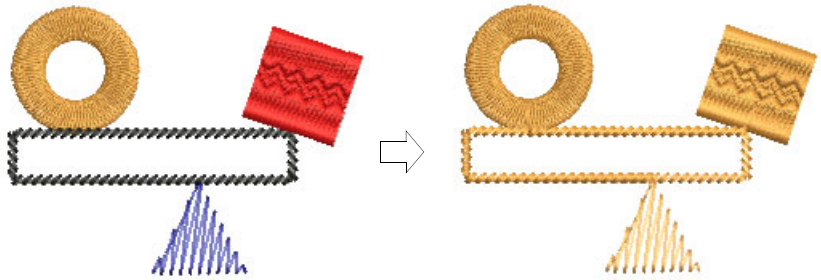
The **Branching** feature lets you digitize like objects – e.g. the fingers of a hand, sections of a custom letter – without having to think about the most efficient stitching sequence and joins. Apply **Branching** to join touching or overlapping objects to form a single 'branched object'.



Characteristics of branched objects

- Objects are resequenced, connectors minimized, component objects grouped, and stitches regenerated.
- When dissimilar objects are selected, any which cannot be branched are omitted.

- All component objects are grouped and selectable as one.
- Branched objects can be reshaped.
- There is a single entry and one exit point but all component objects have individual reshape points.
- Branched objects preserve their component object properties while sharing the color of the first object in the sequence.



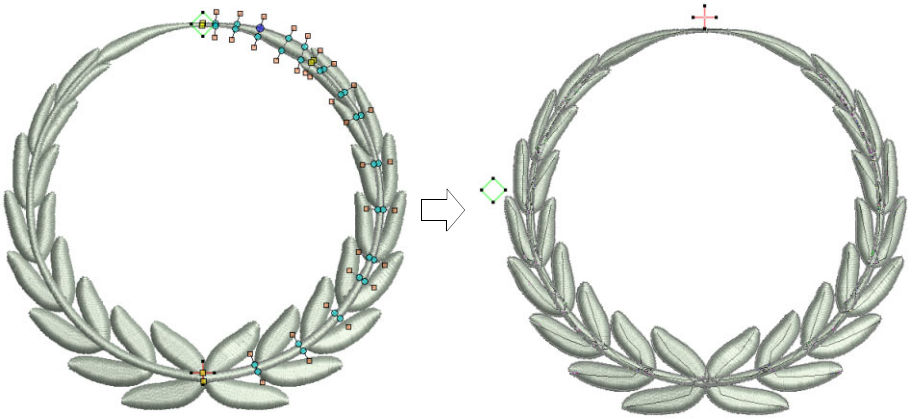
- Branching works with any combination of the following object types – Run, Column A, Column B, Column C, Complex Fill and Complex Turning. Objects with Motif Run and Motif Fill cannot be used.
- Stitch types can be re-assigned via the toolbar.

Apply automatic branching



Click Arrange > Branching to automatically sequence and group like embroidery objects.

Apply **Branching** to selected objects. These become a single branched object.



To apply automatic branching...

1 Select the objects.



Note: The function is only available if more than one object of any suitable type is selected.

2 Click the **Branching** icon. BE EmbroideryStudio will prompt you to digitize entry and exit points.

3 Digitize entry and exit points, or press **Enter** twice to accept the defaults.

Component objects are grouped and share the color of the first branched object. Objects are resequenced, connectors minimized, and stitches regenerated.



4 Travel through the branched object to check stitching.

Related topics...

- Travel through designs

Branch objects with the Color-Object List

Use Docker > Color-Object List to branch selected objects in a design.

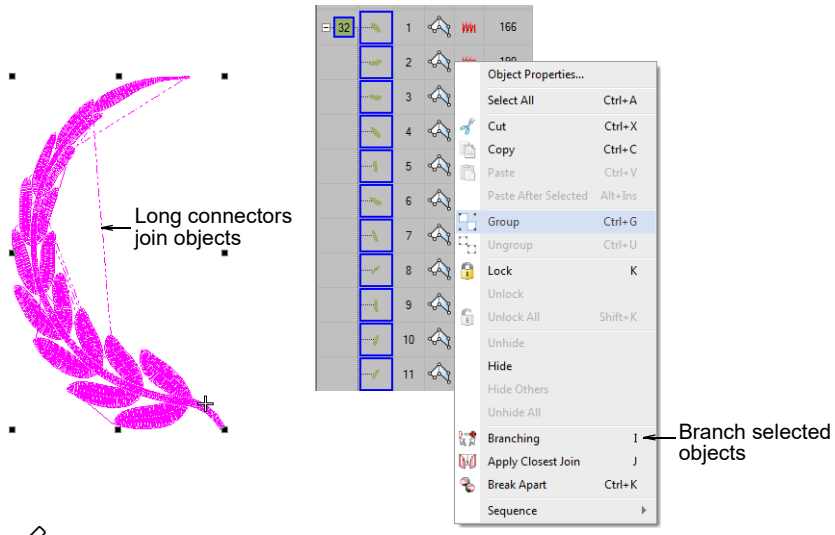
The **Color-Object List** provides an easy way to select objects in designs and access their properties. You can use it to branch like objects in a design.

To apply branching with the Color-Object List...

1 Click the **Color-Object List** icon.

2 Select objects in the **Color-Object List**.

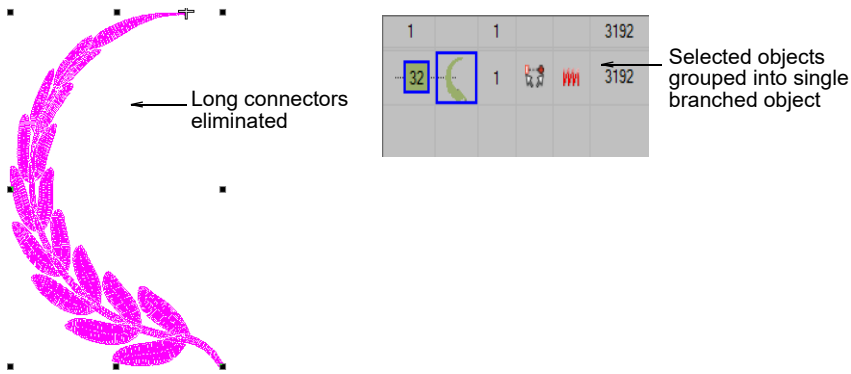
3 Right-click and select **Branching** from the popup menu.



Note: The function is only available if more than one object of any suitable type is selected.

4 Digitize entry and exit points, or press **Enter** twice to accept the defaults.

Component objects are grouped and share the color of the first branched object. Objects are resequenced, connectors minimized, and stitches regenerated.



Tip: Use the **Color-Object List** also to cut, copy and paste, group and ungroup, lock and unlock, and show and hide objects, as well as resequence objects.

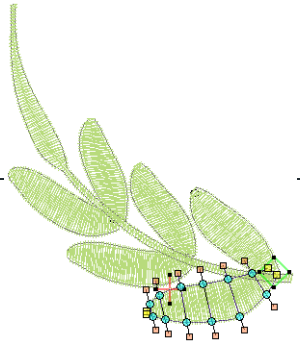
Related topics...

- Combining Objects

Apply automatic underlay to branched objects

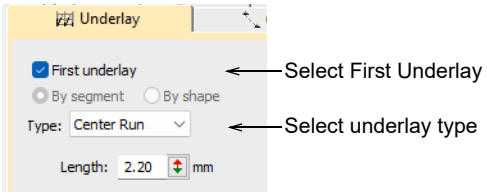
Right-click Stitch Effects > Auto Underlay to select an underlay type to apply to branched objects.

Because **Branching** combines objects to form a single branched object, you may be able to apply a single underlay to the entire object. The technique works well with Column A or Column B objects.



To apply automatic underlay to branched objects...

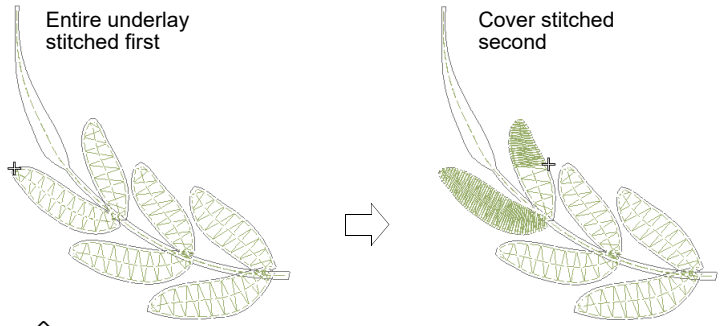
1 Select the branched object and right-click **Auto Underlay**.



2 Select the **First Underlay** checkbox and select an underlay type.

3 Optionally, add a second underlay.

4 Press **Enter** or click **Apply**. Underlay stitches are automatically generated for the branched object.



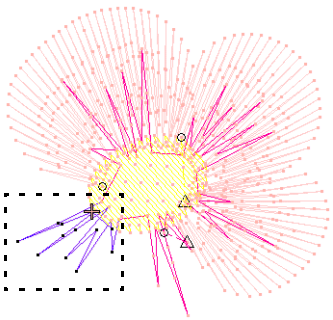
Note: If component objects are touching or overlapping, the underlay is first stitched out for the whole branched object followed by the cover stitch.

Related topics...

- Viewing stitching sequence

Chapter 20

Stitches & Machine Functions



BE EmbroideryStudio automatically generates stitches from design outlines and properties. This means you can scale, transform, and reshape native designs without compromising stitch density or quality. However, BE EmbroideryStudio also lets you edit and digitize individual stitches. You may need to do this, for example, when working with 'stitch' files which do not contain outline data.

Like stitches, machine functions are inserted automatically whenever you digitize objects and specify object properties. They are stored with the embroidery object and updated whenever it is modified. However, BE EmbroideryStudio also lets you manually insert machine functions. This flexibility allows you to adapt designs to almost any machine requirement. See Machine Files for details.

You can also use manual stitching together with machine functions to create boring holes. Holes are cut in the fabric, producing an effect similar to lace.

Stitches

The **Stitch Edit** tool lets you select individual stitches or groups of stitches directly or via the **Stitch List**.

Caution: When you insert stitches manually, you must maintain them manually. For this reason, only insert stitches if they cannot be added automatically.

Select stitches by needle point

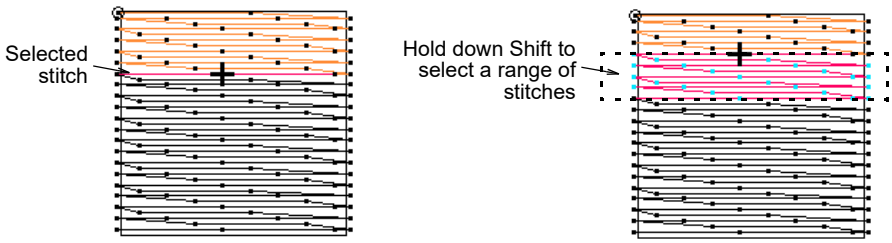
Use Stitch > Stitch Edit to select individual stitches for editing.

Click View > Show Needle Points to show or hide the needle points in a design.

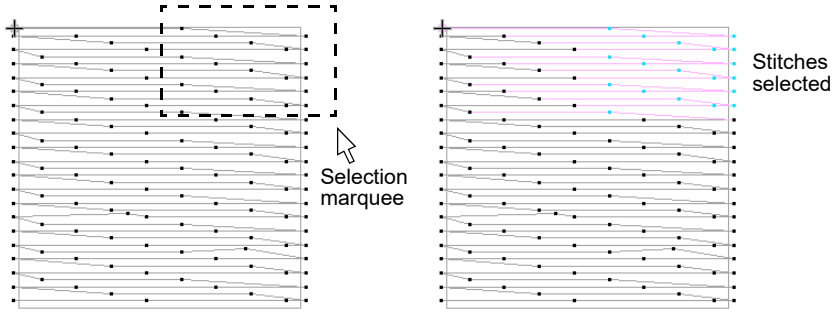
Select individual stitches in **Stitch Edit** mode.

To select stitches by needle point...

1 Click the **Stitch Edit** icon and zoom into the area you want to edit.
2 Click **Show Needle Points** for easier selection.
3 Click a needle point.



4 Use keyboard shortcuts to aid selection:
   - To select a range, hold down **Shift** as you select.
   - To select multiple stitches, hold down **Ctrl** as you select.
5 Alternatively, drag a selection marquee around stitches.



6 Deselect by either means:
   - Press **Esc**.
   - Select **Edit > Deselect All**.

Tip: While editing stitches, use the **Selects On/Off** command to select stitches while traveling.

Related topics...

- Select stitches while traveling

Select stitches while traveling

Use Stitch > Stitch Edit to select individual stitches for editing.

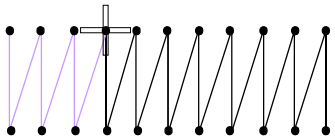
Select Stitch > Selects On/Off to select a range of stitches as you travel through the design.

Select a range of stitches by traveling by stitch with **Selects On/Off** activated. This command adds stitches to the selection as you travel through the stitching sequence.

To select stitches while traveling...

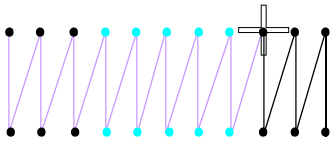
1 Click the **Stitch Edit** icon.

2 Zoom into the area you want to edit and click a needle point.



3 Select **Stitch > Selects On/Off** or press **Q**.

4 Travel through the design using arrow keys or **Travel** tools. As you travel, stitches are added to the selection.



5 Press **Q** again to toggle off stitch selection.

Related topics...

- Travel through designs

Insert stitches

Use Stitch > Stitch Edit to insert stitches in an object.

You can insert stitches in an object to fill gaps. Inserted stitches are considered part of the object. They will, however, be lost if the object's stitches are regenerated. Where possible, edit object properties rather than individual stitches. For example, to increase stitch density, reduce spacing rather than insert stitches.

To insert stitches...

1 Click the **Stitch Edit** icon and zoom into the area you want to edit.

2 Select a needlepoint.



3 Move the mouse pointer where you want to insert the new stitch, and right-click.

Note: Inserting stitches is different from creating stitches using the **Manual** input method. With this tool you create a separate object, with its own properties and connectors.

Related topics...

- Digitize stitches

Edit stitches

Use Stitch > Stitch Edit to select individual stitches for moving.

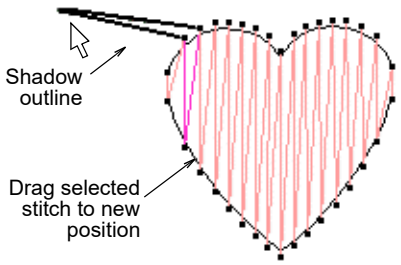
Use Docker > Stitch List to toggle Stitch List display on/off. Use it to edit coordinates of individual stitches.

You can move or delete individual or groups of selected stitches.

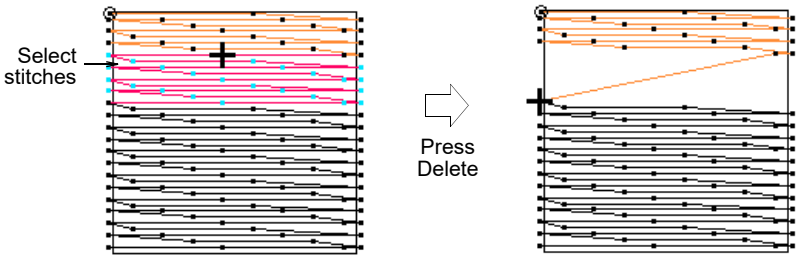
To edit stitches...

1 Click the **Stitch Edit** icon and zoom into the area you want to edit.

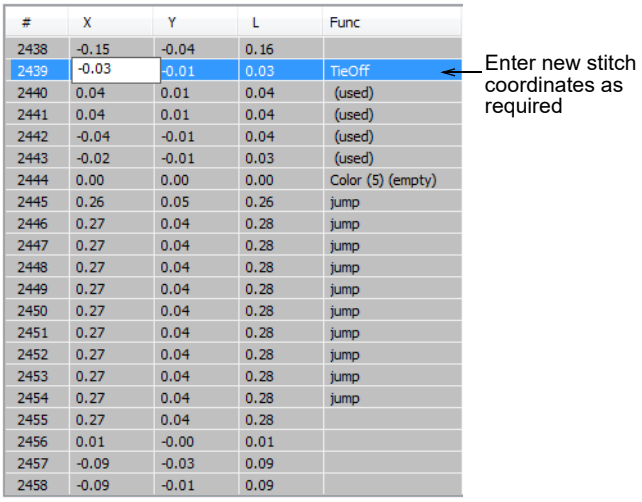
2 Select stitches and drag them to a new position.



3 Select a stitch or stitches and press **Delete**.



4 Open the **Stitch List** and double-click the stitch coordinate you want to edit.



#	X	Y	L	Func
2438	-0.15	-0.04	0.16	
2439	-0.03	-0.01	0.03	TieOff
2440	0.04	0.01	0.04	(used)
2441	0.04	0.01	0.04	(used)
2442	-0.04	-0.01	0.04	(used)
2443	-0.02	-0.01	0.03	(used)
2444	0.00	0.00	0.00	Color (5) (empty)
2445	0.26	0.05	0.26	jump
2446	0.27	0.04	0.28	jump
2447	0.27	0.04	0.28	jump
2448	0.27	0.04	0.28	jump
2449	0.27	0.04	0.28	jump
2450	0.27	0.04	0.28	jump
2451	0.27	0.04	0.28	jump
2452	0.27	0.04	0.28	jump
2453	0.27	0.04	0.28	jump
2454	0.27	0.04	0.28	jump
2455	0.27	0.04	0.28	
2456	0.01	-0.00	0.01	
2457	-0.09	-0.03	0.09	
2458	-0.09	-0.01	0.09	

5 Enter new coordinates in the **X** and **Y** fields and press **Enter**. The new coordinates will change the location of the stitch end point.

Caution: If an object's stitches are regenerated for any reason, all stitch editing functions are lost. Where possible, reshape the object rather than move individual stitches.

Related topics...

- Reshaping & Splitting Objects
- Select stitches with the Stitch List

Digitize stitches

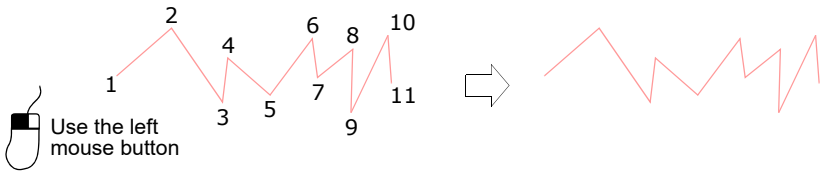
Use Traditional Digitizing > Manual to digitize individual 'manual' stitches.

Use Traditional Digitizing > Triple Manual to digitize triple 'manual' stitches.

Occasionally you may need to digitize individual stitches. Use these sparingly, for example, to add a few details to a finished design. Digitize individual stitches with the **Manual** method. You can enter single manual stitches, or enter three stitch layers at a time with the **Triple Manual** tool. Manual stitches digitized together form a single embroidery object. The only properties of manual objects are general and connector properties. They are not well suited to scaling and transforming actions. Use them sparingly, for example to add a few stitches to a finished design.

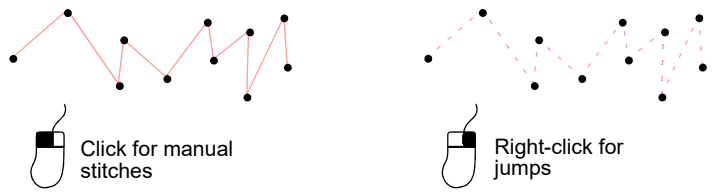
To digitize individual stitches...

1. Click the **Manual** or **Triple Manual** icon.
2. Click to mark the start of the stitch and again to mark its end. The end-point becomes the beginning of the next stitch.
3. Continue marking stitch points until the manual stitch object is complete.



Usage tips...

- Manual stitches are not well suited to scaling and transforming actions as the stitches have no associated properties. Use them sparingly.
- Stitches that are too long will automatically become jump stitches, but you can also create jumps manually by right-clicking as you digitize.



- You can use manual stitching together with machine functions to create boring holes. If your embroidery machine is equipped with a boring knife or needle, you can use the **Borers** tool to turn needle penetrations into boring holes, regardless of selected stitch type. Holes are cut in the fabric, producing an effect similar to lace.

Related topics...

- Use jumps as connectors
- Multihead boring

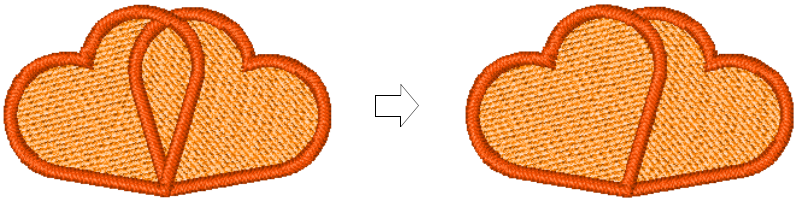
Splitting objects

Use Travel > Travel by Segment to move stitch cursor to the next/previous segment. Left/right click.

Use Travel > Travel 1 Stitch to move stitch cursor forwards/backwards 1 stitch at a time. Left/right click.

Use Stitch > Split Object to split object in two at current needle position. Use with Travel by Stitch functions.

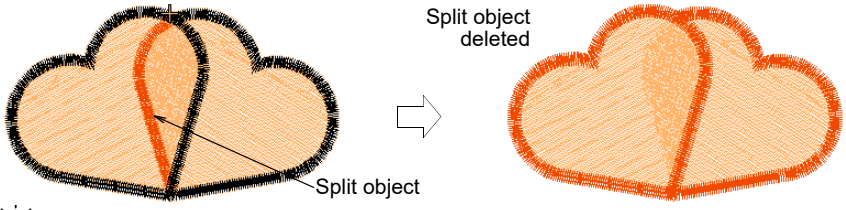
Use the **Split Object** command to split most embroidery objects. Run objects may also be split but Complex Fill and Complex Turning objects may not.



To split objects...

1 Use the **Travel by Segment** or **Travel by Stitch** functions to move to the stitch where you want to split the object. See also Travel through designs.

2 Select **Stitch > Split Object**.



Tip: You can convert any split manual objects to outline objects with **Process Stitches**.

Related topics...

- Adjusting stitch densities
- Travel through designs
- Converting stitches to objects

Converting stitches to objects

By default, machine files are converted to outlines and objects upon opening. If you only want to convert selected parts of a design, you can open the file without object/outline recognition and process only the required stitch blocks. If you want to scale a design, edit an outline or change a stitch type, then the design or selected elements must be first converted into 'objects'.

Tip: To ensure object outlines, stitch types, stitch density and colors are correct, it is always a good idea to check and edit designs after conversion. To improve the quality of a machine file, it is often better to edit stitches before conversion. See also Opening machine files.

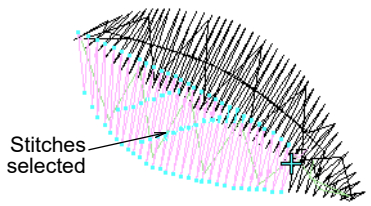
Recognize object outlines

Use Stitch > Stitch Edit together with Recognize Objects/Outlines to turn selected stitches into an embroidery object.

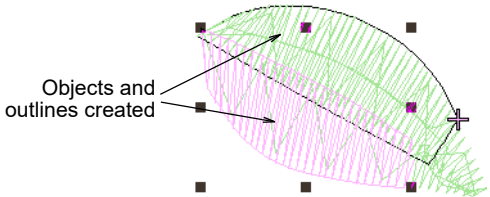
New or revised object outlines can be recognized after stitch edits have been made. This is useful with machine files which have been opened without **Object/Outline** recognition. You may do this to preserve the original stitching in most of the design, while modifying a single section of it. You may also want to turn edited stitches into an embroidery object in order to preserve the edits.

To recognize object outlines...

1 Click the **Stitch Edit** icon and select the individual stitches you want to process.



2 Select **Stitch > Recognize Objects/Outlines**. The selected stitches are converted to objects.



Related topics...

- Opening machine files
- Stitches

Process manual stitches

Use Stitch > Process Stitches to adjust stitch density of and/or scale whole or selected parts.

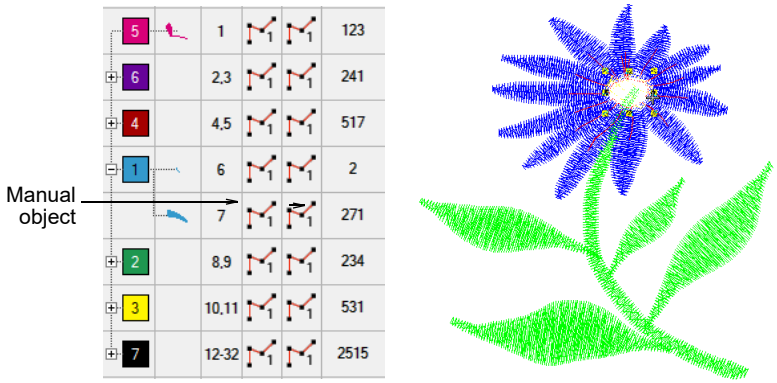
You can process manual stitches to recognize outlines or adjust size and stitch density. You can also use the **Process Stitches** feature to change stitch count and density for the whole design, or for objects of a particular stitch type only.

To process manual stitches...

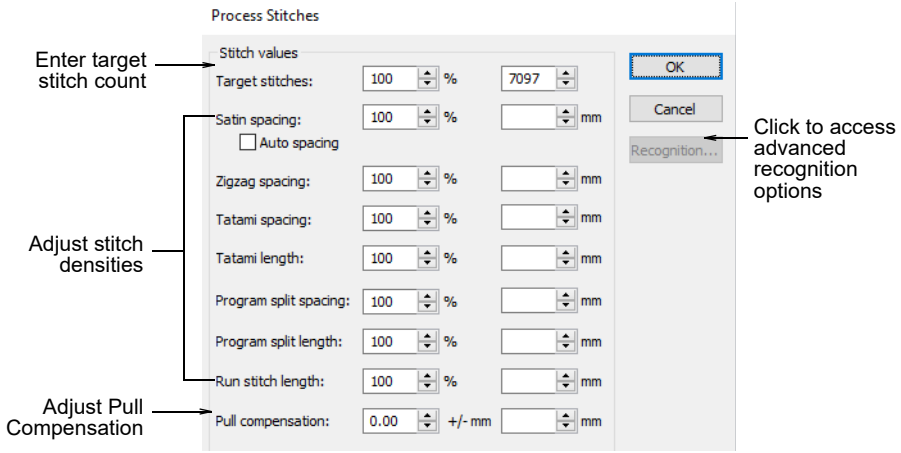
1 Open a machine file without object/outline recognition.

2 Edit parts of the design as required.

3 Select the part of the design you want to process. You can select the whole design or individual manual objects.



4 Select **Stitch > Process Stitches**. The **Process Stitches** dialog opens.

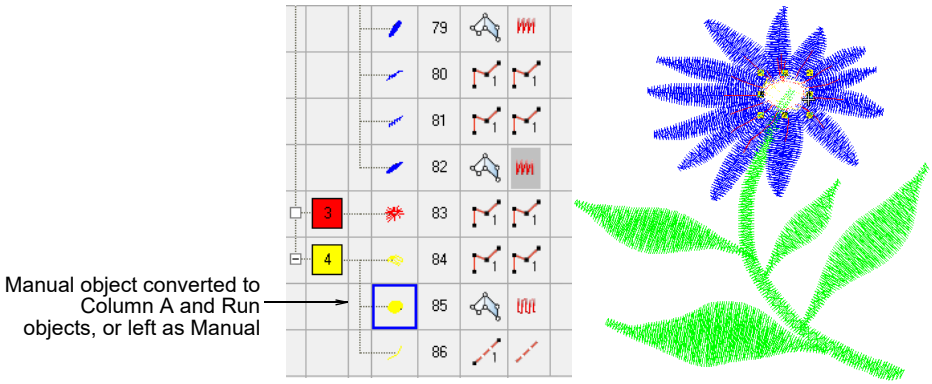


5 In the **Stitch Values** panel, enter the number of **Target Stitches** as either a percentage or absolute value (in millimeters).

6 Adjust the density for each stitch type as required. You can change the density for selected objects and/or for specific stitch types only.

7 Click **Recognition** to set advanced recognition options as required.

8 Click **OK**. Selected objects are processed and converted to Column A or Run objects with fill or outline stitch properties as well as general and connector properties. If an object is not recognized, it remains a manual object with general and connector properties only. In this case, the target stitch count may not be reached.



Usage tips...

- You can also split larger manual objects into smaller objects, and process them individually.
- **Process Stitches** adds the missing information to the file, but does not change the stitches.

Related topics...

- Adjusting stitch densities
- Splitting objects
- Advanced recognition settings

Using the Stitch List

You can use the **Stitch List** to help locate stitches and machine functions for editing. The **Stitch List** displays stitch number, stitch coordinates, stitch length, stitch function, stitch color. When you select a stitch in the list, it is simultaneously selected in your design.

Select stitches with the Stitch List



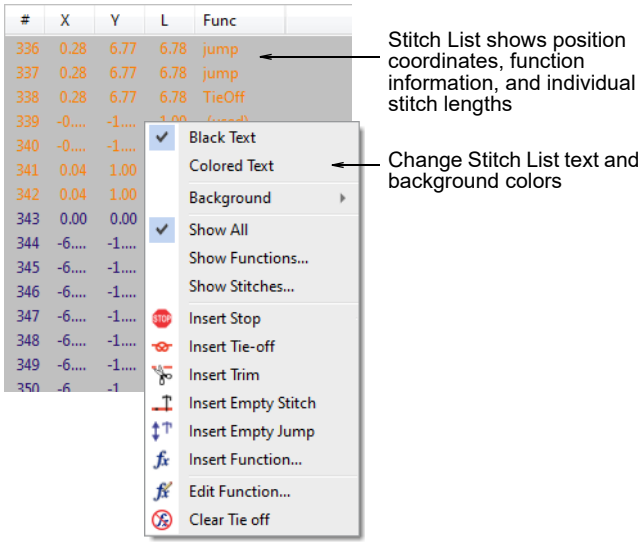
Use Docker > Stitch List to toggle Stitch List display on and off. Use it to select individual stitches.

You can view and select individual stitches by means of the **Stitch List**.

To select stitches with the Stitch List...

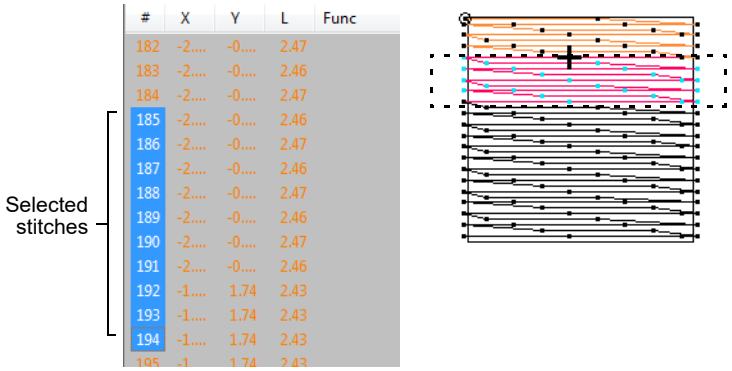
1 Click the **Stitch List** icon.

The **Stitch List** opens. It shows stitch position coordinates and function information – e.g. whether the stitch is a jump. It also shows the length of every stitch in the design.



2 Right-click to access popup menu options. For example, display text in black by selecting **Black Text** or in the associated stitch color by selecting **Colored Text**.

3 Click a stitch to select it. Stitches selected in the **Stitch List** are also selected in the design, and vice versa.



4 Use keyboard shortcuts to aid selection:

- To select a range, hold down **Shift** as you select.
- To select multiple stitches, hold down **Ctrl** as you select.

Related topics...

- Using the Stitch List

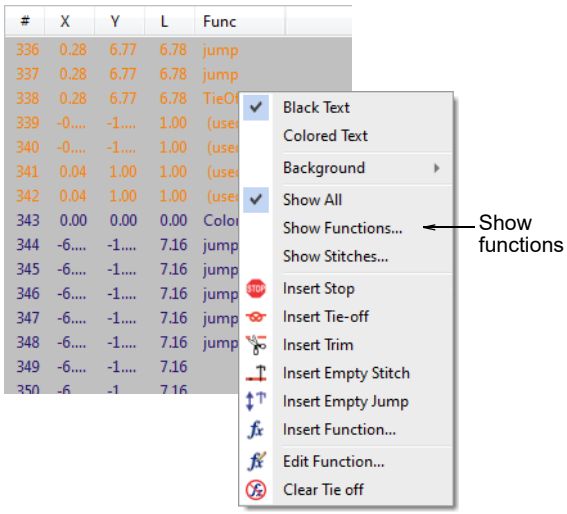
Filter stitches by function

Use Docker > Stitch List to toggle Stitch List display on/off. Use it to display stitches associated with specific functions.

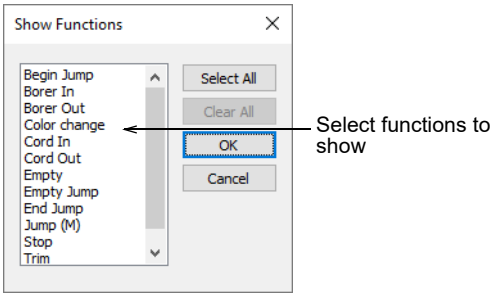
You can apply a filter to the **Stitch List** so that only stitches associated with specific functions appear in the list.

To filter stitches by function...

1 Open the **Stitch List**.



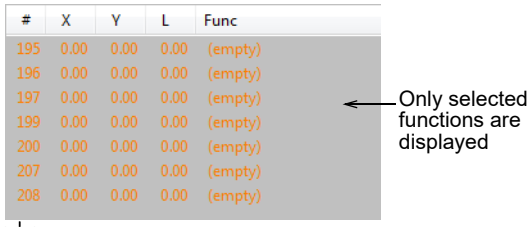
2 Right-click a stitch and select **Show Functions** from the popup menu.



3 Select the functions you want to show.

Tip: To select multiple functions, use **Ctrl** or **Shift** keys as you click. Click **Select All** to show all function types.

4 Click **OK**. Selected functions are displayed in the list.



Tip: To display the text in the associated stitch color, select **Colored Text** from the popup menu.

5 To show all stitches again, right-click in the **Stitch List** and select **Show All** from the popup menu.

Related topics...

- Select stitches with the Stitch List

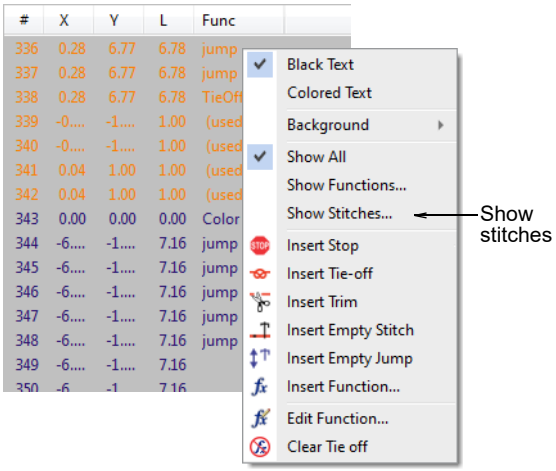
Filter stitches by stitch length

Use Docker > Stitch List to toggle Stitch List display on/off. Use it to display only stitches of a certain length.

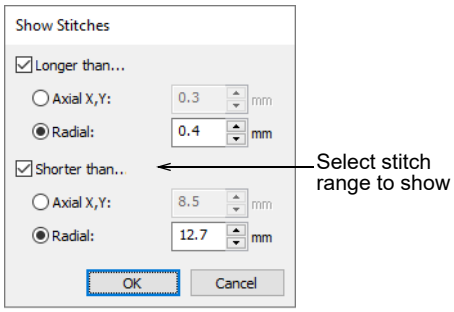
You can apply a filter to the **Stitch List** so that only stitches of a certain length appear in the list. The main use of this feature is to find stitches which cause production problems, such as short stitches (e.g. < 1.0 mm).

To filter stitches by stitch length...

1 Open the **Stitch List**.



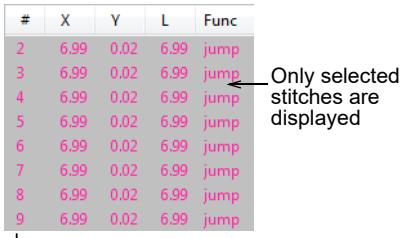
2 Right-click a stitch and select **Show Stitches** from the popup menu. The **Show Stitches** dialog opens.



3 Select the range of stitch lengths you want to show:

Option	Function
Radial	Corresponds to the actual stitch length.
Axial X,Y	Corresponds to the horizontal and vertical frame movements.

4 Click **OK**. Only the selected stitches are displayed in the list.



Tip: To display the text in the associated stitch color, select **Colored Text** from the popup menu.

5 To show all stitches again, right-click in the **Stitch List** and select **Show All** from the popup menu.

Related topics...

- Select stitches with the Stitch List
- Eliminating small stitches
- Preserve long stitches

Machine functions

Most machine functions are inserted automatically whenever you select commands or specify object properties. They are stored with the embroidery object and updated whenever it is modified. However, BE EmbroideryStudio lets you insert machine functions manually. Depending on the current machine format, different functions are available. The most common types are described below. See your machine manual for further details. See also Embroidery machine formats.

Caution: Machine functions which are manually inserted into non-manual objects – e.g. Column A, Complex Fill, etc – need to be maintained manually. If an object's stitches are regenerated for any reason, manually inserted machine functions may be moved to another point in the stitch sequence. For this reason, only insert functions manually if they cannot be added automatically.

Machine function types

BE EmbroideryStudio lets you manually insert color changes, thread trims, jumps, machine stops, needles in and out, and boring functions, depending on the selected machine format.

Color Change functions

Color Change functions tell the machine to use the next thread color in the design. They are automatically inserted when you select a new color from the color palette. See Assign thread colors for details.



Note: You only need to insert manual color change functions if you cannot recolor using standard methods – for example, when using multiple colors within a single object.

Trim functions

Trim functions instruct machines with trimmers to cut connecting threads before moving to the next object. You insert trims automatically by setting connector values or using the **Trim** tool. See Automatic trim settings and Add trims for details.

If you need additional trims, you can insert the functions manually.



Note: If a machine does not have a trimmer, the Trim function is ignored. Depending on the machine format, the Trim function may be a code or a sequence of jumps. See Trim functions for details.

Stop functions

If you want the embroidery machine to stop for any reason during stitching, you need to manually insert a Stop function in the stitching sequence.



Tip: Because a Stop function may be inserted for various reasons, you should record the purpose of the stop on the production worksheet to assist the machine operator.

Jump functions

Jump functions cause frame movements without needle penetrations and are used to move smoothly from one part of a design to another. There are various methods for automatically entering Jump functions.

- Apply Auto Jump to preserve long stitches. See Preserve long stitches for details.

- Digitize individual jumps by right-clicking the **Manual** icon. See Digitize stitches for details.
- Select jumps as connectors. See Use jumps as connectors for details.
- Create jump connectors manually by digitizing with **Penetrations** deselected. See Add jumps with penetrations off for details.

If you need additional jumps, you can insert the functions manually.

Begin/End Jump functions

The Begin/End Jump functions (formerly known as Needle Out/In) instruct the machine whether or not to use needle penetrations. You insert these functions automatically using the **Penetrations** tool (formerly known as Needles In). See Add jumps with penetrations off for details.

If you need additional Begin/End Jump functions, you can insert them manually.



Note: Remember to insert a End Jump function to instruct the machine to resume normal stitching.

Borer In/Out functions

Borer In/Out functions are available for embroidery machines equipped with a borer. They instruct the machine when to use the boring knife or tool instead of a needle. You insert these functions automatically using the **Borers** tool (formerly known as Borers In). See also Multihead boring.

If you need additional Borer In or Out functions, you can insert them manually.

Sequin On/Off functions

Sequin On and Sequin Off functions are available for embroidery machines that are equipped with a sequin dispenser. The Sequin On function generally instructs the machine to physically lower the sequin dispenser into position for sequins to be placed (fed and cut). These functions are automatically inserted when using the **Sequin** tools. See Sequin Embroidery for details.

If you need additional Sequin On or Sequin Off functions, you can insert them manually. See Insert manual sequin drops for details.

Some machines, notably Schiffli, use only explicit Drop Sequin functions. These instruct the machine to drop a sequin on the fabric for stitching. Schiffli machines, for example, do not require Sequin On/Off functions. See the ES Schiffli User Manual Supplement for details.

Insert machine functions

Use View > Show Functions to toggle display of machine functions such as trims and tie-offs.

Use Docker > Stitch List to toggle Stitch List display on/off. Use it to insert machine functions directly into the stitching sequence.

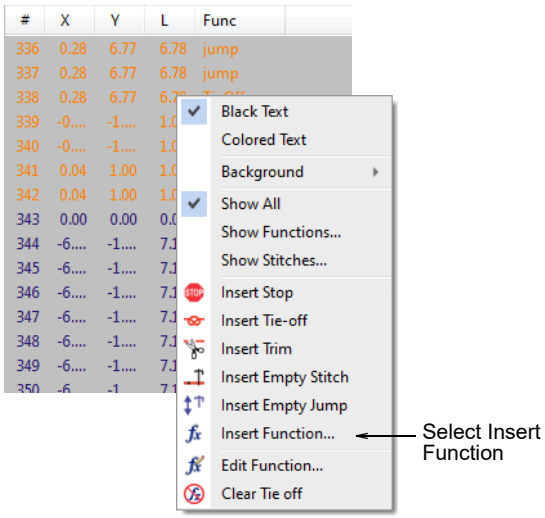
Click Function > Insert Function to insert machine function at current stitch cursor position.

You can insert machine functions manually by means of the **Insert Function** dialog. Depending on your machine's requirements, you will either add the function to the current stitch, or insert it on an empty stitch or empty jump. For some machines you will also need to add empty stitches or empty jumps on either side of some functions. See your machine manual for details.

Caution: When you insert machine functions manually, you must maintain them manually. For this reason, only insert manual functions if they cannot be added automatically.

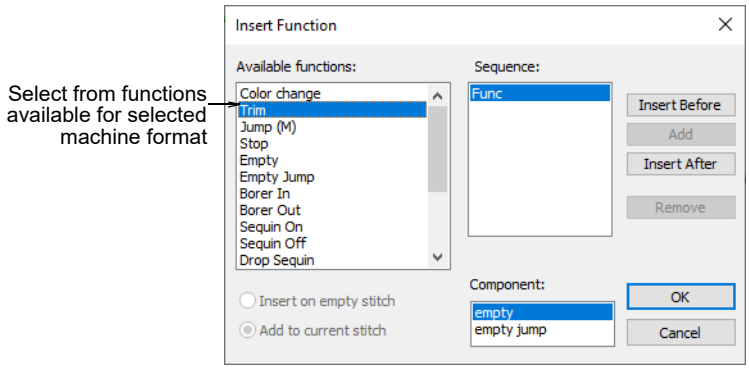
To insert machine functions...

1 Open the **Stitch List** and locate the position in the stitching sequence where you want to insert the machine function. Alternatively, use the travel functions to locate the insertion point. The function name appears in the **Prompt Bar**.



2 Right-click the stitch and select **Insert Function** from the popup menu.

Alternatively, click the **Insert Function** icon or select **Function > Insert Function**.



3 From the **Available Functions** list, select the function you want to insert. Available functions and their options depend on the current machine format.

Tip: It is faster to digitize individual jumps – Jump(M) – by right-clicking with the **Manual** input method selected. If you want the whole object to consist of jumps, deselect the **Penetrations** icon.

4 If available, choose an insertion method. With some functions you can choose whether to insert on the current stitch or on an empty stitch.

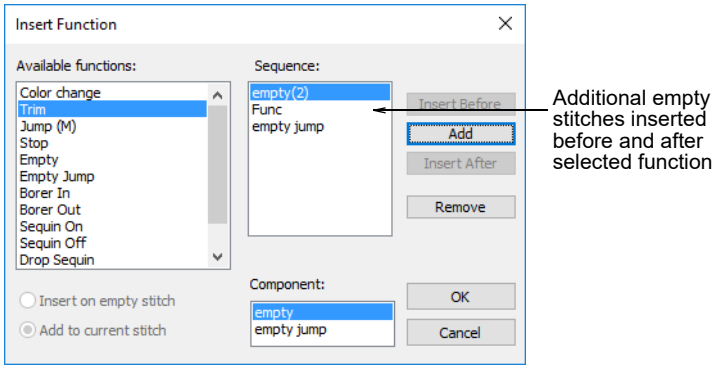
5 To insert additional empty stitches or empty jumps, select one or other in the **Component** field.

6 Depending on your machine, you may need to insert additional empty stitches or empty jumps before or after the selected function. For example, before a particular **Stop** function, you may need to insert a number of empty jumps. See your machine manual for details.

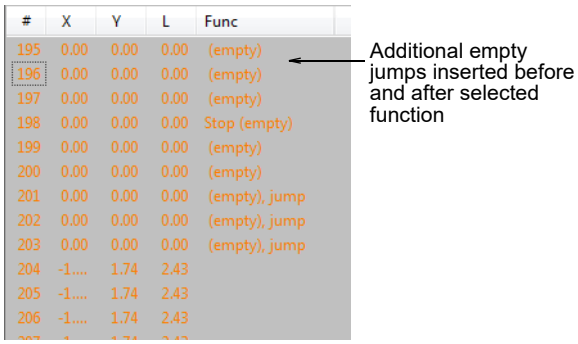
7 Use the buttons to insert additional components before or after the selected function.

Click **Insert Before** if you need the empty stitch/jump to precede the selected function.

8 To insert multiple empty stitches or jumps, click **Add**. The selected function, together with any additional empty stitches or jumps, appears in the **Sequence** panel.



9 Click **OK** to insert. The selected function, together with any additional empty stitches or jumps, is added at the current needle position. The name of the inserted function appears in the **Prompt Bar**.



Related topics...

- Create designs from templates
- Travel through designs
- Select stitches with the Stitch List
- Add jumps with penetrations off

Edit machine functions

Use View > Show Functions to toggle display of machine functions such as trims and tie-offs.

Use Docker > Stitch List to toggle Stitch List display on/off. Use it to edit machine function encoding and to clear machine functions.

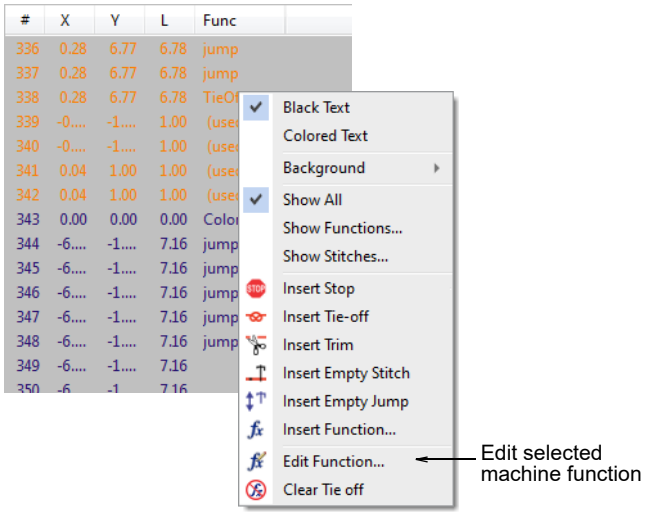
Click Function > Clear Function to remove machine functions at current stitch cursor position.

Click Function > Edit Function to edit machine function at current stitch cursor position.

You can edit the encoding of machine functions by changing the number or sequence of empty stitches or empty jumps that appear around them. Some machines require a specific number of empty stitches or empty jumps in combination with a function in order to interpret it correctly. You may need to edit functions if they were inserted incorrectly or the machine format has changed.

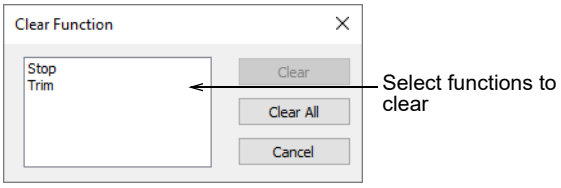
To edit machine functions...

1 Open the **Stitch List** and locate the position in the stitching sequence where you want to insert the machine function. Alternatively, use the travel functions to locate the insertion point. The function name appears in the **Prompt Bar**.



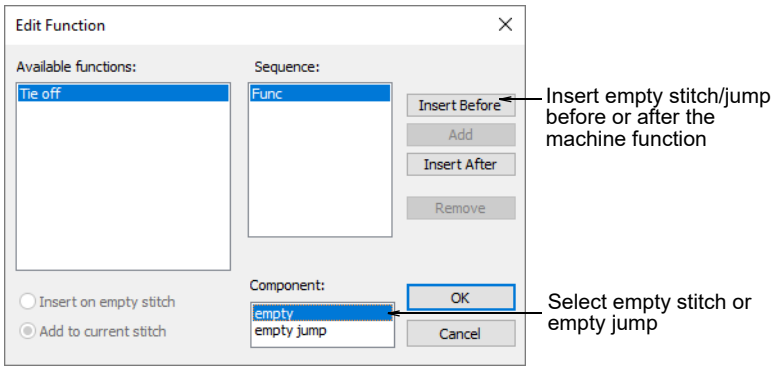
2 To remove the function altogether, select **Clear <function>** from the popup menu.

3 If a stitch includes more than one machine function – e.g. Trim and Tie-off – the **Clear <function>** command will invoke the **Clear Function** dialog. Use this to selectively clear functions as desired.



4 Right-click the function and select **Edit Function** from the popup menu. Alternatively, click the **Edit Function** icon or select **Function**

> Edit Function. The **Sequence** panel shows the current format of the selected function.



5 To insert additional empty stitches or empty jumps, select one or other in the **Component** field.

6 Use the buttons to insert additional components before or after the selected function. Click **Insert Before** if you need the empty stitch/jump to precede the selected function.

7 To insert multiple empty stitches or jumps, click **Add**.

8 To delete an empty stitch or empty jump from the sequence, select and click **Remove**.

Usage tips...

- Both automatic and manually-inserted functions can be removed.
- Functions added by BE EmbroideryStudio are automatically updated if an object is modified or the machine format changes.
- Manually inserted machine functions are not automatically removed or updated. You generally only need to edit manually inserted machine functions.
- If a function is no longer required, it must be manually cleared from the design.

Related topics...

- Travel through designs

PART VI
SPECIALTY EMBROIDERY

BE EmbroideryStudio provides support for many multi-decoration techniques, including print.



Decorative embroidery

This section outlines techniques involved in outputting embroidery as virtual decoration. It covers combining virtual embroidery with print as well as virtual with actual embroidery. It also covers BE EmbroideryStudio support for cording and boring. See Decorative Embroidery for details.

Bling digitizing

This section describes how to digitize with rhinestones. It covers setting up bling palettes and describes creating bling runs and fills. It also deals with modifying bling objects and bling text. See Bling Digitizing for details.

Appliqué embroidery

This section describes different techniques for creating appliqué including how to convert vector graphics to appliqué, how to digitize appliqué objects from scratch, as well as how to convert Complex Turning objects to appliqué. It also covers creating partial cover appliqué for overlapping objects as well as how to break up multiple appliqué and recombine components for efficient stitchout. See Appliqué Embroidery for details.

Chapter 21

Decorative Embroidery



With tatami fills you can create patterns of needle penetrations. Using a **random factor** you can distribute needle penetrations randomly.

Motif Fill is a decorative stitch used for filling closed objects. This feature repeats motifs in parallel rows to fill the shape.

With **Hand Stitch**, you can create effects which combine randomized stitch length, angle and count.

The **Stitch Types** toolbars include **Zigzag**, **E Stitch**, and **Square**. These can be used to create borders around appliqués and other embroidery objects. They can also be used for decorative effects or open fills where fewer stitches are required.

The **Trapunto** effect automatically moves underlying travel runs to the edges of an object so they can't be seen. In BE EmbroideryStudio, the effect is typically used in combination with open stitching to fill backgrounds or for shading effects.

The **Capture Virtual Decoration Bitmap** feature in BE EmbroideryStudio allows decorators to export high-resolution **TrueView** images. This is a technique that can provide commercial flexibility for many different processes.

This section covers the creation of textures with tatami offsets as well as motif fills. It also deals with hand stitch effects, decorative borders, and trapunto open stitching. It also deals with the creation of virtual embroidery.

Creating textures with tatami offsets

With tatami fills you can create patterns of needle penetrations. With only two offsets available, the number of patterns is limited, but even with

small offsets, visible lines are produced. Partition lines, with up to eight offsets, can create more patterns. Using a **random factor** you can distribute needle penetrations randomly.

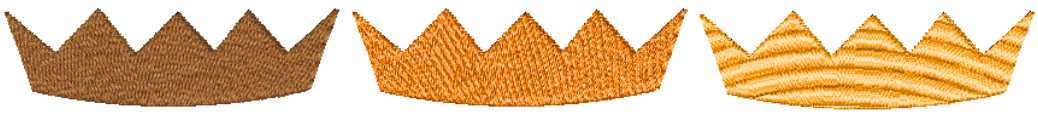


Tip: Auto Split can be used to create special textures in satin stitches as an alternative to tatami fill. See Split satin stitches for details.

Create offset patterns

Use Fills > Tatami to create fills for larger irregular shapes. Right-click for settings.

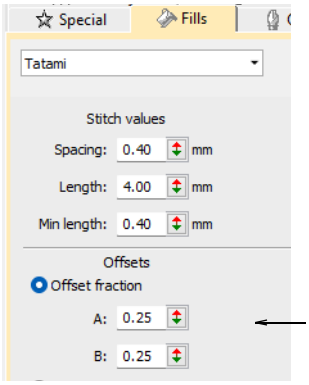
The tatami offset default settings are designed to create a uniformly flat and smooth surface. The texture is like a woven tatami mat without obvious split lines. By manipulating offset fractions, you can create stitch penetrations which are more clearly visible.



Tip: By adjusting offsets, you can also improve the quality of turning tatami where the pattern may be disturbed by non-parallel stitches. Changing the offsets can reduce this interference.

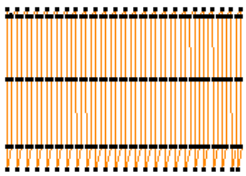
To create offset patterns...

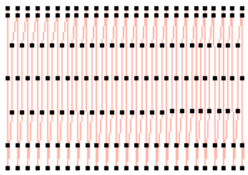
1 Right-click the **Tatami** icon to access object properties.

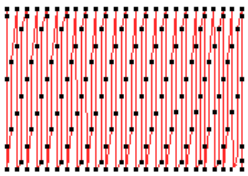


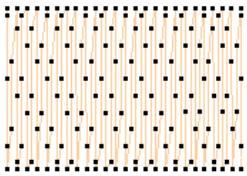
2 Select the **Offset Fraction** option. To control needle penetrations you set offset fractions for both forward and backward rows.

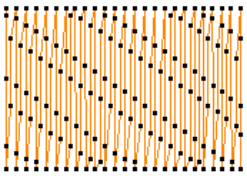
3 In **A** and **B** fields, experiment with offset fraction values. Offsets are defined as fractions of stitch length – e.g. 0.3 = 30%.

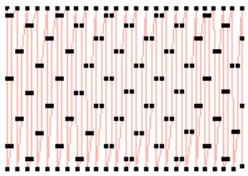

A=0.00, B=0.00


A=0.50, B=0.50

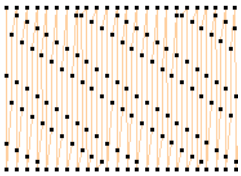

A=0.25, B=0.25

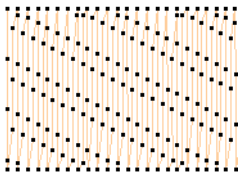

A=0.50, B=0.25

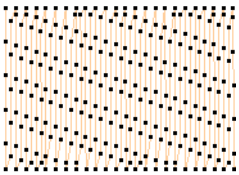

A=0.30, B=0.60


A=0.40, B=0.00

- **Even stitching**: set both fields to 0.25.
- **Strong horizontal lines**: set both fields to 0.00 or 1.00. The distance between each line of needle penetrations is the stitch length.
- **Light horizontal lines**: set both fields to 0.5. Lines are produced at half stitch-length intervals.


Offset: A=0.3, B=0.6
Stitch length: 4 mm

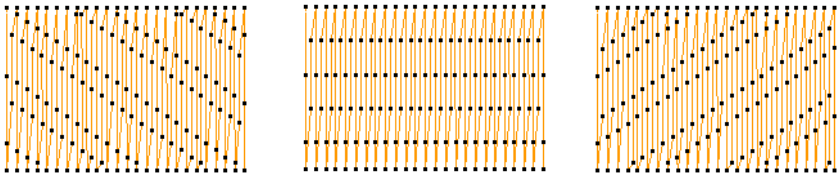

Offset: A=0.3, B=0.6
Stitch length: 3 mm


Offset: A=0.3, B=0.6
Stitch length: 2 mm

- **Diagonal lines**: set both fields to any value **other than 0.00, 0.50** and **1.00**. Diagonal lines are less noticeable than horizontal or vertical lines. Vary both values to change the angle of the lines and the distance between them.
- **Other**: set one field to **0.00**, and experiment with the other values to place the needle penetrations on the forward and backward rows close to each other, but with different effects.

Usage tips...

- If A-B offsets add up to 1.0, lines will be horizontal. If the sum is less than 1.0, lines will slope down, more and they slope up. The mirror image of 'A=0.3 and B=0.6' is 'A=0.7 and B=0.4'.



A=0.30, B=0.60 | A=0.50, B=0.50 | A=0.70, B=0.40

- Tatami patterns can be combined with curved fills for interesting effects.

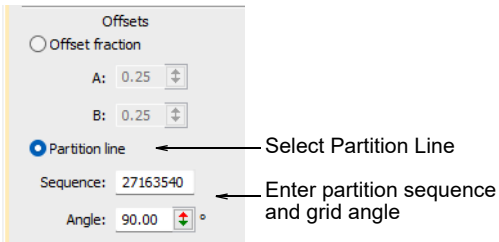
Related topics...

- Curved fills

Create partition line patterns

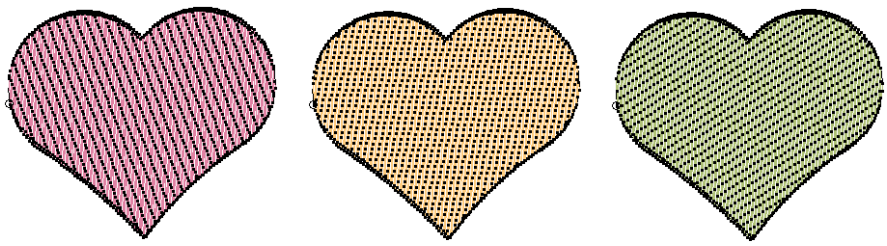
Use Fills > Tatami to create fills for larger irregular shapes. Right-click for settings.

The **Partition Line** feature provides an alternative method for offsetting needle penetrations in tatami fills. The **Object Properties > Fills > Tatami** docker allows you to set partition lines. Two parameters can be set – **Sequence** and **Angle**.

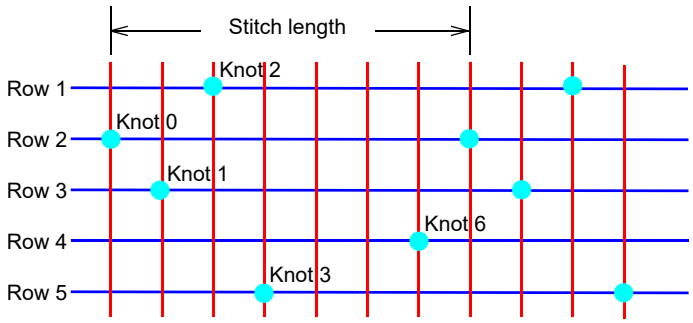


Sequence

Partition Line allows you to specify up to eight tatami offsets. In any pattern, number of rows is determined by number of digits in the sequence.

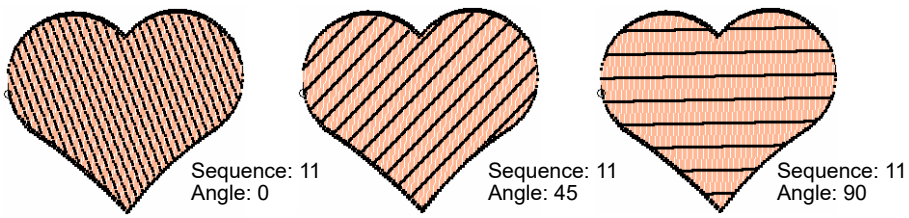


Each stitch length is split into 'knots' numbered anywhere from 0 to 7. A partition sequence number of '20163' would translate to the following pattern:



Angle

You can skew the grid formed by the partition knots to further vary the needle penetrations. In the **Angle** field, specify a grid angle.



Tip: Tatami patterns can be combined with curved fills for interesting effects.

Related topics...

- Curved fills

Create random patterns

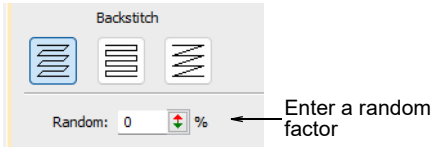
Use Fills > Tatami to create fills for larger irregular shapes. Right-click for settings.

Using a random factor you can eliminate the split line patterns formed by regular needle penetrations and distribute the stitches randomly inside the shape. This can create interesting mottled effects.

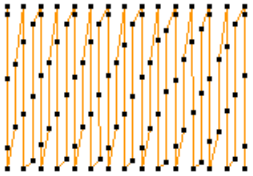


To create random patterns...

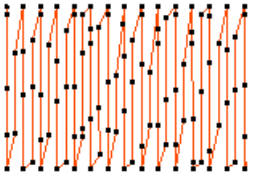
1 Right-click the **Tatami** icon to access object properties.



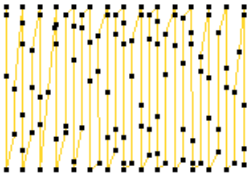
2 In the **Random** field, specify a random factor between 0% and 100%.



Random factor: 10%
Offset fraction A: 0.25, B: 0.25



Random factor: 50%
Offset fraction A: 0.25, B: 0.25

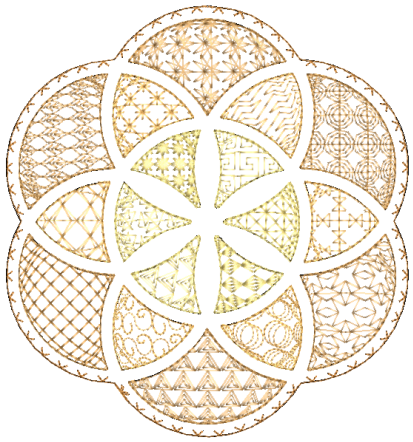


Random factor: 100%
Offset fraction A: 0.25, B: 0.25

Tip: A value of around 50% generally gives good results.

Motif fills

Motif Fill is a decorative stitch used for filling closed objects. This feature repeats motifs in parallel rows to fill the shape. It is generally used for open stitching and special effects. Alternatively, it can be layered over top of solid stitching backgrounds. You can select different motifs for forward and backward rows. You can create motif layouts onscreen or via object properties. **Auto Underlay** is deactivated with motif fills and stitch angle has no effect.



Digitize motif fills



Use Fills > Motif Fill to create decorative fills using embroidery motifs to form repeating patterns. Right-click for settings.

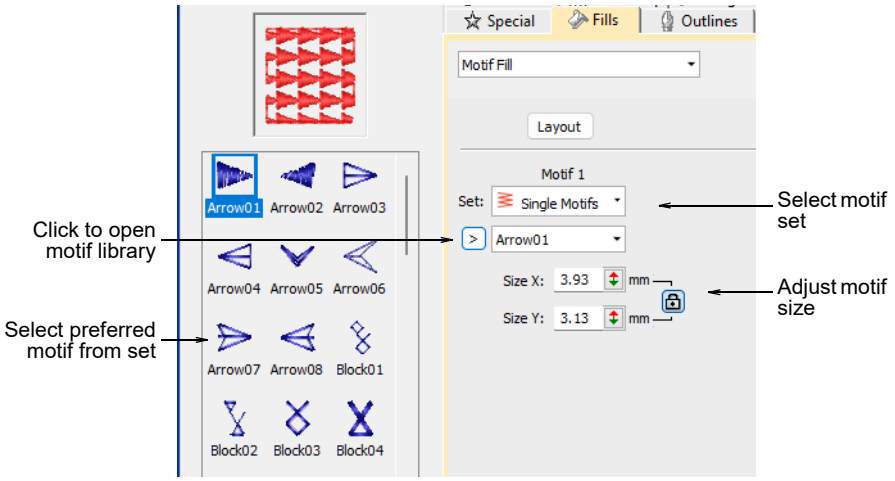


Use Traditional Digitizing > Complex Fill to digitize filled shapes with a single stitch angle. Right-click for settings.

Digitize closed objects with **Motif Fill** or apply it to existing objects. Almost any closed-object digitizing tool can be used, including **Freehand Closed Shape**. Select from a wide range of motifs.

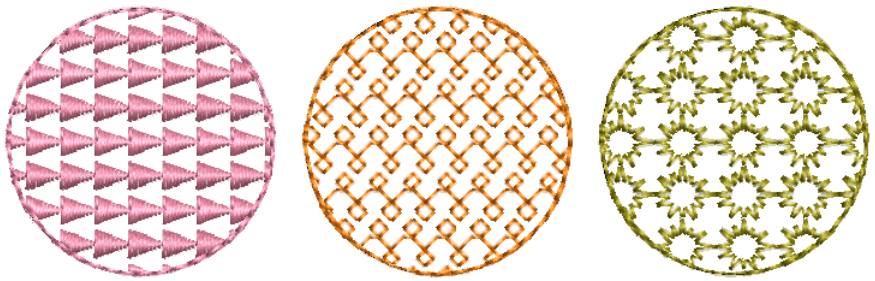
To digitize a motif fill...

1. Click **Motif Fill** and digitize a closed shape with a suitable digitizing tool such as **Complex Fill**. Stitch angles are ignored.
2. Double-click the object or right-click the **Motif Fill** icon to access object properties.

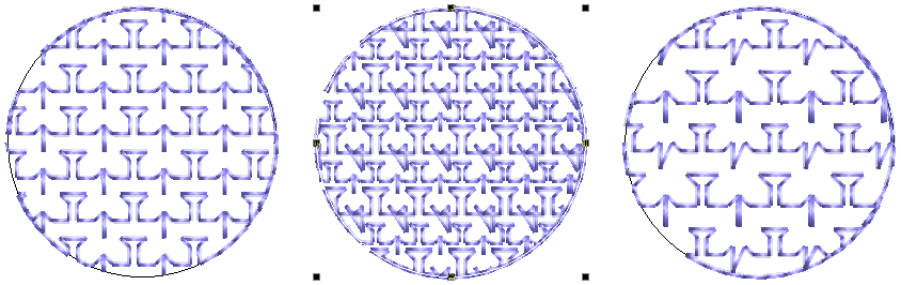


3 In the **Motif 1** panel, select a motif set from the droplist. For single rows, use the **Single Motifs** set.

4 Click the button to open the motifs library. Experiment with different motifs to arrive at the result you want.



5 Adjust motif size and spacing as preferred.



Tip: You can also use monogram ornaments or even define your own sets.

Related topics...

- Digitizing with graphical tools
- Creating free-form shapes
- Motif fill settings

Create paired motif fills

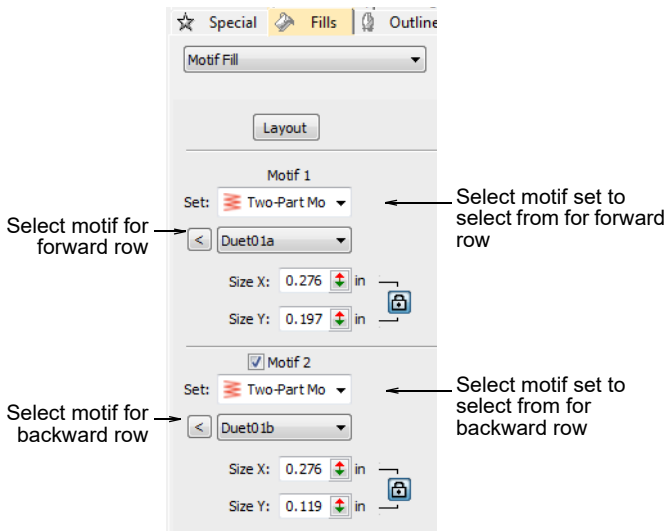
Use Fills > Motif Fill to create decorative fills using embroidery motifs to form repeating patterns. Right-click for settings.

Use Traditional Digitizing > Complex Fill to digitize filled shapes with a single stitch angle. Right-click for settings.

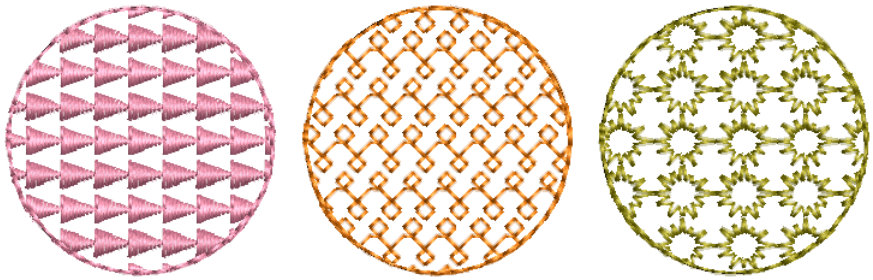
Digitize closed objects with **Motif Fill** or apply it to existing objects. Almost any closed-object digitizing tool can be used, including **Freehand Closed Shape**. Mix and match different motifs for forward and backward rows. There is a special **Two-Part Motifs** set which contains complementary paired motifs.

To digitize a paired motif fill...

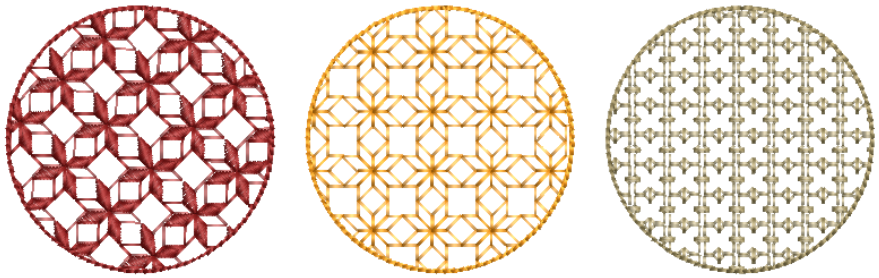
1. Click **Motif Fill** and digitize a closed shape with a suitable digitizing tool such as **Complex Fill**. Stitch angles are ignored.
2. Double-click the object or right-click the **Motif Fill** icon to access object properties.



3 In the **Motif 1** panel, select a motif set and pattern from the library. For best results, use the **Two-Part Motifs** set for both forward and backward rows.

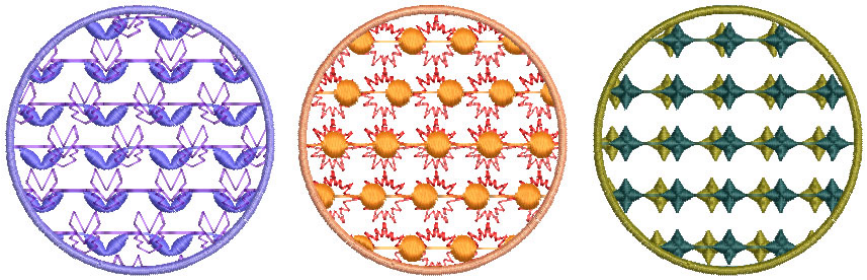


4 Tick the **Motif 2** checkbox and in the **Motif 2** panel, select a complementary motif. The predefined two-part motif set is especially designed to provide complementary motifs for forward and backward rows – e.g. 'Duet01a' and 'Duet01b'.



5 Adjust motif size and spacing as preferred.

Tip: As an alternative, you can generate layers of colored motifs by duplicating an object and selecting a different color and/or motif.



Related topics...

- Digitizing with graphical tools
- Creating free-form shapes
- Motif fill settings

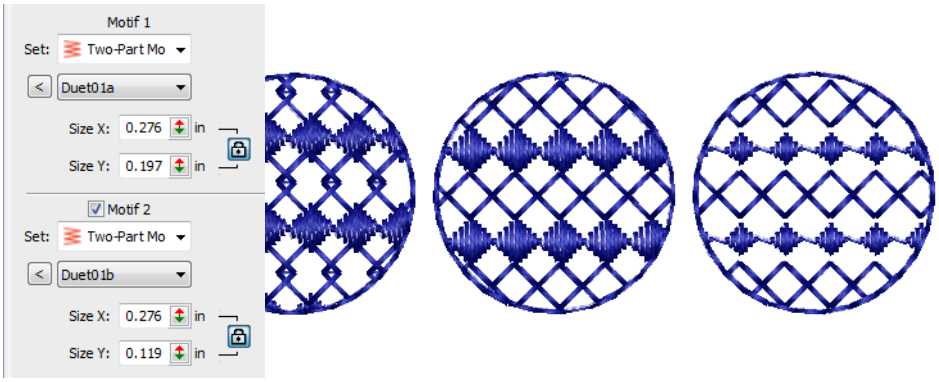
Motif fill settings

Use Fills > Motif Fill to create decorative fills using embroidery motifs to form repeating patterns. Right-click for settings.

You can adjust motif fills both interactively on screen and via object properties.

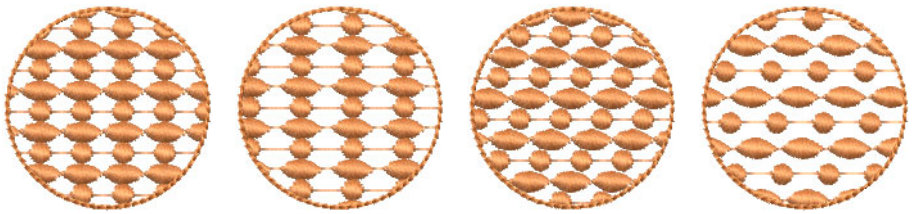
Motif scaling

You can set the exact size of motifs in a fill. You can also scale **Motif 1** and **Motif 2** motifs independently. Adjust **Size** controls in the **Object Properties > Fills > Motif Fill** dialog.

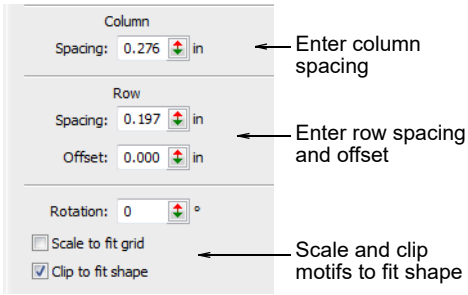


Spacing & offsets

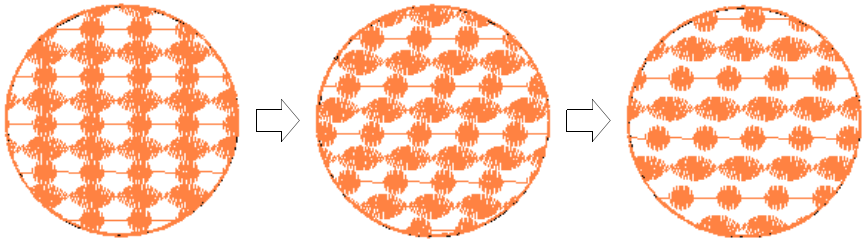
You can adjust the exact row, column and spacing settings for motif fills. The default settings define a simple grid where the spacing equals the motif dimensions. The row offset is set to 0.00 mm so columns and rows are perpendicular.



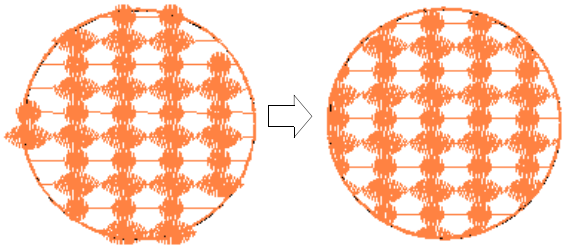
◂ To adjust spacing and offset settings, open the **Object Properties > Fills > Motif Fill** dialog.



- Adjust column and row spacing as well as row offsets.

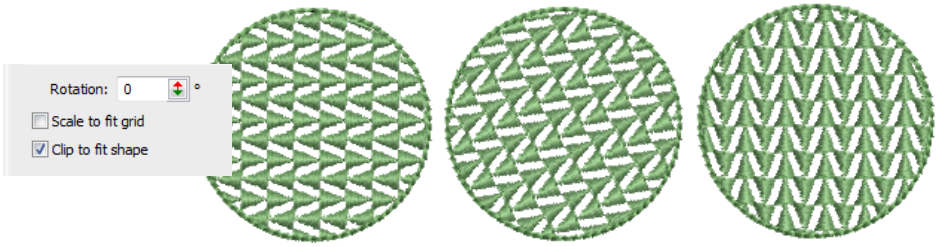


- Select the **Scale to fit grid** checkbox to scale motifs to exactly fit the grid squares.
- Select the **Clip to fit shape** checkbox to clip motifs that do not fit the shape.



Motif rotation

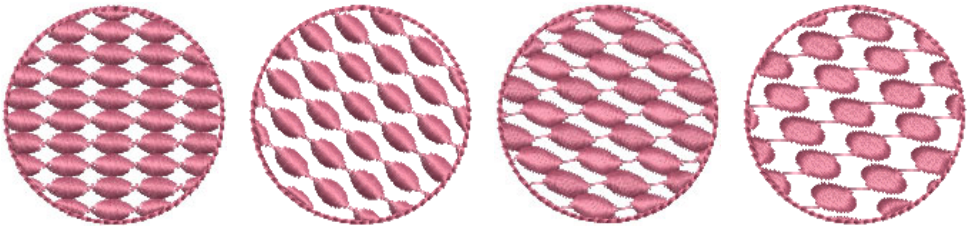
The rotation angle defines the orientation of the entire motif fill pattern. It overrides the stitch angle you set when digitizing the shape with **Complex Fill**. Enter a rotation angle in the **Object Properties** docker.



Lay out motif fills on-screen

Use Fills > Motif Fill to create decorative fills using embroidery motifs to form repeating patterns. Right-click for settings.

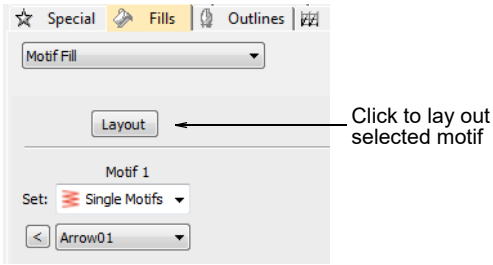
Lay out motif fills on-screen in a similar way to program splits by using 'guide motifs' to scale, space, transform and offset the entire fill. There are three blue guide motifs. Each guide motif lets you change a different element of the layout. Stitch angle has no effect on motif layouts.



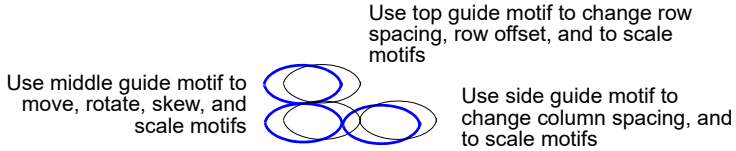
Generally you define a layout before digitizing. If it is important to align motifs with the object boundary, digitize the object using current settings, and change the layout afterwards.

To lay out motif fills on-screen...

1 Right-click the **Motif Fill** icon to access object properties.



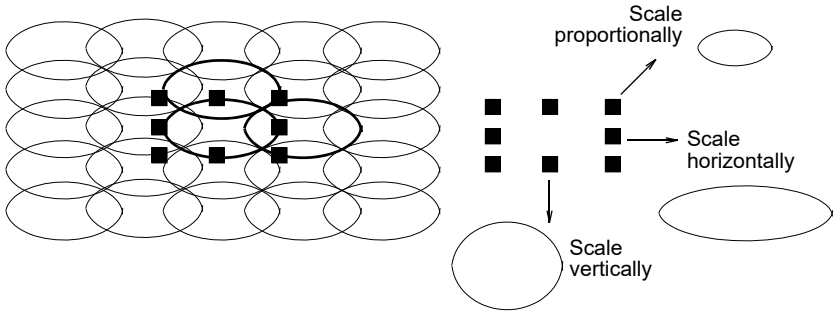
2 Select a motif set and motif and click **Layout**. Sample and guide motifs appear in the design window. Zoom in to select the correct guide motif.



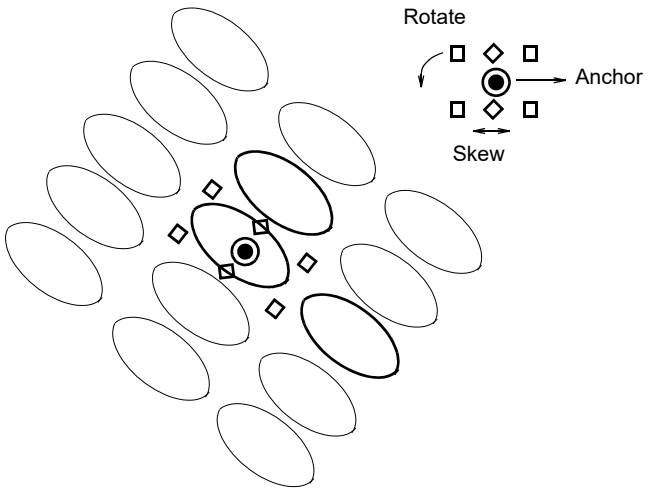
3 Adjust the guide motifs to achieve the effect you require:

- Move motifs by selecting the middle guide motif and dragging it to a new position.

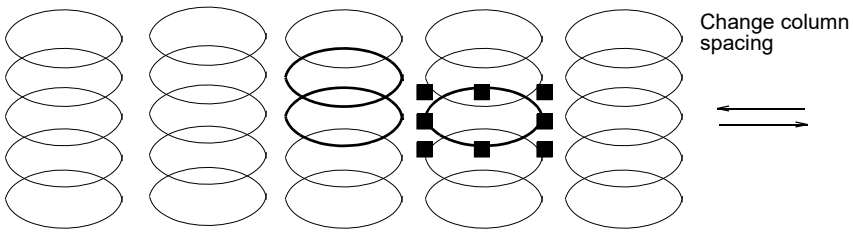
- Scale motifs by selecting a guide motif and resizing it using the selection handles.



- Rotate motifs by clicking the middle guide twice to display the rotation handles. Click a corner handle and drag to rotate.
- Skew motifs by clicking the middle guide twice, then dragging the skew handles.

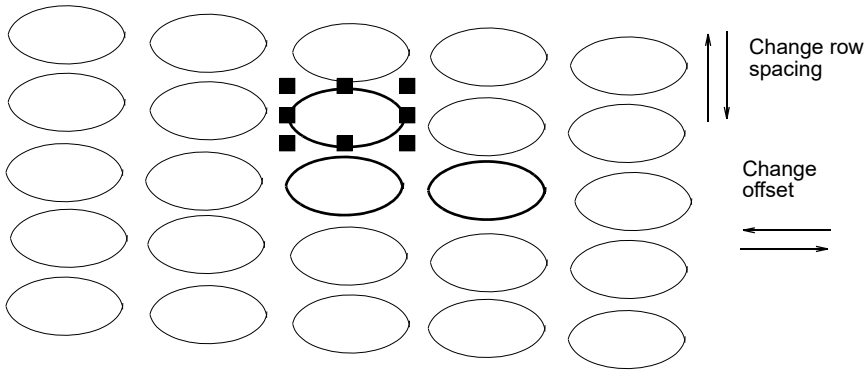


- Change column spacing by selecting the side guide and dragging it left or right.



- Change row spacing by selecting the top guide and dragging it up or down.

- Change row offset by selecting the top guide and dragging it left or right.



Note: Motif Fill does not have a column offset since motifs are connected along each row. Instead you can rotate the layout to achieve a similar effect.

4 Press **Esc** to finish. The size and layout settings you select become current settings.

Tip: To revert to the original factory settings, run the **Revert** utility. Alternatively, enter the values manually in the **Object Properties > Fills > Motif Fill** and click **Save**.

Related topics...

- Lay out program splits on-screen

Hand stitch effect

Use Stitch Effects > Hand Stitch to create hand-stitch effects which combine randomized stitch length, angle and count. Can be applied to satin, tatami, run, backstitch, and other stitch types.

Fashion trends sometimes favor a more organic look which is very hard to achieve with normal design tools. With **Hand Stitch**, you can create effects which combine randomized stitch length, angle and count.

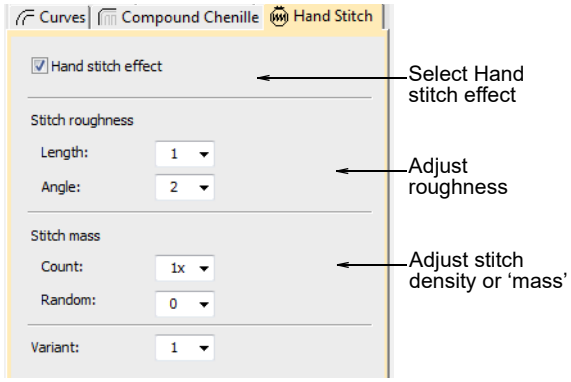


To apply hand stitch effect...

1. Choose the object you want to apply the effect to or toggle on **Hand Stitch** effect before you start digitizing. It can be applied to satin, tatami, run, backstitch, and other stitch types.
2. Click the **Hand Stitch** icon. The effect is applied based on current settings.

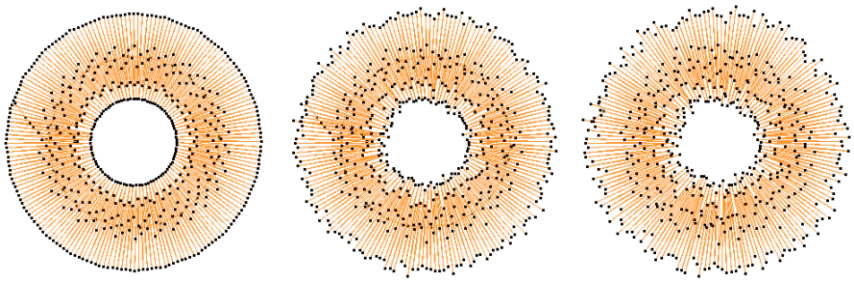


3. Right-click the **Hand Stitch** icon to access object properties.

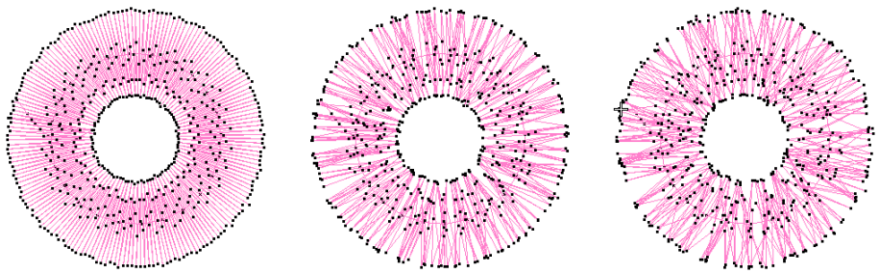


4. Adjust stitch roughness settings to diminish or exaggerate the effect:

- In the **Length** field, enter a value between 0 and 5 to set stitch-length variation. '0' indicates that no change is applied to current stitch settings.

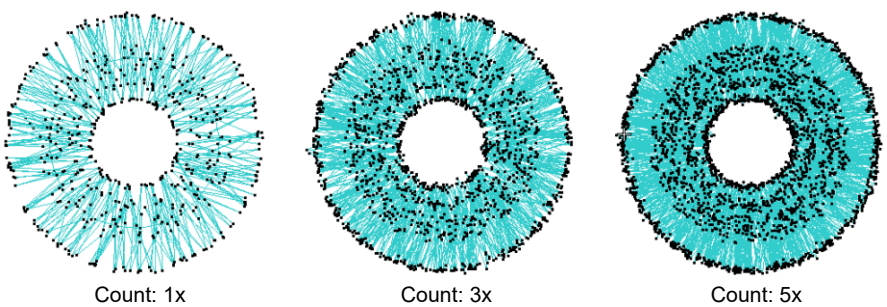


- In the **Angle** field, enter a value between 0 and 5 to set stitch-angle variation.

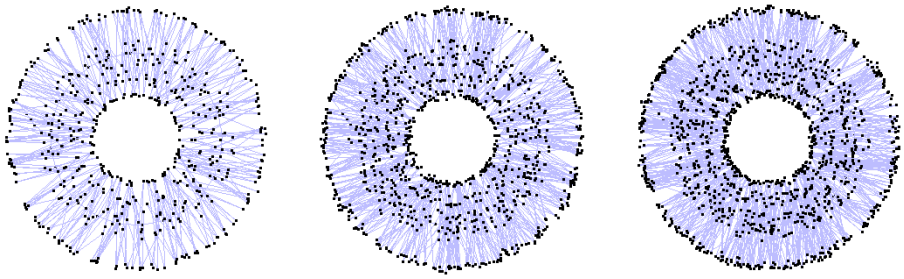


5 Adjust stitch mass settings to diminish or exaggerate stitch mass:

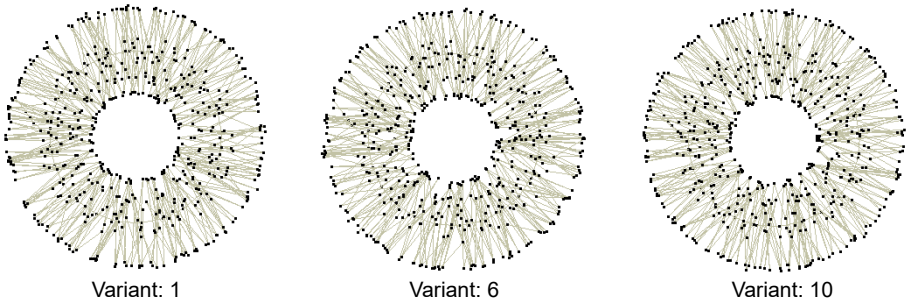
- In the **Count** field, select a multiplication factor to increase hand-stitch density.



- In the **Random** field, select a value between 1 and 5 to set a random factor for the stitch count. The system randomly adds or sometimes removes stitches when Count > 1x, usually resulting in increased stitch mass. (When count is 1x, no stitches are removed but some are added.)



6 Optionally, in the **Variant** field, enter a value between 1 and 10 to experiment with variants of the same roughness and mass settings.



Tip: Make any further adjustments necessary to the underlying stitch type. For instance, when using **Satin** stitch, you may want to increase stitch spacing as well as use a lighter underlay.

Usage tips...

- For hand-stitching, embroiderers tend to use 'long & short' satin stitching or contoured runs to fill large areas. This is the effect we are aiming for.
- When used with satin stitching, **Hand Stitch** effect works best with **Auto Split** turned off. However, when used with higher stitch roughness 'length' settings, jump stitches are sometimes generated as this setting affects stitch length.
- For smaller objects, turn off underlay.
- More stitch spacing is needed for higher stitch counts to avoid stitch bunching.
- Tatami fill is not so well suited for use with **Hand Stitch** effect. If you want to use it, try using a random factor to eliminate split-line patterns.

Related topics...

- Stitch Types
- Digitizing Shapes
- Satin stitching
- Stabilizing with underlays
- Create random patterns

Decorative borders

Click Outlines > Zigzag to create open borders or columns of even width for an open ‘sawtooth’ effect. Right-click for settings.

Use Outlines > E Stitch to create open borders or columns of even width for an open ‘comb’ effect. Right-click for settings.

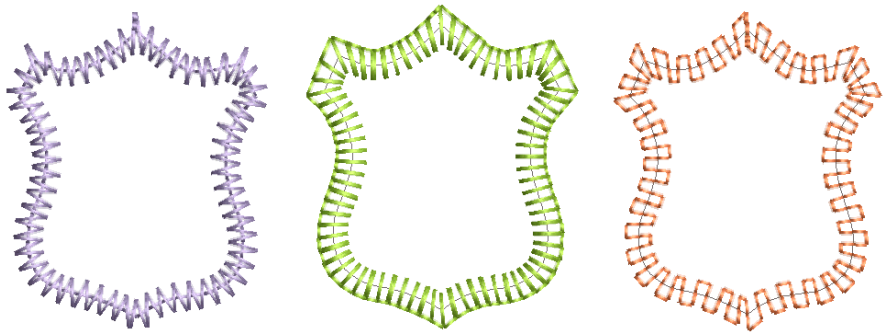
Use Outlines > Square to create open borders or columns of even width for an open ‘toothed’ effect. Right-click for settings.

The **Stitch Types** toolbars include **Zigzag**, **E Stitch**, and **Square**. All can be used to create borders around appliqués and other embroidery objects. They can also be used for decorative effects or open fills where fewer stitches are required. Zigzag and double zigzag stitches are also frequently used as underlays.

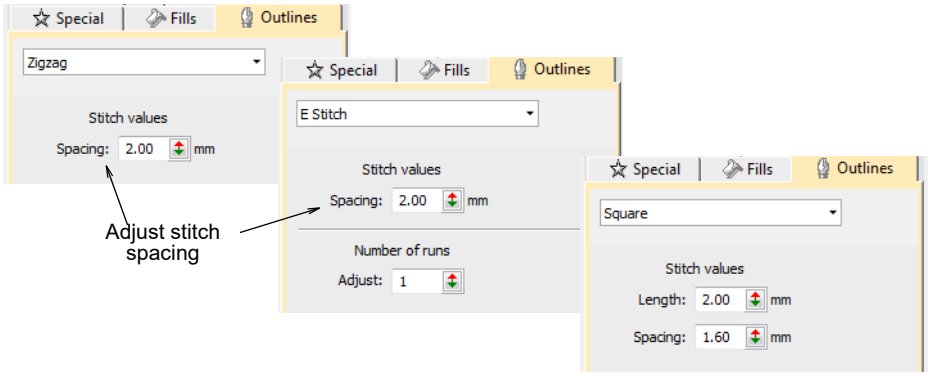


To create decorative borders...

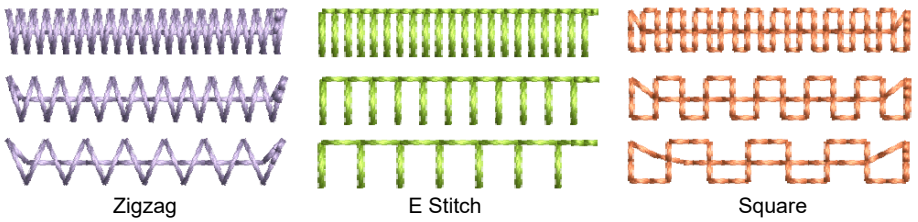
1. Select the digitizing method you want to use – open or closed.
2. Select an outline or fill stitch type and create the embroidery object. Alternatively, select an existing object and apply a stitch type.



3 Double-click the object or right-click the icon to access object properties. These give you control over stitch spacing, length, and run count values.

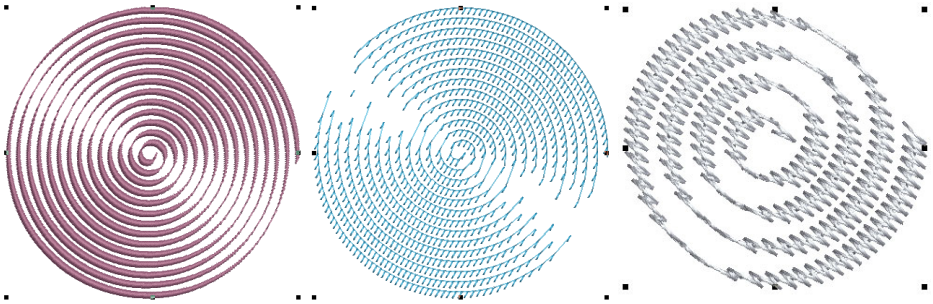


4 Adjust **Spacing** for more or less dense outlines.

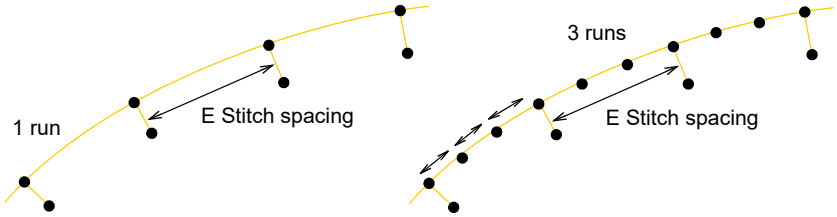


Usage tips...

- Create parallel stitching and control the angle relative to the horizontal. Use it to create calligraphy-like stitching.



- **E Stitch** also lets you set the number of runs:



Related topics...

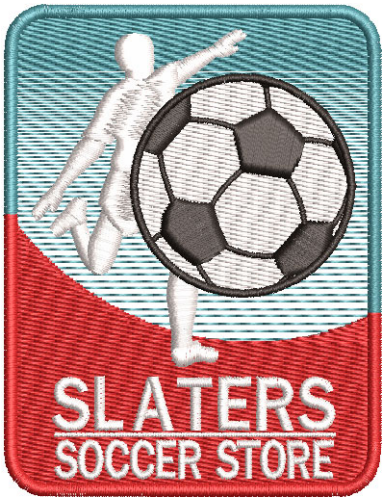
- Zigzag underlay settings
- Embroidery digitizing
- Digitizing regular columns
- Trapunto open stitching
- Appliqué Embroidery

Trapunto open stitching



Use Stitch Effects > Trapunto to force underlying travel runs to the edges of a selected object. Right-click to adjust Trapunto settings.

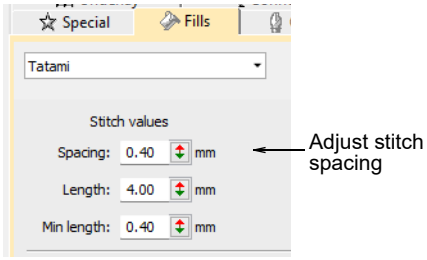
The **Trapunto** effect automatically moves underlying travel runs to the edges of an object so they can't be seen. It is available with complex fill objects using tatami stitching. In BE EmbroideryStudio, the effect is typically used in combination with open stitching to fill backgrounds or for shading effects. Without it, travel runs, spacing variations and overlapping rows between segments are visible and can spoil the effect.



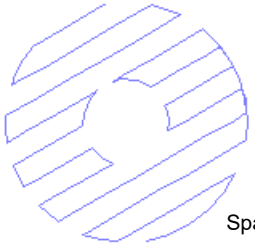
Accordion Spacing extends the usefulness of Trapunto by providing a simple way to produce variation in a filled pattern and the illusion of depth. Trapunto and Accordion Spacing can also be combined with Liquid and Florentine effects to produce curved color blending.

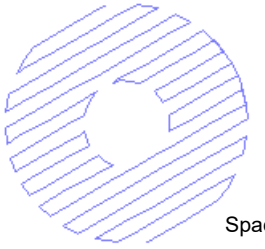
To create open stitching with trapunto...

1 With or without a complex fill object selected, right-click the **Tatami** icon to access object properties.



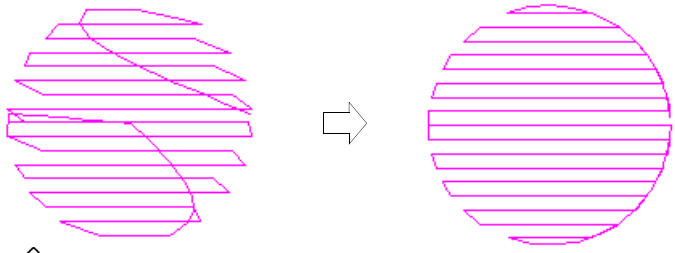
2 In the **Spacing** field, enter the required stitch spacing. The larger the value, the more open the spacing.


Spacing: 5 mm


Spacing: 3 mm

3 Press **Enter**.

4 With the complex fill object selected, click the **Trapunto** icon. Travel runs and overlapping rows are removed and consistent row spacing applied.



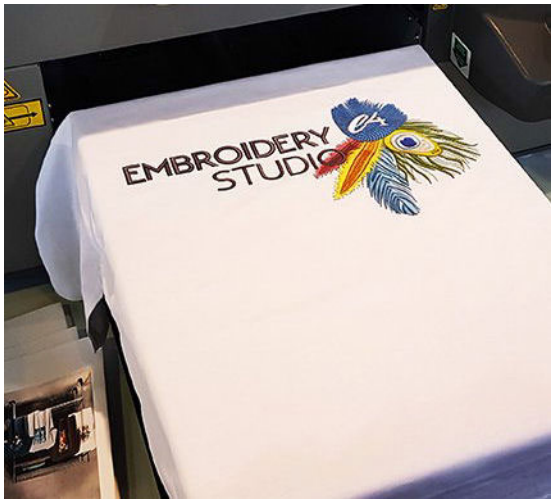
Note: Trapunto effect overrides whatever tatami backstitch settings currently apply.

Related topics...

- Other tatami settings
- Curved fills

Virtual embroidery

Embroidery is a unique, high-quality decorating process. However, it is not ideal in all cases. Salient factors include design size, fabric weight, order quantities, number of thread-color changes, as well as digitizing and embroidery costs. The rise of Direct to Garment (DTG) and Direct to File (DTF) machines has offered new opportunities for decorators.



The **Capture Virtual Decoration Bitmap** feature in BE EmbroideryStudio allows decorators to export high-resolution **TrueView** images. This is a technique that can provide commercial flexibility for many different processes. 'Virtual embroidery' for T-shirts or other lightweight garments are obvious examples. It is even possible

to export large-format 'virtual embroidery logos' large enough to place on billboards or pull-up banners.



Image resolution depends on a specified DPI (Dots Per Inch). Maximum DPI for printers varies between 600 and 2880 DPI. For garments, good results can be obtained within a range of 200 to 400 DPI. Higher resolutions are available for printing on paper, photo paper, canvas, fabrics, glass, mugs, plaques, wood, metal, etc.

Screen images are typically captured in PNG format because this supports transparency. Most DTG printers and other printing techniques use RIP (Raster Image Processor) software which can use any raster image that supports transparency, including PNG format. Output files can be used as is or as input to any graphic or photo editing software.

Output embroidery as virtual decoration



Click View > TrueView to toggle between stitch view and TrueView™. Right-click for settings.



Click View > Show Product to toggle product image on/off. Right-click to open the Product Visualizer docker.

If all you want to do is output the embroidery portion of a design as a high resolution virtual decoration, the process is simple.

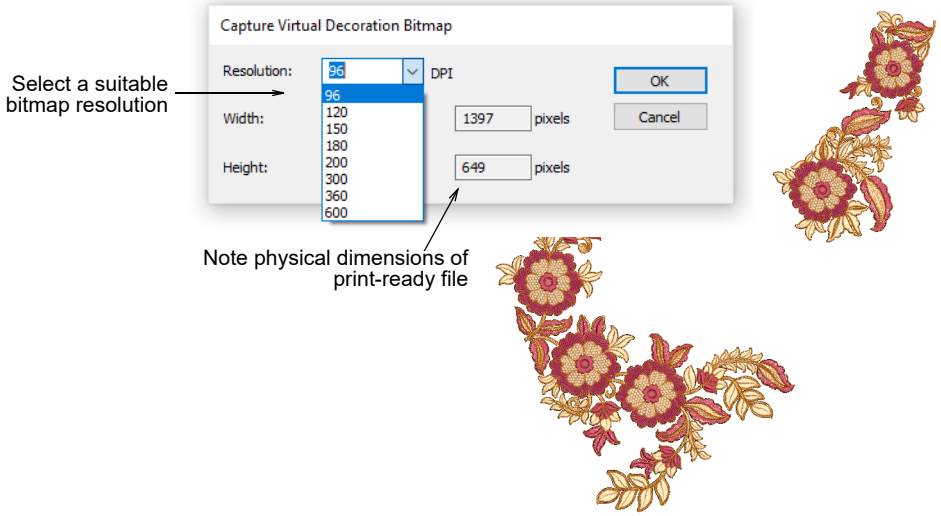
To output virtual embroidery decoration...

1 Open your EMB design file.

2 Optionally, turn on TrueView™ to visualize the embroidery component. The image produced is always in TrueView™ even if the **TrueView** setting is off. The **Options > View Design** settings will affect the final appearance of the virtual embroidery. You may want to adjust these.

3 Optionally, toggle on the product image to visualize the resulting virtual decoration on the target garment. Make any size adjustments needed.

4 Select **File > Capture Virtual Decoration Bitmap**.



5 Select a suitable resolution – e.g. 300 DPI. This setting determines the detail at which the TrueView™ image will be rendered. You can override presets by keying in a higher resolution as required – e.g. 1200 DPI. Width and height settings update automatically.

6 Click **OK** to save a PNG file of the design. Only the embroidery portion of the design is output to PNG file. This file can now be printed to garment or other media.



Note: For the purposes of virtual decoration, sequins and bling can be included in the output.

Related topics...

- Viewing design components
- View options
- Fabric & product backgrounds

Output combined virtual embroidery & print

	Click View > TrueView to toggle between stitch view and TrueView™. Right-click for settings.
	Click View > Show Product to toggle product image on/off. Right-click to open the Product Visualizer docker.
	Use Mode > CorelDRAW Graphics to import, edit or create vector artwork as a backdrop for embroidery digitizing, manual or automatic.
	In Graphics mode, click Mode > Show Embroidery to show or hide embroidery components.

To produce a combined embroidery decoration plus graphics, use the following procedure. Don't use the **Export Multi-Decoration Files** command for this scenario as it doesn't support virtual embroidery as print.

To create combined virtual embroidery and print decoration...

1. Open your EMB design file.
2. Optionally, turn on TrueView™ to visualize the embroidery component. Use **Options > View Design** to make any adjustments to TrueView™ settings.
3. Toggle on any graphic elements – bitmap or vector.
4. Optionally, toggle on the product image to visualize the resulting virtual decoration on the target garment. Make any size adjustments needed.



To output the virtual decoration...

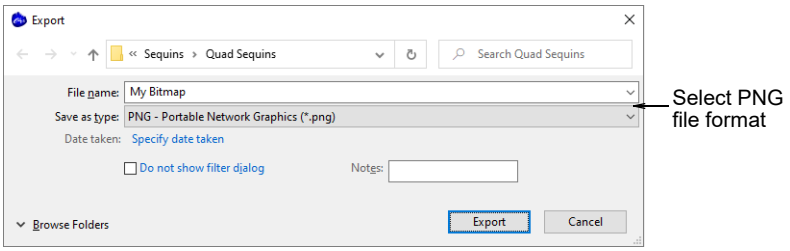
1. Switch to **CorelDRAW Graphics**.
2. In **Graphics** mode, click **Show Embroidery** to toggle on the embroidery component.



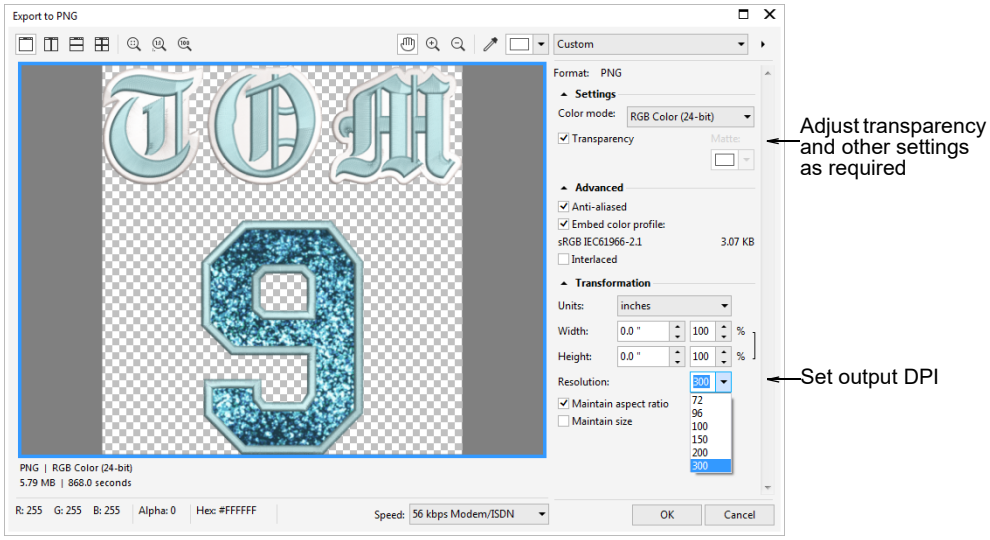
3 Select a bitmap resolution – e.g. 300 DPI – from the **Mode** toolbar. You can override presets by keying in a higher resolution as required – e.g. 1200 DPI. Width and height settings update automatically.

Tip: This setting determines the detail at which the TrueView™ image will be rendered. Maximum DPI for printers can vary between 600 and 2880 DPI. For general purposes such as printing on T shirts, good results can be obtained within a range of 200 to 400 DPI. Higher resolutions may be necessary for other substrates or media.

4 Select **File > Export > PNG** to export a high resolution file for printing or similar.



5 Click **Export**. The **Export to PNG** dialog opens.



6 Adjust transparency, anti-aliasing, and DPI settings as required. The DPI setting in this dialog does not affect the DPI resolution of the TrueView™ rendering. It only affects the DPI of the actual output file. Normally you would want to set the TrueView™ rendering and output resolution to be the same value. You can override presets by keying in a higher resolution as required – e.g. 1200 DPI.

7 Click **OK** to export.

Related topics...

- Viewing design components
- View options
- Fabric & product backgrounds

Output combined virtual & actual embroidery

Click View > TrueView to toggle between stitch view and TrueView™. Right-click for settings.

Use Standard > Import Graphic to import artwork into current design as a backdrop for manual or automatic digitizing.

Use View > Show Bitmaps to toggle bitmap images on or off. Right-click for settings.

Use View > Auto Start & End to toggle the Auto Start & End function on/off according to the current settings. Right-click to adjust settings.

Use Mode > CorelDRAW Graphics to import, edit or create vector artwork as a backdrop for embroidery digitizing, manual or automatic.

Combining actual and virtual embroidery offers interesting possibilities. This technique can be used artistically or to add texture and depth to a printed design. It may also be used to lower costs for large production runs while maintaining the appearance of actual embroidery.



Typically, you will create a virtual embroidery print of an entire design and then overlay real embroidery on some parts of it. Alternatively, you may add embroidery elements such as lettering or team names over a printed design. It is even possible to embroider the whole design in white thread and print virtual embroidery over the top. To produce a design as real embroidery plus virtual embroidery, you have two options – via **Wilcom Workspace** or via **CorelDRAW Graphics**.

To create combined actual embroidery and print decoration...

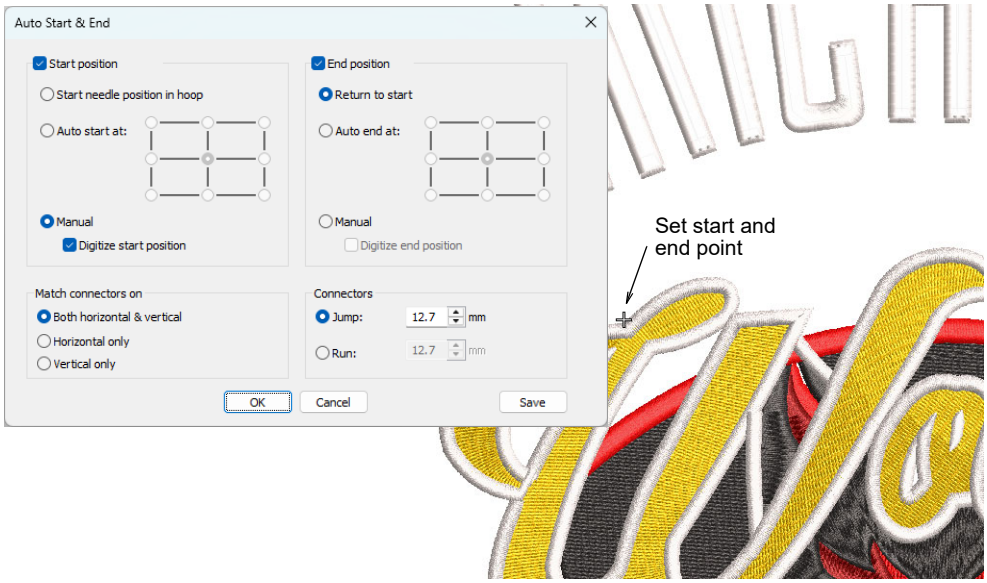
1. Create a virtual decoration of your embroidery design. See previous.
2. Import the PNG file into a new blank design via **File > Import Graphic**.



3 Add the actual embroidery portion of the design. This may be a portion of the original design. Or it may be a new component such as lettering or even **Team Names**.



4 Right-click **Auto Start & End**.

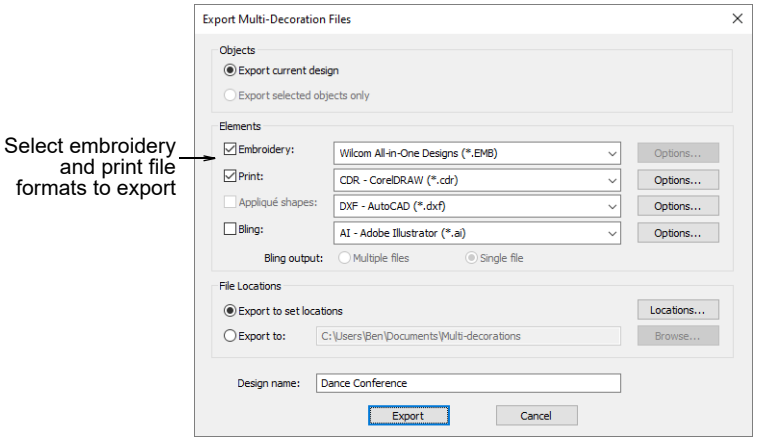


5 Choose **Digitize start/end point** and click **OK**. BE EmbroideryStudio prompts you to click a point where you want the design to start and end.

6 Set a point to which you can easily align the needle. When you stitch out the embroidery component, the needle will start and end at this point.

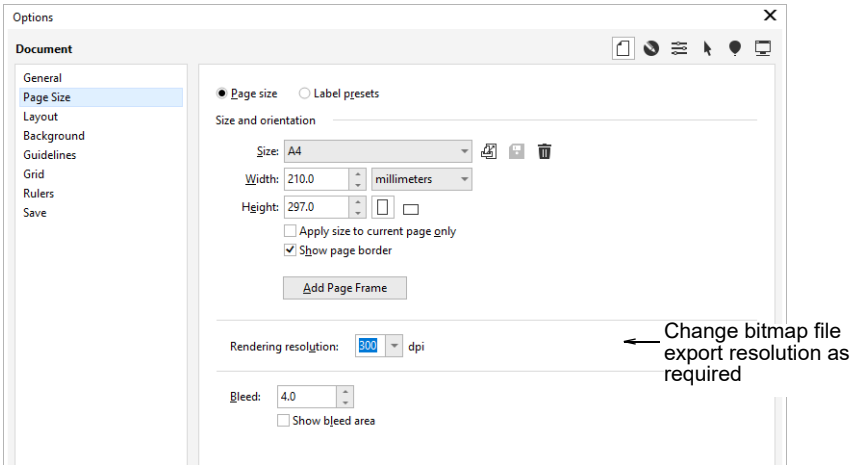
Option 1: Export both files together

1 Select the **File > Export Multi-Decoration Files** command.



2 Split out the embroidery production and graphics print files and select the formats to export – e.g. DST and PNG.

Note: If you choose PNG, it will default to the CorelDRAW® default setting of 300 DPI. This can be changed via the **Options** dialog.



Option 2: Export files separately...

- To obtain the embroidery production file, select **File > Export Machine File** from the Wilcom Workspace and choose a suitable machine file format – e.g. DST.
- To obtain the graphics production file, switch to **CorelDRAW Graphics**:
  - Turn off the embroidery display.
  - Select **File > Export > PNG** to export the print file for graphics only.

Related topics...

- Output embroidery as virtual decoration
- Viewing design components
- View options
- Creating simple teamname designs
- Fabric & product backgrounds
- Exporting multi-decoration files

Chapter 22

Bling Digitizing

Bling refers to decorative objects placed on garments or templates, either on their own or in combination with other design elements. Bling is supplied in varying sizes, shapes, colors and materials. It goes under names such as diamante, rhinestones, eyelets, ribbons, charms, crystals, glitz, nailheads, studs, etc. BE EmbroideryStudio lets you add bling to multi-decoration designs with the **Bling** toolset. This allows you to create and visualize bling embellishments in combination with other decorative elements.





Bling production processes

The **Bling** feature allows digitizers to create patterns of bling outlines or fills with editing capabilities similar to those of the **Sequin** toolbar. The single biggest difference between **Sequin** and **Bling** is that individual rhinestones are not allowed to overlap or be too close together. Another difference is that there is no stitching associated with bling.

Bling, rhinestones, crystals, and glitz are interchangeable terms referring to decorative objects placed on garments or templates. They are supplied in various sizes, shapes, colors and materials.



There are two basic processes for creating bling designs:

- Hot-fix template production
- Direct-to-garment production

Hot-fix template production

Hot-fix templates can be produced in two ways:

Bling template	This is the design layout on which rhinestones are initially placed prior to transfer. The template is created by cutters or engravers. Rhinestones are placed onto the template by a manual flood-fill process and then manually transferred to transfer tape.
Bling transfer	In a semi-automatic process, bling is placed directly onto transfer tape (or sheet) by machine. Examples are IOline CrystalPress and CAMS machines. The bling design is ready for heat transfer to the final product – e.g. a T-shirt.

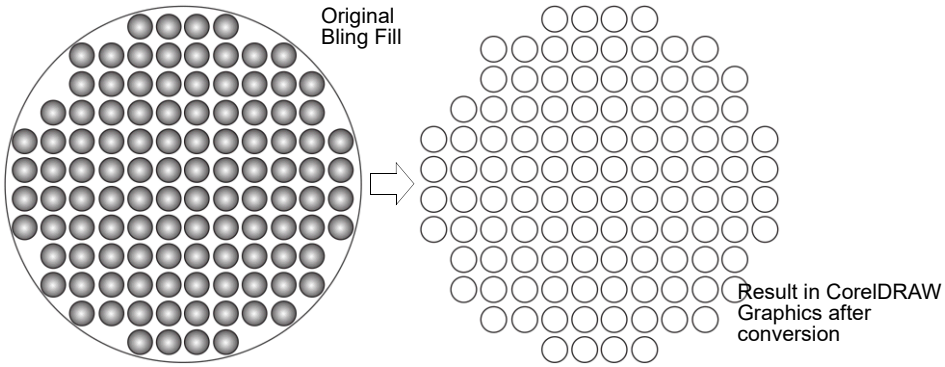
Direct-to-garment bling production

Direct-to-garment bling production is supported by many machines. Automatic rhinestone transfer machines are designed for high speed, high volume production. They enable users to fix any type of rhinestones, studs, and so forth directly to any type of fabric.

Tip: If you have neither CAMS automatic rhinestone placement machine nor a direct-connect cutting machine, you can use the **Convert Bling for Production** command to convert bling objects to vector shapes. These can be then output to vector file for use by third-party applications. See Cutting data for details.

Cutting data

Cutting data sent to machine consists solely of vectors which describe the location, size, and shape of the bling in the template. There are no connecting lines or data that do not relate directly to the placement of the bling. For example:



Bling templates

Bling templates must have holes cut to suit the bling size to be used. Below is a table of stone size to hole size. 'SS' stands for 'Stone Size'.

Stone size	Hole size (mm)
SS04	1.7
SS05	1.9
SS06	2
SS07	2.3
SS08	2.5
SS09	2.7
SS10	2.9
SS12	3.2
SS16	4
SS20	5
SS30	6.5
SS34	7.3
SS40	8.7
SS48	11.4
SS60	14.3

Bling toolset

The **Bling** toolbar contains the following tools:



Bling objects have properties like normal embroidery objects. The **Object Properties** docker contains two tabs called **Bling Fill** and **Bling Run** to handle these properties. Editable properties include bling type – size, shape color, facets – patterns, fill density, angle and layout. **Bling** features include:

- Similar functionality to the **Sequin** tool.
- predefined library of rhinestone shapes.
- Tools to create outline and fill patterns.
- Controls to adjust placement of stones to avoid overlaps.
- Tools to convert vector outlines to bling patterns.
- Commands to create cut files to send to cutting machine – similar to appliqué.
- Inclusion of bling count by size and color on production worksheet.

Setting up bling palettes

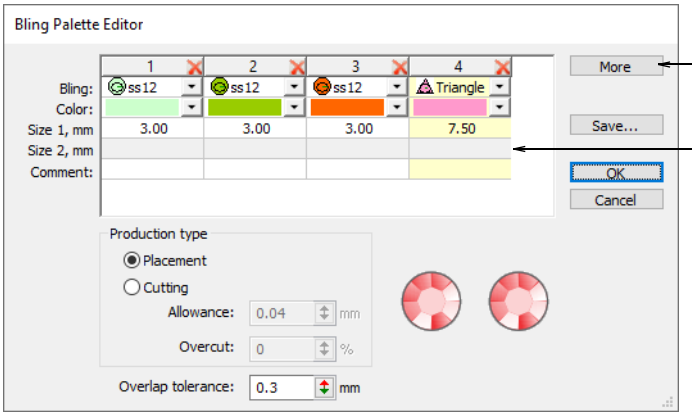
Use Bling > Bling Palette Editor to select and configure rhinestone shapes from a pattern library.

The **Bling Palette Editor** lets you prepare a palette of rhinestones for use in the current design. Once set up, the palette is available for use in **Object Properties** or from the **Bling** toolbar.

To define a bling palette...

1 Click the **Bling Palette Editor** icon.

Fields are arranged in tabular form so that parameters for each rhinestone type can be viewed at once.

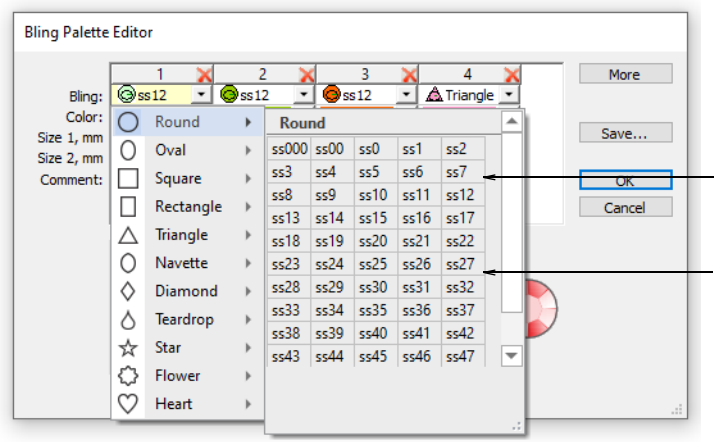


Note: The controls available in the **Bling Palette Editor** are similar to those available in the **Sequin Palette Editor**.

2 Click the **More** button to add new entries as required.

3 Use the **Bling** droplist to select rhinestone type and size – e.g. 'Round ss12'.

The droplist displays rhinestones available for use in both runs and fills. The code specifies a size range displayed at the bottom of the popup – e.g. 'ss12' falls within a size range of 3.00-3.20 mm.



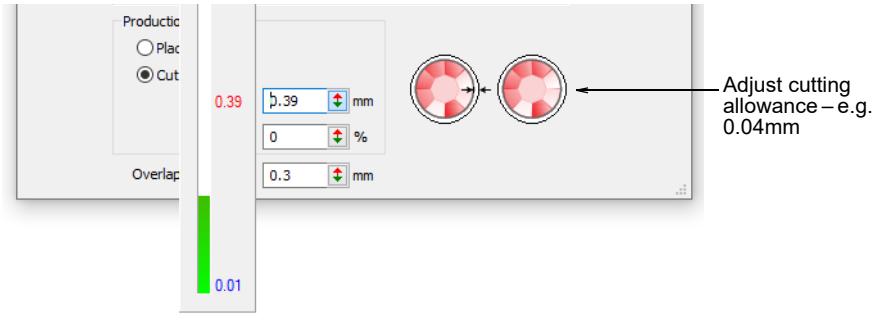
4 Edit bling colors and sizes as required. The controls are summarized below.

Control	Function
Color	Change colors by clicking the drop-arrow and accessing the color selection palette. Choose from a range of both standard and non-standard colors, or mix your own.

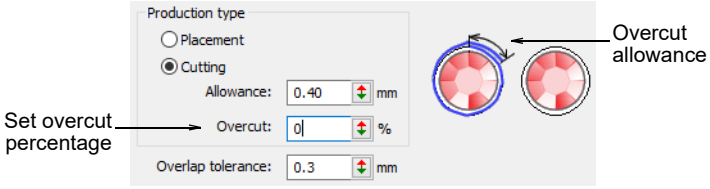
Control	Function
Size1/Size2	These are editable fields which control bling dimensions. Circles, squares, stars, flowers and triangles (equilateral) have editable width. All other shapes have both editable width and height. The units of measurement are determined by the user. See also Set measurement units.
Comment	Comment is a free text field limited to a maximum of 128 characters.
Production type	If you are using a cutting machine, you can adjust the 'cutting allowance' for rhinestones to easily fit the cut holes in the stencil. See below.
Overlap tolerance	Set the minimum allowable distance between stones. Once set, the software controls placement so that no stones are placed closer than this value. See also Edit bling-fill objects.
Save	Save the palette to the file system for use in another session.

5 Define a **Production Type** for the bling palette:

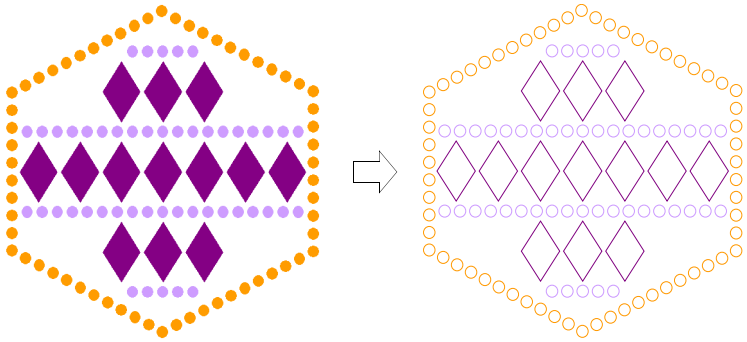
- **Placement**: If you have an automatic or semi-automatic machine, choose this option.
- **Cutting**: If you have a cutting machine, you will need to cut holes in the template material a little bigger than the rhinestone size you intend to use. You can set an **Allowance** value, say 0.04mm, for rhinestones to easily fit within the cut holes of the stencil.



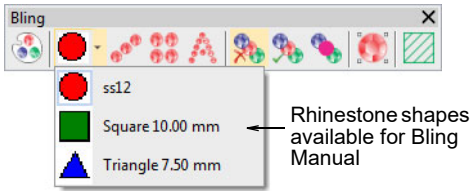
- Set an **Overcut** allowance (as a percentage) as necessary. This determines extra distance the knife needs to travel to ensure a clean cut. You may need to experiment with this setting depending on the cutting machine you are using.



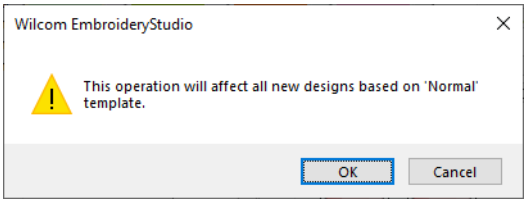
Note: Bling objects exported to a cutter retain color information, and cutting outlines have hairline width.



6 Click **OK** to confirm. Rhinestone shapes are now available for use in **Object Properties** or from the **Bling Manual** palette.



Tip: Click **Save** to save bling palette to the current template. You might consider setting up a dedicated bling template.

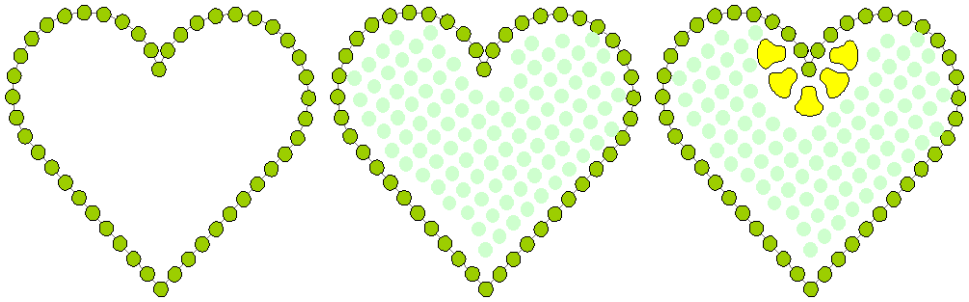


Related topics...

- Set up sequin palette
- Bling production processes
- Create bling fills
- Working with templates

Creating bling runs & fills

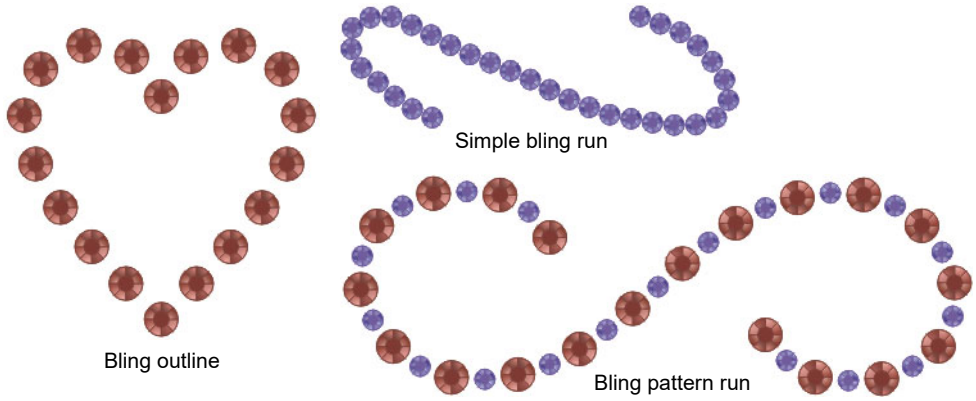
The **Bling** feature provides tools for creating bling runs as well as fills. The fill can include a border, with or without a margin. You have the option of digitizing individual rhinestone 'drops' with the manual method.



Digitize bling runs

	Use Bling > Bling Run Auto to create a string of rhinestones along a digitized line according to current settings.
	Use View > Show Bling to toggle bling display on/off.
	Use Bling > Show Bling Work Area to visualize the design within the work area of the selected machine model.

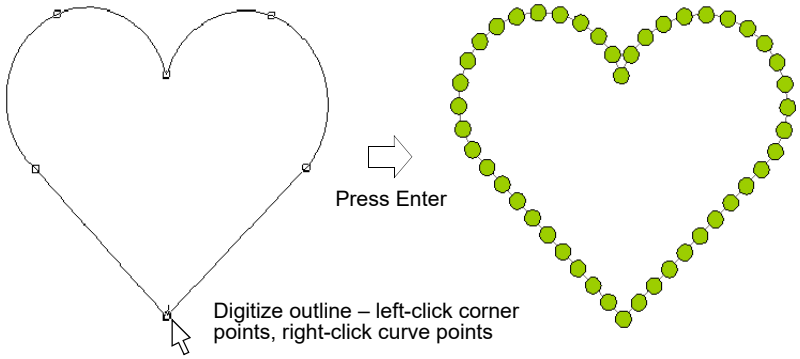
Use the **Bling Run Auto** method to create a string of rhinestones along a digitized line. There are two available types – **Simple Run** (same size stones) and **Pattern Run** (different sizes following a regular pattern). The system automatically generates drops according to current settings.



To digitize a bling run...

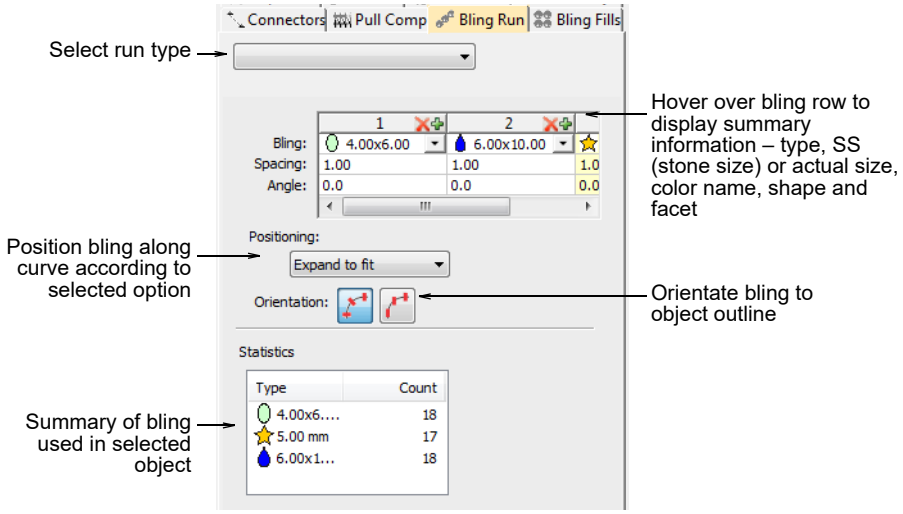
1. Set up the bling palette if you haven't already done so.
2. Optionally, toggle on **Show Bling Work Area** to visualize the design within the work area of the selected machine model.
3. Click the **Bling Run Auto** icon.

4 Digitize the line as you would for a normal run object – left-click for corner points, right-click for curve points.



5 Press **Enter** to finish. Rhinestones are automatically generated. Spacings can be individually adjusted.

6 Double-click the object to view properties. The **Object Properties** docker opens at the **Bling Run** tab.

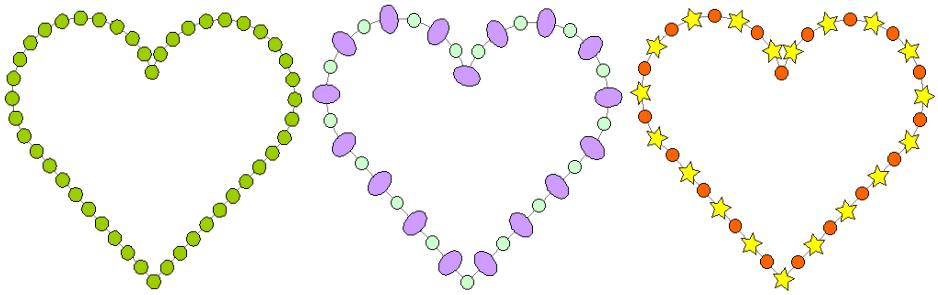


Available controls are summarized below.

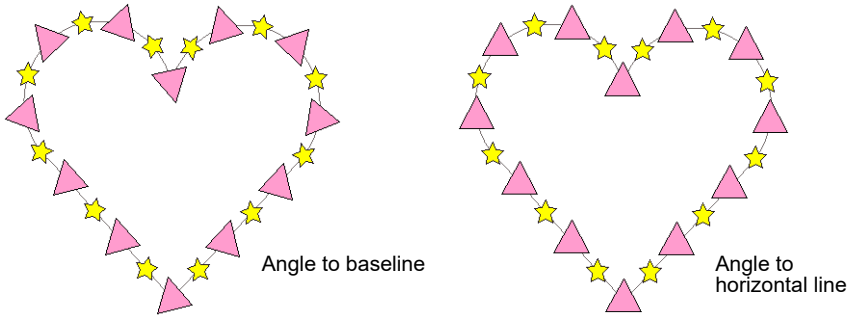
Control	Function
Pattern Editor	Use to create bling run patterns. Click '+' in the pattern editor and select the desired rhinestone shape from the droplist.
Positioning	Place rhinestones along the curve and adjust placement to meet selected criteria:
	Exact: places bling along curve according to specified spacing.

Control	Function
	Expand to fit: places as many bling as possible along each curve segment where spacing is never less than specified. With this option, there are always rhinestones at each cusp point.
	Compact: non-circular rhinestones are placed such that minimal distance between is equal to specified spacing.
	Manual: allows manual distribution of rhinestones along curve.
Orientation	Place rhinestones either relative to object baseline or absolute (fixed 'north') orientation.
Statistics	Summary information: type, SS (stone size), color, shape, count (for the selected object). If multiple objects are selected, bling information for all selected objects is displayed.

7 Use pattern settings as for sequin runs to create simple or variegated bling runs.



8 Set bling orientation to baseline or fixed angle.



Tip: The **Backtrack/Repeat** tool is enabled for bling-run objects.

Related topics...

- Setting up bling palettes
- Send bling to CAMS machine
- Creating sequin runs

- Digitizing outlines & details
- Reinforcing outlines

Place rhinestones manually

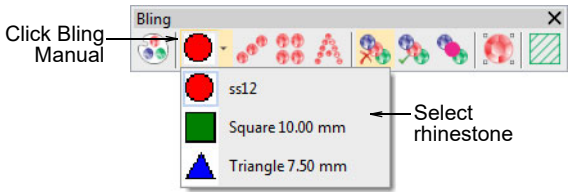


Use Bling > Bling Manual to digitize individual bling drops. Select from a user-defined palette of rhinestone shapes.

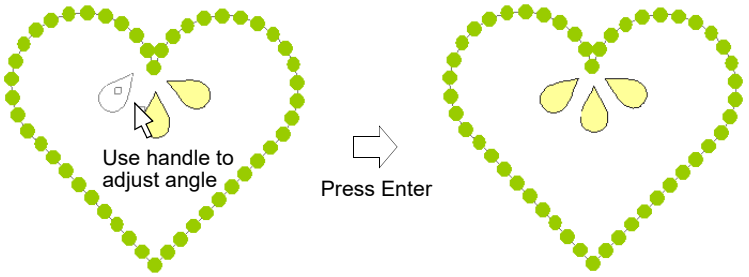
You have the option of digitizing individual rhinestone 'drops' with the manual method.

To place rhinestones manually...

1 Click **Bling Manual** and select the bling type you want from the droplist.



2 Digitize individual rhinestones by left-clicking. If you make a mistake, press **Backspace**.



3 Holding down the **Shift** key, use the handle to adjust rhinestone orientation as you digitize.

4 Press **Enter** to finish.

Create bling fills



Use Bling > Bling Fill to digitize complex shapes (with or without holes) filled with bling.



Activate Bling > Automatic Overlap Removal if you want to automatically remove unwanted overlapping bling items from a bling object.

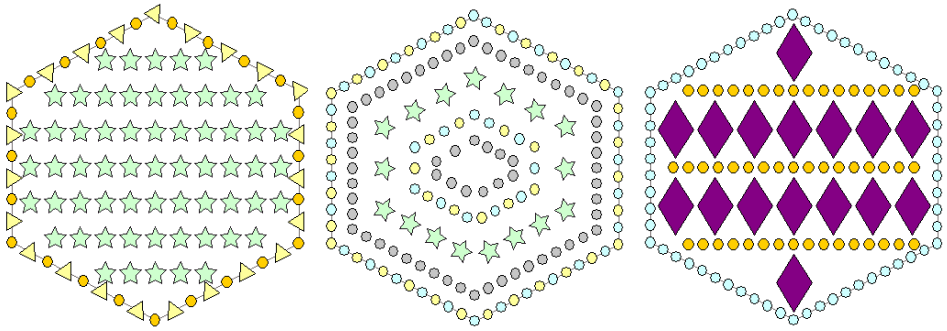
Activate Bling > No Automatic Overlap Removal if you don't want to automatically remove overlapping bling items from a bling object.

Activate Bling > Highlight Bling Overlaps if you want to highlight overlapping bling items in a bling object – i.e. if you want to edit manually.

Use View > Show Bling to toggle bling display on/off.

Use Bling > Show Bling Work Area to visualize the design within the work area of the selected machine model.

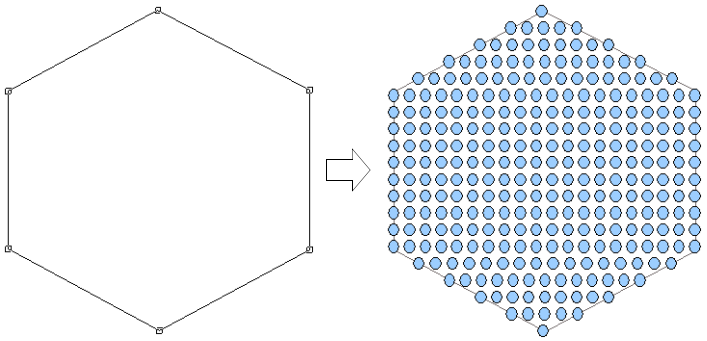
The **Bling Fill** feature provides a means of filling complex shapes with bling arranged in columns. Bling fill types include **Column Fill** (straight grid, angled grid) and **Contour Fill**.



Tip: You can create offset objects from bling-fill objects. All the same options are available as are available for embroidery objects, plus the ability to create bling fills and runs.

To create a bling fill...

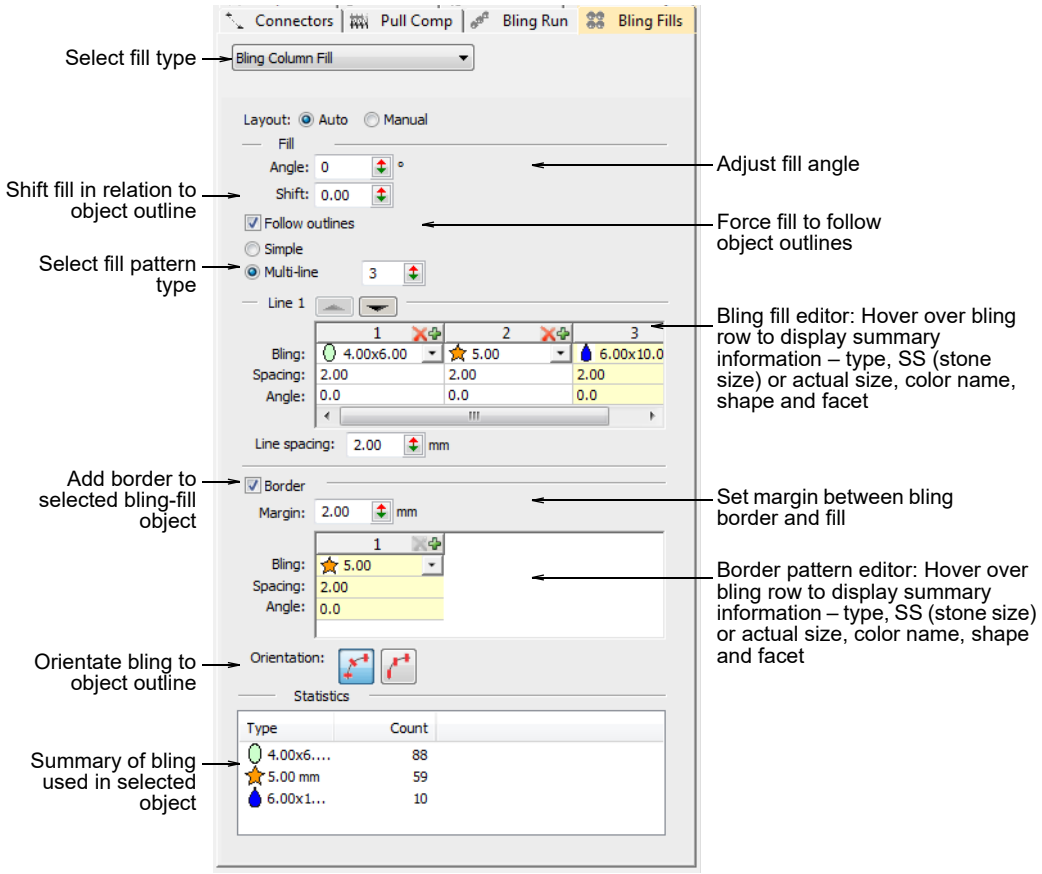
1. Optionally, toggle on **Show Bling Work Area** to visualize the design within the work area of the selected machine model.
2. Click the **Bling Fill** button.
3. Digitize control points for a closed object in the same way as **Complex Fill**.



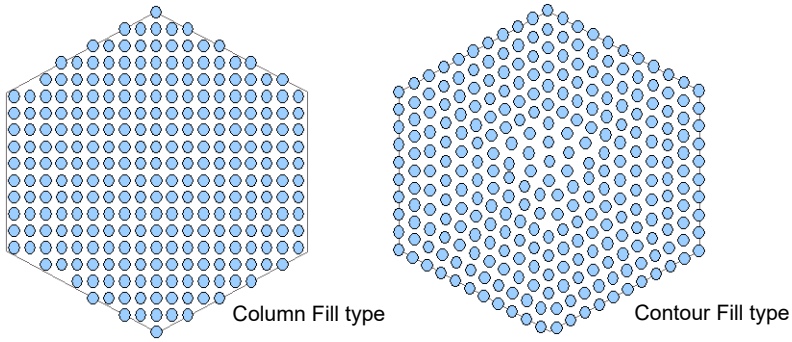
4 Press **Enter** to close the shape. You are prompted to create another boundary.

5 Press **Enter** twice to finish the object.

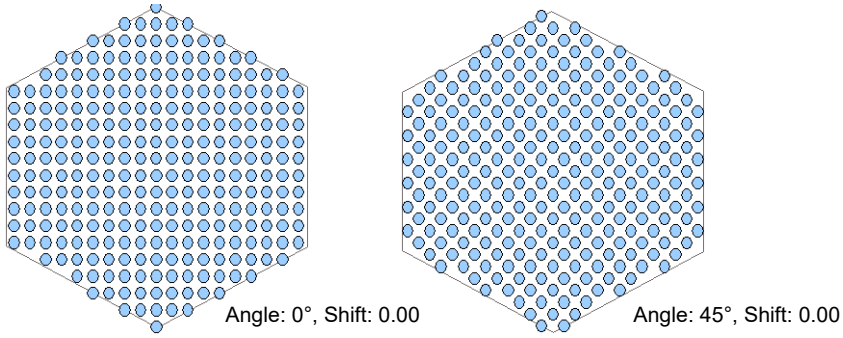
6 Double-click the object to view properties. The **Object Properties** docker opens at the **Bling Fills** tab.



7 Select a fill type – **Column Fill** or **Contour Fill**.

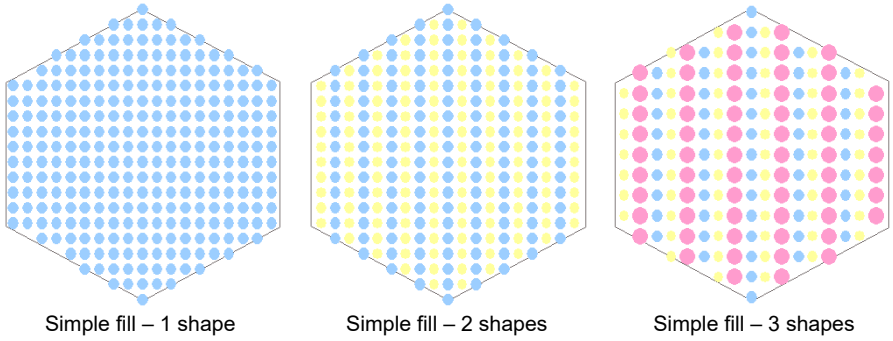


8 Adjust angles and shift as required – these settings are only available with **Column Fill**.

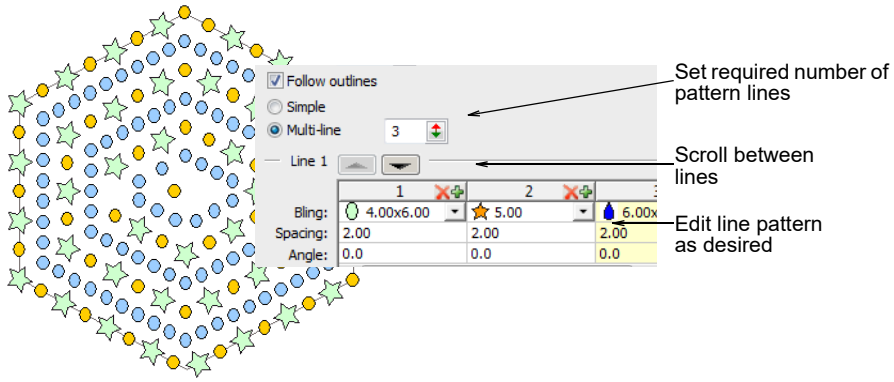


9 Use pattern settings as for sequin fills to create simple or multiline bling fills:

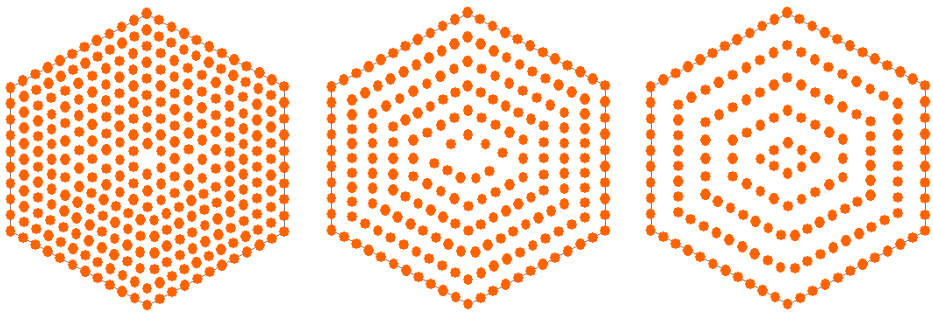
- For a simple fill, set the fill type to **Simple** and adjust pattern as desired.



- For a more complex, variegated fill, set the fill type to **Multiline** and adjust pattern for each line as desired.



10 Adjust line spacing settings as required.



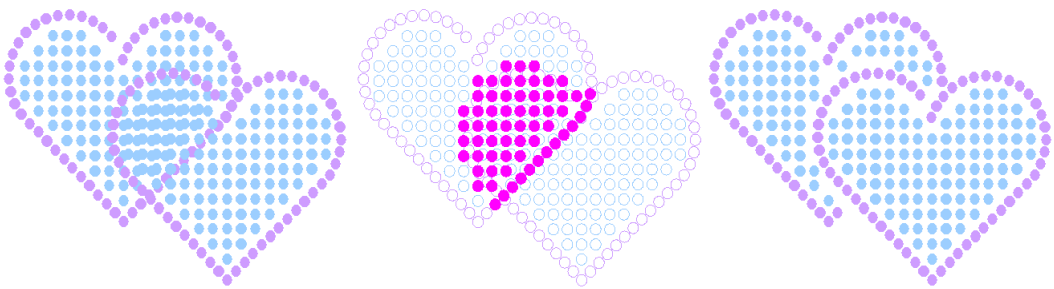
Contour fill
Line spacing: 1mm

Contour fill
Line spacing: 3mm

Contour fill
Line spacing: 5mm

11 Add borders as required. See below

Tip: By default, **Automatic Overlap Removal** is selected in order to automatically remove unwanted items from overlapping bling objects. Choose another option if you want to manually edit rhinestone overlaps.



No automatic overlap removal

Highlight bling overlaps

Automatic overlap removal

Note: Bling overlaps are determined by the **Overlap Tolerance** setting. This defines the minimum allowable distance between stones.

Bling fill summary

Controls available on the **Bling Fill** tab are summarized below.

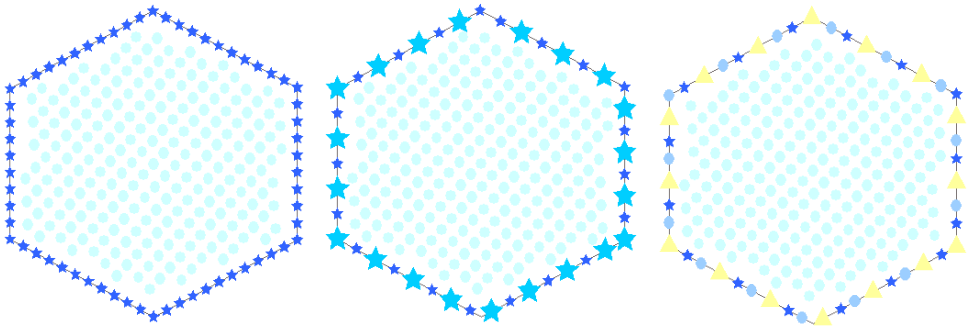
Control	Description
Fill type	Available fill types include: Column Fill, Contour Fill. Respectively, these fill a shape with columns along which patterns are repeated, or contours where patterns are repeated along a contoured path.
Layout	Bling-fill objects exist in one of two 'layout' states: Auto and Manual. In the Auto state, bling fills are automatically re-generated whenever an object is scaled or reshaped. In the Manual state, the bling count does not change during transformations. See also Modifying bling objects.
Angle	Changes the angle of the column fill. This is only applicable to Column Fill.
Shift	Moves the entire fill pattern in relation to the object outline. This can be used to achieve a more even fill placement. Acceptable values are between ±0.5.
Follow outlines	Expands the space between bling in each line of fill in order to follow the object outline. This results in a stronger outline demarcation. It is only applicable to Column Fill and works in conjunction with borders. See Add bling borders for details.
Pattern editor	Use to create bling patterns as either single-line or multi-line patterns. Create patterns by clicking '+' in the pattern editor and selecting bling from the palette. Multi-line patterns are created similarly, but each time the number of lines increases, a new tab is added to the pattern editor. This allows a new pattern to be added. See also Creating sequin fills.
Line spacing	Set the distance between the currently active line tab and the next line in the pattern. This can be the same or different for each and every line. By default, this value is the same for each.
Border	When checked, this adds a border to any selected bling-fill object. You can also create a pattern for the border similarly to single-line patterns for bling fills.
Margin	Add a margin to rhinestones forming the border. Smaller border margins result in a larger number of rhinestones in the fill.
Orientation	Place bling in the border either relative to the object baseline or at an absolute (fixed 'north') orientation.
Statistics	View the following information: type, SS (stone size), color, shape, count (for the selected object). If multiple objects are selected, then bling information will be displayed for all selected objects. You can re-order the columns as needed.

Related topics...

- Send bling to CAMS machine
- Setting up bling palettes
- Creating sequin fills
- Multi-sequin fills

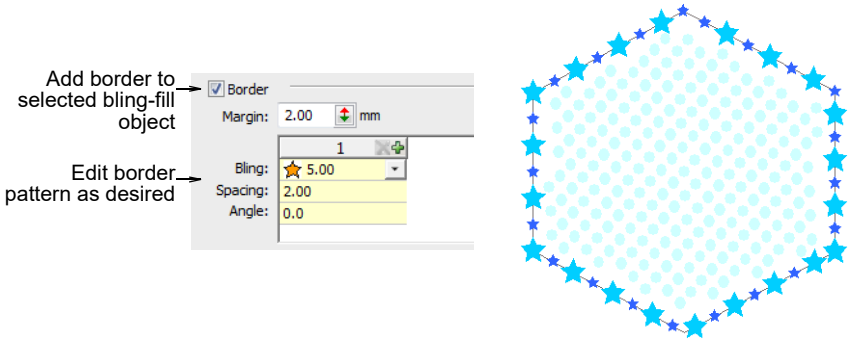
Add bling borders

Like sequin fills, bling fills can also include a border, with or without a margin. The border can be made from different or same rhinestones and is a property of the bling-fill object.



To add a border or changing border properties...

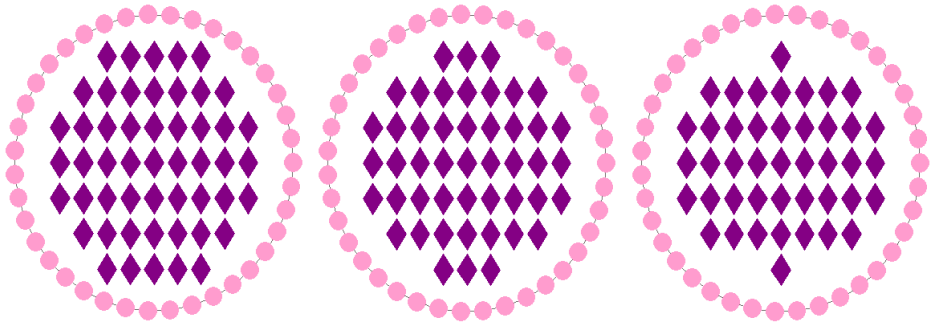
1 Select the bling-fill object and tick the **Border** checkbox.



2 Use pattern settings to create simple or variegated bling borders.

3 Select the bling margin as required.

A border margin is created by adding an 'offset' to each individual bling item in the border. Smaller border margins result in a larger number of rhinestones in the fill as shown.

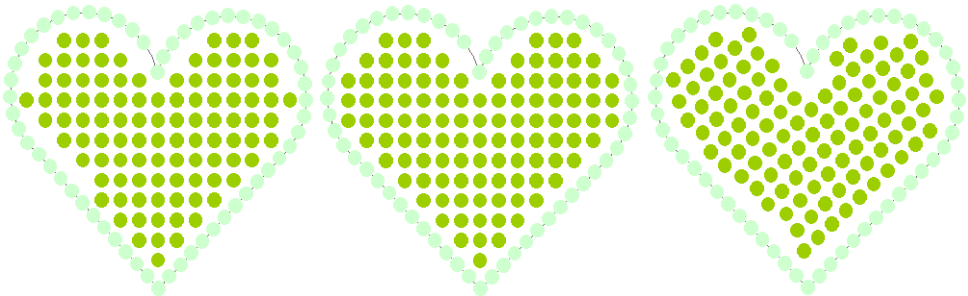


Related topics...

- Add sequin borders

Modifying bling objects

Bling-fill objects can be scaled and reshaped like any embroidery object. When reshaping, resizing or editing an object/design, the software automatically recalculates the number of stones but does not resize them. The **Bling** toolset also provides tools for editing rhinestones individually.



Tip: Object properties for bling-run and bling-fill objects can be copied and applied to other objects. This is done via the **Make Properties Current** and **Apply Current Properties** commands.

Transform bling-fill objects

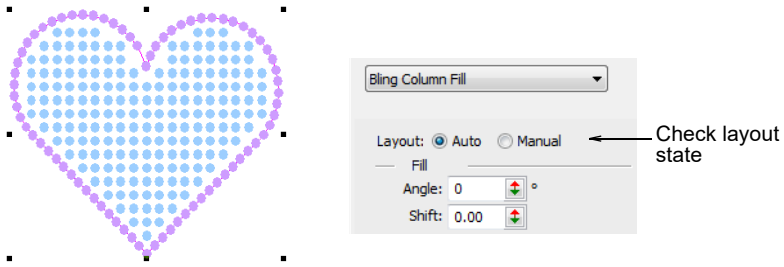
Use Select > Select to resize objects using selection handles.

Bling-fill objects can be scaled and transformed like any embroidery object with one difference. Bling-fill objects exist in one of two 'layout' states: **Auto** and **Manual**. In the **Auto** state, bling fills are automatically

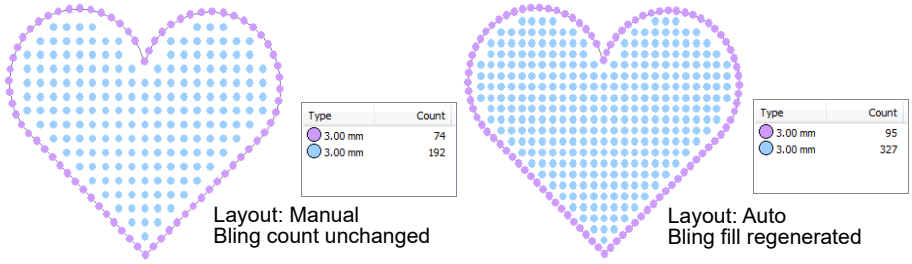
re-generated whenever an object is scaled or reshaped. In the **Manual** state, the bling count does not change during transformations.

To transform a bling-fill object...

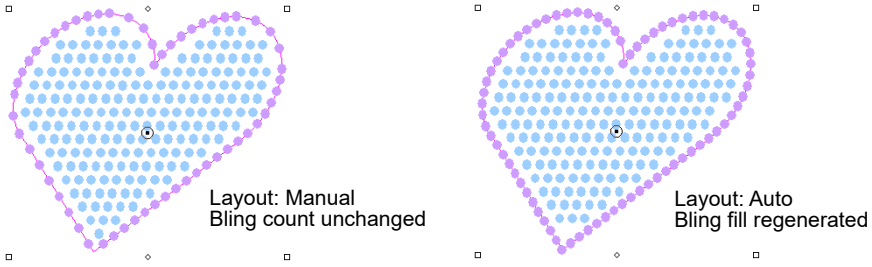
- Select the bling-fill object and check the **Layout** setting.



- Scale as desired.



- Similarly, skew as desired.



Related topics...

- Transforming Objects

Reshape bling-fill objects

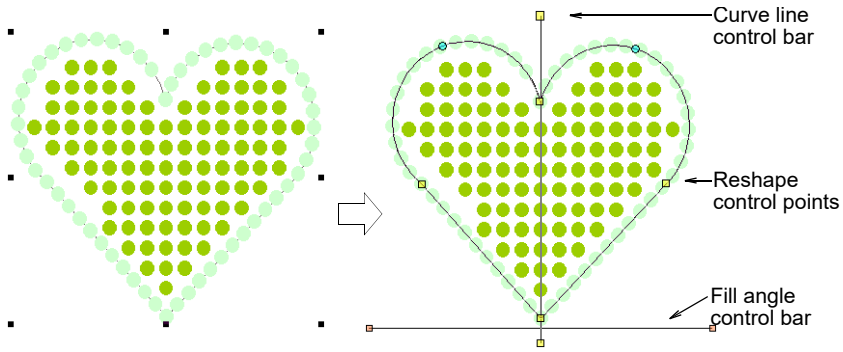
Use Select > Select to resize objects using selection handles.

Use Reshape > Reshape Object to reshape selected bling run objects.

When reshaping a bling-fill object you can reshape object outlines in the normal way. When **Column Fill** is applied, you can graphically change the fill angle and curve line as well.

To reshape a bling-fill object...

1 Select the bling-fill object.

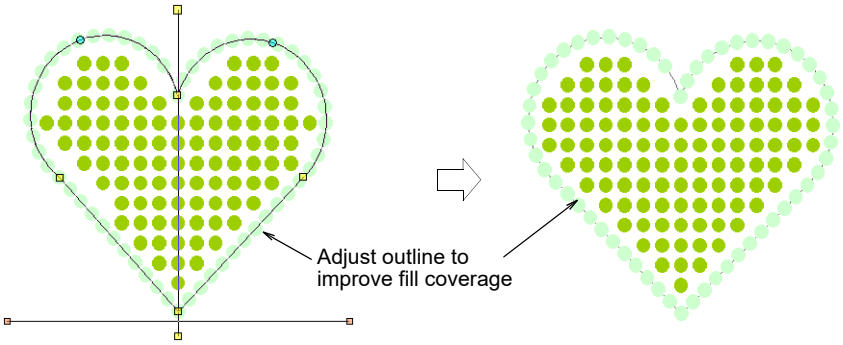


2 Click the **Reshape** icon or press the **H** key.

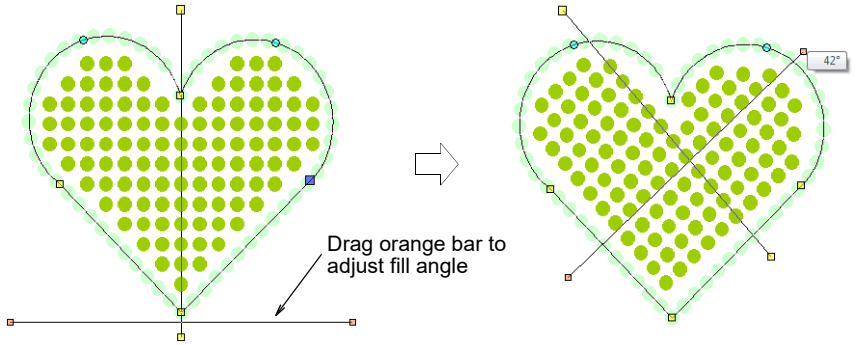
Control points appear around the object outline. If column fill is selected, two other control bars appear – one (orange handles) to control fill angle, and the other (yellow handles) to control curve lines.

3 Reshape the outline in the normal way.

In this case, we adjust the outline only slightly to improve the bling fill coverage.

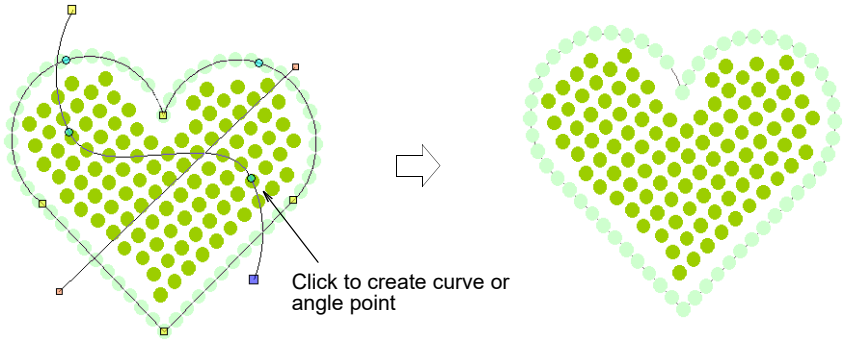


4 Adjust fill angle control as desired.



5 Adjust curve line control as desired.

Right or left-click anywhere along the line to add curve or angle points. Curve line adjustments have no effect on object properties.



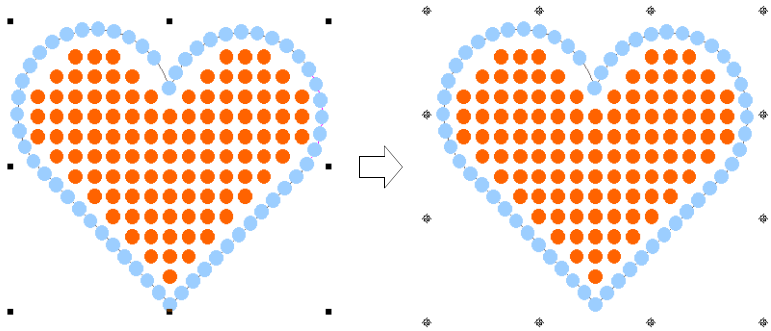
Edit bling-fill objects

	Use Bling > Bling Edit to edit bling items individually.
	Activate Bling > Automatic Overlap Removal if you want to automatically remove unwanted overlapping bling items from a bling object.
	Activate Bling > No Automatic Overlap Removal if you don't want to automatically remove overlapping bling items from a bling object.
	Activate Bling > Highlight Bling Overlaps if you want to highlight overlapping bling items in a bling object – i.e. if you want to edit manually.

The **Bling** toolset provides tools for editing rhinestones individually. The following operations are applicable to bling run, bling fill, and bling manual objects.

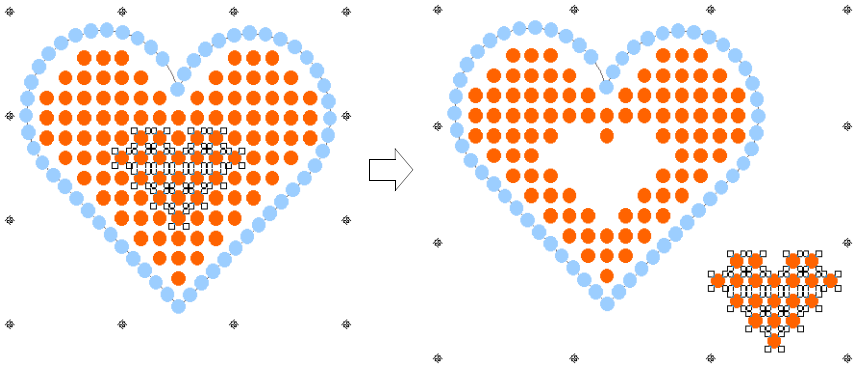
To edit a bling-fill object...

1 Select the bling-fill object and click the **Bling Edit** icon. Selection handles change.



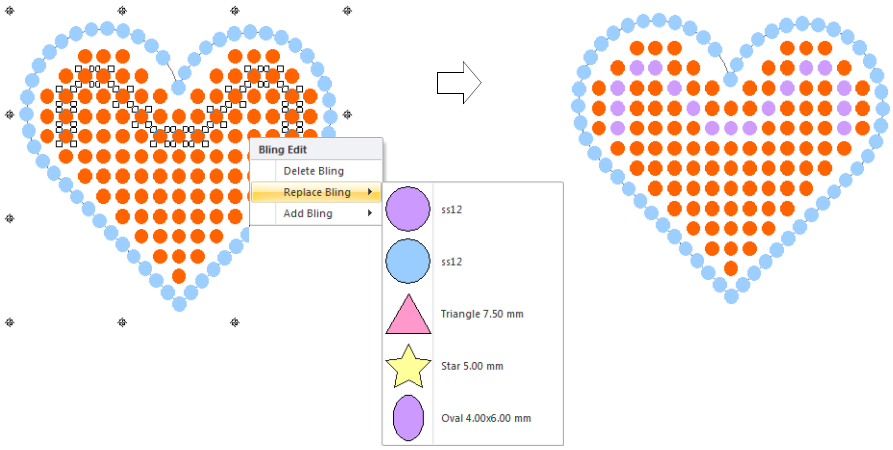
2 Select rhinestones individually within the object.

Use the **Ctrl** key to select multiples.



3 Delete or reposition selected rhinestones as desired.

4 Select rhinestones and right-click to replace by means of the popup menu.

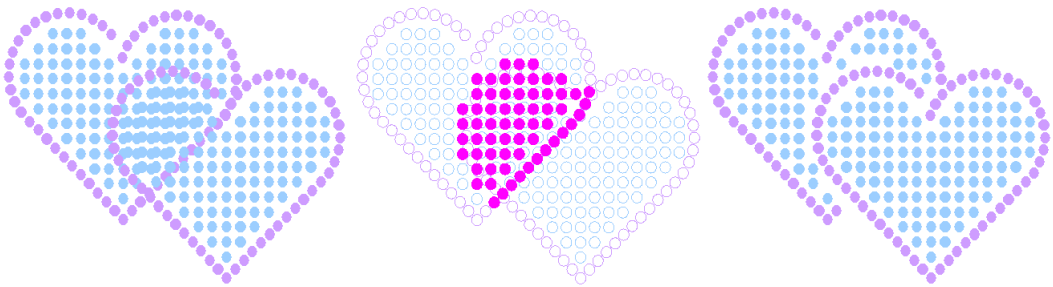


5 Use the same popup menu to delete or add rhinestones.

These operations are treated as manual edits. The object's layout status is automatically changed to **Manual**. This means that bling count does not change during object transformations.

Usage tips...

- By default, **Automatic Overlap Removal** is selected in order to automatically remove unwanted items from overlapping bling objects. Choose another option if you want to manually edit rhinestone overlaps.



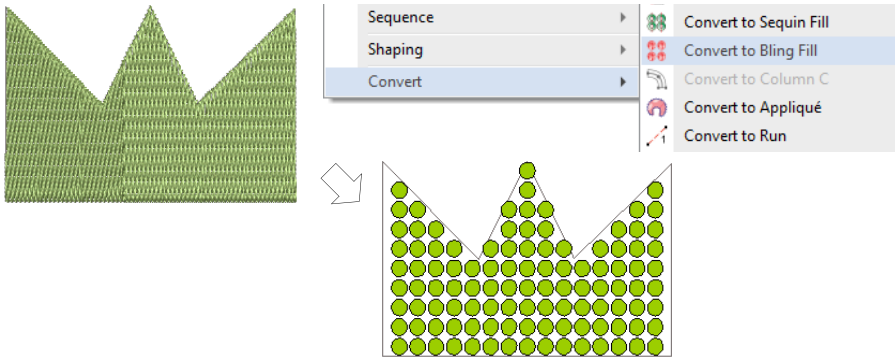
- Bling overlaps are determined by the **Overlap Tolerance** setting. This defines the minimum allowable distance between stones.

Convert objects to bling

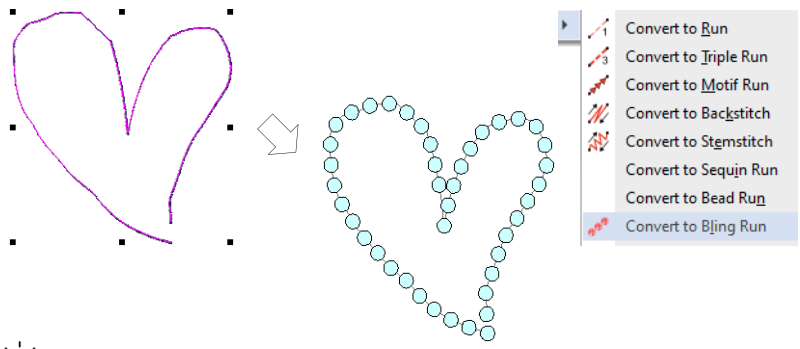
Any closed object can be converted to a bling-fill object. Similarly, any outline object – closed or open – can be converted to bling-run.

To convert an object to bling...

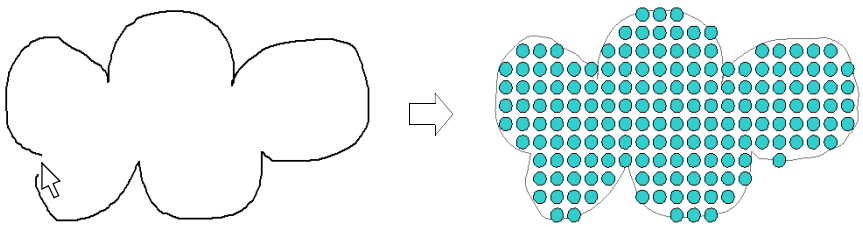
- Right-click a fill object and select **Convert > Convert to Bling Fill**.



- Alternatively, click the **Bling Fill** button on the **Bling** toolbar.
- Similarly right-click a run object and select **Convert > Convert to Bling Run**.



Tip: You can also create objects with the **Freehand Embroidery** tools which can be converted to bling-fill objects.



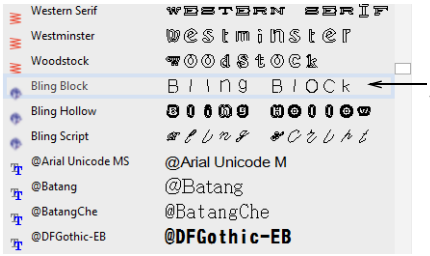
Creating bling lettering

Use Bling > Bling Lettering to create bling lettering onscreen using native bling fonts, embroidery fonts, or TrueType fonts. Right-click for settings.

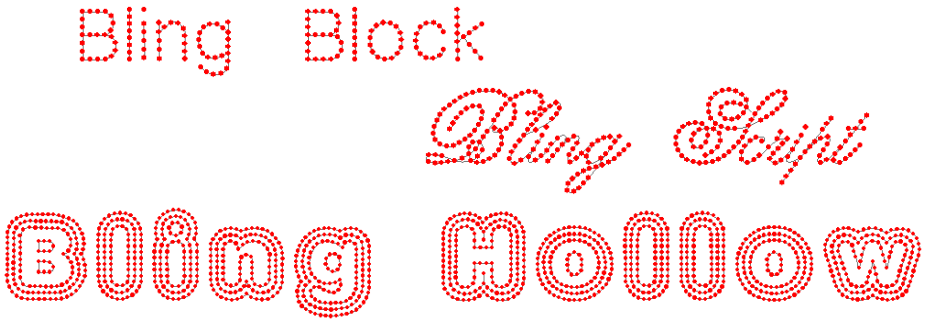
Use the dedicated **Bling Lettering** tool to create lettering in the same way as embroidery lettering. Use the same properties as embroidery lettering. Depending on the font, you also have access to **Bling Run** or **Bling Fill** properties. Alternatively, various techniques exist to create bling text without lettering properties.

To create bling lettering...

1 Select the **Bling Lettering** tool and select a font from the **Special > Lettering** tab. For best results, use native bling fonts.



2 Digitize bling lettering as you would embroidery lettering.



3 Adjust properties as for embroidery lettering including size, slant, etc.

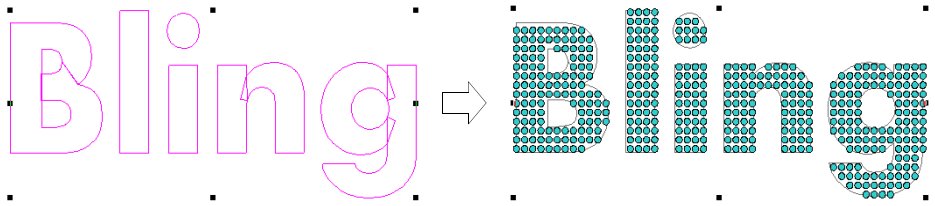
4 Change font type. Use embroidery fonts or TrueType fonts with bling as desired.

5 Depending on the font type you are using, adjust bling automatic fills or outlines for **Bling Fill** or **Bling Run**.

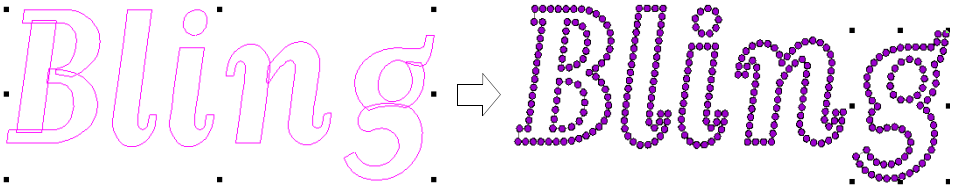


Usage tips...

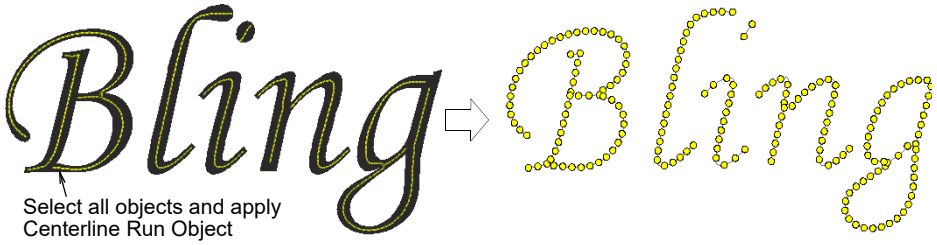
- Create a TrueType object and convert to **Bling Run** or **Bling Fill**.



- Select an existing embroidery lettering object and convert to **Bling Run** or **Bling Fill**.



- Create a lettering object in **CorelDRAW Graphics**, change to **Wilcom Workspace**, use **Centerline Run Object** to trace the letters, and convert to **Bling Run**.



Related topics...

- Creating embroidery lettering
- Editing text
- Creating bling runs & fills

Outputting bling

BE EmbroideryStudio supports a number of methods for exporting bling for production. Options include:

Output method	Details
CAMS machine	If you have a CAMS automatic rhinestone placement machine, use the dedicated CAMS connection.
Placement file	Alternatively, export your bling design to YNG format to be read by your placement machine.
Bling cutter	Send bling shapes direct to any supported cutting machine.

Output method	Details
Vector file	Convert bling shapes to vectors in order to cut bling templates.

The **Export Multi-Decoration Files** capability allows you to output files for multi-decoration designs. The system recognizes whether a component is embroidery, graphic, appliqué, or bling.

Related topics...

- Send bling to CAMS machine
- Exporting multi-decoration files

Chapter 23

Appliqué Embroidery

Automatically create all the stitching you need for appliqué using the **Appliqué** tools. Up to four layers of stitching – guide runs, cutting lines, tack stitches and cover stitches – can be generated for any appliqué object.



Print a copy of appliqué patterns to use in cutting out fabric pieces. Each piece is numbered according to the stitching sequence. You can also output appliqué shapes to cutter or separate file.

Creating appliqué embroidery

Use the **Appliqué** tools to generate all the stitching you require for appliqué objects.

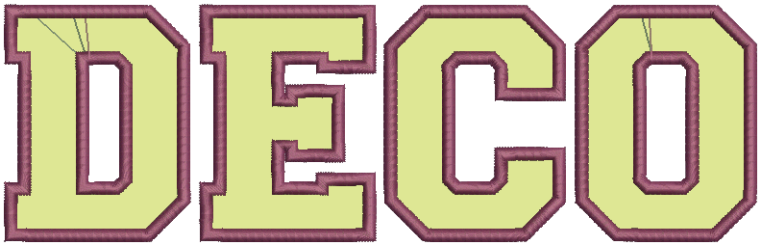
Tip: If you want to pre-set appliqué settings, right-click the **Appliqué** icon with no objects selected. When property values are changed, settings will apply to all newly created appliqué objects in the current session. See Working with object properties for details.

Convert vector graphics to appliqué

Use Mode > Tag as Appliqué to tag a vector object for conversion to appliqué.

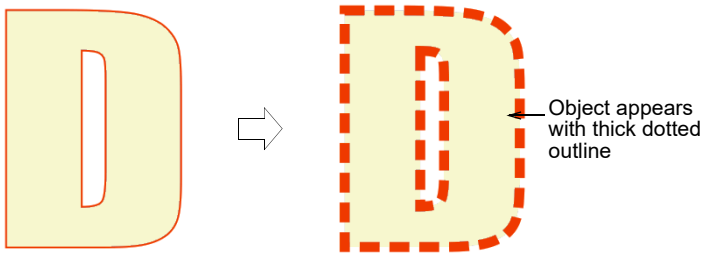
Use Mode > Convert Graphics to Embroidery to convert selected graphics to embroidery and switch to Wilcom Workspace.

In **CorelDRAW Graphics**, the **Tag as Appliqué** button allows you to tag selected vector objects for conversion to appliqué.

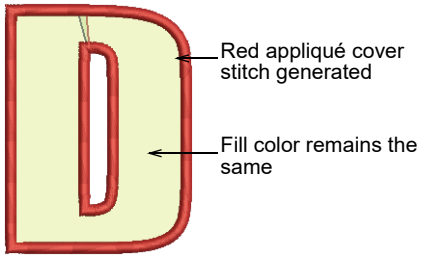


To convert a vector graphic to an appliqué object...

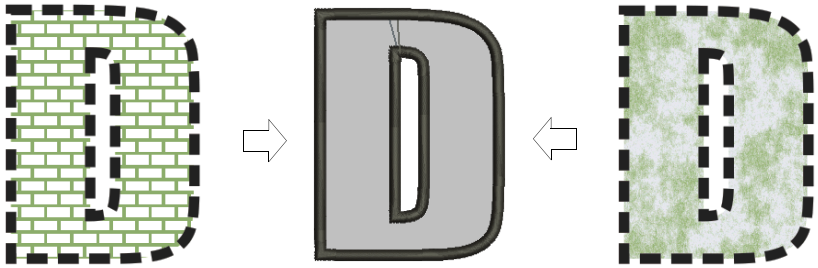
1. Create or open a vector graphic in **CorelDRAW Graphics** and select it.
2. Click **Tag As Appliqué**. The object is tagged for conversion with a thick dotted outline. The CorelDRAW® **Object Manager** also indicates which objects have been tagged as appliqué.



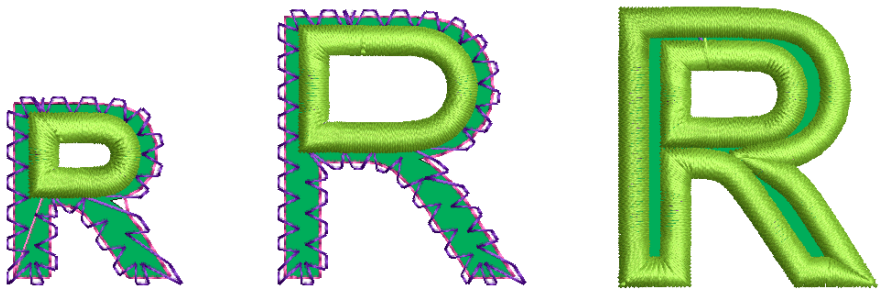
3. Click **Convert Graphics to Embroidery**. BE EmbroideryStudio automatically converts the vector object to appliqué and switches to **Wilcom Workspace**.



Note: When present, vector fill properties are maintained in **Wilcom Workspace** to give the appearance of a fabric patch. Otherwise, fills are rendered in gray.



Note: The success of the conversion can be affected by font size as a proportion of cover stitch width. Where the cover stitch is too thick for the resulting object, it may be ignored.



Related topics...

- Adjusting appliqué settings
- Cut appliqué shapes

Digitize appliqué objects

Use Appliqué > Appliqué to digitize appliqué objects with up to four layers of stitching – guide runs, cutting lines, tack stitches, and cover stitches.

Use Appliqué > Appliqué without Holes to digitize single-boundary appliqué objects with up to four layers of stitching – guide runs, cutting lines, tack stitches, and cover stitches.

Use **Appliqué** to produce the stitching you require for appliqué objects. Up to four layers of stitching – guide runs, cutting lines, tack stitches and cover stitches – can be generated. When you stitch out an appliqué object, the machine stops between layers. **Appliqué** also allows you to set a frame-out position which shifts the hoop from under the needle, making it easier to place and trim appliqué patches.

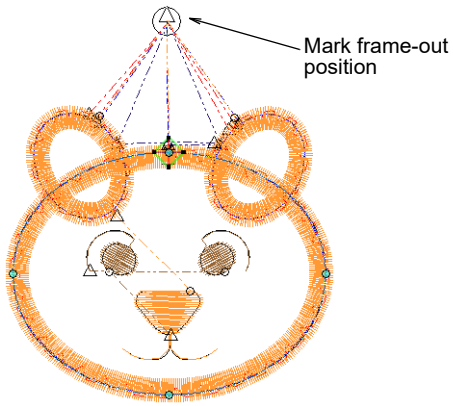


To digitize appliqué objects...

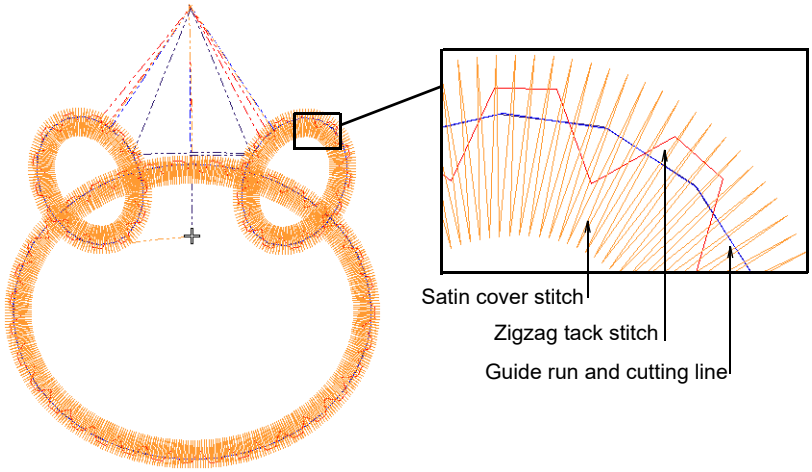
1. Click the **Appliqué** icon and digitize the boundary of the shape. Follow the prompts. If you make a mistake, press **Backspace** to delete the last reference point.

   Tip: If you only need to create a single-boundary appliqué object, you may prefer to use the **Appliqué without Holes** tool.
2. Press **Enter** to close the shape. You can create another appliqué object at this stage.
3. Press **Enter** again.
4. Click the outline to set entry and exit points or press **Enter** to accept defaults.
5. If prompted to do so, mark the frame-out position or press **Enter** to accept the default.

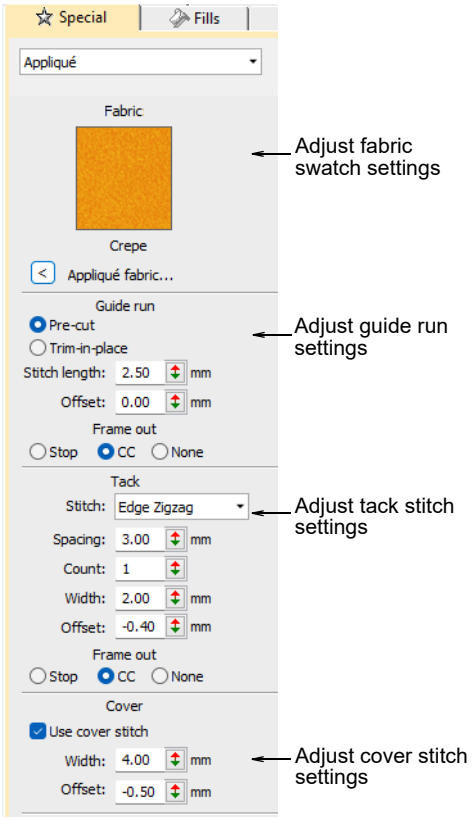
   Frame-out commands are specified as a **Stop** function or **Color Change** respectively. They can be set after guide run and/or tack stitch.



6. Press **Enter**. Up to four layers of stitching – guide run, cutting line, tack and cover – are generated, depending on current settings.



7 Double-click the appliqué object to check the settings.



8 Adjust settings as required:

- Fabric swatch: See Add fabric swatches to appliqué for details.
- Guide run: See Adjust guide run settings for details.

- Tack stitch: See Adjust tack stitch settings for details.
- Cover stitch: See Adjust cover stitch settings for details.

9 Optionally, apply Smart Corners to appliqué objects.

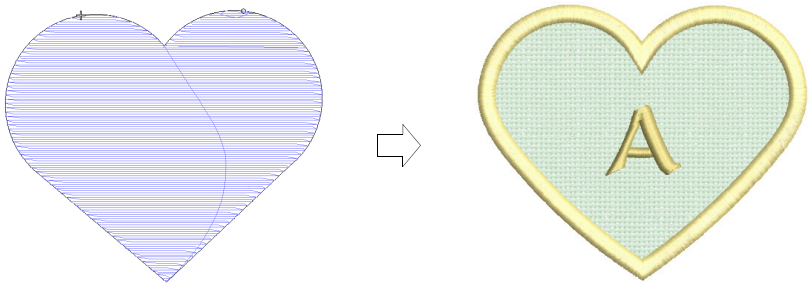
10 Optionally, run **Stitch Player** or use the travel tools to check the appliqué stitching sequence.

Related topics...

- Embroidery digitizing
- Adjust frame-out positions
- Controlling corner stitching
- Viewing stitching sequence
- Cut appliqué shapes

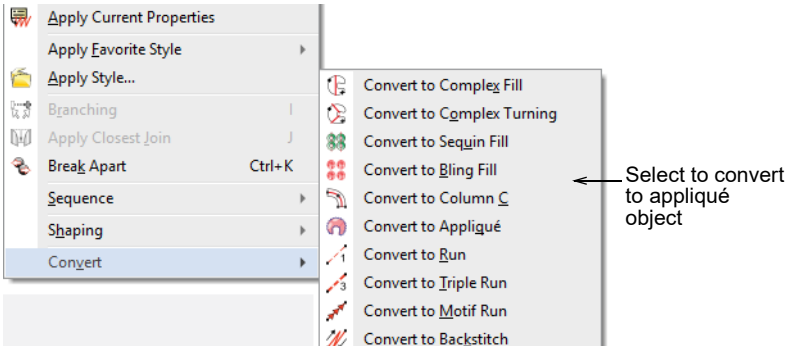
Convert embroidery objects to appliqué

You can convert complex fill and other objects to appliqué by adding entry, exit points and frame-out position.



To convert embroidery objects to appliqué...

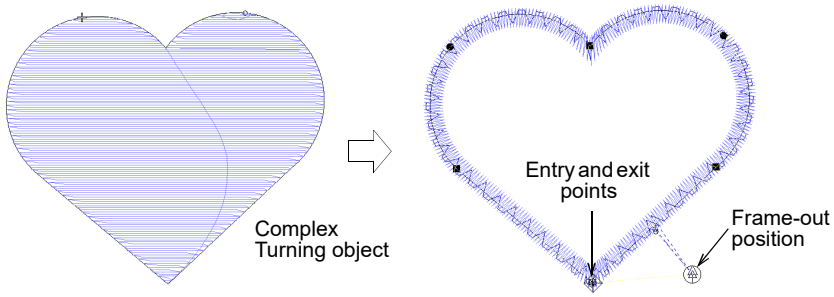
1 Right-click an object and select **Convert** and the icon from the popup menu.



2 Click the outline to set the stitch entry and exit points or press **Enter** to accept the defaults.

3 Mark a frame out position or press **Enter** to accept the default.

The object is converted and stitches regenerated.

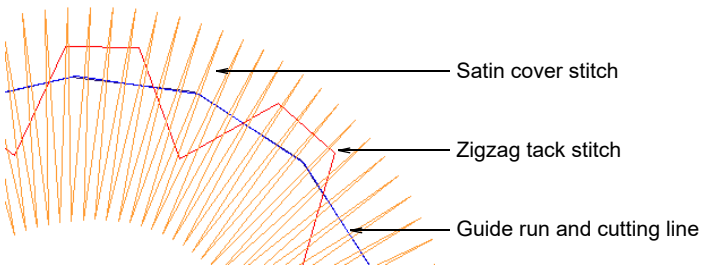


Related topics...

- Cut appliqué shapes

Adjusting appliqué settings

Whether you create appliqué from scratch using the **Appliqué** tool, or convert existing vector graphics or Complex Turning objects, BE EmbroideryStudio produces all the stitching you need. Up to four layers – guide runs, cutting lines, tack stitches and cover stitches – can be generated. Each of these layers can be adjusted via **Object Properties**.



When you stitch out an appliqué object, the machine stops between layers. BE EmbroideryStudio also allows you to pre-set a frame-out movement which shifts the hoop from under the needle, making it easier to place and trim appliqué shapes.

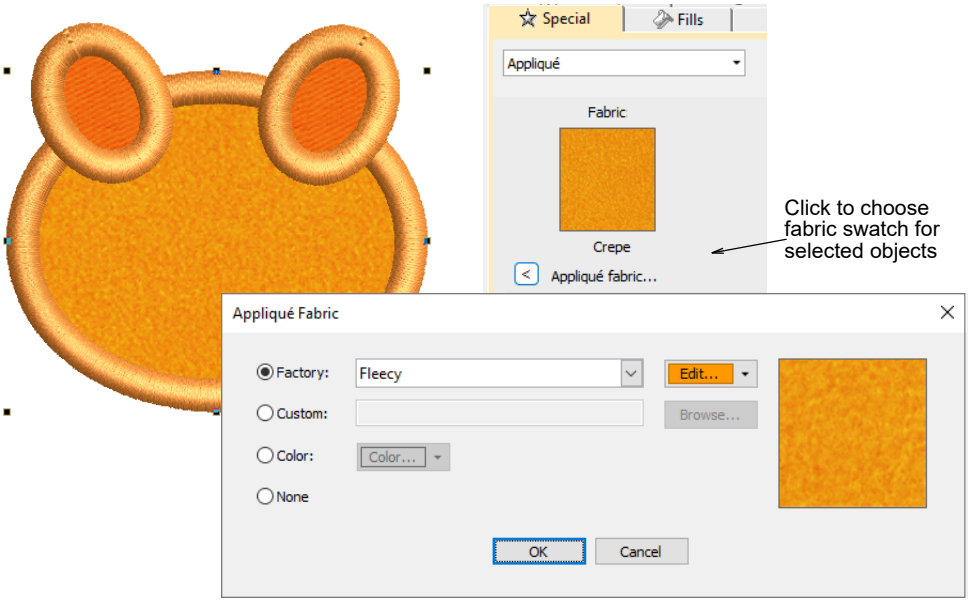
Tip: If you want to pre-set appliqué settings, right-click the **Appliqué** icon with no objects selected. When property values are changed, settings will apply to all newly created appliqué objects in the current session. See Working with object properties for details.

Add fabric swatches to appliqué

Right-click Appliqué > Appliqué to choose fabric swatch for selected appliqué objects.

Use View > Show Appliqué Fabric to toggle the appliqué fabric display on/off.

BE EmbroideryStudio lets you select a fabric swatch for appliqué objects. The swatch becomes a property of the object. Choose from amongst the included 'factory' swatches or choose a scanned sample of the fabric you want to use. Use the **Show Appliqué Fabric** toggle to turn it on or off.



Adjust guide run settings

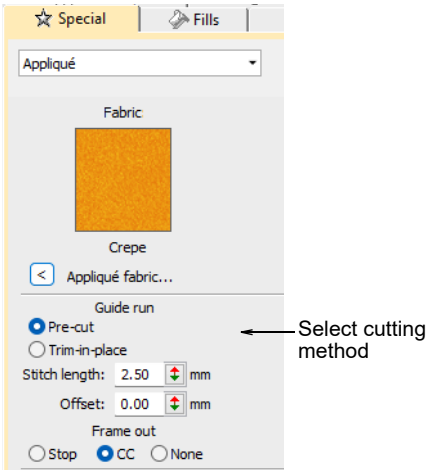
Right-click Appliqué > Appliqué to adjust guide run settings.

Right-click Appliqué > Appliqué without Holes to adjust guide run settings.

The guide run is the first layer to be stitched and is used to position appliqué fabric on the background material. An extra cutting line can be added if the fabric is to be trimmed in position. You can also specify a frame-out movement in order to place the appliqué patch.

To adjust guide run settings...

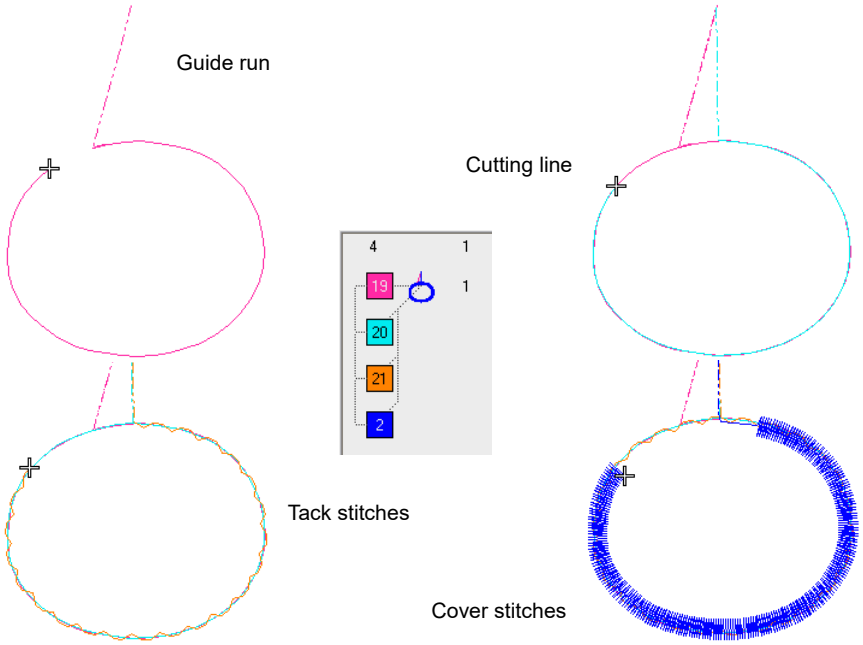
1 Double-click the appliqué object to access object properties.



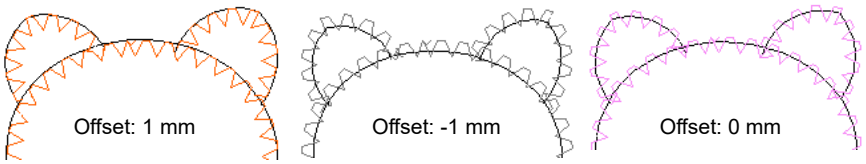
2 Select a cutting method:

Option	Function
Pre-cut	No cutting line is generated. This assumes you have a pre-cut appliqué patch ready to be placed in position.
Trim-in-place	An additional cutting line is generated.

A cutting line allows trim the fabric after the cutting line has been stitched.



3 Optionally, adjust **Stitch length** and **Offset** values in the **Guide Run** panel. A negative offset moves the guide run within the outline, a positive value moves it outside.



4 Optionally, set a **Frame Out** after the guide run in order to place the appliqué patch. Depending on the machine you are working with – multi-head or single-head – the frame-out command must be specified as a **Stop** function or **Color Change** respectively.

Related topics...

- Adjust frame-out positions
- Digitize appliqué objects

Adjust tack stitch settings

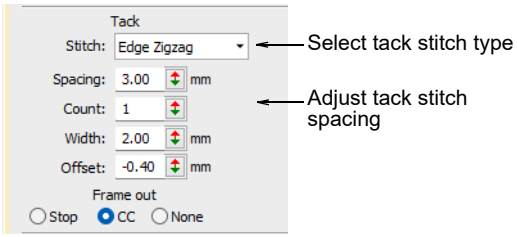
Right-click Appliqué > Appliqué to adjust tack stitch settings.

Right-click Appliqué > Appliqué without Holes to adjust tack stitch settings.

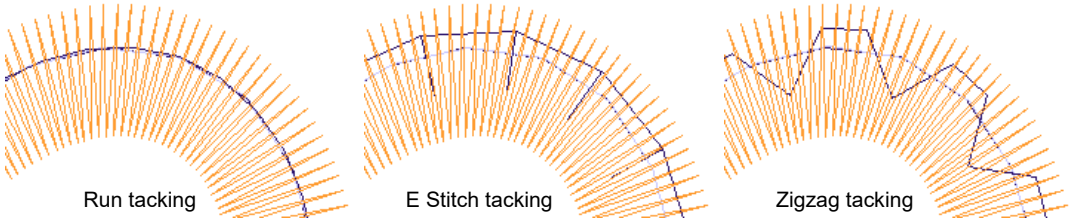
Tacking is used to fix appliqué shapes to a background fabric before cover stitching is applied. You can adjust settings or omit this layer altogether. You can also specify a frame-out movement in order to trim the appliqué patch.

To adjust tack stitch settings...

1 Double-click an appliqué object to access object properties.

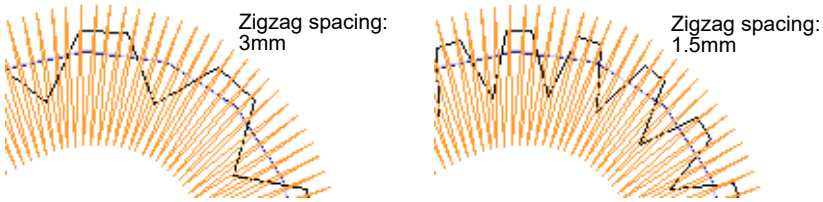


2 In the **Tack** panel, select a tack stitch type from the droplist. Alternatively, select **None**.

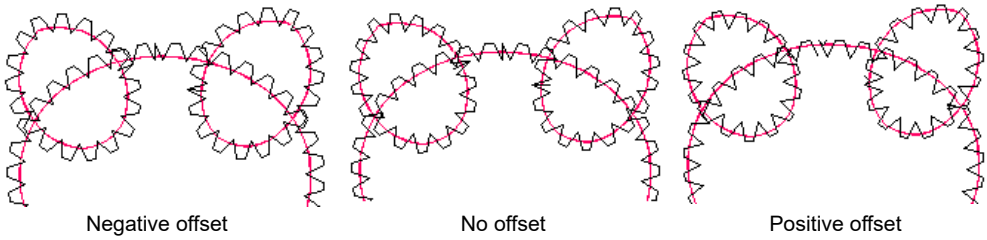


3 Adjust tack stitch settings according to selected stitch type:

Option	Function
Length	Stitch length value for Run stitch.
Runs	E Stitch only. Number of runs between stitches.
Spacing	Stitch spacing value for E Stitch and Zigzag.
Count	Number of stitch repetitions for Zigzag only.
Width	Column width value for Zigzag and E Stitch.
Offset	Run stitch only. Negative offset value moves the tack stitching within the outline, a positive value moves it outside.



4 Optionally, adjust **Offset** values. A negative offset moves the tack stitch inwards relative to the guide run. A positive value moves it outwards.



5 Optionally, set a **Frame Out** after the tack stitching in order to trim the appliqué patch. Depending on the machine you are working with – multi-head or single-head – the frame-out command must be specified as a **Stop** function or **Color Change** respectively.

Adjust cover stitch settings

Right-click Appliqué > Appliqué to adjust cover stitch settings.

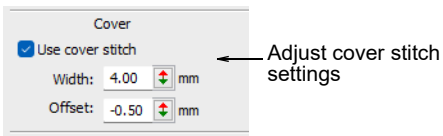
Right-click Appliqué > Appliqué without Holes to adjust cover stitch settings.

The cover stitch is generally the satin border around the appliqué shape. However, you don't have to include it. Optionally, you can change the cover stitch type to zigzag, E stitch or raised satin. You can also adjust width and offset relative to other appliqué components.

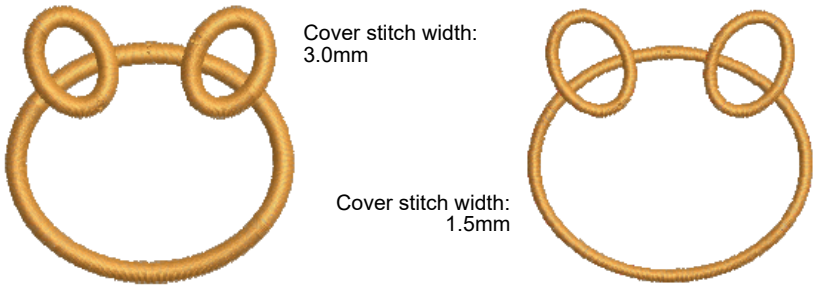
To adjust cover stitch settings...

1 Double-click an appliqué object to access object properties.

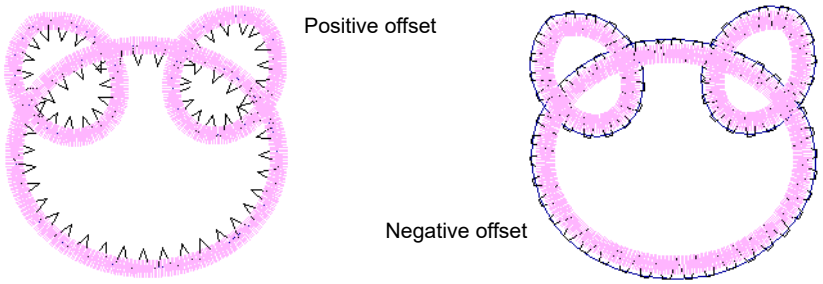
2 Optionally, turn off cover stitching via the checkbox.



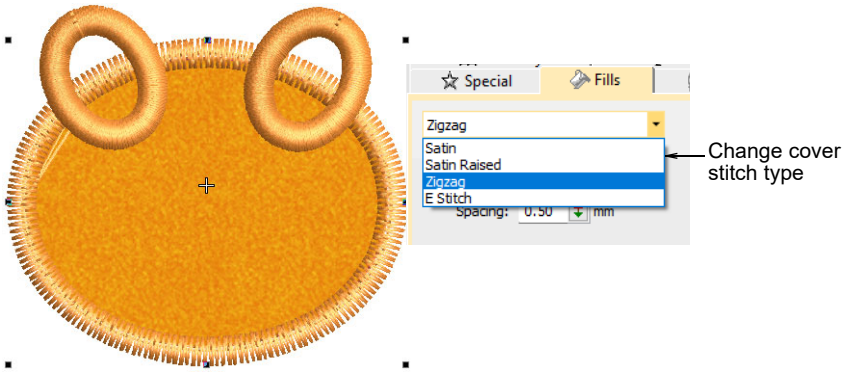
3 Adjust cover stitch **Width** as preferred.



4 Optionally, adjust **Offset** values. A negative offset moves the border inwards relative to the tack stitch. A positive value moves it outwards.



5 For more or less dense cover stitching, change stitch types via the **Object Properties > Fill** tab. Adjust **Spacing** values accordingly.



Adjust frame-out positions

	Right-click Appliqué > Appliqué to adjust frame-out settings.
	Right-click Appliqué > Appliqué without Holes to adjust frame-out settings.

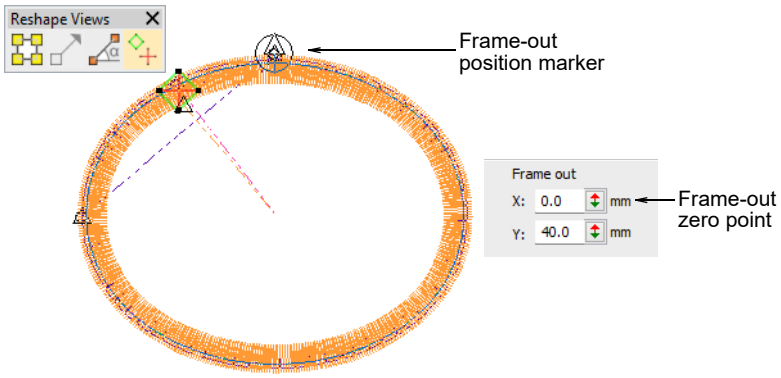
Use Reshape > Reshape Object to reposition frame-out marker.

When stitching out appliqué objects, you can set a frame-out position after the guide run and/or tack stitch. This shifts the hoop out from under the needle, making it easier to place and trim the appliqué. Depending on the machine you are working with – multi-head or single-head – the frame-out command must be specified as a **Stop** function or **Color Change** respectively.

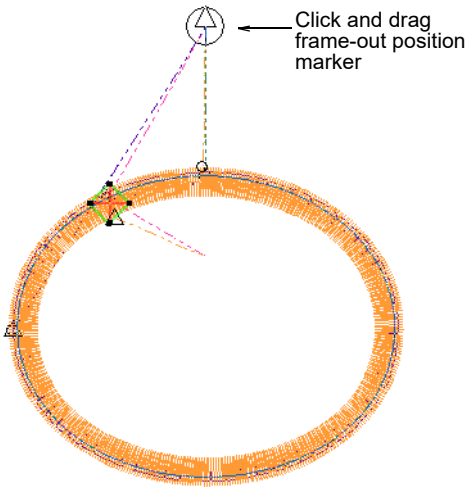
To adjust the frame-out position...

1 Select the object and click the **Reshape Object** icon.

Control points appear along with the **Reshape Views** toolbar. Appliqué objects include a frame-out position marker. **Show Entry/Exit Points** must be activated to view it.



2 Click and drag the frame-out marker to the required position.



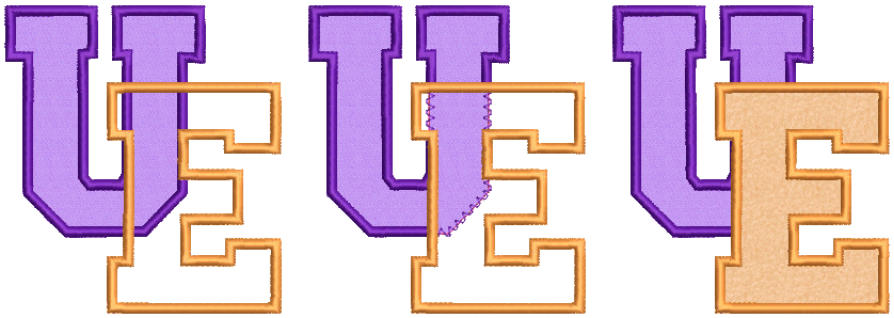
3 If you are using **Object Properties**, the **Frame Out** panel lets you specify frame-out coordinates in relation to the top center of the design, which is the zero point.

Related topics...

- Reshaping objects

Combining appliqué

When you come to combine more than one appliqué object in the one design, you will encounter issues to do with overlapping objects and appliqué sequencing. BE EmbroideryStudio provides tools to help.



Create partial cover appliqué


Use Appliqué > Appliqué to digitize partial cover appliqué objects.


Right-click Appliqué > Appliqué without Holes to digitize partial cover appliqué objects.

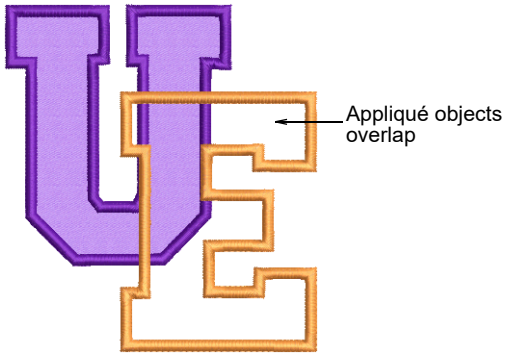

Use Appliqué > Partial Appliqué to create partial cover stitching for overlapping appliqué objects.


Use Appliqué > Remove Overlaps to remove underlying layer of stitching in overlapping objects using the selected object as a 'cutter'. Right-click for settings.

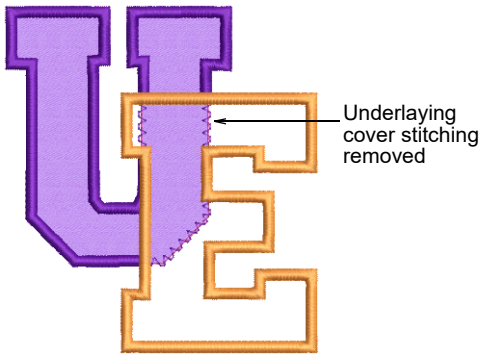
You can create appliqué objects with partial cover stitching without doubling-up borders with **Partial Appliqué**. In combination with the **Remove Overlaps** tool, you can remove all underlying stitching.

To create partial cover appliqué...

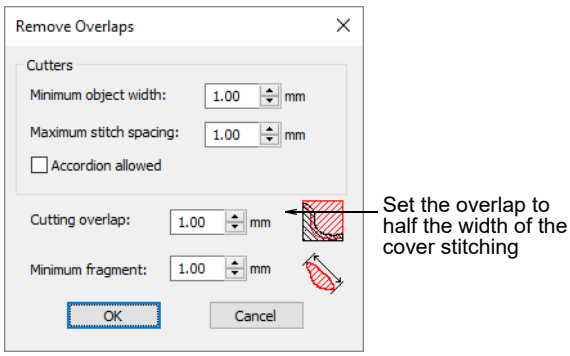
1 Digitize appliqué shapes with **Appliqué**.



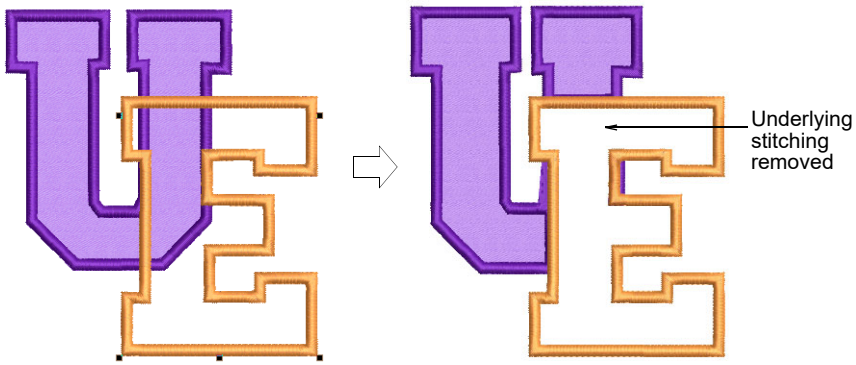
2 If you only want to remove underlying cover stitching, select **both** objects and click **Partial Appliqué**. Cover stitches are generated in a clockwise direction between start and end points, leaving the rest of the boundary unstitched.



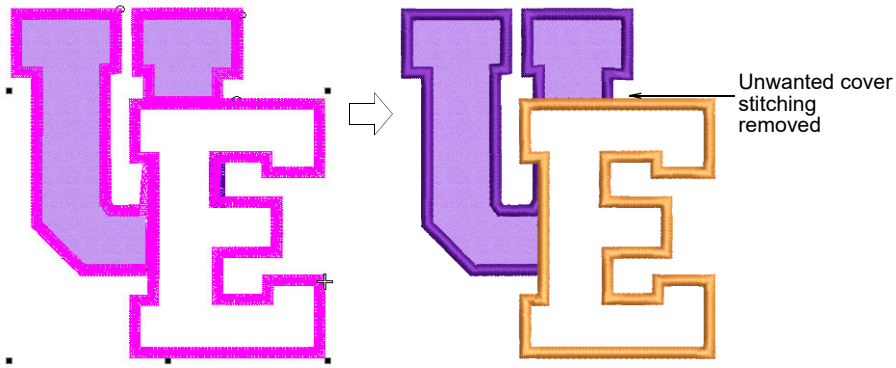
3 If you want to remove all underlying stitching, first select the 'cutter' object and select **Arrange > Remove Overlaps** or right-click the tool.



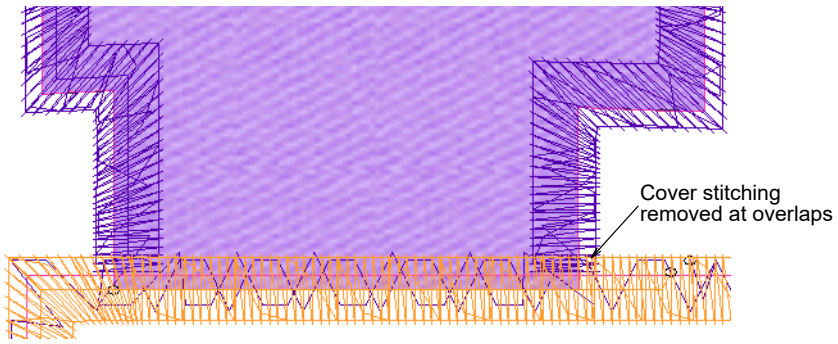
4 Set the cutting overlap to half the width of the cover stitching – e.g. 2mm – and click **OK**.



5 Select **all** objects and click **Partial Appliqué** to remove underlapping cover stitching.



6 Remove any unwanted fragments and zoom in to check the overlaps.



Related topics...

- Digitize appliqué objects
- Removing underlying stitching

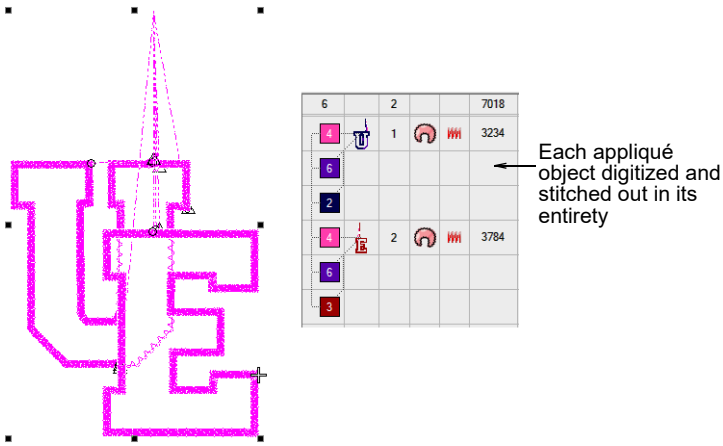
Resequence appliqué components

Use Appliqué > Combine Appliqué Components to break apart multiple appliqué objects into component objects and combine and resequence them for efficient stitchout.

The **Combine Appliqué Components** tool breaks multiple appliqué objects into their components – guide runs, cutting lines, tack stitches and cover stitches – and combines and resequences them for efficient stitchout. The end result is that the guide run of all appliqué objects is stitched in one pass, followed by the tack stitch and then cover stitch. A single frame-out movement occurs after guide run and tack stitch components.

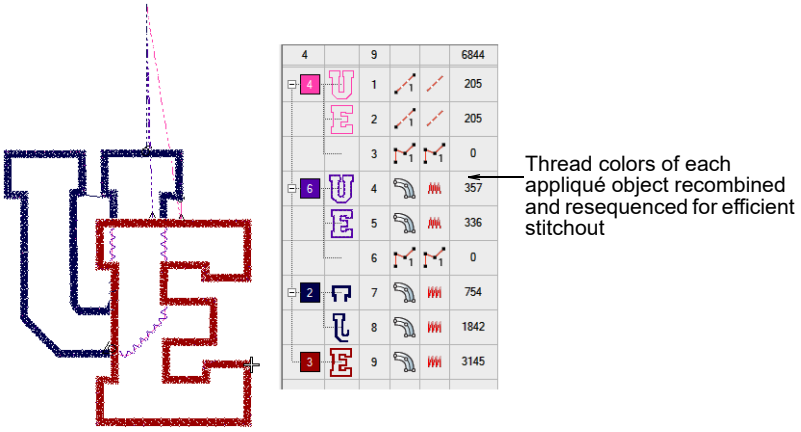
To resequence appliqué components...

1 Select a group of appliqué objects. The **Combine Appliqué Components** tool is activated.



2 Click **Combine Appliqué Components**. A message box warns that the appliqué objects will be broken apart and recommends that you save the design before proceeding.

3 Click **OK** to confirm. The selected appliqué objects are broken apart and same components – guide runs, cutting lines, tack stitches and cover stitches – combined and resequenced.



Outputting appliqué

Print a copy of appliqué patterns to use in cutting out fabric pieces. Alternatively, use **Send to Appliqué Cutter** to send appliqué shapes from a design file to a laser cutter.

Tip: CorelDRAW Graphics also lets you output objects as a vector file. This can then be downloaded to a laser cutter using CorelDRAW® Graphics Suite. For a full description of the CorelDRAW® Graphics Suite tools, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the onscreen help available from the **Help** menu.

Related topics...

- Print appliqué patterns
- Cut appliqué shapes

PART VII
EMBROIDERY LETTERING

Create top-quality lettering quickly and simply. BE EmbroideryStudio provides a large range of scalable closest-join font styles and multi-color and fancy embroidery fonts to choose from.



Creating embroidery lettering

This section describes how to add lettering, apply lettering baselines, change letter formatting, and adjust letter size and spacing. See Creating Embroidery Lettering for details.

Editing embroidery lettering

This section describes how to edit lettering text. It also explains how to scale and transform lettering objects. It also covers adjusting individual letters as well as reshaping baselines on screen. See Editing Embroidery Lettering for details.

Advanced embroidery lettering

This section shows you how to add special characters and symbols. It describes changing lettering stitch types in lettering objects, and adjusting lettering stitch angles. It also explains how to adjust the lettering stitching sequence as well as lettering join method. Automatic letter kerning and letter spacing are discussed. Lettering underlay is also discussed. It also describes how to create special effects with envelopes. See Advanced Embroidery Lettering for details.

Monogramming

This section details the creation of monogram lettering with initials or with a name, how to add ornaments to monograms, and how to create ornament layouts. See Monogramming for details.

Team names

This section shows you how to set up name groups and create team name designs. It also describes how to modify team name designs and output them in a variety of ways. See Team Names for details.

Lettering kiosk

The lettering kiosk provides a set of predefined design layouts and the ability to easily personalize them by modifying text and color. You can create your own layouts as well. Designs can be sent to machine from the kiosk via a single button press. See Lettering Kiosk for details.

Chapter 24

Creating Embroidery Lettering

Create high-quality embroidery lettering quickly and simply. BE EmbroideryStudio provides a large range of scalable fonts to choose from. Add embroidery lettering directly to designs or convert from **CorelDRAW Graphics**. Apply formatting just like a word processor, including italics, bolding, and right/left justification. Change values for the whole text or individual letters.

This section describes how to add lettering, apply lettering baselines, change letter formatting, and adjust letter size and spacing.



Creating lettering with CorelDRAW Graphics

Use Mode > Tag Fill as Turning Satin to tag narrow shapes for conversion to turning stitching.

Use Mode > Convert Graphics to Embroidery to convert selected graphics to embroidery and switch to Wilcom Workspace.

Some BE EmbroideryStudio product levels include CorelDRAW® Graphics Suite as standard. This allows you to add and format TrueType lettering in **CorelDRAW Graphics**. This can then be converted to either embroidery lettering or embroidery objects.

Note: For a detailed description of the CorelDRAW® Graphics Suite interface, access the **Help** menu in **CorelDRAW Graphics** mode.

To create lettering with CorelDRAW Graphics...

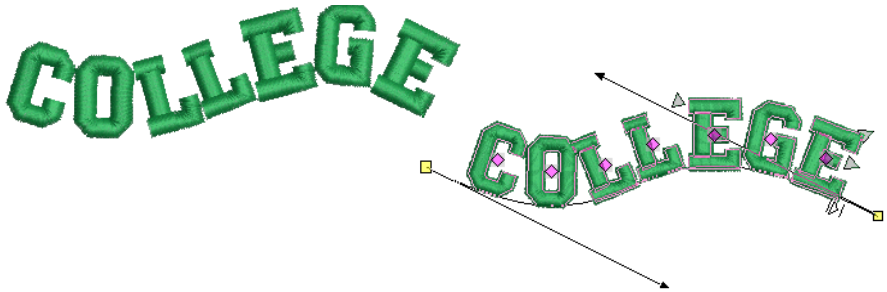
1. Switch to **CorelDRAW Graphics**.
2. Create a CorelDRAW® Graphics Suite text object and select it.



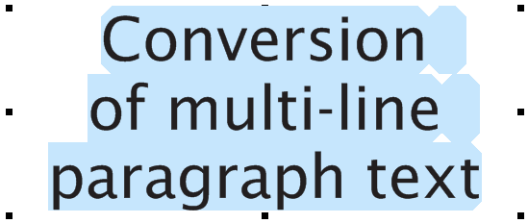
3 Click **Convert Graphics to Embroidery**. **Wilcom Workspace** opens in a few moments and the converted embroidery lettering displays. Change to a native embroidery font and adjust settings as desired.



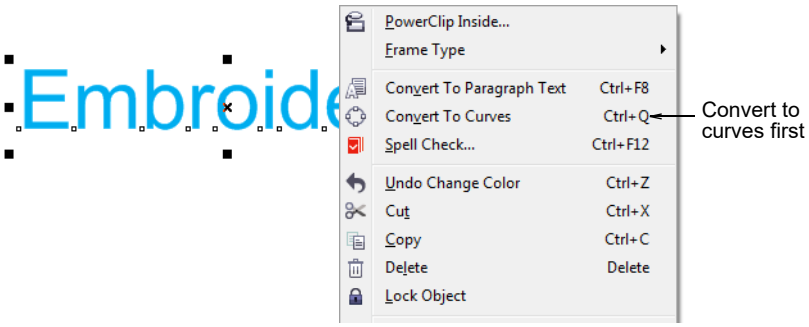
- You can create lettering along any shape of baseline in **CorelDRAW Graphics** and convert to embroidery lettering.



- You can also convert multi-line paragraph text with left, center, or right justification.



Tip: If you are not satisfied with the results of lettering conversion and want to preserve the precise appearance of the original text, try converting to curves first and then to plain embroidery. Right-click and select **Convert to Curve**. Optionally, use **Tag Fill as Turning Satin** to tag letters for conversion to turning stitching.



Related topics...

- Operating modes
- Editing text
- Adjusting baselines

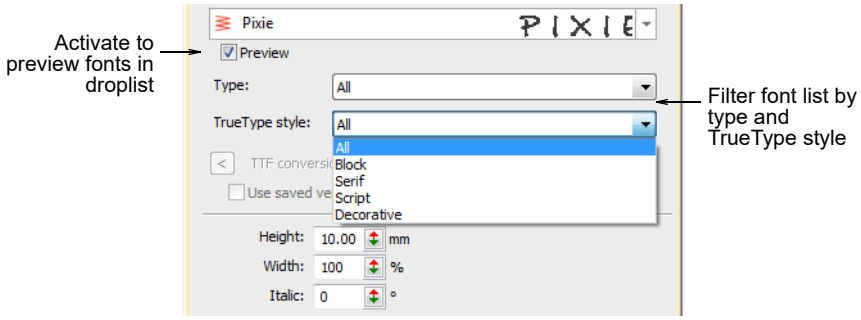
Creating embroidery lettering

BE EmbroideryStudio lets you add lettering to designs quickly and easily using a built-in library of embroidery fonts. Select from the supplied fonts or convert **TrueType** or **OpenType** fonts. Native embroidery fonts generally offer better results. You can add lettering to a design by typing it directly on-screen or entering it via the **Object Properties** docker.



Select embroidery fonts

BE EmbroideryStudio offers a range of purpose-built embroidery fonts optimized for embroidery design work. Tick the **Preview** checkbox for a preview of fonts prior to selection.

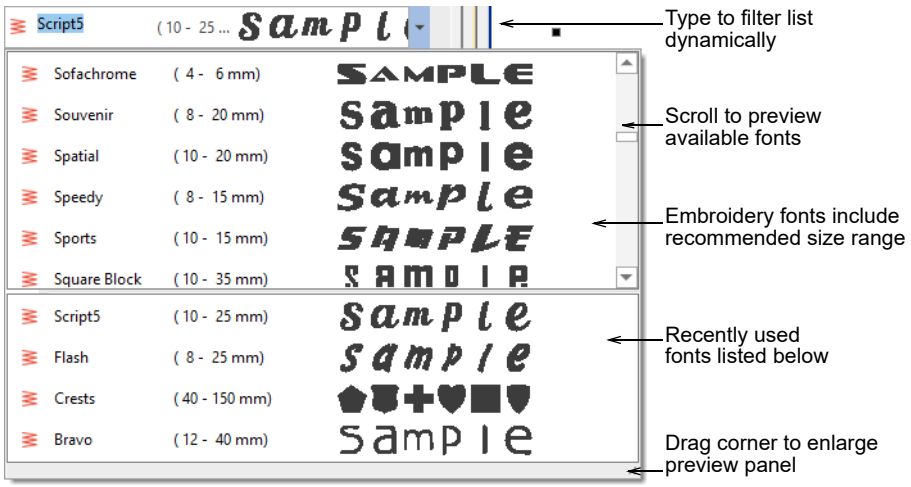


Use the filter to sort the font list for easier selection:

- Choose a font type: Embroidery, TrueType, or All.
- Choose a TrueType font style: Block, Serif, Script, Decorative, or All. These only apply to TrueType fonts.

Font selection

The font list remembers the previously selected font, allowing you to continue searching from this point.



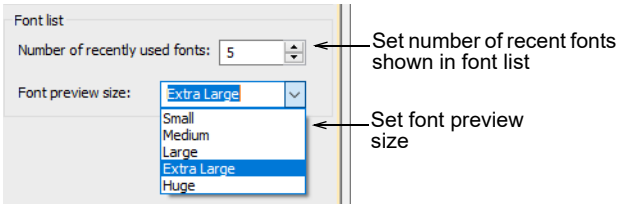
- With no lettering object selected, the preview displays the name of the font. Otherwise, it will show the selected text.
- If you know what you are looking for, simply start typing the font name and the list will update dynamically.
- In the lower panel, the font list provides a preview of recently used fonts.
- The preview pane can be enlarged as necessary.
- Embroidery fonts include a recommended size range.

Recommended sizes

For best results when stitching, do not exceed the recommended maximum or minimum sizes. Note, however, that recommended heights refer to UPPER CASE letters. Most embroidery fonts are digitized from an original TrueType Font (TTF), some of which have lower-case letters – e.g. 'a' and 'c' – which are about 70% the height of a capital letter. As a result, these letters may be too small to embroider neatly. You may need to increase the size of lower-case characters to suit the embroidery.

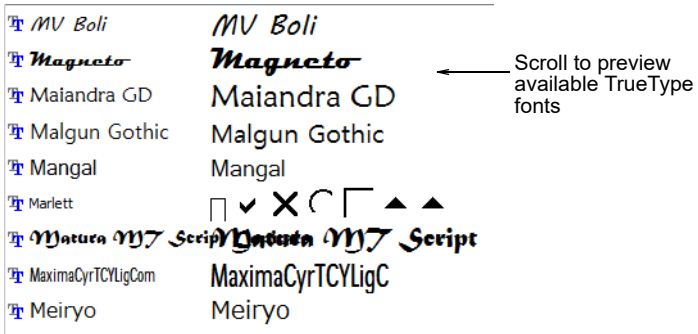
Font list settings

You can set the size of your font preview via the **Options > General** tab. You can also adjust the number of recently used fonts.



Conversion of TrueType and OpenType fonts

In addition to dedicated embroidery fonts, BE EmbroideryStudio also converts any TrueType or OpenType font on your system on-the-fly into an embroidery font. This is an important feature for Asian fonts which may contain several thousand characters.



The process is automatic. The result is similar to manually digitized fonts although the quality may not be quite as good. It depends on the original shapes. Narrower serif type fonts produce better results than blocked fonts. See also Converting TrueType fonts to embroidery.



Support for complex text layouts

BE EmbroideryStudio provides support for 'complex text layout' (right-to-left) and non-European scripts including Arabic, Hebrew, and Thai. With 'RTL languages' like Arabic and Hebrew, the order of characters is correctly rendered in the generated lettering objects. Complex text rendering is also supported in other languages which include combined characters. See also Converting TrueType fonts to embroidery.



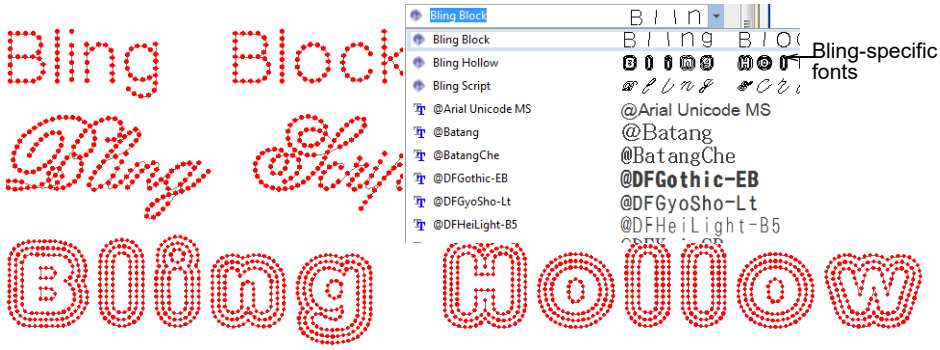
Tip: It is also possible to select TrueType fonts in CorelDRAW® Graphics Suite and convert them on-the-fly via **Convert** tool.

Special characters

You can create special characters in each font by holding down the **Alt** key on your keyboard and typing **0** (zero), its code, using the numbers on the keypad. For example, to type **ê** with the code **234**, type **Alt+0234**. The accented letter will appear when you release the **Alt** key. Not **all** characters are available in **all** fonts.

Bling lettering

BE EmbroideryStudio also provides dedicated **Bling Lettering**.



Related topics...

- Adjust dimensions
- General options
- Creating lettering with CorelDRAW Graphics
- Adding special characters
- Creating bling lettering
- Standard Fonts

Add embroidery lettering on-screen

Use Toolbox > Lettering to create embroidery lettering using embroidery fonts, keyboard design collections, or TrueType fonts.

If it is not essential to fit letters precisely to a certain area, you can type them directly on-screen as with a word processor. Current settings are used. You can also modify lettering objects directly on-screen to achieve various artistic effects.

To add embroidery lettering on-screen...

1. Click the **Lettering** icon and select a color from the **Color** toolbar.
2. Click an insertion point and start typing. To start a new line, press **Shift+Enter**.



3. Press **Enter** to complete.

Note: Baselines determine the shape of lettering objects in a design. You can place lettering on a straight horizontal or vertical line, curve lettering around a circle or arc, or digitize your own baseline.

Related topics...

- Working with baselines

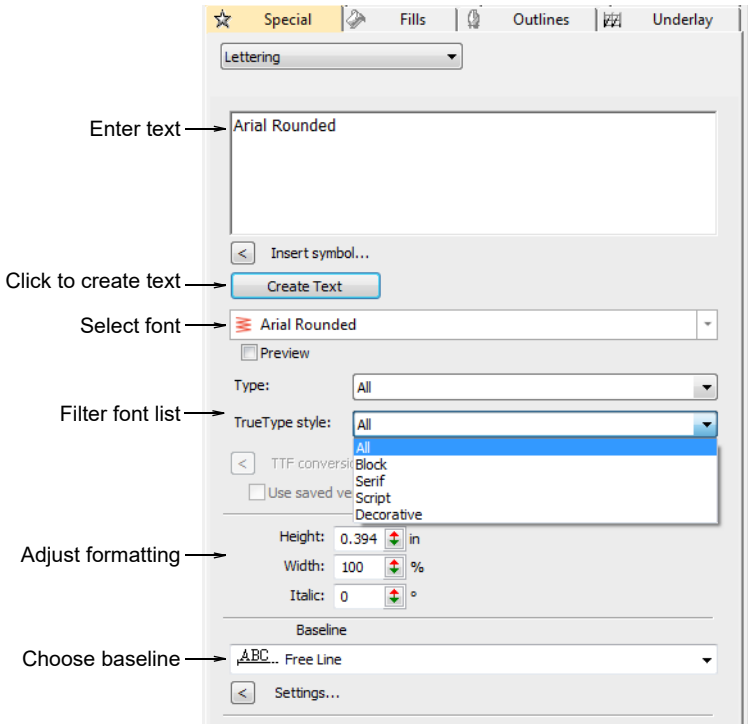
Create lettering with object properties

Right-click Toolbox > Lettering to enter text in the docker and adjust settings for embroidery lettering.

Using the **Object Properties** docker, you can specify letter formatting before adding it to the design. This is the more traditional method and is useful with more complex designs. BE EmbroideryStudio provides a font range suitable for many applications. Select from the supplied embroidery fonts or convert TrueType or OpenType fonts installed on your system.

To create lettering with object properties...

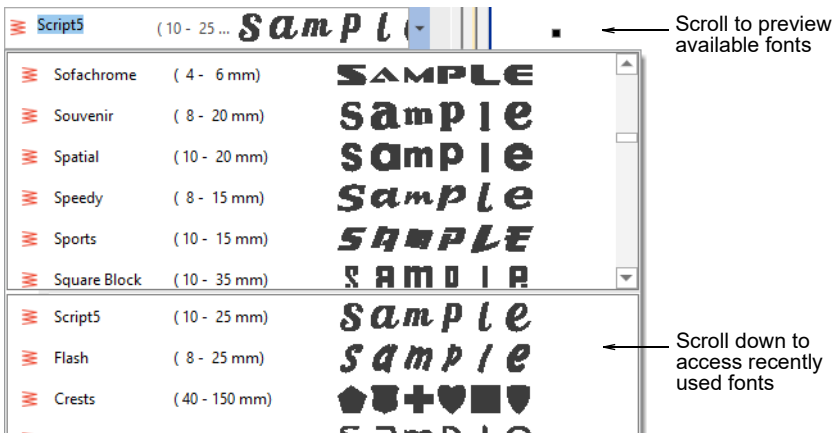
1 Right-click the **Lettering** icon to access object properties.



2 Enter the text you want to embroider in the text entry panel. To start a new line, press **Enter**.

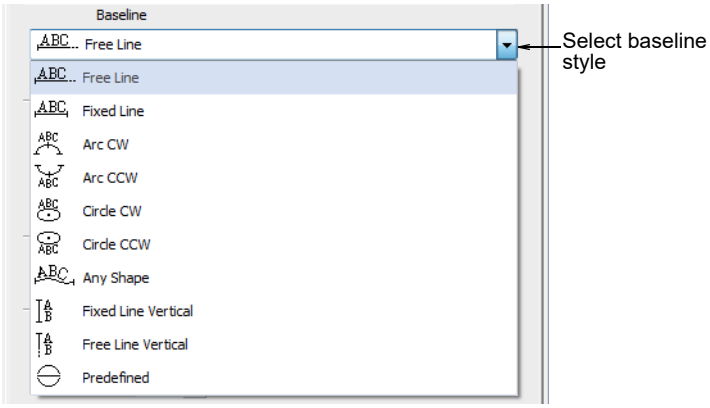
3 Select a font from the **Font** droplist. To filter the list:

- Choose a font type: Embroidery, TrueType, or All.
- Choose a TrueType font style: Block, Serif, Script, Decorative, or All. These only apply to TrueType fonts.
- Type two (or more) characters of the font name to further filter the list.



Tip: Check min/max recommendations for each font and stay within them for best results. See Standard Fonts for details.

4 Select a baseline from the droplist. Baselines determine the shape of lettering objects in a design.



5 Click **Create Text** in the docker.

6 Click on screen to place the lettering, or mark reference points for the selected baseline.

7 Press **Enter** to generate. Letters are filled with stitches according to current settings in the **Object Properties** docker. Change these at any time.



Tip: Lettering appearance and quality depends a lot on underlay which serves as a foundation for cover stitching.

Related topics...

- Select embroidery fonts
- Working with baselines
- Format lettering
- Setting lettering underlay
- Standard Fonts
- Converting TrueType fonts to embroidery

Adjusting lettering properties

Letter height, width, italic and justification can all be controlled via object properties. Letter, word and line spacings can also be controlled via properties. Letter spacing is calculated automatically according to justification – left, right, center, or fully justified.



Format lettering

Change current formatting settings before or after adding lettering. You can slant letters to left or right for an italic effect. Use the justification setting – left, right, center, or fully justified – to align lettering along the baseline.

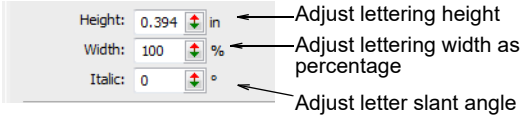


To format lettering...

1 Create a new lettering object and select it.



2 If not already open, double-click to open the **Object Properties > Special > Lettering** dialog.



3 Adjust lettering height and width using the slider controls.



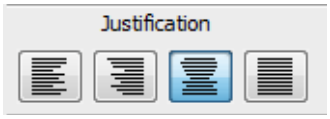
Tip: Say, for example, you are using the metric measurement system so your lettering heights are in mm. And say you get an order for ¾" lettering. Simply enter '3/4in' or '3/4 in' into the **Lettering Height** field and it is automatically converted to 19.05mm.

4 Enter an angle, ±45°, in the **Italic** field to create slanted lettering – 0° is equivalent to no italics.



Italic angle 25° Italic angle 0° Italic angle -10°

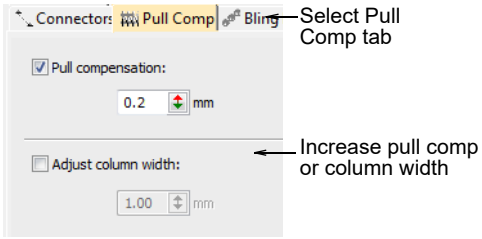
5 Select a justification setting as required – **Left**, **Right, Center**, or **Full**.



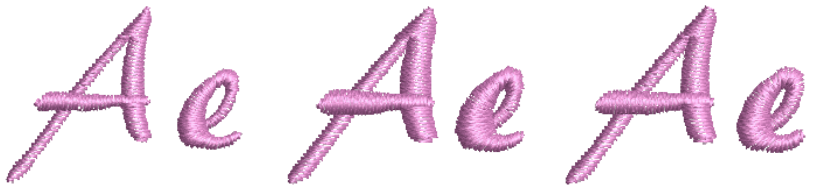


Tip: When the justification setting is **Full**, letters are evenly distributed along the baseline. To change spacing for fully justified lettering, simply change baseline length.

6 To make bold lettering, select the **Pull Comp** tab.



7 Select column width or pull comp options as required.



Related topics...

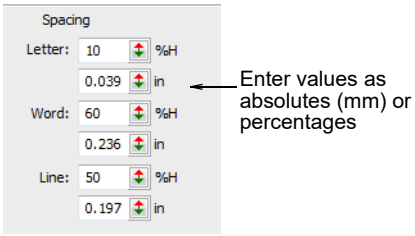
- Create lettering with object properties
- Creating special effects with lettering art
- Set measurement units
- Pull compensation

Adjust spacing settings

You can adjust letter, word and line spacings via object properties.

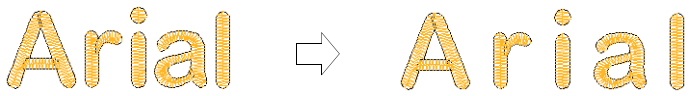
To adjust spacing settings...

1 Double-click a selected lettering object or right-click the **Lettering** icon to access object properties.

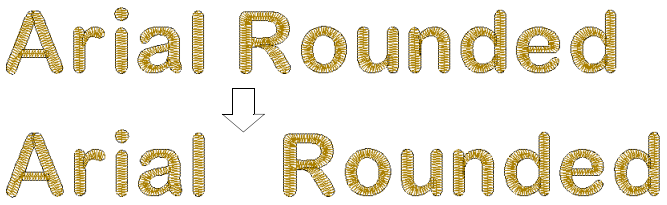


2 Enter **Spacing** as absolute values (mm) or percentages of the height.

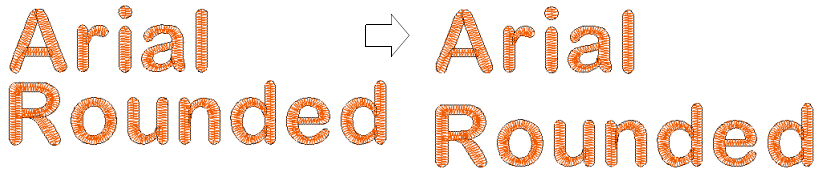
- **Letter Spacing**: the space between letters.



- **Word Spacing**: the space between words.



- **Line Spacing**: the space between lines.



Tip: If you want to remove spacing between words, set **Word Spacing** to 0%.

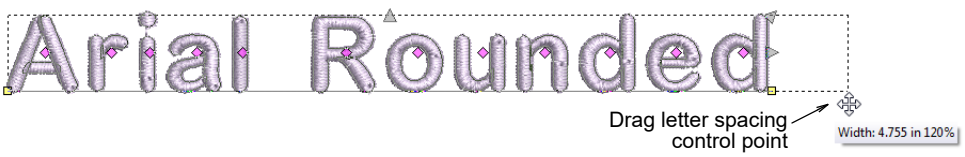
Adjust letter spacings on-screen

Use Reshape > Reshape Object to change letter spacing.

Spacing between letters is calculated automatically as a percentage of letter height. In most cases the default spacing is adequate. Sometimes you may want to control the overall letter spread to fit a particular location. Similarly, you can change the space between lines in a multiple-line lettering object using the **Reshape Object** tool. Sometimes spacing between certain letters may appear too large or too small, depending on the shape of neighboring letters. To compensate for this visual effect, you can move one or several selected letters closer or further apart along the baseline to improve spacing.

To adjust letter spacings on-screen...

1 Select the lettering object and click the **Reshape Object** icon.



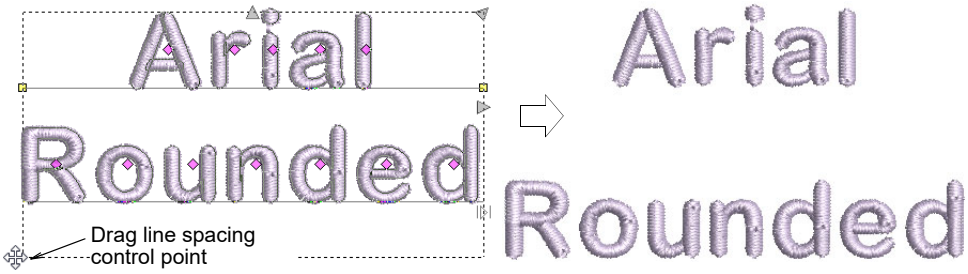
2 Drag the letter spacing control point left or right to adjust the spacing of all letters along the baseline.



3 Release the mouse button to complete and press **Esc**.

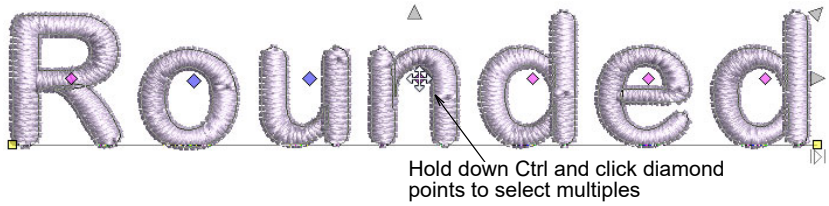
Tip: When the justification setting is **Full**, letters are evenly distributed along the baseline. To change the spacing for fully justified lettering, simply change the length of the baseline.

4 Drag the line spacing control point up or down to change line spacing.

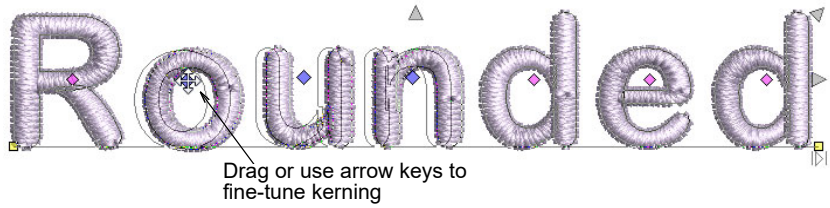


5 Release the mouse button to complete and press **Esc**.

6 Click the diamond control point in the center of the letter. To select multiple letters or a range of letters, hold down **Ctrl** or **Shift** as you select.



7 Drag selected letter/s along the baseline or use arrow keys to adjust the spacing.



Tip: Alternatively, to move multiple letters, right-click the diamond control point of the first letter and drag. All letters to the end of the line move as one.

8 Release the mouse button to complete and press **Esc**.

Related topics...

- Setting automatic letter kerning
- Setting automatic letter spacing
- Adjusting individual letters

Working with baselines

Baselines determine the shape of lettering objects. You can place lettering on a straight horizontal or vertical line, curve lettering around a circle or arc, or digitize your own baseline. You can digitize baselines on-screen or, if you are working from an enlargement drawing, on a digitizing tablet.



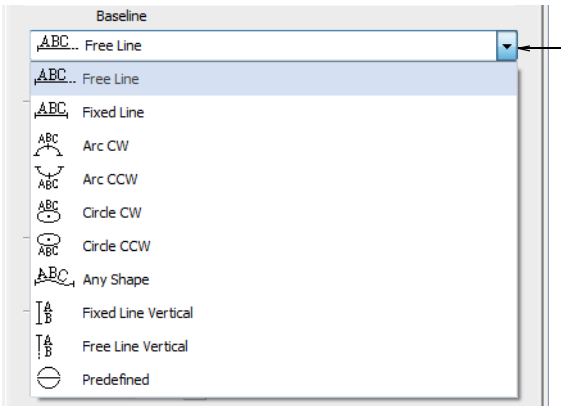
Apply baselines

Right-click Toolbox > Lettering to select baselines and adjust baseline settings.

With the exception of **Free Line** and **Free Line Vertical**, baselines allow you to set the final length of the finished lettering. Once you have placed a baseline, BE EmbroideryStudio attempts to fit all the letters without altering baseline length. BE EmbroideryStudio gives you interactive and numeric control over many baseline settings.

To apply a baseline...

1 Double-click a selected lettering object or right-click the **Lettering** icon to access object properties.



2 Select a baseline from the list. Options include:

Horizonal/vertical baselines...

- Horizontal – **Free Line** and **Fixed Line**

  Fixed Line baselines allow you to set the final length of the finished lettering. Free Line baselines expand to fit the letters you enter.

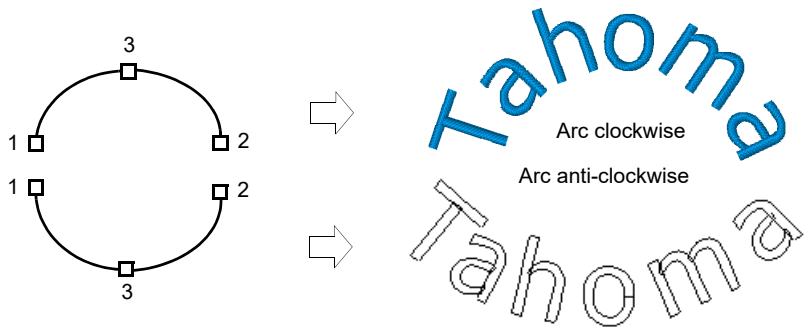


- Vertical – **Free Line Vertical** and **Fixed Line Vertical**

  With vertical baselines, line spacing is calculated horizontally while letter spacing is calculated vertically. Letters, by default, are centered along vertical lines. New lines are placed by default from right to left to suit Asian languages. For Western languages, vertical lettering is best suited to uppercase because descenders in lowercase letters are not accommodated in the letter spacing.

Arc baselines...

- **Arc CW** and **Arc CCW**: By default, letters are positioned **above** the **Arc CW** and **below** the **Arc CCW** baseline. They are also centered by default. Hold down the **Ctrl** key to constrain the line to 15° increments.



Depending on the order in which you mark the reference points, the text will be placed left to right, or right to left.

Circle baselines...

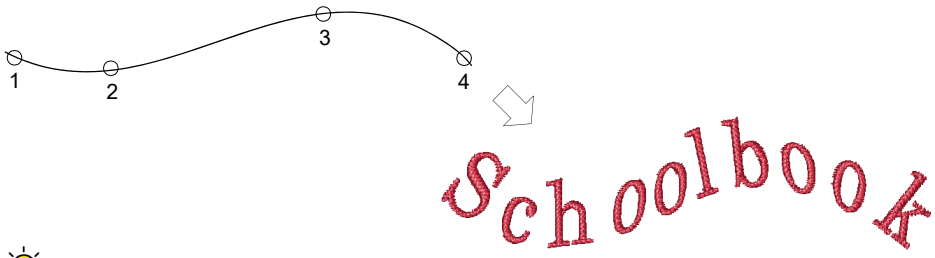
- **Circle CW** and **Circle CCW**: Place letters around a full circle or oval. Mark a point on the circumference to define the radius. Mark a third point to define an ellipse or press **Enter** directly for a perfect circle. Hold down the **Ctrl** key to constrain the line to 15° increments.



Tip: Adjust circle and arc baseline settings for more precise numeric control over radius (X and Y), as well as tilt, justification, and arc angles.

Custom baselines...

- Digitize **Any Shape** baselines by marking reference points to form the required line. The number of reference points and length of baseline are practically unlimited.



Tip: If the baseline has tight curves, or sharp corners, letters may overlap. For best results, only mark curve points and digitize lines which have shallow, gentle curves.

Predefined baselines...

- This technique is typically used for creating logos.



- Adjust baseline settings in the **Baseline Settings** dialog.

Related topics...

- Adjust fixed-width baseline settings
- Adjust curved baseline settings
- Use predefined baselines
- Adjusting baselines

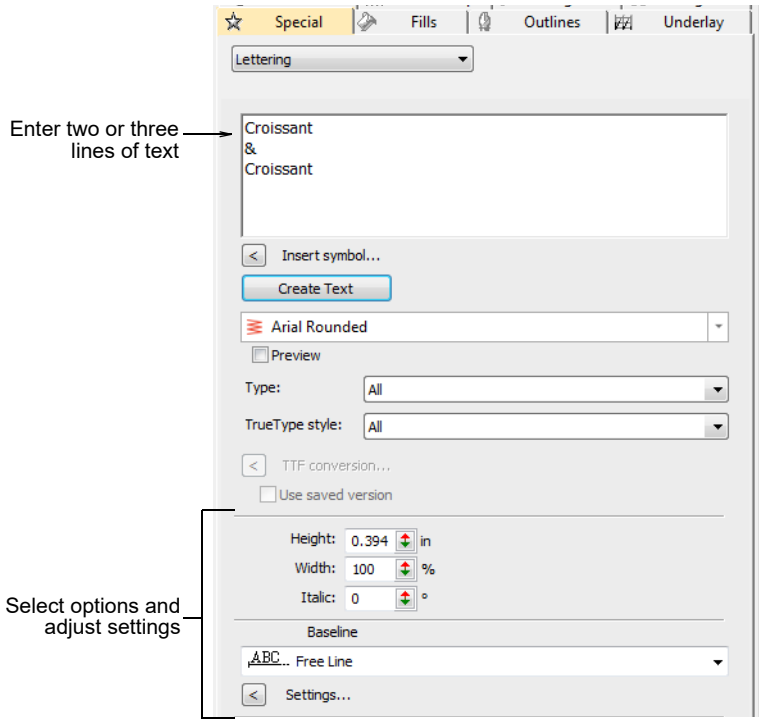
Use predefined baselines

Use **Predefined** baselines to quickly create three rows of lettering, or two rows surrounding a design object. This technique is typically used for creating logos.



To use a predefined baseline...

1 With no objects selected, right-click the **Lettering** icon to access object properties.

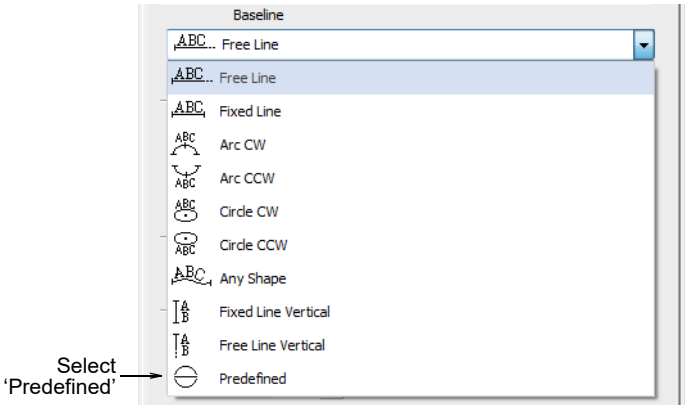


2 Enter two or three lines of text in the text entry panel. To start a new line of lettering, press **Enter**.

Tip: If you want to insert a logo or design between the top and bottom lines, leave the middle line of text blank.

3 Select the font and adjust other settings you require.

4 Select **Predefined** from the baseline list and click **OK**.

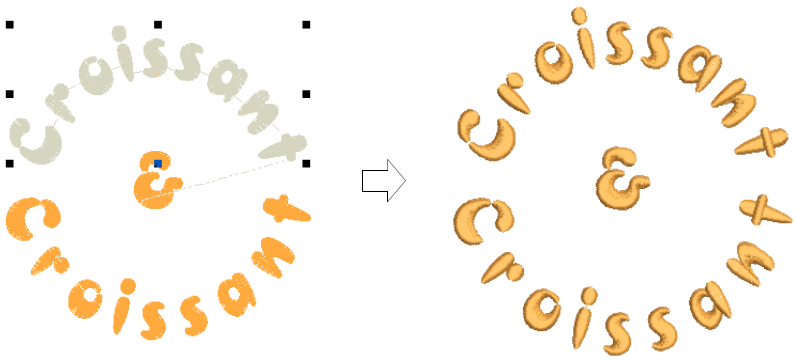


5 Click where you want to place the lettering and drag the cursor downward.

Tip: Hold down the **Ctrl** key to constrain the line to 15° increments.

6 Click to enter a point on the circumference of the circle.

7 Mark another point if you want to create an oval, or press **Enter** for a circular baseline. The lines of text are generated and dispersed around the baseline you have defined. Each line of text becomes a separate lettering object.



Related topics...

- Select embroidery fonts
- Format lettering

Chapter 25

Editing Embroidery Lettering

BE EmbroideryStudio gives you interactive and precise numeric control over many settings affecting lettering objects. Adjust both individual letters and lettering objects as a whole. Apply horizontal, vertical, and curved baselines. Modify baseline type, length, radius and angle, as well as position. You can even define the rotation angle of letters relative to the baseline or the design itself.



This section describes how to edit lettering text. It also explains how to scale and transform lettering objects. It also covers adjusting individual letters as well as reshaping baselines on screen.

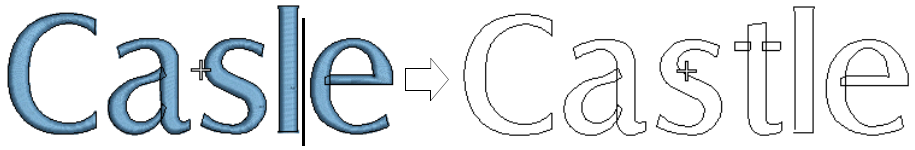
Editing text

Use Toolbox > Lettering to edit lettering on screen.

When you have created a lettering object, you can select it and make changes to it interactively or by adjusting object properties.

To edit text...

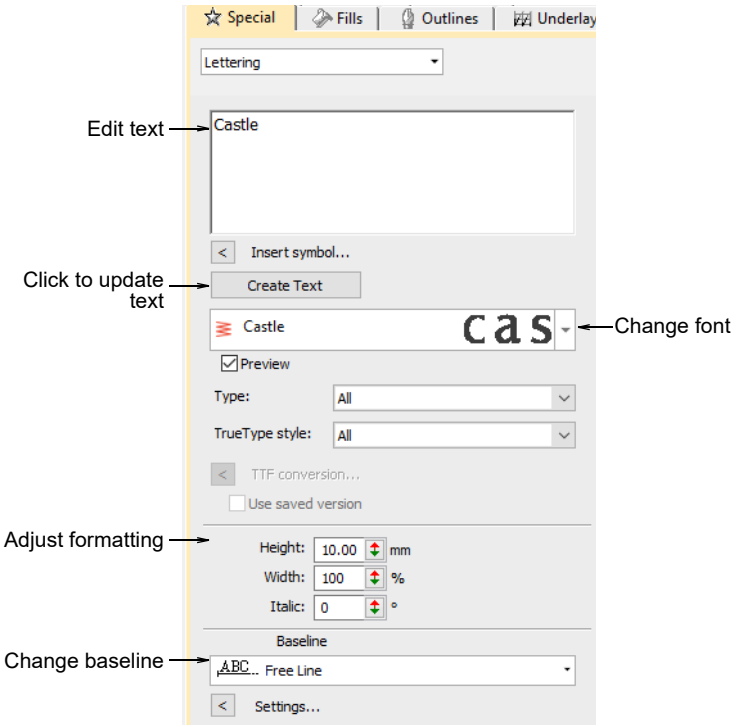
1 Click **Lettering** and then click inside the lettering object. An I-beam appears.



2 Edit the text as required. The lettering shows its wireframe.

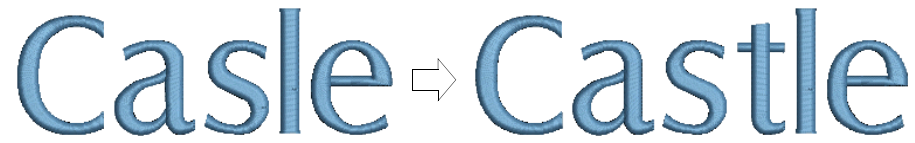
3 Press **Shift+Enter** to start a new line. Press **Enter** to complete.

4 Alternatively, double-click the lettering object. The **Object Properties > Special > Lettering** docker opens.



5 Edit the text in the text entry panel and make any other adjustments you require.

6 Click the **Update Text** button.



Related topics...

- Format lettering
- Applying stitch types & effects to lettering

Modifying lettering

When you first create lettering, it may be too big or too small. Size can be adjusted interactively or by adjusting object properties. Lettering objects can also be skewed and rotated.



Tip: The size of lettering will determine the type of underlay you need to apply. Lettering with heights under 5 mm should not have underlay. Letters 6 mm to 10 mm can have a center-run underlay applied. Lettering larger than 10 mm is large enough for edge-run underlay. See Setting lettering underlay for details.

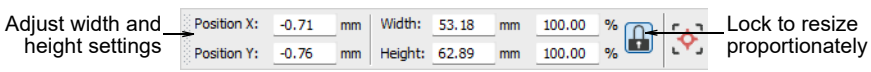
Adjust dimensions

Use Toolbox > Lettering to adjust letter height and width.

You can scale lettering objects vertically, horizontally and proportionally using the general properties or via the **Special** tab of the **Object Properties** docker.

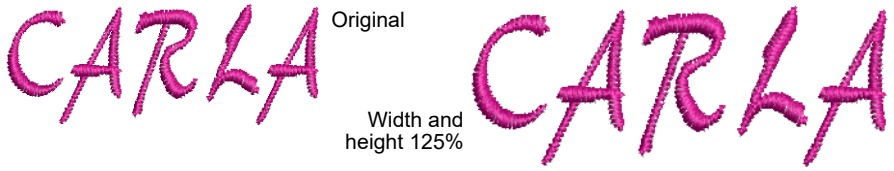
To adjust dimensions with the Property Bar...

1 Select the lettering object. The current dimensions appear in the **Property Bar**.



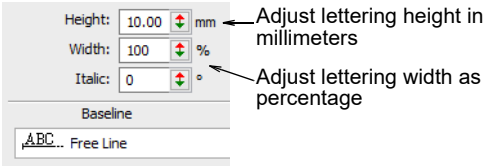
2 Adjust width and height settings either as absolute values (mm) or as a percentage of current settings.

3 Press **Enter**.



To adjust dimensions with object properties...

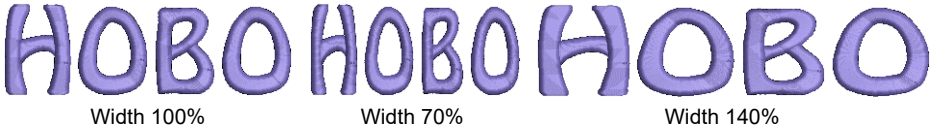
1 Alternatively, double-click the lettering object to access object properties.



2 In the **Height** field enter the height of your lettering object in millimeters.

3 Enter the width of your lettering object in the **Width** field as a percentage of the height.

- For wide letters, increase the percentage – e.g. 140%.
- For narrow letters, decrease the percentage – e.g. 70%.



Note: Letter height can vary between roughly 5mm and 200mm. For recommended sizes, see Standard Fonts.

Related topics...

- Transforming Objects
- Reshaping & Splitting Objects

Scale lettering

Use Select > Select to scale lettering objects on screen.

Use Reshape > Reshape Object to scale lettering objects on screen.

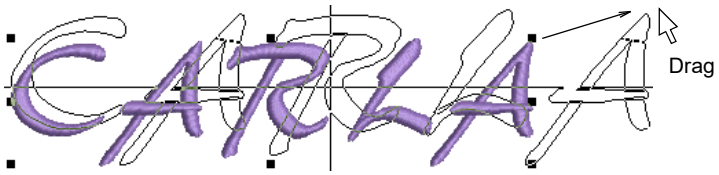
You can scale your lettering objects vertically, horizontally and proportionally with the **Select** tool. You can scale your lettering objects vertically, horizontally and proportionally with the **Reshape Object** tool.

To scale lettering with selection handles...

1 Click **Select** and select the lettering object.

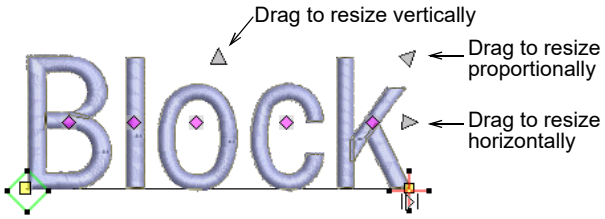


2 Click-and-drag one of the selection handles to resize the object horizontally, vertically or proportionally.

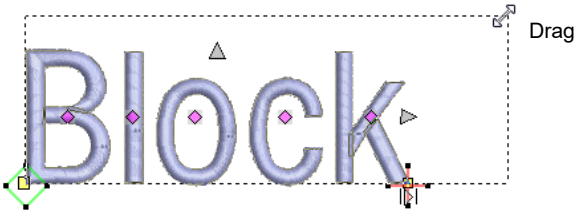


To scale lettering with Reshape...

1 Alternatively, click **Reshape Object**.



2 Click-and-drag one of the dark triangular control points to resize the object horizontally, vertically or proportionally.



3 Release the mouse to complete and press **Esc**.

Related topics...

- Transforming Objects

Transform lettering

Use Select > Select to transform lettering objects on screen.

Use Reshape > Reshape Object to rotate lettering objects on screen.

Apart from scaling, you can use the **Select** and **Reshape Object** tools to skew and rotate lettering objects.

To transform lettering with selection handles...

1 Click **Select** and select the lettering object.

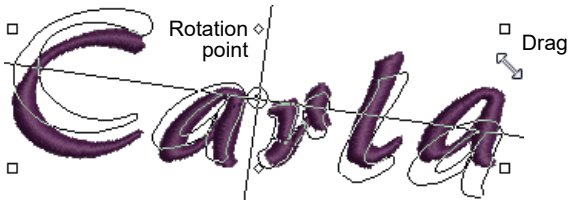
2 Click the lettering object again. Another set of control points appears. These let you rotate and skew the lettering object.



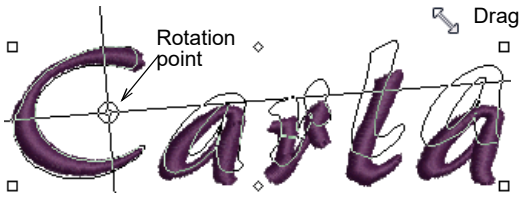
3 Click-and-drag diamond-shaped control points to skew the lettering object.



4 Click-and-drag hollow square control points to rotate the lettering object.



5 Click-and-drag the rotation point itself to a new position before rotating.



To transform lettering with Reshape...

1 Alternatively, click **Reshape Object**.



2 Click-and-drag up or down one of the solid square control points on the baseline to slant the lettering object.



3 Release the mouse to complete and press **Esc**.

Related topics...

- Transforming Objects
- Reshaping & Splitting Objects

Adjusting individual letters

As well as scaling and rotating lettering objects, the **Reshape Object** tool is used to manipulate individual letters. You can reposition letters in relation to each other, scale, rotate and skew them, as well as reshape them. You can also recolor letters individually.



Reposition letters

Use Reshape > Reshape Object to reposition individual letters on screen.

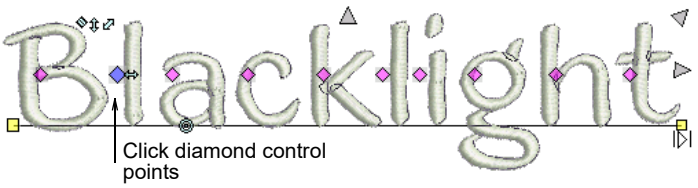
You can reposition individual letters in a lettering object using the **Reshape Object** tool.

To reposition letters...

1 Select the lettering object and click **Reshape Object**.

2 Click the diamond control point.

To select multiple letters, hold down **Ctrl** or **Shift** as you select.



3 Click-and-drag the letter/s to the new position:

- To move horizontally, drag along the baseline.
- To move vertically, hold down **Shift** as you drag.
- To move the letter freely, hold down **Ctrl** as you drag.



4 Release the mouse to complete and press **Esc**.



Related topics...

- Adjust letter spacings on-screen

Transform letters

Use Reshape > Reshape Object to transform individual letters on screen.

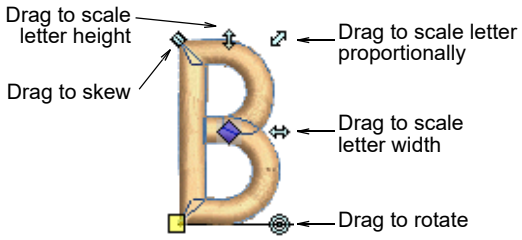
You can transform individual letters by manipulating control points on screen with the **Reshape Object** tool.

To transform letters...

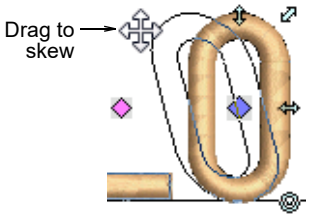
1 Select the lettering object and click **Reshape Object**.



2 Click the diamond control point. Another set of reshape nodes appear around the letter.



3 Click-and-drag a reshape node around the letter to transform it.



4 Press **Esc** to finish.



Reshape letters

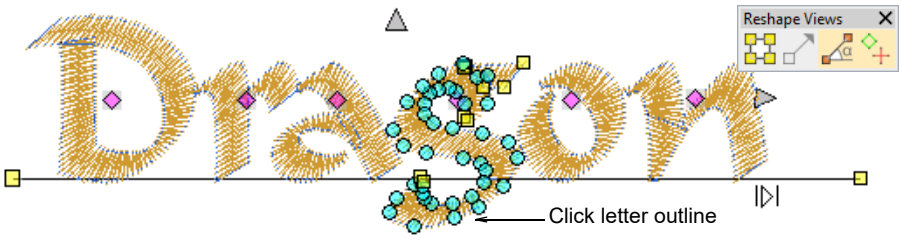
Use Reshape > Reshape Object to reshape individual letters on screen.

Create special lettering effects by reshaping letter outlines with the **Reshape Object** tool.

To reshape letters...

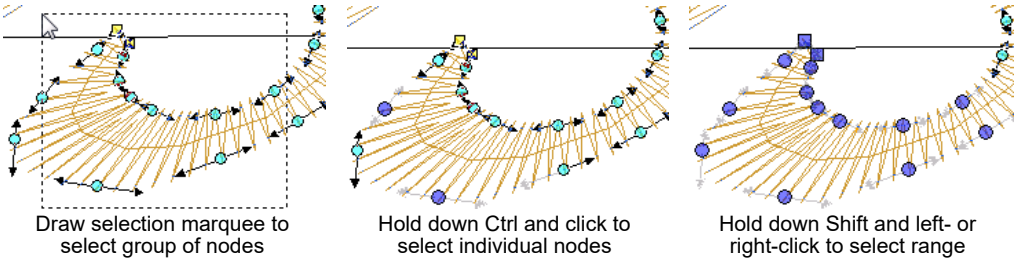
1 Select the lettering object and click **Reshape Object**.

2 Click the letter outline. Control points appear around the outline. Selectively turn off control points as required.

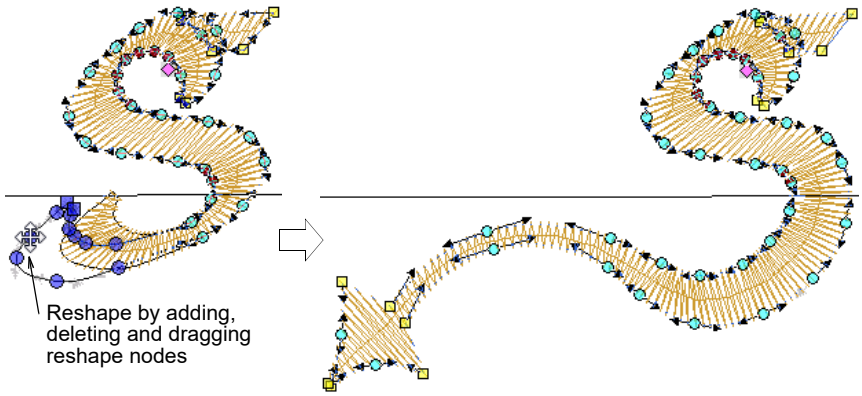


3 Select reshape nodes by any of the following means:

- Drag a selection marquee around the reshape nodes you require.
- To select multiple nodes, hold down **Ctrl** or **Shift** as you select.

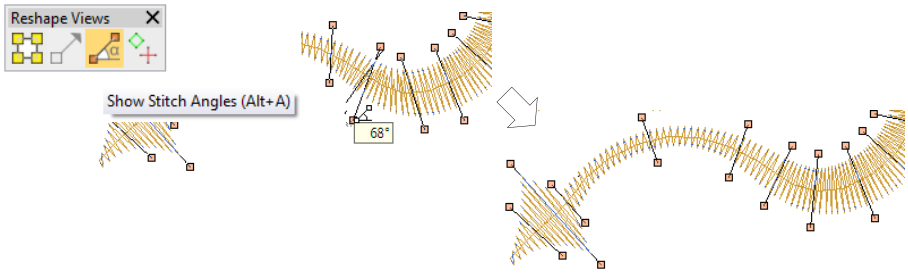


4 Reshape the letter like any other object and press **Enter**.



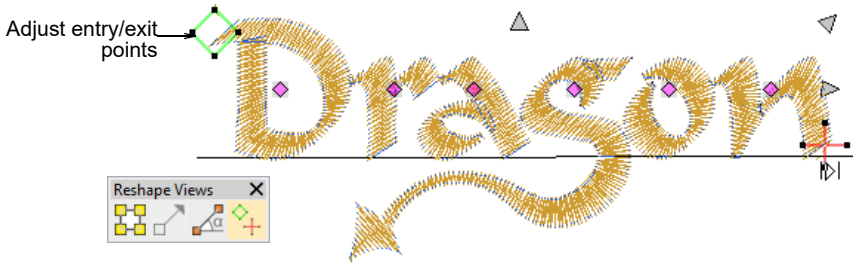
Tip: Press **Spacebar** to toggle between selected corner and curve reshape-nodes.

5 Adjust stitch angles as required and press **Enter**.



Tip: Holding down the **Ctrl** key, click the outline wherever you want to place an additional stitch angle.

6 Adjust entry/exit points as required and press **Enter**.



7 Press **Esc** to finish.



Note: Custom fonts are saved in ESA format to in the USERLETW folder within the local BE EmbroideryStudio installation. If you want to adjust converted characters or add special characters to a custom font, you can do so via the **Create Letter** function.

Related topics...

- Adjusting stitch angles
- Smoothing curves
- Reshaping objects
- Create custom letters
- Save custom letters

Recolor letters

Use Toolbox > Lettering to recolor letters on screen.

BE EmbroideryStudio lets you change the color of individual letters.

To recolor individual letters...

1 Click **Lettering** then click the lettering object.
2 Select a letter (or letters) by dragging the cursor over the letter.



3 Click a color on the **Color** toolbar.

4 Press **Enter**.



Tip: You can also insert a color change between two letters by keying a caret (^) symbol. Subsequent letters default to the next color in the palette.

Related topics...

- Create lettering with object properties

Adjusting baselines

Baselines can be modified after placement either directly on-screen or via the **Object Properties > Special > Lettering** docker. With the exception of **Free Line** and **Free Line Vertical**, baselines allow you to set the final length of the finished lettering. Once you have placed a baseline, BE EmbroideryStudio attempts to fit all the letters without altering the baseline length.

Tip: As a baseline is filled with letters, letter spacing decreases. Eventually, letters may overlap. If so, you can adjust the baseline length to accommodate them, or change the lettering width in the **Object Properties > Special > Lettering** docker.

Reshape baselines interactively

Use Reshape > Reshape Object to reshape lettering baselines.

Baselines can be adjusted with the **Reshape Object** tool. Depending on baseline type, you can adjust angles, lengths, and sizes. You can change curve radii and justification points. You can completely reshape **Any Shape** baselines.



To reshape a baseline interactively...

1 Select the lettering object and click **Reshape Object**.

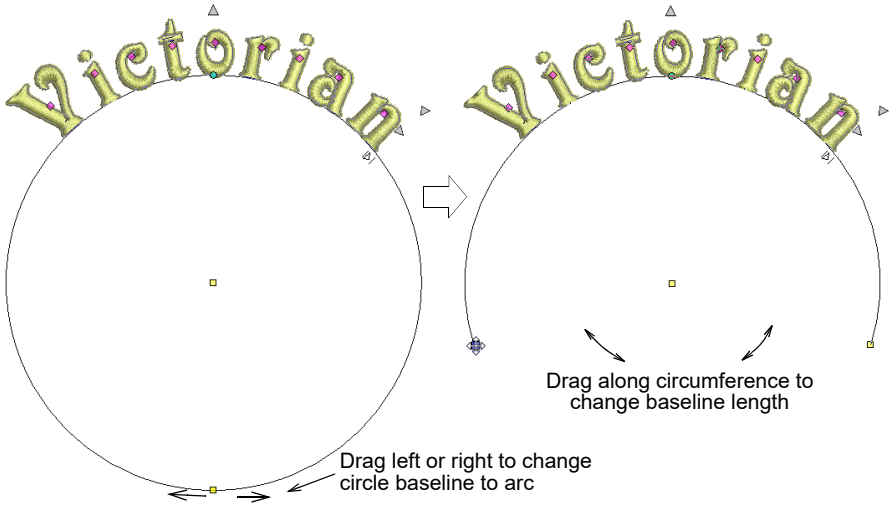


Tip: The large diamond and cross represent start and end points. Toggle them off to access baseline controls.

2 Change angles of straight baselines by dragging square control points at either end.



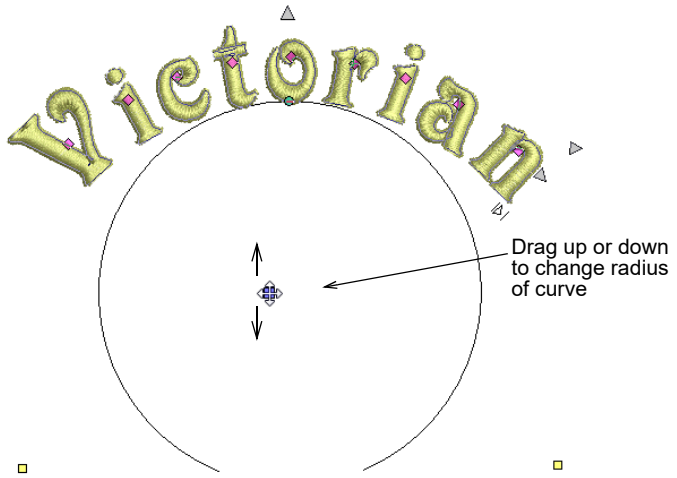
3 Create an arc baseline from a circular one by dragging the hollow square control point.



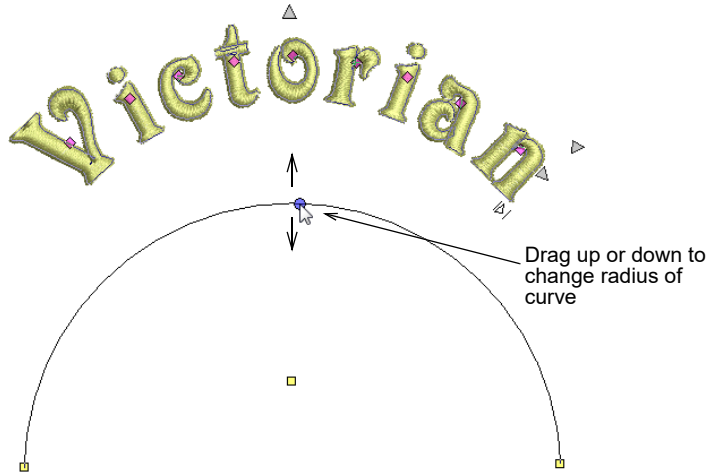
4 Change lettering orientation of arc baselines by dragging the solid square control points at either end.

Tip: Letter positions depend on justification – left, center, right or justified. If the baseline becomes too short, letters may overlap.

5 Change the radius by dragging the solid square control point in the center of the circle.



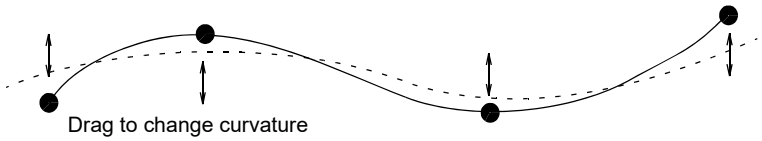
Alternatively, change the radius by dragging the control point in the center of the baseline.



6 Adjust **Any Shape** baselines by adding, deleting, changing or moving reference points like any embroidery object.



- To reshape, left-click to bend the line at an **angle**, right-click to bend into a **curve**.
- To re-position, drag any one of the baseline control points up or down.



- To delete, select a control point and press **Delete**.
- To change straight to curve, or curve to straight, select the control point and press **Spacebar**.

7 Press **Esc** to finish.

Related topics...

- Adjust fixed-width baseline settings
- Adjust curved baseline settings

- Reshape letters
- Reshaping objects

Adjust fixed-width baseline settings

Use Toolbox > Lettering to adjust baseline settings.

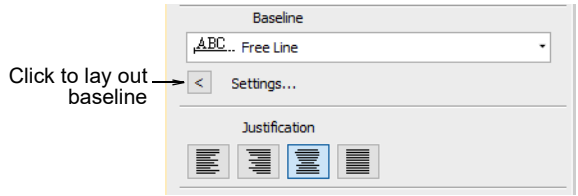
A free-line baseline does not have a fixed or pre-determined length – the baseline extends as long as you keep adding letters. A fixed-line baseline has a fixed length which you can digitize or specify numerically. Various options are available to handle text that extends beyond the baseline.



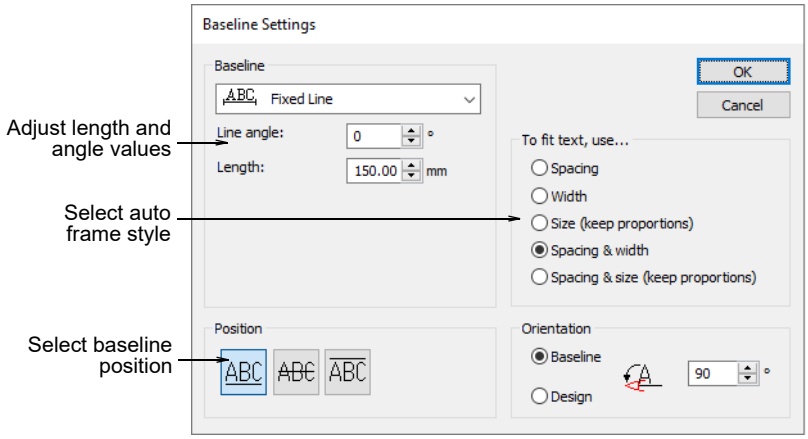
Tip: Precise control over baseline width is important when combined with **Team Names** when you want to ensure all names fit within the same area such as a pocket.

To adjust fixed-width baseline settings...

1 Double-click a selected lettering object/s to access object properties.



2 Click **Settings**. The **Baseline Settings** dialog opens. Options depend on baseline type.



3 Select a horizontal, vertical, or arc baseline from the list.

4 Adjust the **Length** value as required.

Fixed-line baselines allow control over line length as well as options for handling text which does not fit the baseline. This is particularly useful for multiple 'team' names. Free-line baselines only allow you to adjust the **Line Angle** value.

5 For fixed-line baselines, select an 'auto-frame' style:

- **Spacing**: Letter size and width stays the same and letters are spaced evenly along the baseline. Letters may overlap if the text is too wide.



- **Width**: The width of each letter is reduced and the original spacing kept.



- **Size (Keep Proportions)**: Letter width and height is reduced proportionally but the original spacing remains.



- **Spacing and Width**: Letter width and spacing is reduced.



- **Spacing and Size (Keep Proportions)**: Letter width, height and spacing is reduced proportionally.



6 Adjust the **Line Angle** as required. Enter the exact angle of baseline to the horizontal axis.



7 Select a baseline position.



Baseline below



Baseline centered



Baseline above

When creating lettering for a badge, for example:

- For lettering above the badge, select a baseline below.
- For lettering below the badge, select a baseline above.
- For horizontal lettering through the middle of the badge, select a centered baseline.

8 Specify the letter, word and line spacing as required.

9 Select a letter orientation.

10 Click **OK** to return to **Object Properties > Special**.

Related topics...

- Apply baselines
- Adjust spacing settings
- Adjusting baselines
- Creating simple teamname designs

Adjust curved baseline settings

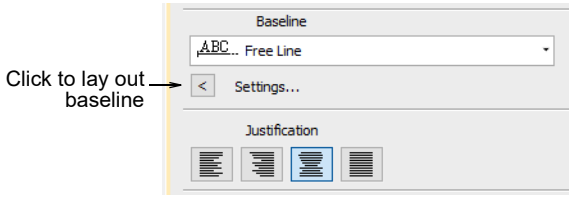
Use Toolbox > Lettering to adjust baseline settings.

Adjust baseline settings for more precise numeric control over radius (X and Y), as well as tilt, justification, and arc angles.

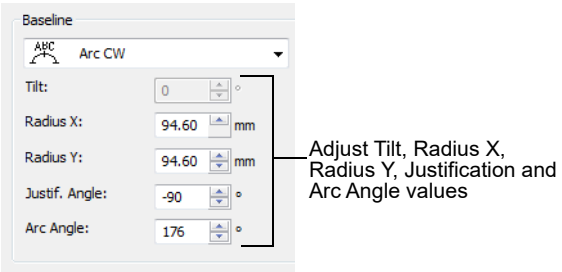


To adjust curved baseline settings...

1 Double-click a selected lettering object/s to access object properties.



2 Click **Settings**. The **Baseline Settings** dialog opens. Options depend on baseline type.



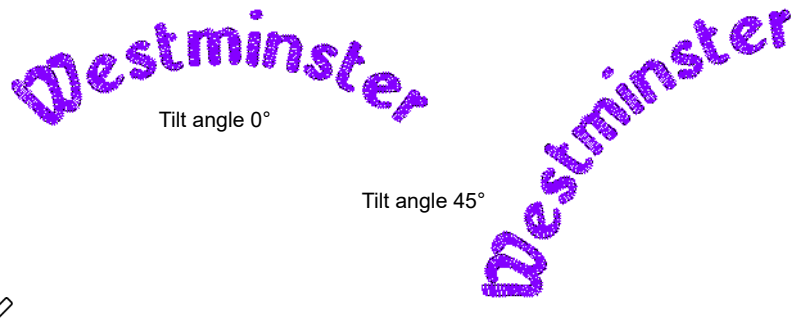
3 Select a circle or arc baseline type from the list. The **Tilt, Radius X**, **Radius Y**, **Justification Angle** and **Arc Angle** fields are activated.

4 Adjust these values as required:

- **Radius X**: default radius of the baseline arc (X-axis).
- **Radius Y**: default radius of the baseline arc (Y-axis).



- **Tilt**: angle of the baseline relative to the horizontal axis.

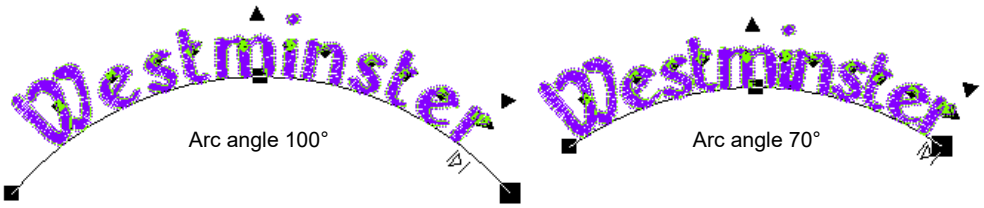


Note: The **Tilt** field is activated when **Radius X** and **Radius Y** values are different.

- **Justification Angle**: angle of the vertical axis through the lettering object relative to the horizontal axis.



- **Arc Angle**: angle between radii connecting ends of baseline to center of arc. This constrains the baseline so the text falls within the arc specified.



Tip: Precise control over baseline width is important when combined with **Team Names** when you want to ensure all names fit within the same area such as a pocket. A fixed width on arch baselines can be set by adjusting **Arch Angle** value in the **Baseline** panel.

5 Select a baseline position.



When digitizing lettering for a badge, for example:

- For lettering above, select a clockwise circle or arc with baseline below.
- For lettering below, select a counterclockwise circle or arc with baseline above.
- For horizontal lettering through the middle of the badge, select a fixed line with baseline centered.

6 For fixed-line baselines, select an 'auto-frame' style.

7 Specify the letter, word and line spacing as required.

8 Select a letter orientation.

9 Click **OK** to return to **Object Properties > Special > Lettering** docker.

Related topics...

- Adjust fixed-width baseline settings
- Adjust letter spacings on-screen
- Adjusting baselines
- Creating simple teamname designs

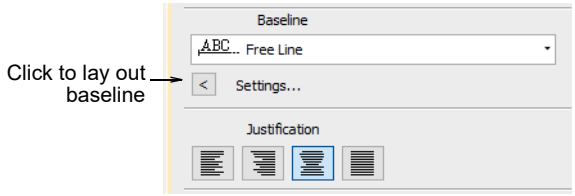
Change letter orientation

You can define the rotation angle of letters relative to the baseline or the design itself. The latter lets you keep letters vertical regardless of baseline angle in order to achieve a 'staircase effect'.



To change letter orientation...

1 Right-click the **Lettering** icon or double-click selected lettering object/s to access object properties.



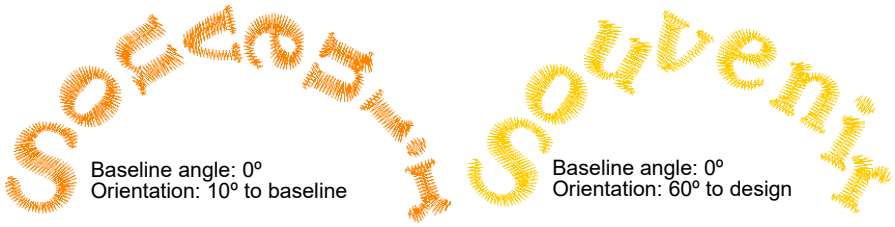
2 Click **Settings** to open the **Baseline Settings** dialog.

3 Select an **Orientation** setting.



- **Baseline**: orients letters relative to the lettering baseline.
- **Design**: orients letters relative to the horizontal.

4 Enter an orientation angle.



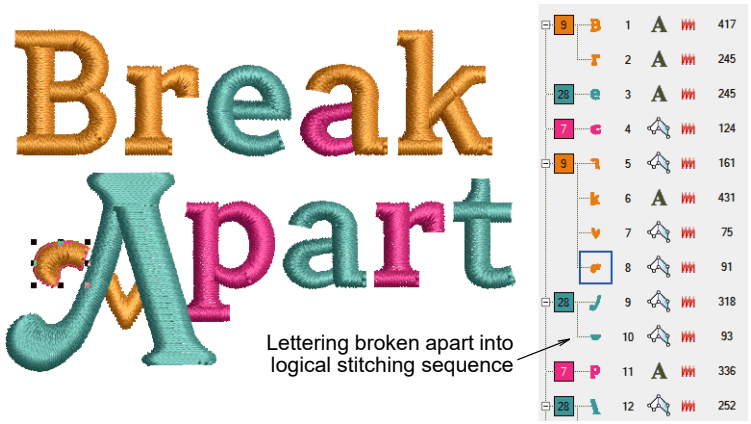
5 Click **OK** to return to **Object Properties > Special > Lettering** docker.

Breaking apart lettering



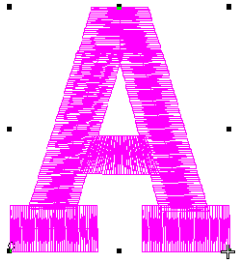
Use Edit > Break Apart to split composite objects – monograms, appliqués, lettering, etc – into component objects. Also available via the Arrange menu.

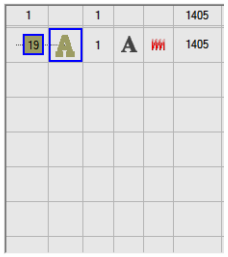
Applying the **Break Apart** function to a lettering object breaks it into a logical stitching sequence while maintaining lettering object characteristics. Object properties can be edited separately for single lines, single words, or even single characters. Stitching sequence is maintained.



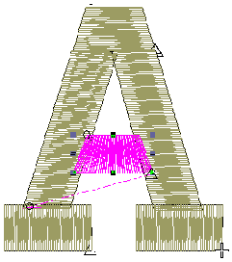
Sequence logic is as follows:

- Multi-line lettering can be broken into separate objects per line
- Individual lines can be broken into separate objects per word
- Words can be broken into separate objects per letter
- Letters can be broken into their individual embroidery patches. Lettering properties are lost. Only general embroidery object properties remain.



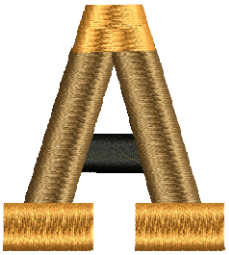


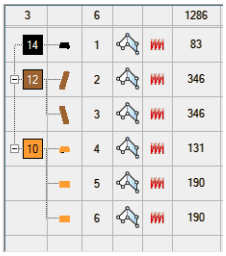
Individual letter with full lettering object properties





Individual letter broken into separate embroidery patches





Properties of each patch can be separately edited

Tip: An exception for single-line (multi-word) objects is the case of the center-out stitching sequence. Such objects are broken apart directly into single-letter objects. The stitching sequence is thereby preserved.

Related topics...

- Break apart composite objects

Chapter 26

Advanced Embroidery Lettering



BE EmbroideryStudio provides a variety of advanced editing techniques for fine-tuning lettering designs. Add special characters and symbols as desired. By default, lettering objects are filled with **Satin**. Apply other basic fill stitch types as with all embroidery objects.

Specify the sequence in which letters are stitched to minimize registration problems. The automatic kerning feature improves lettering appearance and legibility by fine-tuning spacings between character pairs. Alternatively, fine-tune letter spacing according to the number of characters per lettering object. This is particularly useful with Asian fonts. Lettering appearance and quality can be improved by the correct selection of underlay. Apply **Envelope** effects to lettering objects to make them bulge or arch, stretch or compress.

This section shows you how to add special characters and symbols. It describes changing lettering stitch types in lettering objects, and adjusting lettering stitch angles. It also explains how to adjust the lettering stitching sequence as well as lettering join method. Automatic letter kerning and letter spacing are discussed. Lettering underlay is also discussed. It also describes how to create special effects with envelopes.

Adding special characters

Embroidery and TrueType fonts generally contain many more characters than are available via keyboard. In BE EmbroideryStudio, you can add special characters and symbols directly through the **Select Symbols** dialog or by means of the MS Windows® **Character Map**.

Insert symbols

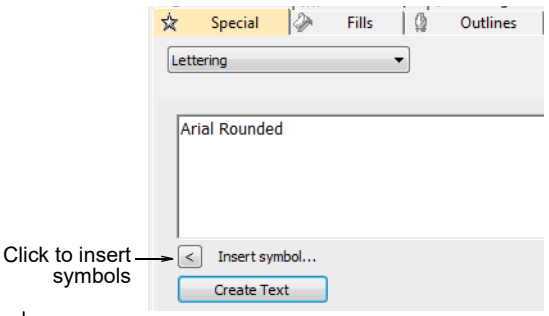
Use Toolbox > Lettering to add special characters and symbols. Right-click to select lettering options.

Add special characters and symbols to your lettering designs.



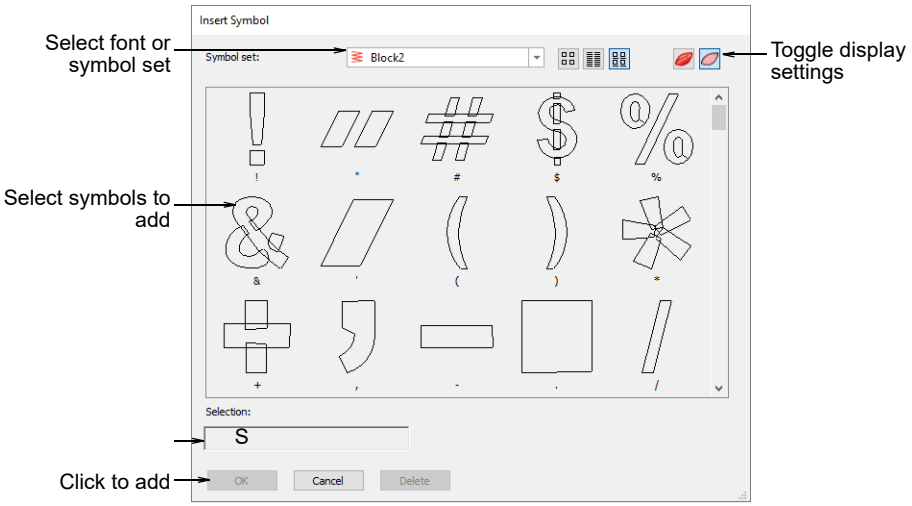
To insert symbols...

1 Right-click the **Lettering** icon to access object properties.



Tip: If you already know the keyboard shortcut for a symbol, you can add it by entering the combination on screen or in the docker.

2 Click **Insert Symbol**.



3 Select a font or symbol set from the **Symbol set** list.

4 Select the symbols you want to use. Selected symbols are displayed in the **Selection** field.

5 Click **OK**. The selected symbols are displayed in the text entry panel of the **Object Properties > Special > Lettering** docker.

Create flair script designs

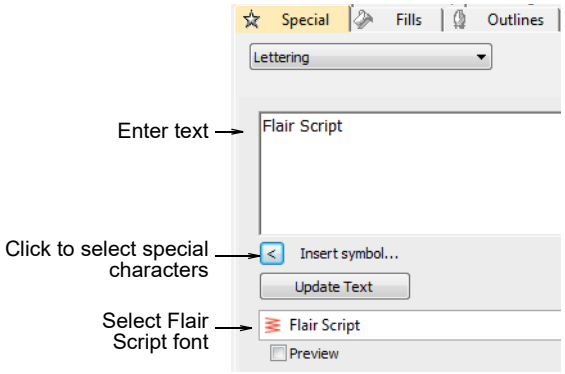
Use Toolbox > Lettering to add special characters and symbols. Right-click to select lettering options.

Flair script is a special font which allows you to add decorative flairs to the end of text objects, mimicking flamboyant handwriting flourishes.



To create a flair script design...

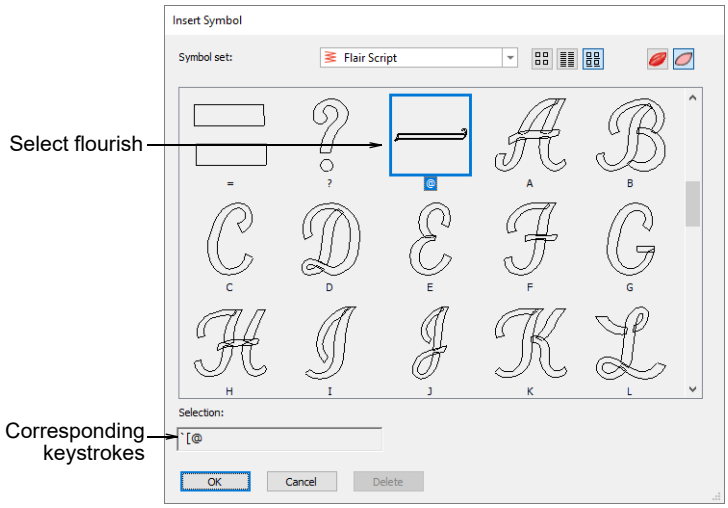
1 Right-click the **Lettering** icon to access object properties.



2 Select **Flair Script** from the **Font** list.

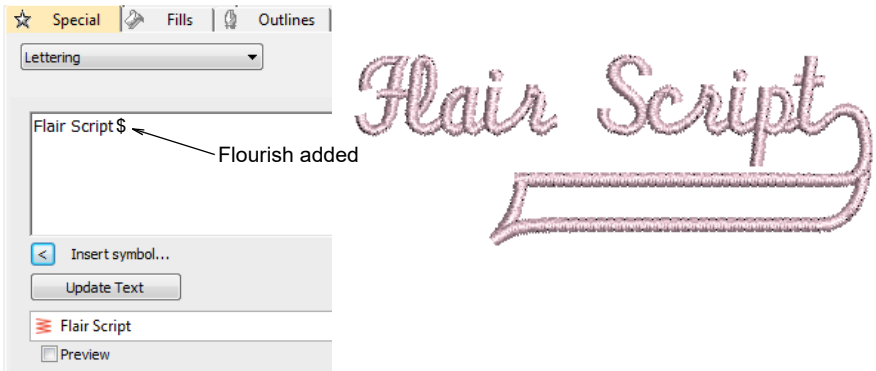
3 Enter the text you want to embroider in the text entry panel.

4 Click **Insert Symbol**.



5 Select the flourish you want to use. Scroll down for more options.

6 Click **OK** to close the dialog. The selected characters are displayed in the text entry panel.



7 Adjust lettering settings as required and click **OK**.

8 Click an insertion point or mark reference points for the selected baseline.

9 Press **Enter**.

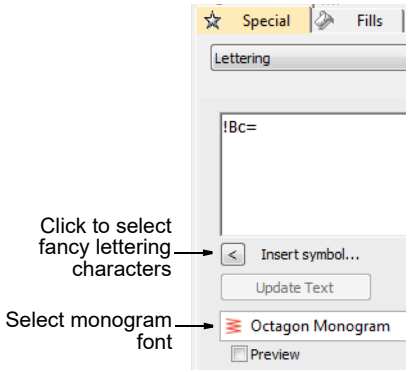
Tip: Experiment with different flourishes to obtain the look you want.

Add monogram lettering

In addition to the dedicated **Monogramming** feature, BE EmbroideryStudio allows you to create monogramming designs using special monogram fonts. See also Monogramming.

To add monogram lettering...

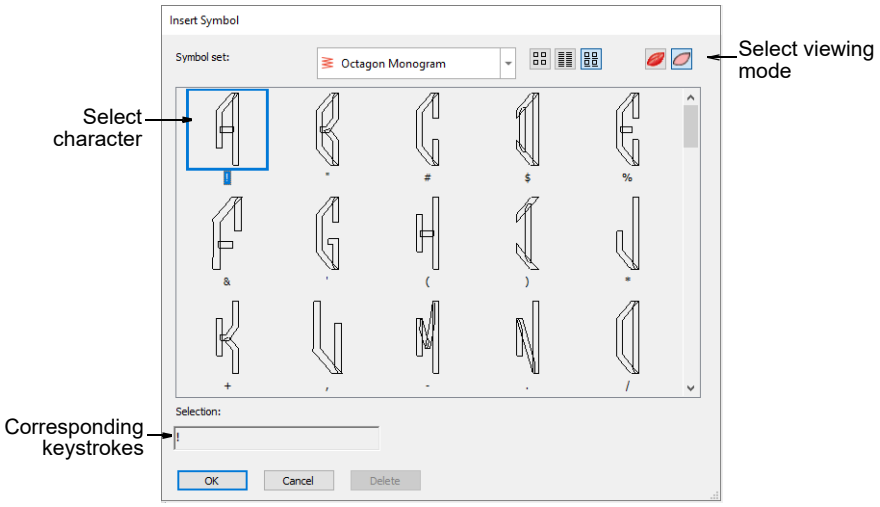
1 Right-click the **Lettering** icon to access object properties.



2 Select a suitable monogram font such as Octagon Monogram. See also Standard Fonts.



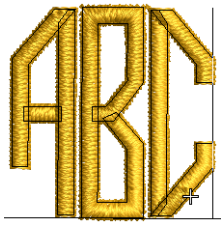
3 Click **Insert Symbol**. The **Insert Symbol** dialog opens.



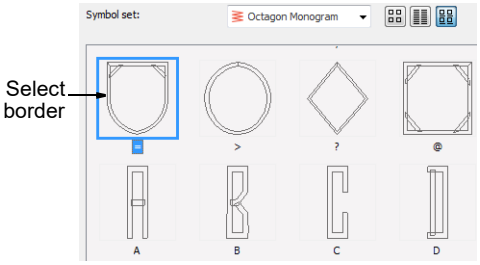
Tip: When you select a character, a keystroke appears in the **Selection** field. This indicates the key combination required to type the character directly on-screen.

4 Select a left-facing letter. Octagon Monogram, for example, has three sets of each letter, one for the left side, one for the middle and one for the right side. When selecting letters, you need to ensure letter orientation is correct.

5 Select a middle letter and then a right-facing letter.



6 Select a border as required.



7 Click **OK**. The selected characters are displayed in the text entry panel.

8 Click **Create Text**.



Tip: If you want the letters in your monogram to be different colors, select and recolor one-by-one.

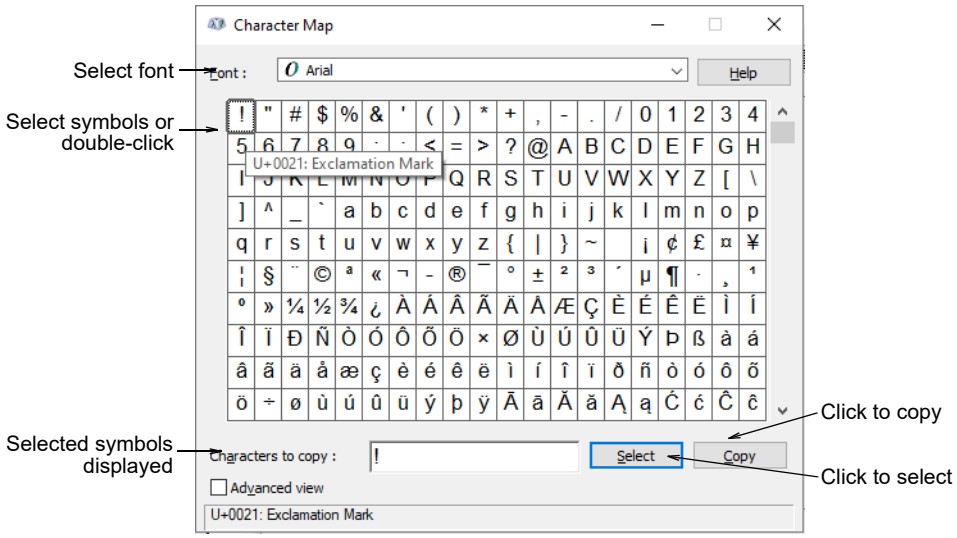


Use the Character Map

Use the MS Windows® **Character Map** to provide quick access to common symbols and letters. The **Character Map** is usually installed as part of the MS Windows® setup. See your MS Windows® documentation for more details.

To use the Character Map...

1 Open the MS Windows® Character Map. By default, you will find it under **Start > Programs > Accessories > System Tools > Character Map**.



2 Select a font from droplist.

3 Double-click a character, or select it and press **Select**. The character/s appear in the **Characters to copy** field.

4 Click **Copy** to copy the character to the clipboard.

5 Paste it into the text entry panel of the **Object Properties > Special > Lettering** docker. To do this, click inside the text entry panel and press **Ctrl+V** or right-click to open the popup menu.

Tip: You can also paste characters and symbols into an external graphics program to use as the basis for creating your own custom characters.

Applying stitch types & effects to lettering

By default, lettering objects are filled with **Satin** stitch. You can apply other fill stitch types such as **Tatami** or **Program Split** as well as stitch effects such as **Jagged Edge**. See Stitch Types for details.



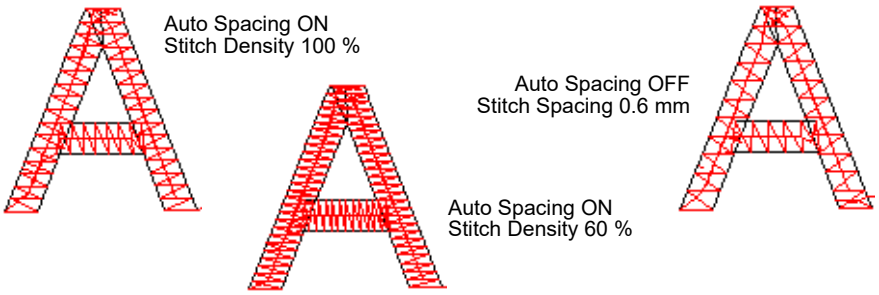
Note: Lettering values are stored in the <PRESET_LETTERING> style in the Normal template. Changing these does not affect the values of other objects. Do not delete or rename this style. See Working with styles for details.

Satin lettering

Use Fill Stitch Types > Satin to apply satin stitch to new or selected narrow columns and shapes. Right-click for settings.

Use Fill Stitch Types > Satin Raised to create raised surfaces – can be applied to lettering or used with trapunto for quilting effects. Right-click for settings.

By default, lettering objects are filled with **Satin** stitch. Because there are generally no needle penetrations breaking up the fill, satin stitch creates a glossy, high-quality effect suitable for most lettering.



Satin Raised can be applied successfully to some styles of font for a raised embroidery surface. Outlines can be added with the

Outlines & Offsets tool for use with quilted designs. Traditionally, trapunto utilizes two or more layers, the underside of which is slit and padded, producing a raised surface on the quilt. Lay the second layer over **Satin Raised** lettering and stitch down with trapunto outlines.



Note: BE EmbroideryStudio also includes as standard a number of dedicated 3D fonts.

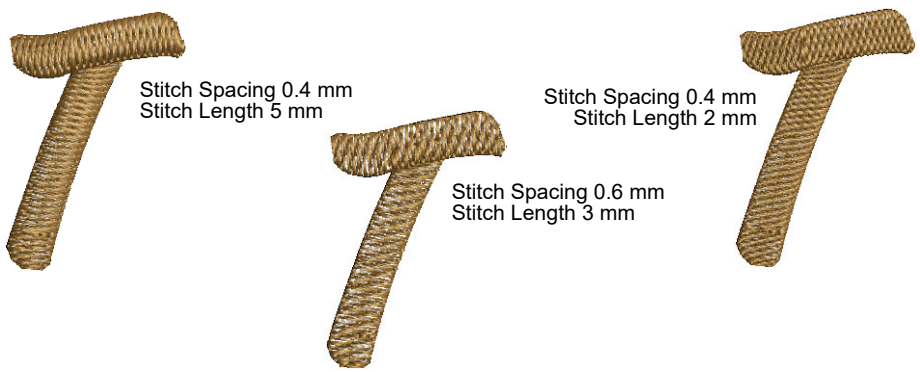
Related topics...

- Satin stitching
- Standard Fonts
- Generating outlines & offsets

Tatami lettering

Use Fill Stitch Types > Tatami to create fills for larger irregular shapes. Right-click for settings.

You can fill lettering shapes with **Tatami** stitching. This may be suitable for filling larger lettering shapes.



Zigzag lettering

Use Fill Stitch Types > Zigzag to create fills with an open ‘sawtooth’ effect. Right-click for settings.

Zigzag stitch can be applied to lettering for any open stitching effect.



Related topics...

- Open stitching
- Standard Fonts

Patterned lettering

Use Fill Stitch Types > Program Split to create decorative fill stitches where needle penetrations form a tiled pattern.

Try applying **Program Split** to lettering. This too may be suitable for filling larger lettering shapes or for special effects. Density is determined by stitch spacing.



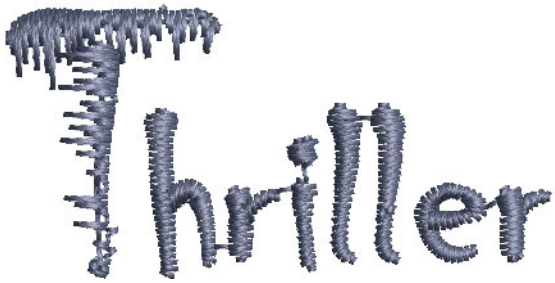
Related topics...

- Creating textures with program splits

Jagged edge lettering

Use Stitch Effects > Jagged Edge to create rough edges, shading effects, or imitate fur and other fluffy textures along one or more sides of selected objects.

Jagged Edge can be used with lettering objects for special 'spooky' effects or fluffy textures.



Related topics...

- Jagged edges

Creating special effects with lettering art

Use Toolbox > Lettering to edit letters on-screen.

Use Reshape > Reshape Object to reshape selected objects by means of control points.

Apply **Lettering Art** effects to make letters bulge or arch, stretch or compress. Many styles are available from the **Lettering Art** gallery. You can fine-tune preset shapes as preferred. Edit lettering text in envelopes the same way as normal lettering. Return lettering to its original shape by removing the envelope altogether.

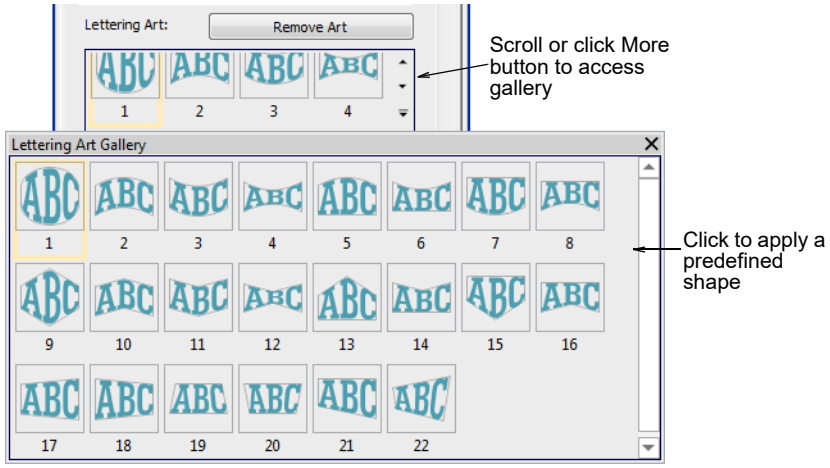
To create lettering art effects...

1 Create a lettering object.



2 Double-click the object to access its properties.

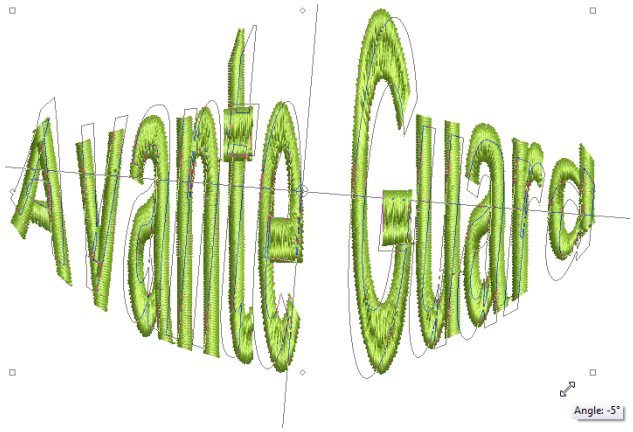
3 Scroll through the **Lettering Art** list or click **More** to access the gallery. You can tear it off for easy access.



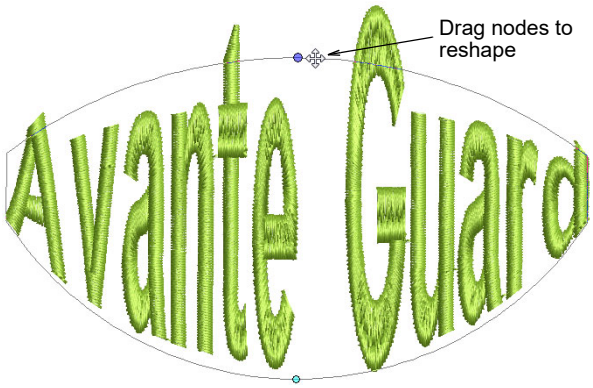
4 Select a shape from the gallery.



5 Click again to access rotation control handles.



6 Use **Reshape Object** to fine-tune the envelope shape.



7 Drag control handles to adjust:
- To move two handles in opposite directions, hold **Shift** while dragging.
- To move handles in the same direction, hold **Ctrl** while dragging.

8 Press **Esc** to finish.

To edit lettering art effects...

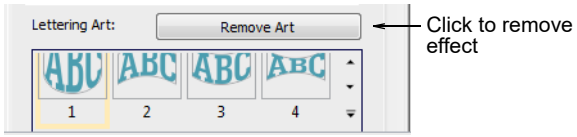
1 To edit, click the **Lettering** icon with the object selected. Duplicate letters appear below.



2 Click inside the duplicate and edit text as desired. Press **Enter** to confirm.



Note: To return an object to its original shape, click **Remove Art**.



Related topics...

- Applying envelopes

Setting stitching sequence & join method

You can specify the sequence in which letters are stitched to minimize registration problems such as on caps or difficult fabrics. While the **Closest Join** method is recommended in most cases to minimize trims, you may sometimes want to use the **As Digitized** setting with fonts which include multiple colors, multiple stitch types, or special effects.

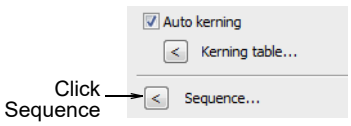
Adjust letter sequencing

Click Toolbox > Lettering to adjust the lettering stitching sequence.

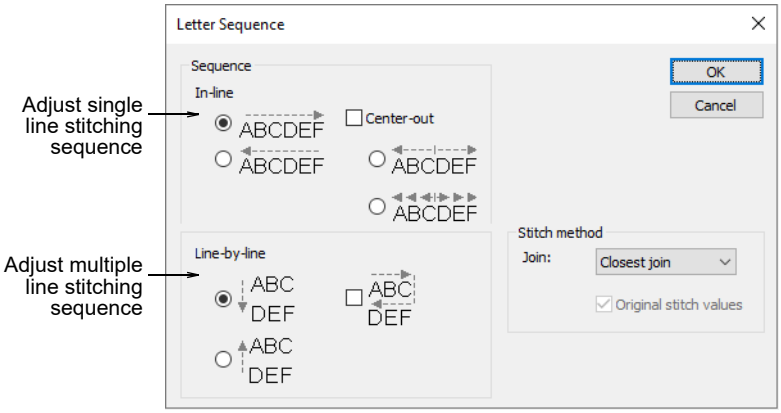
BE EmbroideryStudio lets you specify the sequence in which letters are stitched to minimize registration problems such as on caps or difficult fabrics. For example, the **Center Out** option is especially useful when stitching on caps. There are also options for multiple lines of lettering which are useful for machines without trimmers.

To adjust letter sequencing...

1 Right-click the **Lettering** icon or double-click selected lettering object/s to access object properties.

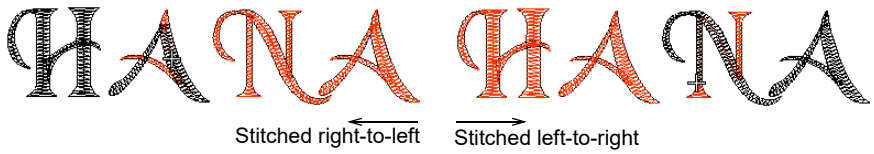


2 Click **Sequence**. The **Letter Sequence** dialog opens.

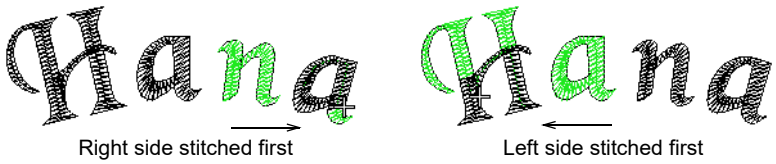


3 Select a stitching sequence. Options include:

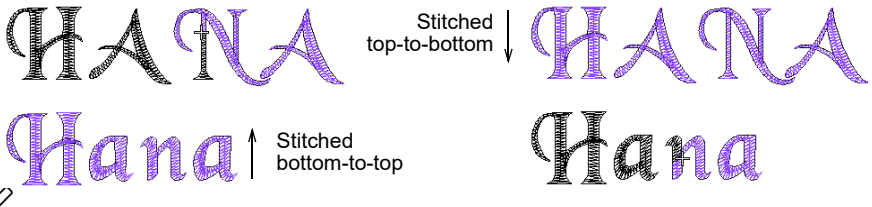
- **In-line**: Select whether you want the lettering to be stitched left-to-right or right-to-left in each line.



- **Center-out**: Select this checkbox if you want the lettering stitched from center out.



- **Line-by-line**: Choose whether you want multiple lines to stitch top-to-bottom or bottom-to-top.



Note: You can combine both **In-line** and **Line-by-line** sequencing options.

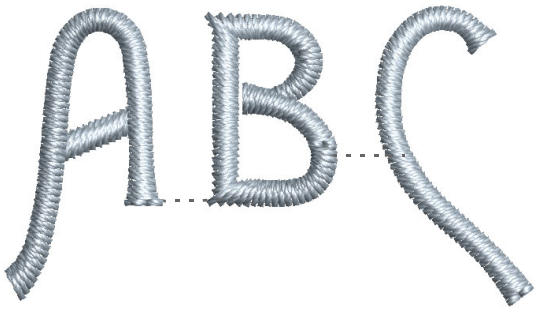
4 Click **OK** to return to the **Special** tab.

Tip: Travel through your design to check the stitching sequence. See Travel through designs for details.

Change lettering join method

Use Toolbox > Lettering to change the lettering join stitch method.

The lettering stitch method is preset to give the best results for each font. In most cases, **Closest Join** is recommended in order to minimize trims.

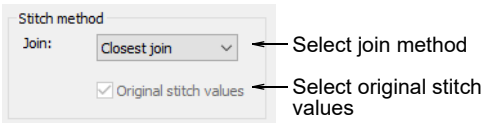


Lettering objects normally consist of one stitch type and one color only. However, the **As Digitized** join method together with **Original Stitch Values** setting can be used with special fonts which combine several stitch types – e.g. **Satin** with **Run**, or **Tatami**, or **Motifs**. The **As Digitized** setting can also be used with fonts which include multiple colors or special effects. Such fonts may include machine functions, as for two-color fonts, or run stitches as part of the cover stitching.

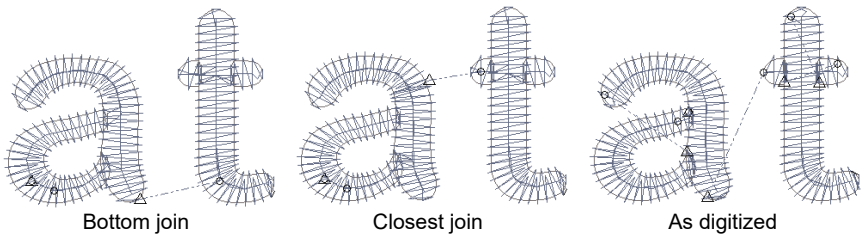
To change the lettering join method...

1 Right-click the **Lettering** icon or double-click selected lettering object/s to access object properties.

2 Click **Sequence**. The **Letter Sequence** dialog opens.



3 Select a stitch method from the droplist:

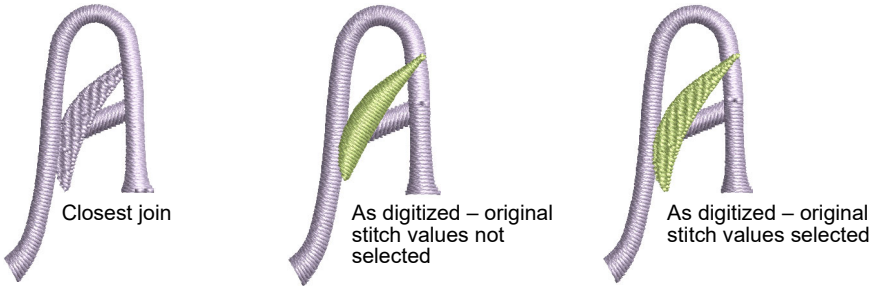


Options include:

Option	Function
Bottom join	Letters are joined along the baseline. Use it when stitching on towelling – joins are hidden in the pile.
Closest join	Letters are joined at the closest point. Use it to minimize trims.
As digitized	Letters are joined the same way they were originally digitized. Use it with fonts combining different fill stitch types or special effects.

4 Select the **Original stitch values** checkbox as required.

This setting is only available if the **As Digitized** join type is selected. Use it with special fonts which combine several stitch types. If not selected, these letters will be stitched with a single stitch type.



5 Click **OK** to return to the **Special** tab.

Note: For recommended stitch and join methods, see Standard Fonts.

Setting automatic letter kerning

The automatic kerning feature improves lettering appearance and legibility by fine-tuning spacings between character pairs. Typically, spacing between certain pairs looks uneven due to the optical illusion formed by mixing straight lines with curves. Automatic kerning optimizes spacing between lettering pairs according to preset values. While it works very well without customization, advanced users can customize these

values as they wish. Kerning tables can even be copied from similar MS Windows® fonts.



Tip: For more information about kerning, see the Windows Dev Center topic on Justification, Kerning, and Spacing.

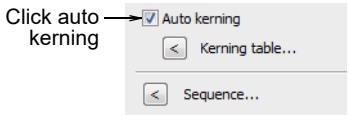
Apply automatic kerning

Right-click Toolbox > Lettering to adjust automatic kerning for selected lettering objects.

The automatic kerning option is accessed by means of the **Object Properties** docker.

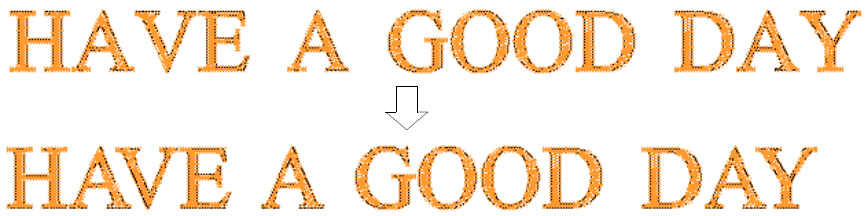
To apply automatic kerning...

1 Double-click a lettering object to access object properties.



2 Scroll down to the **Spacing** panel. If a kerning table exists for the selected embroidery font or TrueType font, the **Auto Kerning** checkbox is enabled and selected by default.

3 Select **Auto Kerning** as required and click **Apply**.



Related topics...

- Setting automatic letter spacing

Manage kerning tables

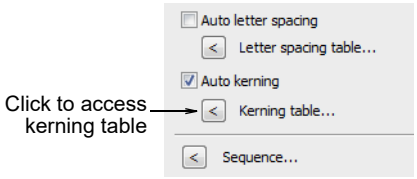
Use Docker > Object Properties to access kerning tables.

A kerning table is an array of kerning values for every possible pair of letters in the font. The **Kerning Table** command accesses a dialog used to manage kerning tables. You can copy tables from one font – embroidery or TrueType – to another or remove its kerning table altogether.

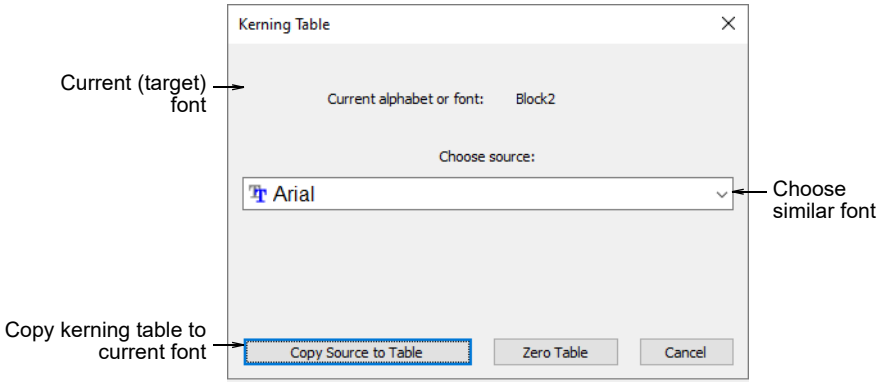
Note: TrueType kerning tables cannot be replaced, added to, or modified in any way. You can, however, convert a TrueType font to an embroidery font and add or modify a kerning table as required.

To manage kerning tables...

1. Open the **Object Properties > Special > Lettering** docker.
2. Select a font from the droplist.



3. Scroll down and click the **Kerning Table** button. The **Kerning Table** dialog opens with the current (target) embroidery font displayed. The droplist displays all fonts that contain kerning tables.



4. Choose a suitable font or TrueType font from the list and click **Copy Source to Table** to load its kerning table to the current embroidery font.

The **Zero Table** command is enabled if the current (target) font already has a kerning table.

Related topics...

- Apply automatic kerning
- Edit kerning values

Edit kerning values

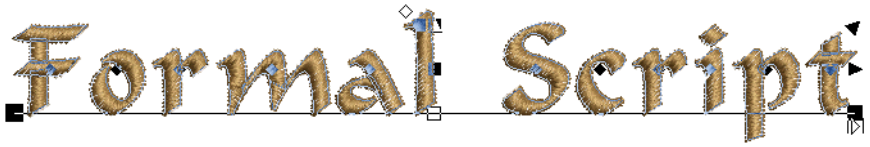


Use Reshape > Reshape Object to reshape selected objects, edit stitch angles, and adjust entry/exit points.

You have created a lettering object which has **Auto Kerning** toggled on. Use this procedure to update kerning settings for contiguous pairs of letters.

To edit kerning values...

1. Select a lettering object with automatic kerning and click the **Reshape** icon.



2. Click the diamond control point in the center of the letter.
3. Drag selected letter/s along the baseline or use arrow keys to adjust the spacing. Alternatively, to move multiple letters, right-click the diamond control point of the first letter and drag. All letters to the end of the line move as one.
4. Repeat as many times as necessary to fine-tune all letter spacings in the object.
5. Select one or more blocks of contiguous letters by **Ctrl**-clicking their diamond control points or dragging a selection box around them.



6. Select **Object > Update Kerning Settings**. The operation will affect letter spacing of all new lettering objects.
7. Click **OK**.

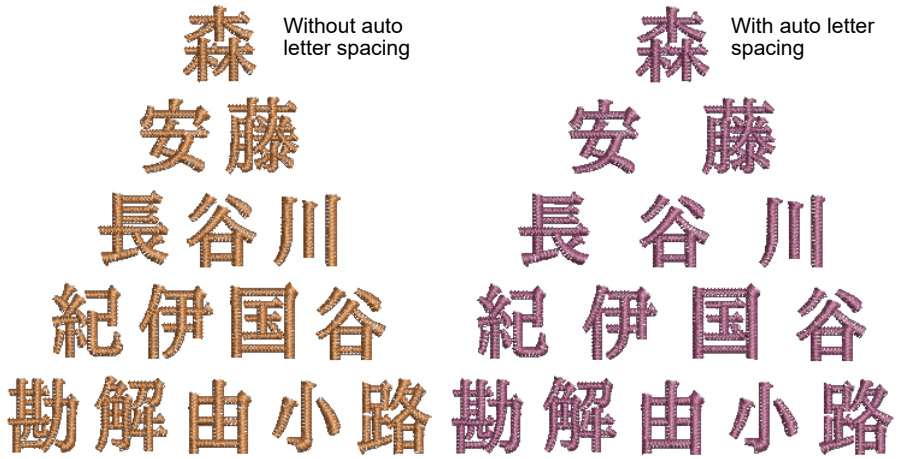
A new kerning value is generated for each contiguous pair of letters, and written to the associated kerning table.

Related topics...

- Adjust letter spacings on-screen

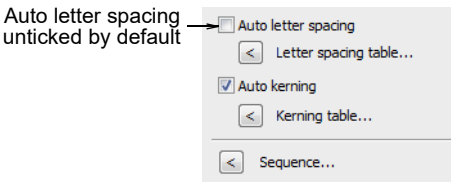
Setting automatic letter spacing

The **Auto Letter Spacing** feature allows you to fine-tune letter spacing according to the number of characters per lettering object. When activated, BE EmbroideryStudio automatically spaces letters according to a predefined spacing table. For example, in a five-character lettering object, spacing may be set to 2mm, while in a three-character lettering object, it may be increased to, say, 3mm.



To apply automatic letter spacing...

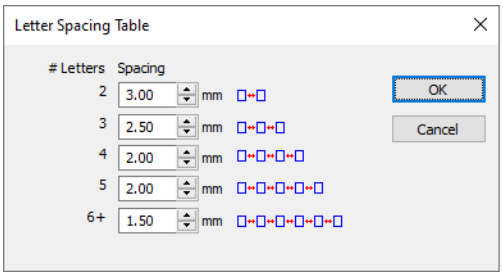
1 Create or select a lettering object and double-click to access object properties.



2 Select a baseline for use with **Auto Letter Spacing**. Automatic letter spacing is available for all baselines. However, with fixed-line and arc baselines, automatic spacing only works with **Width** and **Size** options selected.

3 Tick the **Auto Letter Spacing** checkbox.

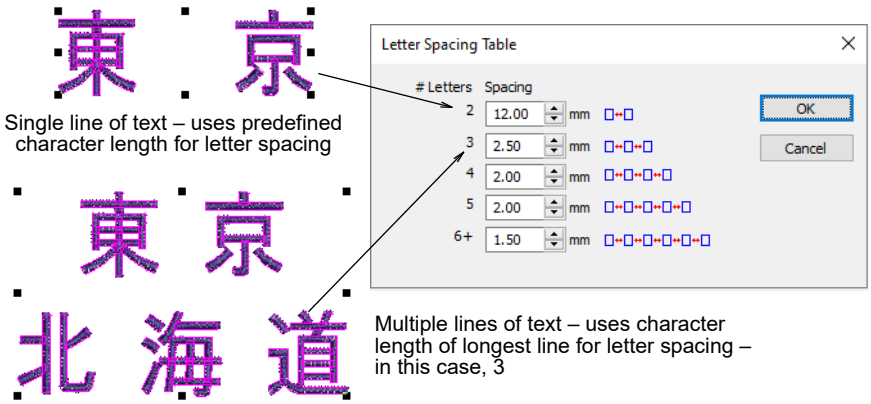
4 Click the **Letter Spacing Table** button. The **Letter Spacing Table** dialog contains a matrix of settings for lettering objects of two to six or more characters.



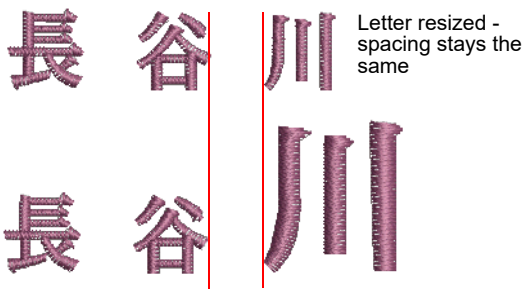
5 Adjust spacings for each character grouping. The topmost field for two characters has a range of 0.10mm to 100.00mm.

6 Click **OK**. With the **Auto Letter Spacing** checkbox checked:

- For a lettering object with more than one line of text, the system will use the longest line of text for the letter spacing.



- The letter spacing table will not change even if individual letters are resized in **Reshape** mode.



Tip: The **Auto Letter Spacing** feature also works with the **Team Names** feature. Any 'name frame' can have a specified letter spacing just as it can assume any other lettering property.

Related topics...

- Setting automatic letter kerning
- Adjusting baselines
- Creating simple teamname designs

Setting lettering underlay

Right-click Stitch Effects > Auto Underlay to adjust lettering underlay settings.

Lettering appearance and quality depends a lot on underlay which serves as a foundation for cover stitching. As well as stabilizing, underlay also provides 'loft', raising cover stitches and preventing them from sinking into soft fabrics. It can also prepare a napped fabric by flattening it.

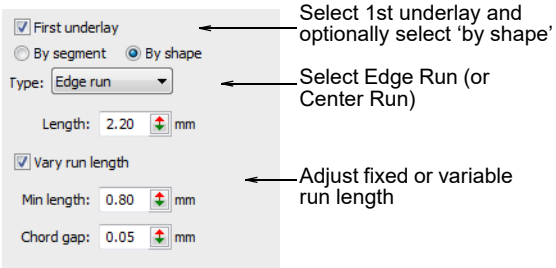


Most lettering used in designs is 15 mm high or less. The columns at such sizes are less than 3 mm wide for normal – not heavy or block – fonts. Such objects are best served with a single **Center Run** or **Edge Run** underlay. Here are a few rules of thumb:

- Lettering with heights under 5 mm should not have underlay.
- Letters 6 mm to 10 mm can have a center-run underlay applied.
- Lettering larger than 10 mm is large enough for edge-run underlay.
- Large letters for jacket backs and so on can use a second layer of underlay. Double-zigzag is sometimes used to give added loft.

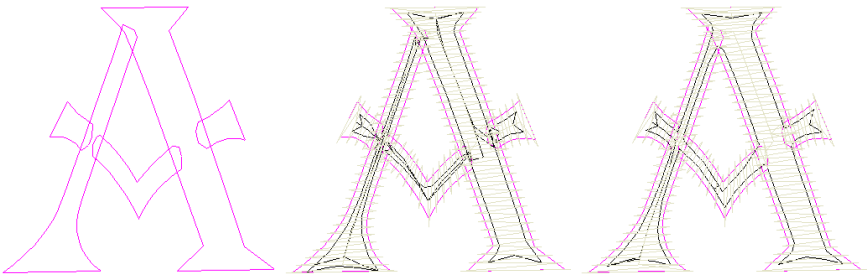
To set lettering underlay...

1. Select a lettering object.
2. Right-click the **Auto Underlay** icon to access object properties.



3 Select the **First Underlay** checkbox and select **Center Run** or **Edge Run** as the first underlay type. If you select **Edge Run**, a further **By Shape** option becomes available. When activated, underlay is applied to the lettering object as a whole.

4 Select the **By Segment** or **By Shape** option as required.

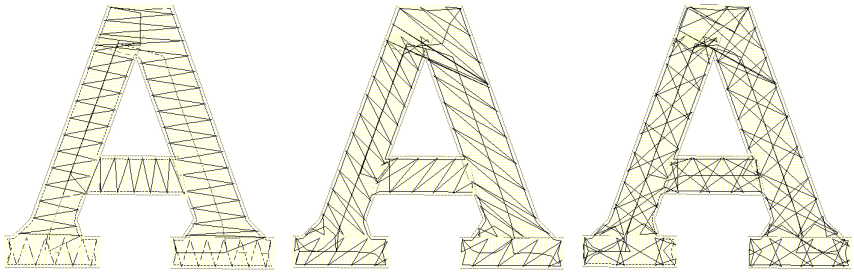


Segments comprising letter | Underlay 'by segment' | Underlay 'by shape'

Note: With most embroidery objects, underlay is stitched segment-by-segment before cover stitches are sewn. Lettering underlay, however, defaults to a single **By Shape > Edge Run** underlay, except 'As Digitized' lettering. This has the effect of calculating an underlay for the entire shape rather than each segment comprising it. This in turn reduces bunching, travel runs, and overall stitch count.

5 Enter the required length values for each underlay type.

6 If you are using zigzag underlay, adjust stitch angles to create a 'cross-hatch' effect. This may provide more support than single zigzag.



Tip: Run **Stitch Player** to see how the underlay will stitch out.

Related topics...

- Run stitch underlay settings
- Zigzag underlay settings
- Simulate design stitchouts

Chapter 27

Monogramming

A monogram is a design composed of one or more letters, typically the initials of a name, used as an identifying mark. The **Monogramming** feature offers a simple way to create personalized monograms using a selection of predefined monogramming styles, border shapes and ornaments, together with a set of tools to help you place these elements in creative and decorative ways.

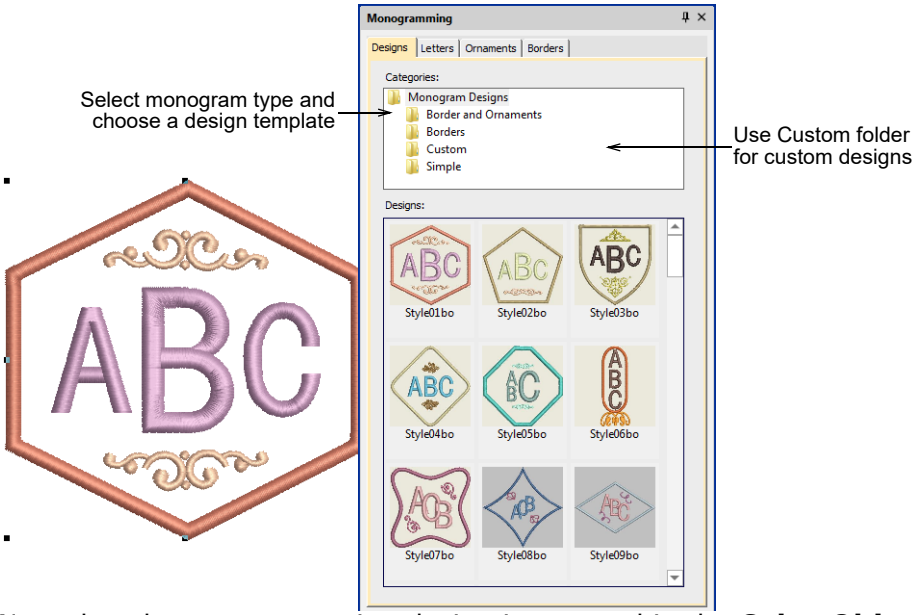


This section details the creation of monogram lettering with initials or with a name, how to add ornaments to monograms, and how to create ornament layouts.

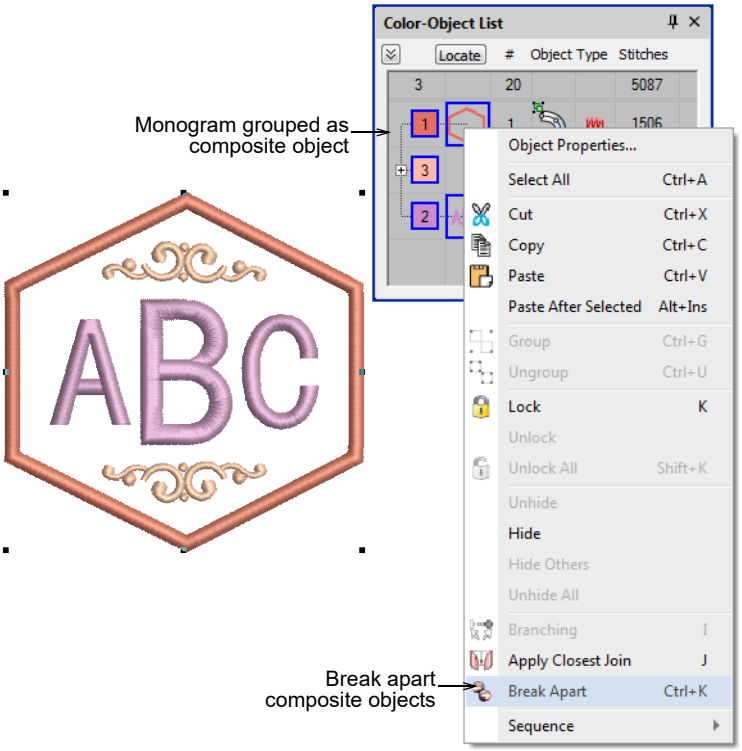
Monogram designs

Use Toolbox > Monogramming to create personalized monograms using a selection of predefined monogramming styles, border shapes and ornaments.

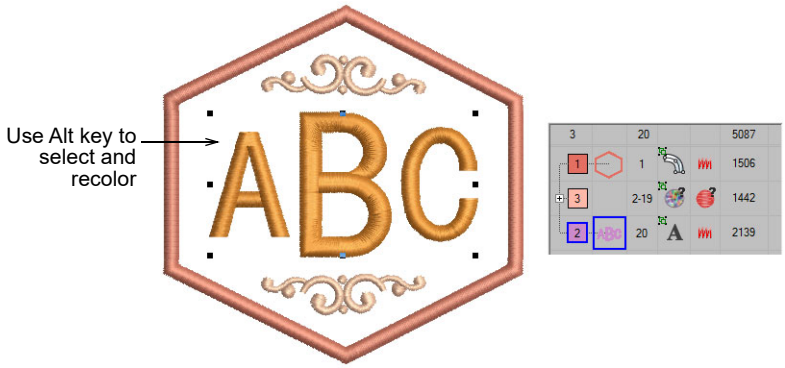
You build monograms using the **Monogramming** docker. The simplest way to get started is to select a monogram template from the **Designs** tab. This tab gives you a selection of design templates ranging from lettering only, with borders or with ornaments. The **Custom** folder contains your custom templates. Select a design template from the display panel and modify as required via the other tabs.



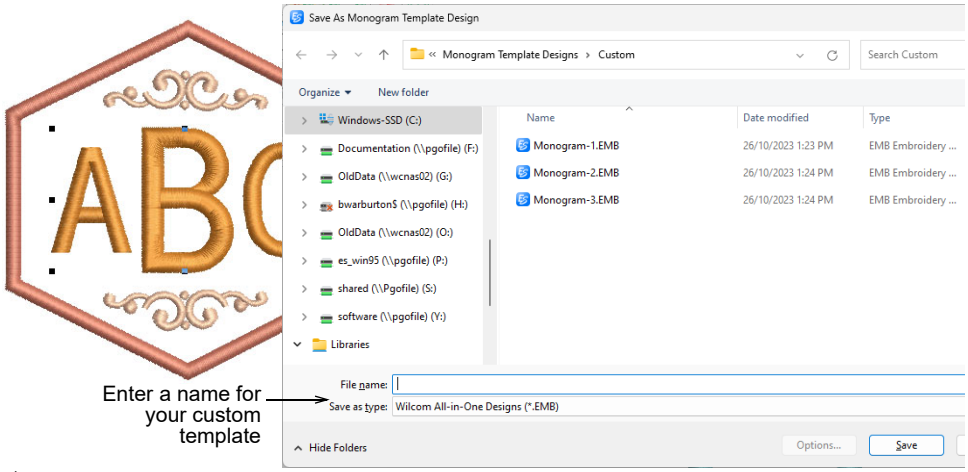
Note that the monogramming design is grouped in the **Color-Object List** docker. It is treated as a single, composite object. It can only be edited via the **Monogramming** docker. It cannot be ungrouped but it can be broken apart into its components. See also Breaking apart lettering.



However, if all you want to do is recolor monogram elements, you can select them individually without breaking apart the monogram. Simply hold down **Alt** and click the object.



If you want to save a design as a template for future use, use the **File > Save as Monogram Template** command. The dialog opens onto the **Custom** monogram designs folder. When you save here, the design will appear in the **Designs** tab under the **Custom** folder.



Tip: It is common to use laydown stitch with monograms in order to flatten the surface of fluffy fabrics like terry toweling. In order to apply laydown stitching to a monogramming object, you need to add laydown fill as the #1 border, and then offset it to be larger than letter and ornament components. See Monogram borders for details.

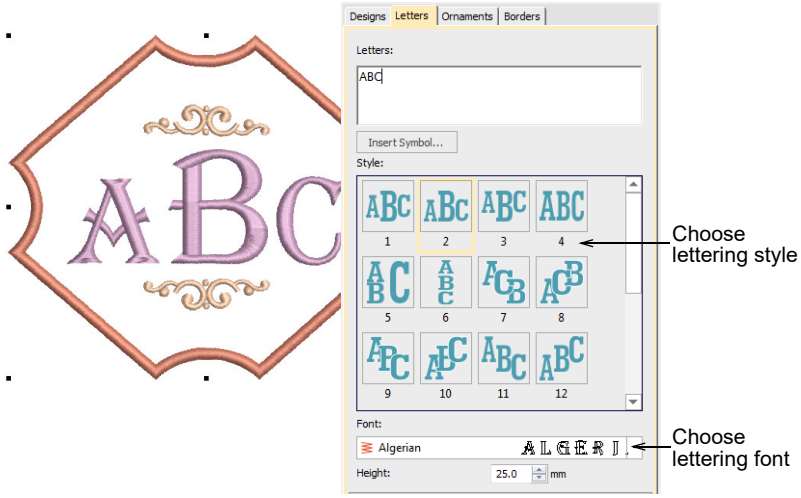
Monogram lettering

Use Toolbox > Monogramming to create personalized monograms using a selection of predefined monogramming styles, border shapes and ornaments.

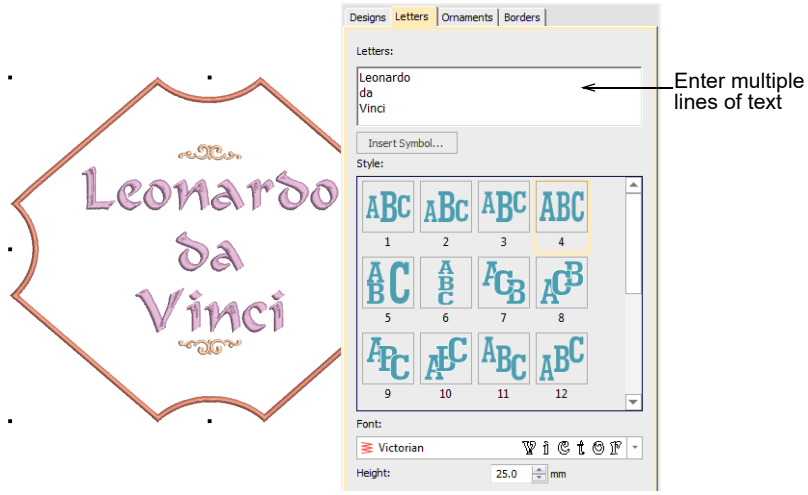
The **Letters** tab of the **Monogramming** docker allows you to create personalized monograms with initials, including special characters and symbols, or unlimited lines of characters.



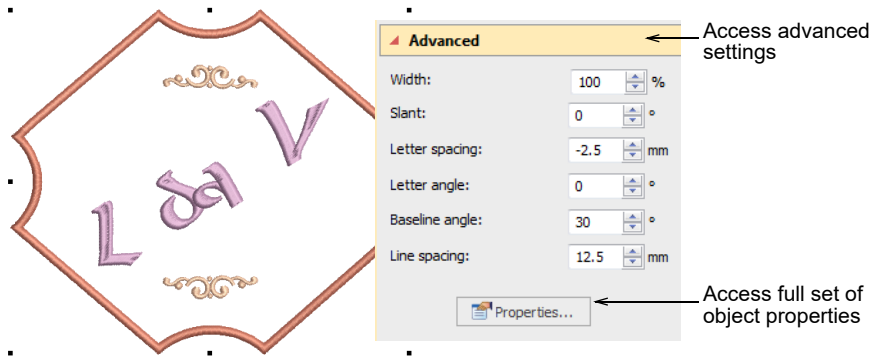
The **Letters** tab provides similar options to the **Lettering** tab of the **Object Properties** docker. If you are using one of the template designs, the easiest way to adapt it is to apply a different style. Change initials as required and choose from any number of native embroidery fonts or any TrueType font installed on your system. In addition, this tab provides a selection of styles to choose from.



In place of single letters, the same tab allows you to enter multiple lines.



If a selected style doesn't quite give you what you are looking for, open the **Advanced** panel to access more settings. Use these to adjust letter width, spacing, etc. Adjust letter rotation and baseline angle. These allow you rotate individual letters or the entire baseline.



Click **Properties** to make any further adjustments – e.g. stitch type. The default values for monogram lettering are different from those for conventional lettering. All settings can, however, be controlled via the **Object Properties** docker. See also Create lettering with object properties.

Monogram ornaments

Use Digitize > Monogramming to create personalized monograms using a selection of predefined monogramming styles, border shapes and ornaments.

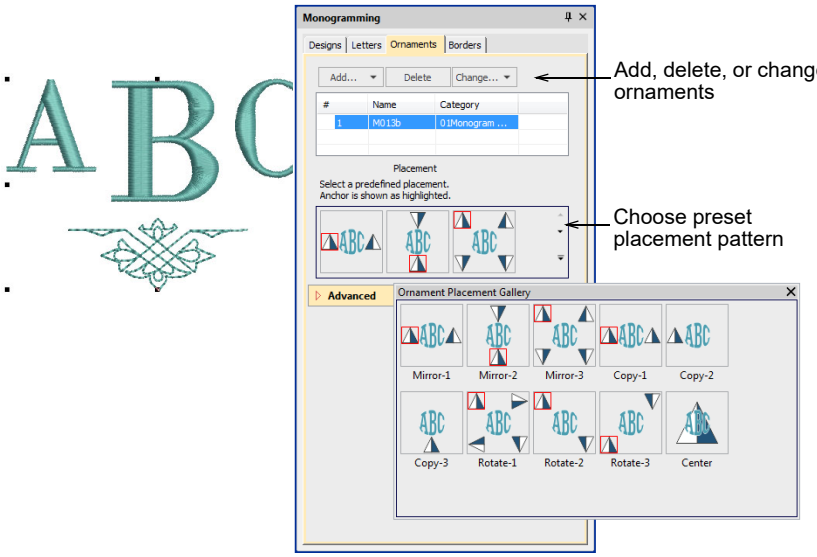
Ornaments can be added to a monogram either from motif patterns or from any design file. You have a choice of:

- Adding ornament motif patterns or designs
- Creating single ornament layouts
- Creating multi-ornament layouts.

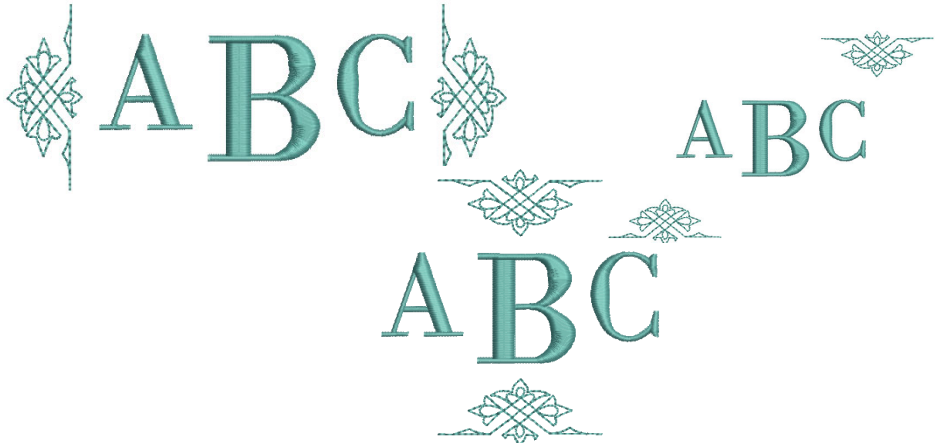


Modify ornaments

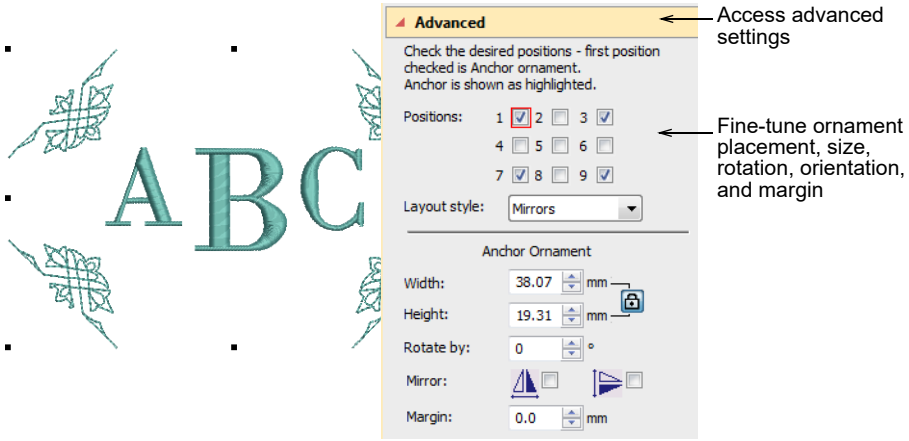
If you are using a template design or adapting another monogram, it is a simple matter to change the ornament to a different type or configuration. Use the buttons at the top of the **Ornaments** tab to add, delete, or change ornaments.



Choose from a range of preset placement patterns, including **Mirrors**, **Duplicates**, and **Cycle**. Note that the pyramid icon indicates not only the placement but also the orientation of the pattern in both horizontal and vertical planes.

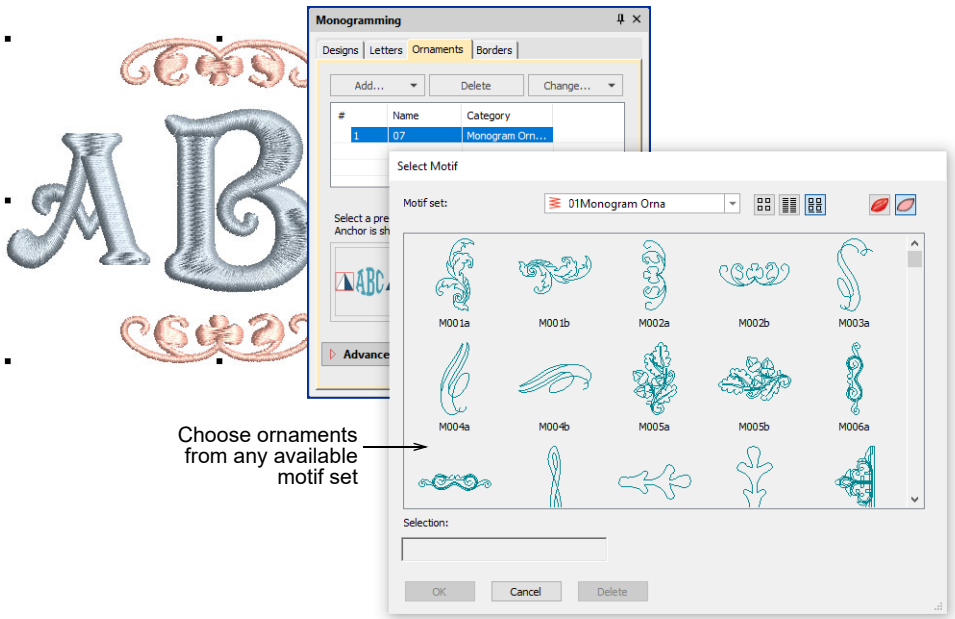


If the preset pattern gallery doesn't quite give you what you are looking for, open the **Advanced** panel. These settings give you precise control over ornament placement, size, rotation, orientation, and margin.

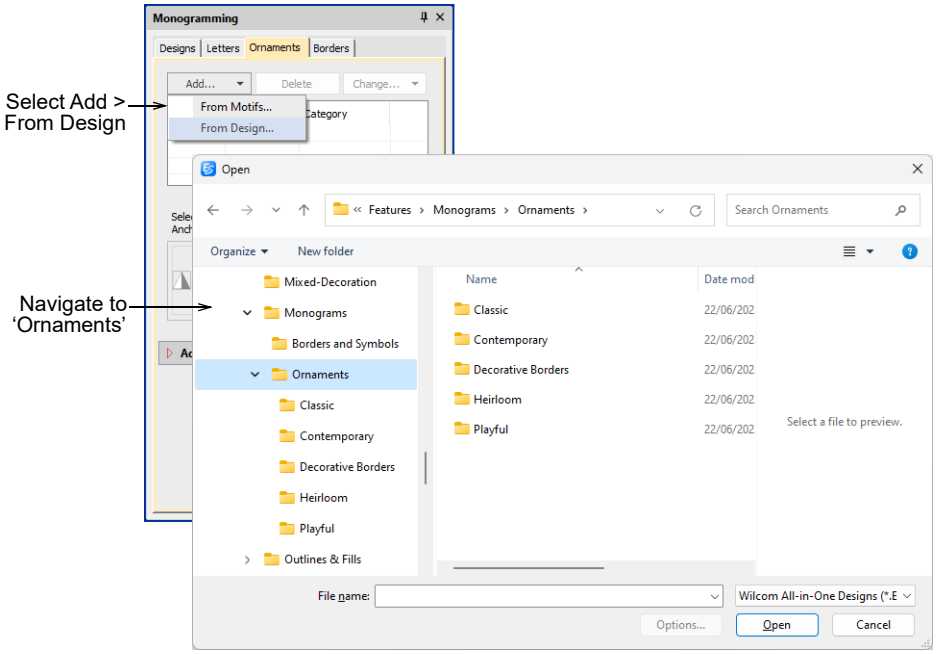


Add ornaments

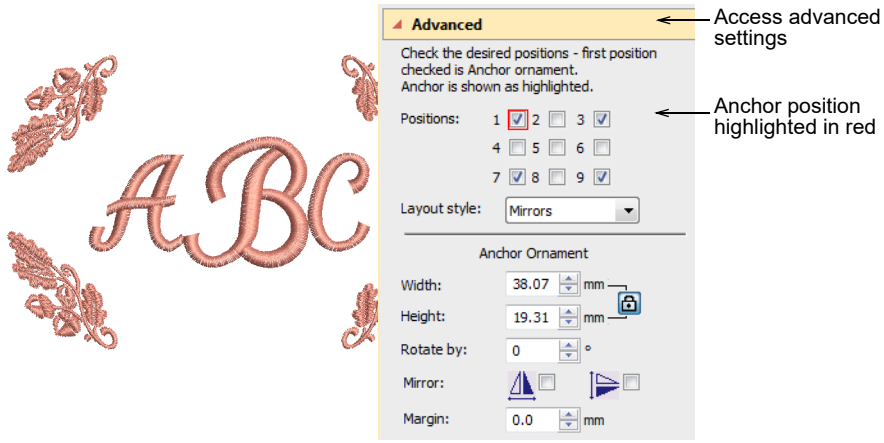
You can add up to ten ornament sets to a monogram design and change them at any time. Any available motif set can be used.



A set of ornamental designs is also available. These are stored in their own **Features > Monograms > Ornaments** subfolder...



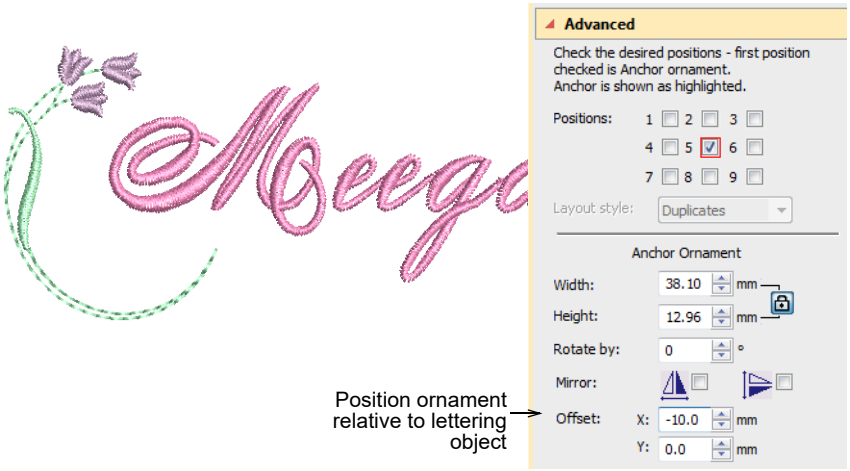
Use the checkboxes to add up to eight instances of a selected ornament. These are arranged according to ornament placements relative to the lettering.



The first selected serves as the 'anchor' position (highlighted in red). All other ornaments are sized, rotated and mirrored in relation to it. Use the **Width** and **Height** fields to change ornament dimensions. The **Lock Aspect Ratio** toggle forces width and height to maintain their proportions. Use the **Margin** setting to offset ornaments from the lettering.

Create single ornament layouts

Use **Position #5** to insert an ornament as a standalone component within a set. All other checkboxes are unchecked automatically. **Width**, **Height**, and **Rotate By** fields and **Mirror** checkboxes remain available, and **Offset** controls replace the **Margin** control.



Use the **X** and **Y** fields in the **Offset** panel to position the ornament horizontally or vertically relative to the lettering object. These settings

specify the position of the ornament center relative to the center of the lettering object.

Multi-ornament layouts

You can add up to eight instances of a selected ornament to your monogram. Any combination of ornaments and ornament positions can be used. Add the ornament sets you want and assign placements to each one.

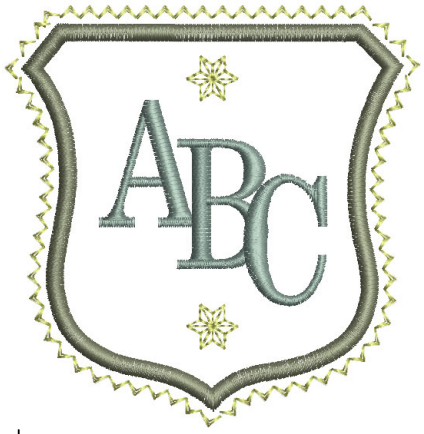


Remember, if you want to recolor monogram components, you can select them individually without breaking apart the monogram. Simply hold down **Alt** and click the object.

Monogram borders

Use Toolbox > Monogramming to create personalized monograms using a selection of predefined monogramming styles, border shapes and ornaments.

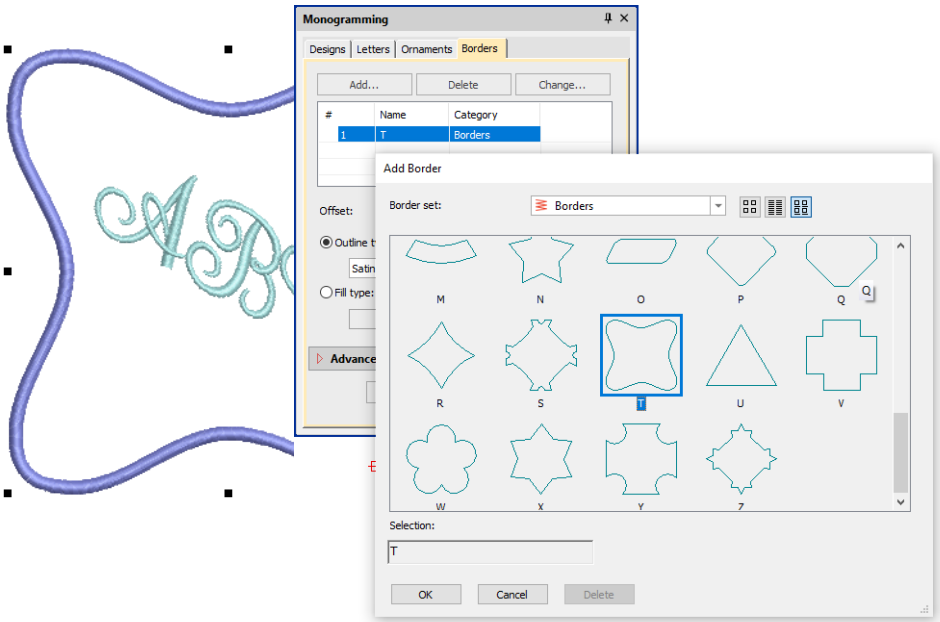
You can add up to four borders of the same shape to a monogram design.



Tip: It is common to use laydown stitch with monograms in order to flatten the nap of textured fabrics like terry toweling. In order to apply laydown stitching to a monogramming object, you need to add laydown fill as the #1 border, and then offset it to be larger than letter and ornament components. See also Laydown stitch.

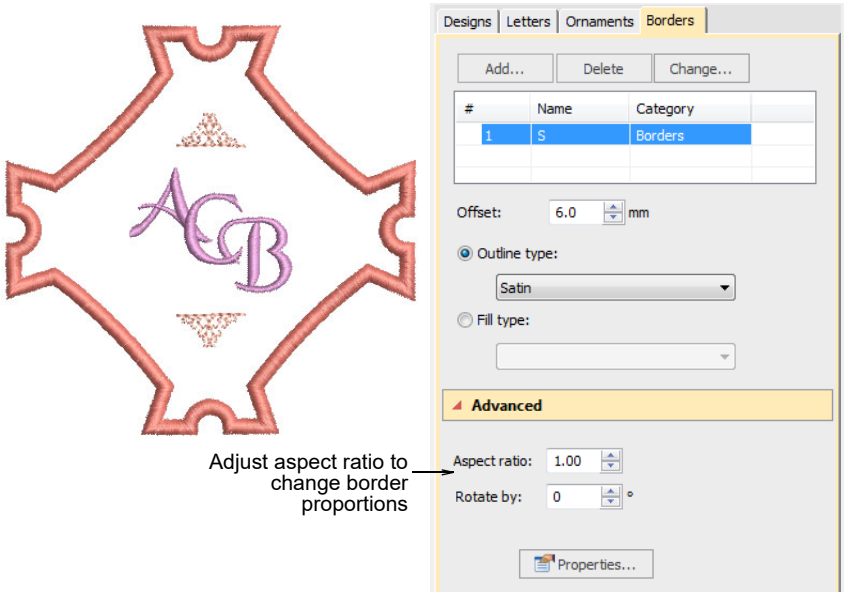
Change borders

If you are using one of the template designs, it is a simple matter to change borders. Use the **Change** button on the **Borders** tab to select from one of the many available.

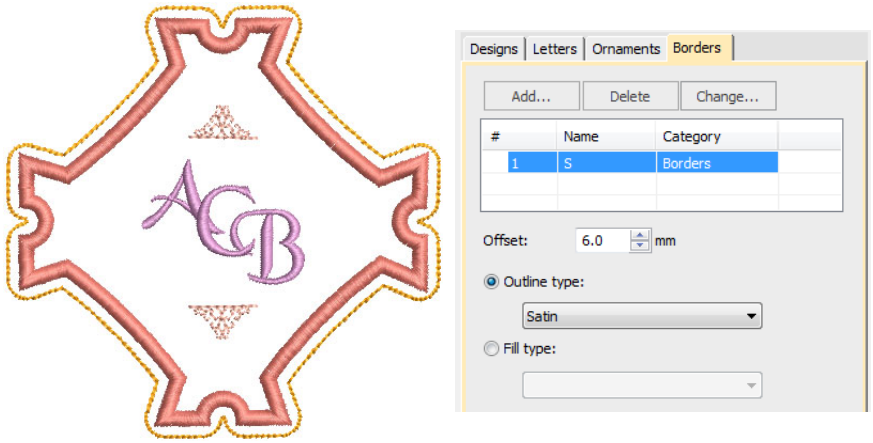


Adjust border shape & offset

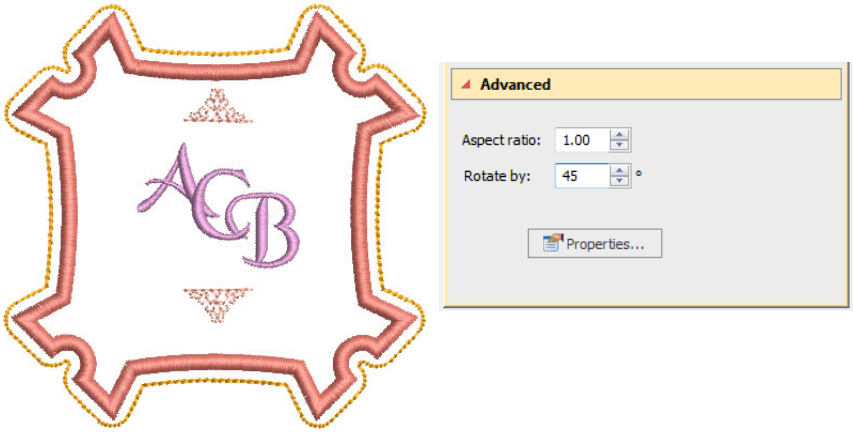
Use the **Aspect Ratio** settings to adjust height and width proportions.



Use the **Offset** field to fine-tune margins between lettering and border, and between border and border.

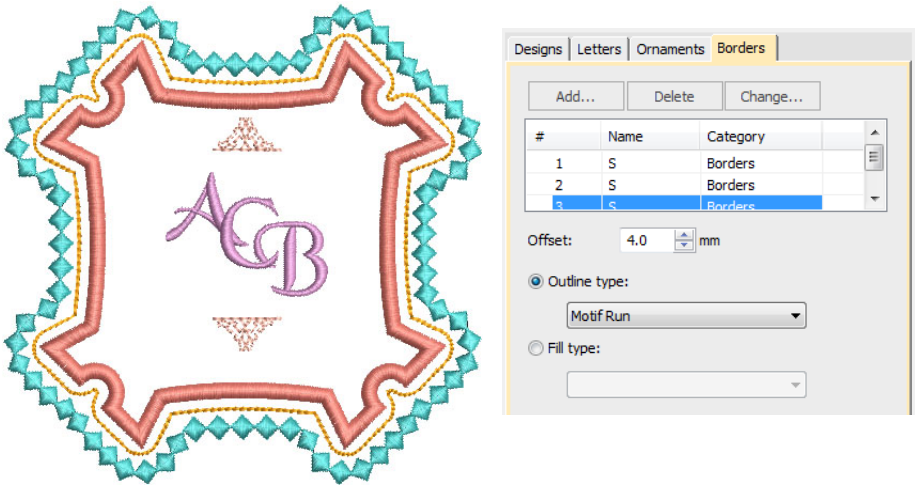


Use the **Rotate** field to re-orientate the border as desired.

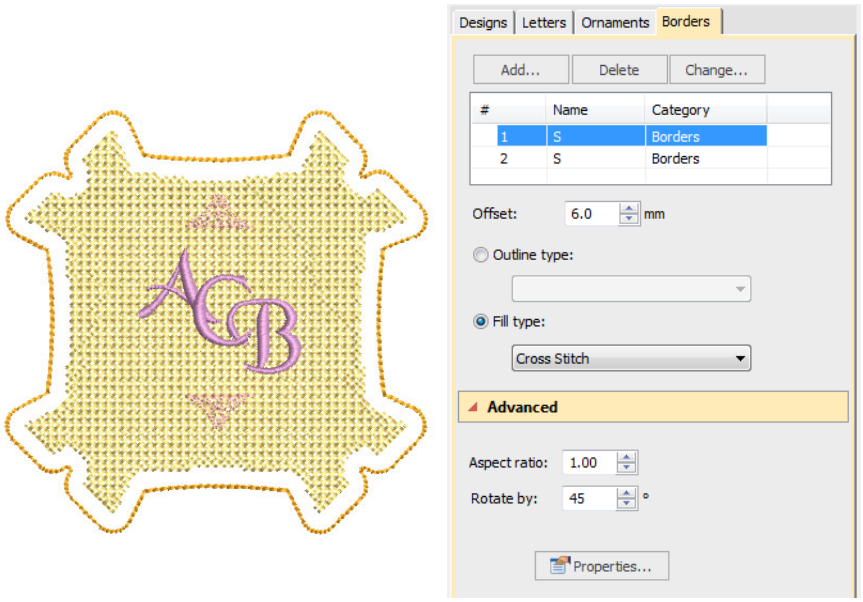


Add multiple borders

Add up to four borders to the selected monogram. Use the **Offset** field to adjust margins between multiple borders. The software lets you enter a negative offset. This allows you to create multiple overlapping borders.



Use the **Stitch Type** buttons to change to line or fill stitch type for selected borders. Satin Line is the default stitch type. All line and fill stitch types available in the software can be used as borders. Click the **Properties** button to make further adjustments.



Remember, if you want to recolor monogram elements, you can select them individually without breaking apart the monogram. Simply hold down **Alt** and click the object.

Chapter 28

Team Names

The **Team Names** feature lets you create designs with multiple names. For example, you can use the same logo with different names for sports teams or corporate uniforms, without having to create multiple copies of the same design. Depending on how you want to stitch out, you can choose to save and stitch names and designs separately, or together.



This section shows you how to set up teams and create teamname designs. It also describes how to modify teamname designs and output them in a variety of ways.

Creating simple teamname designs

Create simple teamname designs by keying names directly into the **Team Names** docker. Alternatively, import names from a tab-delimited text file. By default, teamname objects consist of a single baseline with three names. Add or remove name columns as desired.

Create teamname objects



Use Toolbox or Docker > Team Names to associate multiple names with a design.

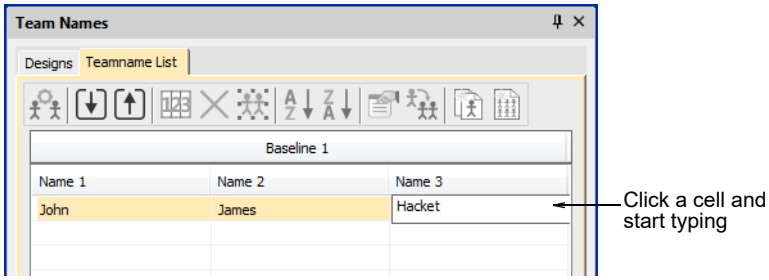
To associate team members with a design, you create a variable 'teamname object'. Either key in the names of the team members directly, or import from a list provided by the customer.

To create a teamname object...

1 Open the design you want to use.



2 Click the **Team Names** icon to access the docker. By default, the teamname object will consist of a single baseline with three names.



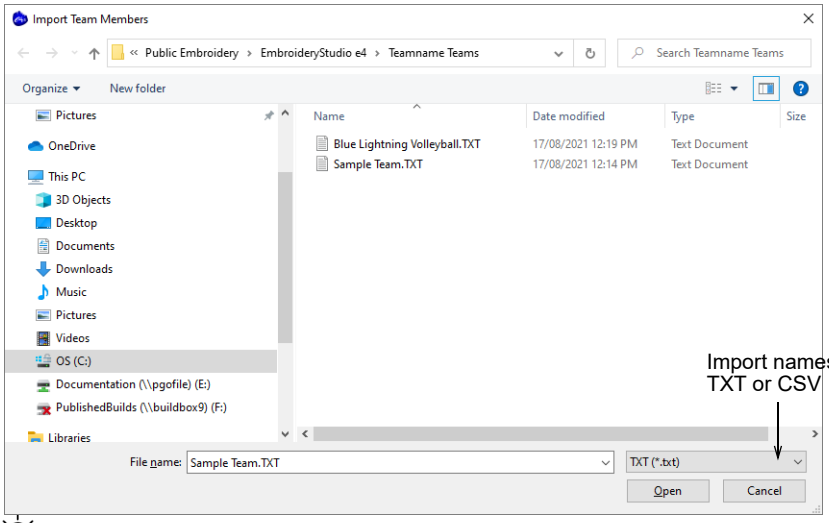
3 If you are happy with the default layout, simply click a cell and start typing. Press **Tab** or **Shift+Tab** to move back and forth through name fields.

4 Alternatively, use the **Teamname List** tools to add names, delete names, etc:

Tool	Function
Manage Teams	Manage teams and team members for future use. See below.
Import Team Members	Import or export a list of team members in either TXT or CSV format. Names must be comma delimited.
Export Team Members	
Name Order	Change default naming order or include/exclude names as required.

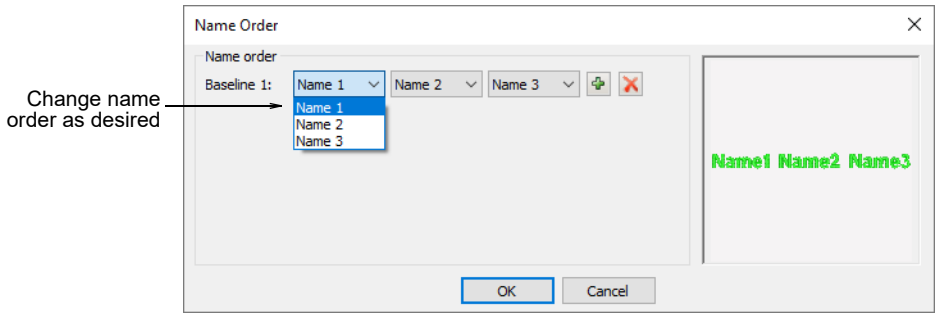
Tool		Function
	Remove Selected	Delete selected rows or the entire member list.
	Select All	Select all list members for modification or positioning.
	Sort Ascending	Sort a selected column in ascending or descending order.
	Sort Descending	

5 Optionally, click the **Import Team Members** button to import team members from a list possibly provided by the customer. The list must be comma delimited.

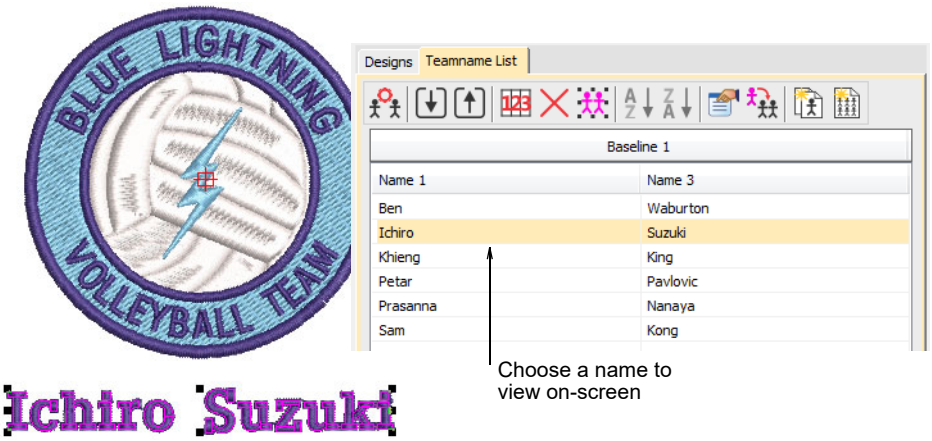


Tip: When you import a teamname list you can import it from anywhere. However, you cannot use the **Manage Teams** dialog effectively with it unless it is saved in the 'Teamname Teams' system folder. See Managing teams for details.

6 Click the **Name Order** button if you want to change the default naming order. Use it, for example, to put surnames first or limit which names are included – e.g first and third.



7 Click **OK** and enter reference points as prompted.



8 Select all names and select **Stitch > Generate Stitches** or press **G**.

9 Select names one-by-one to view them in the design.

Related topics...

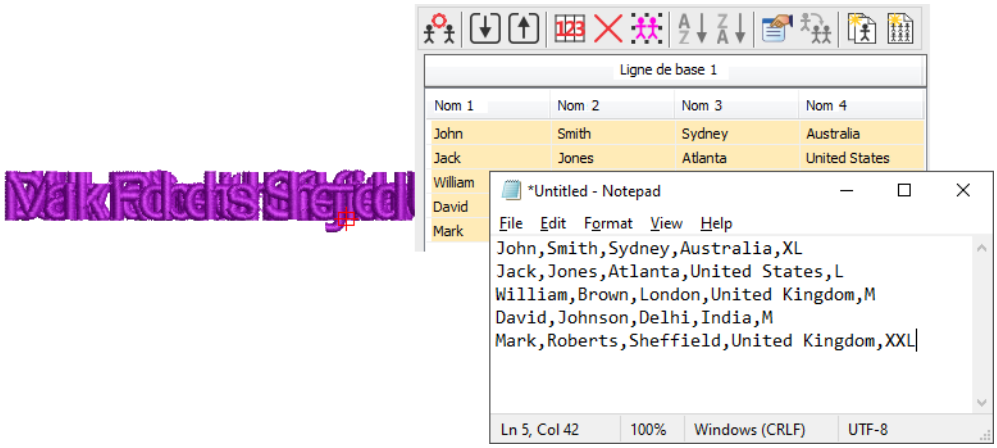
- Managing teams
- Teamname templates
- Apply baselines

Import teamname lists with additional fields

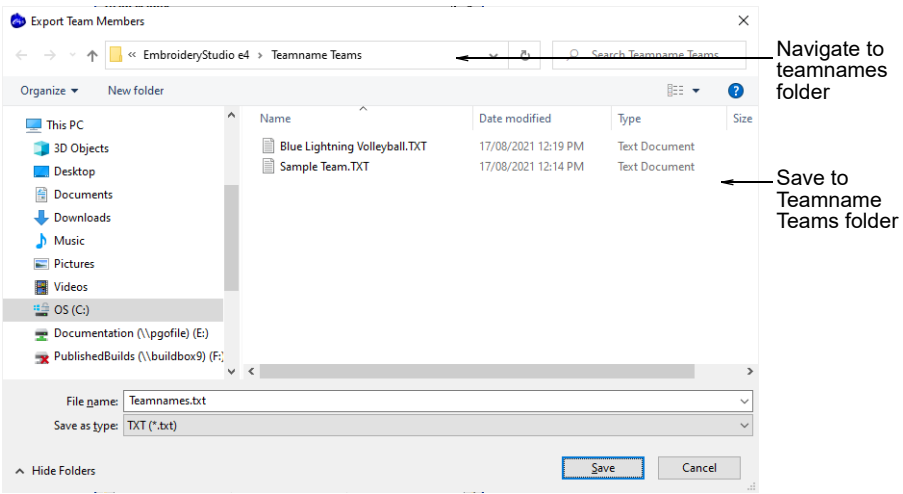
Use Team Names > Import Team Members to import a list of team members in either TXT or CSV format. Names must be comma delimited.

Use Team Names > Manage Teams to manage teams and team members for future use.

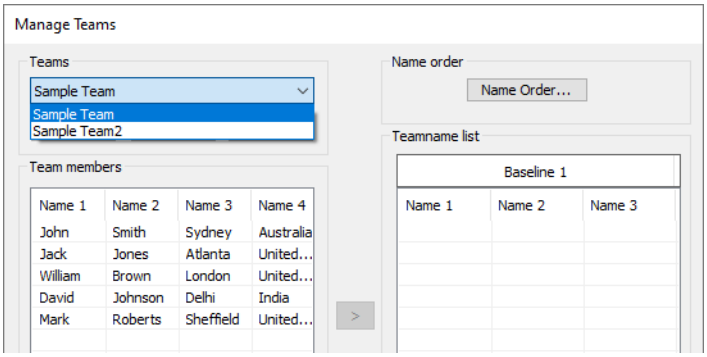
A ‘size’ field is often added to teamname lists even though it does not form part of the design. While the size field doesn’t appear in the design, it is added to each design name when generated. This allows machinists to ensure they are using the right size garment for the specified name.



To view size fields in the **Manage Teams** dialog, first save the teamname file in CSV or TXT format to the **Teamname Teams** folder as shown. Don’t use sub-folders.



Open the **Manage Teams** dialog and select the file name from the **Teams** droplist. All fields will be imported...



Teamname templates

The **Team Names** feature allows you to use predefined layouts or create your own. These layouts may consist of single or multiple baselines, each with one or more names.



Use templates with teamname designs

Use Toolbox or Docker > Team Names to select a layout for your teamname design.

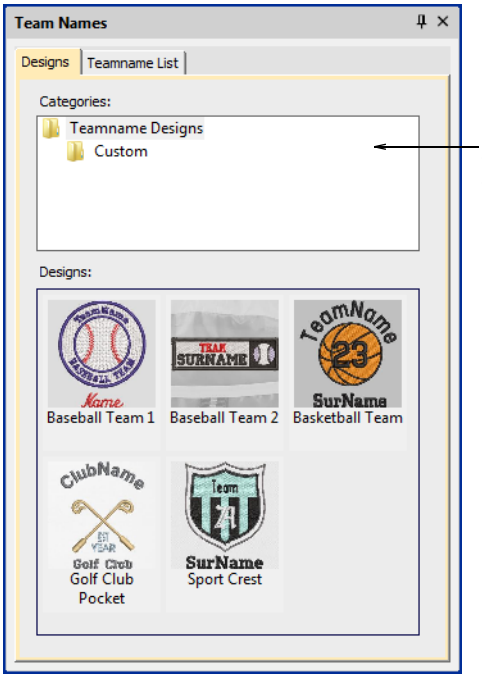
When creating teamname designs, you can use a preset layout or a custom layout based on artwork you may have received.

To use a template with a teamname design...

1 Open the design you want to use.

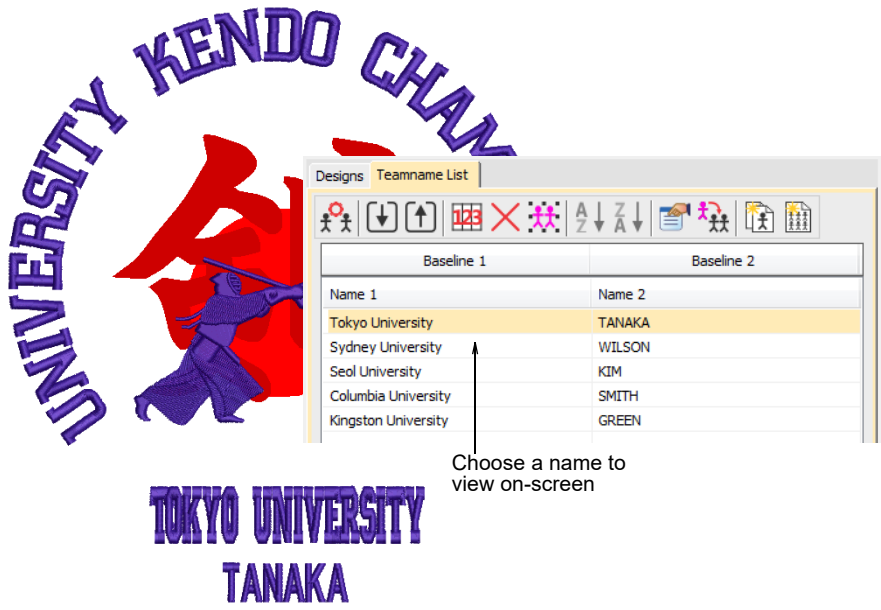


2 Click the **Team Names** icon to access the docker and choose the **Designs** tab. This tab includes template samples as well as any custom designs saved as teamname templates. These may contain more than one baseline.



3 Choose a template on which to base your intended layout.

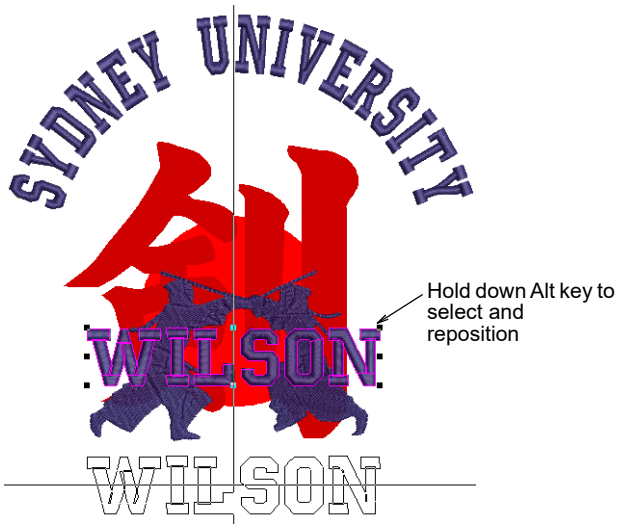
4 If you haven't already entered the names, switch to the **Teamname List** and key in or import the names to use. The sample below uses two sets of names on separate baselines.



5 Press **G** to generate stitching and use arrow keys to 'nudge' the lettering into position.

6 Use the **Teamname List** to select and view individual team members.

7 To reposition or modify a lettering object within a teamname object, first hold down the **Alt** key and click to select it.



8 Edit lettering object properties as desired.



Related topics...

- Select objects within groups
- Modifying teamname designs

Create custom templates

Typically, you will receive a brief and possibly artwork from a customer. Before you even import the names, you may prefer to mock up the design for approval purposes. This same design can then be saved as a teamname template.

To create a custom template...

1 Import any artwork needed for your template.

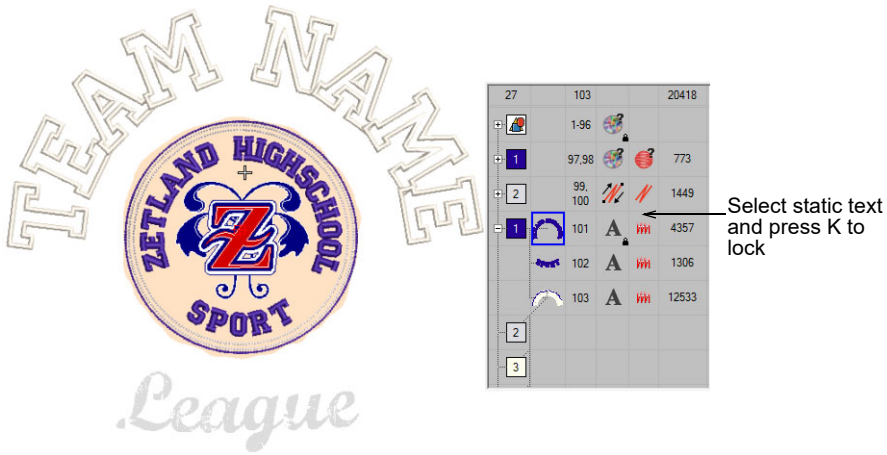


2 Add any lettering elements you want to use. Include any 'static' elements which won't change in the eventual teamname design.

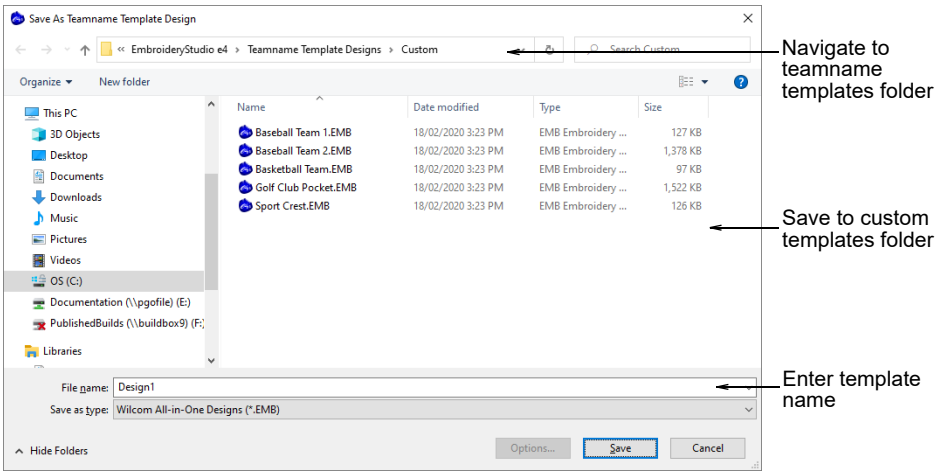
3 Optionally, give generic names to any text which will form part of the eventual teamname design – 'TEAM NAME'.



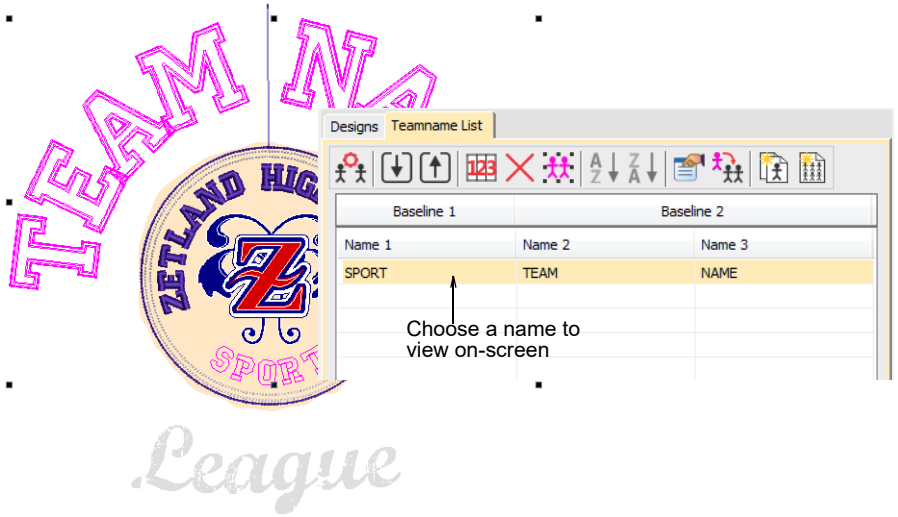
4 Select any lettering that is to remain static – e.g. 'Zetland Highshool' – and lock by pressing the **K** shortcut. When the template is opened, the locked text will be excluded from the teamname object.



5 Select **File > Save As Teamname Template**, enter a name for the layout – e.g. 'Zetland High' – and click **OK**. The dialog opens onto the **Custom** teamname templates folder. When you save here, the design will appear in the **Designs** tab under the **Custom** folder.



6 To test your template, open a new design tab and click the **Team Names** icon to access the docker. Go to **Designs > Custom** to locate your template. Once opened, the unlocked text will be interpreted as a teamname object.



7 Edit the text as you would any other teamname template.

Related topics...

- Creating simple teamname designs
- Use templates with teamname designs

Modifying teamname designs

Use Toolbox > Team Names to add/remove team members and edit individual names.

Right-click Toolbox > Lettering to edit lettering on-screen.

You can preview individual team names as they will be stitched out. Add or delete names, sort teamname lists, and change properties of team members. Set properties such as font, size or color for each name. You can also set properties for an entire column of names.



To modify a teamname design...

1 Open a teamname design and click the **Team Names** icon. By default all names are selected.

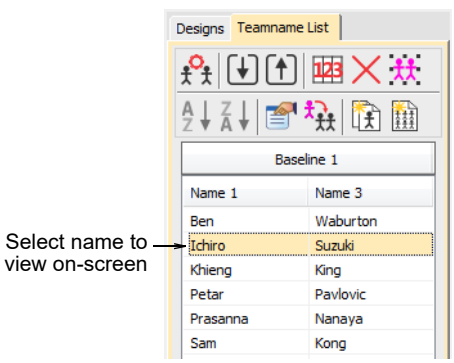


2 Adjust positioning of the teamname group as desired.



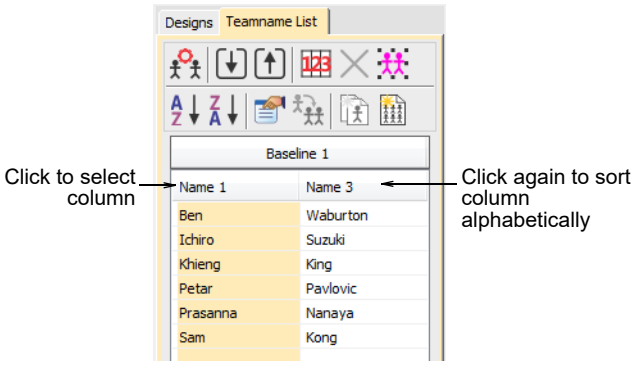
3 View team names in any of the following ways:

- Select a name.
- Use arrows keys to scroll up and down the list to view each name in turn.

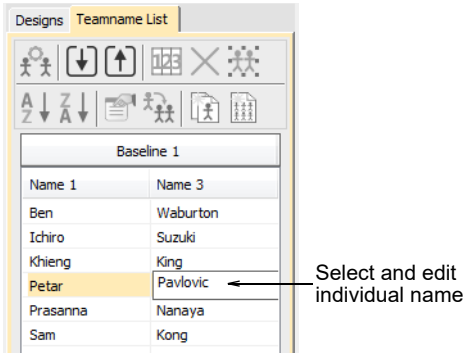




4 Click list header to select a column of names – use **Sort** buttons to sort lists in ascending or descending alphabetical order.



5 Click a cell to select an individual name in the **Teamname List**.



6 Edit selected names on-screen as you would any other lettering object – e.g. adjust letter kerning.

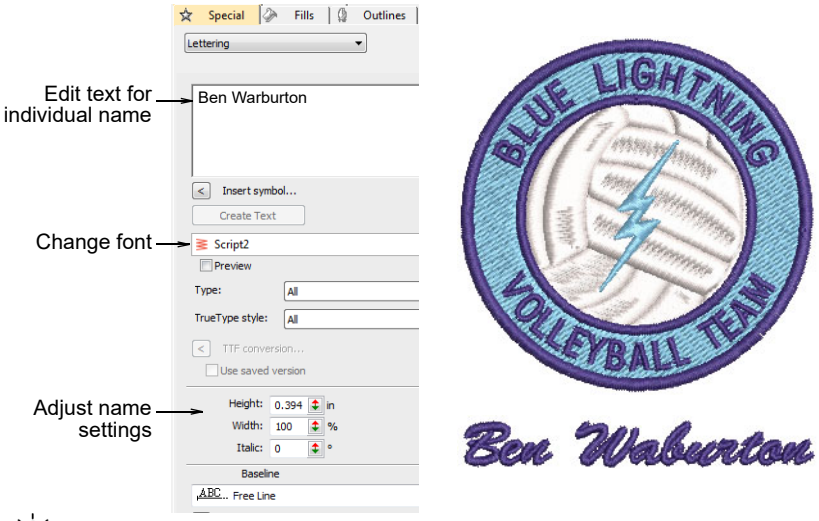
7 Adjust lettering baselines as you would any other lettering object. For example, select an 'auto-frame' style for fixed line baselines.

8 Use the **Teamname List** tools to add names, delete names, change properties, as required:

Tool	Function
Manage Teams	Manage teams and team members for future use.
Remove	Delete selected rows or the entire member list.
Select All	Select all list members for modification or positioning.
Sort Ascending	Sort a selected column in ascending or descending order.
Sort Descending	

Tool		Function
	Object Properties	Edit properties of selected rows, columns or all list members.
	Apply to All	Copy one team member's properties to all members.
	Create Designs	Create individual designs for each member.
	Teamname Matrix	Create a matrix of all teamname designs, sequenced for efficient stitchout. See below.

9 To view and/or edit member properties, click **Object Properties**.



Tip: By default a space is inserted between names. To remove this space, set the **Word Spacing** value in the **Layout** dialog to 0%.

Related topics...

- Creating simple teamname designs
- Adjust spacing settings
- Editing Embroidery Lettering
- Adjust fixed-width baseline settings

Managing teams

Use Toolbox or Docker > Team Names to associate multiple names with a design.

Use Team Names > Export Team Members to export a list of team members in either TXT or CSV format.

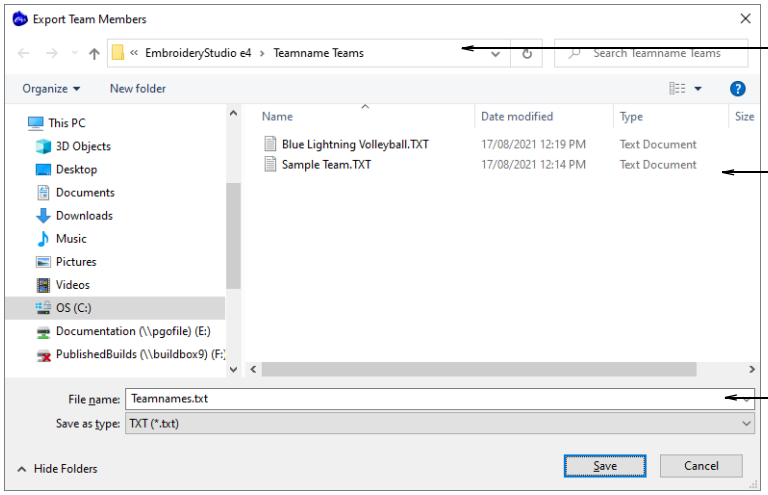
Use Team Names > Manage Teams to manage teams and team members for future use.

A teamname object may contain all names in a given team, or a subset of those names. You can even combine members from different teams.

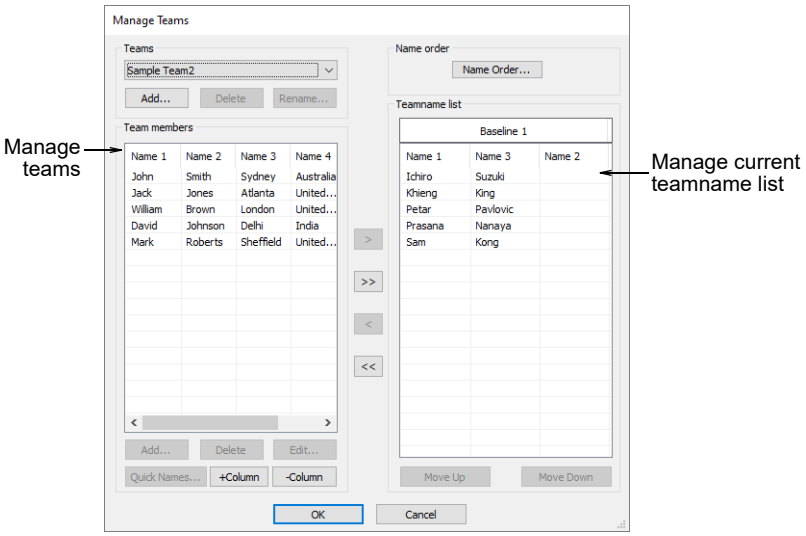
To manage teams...

1 Open a teamname design and click the **Team Names** icon. By default all names are selected.

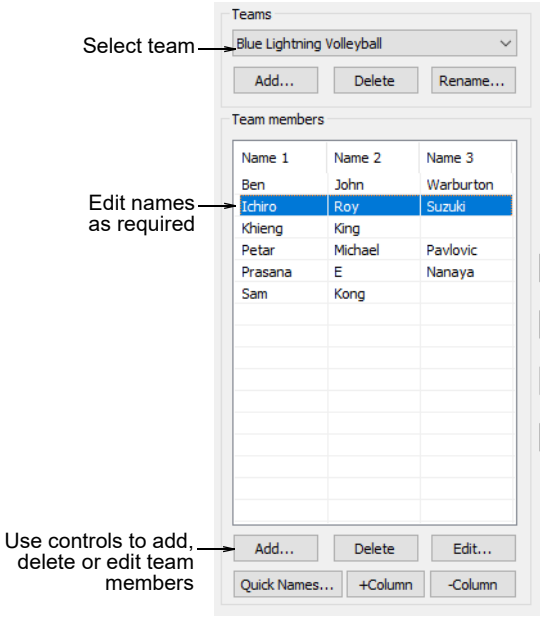
2 To save a team for future use, click the **Export Team Members** icon in the **Teamname List**. The dialog will open onto a public folder containing all your teams – a single file, either TXT or CSV, for each team.



3 Click the **Manage Teams** icon to access the dialog. The **Team Members** panel will default to the last opened team.



4 To view the team you have just exported, select from the **Teams** droplist.



5 Use the **+Column** or **-Column** buttons to establish the number of names for each team member – the default is three (3).

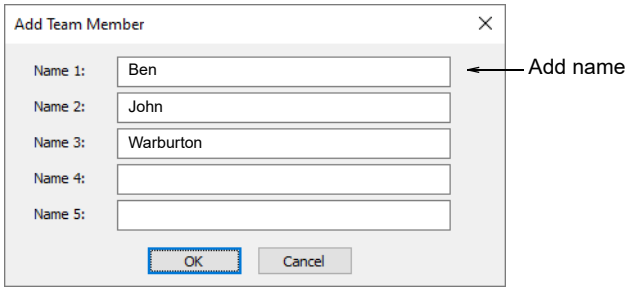
6 Select names to associate with the design. To select multiple names, hold down **Ctrl** or **Shift** as you select.

To edit teams...

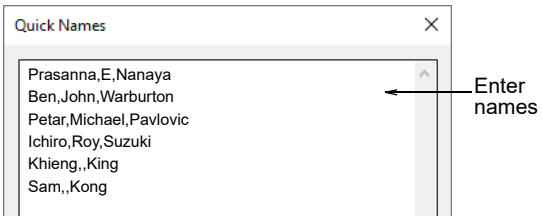
1 Edit the list as necessary by means of **Delete** and **Edit** buttons.

2 Add team members one-by-one or as a group:

- To add a single name, click **Add** in the **Team Members** panel.



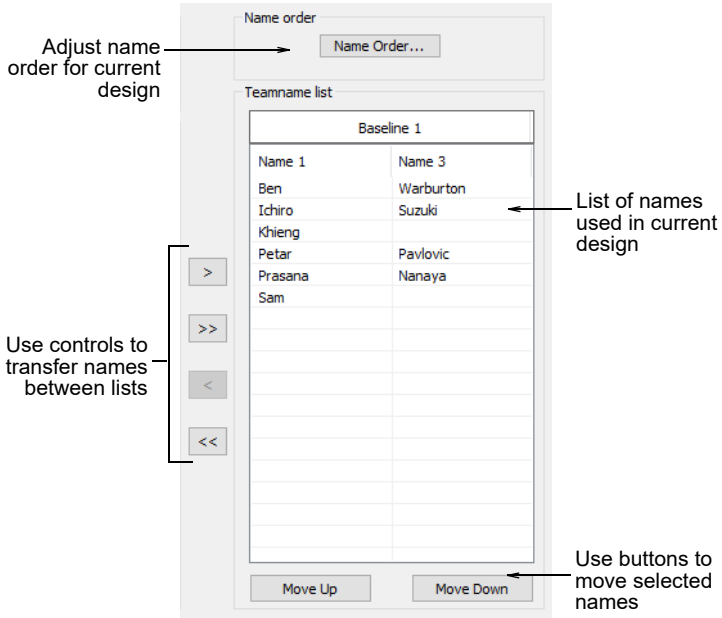
- To add a group of names, click **Quick Names**. Enter names in the format **Name 1, Name 2, Name 3**.



Tip: You can type in the names, or paste them in from a text file. Each name must be separated by a comma. There is no need for a space.

3 Click **OK**. The new names are added to the **Team Members** list.

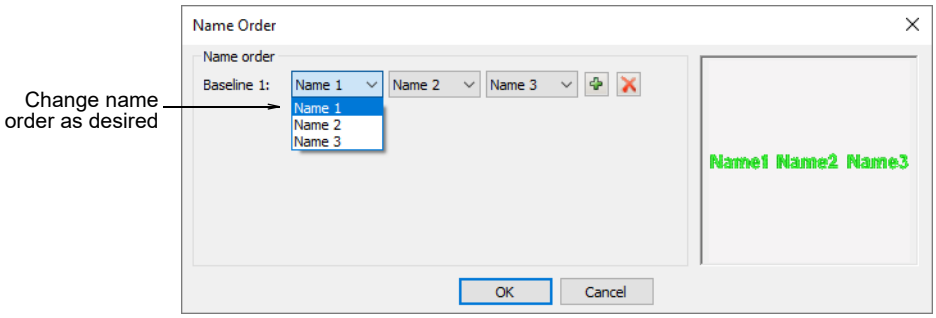
4 Transfer names, selectively or all together, to the **Teamname list** using the arrow buttons. You can even transfer names from different teams to the same list.



5 Edit the list as desired:

- Sort names alphabetically by column.
- Sequence names – this will determine their stitching order.
- Remove names from the list.

6 Click the **Name Order** button if you want to change the default naming order. Use it, for example, to put surnames first or limit which names are included – e.g first and third.



Teamname production

You can create individual designs from each name in a teamname design. Alternatively, you can create a matrix of names optimized for batch stitching.



For output, you can generate machine files consisting of:

- Both design and names
- Design in one file and names in another, or
- Design and names in individual files.

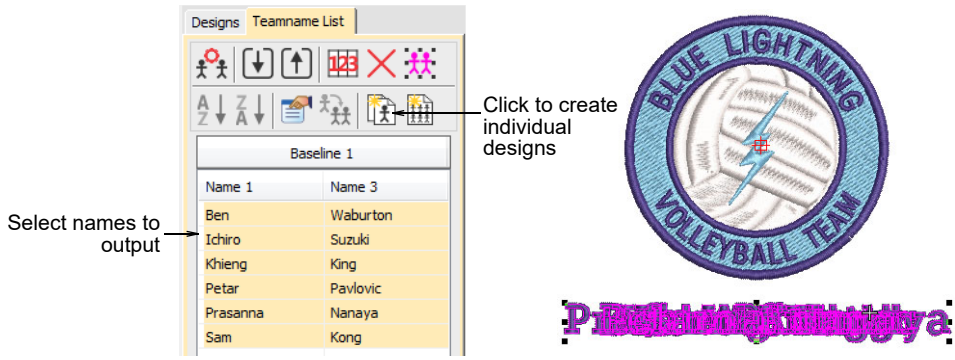
Create separate designs

Use Toolbox or Docker > Team Names to add/remove team members and edit individual names.

You can create individual designs from each name in a teamname design.

To create separate designs...

1 Open a design and click the **Team Names** icon. By default all member names are selected.



2 Select names to output – click **Select All** or use **Ctrl** and **Shift** keys to selectively choose.

3 To create individual embroidery designs for each team member, click **Create Designs**. Designs are generated for each name. The name is now a normal lettering object.

4 Save each design out individually.

Create a matrix of designs



Use Team Names docker > Teamname Matrix to automatically create a matrix of all names in a teamname object together with their corresponding design.

The **Teamname Matrix** function allows you to create a matrix of names optimized for batch stitching. Minimize the number of color changes created by the matrix operation.

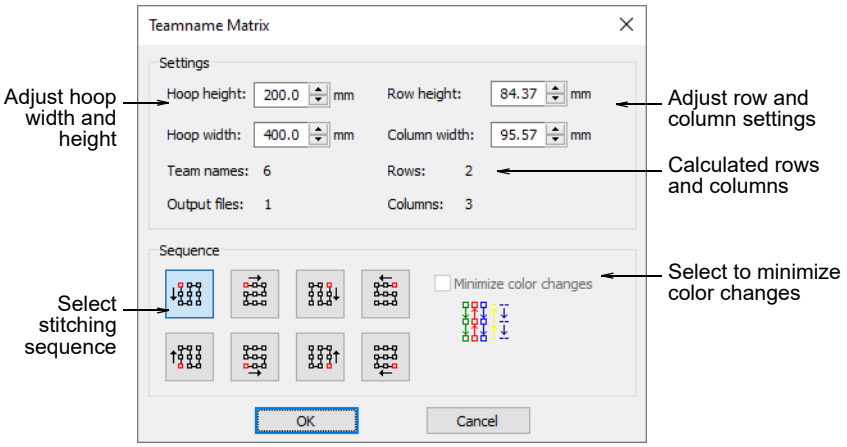
To create a matrix of designs...

1 Open a teamname design.



2 Select everything you want to include and click the **Teamname Matrix** icon in the **Teamname List** tools.

The number of rows and columns in the matrix are automatically calculated according to number of team names, row and column height settings, and the physical area of the hoop. More than one hooping may be calculated.



3 Adjust height and width settings to match the intended hoop.

4 Adjust row height and column width to set the gap for most efficient stitchout.

Increase settings if you want to enlarge the gap between designs. Calculated fields are updated, including number of rows/columns and output files.

5 Select a **Sequence** option. Each option indicates a possible stitching sequence for the entire matrix.

6 Optionally, select the **Minimize Color Changes** checkbox. When selected, the entire matrix is resequenced by color.



7 Click **OK**. A new file is created containing the number of team names that will fit into the specified hoop – i.e. number of rows multiplied by number of columns. If needed, another file is created to accommodate

additional names. The **Output Files** field indicates the total number of files.

Output teamname designs

When you output a teamname design, you need to define how it is to be generated as a machine file. You can generate files that include:

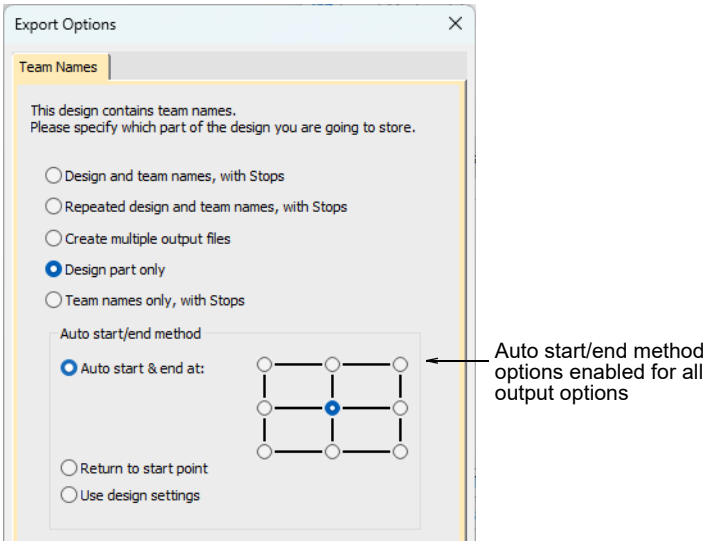
- Both design and names in a single file
- Design in one file and names in another, or
- Individual files for each name plus design.

You set these options whenever you save the file in machine format or output directly to machine.

Access output options

You access the **Export Options > Team Names** dialog in any of these ways:

- Select **File > Export Machine File**, choose a machine file format – e.g. DST – from the **Save as type** droplist, and click **Options**.
- Select **File > Record in Database**, choose a machine file format – e.g. DST – from the **Save as type** droplist, and click **Options**.
- Select **Legacy Features > Disk > Save As > Options**.
- Select **Legacy Features > Send to Machine Manager > Options**.
- Select **Legacy Features > Send to Stitch Manager > Options**.
- Select **File > Send to Connection Manager > Options**.



Output options

The following output options are available to you:

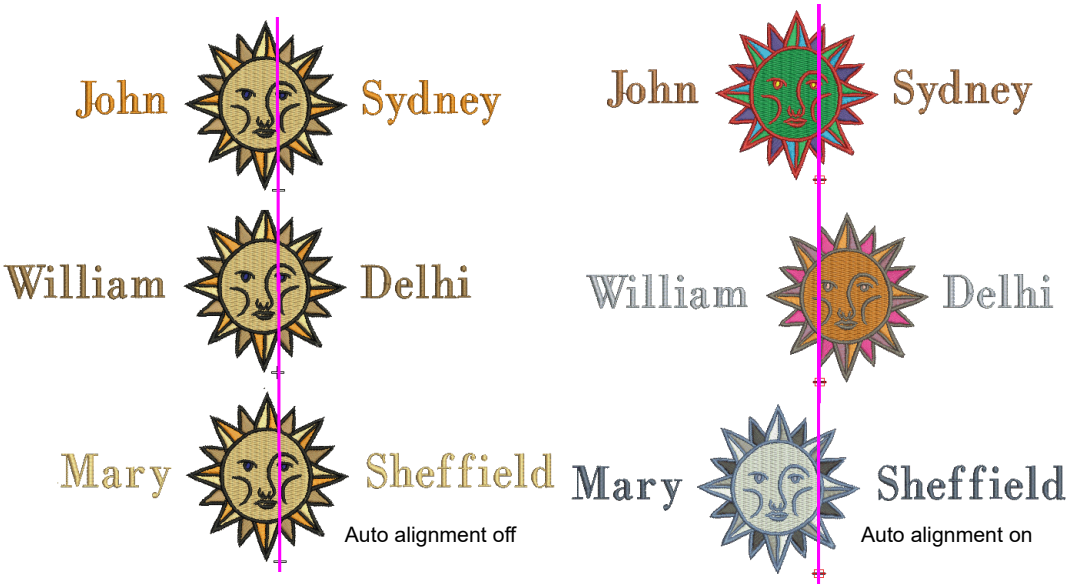
Option	Function
Design and team names, with Stops	Creates a single machine file including one copy of the design and all names. Stops are inserted after the design, and between the names – i.e. Design Stop TeamMember1 Stop TeamMember2 Stop, etc.
Repeated design and team names, with Stops	Creates a single machine file with multiple copies of the design, and all names. Stops are inserted after each static design/name combination – e.g. Design + TeamMember1 Stop Design + TeamMember2 Stop.
Create multiple output files	Creates separate files for each name, each of which includes a copy of the static part of the design. When stitching to ES Machine Manager, each file is queued separately.
Design part only	Creates a file containing only the static part of the design.
Team names only, with Stops	Creates a single file containing only the names, separated by stops. This means that after each machine stop, you can change frames.

Start/end methods

The **Auto Start/End** method is available to specify first and last stitches in a design. This makes it easy to position the needle before stitching, and reduces the chance of the needle hitting the side of the frame. If you choose 'Design part only' or 'Team names only', these settings relate to those items only.

Method	Description
Auto start & end at	If you have not set explicit start and end points before exporting, Auto Start and End is selected by default, defaulting to Center-Center.
Return to start point	Creates a connecting stitch from the end point to the start point.
Use design settings	If you have set explicit start and end points before exporting, this option is selected by default.

Problems arise when you try to set a common start and end point for team names.



Teamname designs, however, can be stitched in a consistent location on the garment irrespective of name length. Select either output option:

- 'Repeated design and team names, with Stops', or
- 'Team names only, with Stops'.

And select one of the nine **Auto Start and End** preset end points.

Note: The purpose of auto-alignment is to allow 'name frame' layouts and optional repeated designs to be stitched in a consistent location on the garment where names are of varying lengths.

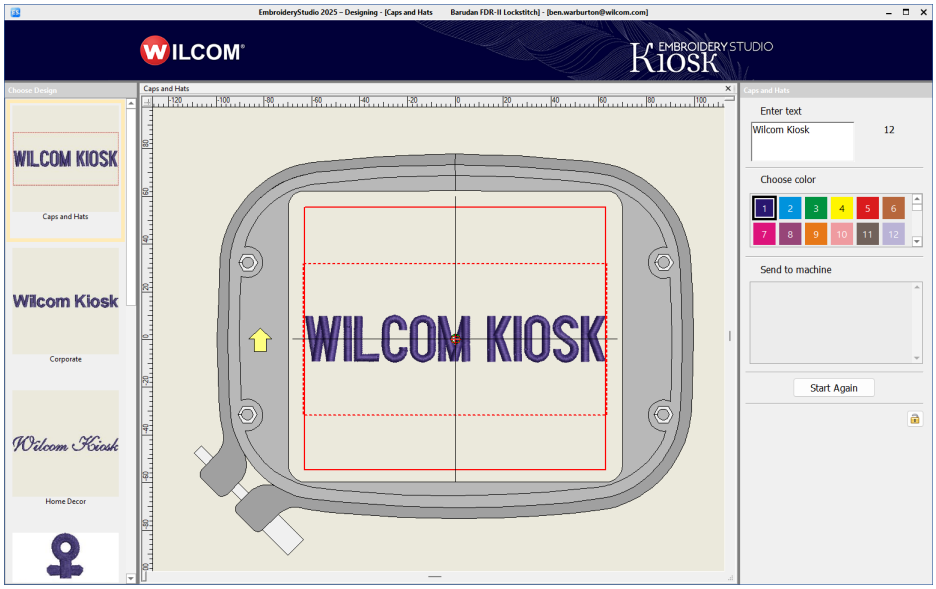
Related topics...

- Start & end points
- Send designs to Stitch Manager

Chapter 29

Lettering Kiosk

BE EmbroideryStudio provides a **Kiosk** capability for cap and other embroidery. The lettering kiosk is primarily intended for use at retail outlets where fast and simple personalization of standard design layouts is required in consultation with customers.



The benefits to retail staff are:

- Minimal training time
- Minimal production errors
- Improved customer satisfaction
- Increased productivity
- Easy configuration for changing requirements
- Support for several brands of machine
- Simplicity of kiosk mode together with full embroidery lettering capabilities for supervisors.

The lettering kiosk provides a set of predefined design layouts and the ability to easily personalize them by modifying text and color. You can

create your own layouts as well. Designs can be sent to machine from the kiosk via a single button press.

Operations summary

Here are some steps to get you up-and-running quickly with the lettering kiosk.

Configure the kiosk settings

1. Run the BE EmbroideryStudio software:
   - You need the Kiosk Element enabled.
   - There is no special setting required for kiosk mode.
2. Configure the kiosk design layouts:
   - Located here...

     `C:\Program Files\Wilcom\<ProductName>\Kiosk\Designs`
   - Set palette colors in the design layouts to match the thread colors and needle assignments used on your machines. See Set up thread colors for details.
   - Check the fonts and stitch settings being used.
3. Configure the machine connections for the kiosk:
   - Select **Setup > Connection Manager Setup**.
4. Configure the kiosk password:
   - Select **Setup > Options > Kiosk**.
   - Enable 'Lock Kiosk'.
   - Set a password.
5. Configure character count limits. See Configure kiosk character count limits for details.

Switch to and from kiosk mode

1. To switch to kiosk mode, select menu command **Window > Kiosk...**
2. Type the kiosk password to enter into kiosk mode.
3. To close the application while in kiosk mode, click on the red **X** button in upper right corner.

   When you restart BE EmbroideryStudio, it will automatically re-start in kiosk mode directly.
4. To return to the BE EmbroideryStudio screen, click **Exit Kiosk** and key in the password if prompted.

Operate the software in kiosk mode

1. Select a layout from the design chooser.

2. Key in a name. Lettering adjusts to fit the allowed space. By default, a maximum of 16 characters is allowed. See Configure kiosk character count limits for details.
3. Change fonts by selecting a different design layout.
4. Select a thread color.
5. When finished, click a button to send the design to the machine:
   - Stitching starts and ends at the bottom center of the allowable embroidery area.
   - The design is auto-rotated 180° for the machine, according to connection settings. See Set up machine connections for details.
   - A machine file is created and sent to the folder set in the **Connection Settings** dialog.
   - The file name uses the text to be embroidered.
6. Click **Start Again** for the next name.

Operating modes

The **Lettering Kiosk** has all the capabilities and functionality of a commercial kiosk system together with BE EmbroideryStudio embroidery functionality.

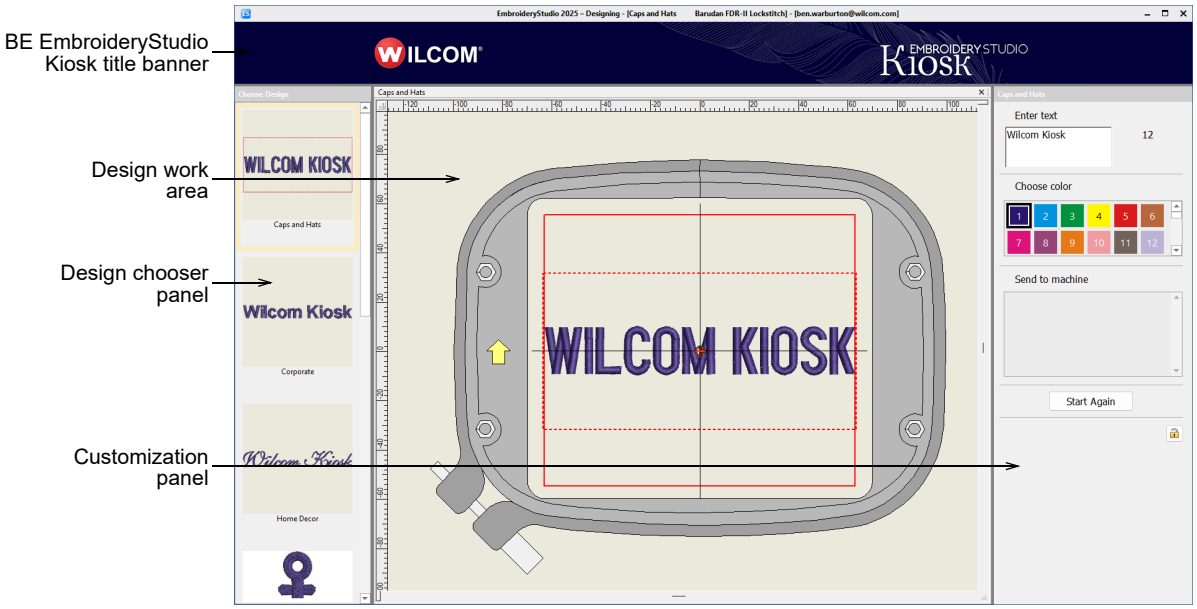
Screen modes

In **Wilcom Workspace** mode, supervisors can use the full range of software capabilities to fine-tune settings. All adjustments can be saved to a layout ready for use when the software is run in kiosk mode. Onscreen help is available via the **Help** menu.



Kiosk screen mode

A password configuration setting allows supervisors to bypass the BE EmbroideryStudio screen and run the software in kiosk mode by default. Operators normally work in this screen and never need to leave it. In fact, they cannot exit without, optionally, a supervisor password.



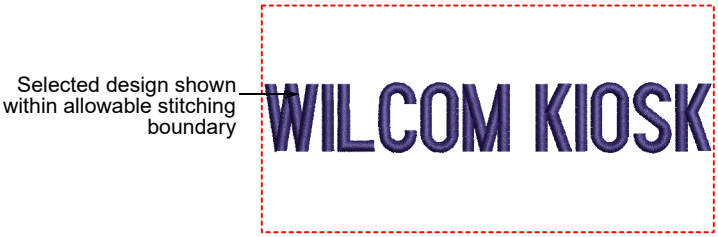
Kiosk mode includes a 56-color default palette together with a number of packaged designs. However, in practice you will want to limit the palette to the colors available on your machines. The screen is divided into three functional areas apart from the banner at the top.

Choose design panel

The **Choose Design** panel is positioned on the left side. It contains a set of predefined design layouts to choose from. It is easily extensible with other supervisor-created designs.

Working design area

A working design area in the middle is optimized for 1366 x 768 resolution. It includes a dotted line indicating the maximum stitching boundary.



Customization panel

The customization panel on the right allows the operator to easily customize designs by changing color and text of the selected layout. The supervisor can pre-configure the number and values of standard colors to match the thread color setup on the machines. Custom designs can be sent to one of several attached embroidery machines.

Send to machine

Machines are pre-configured by the supervisor – typically up to 6. Color-coded buttons easily identify machine by number and machine name. The supervisor can set color-coded icons for each machine brand. For example:

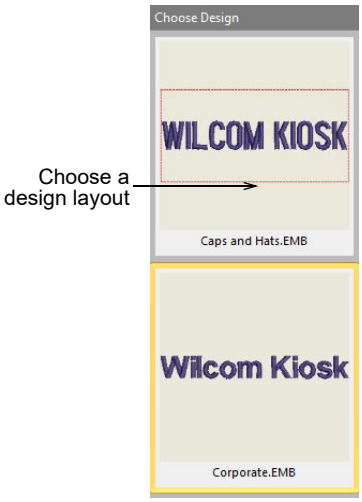
- Brother - Cyan
- Barudan - Navy Blue
- SWF - Red

Normal Kiosk operation

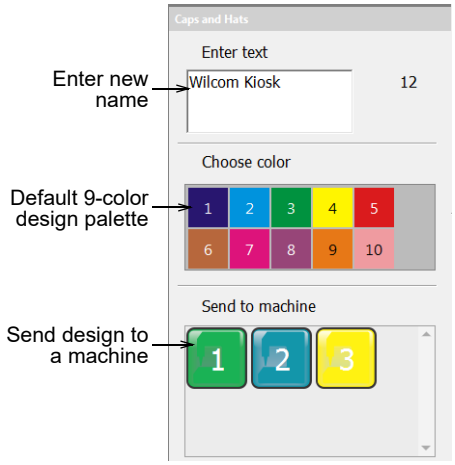
Once in kiosk mode, typical operation will flow as follows.

To operate the kiosk...

1 Choose a design layout from prepared layouts in the left panel.



2 Enter a new name in the text field and press **Enter**.



This text automatically replaces default text. By default, a maximum of 16 characters is allowed.



3 Click in design window and zoom in / out by the following means:
- Press **1** for actual size.
- Press **0** to show all.
- Use the mouse scroll wheel to zoom.
- Click **Start Again** to return to default view.

4 Choose a thread color from the list of available colors.

You can switch layouts and colors as desired and text will be preserved.



5 When you are satisfied with the design, press a **Send to Machine** button. A separate button is present for each machine configured on the system.

6 Press **Start Again** to create another design. The current design is automatically saved to the watching folder with a filename equal to text name.

Note: If the operator does not press **Start Again** but instead selects a new design layout, the new design overrides the current one, preserving any typed text.

7 To exit kiosk mode altogether, press the lock icon. Normally you are prompted for a supervisor password.

Related topics...

- Set up machine connections
- Configuration options for supervisors

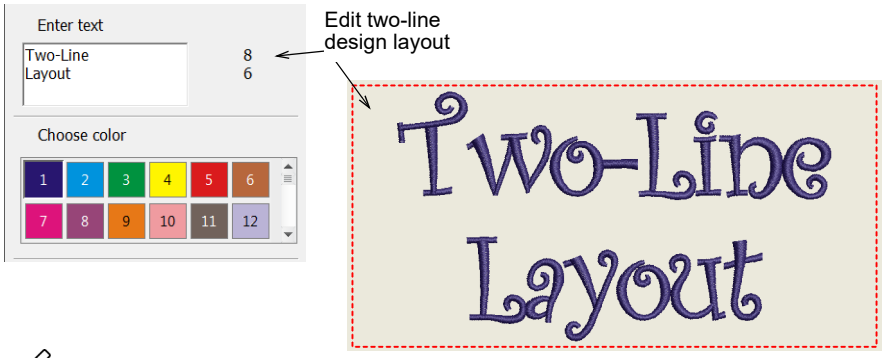
Troubleshooting long descenders

Some characters may extend slightly beyond the allowable stitching area. This usually happens with script fonts or characters with long descenders or ascenders such as the 'k' in this example. This problem is easily fixed by adding a space after the final character.



Creating two-line lettering

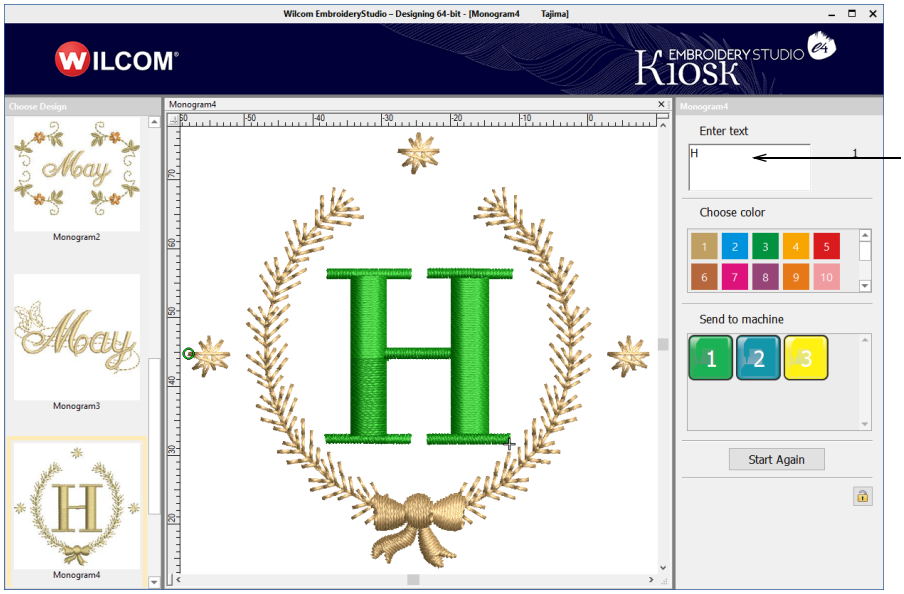
Kiosk mode allows two-lines of text to be entered and edited. The text box in the control panel supports single- or multi-lines depending on the selected layout. Two-line layouts need to be predefined and saved to the designs folder. When using a multi-line layout, the first **Enter** keypress will create another line. The next will confirm text entry as for a single-line layout.



Note: If you switch design layouts, the system will attempt to preserve user-entered text between single- and multi- line designs. For example, switching from single to double, the original line of text will be copied to the first line. The second will be empty.

Personalizing monograms

The lettering kiosk also supports customization of monogram objects. Only text can be changed in **Kiosk** mode. Monogram templates can be created and added to the kiosk.



Configuration options for supervisors

When first running BE EmbroideryStudio 2025, supervisors have access to BE EmbroideryStudio operations. In this mode, they can use the full range of software capabilities to fine-tune settings. Primarily, supervisors are concerned with:

- Creating a password for the kiosk
- Setting up machine connections
- Setting up thread colors
- Configure kiosk character count limits

Create kiosk passwords

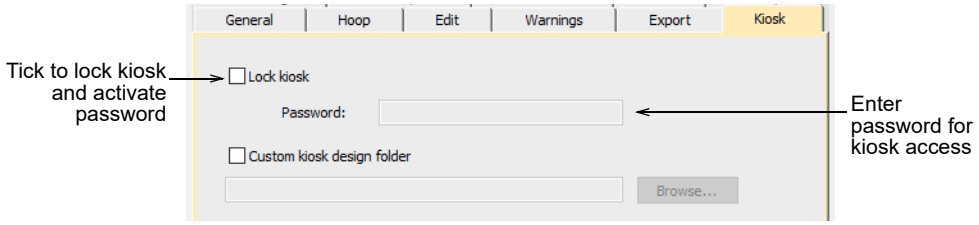


Use Standard > Options to access application options for kiosk and other settings.

Supervisors can lock the kiosk to protect against unauthorized use. They can later temporarily unlock the kiosk in order to edit designs or change other settings.

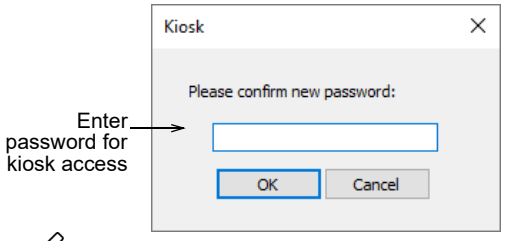
To create a password for the kiosk...

1 Click the **Options** icon or select **Setup > Options**. Click the **Kiosk** tab.

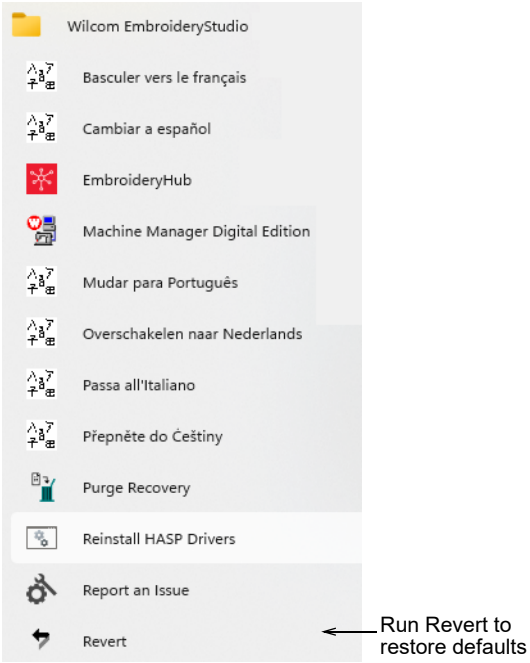


2 Enter a secure password and click **OK**.

3 Select **Window > Kiosk** start the kiosk. You will be prompted to enter the password.



Note: You can return to **Options** dialog at any time to change or remove password protection. If you forget the password, you will need to run the Revert program from the BE EmbroideryStudio program group to restore factory defaults.



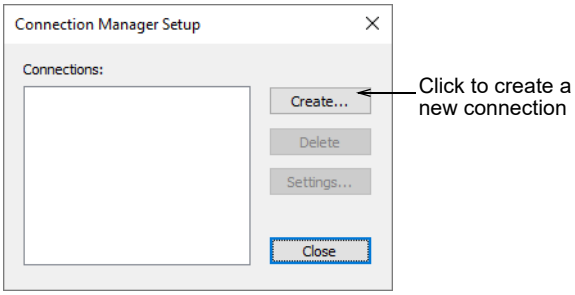
Set up machine connections

Connection Manager allows you to connect to most later model machines. These machines often require files to be placed in a specific network location or 'watching folder'. Once set up in BE EmbroideryStudio, a single click from the kiosk is sufficient to send the design to machine. Each configured machine:

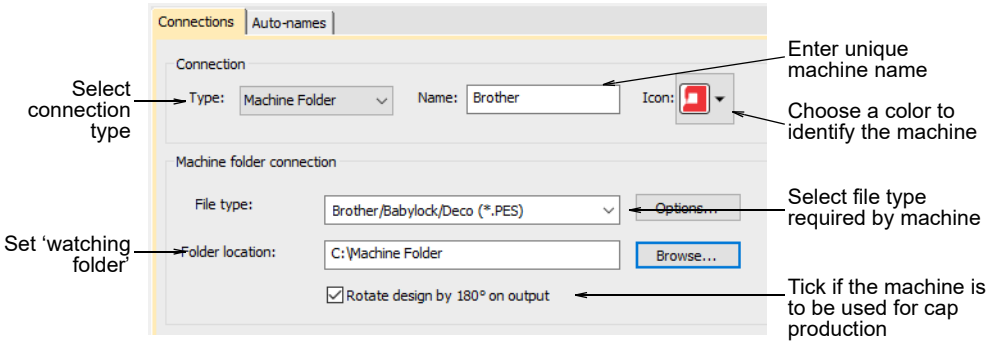
- has a unique name and assigned button
- has a unique folder to which designs can be sent so they can be accessed from the machine control panel or third-party connection software.

To set up machine connections...

1 Select **Setup > Connection Manager Setup**.



2 Click **Create** to set up a connection. The **Connection Settings** dialog opens.



3 Make sure the connection type is set to 'Machine Folder'. Watching folders should already have been set up for each machine on the network.

4 Enter a unique machine name – e.g. 'Brother PR600 Mach 1'.

5 Choose a colored icon from the droplist to identify the machine in kiosk mode.

6 Select the file type required by the machine. Each machine type uses a different file format:

Machine	Format
Brother	PES
SWF	DST
Barudan	U??

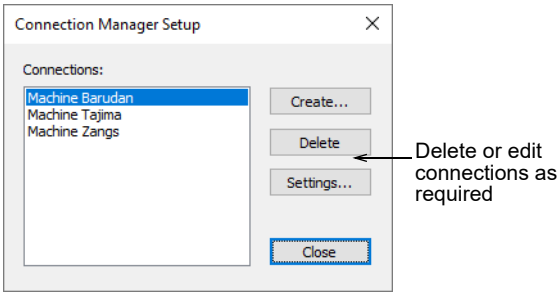
7 If the file type requires it – e.g. PES – click the **Options** button to preset file options such as version type.

8 Enter or browse to a folder location on the network or PC which has been set up for the specific machine. When you output a design, **Connection Manager** saves it to this folder in the specified file format.

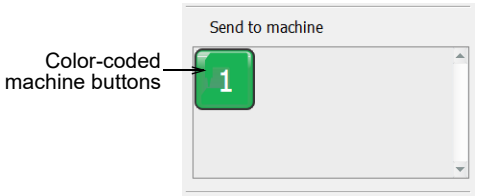
9 If the machine is intended for cap designs, tick the **Rotate design by 180°** option.

10 Click **OK** when complete.

11 Repeat as many times as you have machines to connect. Connections can be edited or removed at any time.



New machine connections appear as prominent buttons in the customization panel of the kiosk.



Set up thread colors



Use Standard > Open to open an existing design.

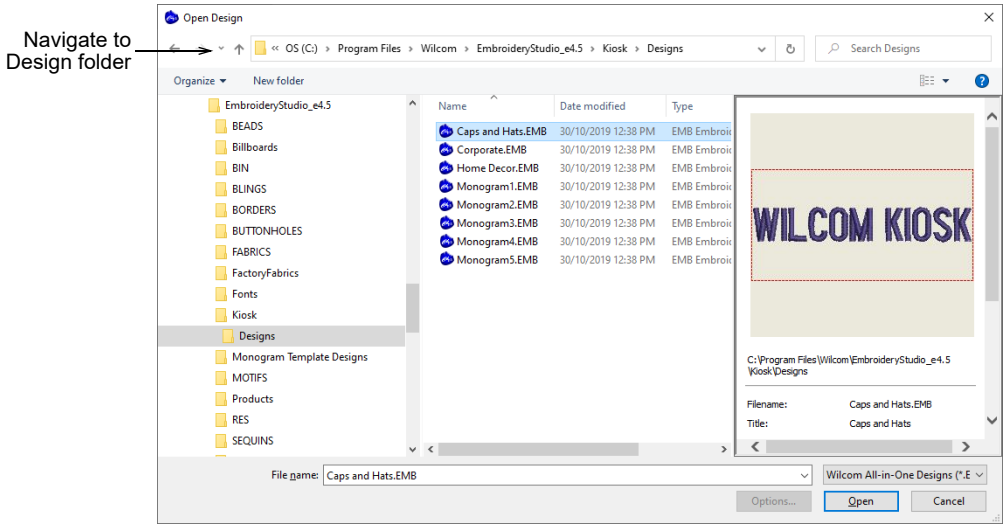


Use Standard > Save Design to save the current design. Right-click to open the Save As dialog.

Thread colors are set up for each design layout. All three sample designs need to be edited according to the requirements of your machine setups.

To set up thread colors...

1 Click the **Open** icon. The **Open Design** dialog opens.



2 Navigate to the **Designs** folder of your BE EmbroideryStudio 2025 installation:

`C:\Program Files\Wilcom\<ProductName>\Kiosk\Designs`

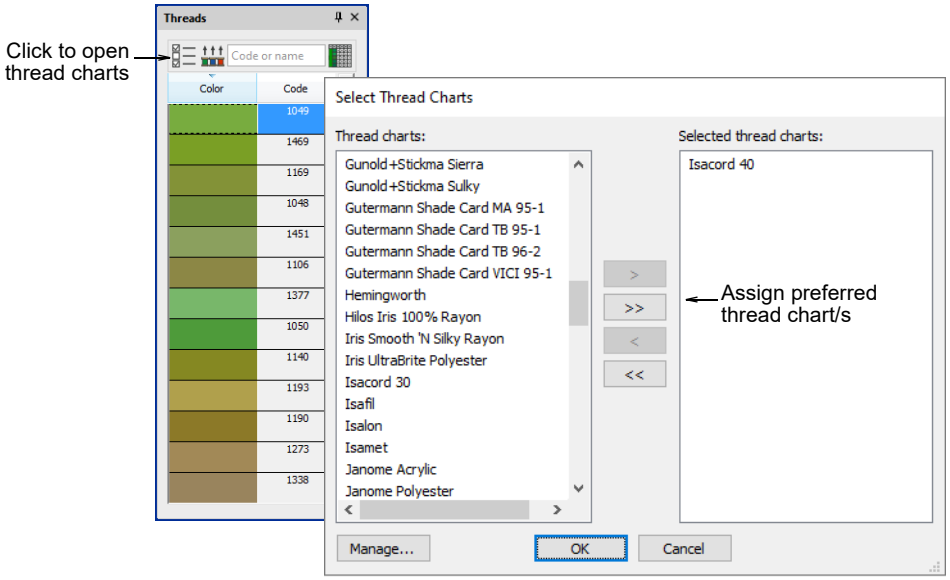
Alternatively, specify your own folder.

3 Select a design to edit and click **Open**.

4 Use the **Color Palette** tools to add or remove colors according to the thread setup on your machine/s.



5 Open the **Threads** docker and select your thread chart.



6 Assign threads to the palette with the **Match All** button. Alternatively, select threads corresponding to the thread setup on your machine, and assign these. The design layout defaults to the first color in the palette. The tooltip tells you the corresponding thread of each color.



7 Click **Save** to save the file in the design folder. The modified palette for this design will appear in the kiosk when you next run it.

Related topics...

- Change design location

Configure kiosk character count limits

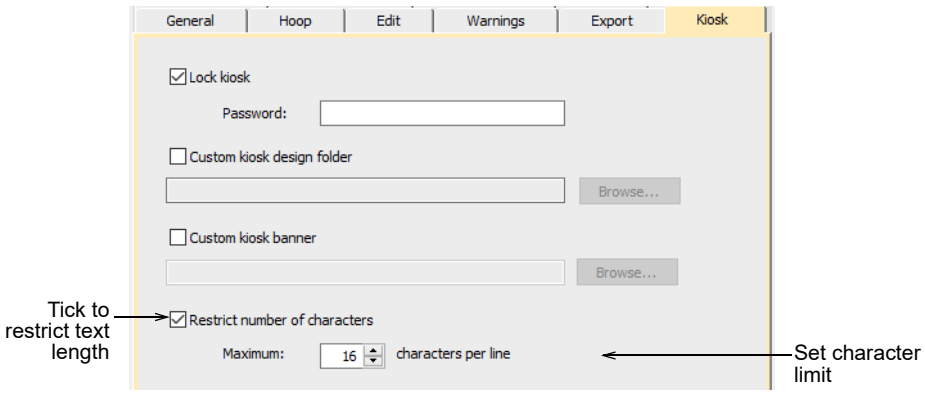
Use Standard > Options to access application options for kiosk and other settings.

Different scenarios may lead to variations in the number of characters allowed. The commercial requirement is for 16 characters per line, but the software allows you to change that limit. For example, maximum characters when buying online may be limited to 10, while baby-size caps may be less than 16. Optionally, the supervisor can limit the number of characters allowed in kiosk mode.

Note: Spaces between words count as characters. However, extra spaces are allowed at the start and end of a line without compromising the character count.

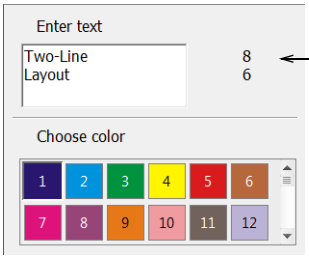
To configure the kiosk character count limit...

1 Click the **Options** icon or select **Setup > Options**. Click the **Kiosk** tab.



2 Tick the **Restrict number of characters** option and set the maximum number of characters – e.g. 16.

When the number of characters is limited by this option, the kiosk shows the number used vs the number available – e.g. '5 / 16'. Where a two-line design is selected, the limit is shown for each line.



Related topics...

- Troubleshooting long descenders

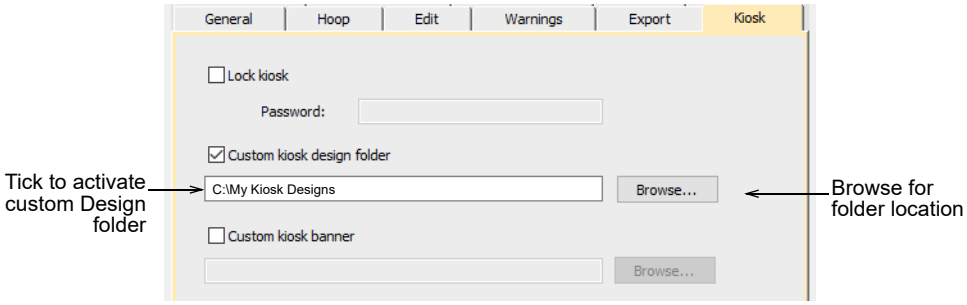
Change design location

Use Standard > Options to access application options for kiosk and other settings.

The default kiosk design folder is located within the BE EmbroideryStudio 2025 folder structure. This may not be convenient for you if you are dealing with numbers of custom designs. You can easily change the folder location to any on your kiosk hard drive or network. If you have more than one kiosk set up, they can all reference the same design folder.

To change the design location...

1 Click the **Options** icon or select **Setup > Options**. Click the **Kiosk** tab.



2 Tick the **Custom kiosk design folder** option and browse for the folder on your local drive or network. This then becomes the default kiosk design folder. Any EMB designs kept in this location will appear in the kiosk design chooser.

Customize kiosk banners

Use Standard > Options to access application options for kiosk and other settings.

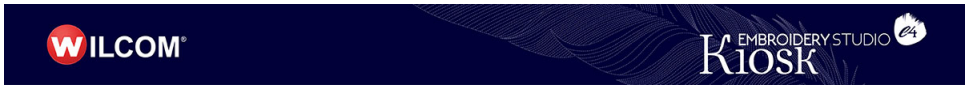
Like the kiosk 'Designs' folder, the default kiosk banner is located within the BE EmbroideryStudio folder structure. If you want to modify the banner in any way – e.g. with a specific location name – it is a simple matter to update or replace it. Alternatively, you can place your custom banner at a separate location on your hard disk or network and reference it there. If you have more than one kiosk set up, they can all reference the same banner.

To customize the kiosk banner...

1 Navigate to the 'Kiosk' folder of your BE EmbroideryStudio installation:

`C:\Program Files\Wilcom\<ProductName>\Kiosk\`

Here you will find the default kiosk banner – dimensions 1200 x 100 pixels.

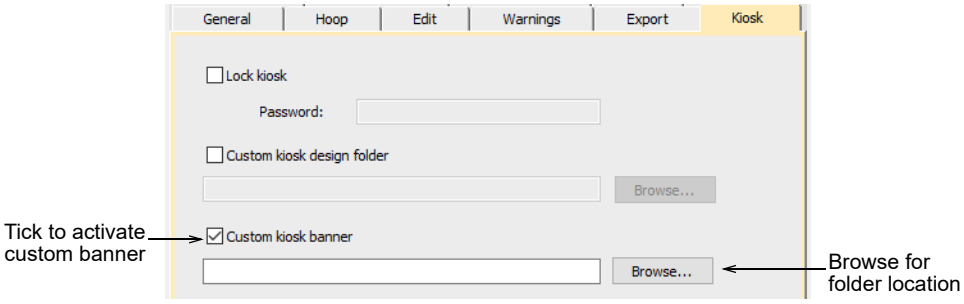


2 Customize the banner as required:

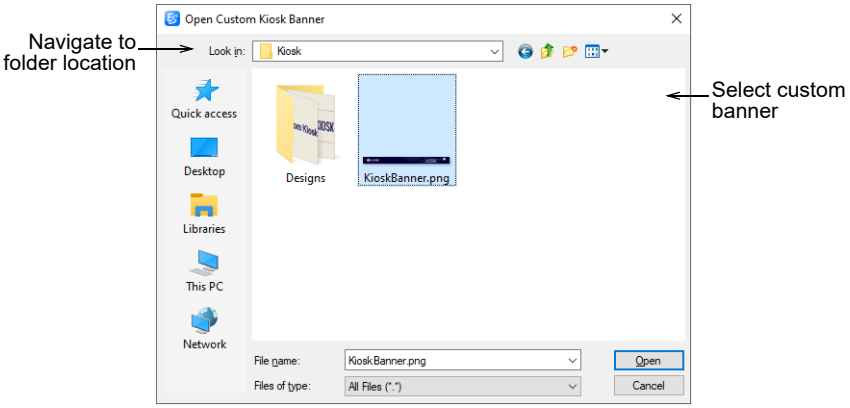
- Either replace the current image with one of the same dimensions.
- Edit the current banner in any graphics or paint program and save to the same location.
- Copy the banner to the same or another location and edit as desired.

If you move the banner to another location, you need to update the software settings as follows:

3 Click the **Options** icon or select **Setup > Options**. Click the **Kiosk** tab.



4 Tick the **Custom kiosk banner** option and browse to the folder on your local drive or network.



5 Select the custom banner file and click **Open**. This then becomes the default banner which the kiosk will reference.

Creating custom design layouts

Various techniques are available to add your own design layouts to BE EmbroideryStudio.

Create new layouts from old

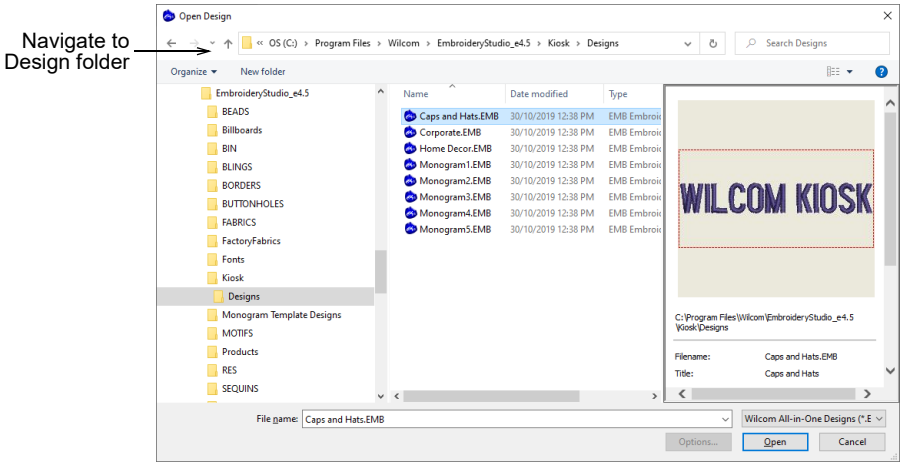
Use Standard > Open to open an existing design.

Use Standard > Save Design to save the current design. Right-click to open the Save As dialog.

To create custom design layouts is not very different to setting up thread colors. The simplest approach is to base a new design on an existing one in order to preserve stitch settings and design scale. You can change colors, fonts and stitch settings as required.

To create a new layout from an old one...

1 Click the **Open** icon. The **Open Design** dialog opens.



2 Navigate to the **Designs** folder of your BE EmbroideryStudio 2025 installation:

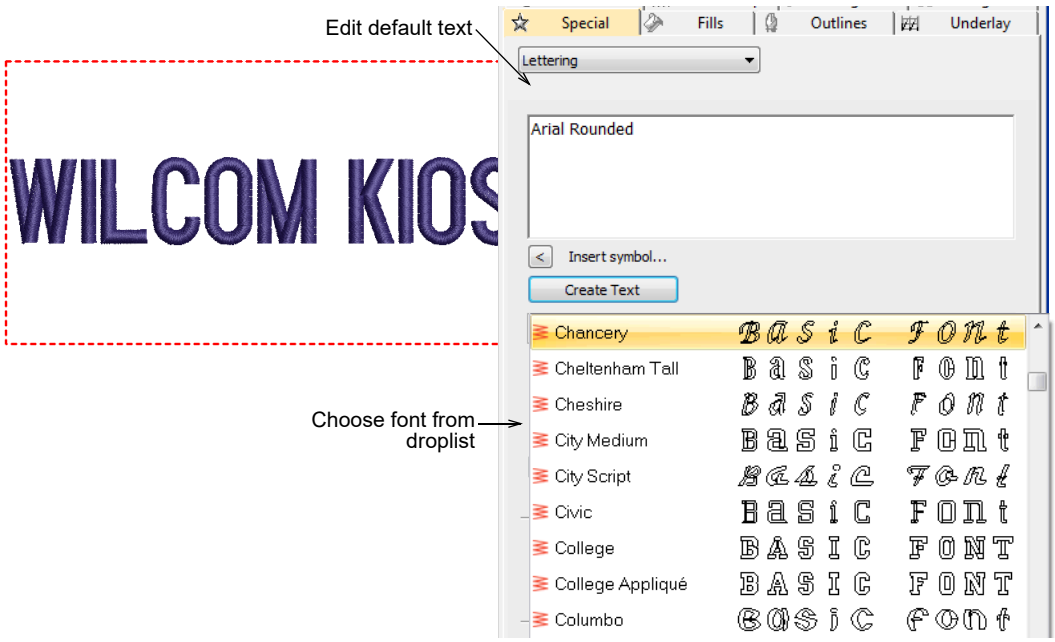
`C:\Program Files\Wilcom\<ProductName>\Kiosk\Designs`

Alternatively, specify your own folder.

3 Select a design to edit and click **Open**.

4 Before you do anything else, select **File > Save As** and save the design under a different name.

5 Double-click the design to open its properties.



6 Edit the default text and select an alternative font from the droplist as desired.

7 Click the **Update Text** button to view the result on screen.



8 Change default thread color as desired. The design will appear in the kiosk design chooser when you next run it.

Related topics...

- Change design location

Create layouts based on templates

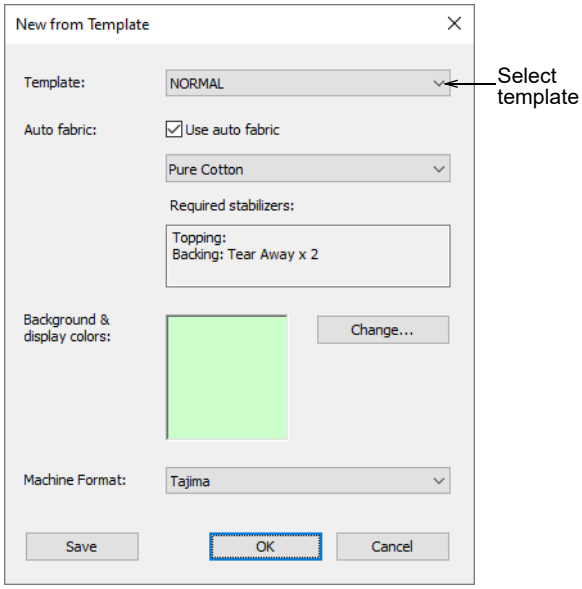
Use Toolbox > Lettering to create embroidery lettering directly on-screen. Right-click to access settings.

Use View > Auto Start & End to toggle function on/off according to the current settings. Right-click to open the Auto Start & End dialog.

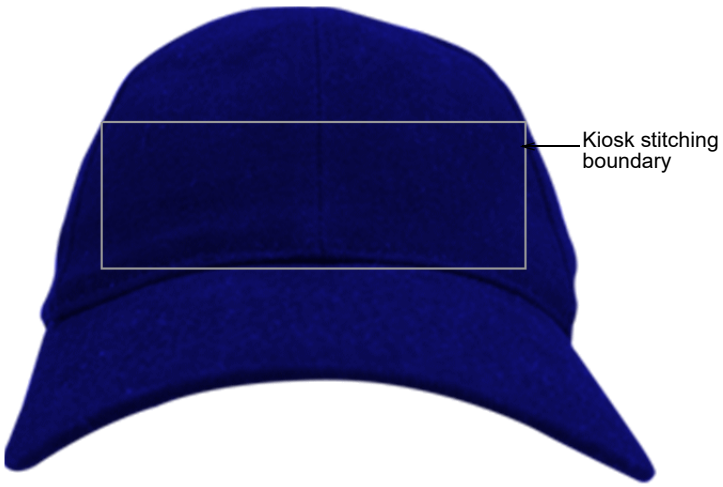
Alternatively, you have access to complete BE EmbroideryStudio capabilities to create designs from scratch. Onscreen help is provided via the **Help** menu.

To create a layout based on a template...

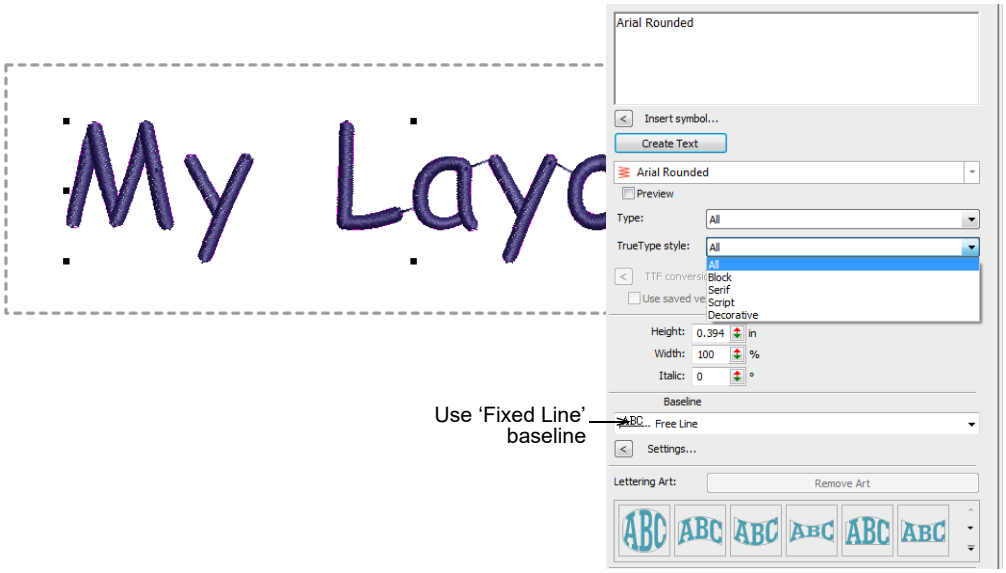
1 If you are creating a design from scratch, use the **File > New from Template** command.



2 Select a kiosk template if you have set one up. For example, you may set up your template to include a stitching boundary defining the area to work within, say, for cap designs. This can be drawn in **CorelDRAW Graphics**. You might also want to include a product image.

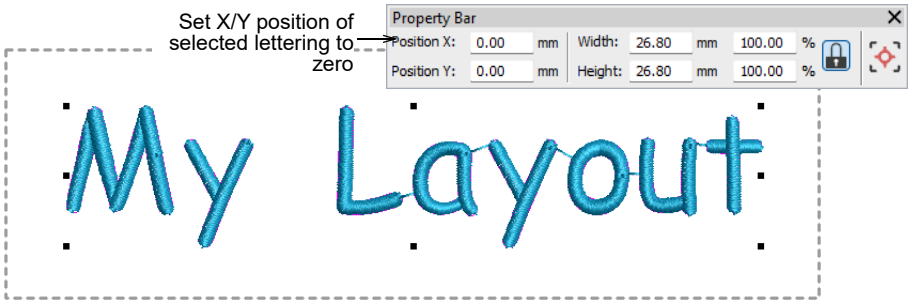


3 Select the **Lettering** tool and create the text you require. Adjust settings such as font, dimensions, etc.



Note: To ensure that text remains within the allowable boundary, it is safest to use the **Fixed Line** baseline.

4 Change thread color as desired.



5 Set the lettering object position to zero (0,0) as shown. This will ensure that the lettering layout automatically centers itself in the allowable stitching area.

6 When you are happy with the result, click **Save**.

The file must be saved to the BE EmbroideryStudio 2025 **Designs** folder:

`C:\Program Files\Wilcom\<ProductName>\Kiosk\Designs`

The design will appear in the kiosk design chooser when you next run it.

Related topics...

- Set up thread colors

Change design location

Create layouts with included design elements

Use Toolbox > Lettering to create embroidery lettering directly on-screen. Right-click to access settings.

Click Standard > Import Embroidery to import embroidery design file into current design.

For special occasions, you may want to create a kiosk layout which includes a special design element – for instance, St Patrick's Day, with a Shamrock at the start of the lettering. These elements need to be about the size of a capital letter. Together with the lettering, they need to fit within the allowable stitching boundary.

To create a layout with an included design element...

1. Create a layout from scratch or based on an existing layout. See above.
2. Import a suitable design element using the **Import Embroidery** command. See main help system for details.
3. Place the element and key in the default lettering.



4. Double-click the lettering and set left justification in **Object Properties**. Alternatively, if you place the element on the right, set justification to right.



5 When you are happy with the result, click **Save**.

The file must be saved to the BE EmbroideryStudio 2025 **Designs** folder:

`C:\Program Files\Wilcom\<ProductName>\Kiosk\Designs`

Alternatively, set your own designs folder.

6 The design will appear in the kiosk design chooser when you next run it. The whole design, including design element and lettering, is auto-centered immediately after text is updated in kiosk mode.

Related topics...

- Change design location

Include design backdrops

Use Color > Product Visualizer to choose a garment or product backdrop on which to position your decoration.

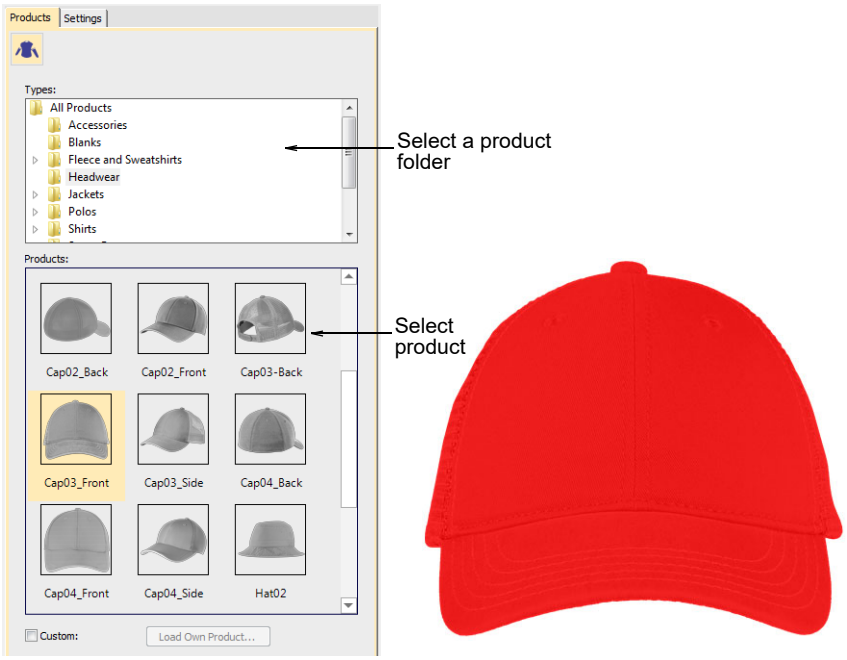
Click View > Show Product to toggle current product display. Right-click for Product Visualizer settings.

Use Zoom > Zoom to Product to view the entire product in the design window.

It's a simple matter to include a design backdrop to your design layout – e.g. a cap.

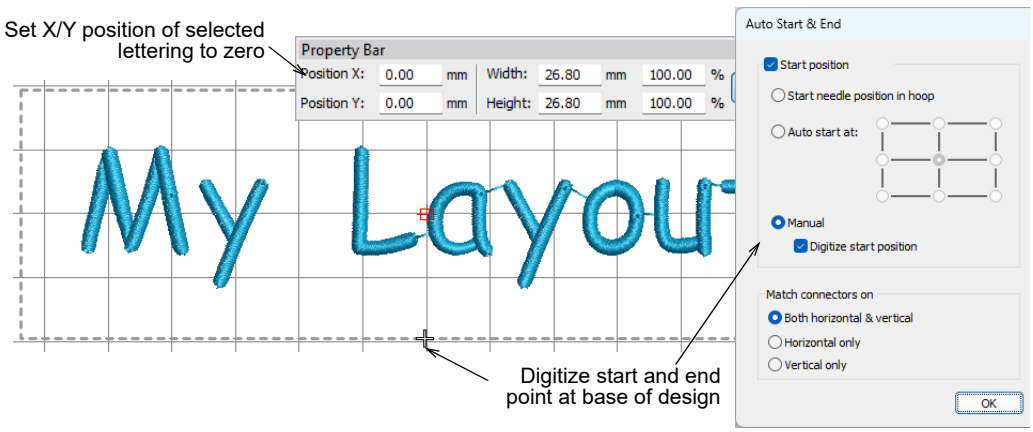
To include a design backdrop...

1 Click the **Product Visualizer** icon. The docker appears.



2 Select a product image – e.g. cap – and set color as desired.

3 Set the lettering object position to zero (0,0) as shown. This will ensure that the lettering layout automatically centers itself in the allowable stitching area.



4 As the lettering object and stitching boundary may not be in the correct position for the backdrop, click the **Auto Start & End** icon and digitize a start and end point as shown.

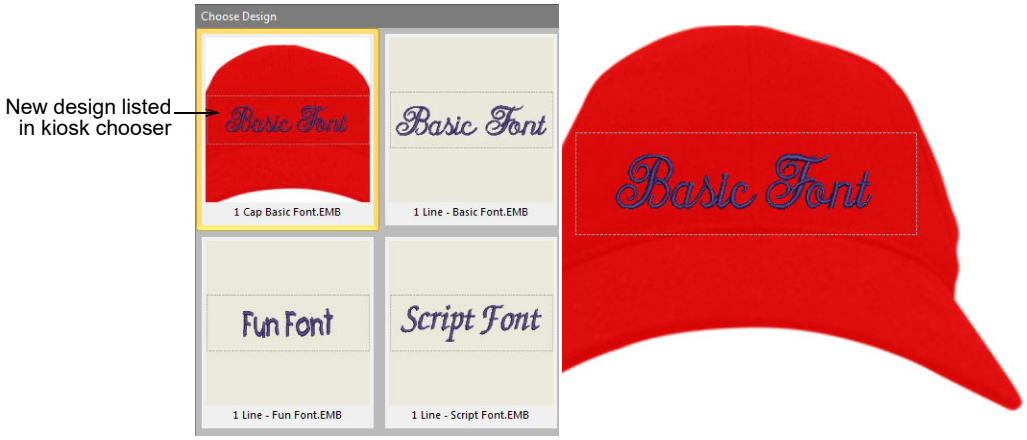
Note: The stitching boundary is locked in the template. It has to be unlocked to be moved.

5 When you are happy with the result, click **Save**.

The file must be saved to the BE EmbroideryStudio 2025 **Designs** folder:

`C:\Program Files\Wilcom\<ProductName>\Kiosk\Designs`

The design will appear in the kiosk design chooser when you next run it.



Related topics...

- Change design location
- Visualize products

PART VIII
DIGITIZING WITH ARTWORK

There are two broad categories of artwork file, both of which can be imported into BE EmbroideryStudio for use as digitizing backdrops – vector and bitmap. To create good quality embroidery, you need to choose or create suitable artwork of either format.



Digitizing with bitmaps

This section describes how to prepare images for automatic digitizing. It explains how to insert bitmap images as well as how to edit them, including cropping, editing in third-party applications, and smoothing. It also explains how to prepare both outlined and non-outlined images. See Digitizing with Bitmaps for details.

Digitizing with vectors

This section describes how to create drawing objects using the drawing tools as well as how to import them from third-party applications. It also explains how to merge, trim and split overlapping drawing or embroidery objects using the shaping tools. See Digitizing with Vectors for details.

Automatic digitizing

This section describes how to automatically convert graphics to embroidery objects and complete designs using a variety of techniques. See Automatic Digitizing for details.

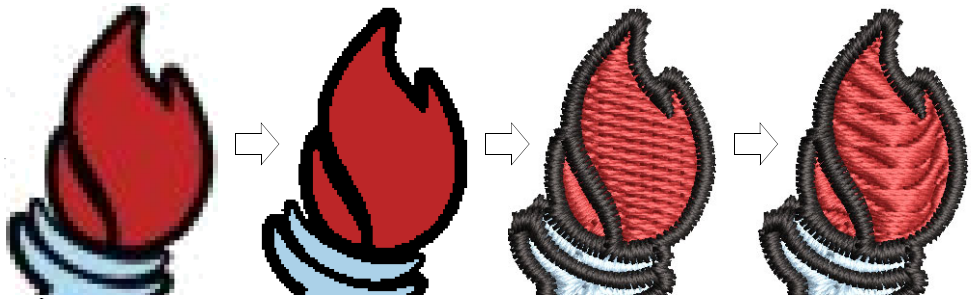
Auto-digitizing with photos

This section describes how to automatically convert photographs, both color and grayscale, to embroidery using a variety of techniques. See Auto-Digitizing with Photos for details.

Chapter 30

Digitizing with Bitmaps

BE EmbroideryStudio supports the automatic and semi-automatic digitizing of both bitmap images and vector graphics. The quality of the resulting designs greatly depends on the type and quality of the original artwork. Generally speaking, vector graphics preserve the picture quality when resized, whereas bitmap images cause problems of pixelation and image degradation when enlarged or scaled down. You can insert or paste third-party vector graphics such as clipart for use in embroidery designs. Alternatively, insert, paste or scan bitmap artwork for use as digitizing templates or 'backdrops'. In order to make bitmap images more suitable for automatic digitizing, BE EmbroideryStudio provides image processing capabilities.



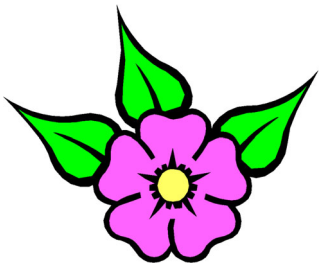
Note: CorelDRAW Graphics includes the latest CorelDRAW® Graphics Suite drawing tools. These offer many sophisticated techniques for drafting outlines and shapes on screen. Vector graphics so created can be directly converted to embroidery objects or even entire designs. For a full description of the CorelDRAW® tools, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **Help** menu.

Choosing suitable artwork

For both manual and automatic embroidery digitizing purposes, 'clean' images, sometimes referred to as 'cartoons', work best. Such images have a limited number of solid colors which in turn have well-defined outlines. Ideally, they are:

- Well defined, where each shape is made up of pixels of the same color.

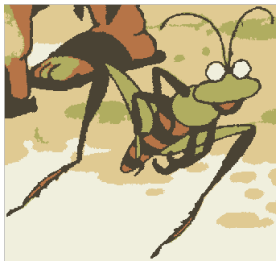
- Clearly 'blocked', where each shape is a stitchable size, at least 1 sq mm.
- Saved at a color depth of at least 256 colors (8 bit), or preferably millions of colors (16 bit).



Clean image with well-defined outlines



Clean image with well-defined color blocks



Complex image, needs editing to remove background and improve outlines

Best results are produced with images of the type found in clipart libraries or created from scratch in CorelDRAW®. BE EmbroideryStudio can work with images from other sources but they require some preparation. This is because most commonly available images are **not** made up of solid colors. Scanners introduce noise, while graphics packages perform 'dithering' and 'anti-aliasing' to improve image print quality.

Photographic images

Embroidery digitizing works least effectively with photographic images which may contain many dithered colors and complex forms. With photographs, however, you can pick out shapes that you want to embroider, leaving out unnecessary detail. For best results, use sharp images with well-defined subjects and contrasting shades.

You can also use **Photo Flash** to create embroidery from photographs or other images, color or grayscale. **Photo Flash** designs consist of rows of stitches of varying spacing settings. The effect resembles the output of a line printer. See Auto-digitizing with Photo Flash for details.

An extension of **Photo Flash**, you can also use **Color PhotoStitch** to create embroidery from photos. While **Photo Flash** designs consist of rows of single-color satin stitching, **Color PhotoStitch** produces variegated stitching using multiple thread colors. The overall effect is like multi-colored stippling. See Auto-digitize with Color PhotoStitch for details.

Scanned images

Images scanned from hardcopy drawings or existing embroidery typically contain a lot of introduced 'noise'. While they can be used as input to embroidery digitizing, once again, best results are achieved with relatively clean images consisting of solid color blocks. Typically, logos and simple drawings scanned from business cards, letterheads, books, magazines, cards all fall into this category.

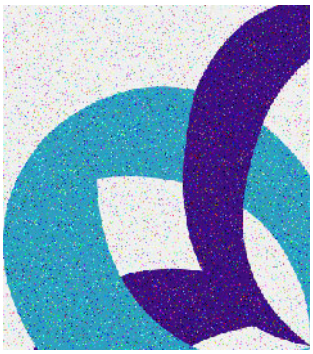
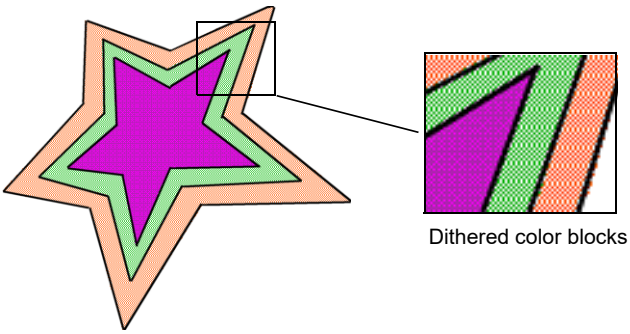


Image containing a lot of scanner 'noise'

Noisy images typically need to be prepared by reducing the color count and sharpening the outlines. See also Preparing artwork for scanning.

Dithered images

Dithering is a software technique which combines existing colors in a checkerboard arrangement of pixels. It is typically used to simulate colors that are missing from an image palette.



Dithered color blocks

Like noisy images, dithered images need to be color-reduced before use. Be aware, however, that while BE EmbroideryStudio can process dithered colors within a defined outline, it does not work so well with non-outlined images.

Anti-aliased images

Anti-aliasing is a software technique similar to dithering which is used to soften hard outlines where color blocks intersect. It produces smoother outlines by 'blurring' the pixels where colors join.



Where anti-aliasing is deliberately used to blur outlines, these need to be 'sharpened' before use with automatic digitizing.

Color depth

When loaded into BE EmbroideryStudio, images are automatically reduced to 256 colors or less. The main reason is to provide acceptable performance for automatic digitizing.

256 colors sounds a lot for embroidery needs and, in practice, a 256 color image may look quite similar to a 24-bit RGB image. The appearance and quality differences can only be observed by zooming in. The 256-image will be dithered to improve its appearance at a distance. However, this feature is also responsible for single color pixels and small areas, which effectively create image noise. This in turn can affect the quality of automatically generated embroidery.

Guidelines

Bear in mind the following key points when selecting artwork for auto-digitizing:

- Use 300 DPI high-resolution images, NOT low-res 96 DPI.
- Do not use anti-aliasing.
- Do use PNG format, not JPG.
- Do use transparent backgrounds.
- If the image does not conform to these settings, return to the original vector artwork and generate a bitmap that includes them.

Image preparation techniques

Before converting artwork to vector graphics, you frequently need to clean it up. To work effectively, the **Convert** function requires solid color images as input. You can improve artwork with the bitmap editing tools.



Note: For a full description of the editing tools in **CorelDRAW Graphics**, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **Help** menu.

Outlined vs non-outlined images

Before preparing your image you need to know what type you are using. For the purposes of automatic digitizing, there are two categories – outlined and non-outlined. Outlined images ideally have a solid black outline around each colored area. Non-outlined images ideally consist of solid areas of color. Outlined and non-outlined images require different methods of preparation.

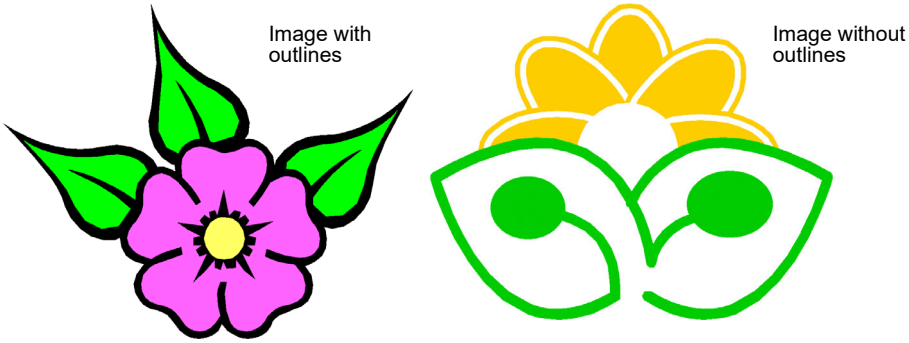


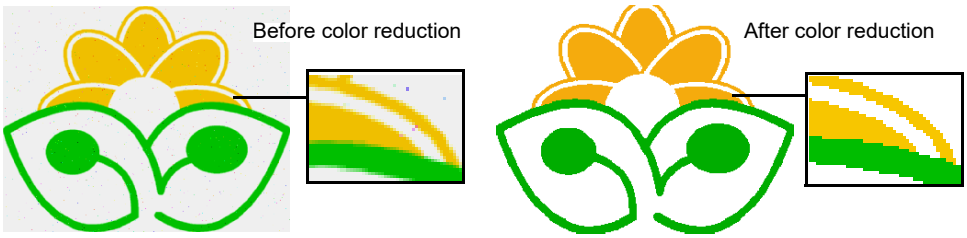
Image cleanup

In practice, cleaning up scanned images may involve any one or a combination of the following techniques:

- Reducing the number of colors
- Adding or emphasizing outlines
- Removing noise, dithering or anti-aliasing
- Eliminating unnecessary detail
- Cropping sections
- Eliminating backgrounds.

Color reduction

Sometimes an image looks clean but extra colors have been introduced during scanning or processing. Color reduction means reducing the actual **number** of image colors in order to eliminate unnecessary detail and reduce each block to a single color. Color reduction also cleans the image, removing any noise and anti-aliasing present. This in turn helps minimize the number of trims and color changes required in the resulting embroidery design. Color reduction should only be applied if the loss of detail does not affect the image shapes. Before reduction, the colored areas in the image below include many colors. After reduction, each area is reduced to a single color. The detail is preserved.



If you are scanning images, make sure you scan them correctly for best results. See also Preparing artwork for scanning.

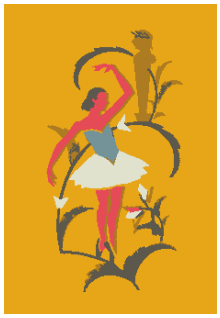
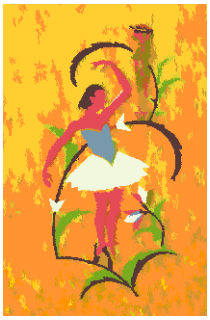
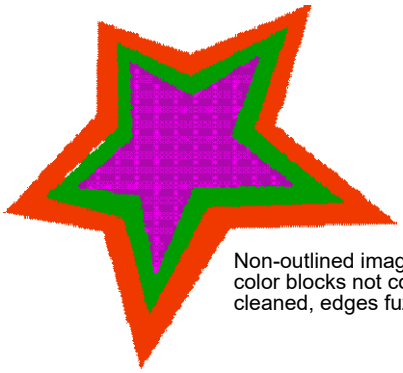


Image scanned in RGB color mode, then colors reduced to 6

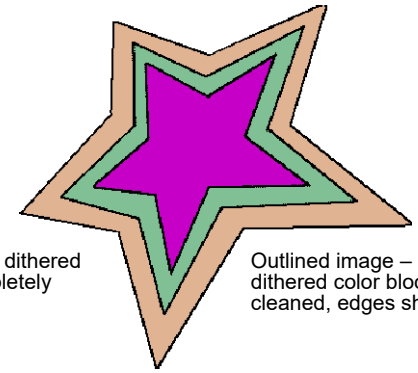
Image scanned in 256 color mode, then colors reduced to 6



Be aware that some techniques are better for removing noise and anti-aliasing but not so good for processing dithering in non-outlined images. See also Choosing suitable artwork.



Non-outlined image – dithered color blocks not completely cleaned, edges fuzzy



Outlined image – dithered color blocks cleaned, edges sharp

Outline sharpening

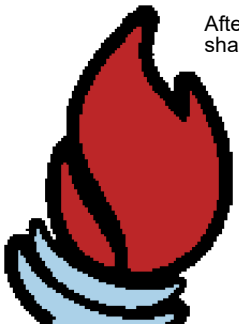
Outline sharpening means emphasizing outlines bordering distinct color blocks. These may have been indistinct in the original or made so by the scanning process. Outline sharpening is important for vectorizing because it makes it easier for BE EmbroideryStudio to identify areas for conversion to embroidery.

Before outline sharpening





After outline sharpening



Some images have solid outlines but they may be indistinct or incomplete. These need to be rectified with the **CorelDRAW Graphics** bitmap editing tools prior to vector tracing. Refer to the electronic User

Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **Help** menu.

Noise filtering

Noise filtering means restoring the solid color blocks of the original artwork in scanned images. This is achieved by merging different shades into one solid color. Noise filtering is important for vectorization because it makes it easier for BE EmbroideryStudio to identify solid color blocks to become embroidery objects in the resulting design. It also cleans up blurred or mottled areas of color.

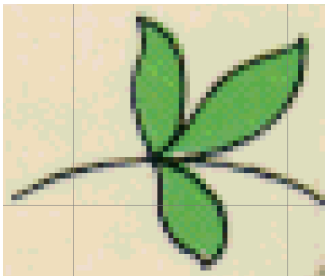


Image before noise filtering, mottled color

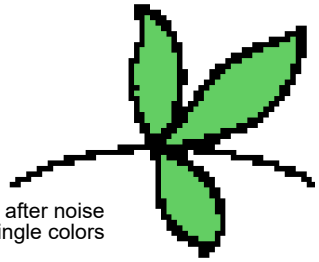


Image after noise filtering, single colors

Image preparation summary

Action	Outlined image	Non-outlined image	Photograph
Scan artwork	• Scan in RGB mode • Use sharpening	• Scan in RGB mode • No sharpening	Scan in RGB mode
Scan line drawing	Scan in two color mode	-	-
Touch up graphics	• Crop • Add or edit outlines • Edit colors • Remove noise	• Crop • Edit image shapes • Edit colors • Remove noise	• Crop • Convert to grayscale • Remove background • Adjust contrast
Adjust bitmap	• Adjust outline contrast manually.	• Adjust outline contrast manually.	• Adjust outline contrast manually.
Prepare bitmaps	Adjust outline contrast manually. Automatically: • blend each outlined block into a single color • remove anti-aliasing, noise and dithering • sharpen outlines.	Reduce colors to a specified number. Automatically: • reduce each block to a single color • remove anti-aliasing, noise and dithering • remove colors less than specified area.	-

Action	Outlined image	Non-outlined image	Photograph
Vectorize bitmaps	CorelDRAW Graphics provides the latest CorelDRAW® drawing tools. These offer many sophisticated techniques for drafting outlines and shapes on screen. Refer to the electronic User Guide available via the Windows Start > Programs group. Alternatively, use the online help available from the Help menu.		
Convert vectors directly	BE EmbroideryStudio provides techniques for both converting vectors directly to embroidery as well as manual digitizing of prepared artwork. See Digitizing Shapes for details.		
Digitize automatically	• Manual • Auto-Digitizing • Instant Smart Design • Smart Design	• Manual • Auto-Digitizing • Instant Smart Design • Smart Design	• Photo Flash • Color PhotoStitch

Preparing artwork for scanning

If you have existing artwork, you can scan it in **CorelDRAW Graphics** with a WIA-compatible (Windows Image Acquisition) scanner using the scanning function. It is important to scan your artwork properly if you intend to use one of the automatic digitizing techniques – the scanned image quality will affect the quality of the final embroidered design.

With embroidery design, less is more. You don't need every detail in an image to create a design. You use the 'structure' of the image rather than the fine details of texture and color. To simplify artwork, you can cover it with tracing paper and draw only the essential shapes and lines which will be filled with stitches. When scanning, take away the original artwork and put white paper behind the tracing paper. Shiny surfaces, such as glossy photographs, may not scan well. Cover them with tracing paper. If the artwork has very light colors, highlight outlines with a fine black felt-tip pen.



Note: For a full description of how to scan images into CorelDRAW® Graphics Suite, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **Help** menu.

Scanning resolution

Most scanners require you to enter scanning resolution information. Resolution determines the number of dots per inch (DPI) used to create an image. Generally speaking, the smaller the source image and/or more detail it contains, the higher the resolution needs to be. Use the following table as a guide.

Type of artwork	Scanning resolution
Business cards, letter heads	150 - 300 dpi
Hand sketches	150 - 300 dpi
Photos and images	150 - 300 dpi
Commercial art, line drawing	72 - 150 dpi

Sharpening

Some scanning software lets you apply what is called 'sharpening' as you scan. Sharpening compensates for the slight blurring in a scanned image by looking for any differences between colors. Sharpening accentuates these differences which makes the image edges more defined. It does not increase image details but makes them more obvious. In general, use sharpening with well-defined outlines. Don't use it with non-outlined images.



Scanned with sharpening

Scanned without sharpening



Color mode

Most scanners also require you to enter color mode information. First decide whether your image is line art (black and white drawing), sketch, color picture, or black and white or color photograph, then choose an appropriate mode. Black and white mode produces the smallest files. Color photograph and grayscale modes generate 256 color images and produce similar sized files. 'RGB', 'True Color' or 'millions of colors' modes generate 16.7 million colors and produce the biggest files. Use the table below to decide which mode is suitable for use with your image.

Source image	Example	Description	Recommended color mode *	No. of colors in scanned image
Line art		Two colors – usually black and white	Black/white drawing Line art	2 2

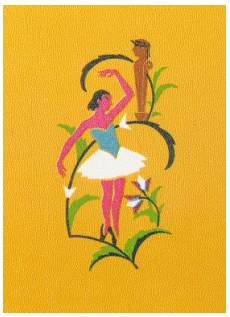
* Different scanning software uses different terms for the equivalent mode.

Source image	Example	Description	Recommended color mode *	No. of colors in scanned image
Drawing/sketch		Sketch or drawing with shades of gray	Grayscale Line art	256 2
Black & white photograph		Shades of gray	Black/white photo Grayscale	256 256
Color photograph		Many colors	Color RGB Color photo	16 million 256
Color picture		Two colors or more	Color RGB Millions of colors Color drawing	16 million 16 million 2 - 256

* Different scanning software uses different terms for the equivalent mode.

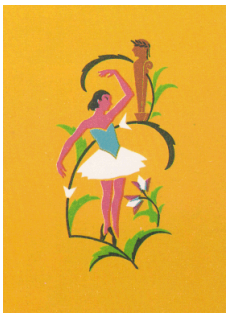
Usage tips...

- Do not scan line art images in grayscale mode – grayscale scanning produces fuzzy edges.
- Scan color images in RGB mode (millions of colors) rather than 256 color mode. The color count can be reduced once the image is loaded into the software. BE EmbroideryStudio can use the extra information to produce a better image than one scanned at 256 colors.



Scanned in 256 color mode

Scanned in RGB color mode (millions of colors)



- Do not scan color images in CMYK (Cyan, Magenta, Yellow, and Black) mode as this is only used for images that will be printed – colors may be different to RGB colors.
- If the image needs to be rotated, do so while scanning. Rotating afterwards may distort the image.

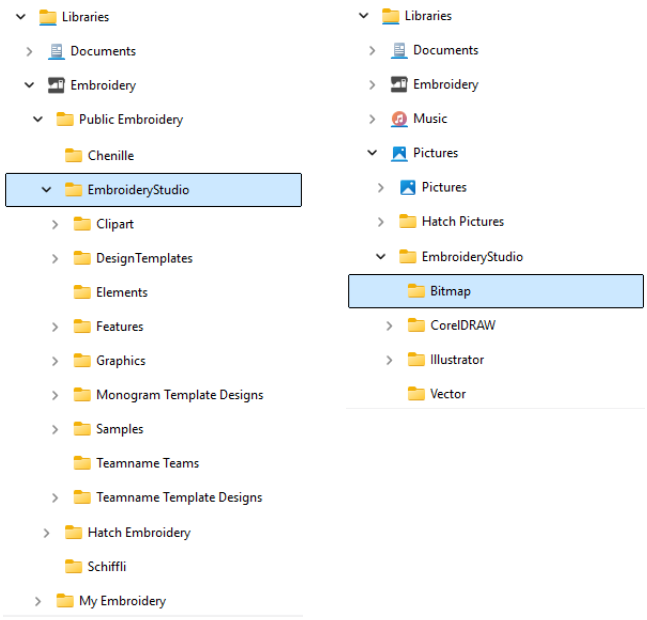
Loading bitmap artwork

Bitmap images of different formats can be scanned or 'loaded' into BE EmbroideryStudio for use as digitizing backdrops. You can scale and transform them after importing but it is generally better to do so during scanning. Scaling afterwards may distort the image.

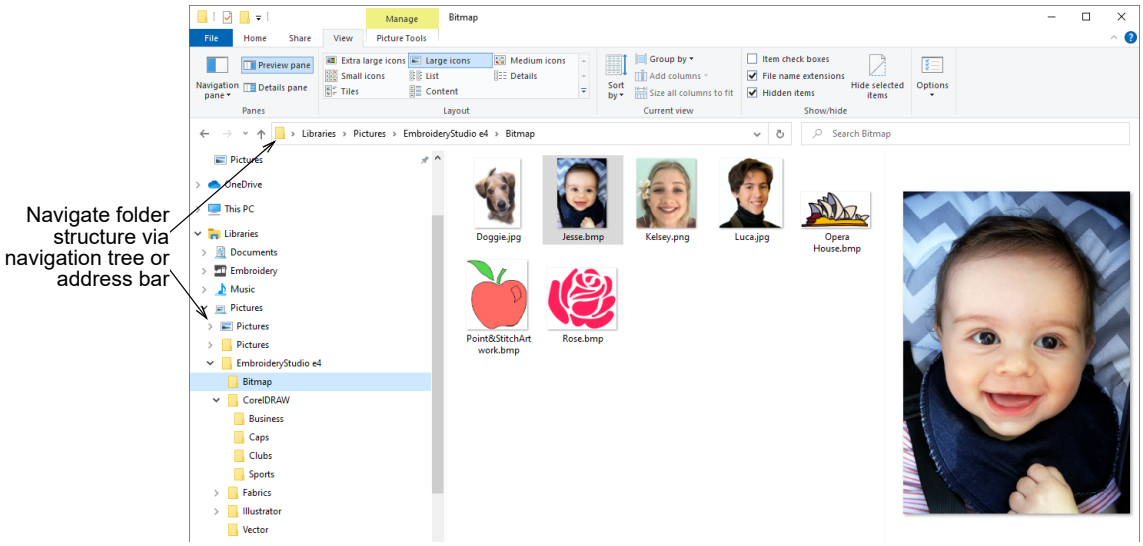


Sample designs & artwork

BE EmbroideryStudio contains hundreds of ready-to-stitch designs, including attractive ornaments, samples and digitizing backdrops. Design files (EMB files) and images (BMP, JPG, and WMF files) can be found in your **Embroidery** and **Picture** libraries.



The most valuable thing you can do when starting out is to spend some time exploring these designs and getting to know what's available. BE EmbroideryStudio includes its own **Design Library** design management application to view and manage your embroidery designs. Alternatively, explore design folders using **File Explorer**. See also Design Management.



Note: CorelDRAW® needs to be registered before it can be used by BE EmbroideryStudio. Registration gives you access to the latest

CorelDRAW® updates. It also provides CorelDRAW® Standard Membership which gives you access to content – clipart, fonts, stock photos, templates – via Corel CONNECT.



Caution: Included artwork (clipart) and embroidery designs can only be used for personal use – i.e. they cannot be commercially sold in any form. Changing the medium – i.e. clipart to embroidery or embroidery to clipart – does not remove copyright protection.

Scan images

You can scan images directly into BE EmbroideryStudio for use as digitizing backdrops. The scanning feature in BE EmbroideryStudio allows you to use most WIA-compatible scanners. You can use any scanning software provided that it can save the image in one of the compatible formats.



Tip: You can also scan in your own textured backgrounds to see what a design will look like on real fabric. Fabrics can be scanned to provide full, centered, backgrounds to your design, or as small samples which can be tiled to fill the screen.

To scan an image...

1. Set up your scanner.
2. Prepare the artwork for scanning.
3. Select **File > Scan Graphic**.
4. Choose a scanning mode and resolution. If you are scanning a fabric background, set the scan to 256 colors, 100% and 72 dpi (dots per inch). These settings will give a small file which will display well on your screen without taking up too much disk space or memory.
5. Preview the image in the scanning program.
6. Select the area to be scanned and scan the image.
7. Save the scanned picture in a compatible format picture file to your **My Designs** folder.

   Note: Scanned drawings are bitmaps and must be saved separately from the design file or they will be lost when you close the design.

Related topics...

- Fabric & product backgrounds
- Setting up scanners

- Save artwork
- Preparing artwork for scanning

Insert bitmap images

Use Standard > Import Graphic to import artwork into current design as a backdrop for manual or automatic digitizing.

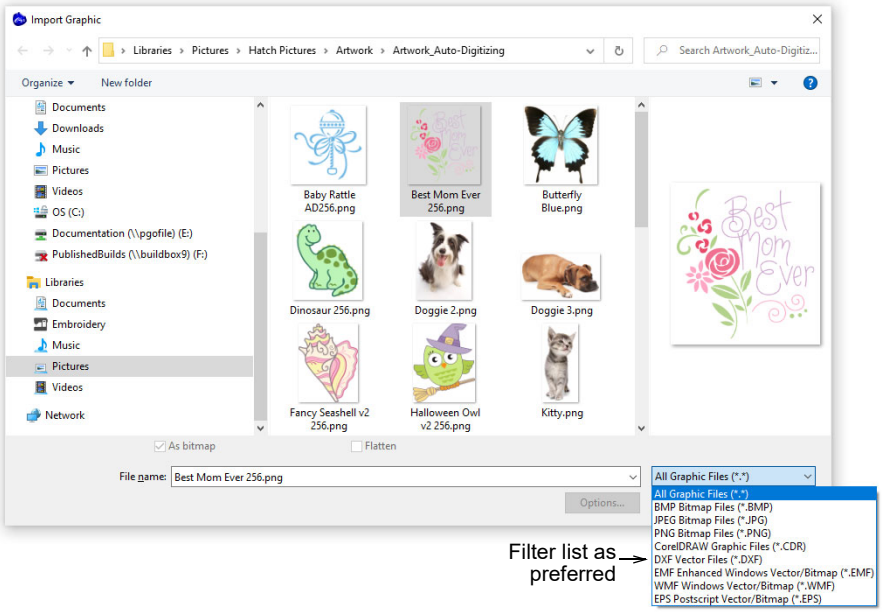
Use View > Show Bitmaps to toggle bitmap images on or off. Right-click for settings.

Bitmap images of various formats can be imported or pasted into BE EmbroideryStudio for use as digitizing backdrops.

Tip: If you are editing images in a third-party graphics application, you can copy and paste into BE EmbroideryStudio via the Windows clipboard.

To import a bitmap image...

1 Click the **Import Graphic** icon or select **File > Import Graphic**.



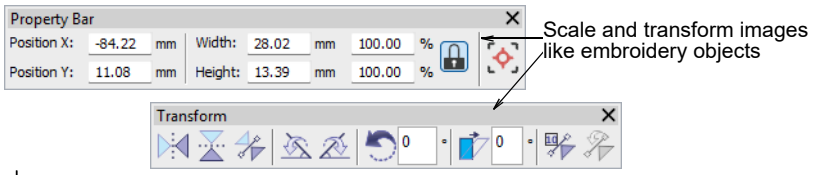
2 Navigate to the graphics folder. The dialog defaults to 'All graphic files' which displays all supported file types, bitmap and vector.

3 Filter the **Files of Type** list as required – e.g. 'BMP'.

Note: While 'All graphic files' includes both vector and bitmap formats, for native CDR and other vector file types, use the CorelDRAW® Graphics Suite import function.

4 Select a file and click **Open**.

5 Scale and transform the image on-screen or via the **Property** and **Transform** toolbars.



Tip: Use **Auto Trace To Vectors** to create vector outlines from bitmap images. You can then convert these to embroidery objects using a variety of input methods. **Auto Trace To Vectors** can find holes in shapes – both inside and outside boundaries are detected.

Related topics...

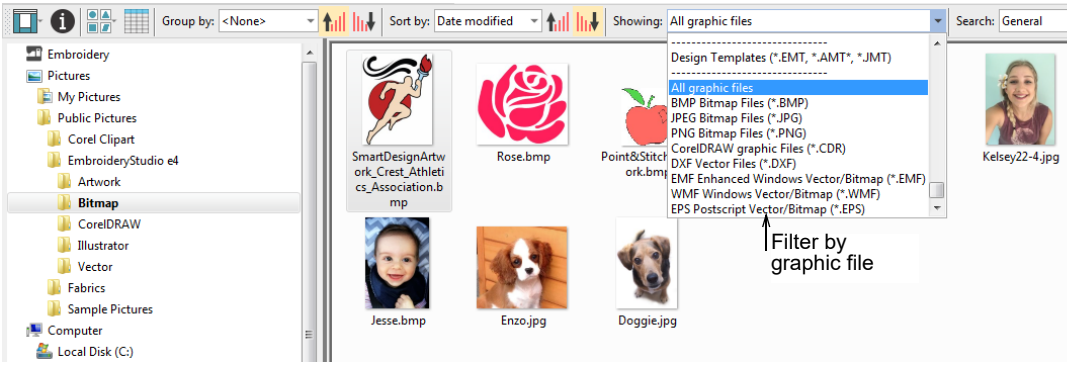
- Operating modes
- Auto-tracing bitmap artwork
- Supported machine types

Open graphic files directly

Click Mode > Design Library to open the Design Library window from which to search and manage designs and job orders.

Use Manage Designs > New From Selected to create new designs based on designs selected in Design Library.

Artwork can be opened in BE EmbroideryStudio in both vector and bitmap (raster) formats via **Design Library**. Samples of both file types are installed with BE EmbroideryStudio in the **Pictures** library as shown below.



The **New from Selected** command can also be used to open graphics files, including Corel CDR. With CDR, a new file is opened in BE EmbroideryStudio before switching to CorelDRAW Graphics.

Related topics...

- Combining objects & designs
- Opening designs from Design Library
- Working with templates

Add & match image colors

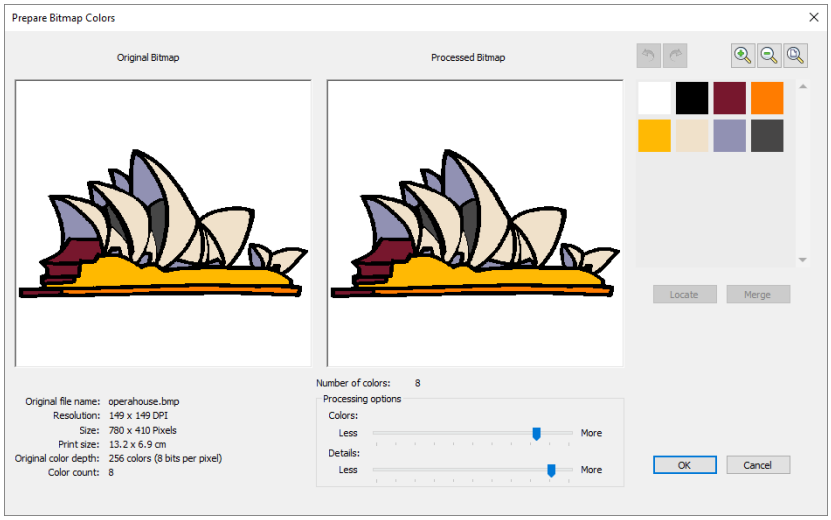
You can manually match colors from an inserted bitmap or vector graphic to thread colors in selected chart/s. Alternatively, simply add raw image colors to the palette for later matching.

To add and match image colors...

1 Insert a bitmap image for use as a digitizing backdrop.

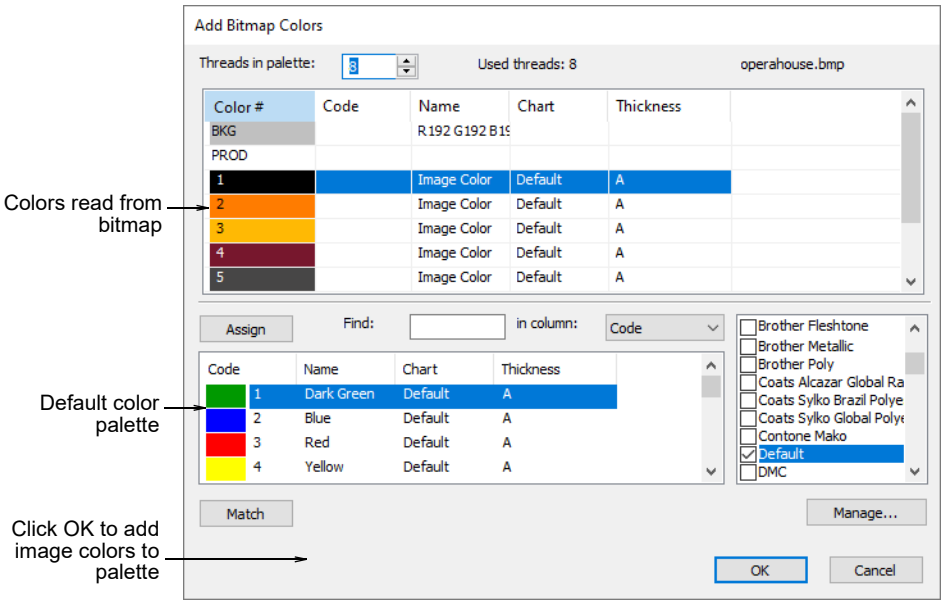


2 Select **Graphics > Add Bitmap Colors**. The **Prepare Bitmap Colors** dialog opens by default.

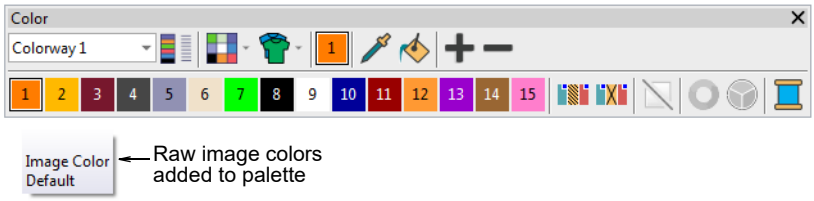


3 Reduce design colors to the minimum necessary before adding to the color palette. Click **OK** to confirm.

4 Selected colors are displayed in the **Add Bitmap Colors** dialog.



5 To add the image colors directly to current colorway, simply click **OK**. The raw image (RGB) colors are transferred. These can be used as is and thread-matched at any time.

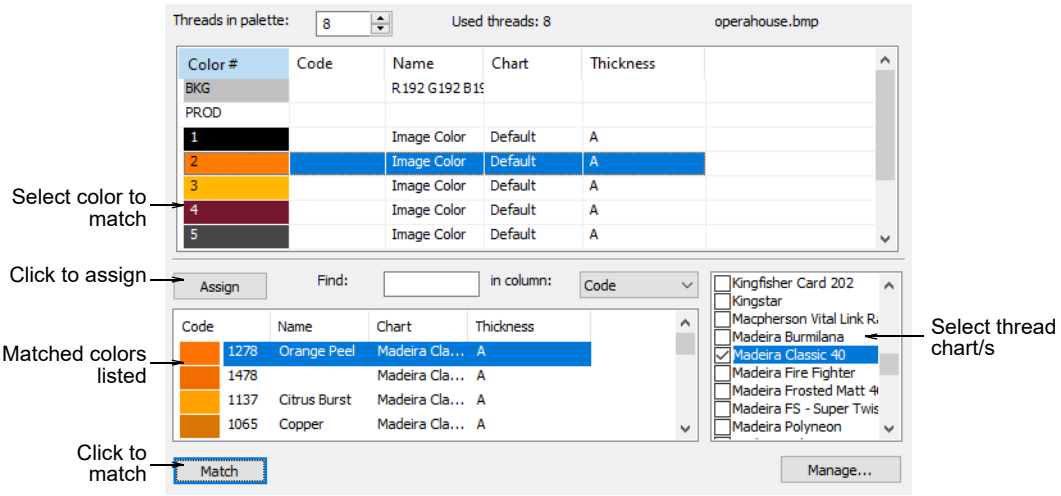


6 Alternatively, to make thread selections straight away, select the thread chart/s to use from panel.

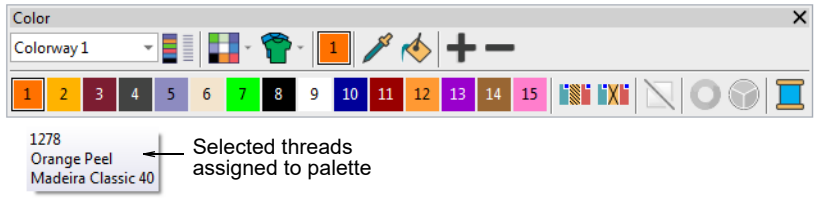
7 Select an image color and click **Match**. The system searches for the closest match in the selected chart/s and displays them in the thread color list.

8 To assign the thread color, double-click or click **Assign**.

9 Repeat until all colors you intend to use in the design have been matched.



10 Click **OK**. The selected threads are assigned to the current colorway.



Note: The maximum number of new thread colors which can be added to the color palette from a bitmap is 128.

Related topics...

- Preparing artwork for auto-digitizing
- Auto-digitize individual shapes
- Insert bitmap images

Preparing artwork for digitizing

BE EmbroideryStudio allows you to crop bitmap images prior to use. You can also open images directly in third-party bitmap editing packages or use in-built CorelDRAW® Graphics Suite. Within BE EmbroideryStudio you can set general properties such as size and position. You can also scale and transform bitmap images although it may be best to do this during scanning.

Note: CorelDRAW Graphics provides the latest CorelDRAW® Graphics Suite drawing tools. These offer techniques for inserting and manipulating bitmap images, including vector tracing. Vector objects can then be converted to embroidery designs. See also Operating modes.

Image transparencies

Support is provided for transparent backgrounds in 24 bit and 32 bit images.



If an image contains a transparent background:

- The background is automatically excluded from auto-digitizing.
- The image is automatically cropped to its visible extents.

Caution: Avoid using images that contain semi-transparent or transparent pixels **within** image color areas as these cause poor results when reducing the color count. The resulting pixels may end up as holes inside the image or significantly reduce color areas to the point where they are unnecessarily removed from the embroidery results.

Crop bitmap images

Use Auto-Digitizing > Crop Bitmap to crop bitmap artwork for use with auto-digitizing.

Click Auto-Digitizing > Remove Crop to remove any crop areas applying to selected artwork.

Click Auto-Digitizing > Finalize Crop to make the cropping permanent. Once finalized, the cropping cannot be removed.

Use Reshape > Reshape Object to reshape selected objects, edit stitch angles, and adjust entry/exit points.

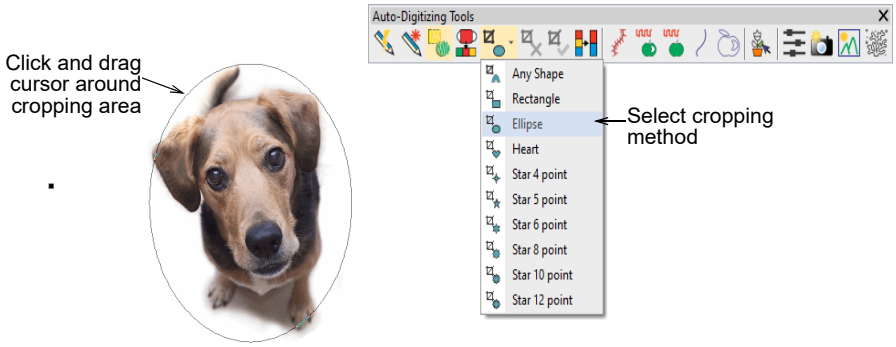
Before using bitmap images for design purposes, crop them to remove unnecessary detail and save processing time. BE EmbroideryStudio allows you to 'soft crop' images which means that you can redefine or remove the cropping area at any stage.

To crop a bitmap image...

1 Scan or insert the photo you want to use. For best results, use crisp images with well-defined subjects and strong contrasts. See Loading bitmap artwork for details.

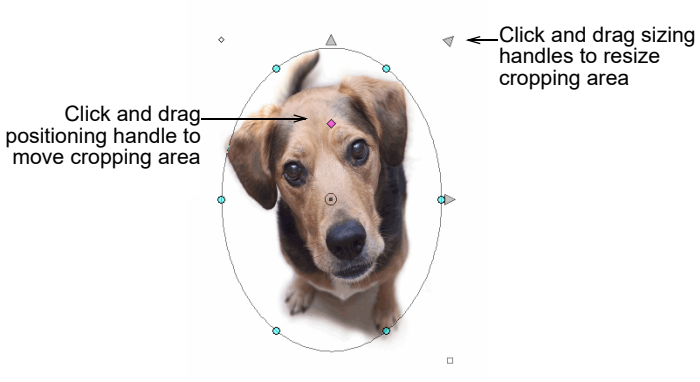
2 Select the image and choose a cropping tool from the **Crop Bitmap** droplist. The same options are available under the **Graphic** menu.

3 Click and drag the cursor around the area to be cropped.

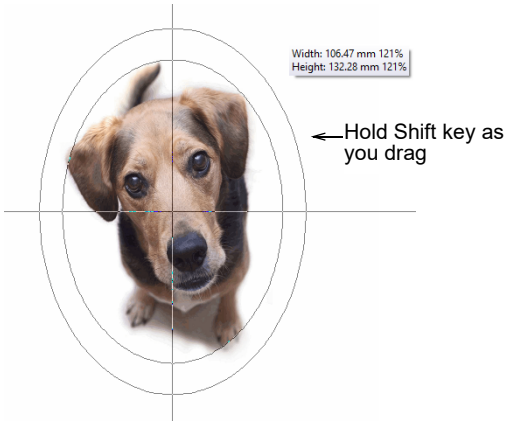


4 Reshape or transform the cropping area with the **Reshape** tool.

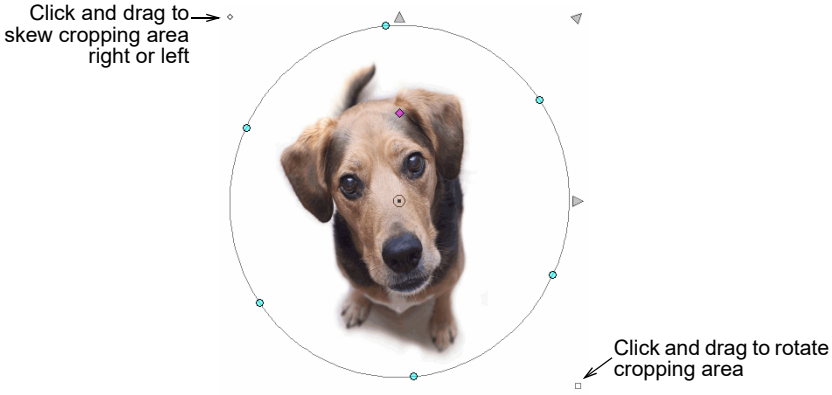
- To reposition the cropping area, click and drag the diamond-shaped positioning handle.



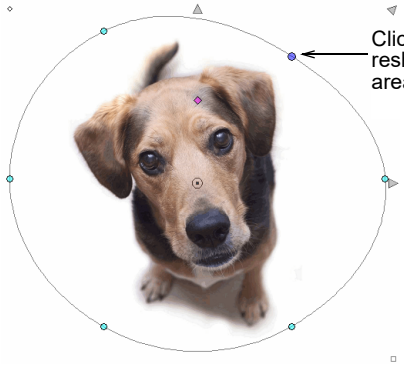
- To resize the cropping area, click and drag the triangular resizing handles. To center the resizing operation around the anchor point, hold the **Shift** key as you drag.



- To rotate or skew the cropping area, click and drag the control points in the top-left and bottom-right corners.



- Click and drag the reshaping nodes to reshape the cropping area.



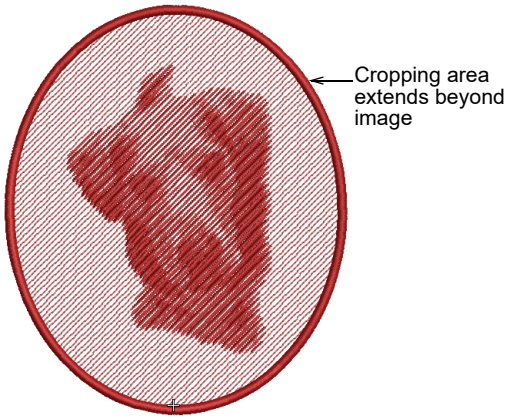
5 Alternatively, use the **Any Shape** method to digitize a cropping area.



- Click **Select** or press **Esc** to close.
- Click **Remove Crop** to remove a cropping area applying to selected artwork.
- Click the **Finalize Crop** tool to crop an image to its new visible extents.

Usage tips...

- The background can be oversized to accommodate a cropping area which extends beyond the image. This is useful for **Photo Flash** operations.



- When you create a cropped area, it is considered 'temporary' and can be reshaped at will. By using the **Finalize Crop** command, you make the crop permanent. The only way back is via the **Undo** command or by reinserting the original bitmap.

Related topics...

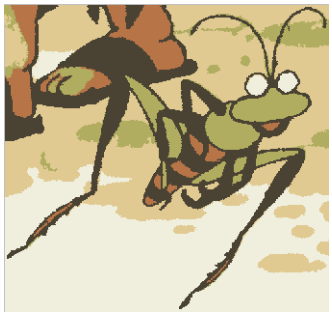
- Insert bitmap images
- Reshaping objects
- Auto-digitizing with Photo Flash

Touch up bitmaps

Sometimes you need to edit bitmap images directly in a third-party graphics package. You would normally do this in order to eliminate backgrounds, flood-fill solid areas with color, add or reinforce outlines, or close gaps. From within BE EmbroideryStudio you can open images directly in MS Paint, Corel PHOTO-PAINT®, or Paint Shop Pro™. Images updated in this way are automatically re-imported into BE EmbroideryStudio.

To touch up a bitmap...

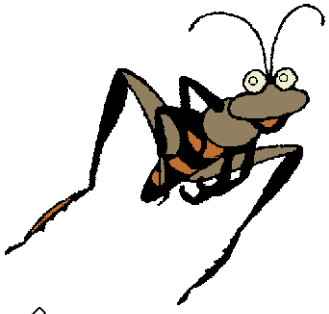
1 Select the image.



Background may be cleaned and eyes added

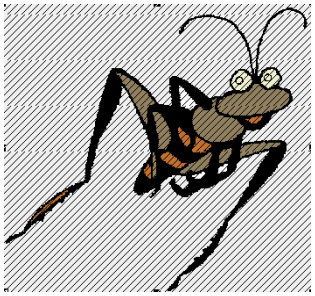
2 Select **Graphics > Edit Using >...**. The image opens in the select graphics package.

3 Edit the image and save.



Background cleaned and eyes added

Note: If you return to BE EmbroideryStudio before closing the image in the graphics package, it is overlaid with stripes.



File still open in the graphics package

4 Return to the graphics package and select either **File > Close** or **File > Exit & Return <Filename>**. In BE EmbroideryStudio, the stripes will disappear.

Related topics...

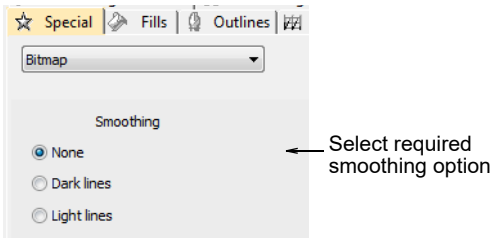
- Insert bitmap images

Smooth bitmap images

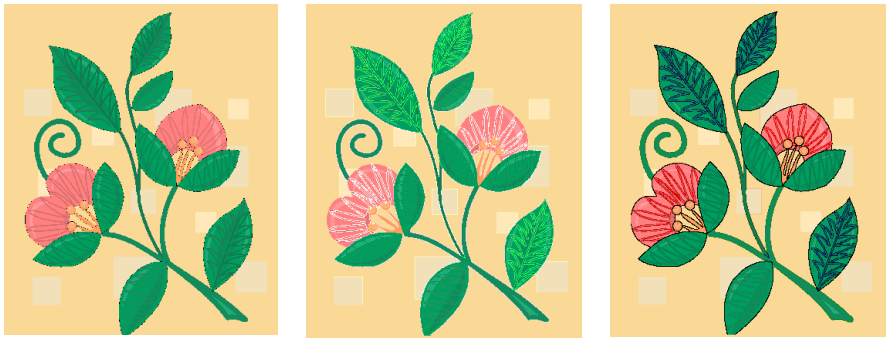
When you scale or transform backdrops, the quality is sometimes reduced – e.g. thin straight lines become jagged or distorted.
BE EmbroideryStudio allows you to smooth an image before and after scaling or transforming, making it easy to digitize.

To smooth a bitmap image...

1 Select the image and double-click to access object properties.

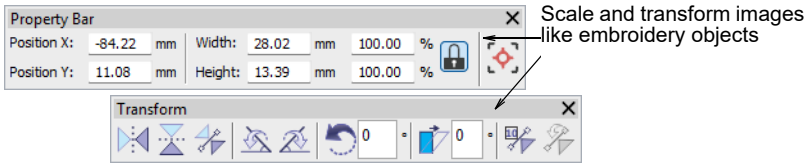


2 Select the desired smoothing option, depending on whether the majority of lines in the image are light or dark.



No smoothing | Light lines smoothed | Dark lines smoothed

3 Optionally, scale and transform the image on-screen or via the **Property** and **Transform** toolbars.



Related topics...

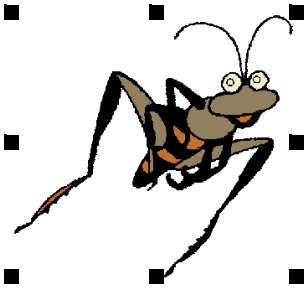
- Insert bitmap images
- Transforming Objects

Save artwork

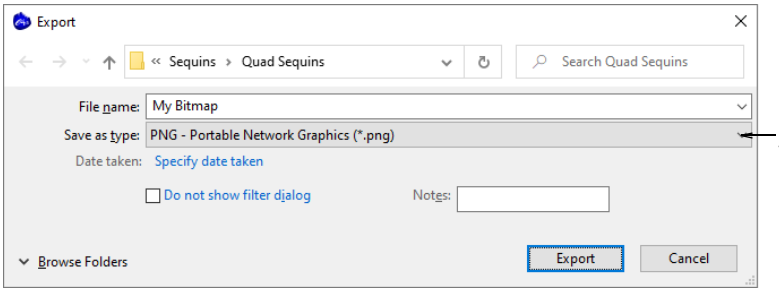
All images placed in the design window, whether by scanning, pasting or inserting from hard disk, are saved together with the embroidery design in the EMB file. After editing in BE EmbroideryStudio or third-party graphics application, you may want to save the image out as a separate file.

To save artwork...

1. Scan or load the image you want to use.
2. Still in **CorelDRAW Graphics** mode, select the image.



3. Select **File > Export**. The **Export** dialog opens.



4. Choose a suitable file format from the droplist – e.g. BMP or PNG.
5. Select an export folder, then select a format from the **Save as type** droplist.
6. Enter a file name and click **Export**.

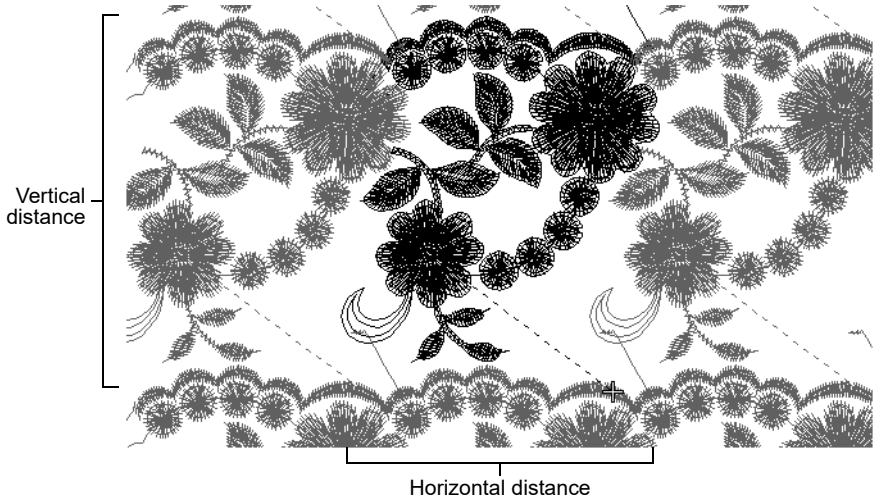
Note: This file is not referenced by the EMB file. Any further changes to it are not reflected in the embedded image.

Related topics...

- Loading bitmap artwork

Preparing artwork for continuous embroidery

Many customers make traditional garments such as sarees which employ continuous and sometimes overlapping designs. It is important that artwork used for continuous embroidery is properly sized and orientated. When doing continuous designs on multihead systems, horizontal distance will generally be a function of the gap between machine heads – e.g. 135 mm.



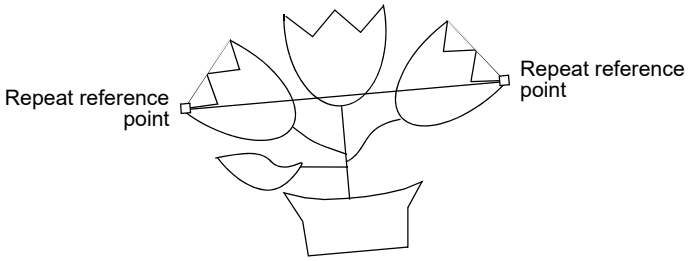
There are two main sources of artwork for continuous embroidery:

- Enlargement drawings. These are typically used with a digitizing tablet. See the Schiffli Supplement for details.
- Scanned images or graphics files from third-party software. These are used for on-screen digitizing.

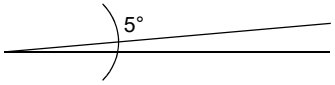
The same considerations apply for both types of artwork. However, while with enlargement drawings you adjust drawing scale, with electronic artwork, you adjust on-screen image size and rotation. Generally electronic artwork will be prepared to exact dimensions. To check a design repeat, you need to measure the distance between two repeat points. You will need to choose clearly identifiable points on the design which are easy to identify.

To adjust an image to repeat...

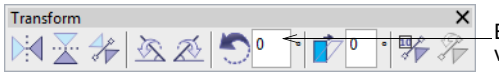
- Scan or insert your artwork as you would a normal digitizing backdrop. If you have prepared your artwork in **CorelDRAW Graphics**, switch to **Wilcom Workspace**.
- Select **View > Measure**. Click the first (left) repeat reference point, then place the cursor over the second point.



- Check the **X** and **Y** values and the angle. If the angle is not zero the image may need to be rotated. You can decide the acceptable tolerance. Small errors are usually acceptable. Usually 0.3mm in real size is the smallest error the human eye can discern.



- If you need to rotate it, select the image and enter the exact rotation setting in the **Transform** toolbar.



Caution: Rotation of bitmap images can reduce definition. For better quality, go back to the source application and adjust artwork there. Or, in the case of scanned artwork, adjust it on the scanner and re-scan.

- Once rotation is fixed, measure the two points again and compare the **X** value with the **Design Repeat** value. Again you need to decide what tolerance is acceptable. First you need to calculate the necessary scale factor, which is:

  Scale Factor = (Measured Repeat (X) ÷ Design Repeat) × 100%

  If the image needs to be enlarged by 10%, you will get 110% or a similar value. If it needs to be reduced by 5%, you will get 95% or similar.

- If necessary, adjust dimensions by a percentage in **Property Bar**.



Tip: The **Show Repeats** function displays repeating designs, including sequins, in both **TrueView** and stitch view. You can view a design, even while digitizing, with any number of repeats.

Related topics...

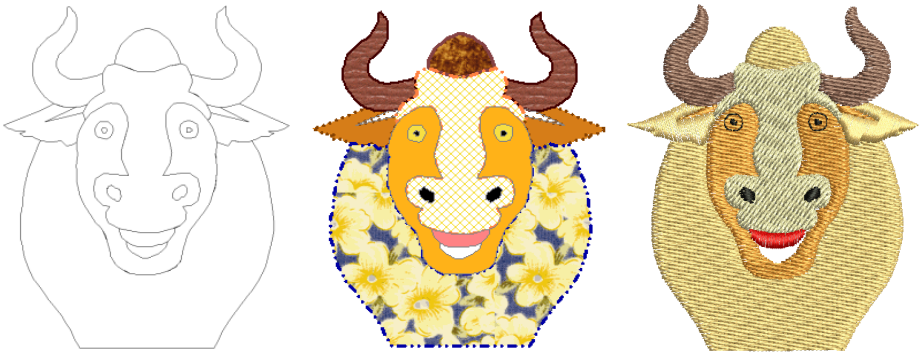
- Viewing design repeats

Chapter 31

Digitizing with Vectors

There are two fundamental design modes in BE EmbroideryStudio:

- **Wilcom Workspace**: This mode allows you to create and edit embroidery objects using an embroidery digitizing toolset.
- **CorelDRAW Graphics**: This mode allows you to create and edit vector objects using the CorelDRAW® Graphics Suite toolset.



Wilcom Workspace also provides tools for drawing shapes and outlines directly on screen. In this mode, you can also import or paste third-party vector graphics such as clipart for use as digitizing backdrops. Scale and transform them in the same way as embroidery objects. You can also select colors for vector object outlines and fills.

The **Auto Trace To Vectors** feature lets you convert scanned artwork to vector objects. You can then convert these to embroidery objects using a variety of input methods.

When working with overlapping vector or embroidery objects, merge, trim or split them using **Shaping** tools.

CorelDRAW Graphics includes the entire suite of CorelDRAW® Graphics Suite drawing tools which offer many sophisticated techniques for drafting outlines and shapes on screen. Vector graphics so created can be directly converted to embroidery objects or even entire designs. Alternatively, you can insert or paste third-party vector graphics such as clipart for use in embroidery designs. Or, insert, paste or scan bitmap artwork for use as digitizing templates or 'backdrops'.

Tip: For a full description of the CorelDRAW® Graphics Suite tools, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **Help** menu.

This section describes how to create vector objects using the digitizing tools as well as how to import them from third-party applications. It also explains how to merge, trim and split overlapping vector or embroidery objects using the shaping tools.

Creating vector shapes in BE EmbroideryStudio

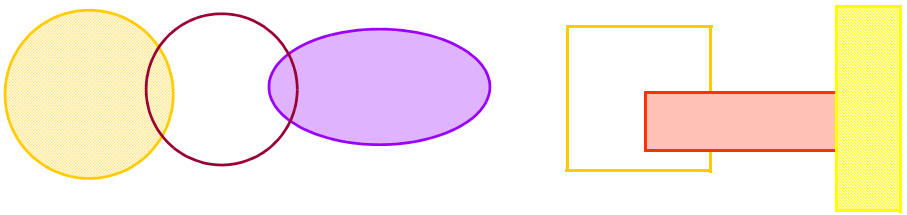
BE EmbroideryStudio lets you 'draft' shapes and outlines on screen. You can set colors for outlines as well as fills. Vector objects can be converted to embroidery objects with the application of manual input methods and stitch types. See also Convert objects with CorelDRAW Graphics.

Note: Depending on your product level, BE EmbroideryStudio includes the CorelDRAW® Graphics Suite drawing tools which offer many techniques for drafting outlines and shapes on screen. See also Operating modes.

Create vectors

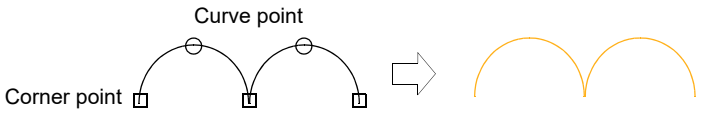
	Use Graphics Digitizing > Digitize Open Shape to digitize open shapes. Press <Ctrl> to constrain.
	Use Graphics Digitizing > Digitize Closed Shape to digitize closed shapes. Press <Ctrl> to constrain.
	Use Graphics Digitizing > Ellipse to digitize ellipse or circle embroidery objects.
	Use Graphics Digitizing > Rectangle to digitize rectangle or square embroidery objects. Press <Ctrl> to constrain.
	Use Graphics Digitizing > Basic Shapes to digitize basic shapes. Press <Ctrl> to maintain aspect ratio. Press <Shift> to center at the first point.
	Use Outlines > Vector Outline to create vector outlines with no stitch properties applying.
	Use Fills > Vector Fill to create vector fills with no stitch properties applying.

Use the **Graphics Digitizing** tools to create vector objects directly in BE EmbroideryStudio. Digitizing vector outlines and fills is like digitizing any other objects except that they have no stitch properties applying.

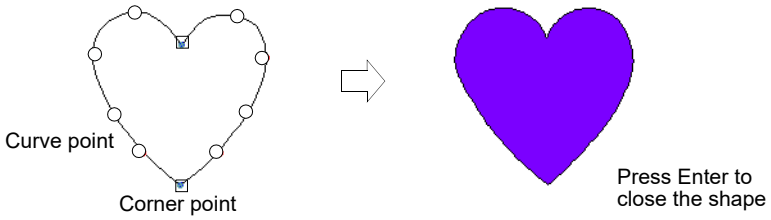


To create vectors...

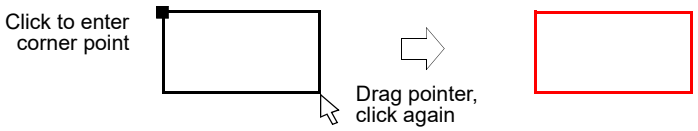
- Select **Vector Outline** or **Vector Fill** as your stitch type.
- Draw straight lines in your design using either **Digitize Open Shape** or **Digitize Closed Shape** digitizing tools. Enter start and end points. To constrain the line vertically, horizontally or in 15° angles, press **Ctrl** as you mark the end point.
- Draw lines of any shape using the same tools. Enter reference points to create the shape you want – left-click for corner points, right-click for curve points.



- When you create closed shapes with the **Digitize Closed Shape** drawing tool, press **Enter** to close the shape.

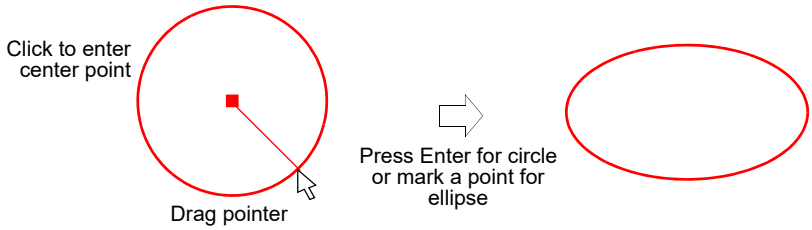


- Draw rectangles and squares using the **Rectangle** tool. To draw a square, hold down **Ctrl** as you move the pointer.



- Draw circles and ellipses using the **Ellipse** tool.
  - To draw a perfect circle, press **Enter**.

- To draw an ellipse, move the pointer again, then mark a second radius point when the outline is the required size. Press **Enter**.



- Press **Enter** to close a shape.

Color vectors

Use Docker > Object Properties to toggle the Object Properties docker on/off. Use it to select colors for vector outlines and fills.

BE EmbroideryStudio lets you set colors for vector outlines as well as fills. Coloring makes vector objects easier to interpret. For example, a solid fill color might suggest Satin or Tatami, while a fill pattern may be interpreted as Motif Fill or Program Split.

To color vectors...

1 Create or insert a vector graphic.

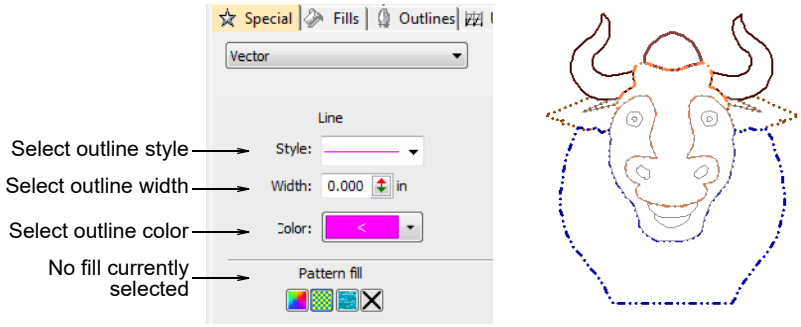


2 Ungroup the vector objects as necessary.

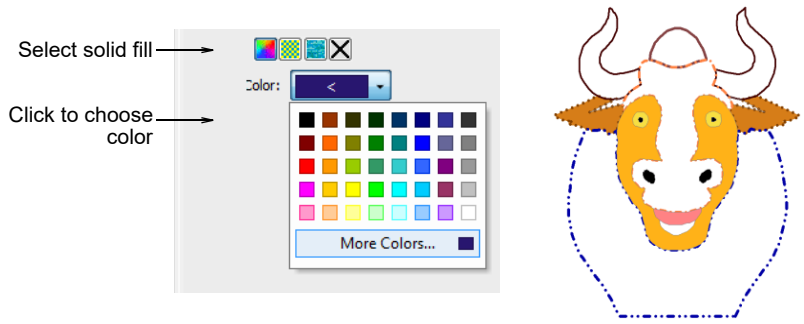
3 Select a vector object, right-click and select **Properties** from the popup menu. The **Object Properties** docker opens.

4 To change the outline color of the selected object, adjust the settings in the **Line** panel:

- Select an outline style from the **Style** list.
- Select an outline width from the **Width** field.
- Click **Color** and select an outline color from the **Color** dialog.

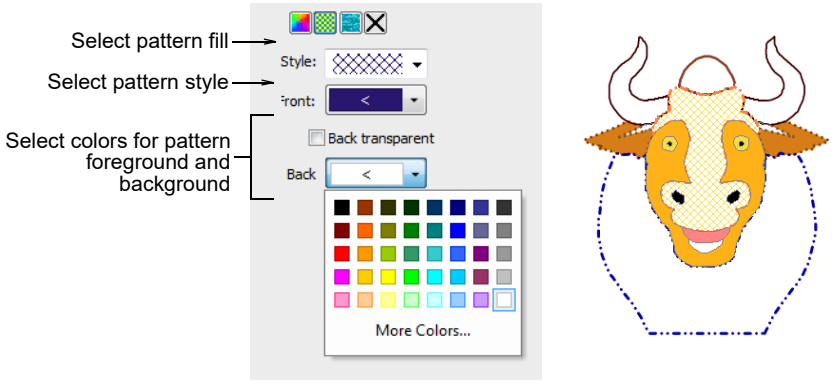


5 To fill the selected object with a solid color, select the **Solid Fill** icon and click the **Color** droplist to access the colors.

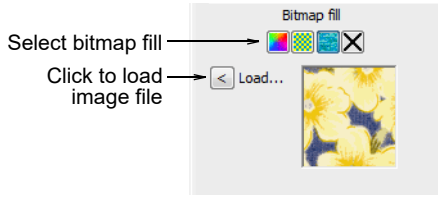


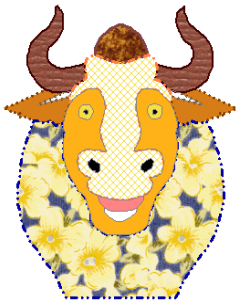
6 To fill the selected object with a pattern fill, select the **Pattern Fill** icon and adjust the settings:

- Select a pattern style from the droplist.
- Select a foreground color via the **Front** button.
- Make the background transparent as required or choose a color via the **Back** button.



7 To fill the selected object with a bitmap – e.g. a fabric texture – select the **Bitmap Fill** icon and click the **Load** button to insert an image file via the **Open** dialog.





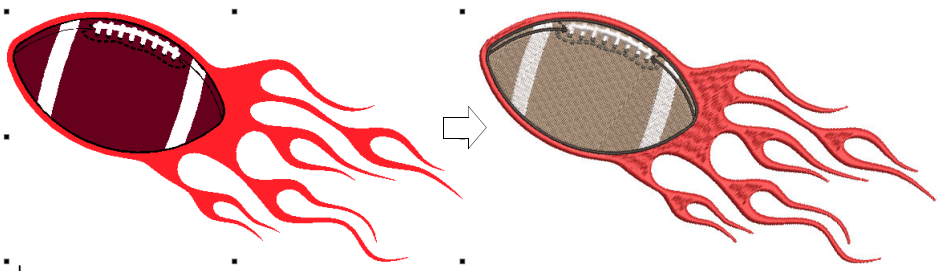
Note: To view the changes in the production worksheet, select **File > Print Preview**. In the **Options > Design** tab select the **Vectors** checkbox.

Related topics...

- Insert vector graphics
- Customizing design reports
- Design options

Loading vector artwork

Vector graphics of different formats can be inserted or 'loaded' into BE EmbroideryStudio for use as digitizing backdrops or for conversion to embroidery. Vectors can be inserted directly into **Wilcom Workspace** or via **CorelDRAW Graphics**.



Tip: CorelDRAW® Graphics Suite is bundled as standard with some product models. CorelDRAW® and its sister product, Corel PHOTO-PAINT® can also be run as standalone applications. CorelDRAW® Graphics Suite features 'best-of-breed' bitmap-to-vector tracing, enhanced illustration capabilities, photo-editing together with a library of professional clipart images. CorelDRAW® needs to be registered before it can be used by BE EmbroideryStudio.

Insert vector graphics

Use Standard > Import Graphic to import vector graphic or bitmap image into current design

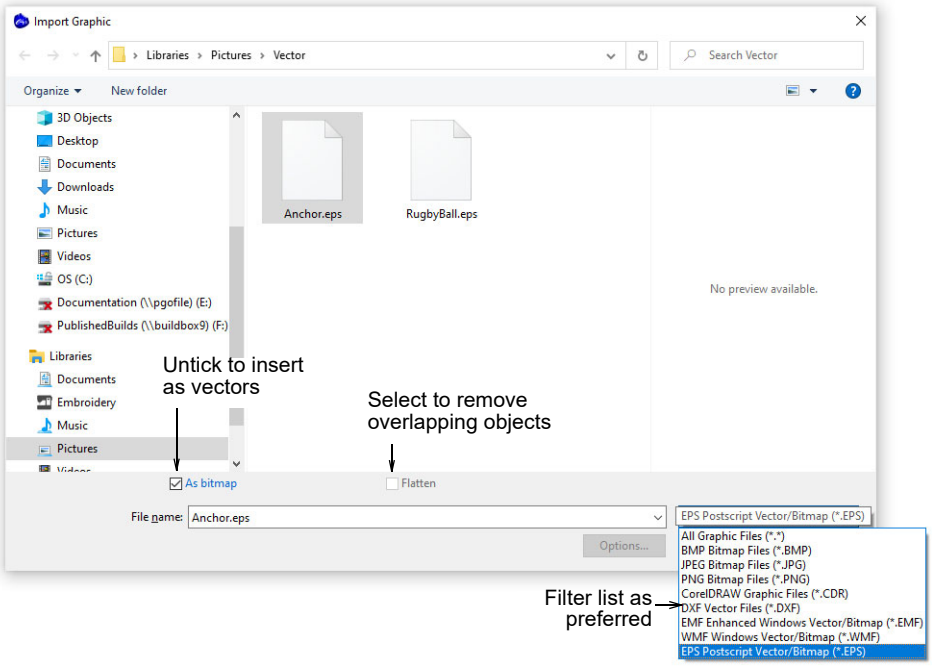
Use View > Show Vectors to show or hide any vector artwork included in the design. Right-click for settings.

Vector graphics from third-party applications can be inserted into BE EmbroideryStudio in a variety of native and interchange vector formats. You can also import some vector graphics as bitmaps. You can convert vector graphics to embroidery objects using a variety of input methods or with the Auto-Digitizing tools.

To insert a vector graphic...

1 Create a new file in BE EmbroideryStudio or open the design file into which you want to insert the vector graphic.

2 Click the **Import Graphic** icon or select **File > Import Graphic**.

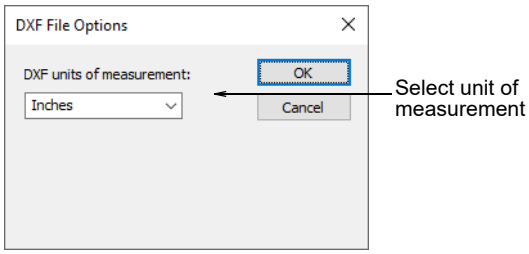


3 Navigate to the graphics folder. The dialog defaults to 'All graphic files' which displays all supported file types – BMP, PNG, EPS, etc. Change the **Files of type** setting if you want to filter on a specific file type – e.g. EPS.

Note: While 'All Graphic Files' includes both vector and bitmap formats, for native CDR and other vector file types, use the CorelDRAW® Graphics Suite import function.

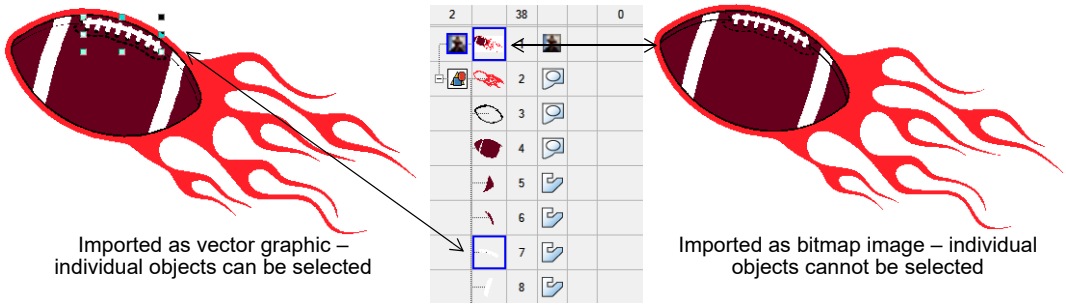
4 If you are working with DXF files:

- Click **Options**. The **DXF File Options** dialog opens.



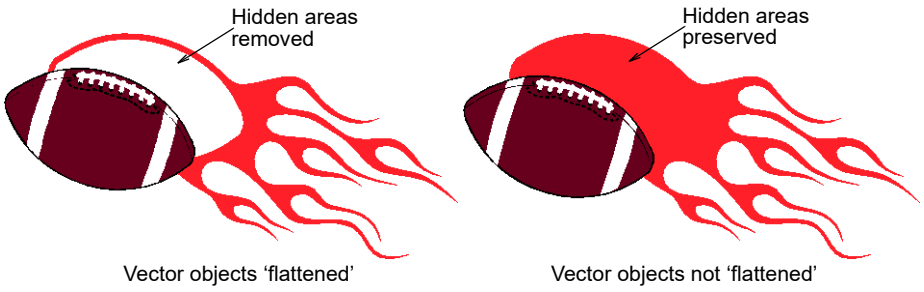
- Select **Inches** or **Millimeters** from the **Units of Measurement** list and click **OK**. If this information is not specified, the vector graphic may not display at the correct size.

5 Select the **As Bitmap** checkbox to insert the vector graphic as a bitmap image.



Note: DXF files cannot be imported as bitmaps.

6 Select the **Flatten** checkbox to remove any overlapping areas from the vector graphic.



7 Select the **Preview** checkbox to see a preview of the vector graphic.

8 Click **Open** to insert the vector graphic into the design window.

Tip: You can also paste vectors directly into BE EmbroideryStudio through the MS Windows® clipboard.

Related topics...

- Operating modes
- Converting designs with CorelDRAW Graphics
- Auto-digitize individual shapes

Import vector graphics

Use Mode > CorelDRAW Graphics to import, edit or create vector artwork as a backdrop for embroidery digitizing, manual or automatic.

Use Standard > Import to import a file to the active document in CorelDRAW Graphics.

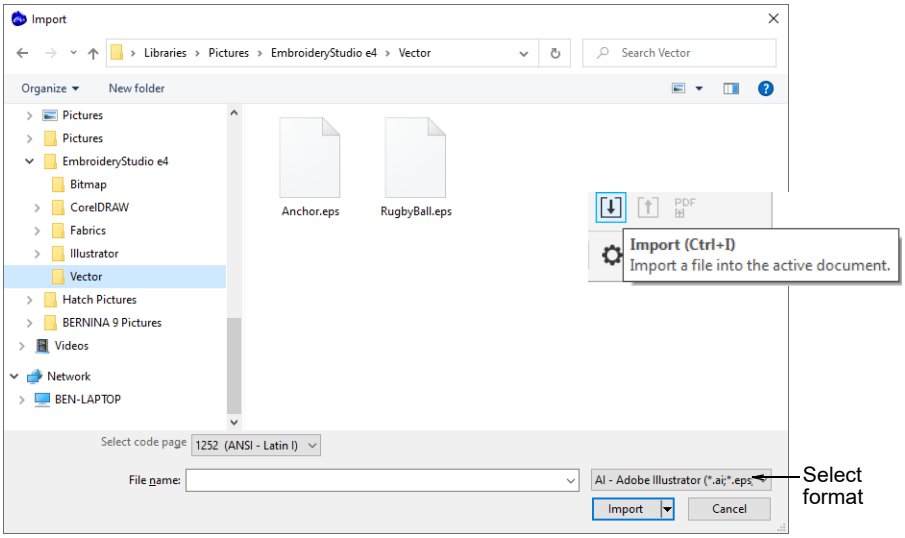
Use View > Show Vectors to show or hide any vector artwork included in the design such as CorelDRAW® clipart. Right-click for settings.

You can load vector artwork of various formats via **CorelDRAW Graphics** for use as digitizing backdrops for manual or automatic digitizing. You can also use this technique to insert bitmaps.

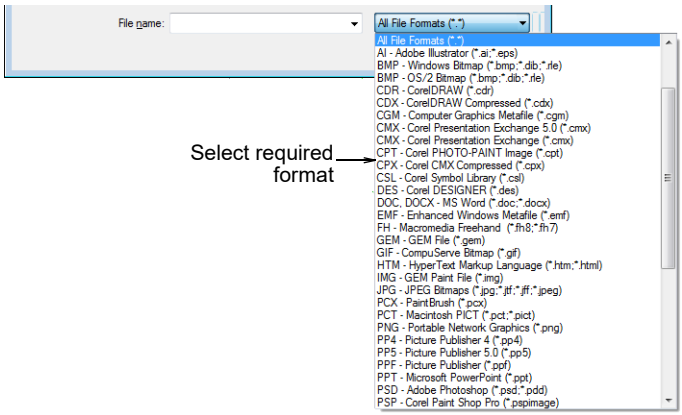
Note: CorelDRAW® needs to be registered before it can be used by BE EmbroideryStudio. Registration provides CorelDRAW® Standard Membership which gives you access to content – clipart, fonts, stock photos, templates – via Corel CONNECT.

To import a vector graphic...

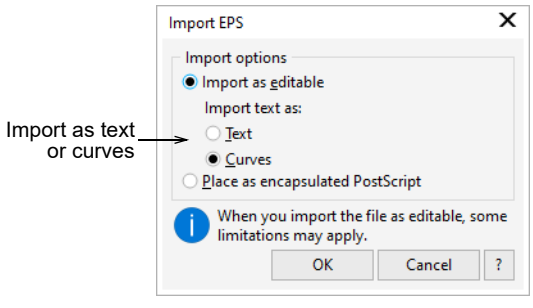
1 Switch to CorelDRAW Graphics and click **Import** on the **Standard** toolbar.



2 Select a folder and select a file type from the **Files of Type** list – e.g. EPS.



3 Select a file and click **Import**. The **Import EPS** dialog opens. You are prompted to import as pure text or as vector curves.



4 Position the cursor in the design window and press **Enter**.

5 Choose a digitizing technique:

- Convert vectors to embroidery: See Convert objects with CorelDRAW Graphics for details.
- Switch to **Wilcom Workspace** and use the artwork as a digitizing backdrop: See Digitizing methods for details.



Note: If you cannot see the image you loaded in **Wilcom Workspace**, make sure **Show Vectors** icon is toggled on.



Tip: Locking backdrop images holds them in place as you digitize, transform or reshape the embroidery objects near them. Locked objects can be unlocked for modification at any time.

Related topics...

- Operating modes
- Change backgrounds
- Grouping & locking objects
- Converting designs with CorelDRAW Graphics
- Auto-digitize individual shapes

Auto-tracing bitmap artwork



Use Auto-Digitizing > Prepare Bitmap Colors to reduce the number of colors and remove image 'noise' in non-outlined images.



Use Auto-Digitizing > Auto Trace To Vectors to convert artwork to vector objects for conversion to embroidery objects.

Use **Auto Trace To Vectors** to create vector outlines from bitmap images. You can then convert these to embroidery objects using a variety of input methods. **Auto Trace To Vectors** can find holes in shapes – both inside and outside boundaries are detected.

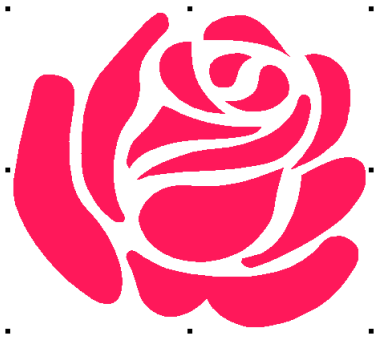


Tip: Once digitized in BE EmbroideryStudio, embroidery designs can be output as vectors. These can be opened in **CorelDRAW Graphics**. See also Exporting embroidery as vectors.

To auto-trace bitmap artwork...

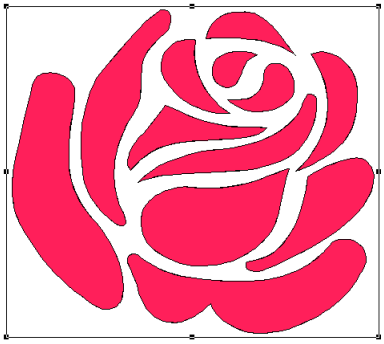
1 Scan or insert a bitmap image.

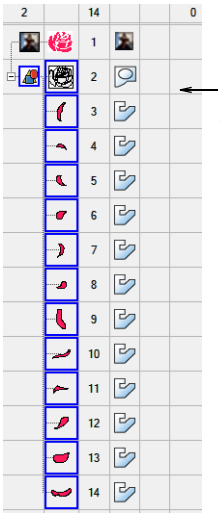
2 Select the image and click the **Prepare Bitmap Colors** tool.





3 Click the **Auto Trace To Vectors** icon. The design is automatically traced into vectors, both outlines and filled shapes.

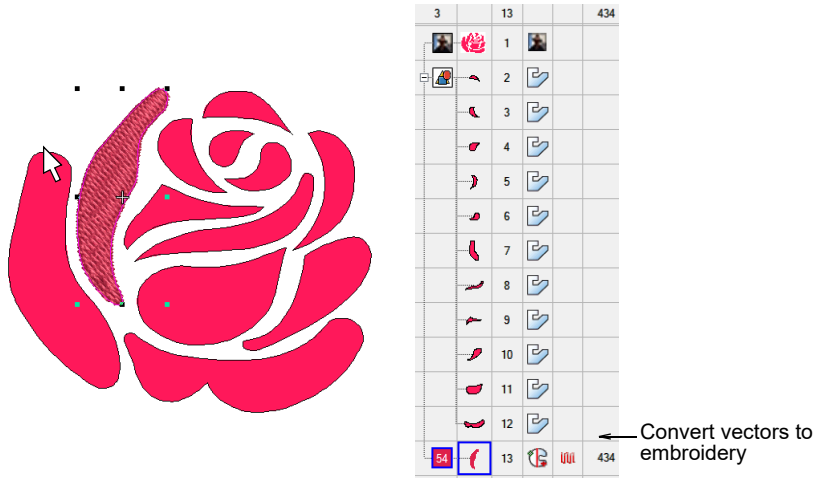




Bitmap converted to vector outlines and filled shapes

Note: If the bitmap needs preliminary color reduction, clicking **Auto Trace To Vectors** takes you directly to the **Prepare Bitmap Colors** dialog.

4 Select the shape/s you want to convert to embroidery and convert using any of the available techniques.



Related topics...

- Converting designs with CorelDRAW Graphics
- Insert bitmap images
- Preparing artwork for auto-digitizing

Smoothing curves

Use Reshape > Reshape Object in combination with Edit > Smooth Curves to remove unnecessary control points from vector graphic objects.

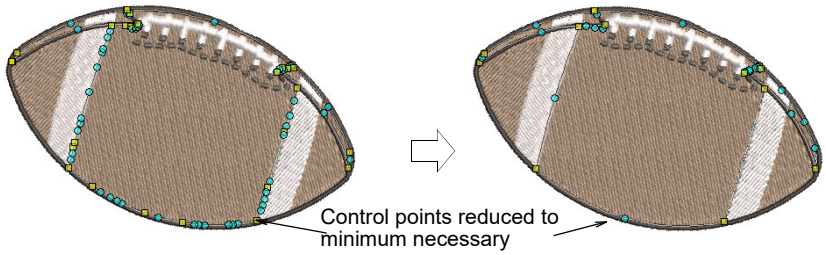
Both vector and embroidery objects contain control points on their outlines. On shapes where the angle changes constantly, the software may insert hundreds of control points, making reshaping difficult. The **Smooth Curves** command applies curve 'smoothing' to embroidery as well as vector objects.

To smooth curves...

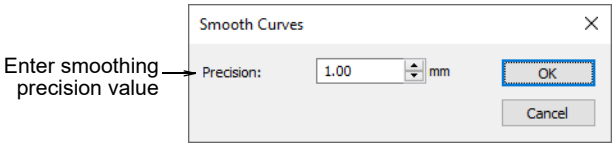
1 Select the object (or objects) to smooth.

Note: You can only smooth objects that have been ungrouped and selected. However, you can select multiple objects.

2 Optionally, click **Reshape Object** to view control points around the outline.



3 Select **Edit > Smooth Curves**.



4 Adjust the **Precision** field. This value controls how closely the smoothed outline follows the original. The larger the precision value, the fewer the control points.

5 Click **OK**.

Visualizing vector graphics

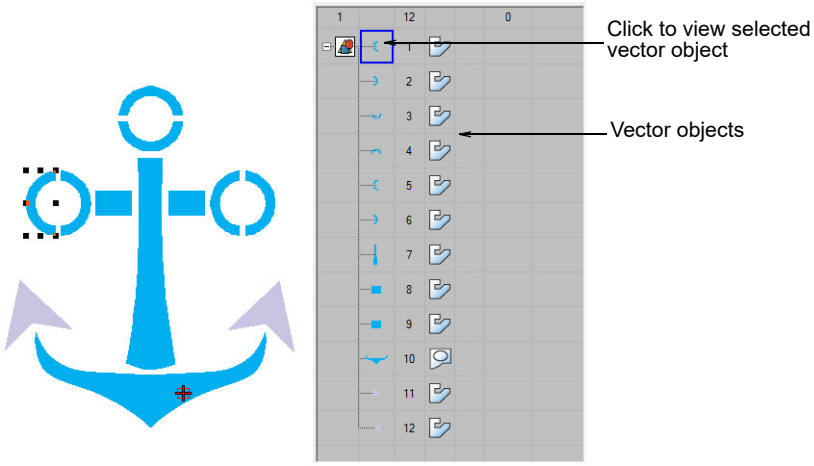


Use View > Show Vectors to show or hide any vector artwork included in the design such as CorelDRAW® clipart. Right-click for settings.

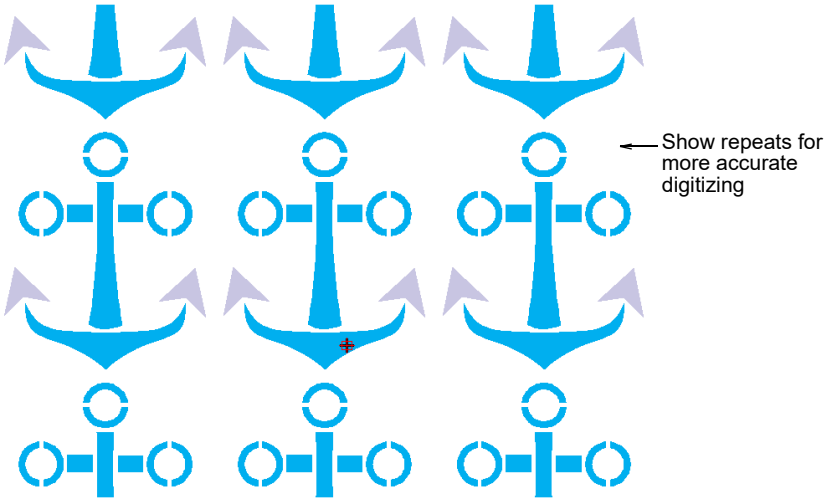


Use View > Show Repeats to toggle design repeats display. Right-click for settings.

Vectors can be viewed in a variety of ways in **Wilcom Workspace**. Toggle vectors on or off with the **Show Vectors** icon. View vectors in the **Color-Object List**. Click **Locate** to isolate selected vector objects on-screen.



Vector graphics can also be visualized using **Show Repeats**. This can be useful when digitizing continuous embroidery designs.



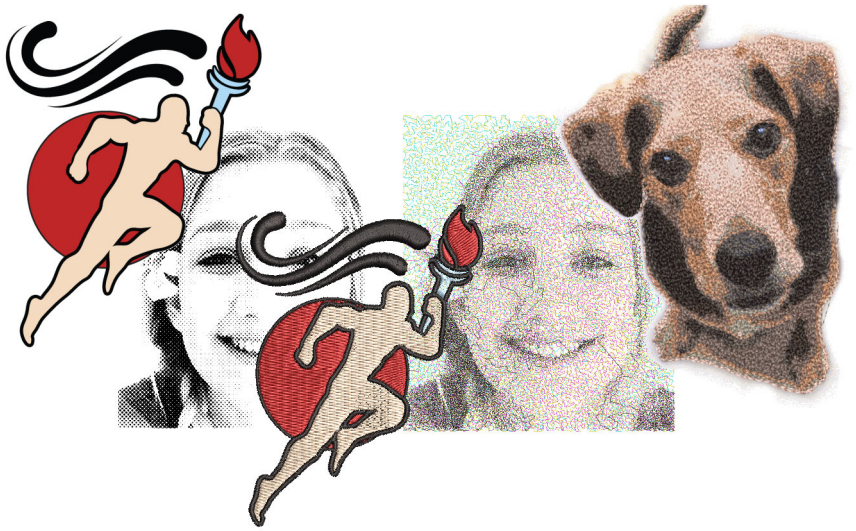
Related topics...

- Viewing design repeats

Chapter 32

Automatic Digitizing

BE EmbroideryStudio provides a variety of complementary tools and techniques to automatically and semi-automatically digitize suitably prepared artwork and photographs.



Auto-digitizing features covered in this section include:

Feature		Overview
	Convert	The Convert feature lets you convert vector objects directly to embroidery objects. And vice versa. Entire designs can be converted in either direction.
	Auto-Digitizing	The Auto-Digitizing tools provide everything necessary to digitize shapes in graphics automatically without using manual digitizing methods.
	Smart Design	The Smart Design feature automatically converts bitmap images to embroidery.

This section describes how to automatically convert graphics to embroidery objects and complete designs using a variety of techniques.

Preparing artwork for auto-digitizing

The **Auto-Digitizing** tools provide everything necessary to automatically digitize electronic artwork and photographs. Results depend greatly on the resolution, color depth, and quality of source images. For best results, use crisp images with well-defined subjects and strong contrasts. In addition a degree of preparation is needed. This may involve preparation using third-party graphics applications such CorelDRAW Graphics. Tools are also available within Wilcom Workspace.



Loading & presetting artwork



Use Auto-Digitizing > Color Matching Method to preselect a thread matching method.



Use Auto-Digitizing > Crop Bitmap to crop bitmap artwork for use with auto-digitizing.

Artwork can be inserted, pasted or scanned into BE EmbroideryStudio for use as digitizing backdrops. The auto-digitizing tools handle both bitmap and vector formats. For both manual and automatic digitizing purposes, 'clean' images, sometimes referred to as 'cartoons', work best. Depending on the quality of the scanned image, you may need to touch it up manually before processing in BE EmbroideryStudio. You would normally do this in order to eliminate backgrounds, flood-fill solid areas with color, add or reinforce outlines, or close gaps.

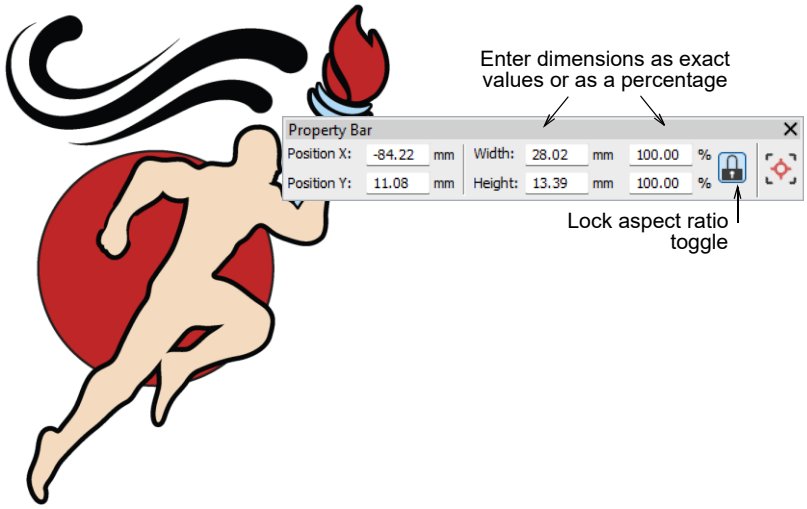
To load & preset artwork for auto-digitizing...

1 Scan or import the image to use. Whether you're working with bitmap or vector graphics, you need to prepare them first:

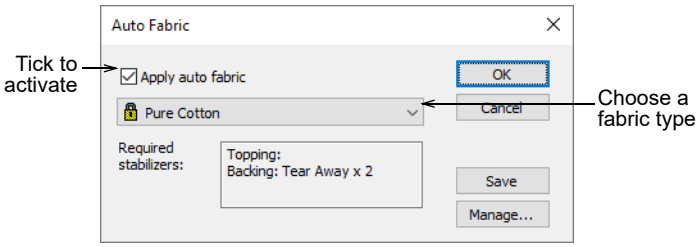
- Scan or insert a bitmap image. If you are using a bitmap image as input, it will need to be image-processed before conversion.

- Insert or create a vector graphic. If you are using a vector graphic as input, you can remove overlapping objects by 'merging' them. This eliminates overlapping stitching when vector objects are converted.

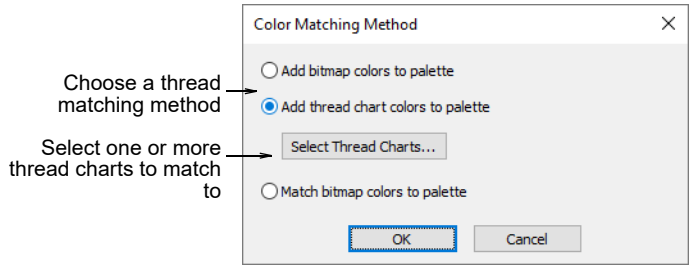
2 Whether you're working with bitmap or vector graphics as input, you may want to prepare them first:
   - If you are using a bitmap image, it can be image-processed before conversion.
   - If you are using a vector graphic, you can remove overlapping objects by 'merging' them. This eliminates overlapping stitching when vector objects are converted.
3 Size the image to the preferred dimensions for your target article.



4 Optionally, select **Design > Auto Fabric** to apply preferred fabric settings.



5 Crop the image as desired using the **Crop Bitmap** tools.
6 Optionally, click **Color Matching Method** and decide how you want to handle color matching.



You have three options:

- Add bitmap colors directly to the design palette (default).
- Choose a chart and match bitmap colors to actual threads. Click the **Select Thread Charts** button to access thread charts.
- Or, match bitmap colors to the nearest colors in the design palette.

Tip: Various techniques are available for changing design colors from the **Design Colors** toolbar.

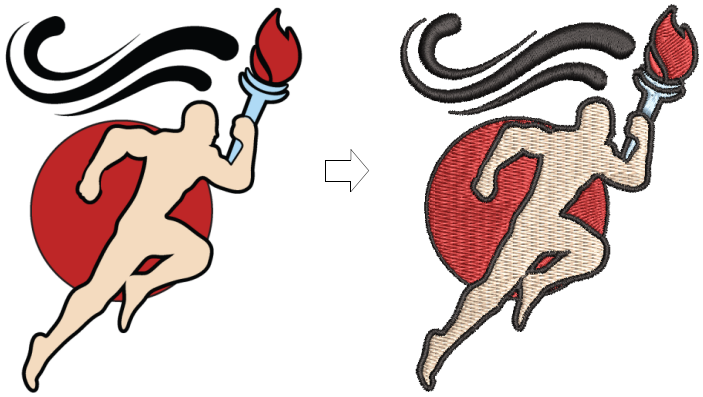
Related topics...

- Graphics & multi-decoration file formats
- Loading bitmap artwork
- Loading vector artwork
- Preparing artwork for digitizing
- Add & match image colors
- Working with fabrics
- Thread selection

Prepare bitmaps for auto-digitizing

Use Auto-Digitizing > Prepare Bitmap Colors to reduce the number of colors and remove image 'noise' in non-outlined images.

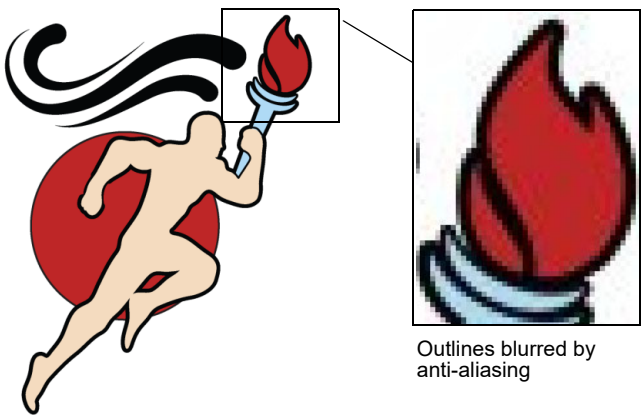
The **Auto-Digitizing** tools provide everything necessary to automatically digitize shapes in electronic artwork without using manual input methods. Even if your artwork looks ready to stitch when inserted into the software, however, it will need to be image-processed before conversion.



Use the **Prepare Bitmap Colors** tool to prepare images for automatic digitizing. This function automatically flattens colors, sharpens outlines, and reduces 'noise'. Areas enclosed by a black outline are reduced to a single color. This makes it easier for the software to recognize distinct areas in the artwork. These areas then become the embroidery objects of the finished design.

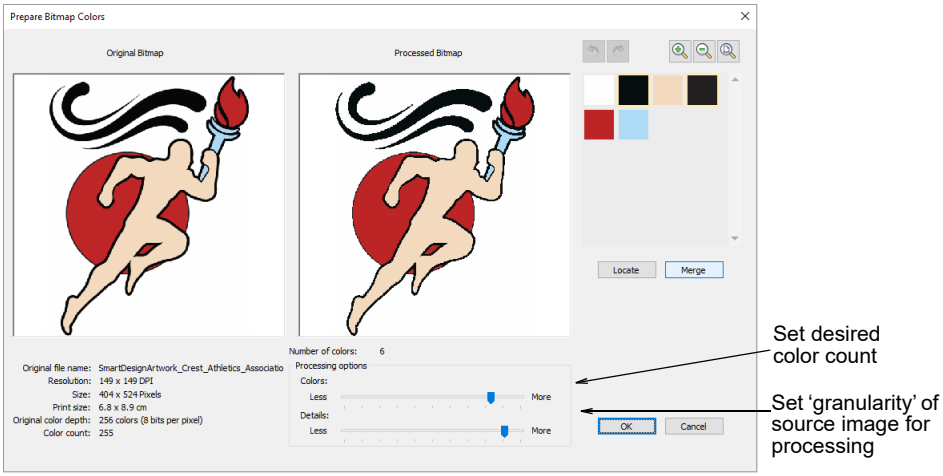
To prepare bitmaps for auto-digitizing...

1 Select the image and click the **Prepare Bitmap Colors** icon. The image appears in both 'before' and 'after' preview panels. Note the number of colors in the original. The software automatically detects the main color blocks and reduces colors accordingly.



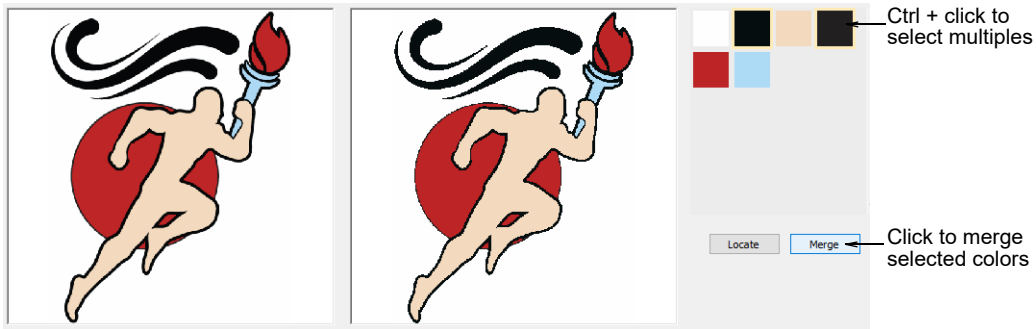
Depending on the source, you may find dithering, anti-aliasing, or other sources of 'noise' in the image. If it contains outlines, these will generally be blurred by anti-aliasing.

2 If there appear to be too few colors to provide the detail you want, use the **Processing options** to increase the color count.

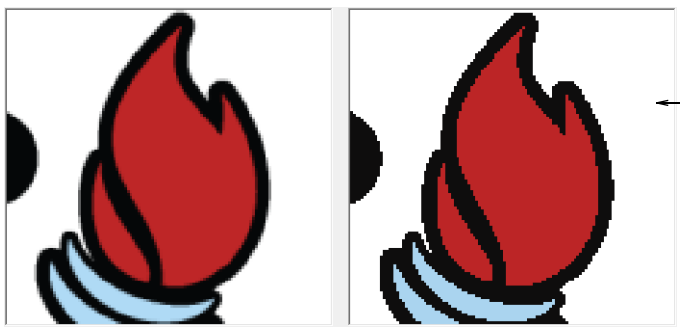


3 Manually locate and merge like-colors as necessary:

- Holding the **Ctrl** key, click like-colors to select.
- Click and hold **Locate** to preview.
- Click **Merge** to merge like-colors into a single color.



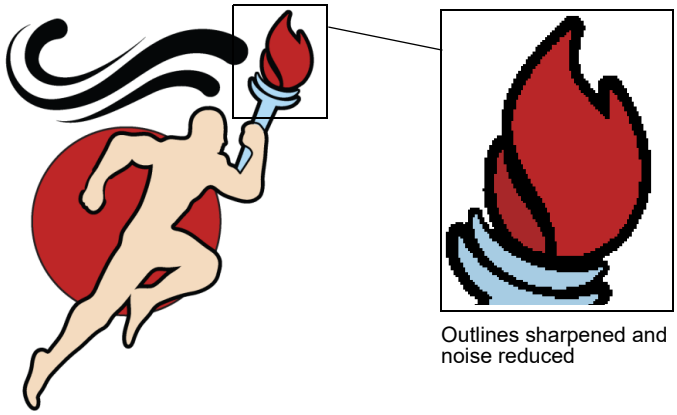
4 Use the scroll button on your mouse to zoom in and inspect details.



5 Adjust the **Details** slider to control number of details and resultant objects.

While this setting doesn't affect the image, it affects the embroidery result by filtering out smaller areas of color. 'More' generally results in greater detail and number of objects. 'Fewer' generally results in fewer details and objects. It is useful for 'noisy' images with lots of small areas. It works well with JPG files which are inherently more noisy.

6 Click **OK** to process the image. Image colors should be reduced as per the preview. The artwork can now be auto-digitized.



Outlines sharpened and noise reduced

Related topics...

- Graphics & multi-decoration file formats
- Scan images
- Insert bitmap images
- Crop bitmap images
- Touch up bitmaps
- View graphical components
- Auto-Digitizing with Photos

Converting designs with CorelDRAW Graphics

BE EmbroideryStudio lets you convert vector graphics directly to embroidery objects using a variety of techniques. Similarly, you can convert embroidery designs or objects to vector graphics. You can also quickly convert between different embroidery objects.

Convert objects with CorelDRAW Graphics



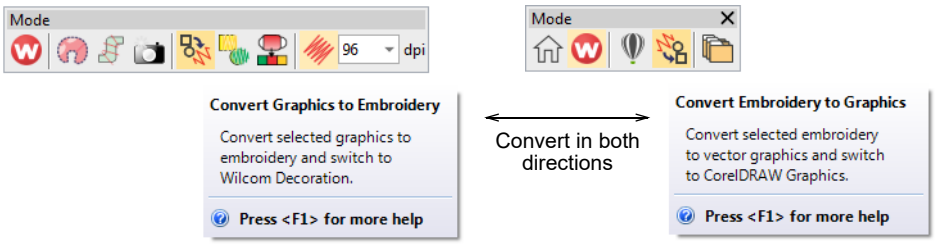
Use Mode > Tag Fill as Turning Satin to tag narrow shapes for conversion to turning stitching.

	Use Mode > Match to Embroidery Palette to toggle on/off thread color matching for converted vector objects.
	Use Mode > Tag as Photo Flash to convert photos to Photo Flash embroidery from CorelDRAW Graphics.
	Use Mode > Convert Embroidery to Graphics to convert selected embroidery to graphics and switch to CorelDRAW Graphics.
	Use Mode > Convert Graphics to Embroidery to convert selected graphics to embroidery and switch to Wilcom Workspace.
	Use Mode > Keep Graphic Objects to retain original artwork during conversion.

Some BE EmbroideryStudio product levels include CorelDRAW® Graphics Suite as standard. This lets you convert vector objects directly to embroidery objects via **CorelDRAW Graphics**. You can also convert embroidery to vector objects. Individual objects or whole designs can be converted. Bitmaps can also be used.

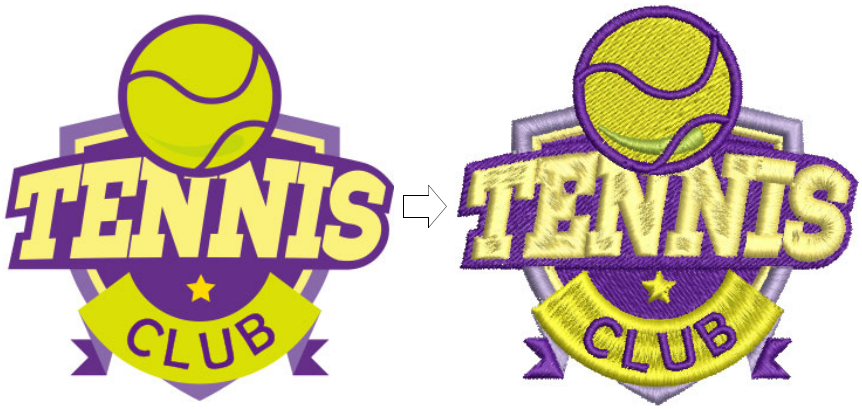
To convert graphic and embroidery objects...

- Open a vector or embroidery design, depending on which mode you are working in – **CorelDRAW Graphics** or **Wilcom Workspace**.



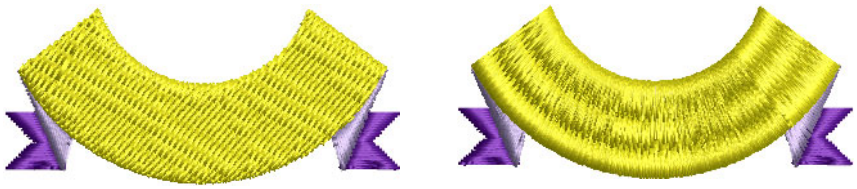
The **Convert** function is located on the **Mode** toolbar. Behavior depends on the operating mode:

- In **CorelDRAW Graphics**, selected vector objects are converted to embroidery and displayed in **Wilcom Workspace**.



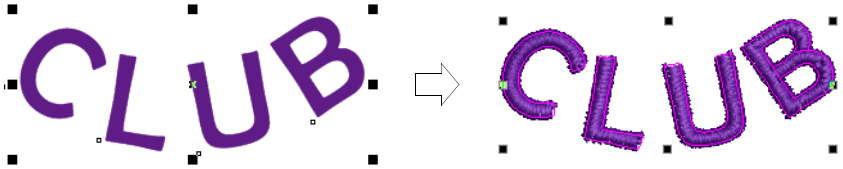
- In **Wilcom Workspace**, selected embroidery objects are converted to vector objects and displayed in **CorelDRAW Graphics**.

- If you want to keep a copy of the original vector objects, click the **Keep Graphic Objects** toggle in **CorelDRAW Graphics**.
- Use the **Match to Embroidery Palette** tool to toggle on/off thread color matching.
  - When turned on, converted vector objects are assigned the nearest matching thread color in the current color palette.
  - When turned off, a new thread color is added to the palette based on the vector color.
- Optionally, activate **Tag Fill as Turning Satin**. This produces a branched object as shown below.



Without turning satin | With turning satin

Tip: Vectors can also be converted to appliqué as well as to lettering. See also Creating lettering with CorelDRAW Graphics.



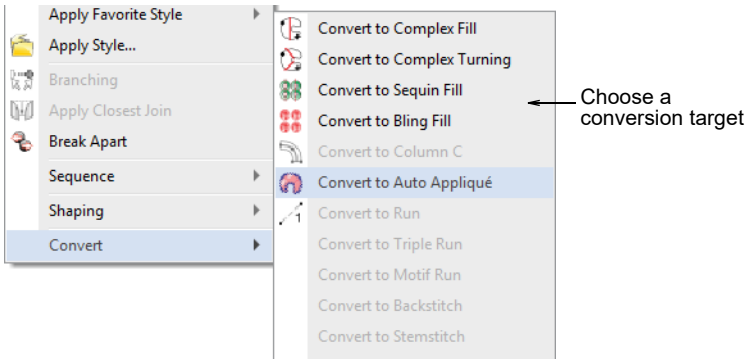
Vectors converted to lettering

Related topics...

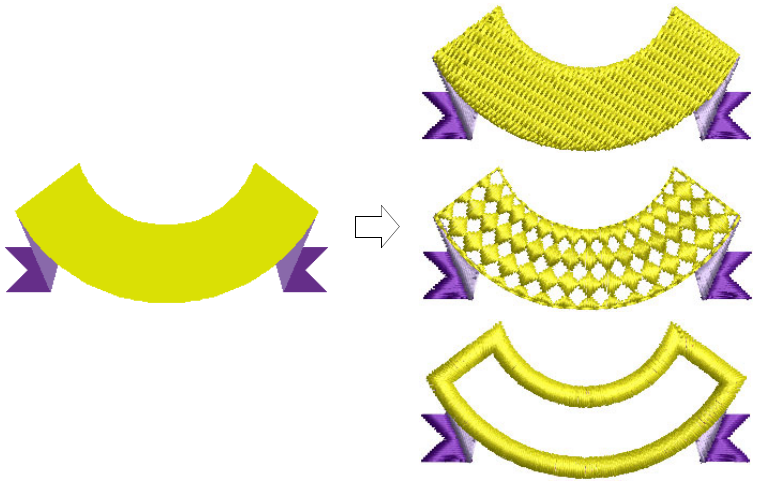
- Working with design files
- Creating lettering with CorelDRAW Graphics
- Convert vector graphics to appliqué

Convert objects with Wilcom Workspace

You can convert vector objects to embroidery objects by right-clicking a selected object and select **Convert > ...** from the popup menu.



The resulting object takes the current stitch type, color and object properties set for that digitizing method. Vector objects can be converted to appliqué. You can also create objects with turning stitches by adding stitch angles directly to vector objects.

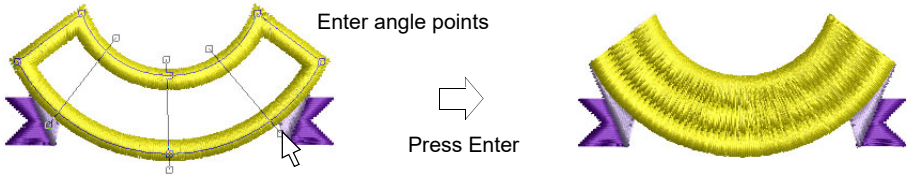


You can easily convert objects from Column A/B to Complex Fill or Complex Turning. This is useful for editing. For example, as curved fill effects can only be used with Complex Fill objects, you can add them to

Column A/B shapes by first converting to Complex Fill. Also when scaling designs, an Column A/B shape may become too big for Turning Satin. By converting to Complex Fill or Complex Turning, you can apply fixed or turning Tatami or some other fill stitch type.



You can change an Appliqué or vector object to a complex fill object in the same way. You can also convert **Complex Fill** to **Complex Turning**. If you convert to **Complex Turning**, you are prompted to enter more than one stitch angle line and press **Enter**.



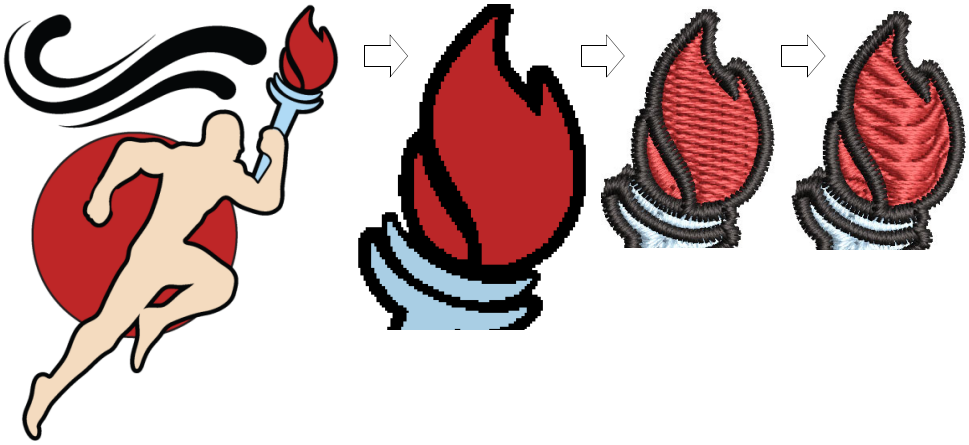
Note: If a current stitch type is not applicable to the target object – e.g. **Contour** stitch – **Satin** will be substituted. If the underlay type is not applicable – e.g. **Center Run – Zigzag** will be used.

Related topics...

- Adjusting stitch angles
- Convert embroidery objects to appliqué

Auto-digitizing artwork

The quality of auto-digitized designs greatly depends on the type and quality of the original artwork. Generally speaking, vector graphics preserve image quality when resized, whereas bitmaps cause problems of pixelation and image degradation when enlarged or scaled down. In order to make bitmap images more suitable for automatic digitizing, BE EmbroideryStudio also provides image processing capabilities and links to graphics packages.



Auto-digitize 'instant embroidery'


Use Auto-Digitizing > Color Matching Method to preselect a thread matching method.

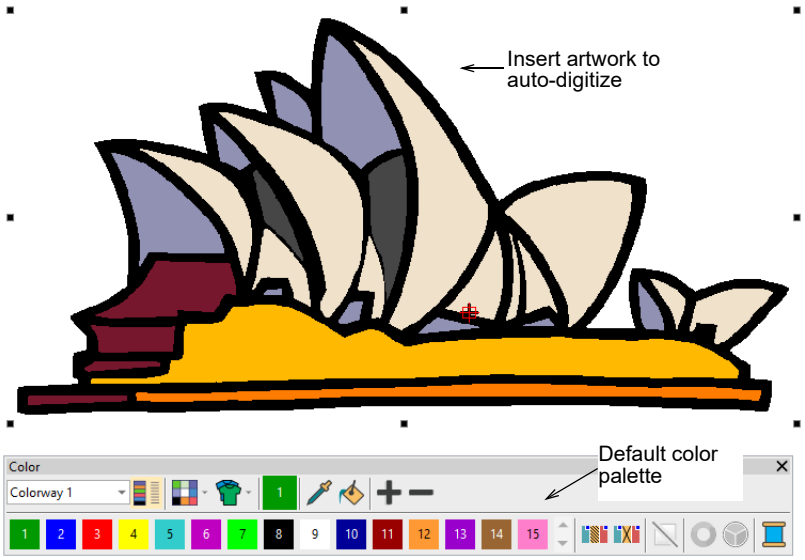

Use Auto-Digitizing > Instant Smart Design to automatically create embroidery from imported artwork instantly.


Use Auto-Digitizing > Keep Graphic Objects to retain original artwork during conversion.

In essence, creating an embroidery design with the **Instant Smart Design** tool is simply a matter of selecting the image you want to convert, and clicking the tool. BE EmbroideryStudio automatically determines colors to treat as fills or outlines, or omit altogether. And it chooses the most suitable stitch types to apply with default settings. This is very useful for stitch estimates. The tool handles both bitmap and vector formats.

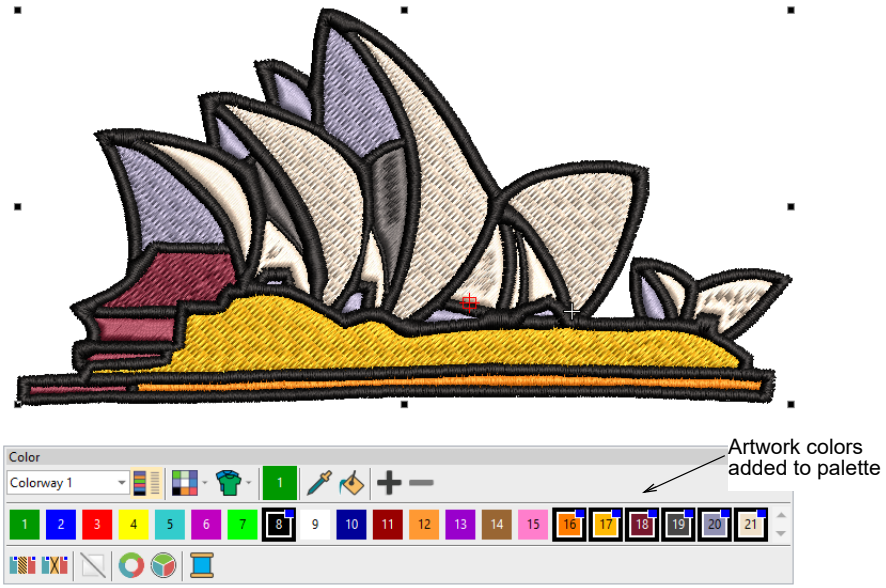
To auto-digitize 'instant embroidery'...

1 Load and preset the artwork as necessary.

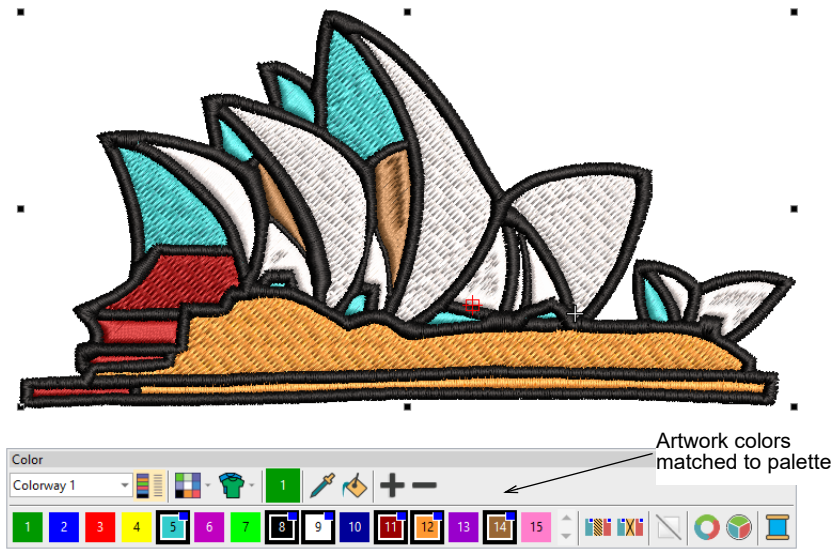


2 Optionally, choose a color matching method.

3 Click **Instant Smart Design** and study the result.



By default, artwork colors are added to the palette. If you have chosen to match artwork colors, you might obtain a result like this...



4 Edit the result as preferred – e.g. change colors, change stitch types, delete any unwanted background stitching, etc.

- Use the **Color-Object List** and/or **Sequence** toolbar to optimize the stitch sequence of your auto-digitized objects.
- Use the **Closest Join** and/or the **Reshape** tool to minimize connectors.
- Toggle underlays on/off with the **Auto Underlay** button.

Related topics...

- Loading & presetting artwork
- Crop bitmap images
- Sequencing embroidery objects
- Reshaping objects
- Merge vector & embroidery objects
- Minimizing connectors
- Stabilizing with underlays

Auto-digitize entire designs

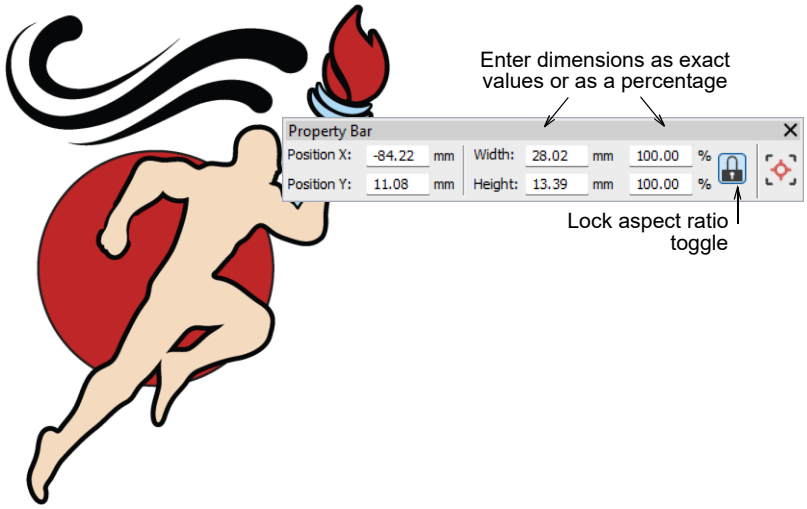
Use Auto-Digitizing > Smart Design to create embroidery designs directly from imported artwork.

Use Auto-Digitizing > Keep Graphic Objects to retain original artwork during conversion.

For more control over object conversion, use the **Smart Design** method. This can recognize shapes in artwork and allow you to preset suitable stitch types for conversion. **Smart Design** determines stitching sequence based on closest join. Artwork is effectively 'batch processed' to create the many embroidery objects that make up a design. The tool handles both bitmap and vector formats.

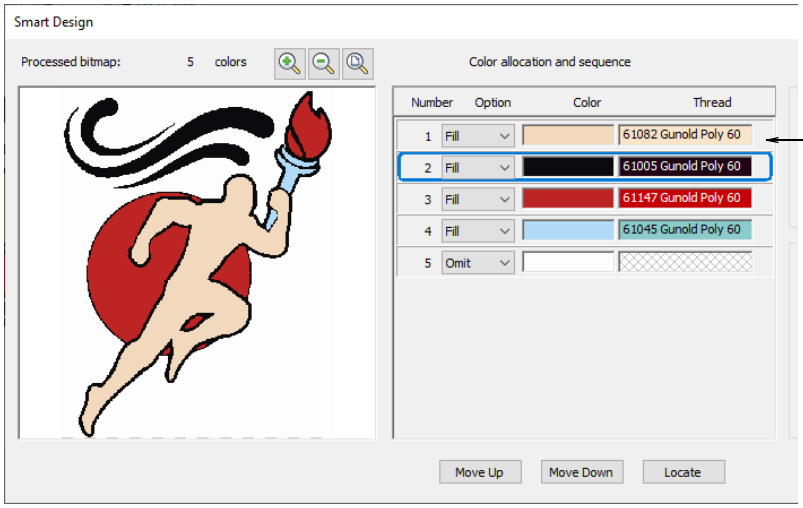
To auto-digitize entire designs...

1 Load and preset the artwork as necessary.



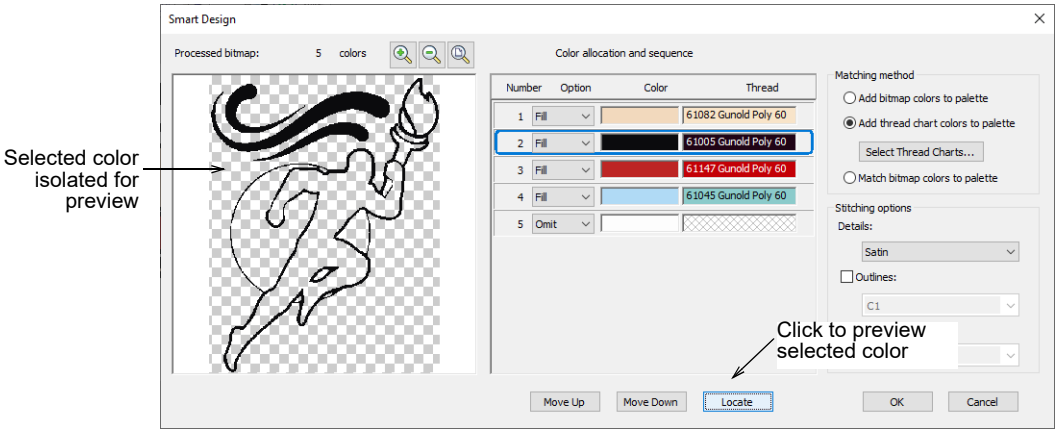
2 Select the image and click **Smart Design**. If the image requires preprocessing, the software displays the **Prepare Bitmap Colors** dialog. See Preparing artwork for auto-digitizing for details.

Next, the **Smart Design** dialog opens. BE EmbroideryStudio will attempt to classify image colors as fills or details and sequence them accordingly. Details may take the form of outlines or 'pickout runs'. By default, the image background is omitted altogether.

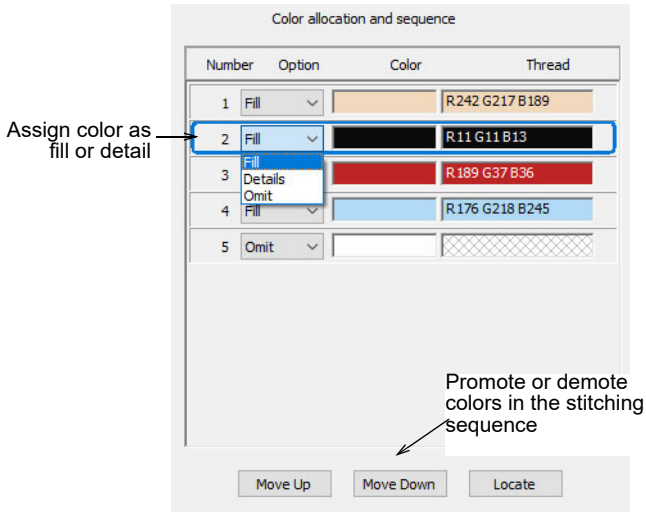


Tip: The artwork may include outlines as part of the image. However, the software itself can generate outlines around color blocks in the design.

3 Select a color in the list and use the **Locate** button to preview.



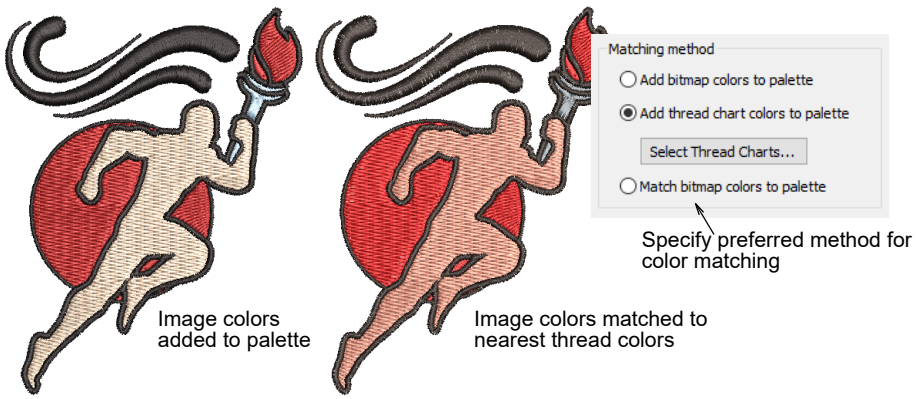
4 Having located the colors, decide if you want to change the software defaults. You can treat colors as fills or details, or omit them altogether.



5 Use the 'Move' buttons to re-sort the color sequence as preferred. Fills should be stitched first, details last.

To assign color matching method and stitching options...

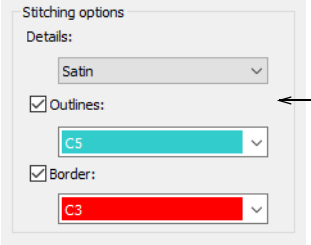
1 Select a conversion method for color matching:



You have three options:

- Add bitmap colors directly to the design palette (recommended). These can be later assigned to actual threads.
- Choose a chart and match bitmap colors to actual threads. Click the **Select Thread Charts** button to access thread charts.
- Or, match bitmap colors to the nearest colors in the current design palette.

2 Select stitching options for handling details, outlines, and borders:



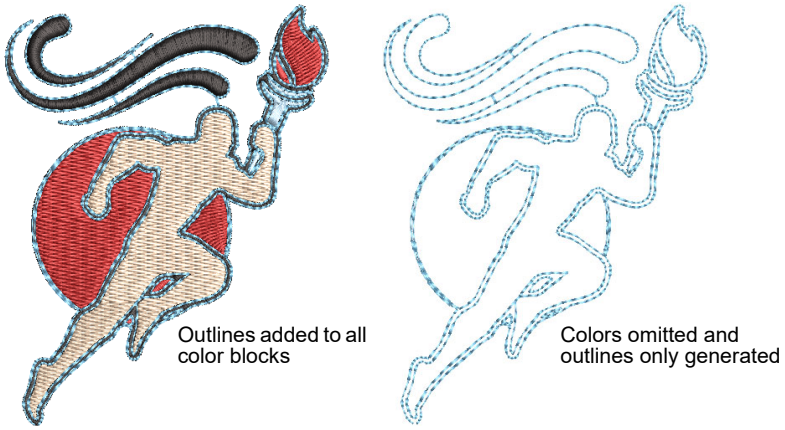
You have three options:

Option	Purpose
Details	Handle details as Satin, Column C, or Double Run. Select an option from the droplist.
Outlines	Add outlines to all detected color blocks. Pick a thread color from the droplist. If your artwork already includes outlines as part of the image, omit the outline color first.
Border	Add a satin border to the entire design. Again, pick a color from the droplist.

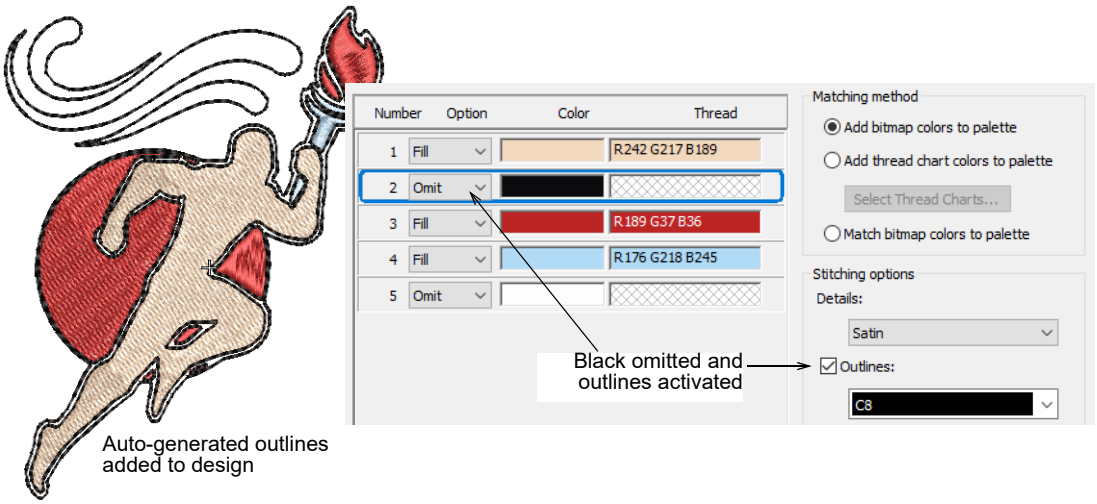
See examples below.

To generate and inspect the result...

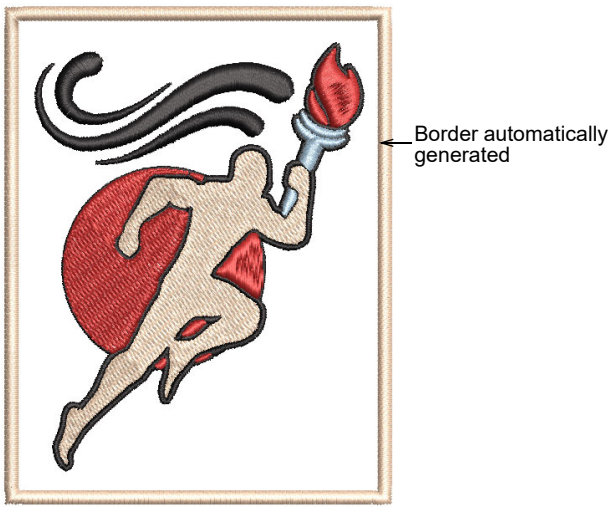
- Click **OK** to process the image.



- The artwork here includes its own outlines. An alternative method is to allow the software to generate outlines. The **Outlines** option reinforces all color blocks with continuous, branched running stitches. Here we omit the artwork color, and turn on **Outlines** stitching option instead.



- Additionally, you can generate a border around the entire design with **Border** stitching option.



Usage tips...

- Edit object properties as preferred, including colors, stitch types, and so on. Even convert run outlines to satin borders.
- Use the **Color-Object List** and/or **Sequence** toolbar to optimize the stitch sequence of your auto-digitized objects.
- Use **Closest Join** and/or **Reshape** tools to minimize connectors.
- Toggle underlays on/off with the **Auto Underlay** button.
- Details created from auto-digitizing are treated as branched objects. If you want to change stitch type to, say, Satin, Raised Satin, Zigzag

or Blanket, the object needs to be unbranched before these stitch types can be applied.

Related topics...

- Loading & presetting artwork
- Crop bitmap images
- Preparing artwork for auto-digitizing
- Sequencing embroidery objects
- Reshaping objects
- Merge vector & embroidery objects
- Minimizing connectors
- Stabilizing with underlays

Auto-digitize individual shapes


Use Auto-Digitizing > Color Matching Method to preselect a thread matching method.


Use Auto-Digitizing > Turning Satin Object to fill narrow column shapes with turning stitch angles.


Use Auto-Digitizing > Tatami Fill Object with Holes to fill large areas with tatami stitching, preserving any holes.


Use Auto-Digitizing > Tatami Fill Object to fill large areas with tatami stitching, ignoring any holes.

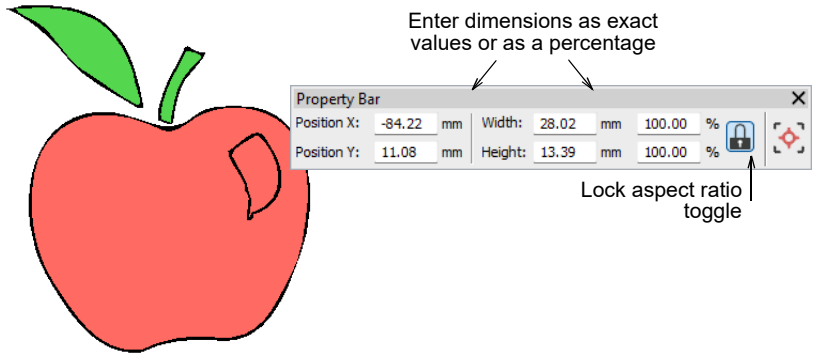

Use Auto-Digitizing > Centerline Run Object to create centerlines in narrow shapes with run stitching.


Use Auto-Digitizing > Outline Run Object to create outlines of run stitching.

The **Auto-Digitizing** tools provide everything necessary to automatically digitize shapes in electronic artwork – both bitmap and vector – without using manual digitizing methods. These tools are useful for turning scanned images into embroidery designs that do not require particular artistic effects or embroidery-specific knowledge. If you are using a vector graphic, it must include a fill color. **Auto-Digitizing** can be used to create tatami fills as well as objects with turning satin. Use it also to digitize outlines and details with run stitching. Current properties are applied.

To auto-digitize individual shapes...

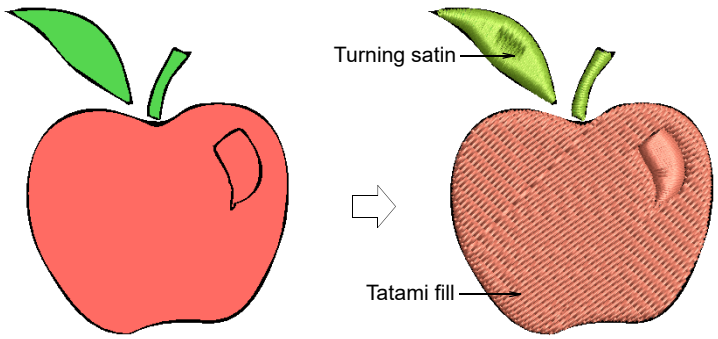
1 Load and preset the artwork as necessary.



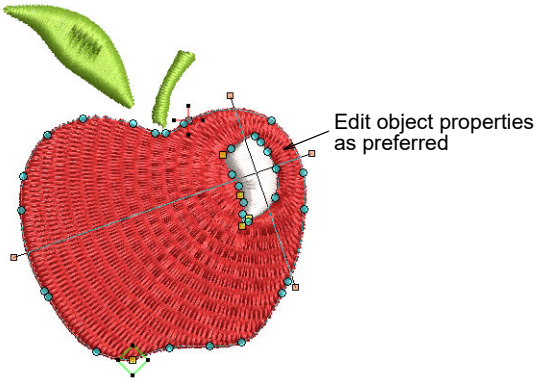
2 Select an auto-digitizing fill method:

- Use **Tatami Fill Object with Holes** for large areas, preserving any holes within them.
- If you want holes ignored, use **Tatami Fill Object**.
- Use **Turning Satin Object** to digitize narrow turning shapes with satin stitch.

3 Click the shapes you want to digitize. Stitches are generated according to current settings.



4 Optionally, edit object properties, including colors, stitch angles, entry/exit points and so on.

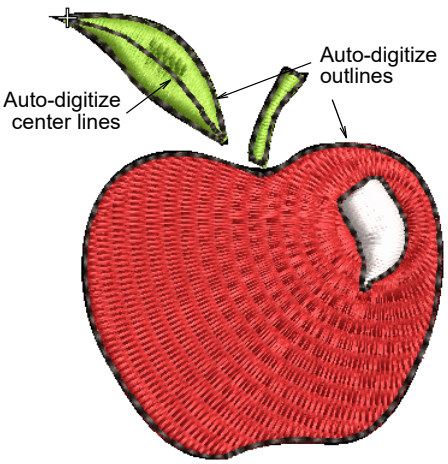


To auto-digitize outlines and details...

1 Select an auto-digitizing outline method:

- Use **Centerline Run Object** to create centerlines in narrow shapes with run stitching.
- Use **Outline Run Object** to create outlines of run stitching.

2 Again click the shapes you want to digitize. Stitches are generated according to current stitch settings.





To edit the result...

- Edit the result as preferred – e.g. change colors, change stitch types, delete any unwanted background stitching, etc.
- Use the **Color-Object List** and/or **Sequence** toolbar to optimize the stitch sequence of your auto-digitized objects.
- Use the **Closest Join** and/or the **Reshape** tool to minimize connectors.

- Toggle underlays on/off with the **Auto Underlay** button.

Related topics...

- Loading & presetting artwork
- Crop bitmap images
- Preparing artwork for auto-digitizing
- Sequencing embroidery objects
- Reshaping objects
- Merge vector & embroidery objects
- Minimizing connectors
- Stabilizing with underlays

Chapter 33

Auto-Digitizing with Photos

BE EmbroideryStudio provides dedicated techniques for auto-digitizing photographs. Both colored and grayscale photos can be used as input.

Feature	Overview
Photo Flash	Create embroidery from color or grayscale photographs. The effect resembles the output of a line printer.
Reef PhotoStitch	Create embroidery from photographs and other bitmap images. The effect is reminiscent of a coral reef, hence the name.
Color PhotoStitch	Create embroidery from photographs and other bitmap images. This technique produces variegated stitching using multiple thread colors.

Results depend greatly on the resolution, color depth, and quality of source images. For best results, use crisp images with well-defined subjects and strong contrasts.



In addition a degree of preparation is needed. This may involve preparation using third-party graphics applications such CorelDRAW Graphics. Tools are also available within Wilcom Workspace.

This section describes how to automatically convert photographs, both color and grayscale, to embroidery using a variety of techniques.

Preparing photos for auto-digitizing

Use Standard > Import Graphic to import artwork into current design as a backdrop for manual or automatic digitizing.

Use View > Show Bitmaps to toggle bitmap images on or off. Right-click for settings.

Use Auto-Digitizing > Crop Bitmap to crop bitmap artwork for use with auto-digitizing.

Use Auto-Digitizing > Adjust Bitmap to adjust image lightness and contrast in preparation for auto-digitizing.

A degree of preparation is needed for any of the photographic auto-digitizing techniques. For best results, use crisp images with well-defined subjects and strong contrasts.

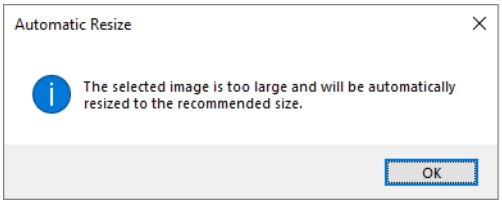
To prepare photos for auto-digitizing...

1 Scan or insert the photo you want to use. If you cannot see the image, turn on **Show Bitmaps**. See Loading bitmap artwork for details.



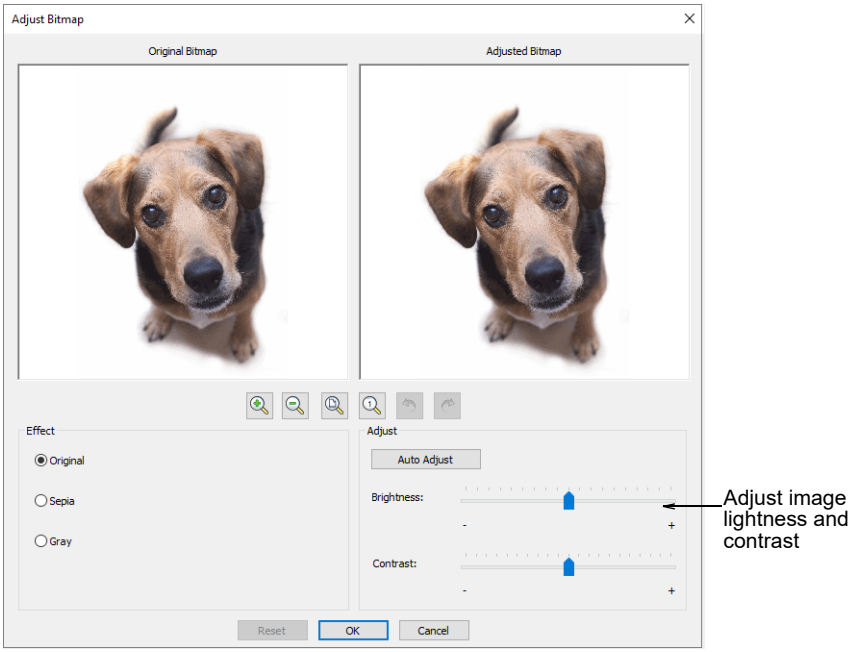
2 Crop the image as necessary with the **Crop Bitmap** tools.

3 Size the photo for its intended purpose. You may be prompted to resize when you run one of the **PhotoStitch** features.



4 If your graphics application supports it, try re-sampling the image while resizing.

5 Optionally, use **Adjust Bitmap** to adjust basic brightness and contrast.



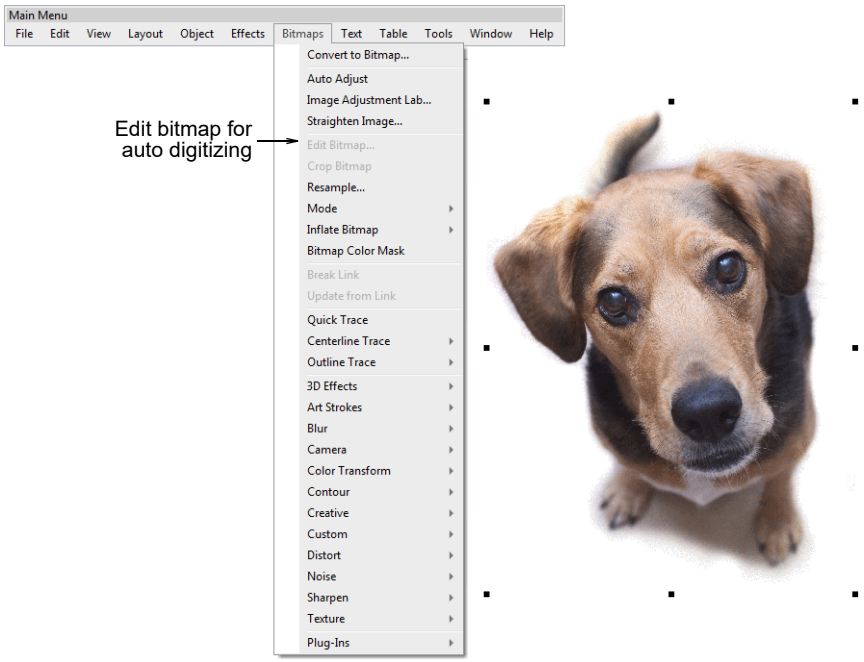
6 First, try clicking **Auto Adjust** to allow the software to optimize image settings. Use **Brightness** and **Contrast** controls to sharpen the image further.

7 Optionally, click **Reset** to return to default settings.

8 Choose between image variations:

Option	Function
Sepia	In photographic terms, ‘sepia’ refers to the dark-brown color of old-fashioned prints. Originally the process involved adding a pigment made from cuttlefish ink during development.
Gray	Grayscale images are ones composed exclusively of shades of gray, varying from black at the weakest intensity to white at the strongest.

9 Optionally, switch to **Graphics Mode** for alternative pre-processing.



10 For the full range of image adjustment techniques, use a dedicated graphics program like Corel PHOTO-PAINT®. If installed, the **Edit Bitmap** option is available.

Related topics...

- Scan images
- Insert bitmap images
- Crop bitmap images
- Touch up bitmaps
- View graphical components

Auto-digitizing with Photo Flash



Use Auto-Digitizing > Photo Flash to create embroidery designs directly from photographs.

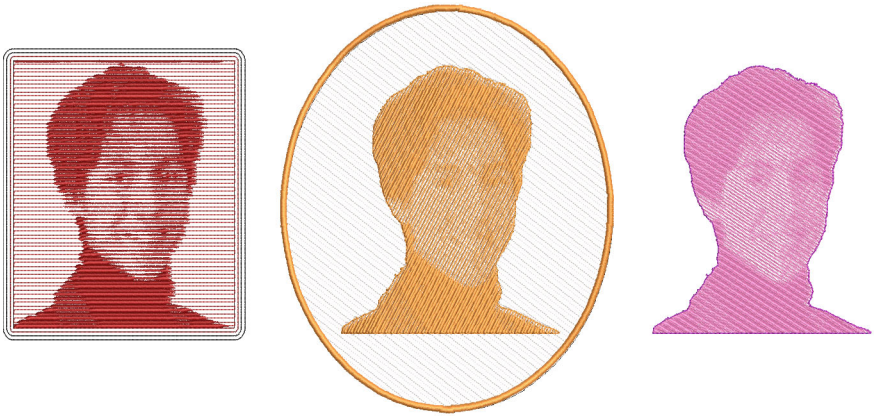


Use Mode > Tag as Photo Flash to convert photos to Photo Flash embroidery from CorelDRAW Graphics.



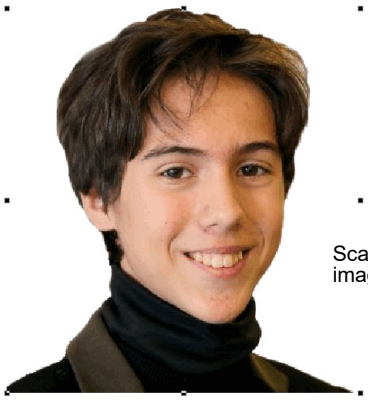
Use Auto-Digitizing > Crop Bitmap to crop bitmap artwork for use with auto-digitizing.

Use **Photo Flash** to create embroidery from photographs or other images, color or grayscale. **Photo Flash** designs consist of rows of stitches of varying spacing settings. The effect resembles the output of a line printer. The technique can be used for keepsakes and mementos, as well as commercial embroidery.



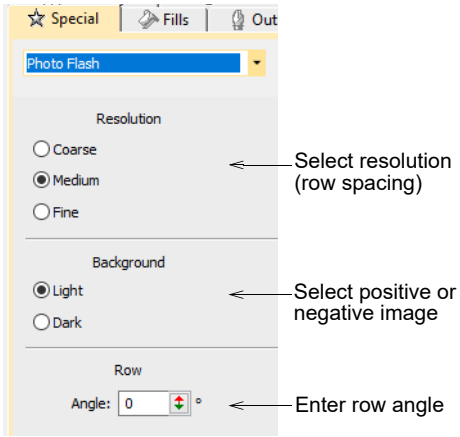
To create embroidery with Photo Flash...

1 Scan or insert the photo you want to use. For best results, use crisp images with well-defined subjects and strong contrasts. See Loading bitmap artwork for details.

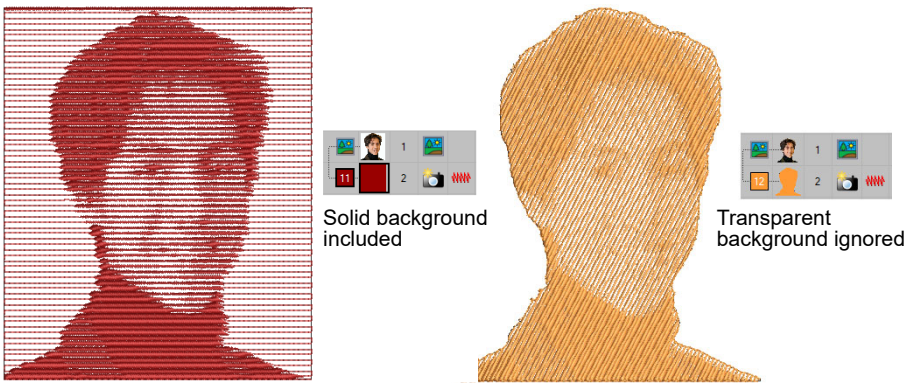


2 Size and/or crop the image for its intended purpose. See Preparing photos for auto-digitizing for details.

3 Select a thread color and, with the image selected, click the **Photo Flash** icon to access object properties. The **Object Properties > Special** tab gives you control over settings such as grain or orientation, stitch angle, density or 'resolution', as well as background contrast.



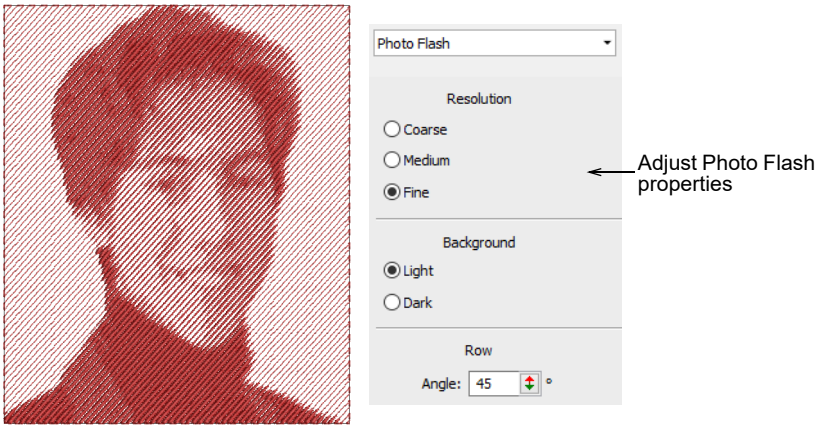
4 Click the **Apply** (tick) button at the bottom of the **Object Properties** docker. The software analyzes the photo and generates a single monochrome stitch object which resembles the output of a line printer. If the image has a transparent background, **Photo Flash** ignores it.



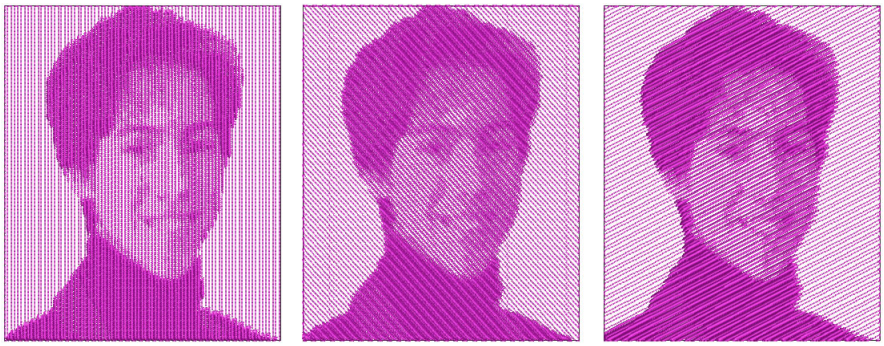
5 Turn off the image – press **D** – for a better view.

To adjust Photo Flash settings...

1 Double-click the object to re-open the **Object Properties** docker. Experiment with settings for optimum effect against your chosen background.

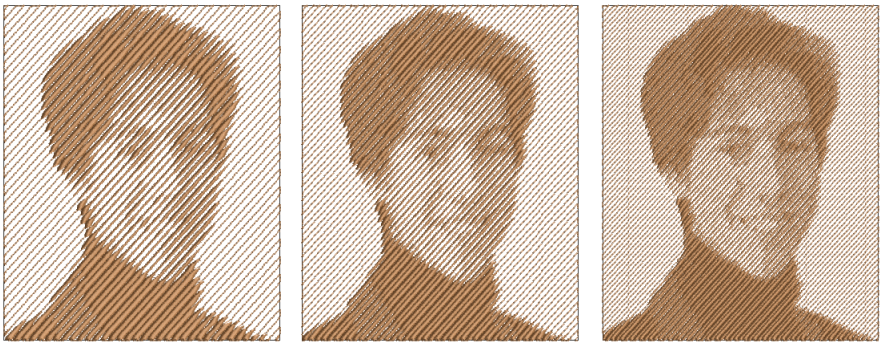


2 Adjust the row angle to set the overall angle of stitch lines.



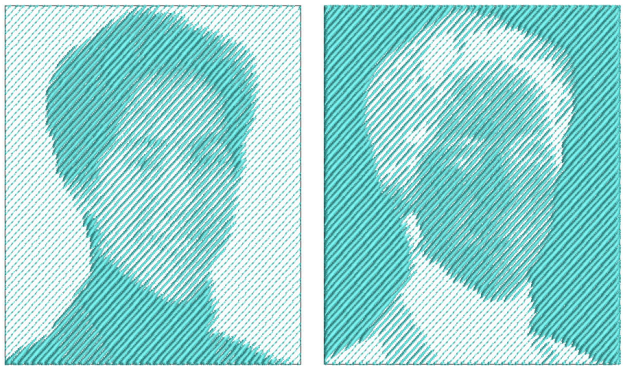
Row angle: 90° Row angle: -45° Row angle: 25°

3 In the **Resolution** panel, select a resolution – coarse, medium, or fine. The coarser the resolution the more spacing between rows.



Coarse resolution Medium resolution Fine resolution

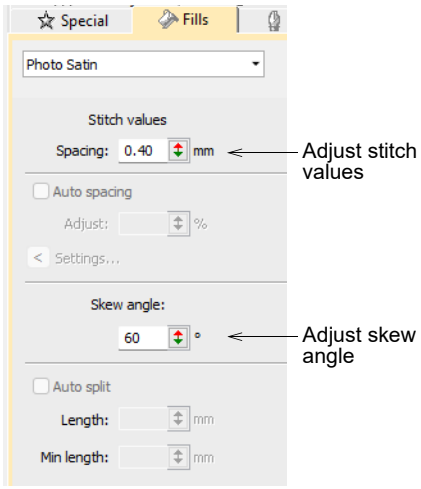
4 In the **Background** panel, choose a background option – light or dark. The option you select usually depends on whether the fabric is light or dark. The **Dark** option produces a negative of the image.



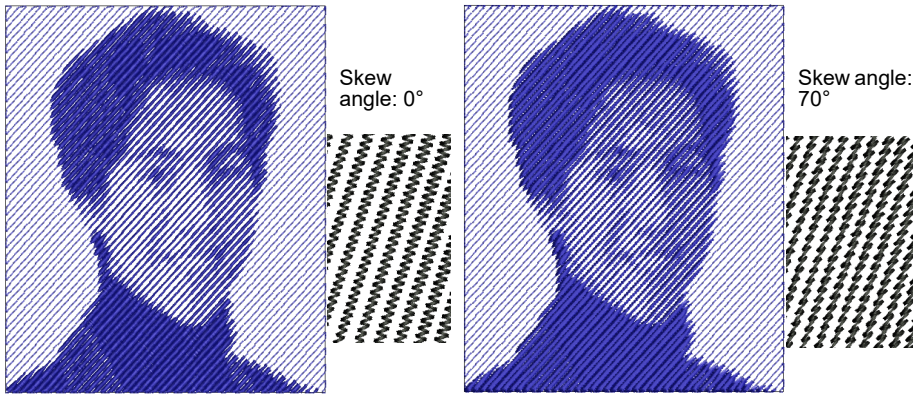
Light background Dark background

To adjust stitch settings...

1 Select the **Fills** tab and adjust the stitch spacing and skew angle as preferred.

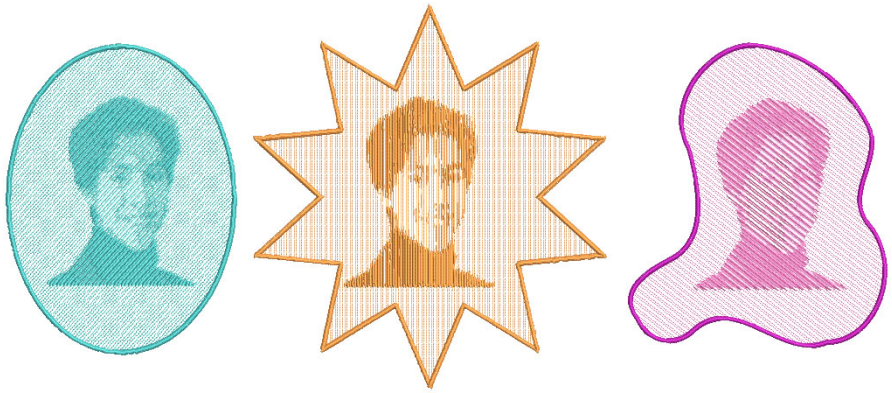


2 The **Skew Angle** determines the angle of the stitches. Adjust it to run complementary to the grain angle as preferred.

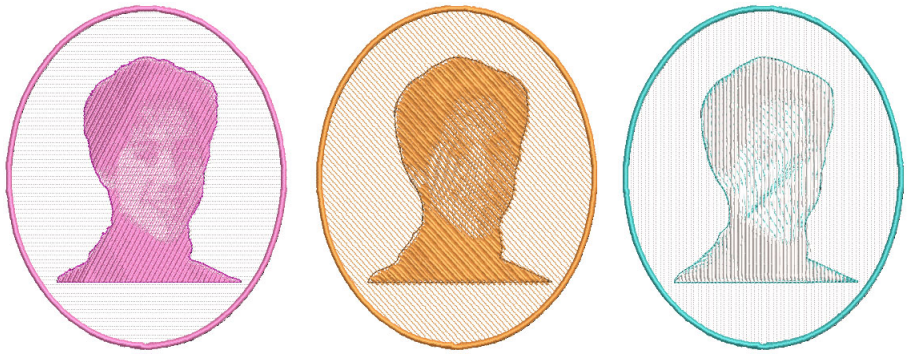


Usage tips...

- If you have defined a cropping area for your bitmap, BE EmbroideryStudio generates stitches for that area. Otherwise stitches are generated for the entire bitmap.
- The background can be oversized to accommodate a cropping area which extends beyond the image itself. Graphics need to be prepared in an external application.



- Combining **Photo Flash** with duplicate objects, other colors and creative stitch types can create interesting effects.



- While originally intended for use with photographs, **Photo Flash** can also employ graphics to create appealing commercial embroidery.



- In **CorelDRAW Graphics**, the **Mode** toolbar also includes a **Tag as Photo Flash** icon which allows you to convert photos directly to **Photo Flash** embroidery.

Related topics...

- Insert bitmap images
- Preparing photos for auto-digitizing
- Crop bitmap images
- Apply satin stitch with auto spacing
- Split satin stitches

Auto-digitizing with Reef PhotoStitch

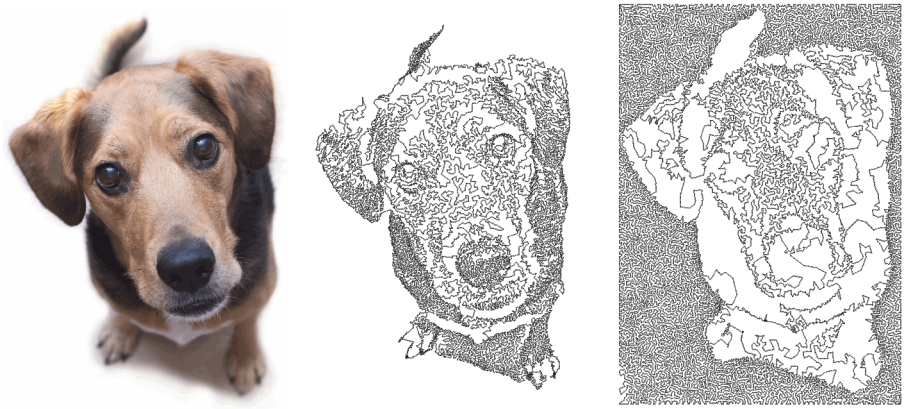


Use Auto-Digitizing > Reef PhotoStitch to turn photographs into a single embroidery field resembling a coral reef.



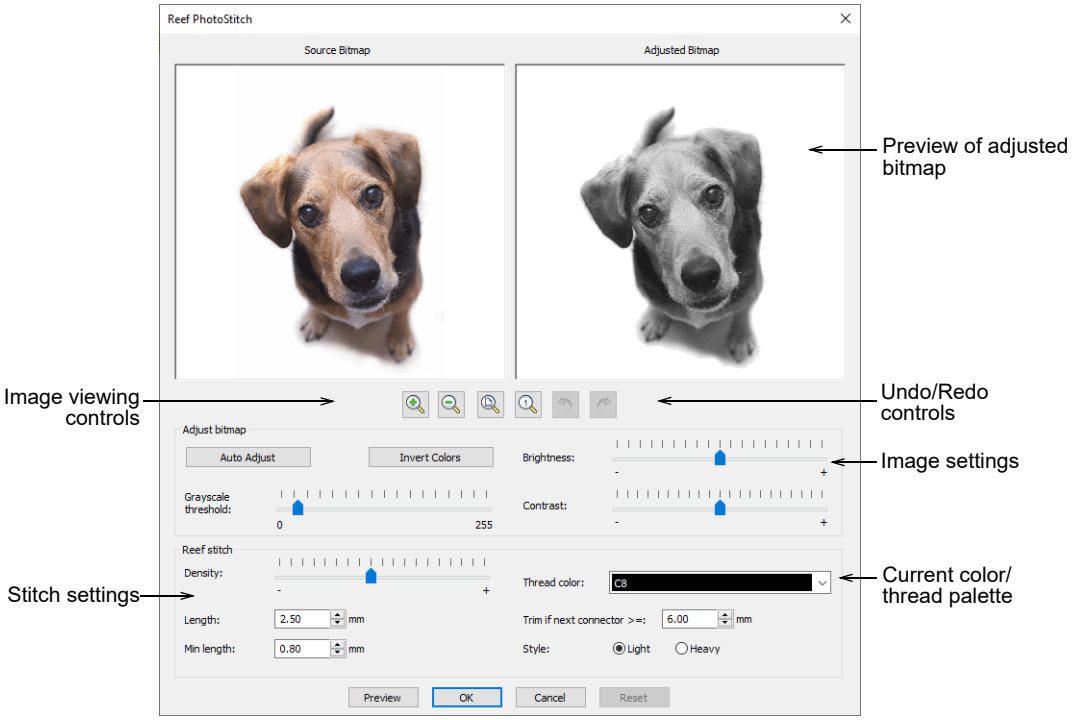
Use Auto-Digitizing > Crop Bitmap to crop bitmap artwork for use with auto-digitizing.

Reef PhotoStitch expands on the **Photo Flash** auto-digitizing method to convert photos and images to monochrome embroidery. Automatically fill shapes with open stitching reminiscent of a coral reef. The technique produces embroidery with a low stitch count based on the color contrast present in the image. It works best with images containing clearly defined areas with high-contrast colors.

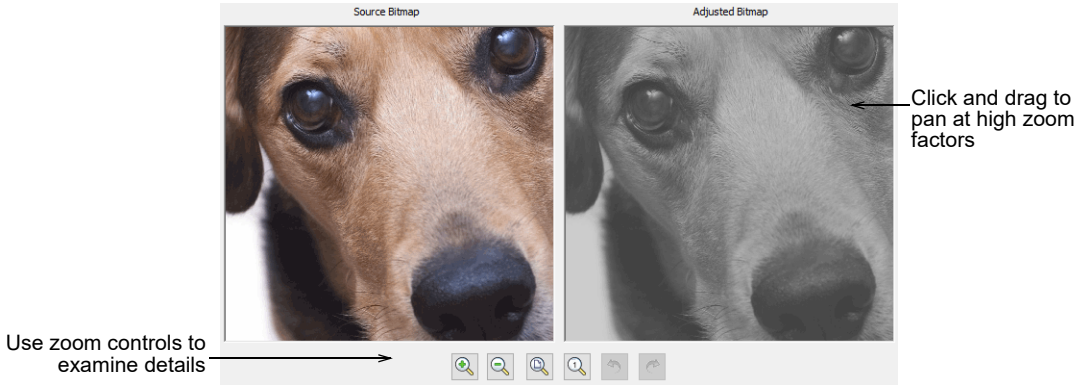


To auto-digitize with Reef PhotoStitch...

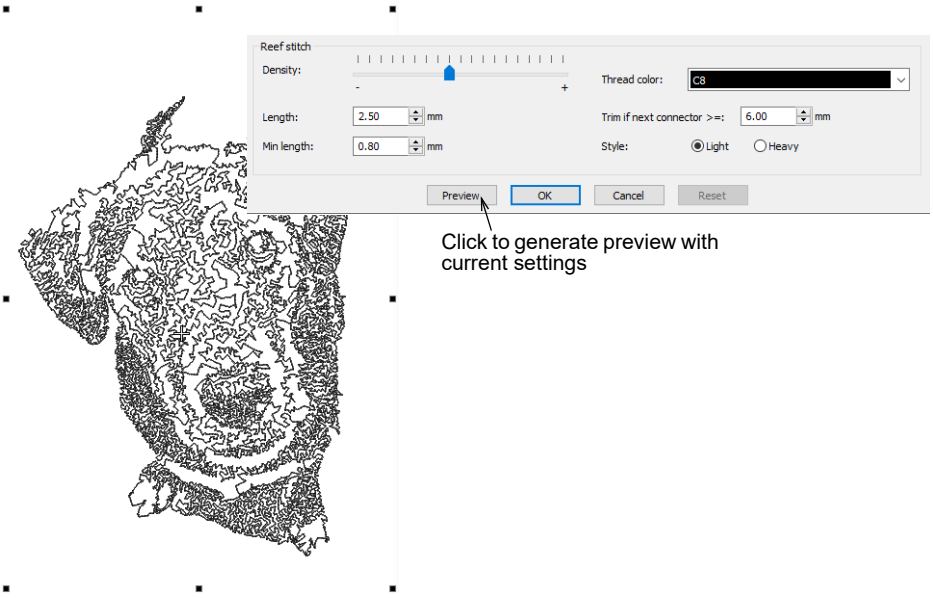
1. Scan or insert the photo you want to use. For best results, use crisp images with well-defined subjects and strong contrasts. See Loading bitmap artwork for details.
2. Size and/or crop the image for its intended purpose. 400mm (16”) is the limit. See Preparing photos for auto-digitizing for details.
3. With the image selected, click **Reef PhotoStitch**. The **Reef PhotoStitch** dialog opens. This provides interactive control over grayscale image settings and embroidery settings.



4 Use the zoom buttons to examine the image preview in detail. Alternatively, zoom in and out with the mouse wheel.



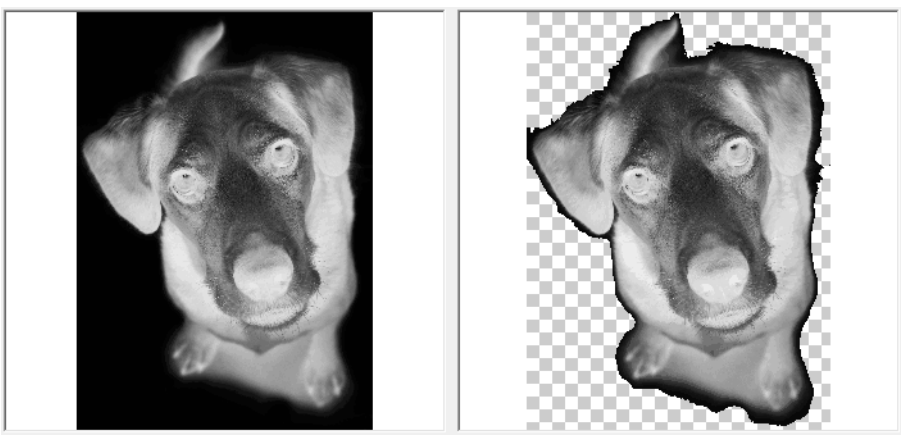
5 Use **Preview** to generate temporary stitching without closing the dialog. Move the dialog as necessary in order to preview the result in the design window. Artwork is hidden during preview.



Adjust grayscale settings

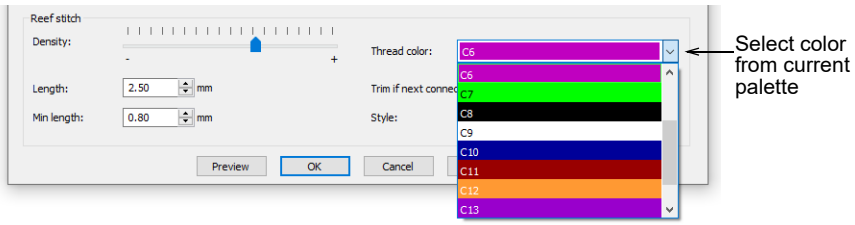
Adjust the grayscale image settings as preferred:

Setting	Function
Auto adjust	Optimize image settings for automatic digitizing.
Brightness	Further differentiate stitched and unstitched areas.
Contrast	
Grayscale threshold	Use to further filter the number of gray tones in the image.
Invert colors	Create an image negative.

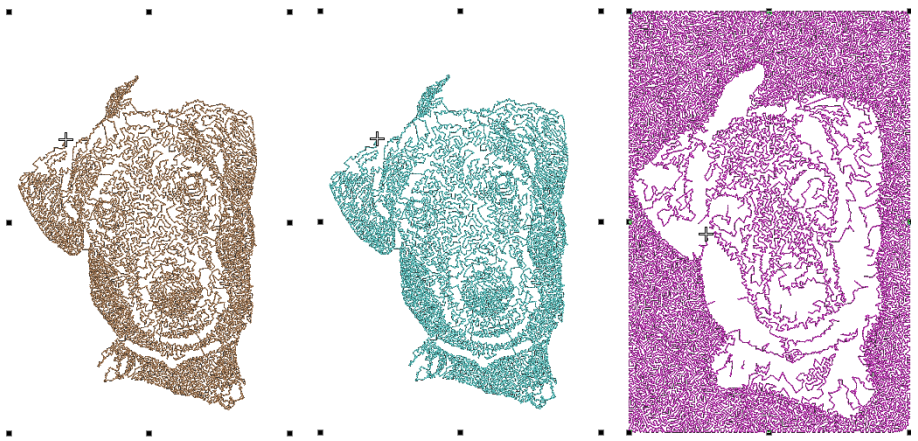


Note: The results of the **Invert Colors** setting depend on whether you are using an image with a solid or transparent background.

- Use the **Reset** button to return to default values. Use the **Undo** and **Redo** buttons to back-step through previous adjustments.
- Optionally, select a thread color from the droplist.



- Again, use **Preview** to generate temporary stitching without closing the dialog.



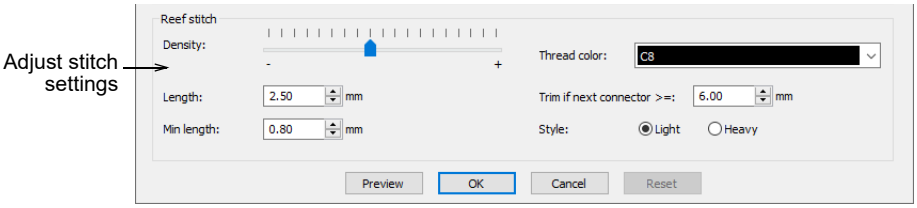
- Further refine image settings until you obtain the look you want and click **OK** to confirm.

Related topics...

- Insert bitmap images
- Crop bitmap images
- Preparing photos for auto-digitizing

Adjust stitch settings

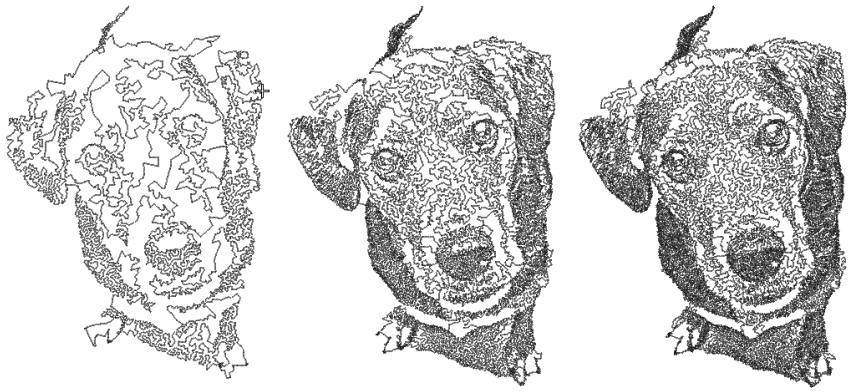
Once you have obtained the grayscale settings you want, try adjusting stitch settings in combination with **Preview**.



These settings allow you to achieve a balance between overall stitch count and optimum coverage:

Setting	Function
Density	Create more dense or more open stitching, similar to 'Loop Spacing' in stipple stitching. The highest density value may result in thread breaks.
Thread color	Select the thread color you wish to apply to the end result.
Length	Set optimal stitch length – the greater the length, the fewer the number of needle points generated.
Min length	Adjust minimum stitch length to specify the shortest stitch to be generated.
Trim if next connector >=	Trims are inserted if connectors exceed the specified length. Higher values result in fewer trims but more connecting runs.
Style	Toggle between Light or Heavy for more open or dense stitching. This setting is independent of the Density setting. 'Heavy' approximately doubles the stitch count.

- Experiment with **Style** of stitching – light or heavy.
- Again, use **Preview** to generate temporary stitching without closing the dialog.



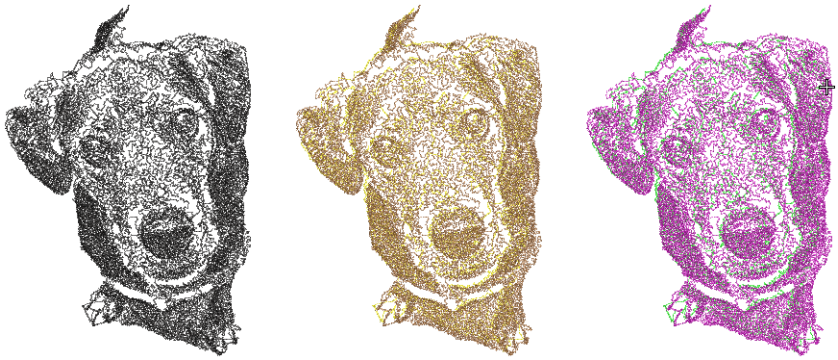
- Further refine stitch settings until you obtain the look you want and click **OK** to confirm.

Review the results

- Turn off the backdrop – press **D** – for a better view.
- Review the results. Things to check for:
  - Edges clearly defined
  - No unwanted connectors
  - Number of trims
  - Overall stitch count.
- If you are unsatisfied, click **Undo** and try again. Try different settings and check the previews. You may need to touch up the image in PHOTO-PAINT if none of the results is good enough.

Usage tips...

- Use crisp images with well-defined subjects and strong contrasts.
- Be careful if, after processing a larger image, you decide to reduce the design size. Stitches may be too closely bunched and cause needle breaks.
- Limit the amount of resizing done in BE EmbroideryStudio so as to retain as much image information as possible.
- Try combining different outputs with different colors.



- Posterizing effects may produce good results at lower thresholds. In Corel PHOTO-PAINT, this is available via **Image > Transform Posterize**.
- Try applying filters such as Stucki, Jarvis and Crosshatch effects.
  - In Corel PHOTO-PAINT Stucki and Jarvis are available via **Image > Convert to Black and White** (1-bit). Adjust intensity as necessary.
  - Crosshatch is available via **Effects > Art Strokes > Pen & Ink**.
- An interesting technique is offered by applying a halftone filter. In the sample below, the image is split into separate CMYK channels and

Reef PhotoStitch applied to each one. In Corel PHOTO-PAINT select **Image > Convert to CMYK Color** and **Image > Split Channels To > CMYK**.



- While originally intended for use with photographs, **Reef PhotoStitch** can also employ graphics to create appealing commercial embroidery.



Related topics...

- Insert bitmap images
- Preparing photos for auto-digitizing
- Preparing artwork for auto-digitizing

Auto-digitize with Color PhotoStitch

Use Auto-Digitizing > Color PhotoStitch to automatically turn photographs and other bitmap artwork into multi-colored embroidery.

Use Auto-Digitizing > Crop Bitmap to crop bitmap artwork for use with auto-digitizing.

Use **Color PhotoStitch** to create embroidery from photographs and other images. While **Photo Flash** and **Reef PhotoStitch** produce designs in single-color stitching, **Color PhotoStitch** produces variegated stitching using multiple thread colors. The goal is the same for any photo – to employ the fewest colors/threads to obtain the fewest stitches and trims for a good result.

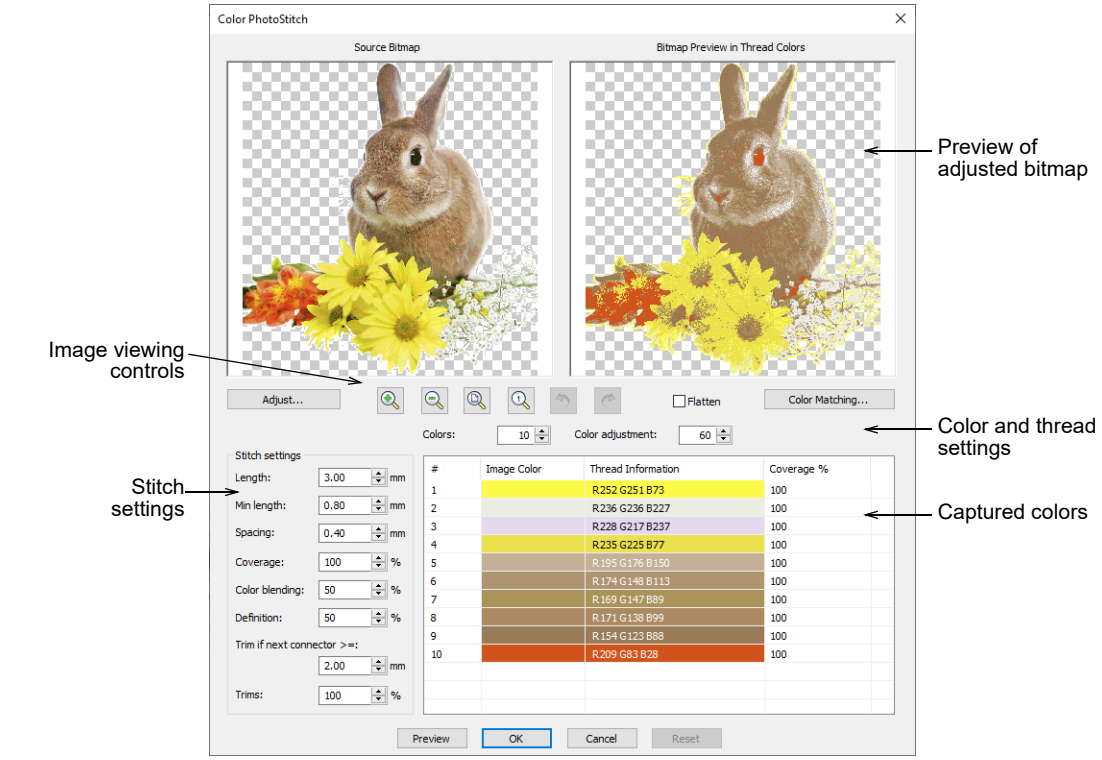
To auto-digitize with Color PhotoStitch...

1 Scan or insert the photo you want to use. For best results, use crisp images with well-defined subjects and strong contrasts. See Loading bitmap artwork for details.

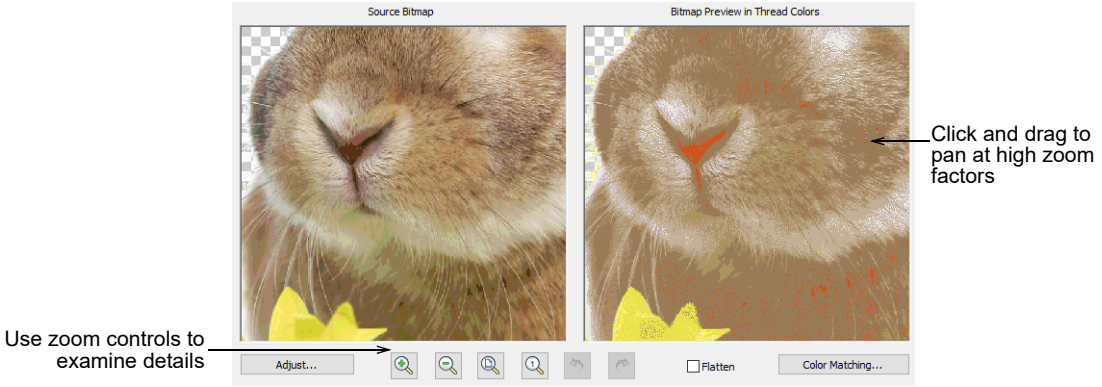


2 Size and/or crop the image for its intended purpose. 400mm (16”) is the limit. See Preparing photos for auto-digitizing for details.

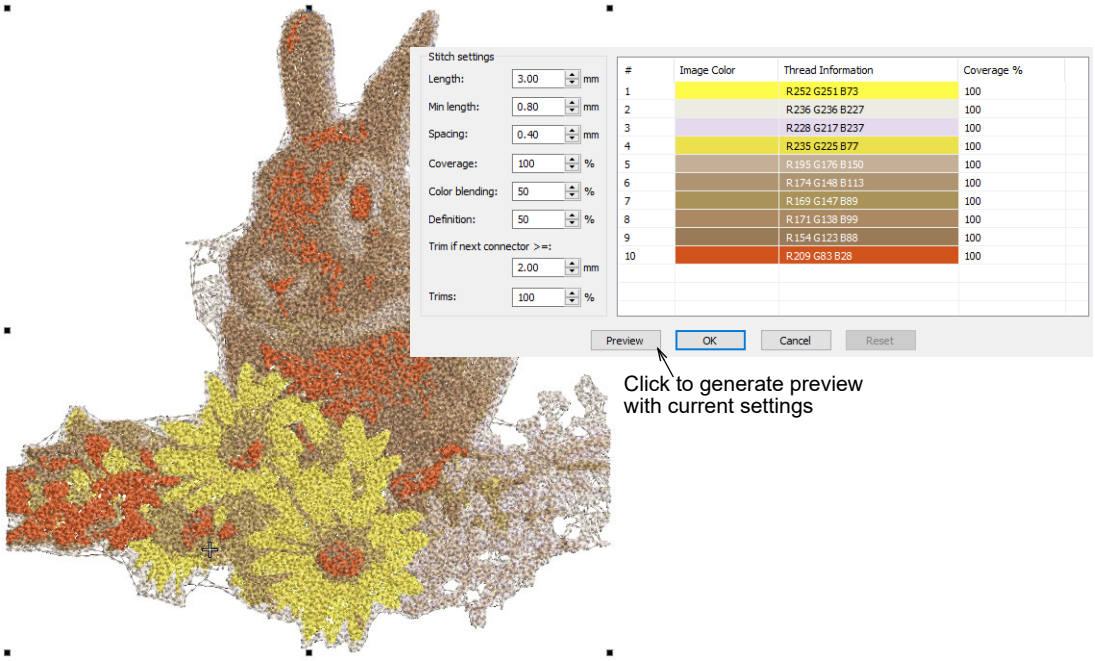
3 With the image selected, click **Color PhotoStitch**.
Color PhotoStitch analyzes the photo and generates a thread color list based on image colors. The dialog provides interactive control over color and stitch settings.



4 Study the preview panel. Use the zoom buttons to examine the image preview in detail. Alternatively, zoom in and out with the mouse wheel.



5 Use **Preview** to generate temporary stitching without closing the dialog. Move the dialog as necessary in order to preview the result in the design window. Artwork is hidden during preview.

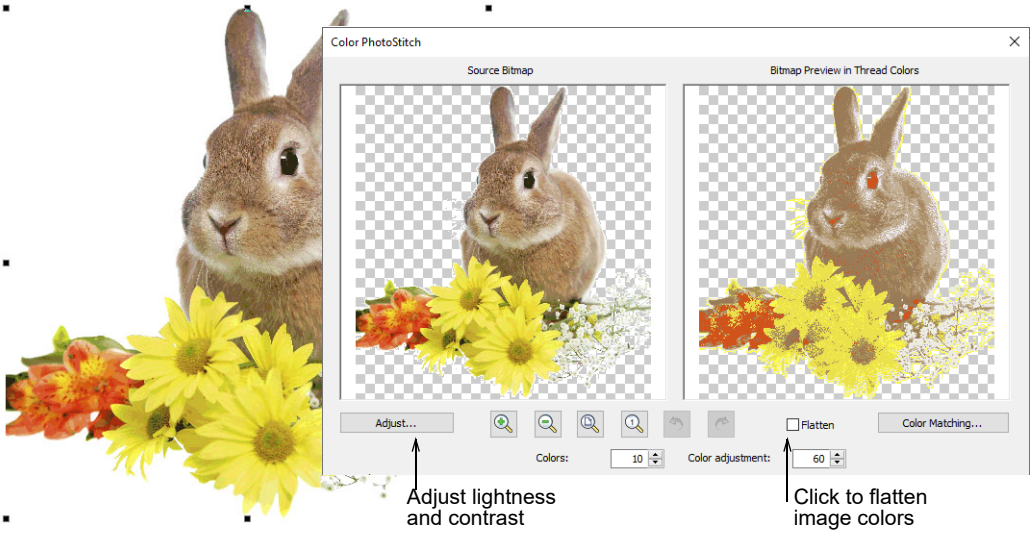


Adjust image settings

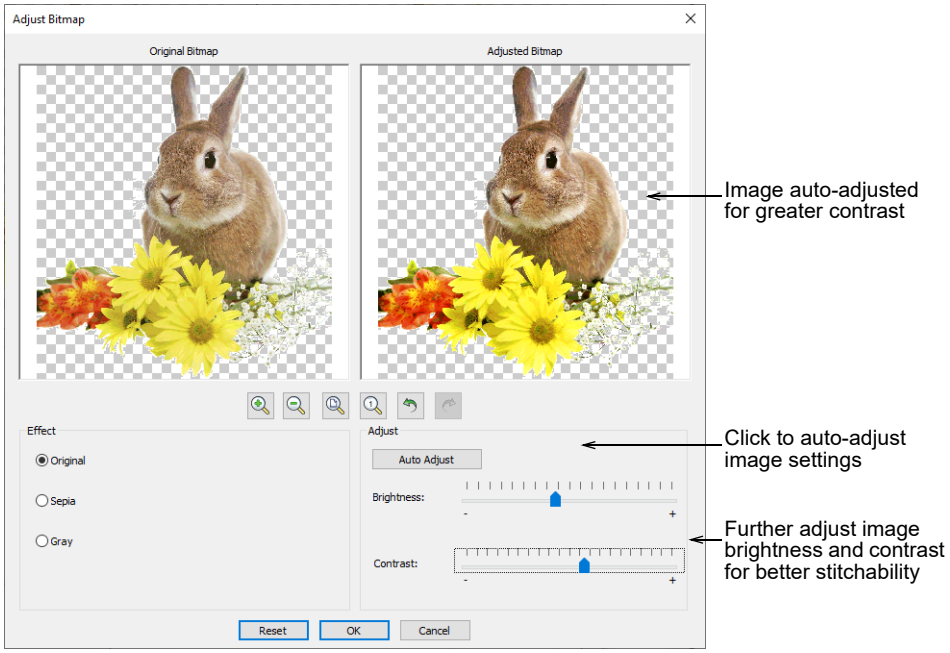
Study the stitch preview. The dialog provides various methods to adjust the thread list, starting with image colors. The goal is the same for any photo – to employ the fewest colors/threads for a good result. There will be a point a diminishing returns where more colors do not necessarily result in greater design clarity or stitchability.

To adjust image settings...

1 Use **Flatten** to condense the photo to solid color blocks. Depending on image quality – e.g. low-resolution or pixelated images – this may affect resulting detail.



2 Make adjustments to image lightness and contrast via **Adjust**. This opens the **Adjust Bitmap** dialog. Start by clicking **Auto Adjust**. This works well for some photos.



3 Optionally, in the **Effect** panel, choose between image variations:

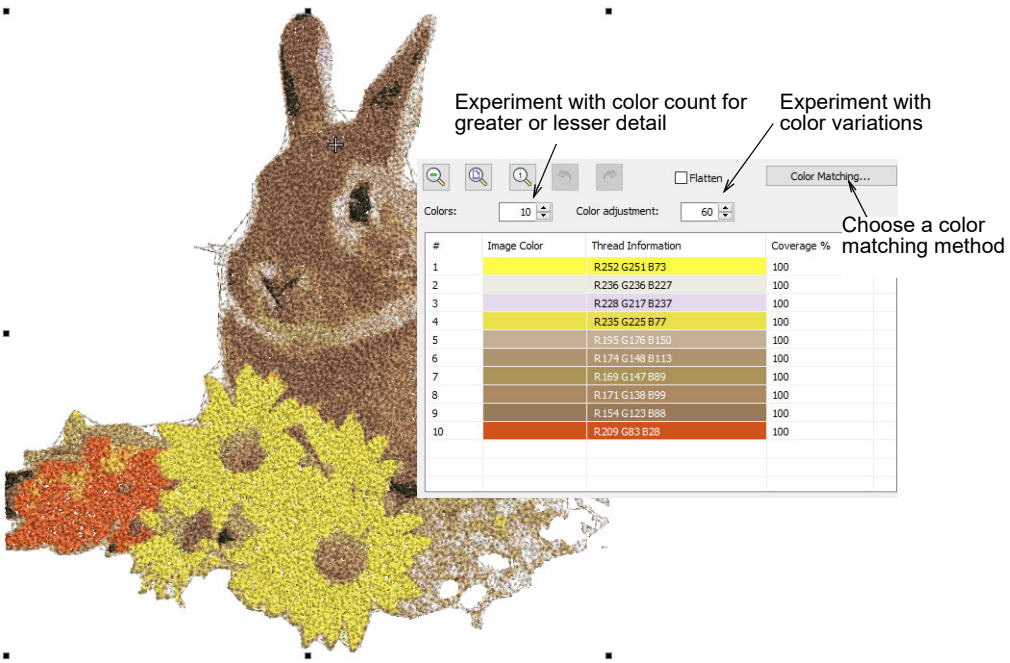
Option	Function
Sepia	In photographic terms, ‘sepia’ refers to the dark-brown color of old-fashioned prints. Originally the process involved adding a pigment made from cuttlefish ink during development.
Gray	Grayscale images are ones composed exclusively of shades of gray, varying from black at the weakest intensity to white at the strongest.

4 Use the **Reset** button to return to default values. Use the **Undo** and **Redo** buttons to back-step through previous adjustments.

5 Click **OK** to close the dialog. The thread color list is updated accordingly. Again click **Preview** to visualize the output.

Adjust color settings

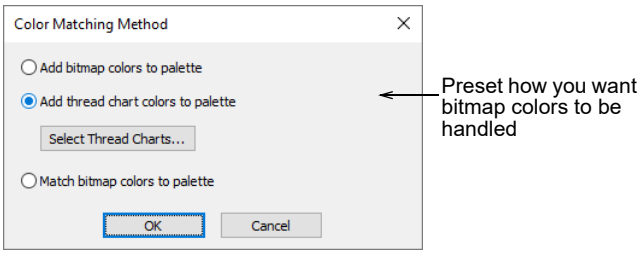
Use the **Colors** field to increase color count to draw out more detail. In some cases, you may want to reduce color count to decrease numbers of similar shade.



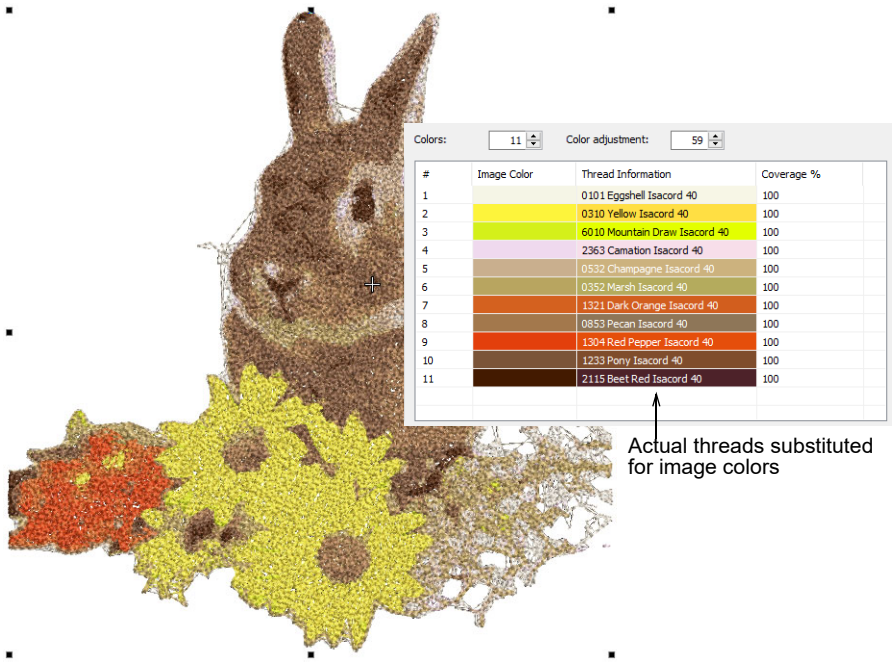
To adjust color settings...

1 Click the **Color adjustment** swivel to experiment with color variations. These are generated automatically so you cannot select specific colors as such. If a color occupies more than 5% of the total area, it will be included by default.

2 When you have a color combination that works for you, use the **Color Matching** button to assign actual threads to bitmap colors.



3 Again, click **Preview** to test your settings.



Usage tips...

- To match the result most closely to the source bitmap, leave the default 'Add bitmap colors to palette' setting unchanged. After the design is created, you can then pick a thread for each color prior to production.
- You can preset **Color Matching Method** to determine how you want thread color matching to be handled. The technique is the same. See Loading bitmap artwork for details.

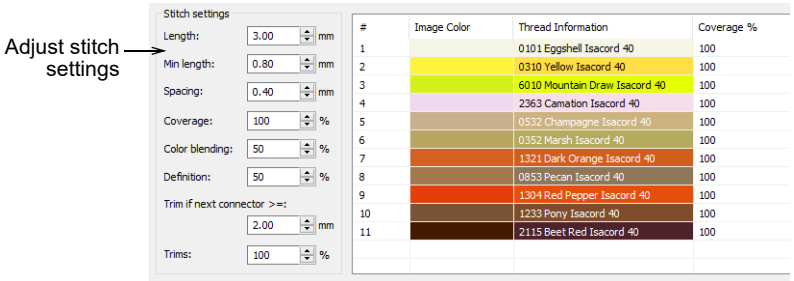
Related topics...

- Insert bitmap images

- Crop bitmap images
- Preparing photos for auto-digitizing

Adjust stitch settings

Once you have obtained the desired color settings, try adjusting stitch settings in combination with **Preview**. These allow you to achieve a balance between overall stitch count, trim count, and optimum coverage. You are always seeking to obtain a good result with the fewest possible stitches and trims.



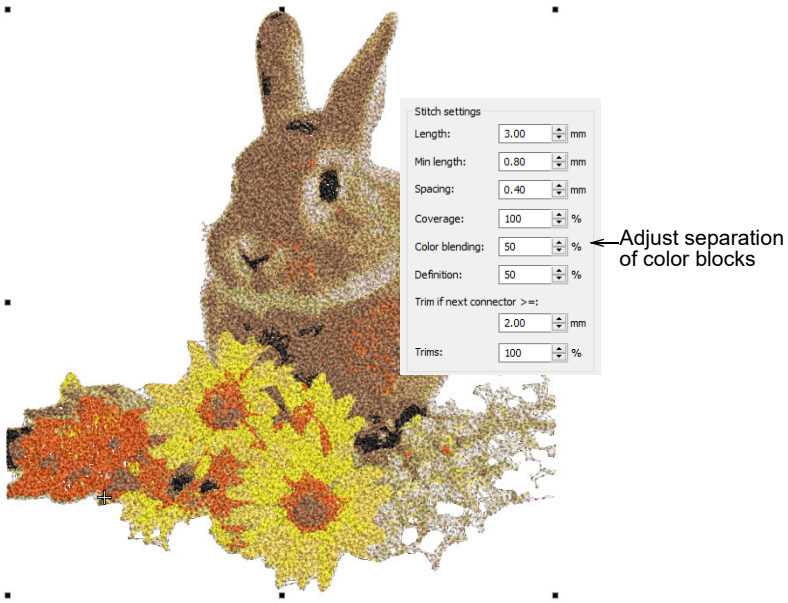
To adjust stitch settings...

1 There is no particular workflow associated with these fields. The table below summarizes the function of each. It's a matter of testing values in conjunction with **Preview** to arrive at a satisfactory result.

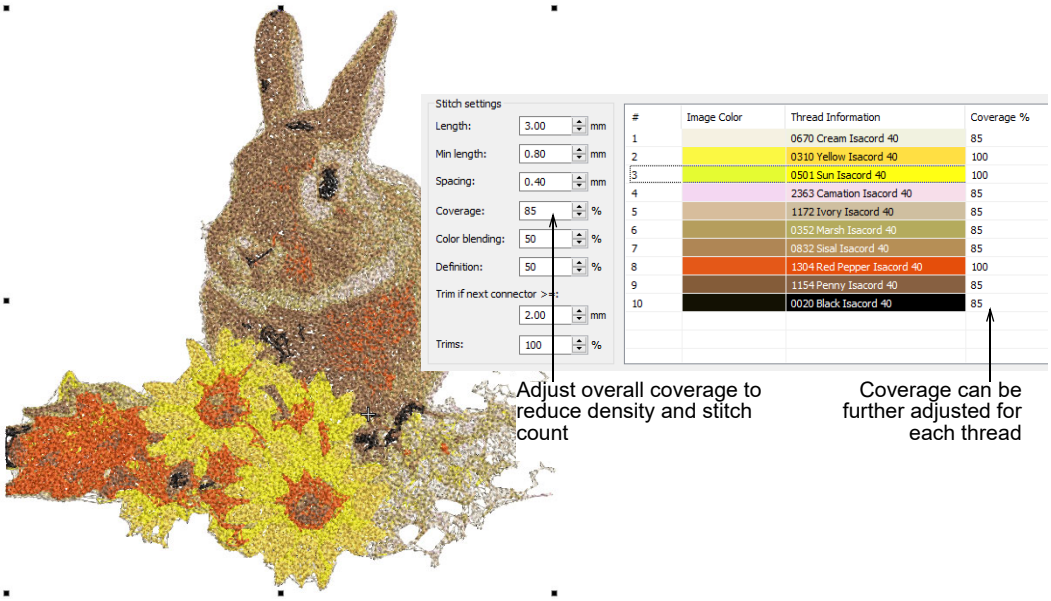
Field	Function
Length / Min length	Color PhotoStitch color blocks are comprised of run stitching. The minimum and maximum stitch lengths allowable in a design determine the outside limits as measured between needle penetration points. Generally speaking, the shorter the length, the smoother the curves, at the expense, however, of increased stitch count.
Spacing	The smaller the value, the greater the stitch density. For more open stitching, use larger values.
Coverage	This setting affects overall stitch density. Lower percentages result in less dense coverage.
Color blending	This setting affects overlapping areas of color. Increasing this value will generally result in greater color block separation.
Definition	This setting affects the sharpness of image details. Reducing this value will generally result in greater image definition.
Trim if next...	Trims are inserted if the next connector exceeds the length you specify.

Field	Function
Trims	This setting affects the number of trims and tie-offs in the design. Reduce trim count by increasing trim length and decreasing the trim percentage setting, at the expense, however, of more connecting runs.

2 For instance, use the **Color blending** setting to increase or decrease overlapping colors. Reducing this value will generally result in greater color block separation.

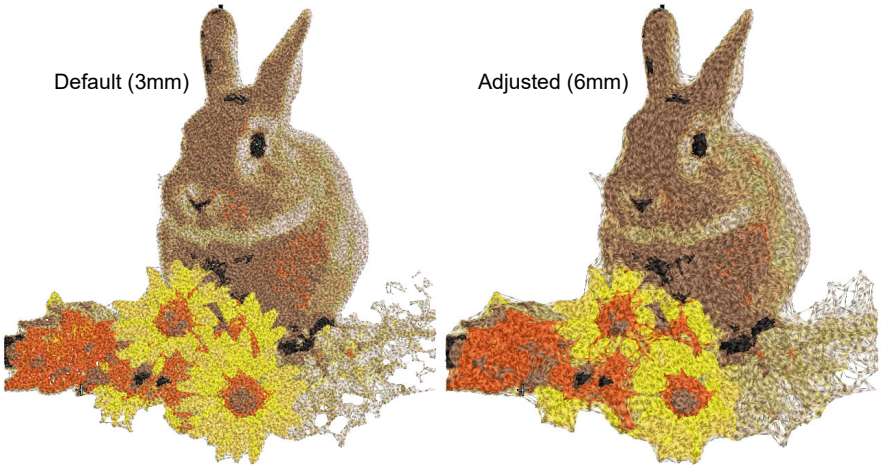


3 Use **Coverage** to adjust overall stitch density. Lower percentages result in less dense coverage. This may be desirable in order to reduce stitch count depending on background color.

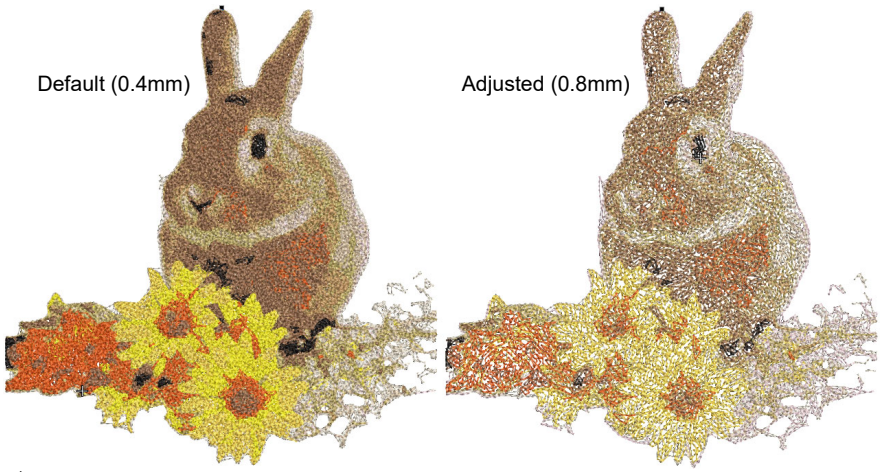


Note: Coverage can be further adjusted for each thread by double-clicking a field in the **Coverage** column. Differential values can be used to enhance foreground details or diminish background colors.

4 Adjust **Length** settings for greater or lesser precision. Shorter length will result in greater detail at the cost of a higher stitch count.

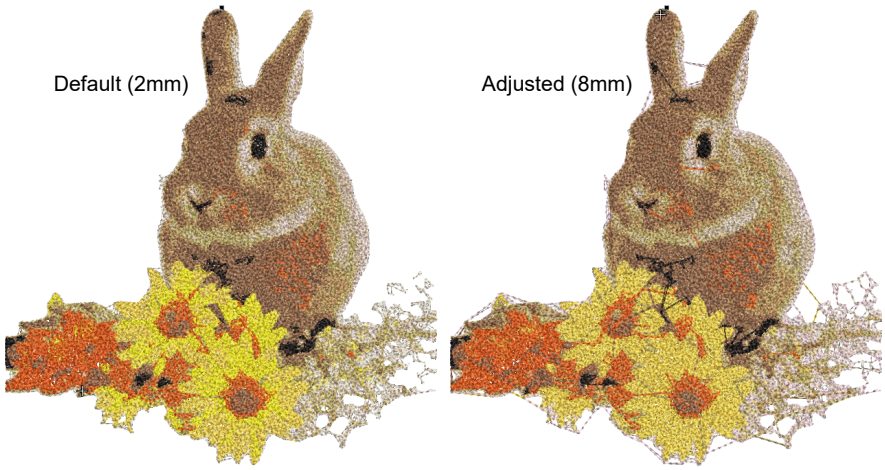


5 Adjust **Spacing** settings for greater or lesser density. Again, closer spacing will result in greater detail at the cost of a higher stitch count.



Tip: You can reduce stitch count by increasing stitch length and stitch spacing, reducing overall and individual coverage % settings.

6 Adjust trim settings for more or fewer trims. The higher the value, the more connectors but fewer trims.



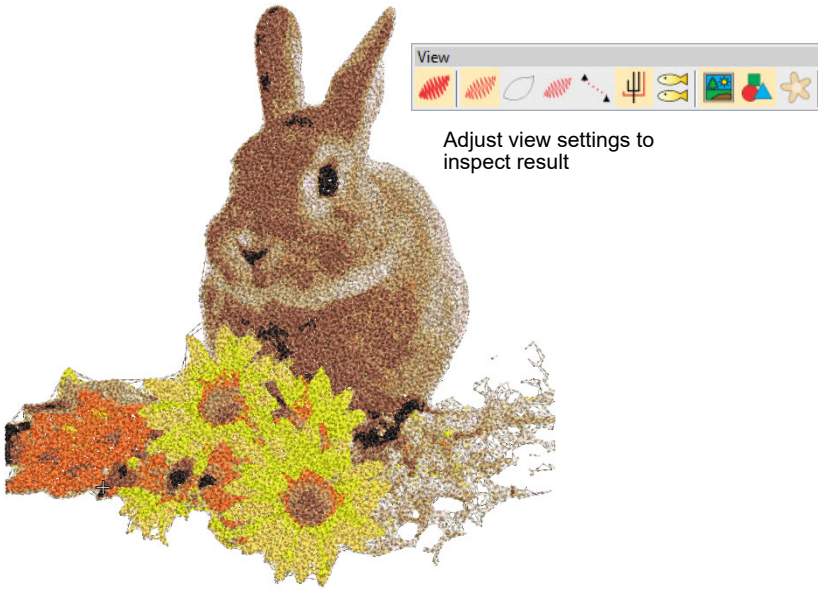
7 Keep experimenting until you achieve the desired result. Click **OK** to confirm.

Note: Both stitch and trim counts can only be checked after the **Color PhotoStitch** dialog is closed. While you remain in the same design window, current settings are retained except for thread coverage. This returns to the default 100%. Note these settings if you want to return to the **Color PhotoStitch** dialog.

Review the results

Review the results. Things to check for:

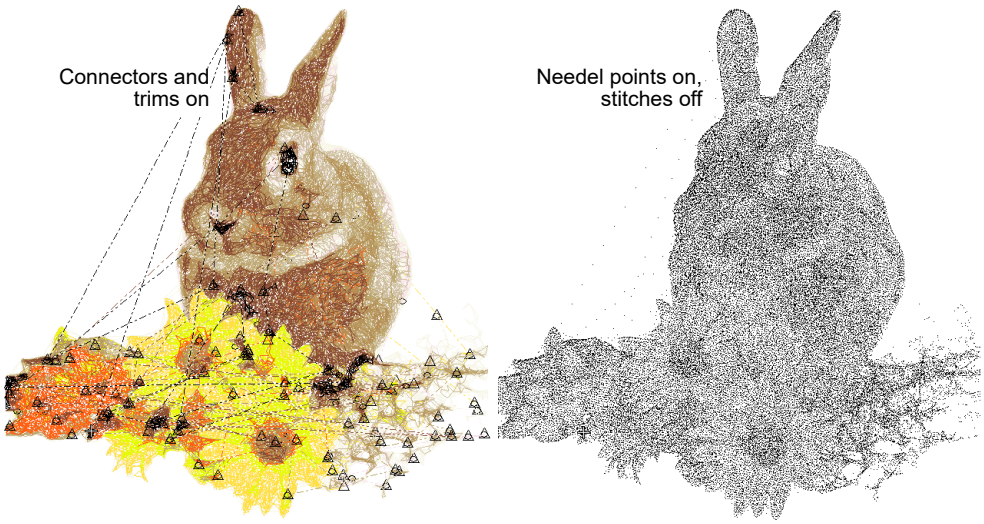
- No obvious holes in coverage
- Number of trims
- Overall stitch count.



Caution: Be careful if, after processing a larger image, you decide to reduce the design size. Stitches may be too closely bunched and cause needle breaks.

To review the results...

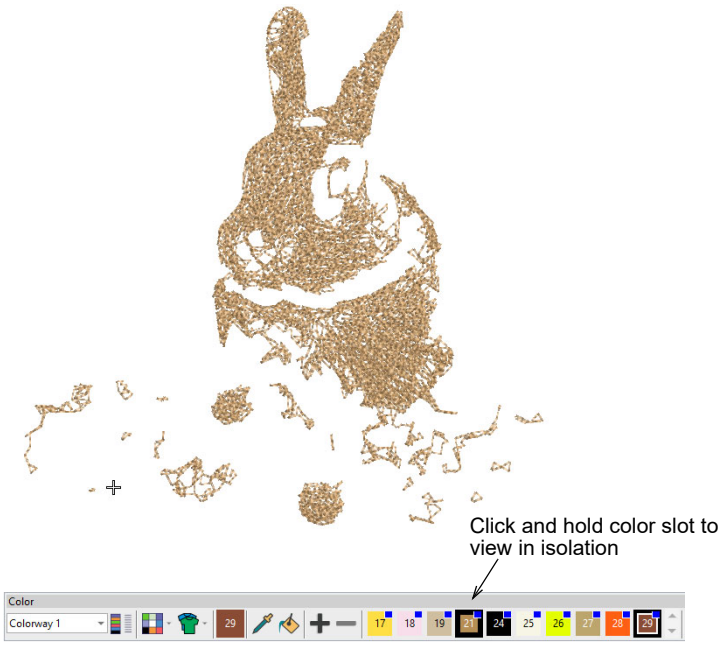
1. Turn off the backdrop – press **D** – for a better view.
2. Check the results with **TrueView™** on and off. Turn connector stitching on and off. For better visualization, set TrueView™ viewing options to thin thread.



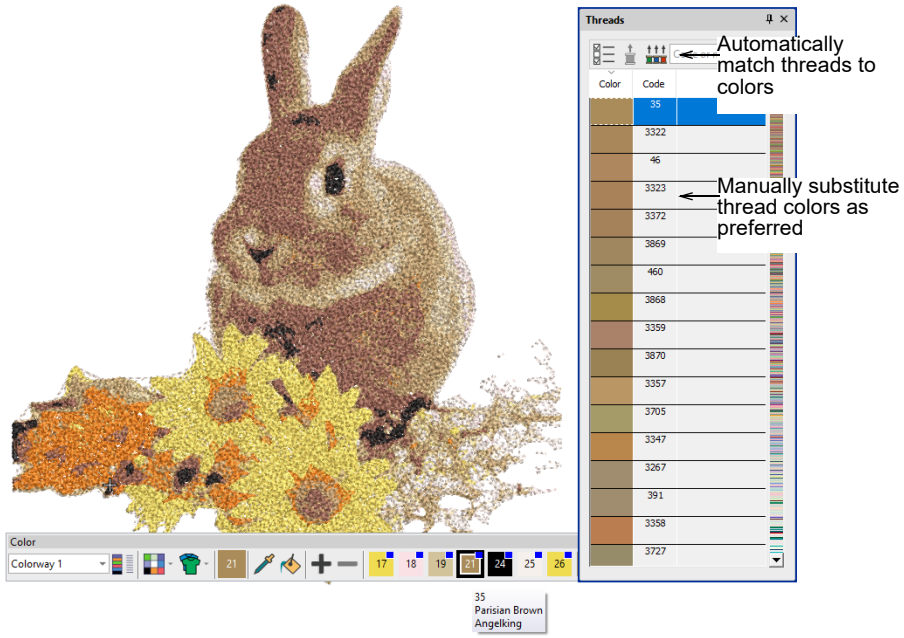
Tip: It's useful to check needle penetrations with **TrueView™** off as holes/gaps and stitch density can be easily seen.

3 If you are unsatisfied with the results, click **Undo** and try again. Try different settings and check the previews. You may need to touch up the image in PHOTO-PAINT if none of the results is good enough.

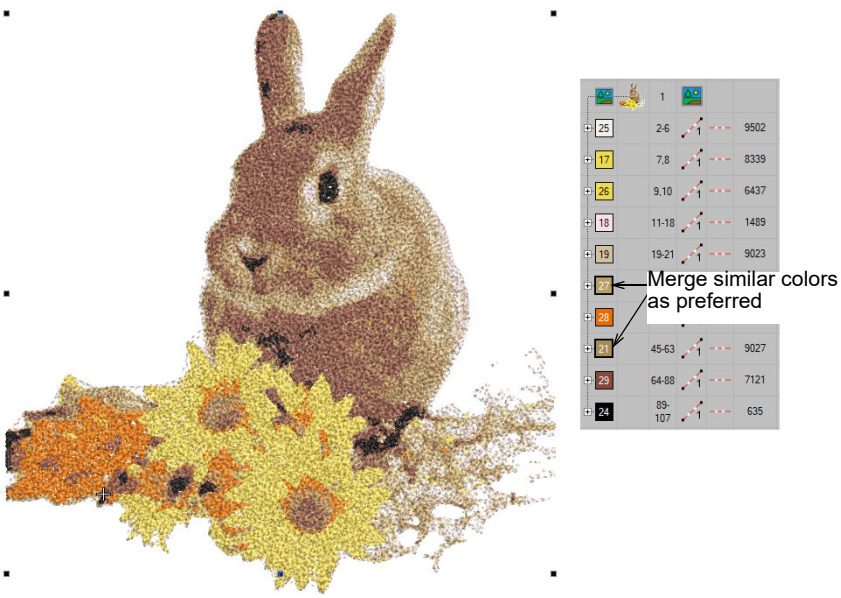
4 Locate colors. Click and hold each color slot in turn to view associated stitching.



5 Fine-tune thread color selection as preferred. Choosing the right thread is key to a good result. If you have added RGB colors to the color palette, open the **Threads** docker. Select a chart from the **Thread Charts** dialog. Here you can manually or automatically match threads to palette colors.



6 Optionally, manually merge thread colors in the **Sequence** docker for reduced thread color changes.



Usage tips...

- For best results, use crisp images with well-defined subjects and strong contrasts.
- For a grayscale photo, 5-6 shades which gradually change from white/light gray to dark gray/black are usually enough for a good stitching result.
- For a simple color photo, 7-10 colors may be enough. If a color occupies more than 5% of the whole area, it will be included by default.
- For a complicated photo with many different colors, 14-16 colors may be good enough. Try to limit colors to no more than 20 as every thread change counts.
- Try cycling through used colors for some interesting effects.



- Combine **Color PhotoStitch** with lettering, satin borders, and motifs to create appealing keepsakes.



- Limit the amount of resizing done in BE EmbroideryStudio so as to retain as much image information as possible. If an image is much too large for its intended purpose, resize and resample it in any linked CorelDRAW® or external graphics applications before applying auto-digitizing techniques. This will generally produce a better result.
- While originally intended for use with photographs, **Color PhotoStitch** can also employ graphics to create appealing commercial embroidery.



Related topics...

- Preparing photos for auto-digitizing
- Preparing artwork for auto-digitizing
- Thread selection
- Change color schemes

PART IX
EMBROIDERY PRODUCTION

Design processing and encoding involve all the important, back-end operations of embroidery design and manufacture. This is where you actually output your designs to machine, disk, printer, cutter, and so on. For this, you will need an understanding of embroidery file types as well as different machine formats. Depending on your setup, you will also need an understanding of traditional storage media such as embroidery disks.



Design hooping

This section outlines some typical hooping scenarios. It covers setting start & end points as well as hoop selection and placement. It also deals with the creation of custom hoops. It also covers production techniques. See Design Hooping for details.

Multi-hooping

This section deals with multi-hooping concepts and covers both automatic and manual multi-hooping techniques. It also covers printing and stitching out multi-hooped designs. It also discusses multi-position hooping with sliding hoops. See Multi-Hooping for details.

Design reports

From the same EMB design file, you can output production worksheets or approval sheets for machine operators or customers respectively. This section describes how to create production worksheets and approval sheets as well as how to send designs as email attachments. See Design Reports for details.

Machine files

This section describes conversion options for opening and saving machine files. It also provides details about the processing of Melco CND outline

files, including color merging, as well as reassigning colors to both stitch and Melco CND files. See Machine Files for details.

Embroidery output

This section describes how to stitch designs out with the Stitch Manager and with Connection Manager utilities. It also explains how to save designs for machine, how to read and write to embroidery disk. It also deals with exporting multi-decoration files. See Embroidery Output for details.

Multi-decoration output

Designs digitized in BE EmbroideryStudio and CorelDRAW® can be output in a variety of ways, both via the **Wilcom Workspace** and **CorelDRAW Graphics**. This section covers printing designs in CorelDRAW Graphics as well as exporting designs as vectors. It also covers the **Export Multi-Decoration Files** capability as well as outputting appliqué and bling to machines. See Multi-Decoration Output for details.

Machine Manager utility

Machine Manager is a tool for controlling the workflow of multiple embroidery machines. Its main tasks are to download designs to machines, manage queues, monitor machine and job status, and collect productivity and maintenance statistics. It is ideally suited for use in larger embroidery factories where production managers and supervisors must know exactly what many machines are doing and how jobs are progressing. See Machine Manager Utility for details.

Wireless machine connection with EmbroideryConnect

The EmbroideryConnect capability allows you to wirelessly transfer embroidery designs from BE EmbroideryStudio to one or more USB-enabled embroidery machines. Machine files are automatically generated and sent via a standard WiFi network to an EmbroideryConnect device plugged into a compatible machine. See Wireless Machine Connection with EmbroideryConnect for details.

Chapter 34

Design Hooping

Fabrics must be hooped before stitching out on the machine. Devices made from wood, plastic, or steel, hoops are used to tightly grip fabric and stabilizer between an inner and outer ring. Designed to hold fabric taut against the machine bed for embroidering, they attach to the machine's frame. BE EmbroideryStudio allows you to select from a wide range of standard factory-supplied hoops. Define your own hoops using circle, oval, rectangle, and other shapes.



With the dedicated **Hoop** toolbar you can:

- Configure your own hoop list.
- Prompt BE EmbroideryStudio to automatically select a hoop from your own hoop list.
- Manually change hoops from a droplist.
- Show/hide the selected hoop in the design window.
- Position and rotate hoops.
- Create/edit/delete custom hoops.
- Enter/exit the **Hooping Mode**.

This section outlines some typical hooping scenarios. It covers setting start & end points as well as hoop selection and placement. It also deals with the creation of custom hoops. It also covers production techniques.

Hooping scenarios

There are five main cases when hooping designs in BE EmbroideryStudio:

- A single design that fits within a single hoop.
- A work-piece layout involving multiple designs each requiring its own hooping.
- A single design that fits within a single hoop, but which is repeated continuously.
- A single design that will not fit within a single hoop but can fit within a multi-position hoop. Multi-position hoops generally consist of two (2) or three (3) overlapping stitching areas.
- A single design that will not fit within a single hooping but requires multiple hoopings.

With each hooping, there is generally only one important reference point – the hoop center. This is particularly so where machines automatically center the design. When designs are located on a large work piece, like a table cloth, design extents and geometric center become important for positioning.

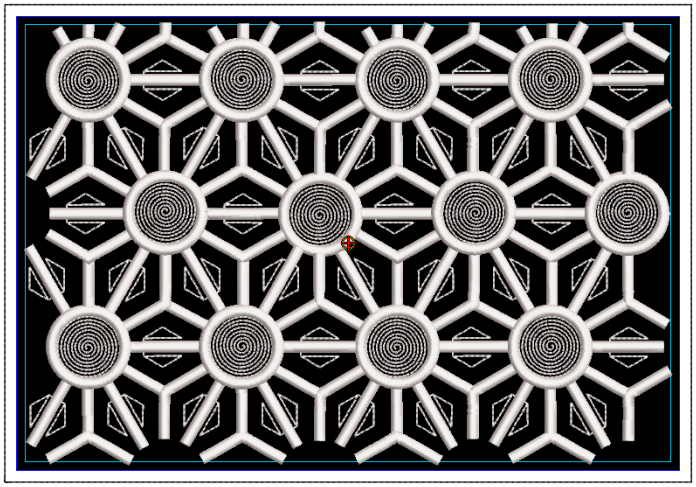
Single designs in single hoopings

For most work, you will use designs that fit entirely within the available hoops for your particular machine. You will mostly use default settings both in the software and on the machine. The hoop center becomes the reference point for all designs you do in this manner. This technique provides the basis for all other techniques you will use. See Stitch out single designs for details.



Continuous embroidery

Continuous embroidery consists of a single design, repeated continuously, that fits within a single hoop.

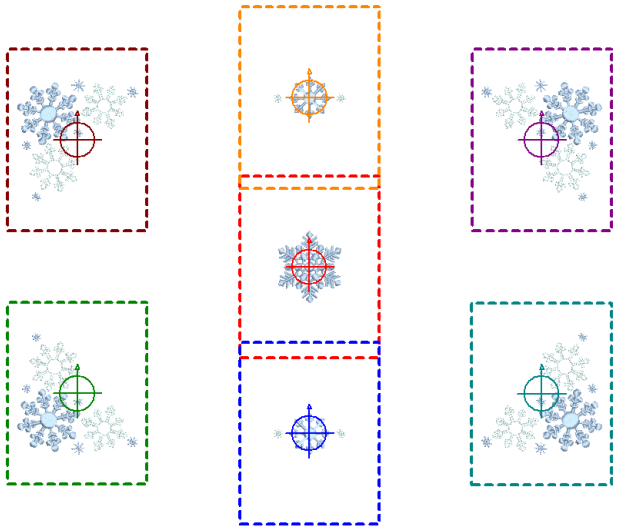


In BE EmbroideryStudio, continuous embroidery can be achieved in one of two ways:

- Automatic continuous embroidery consists of multiple design repeats combined with multi-hooping to create output files with automatic registration marks.
- Manual continuous embroidery consists of a single design with manually inserted basting stitch markers or graphic markers at start and end of design for alignment.

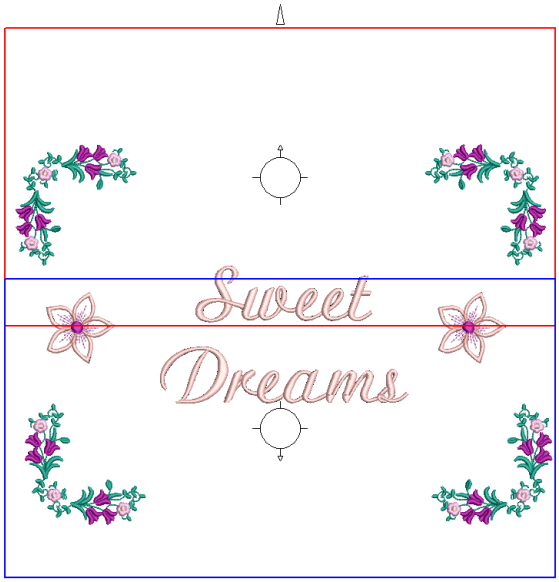
Single hoop work-piece layouts

As an intermediate user, you may want to create design layouts on large work pieces. Each design will still fit in a single hoop but there may be multiple designs in the layout. Each hooping has its own reference point that is used with the hoop template to accurately place the design at the correct orientation. As there is only one design per hooping, there is no need for secondary placement points. The main benefit of this technique is that the complete layout can be accommodated within a single design file with the work piece as reference and all components included. See Stitch out work-piece layouts for details.



Single designs in multi-position hoopings

As an intermediate user, you'll no doubt want to try laying out larger designs using multi-position hoops. These allow you to utilize a larger area of fabric to combine several designs or split large designs. Design components are sewn in different stitching areas without the need to re-hoop the fabric. See Multi-position hooping for details.



Multi-hooped designs

If your design is too large or involves a large work area, you have the option of splitting it into multiple hoopings. The dedicated **Hooping Mode** allows you to strategically position hoops until you obtain the least number of hoopings necessary to accommodate the whole design layout.



Each hooping contains an object or group of objects that can be stitched out on their own. Hoopings are stitched consecutively to form the whole design. They can be sent directly to machine or saved to file. See Multi-Hooping for details.

Start & end points

Use View > Auto Start & End to toggle the Auto Start & End function on/off according to the current settings. Right-click to adjust settings.

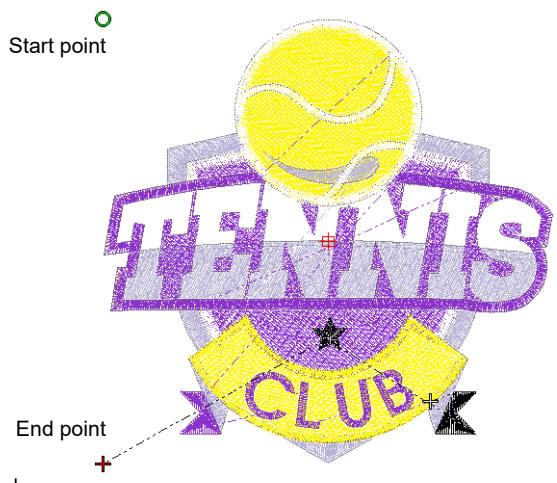
Click View > Show Connectors to toggle connecting stitch display on/off to help determine start and end points.

Start and end points control where stitching begins and ends in your design. They need to work in sync with your hoop position to avoid thread breaks, misalignment, or needle collisions. Before stitching, some embroidery machines require you to position the hoop precisely in relation to the needle. Some machines require stitching to start in the center of the hoop, some at the periphery. Some machines require the needle to finish at the center, others at the last stitch. The **Auto Start & End** feature determines first and last needle positions for the design.

Note: Machines which auto-center designs around design extents will ignore the **Auto Start & End** setting.

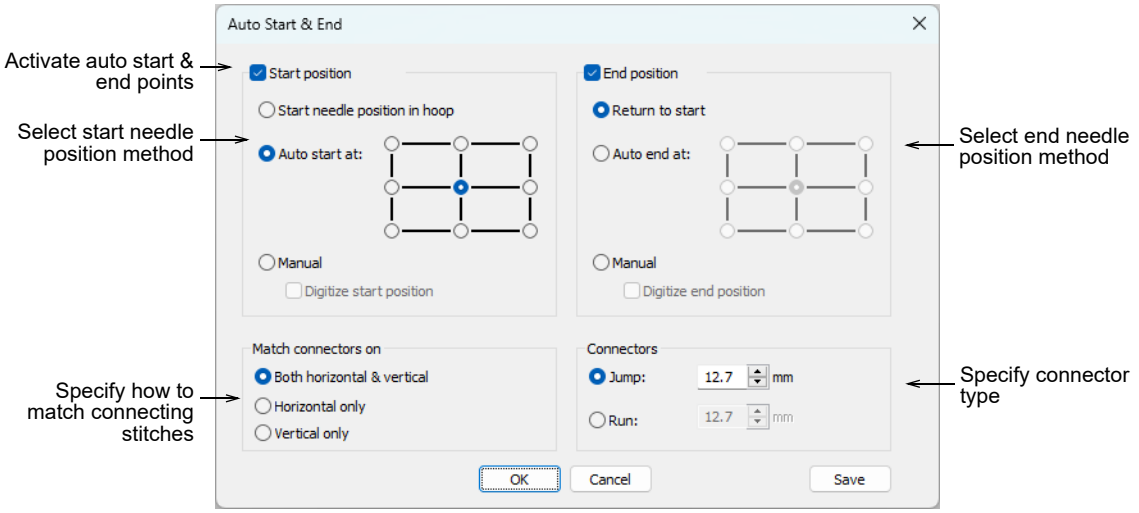
To set start & end points...

1 Click the **Auto Start & End** toggle. A green circle indicates the start point while a red plus sign (+) indicates the end point.



Tip: Auto-start & end symbols can be activated via the **Options > View Design** tab. See Show auto-start & end points for details.

2 Right-click the **Auto Start & End** button. The dialog opens.



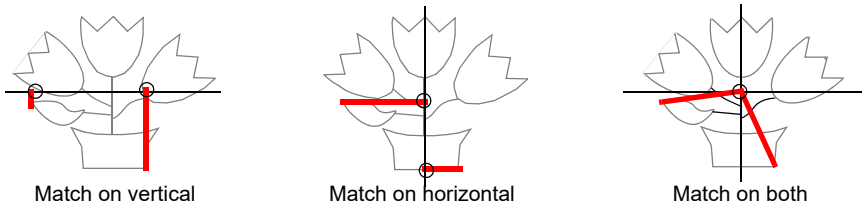
3 Select a **Start position** method:

Method	Notes
Start position	Deactivating this toggle sets the start point to the first stitch in the design.
Start needle position in hoop	The start point is set to the hoop center (rather than design center).
Auto start at	The start point is set to a preset point in the design – top-left, center, bottom-right, etc.
Manual	The start point stays fixed. It doesn't move after editing.
Digitize start position	You are prompted to mark the start point.

4 Select an **End position** method. Similar options apply:

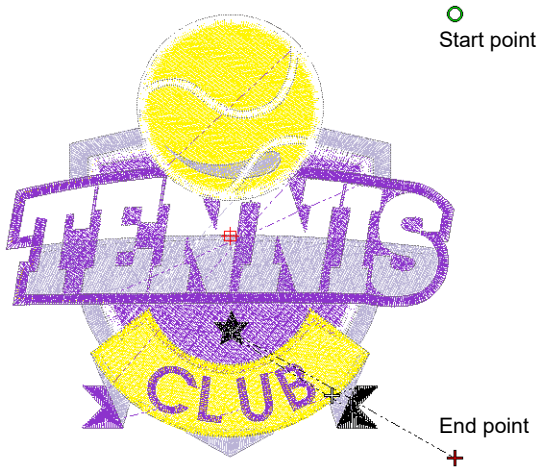
Method	Notes
End position	Deactivating this toggle sets the end point to the last stitch in the design.
Return to start	The end point is set to whichever start point was selected.
Auto end at	The end point is set to the specified point in the design.
Manual	The end point defaults to the last selected position.
Digitize end position	You are prompted to mark the end point.

5 In the **Match connectors on** panel, choose whether to align connecting stitches horizontally, vertically, or in both planes.

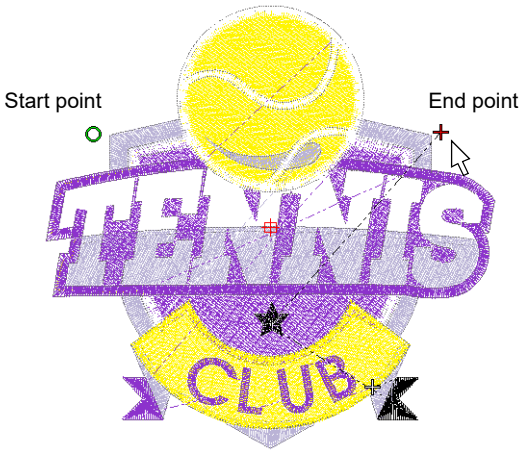


6 Select type and length of connecting stitches in the **Connectors** panel.

7 Click **OK** to confirm. Connectors – travel runs or jumps – are inserted as specified, before first and after last stitches of the design. Toggle on connectors (press **Shift+C**) to view.

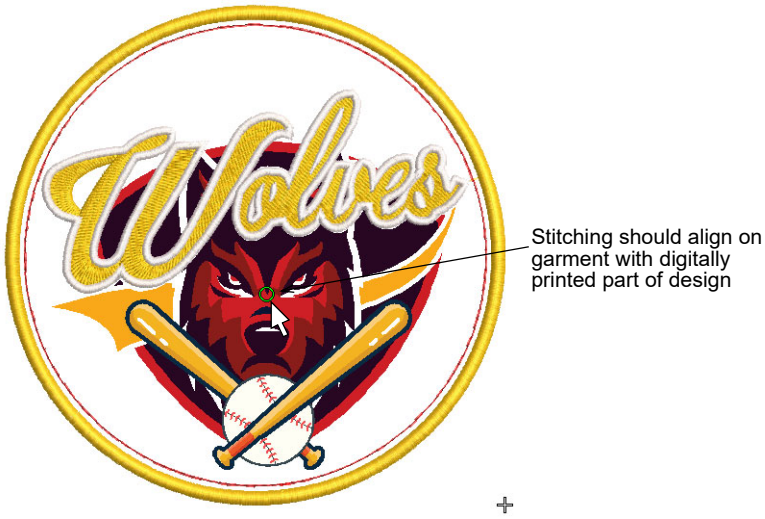


8 If you chose to digitize start and end points, you are prompted upon closing the dialog. Check the **Prompt** bar.

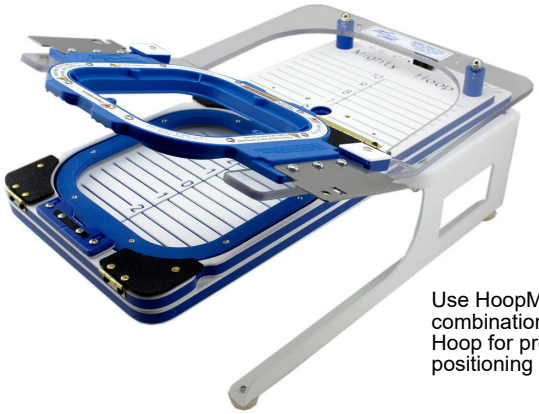


Usage tips...

- Check your machine for the required start and end needle positions. If not set correctly in BE EmbroideryStudio, your machine may not be able to read the design.
- Some file formats will override auto start and end settings in BE EmbroideryStudio.
- The PES file format requires a top-left start point to stitch correctly on Brother machines. This is handled automatically by BE EmbroideryStudio, overriding **Auto Start & End** settings.
- By setting manual start and end points, the hoop remains in a fixed position. This gives you the freedom to position objects anywhere within the hoop. It is especially useful for multi-position hoops as it can help to minimize re-hooping.
- The manual method is also convenient if you want to prevent the hoop moving around while digitizing, as occurs with automatic centering.
- You might also want to set a start point when combining embroidery and digital print. The needle is aligned with a manually digitized start point. This ensures that stitching aligns with the printed part of the design.



- When doing this kind of work, use a HoopMaster in combination with a Mighty Hoop. This makes positioning of the fabric much more precise.



Use HoopMaster in combination with a Mighty Hoop for precise positioning

- Problems may occur when you try to set a common start and end point for team names.
- To keep the design in the same hoop position on the machine as saved in BE EmbroideryStudio, set start in the **Auto Start & End** dialog to 'Start needle position in hoop'. In the **Options > Hoop** tab, set the **Hoop Position** to 'Fixed'.
- The **Center All** command can be used to center the whole design and hoop at the 0,0 position. This means you can reposition the hoop around the design **after** you have finished digitizing without the need for auto-centering.
- Use the **Save** button to save your preference to the template. This becomes the default setting for all new blank designs.

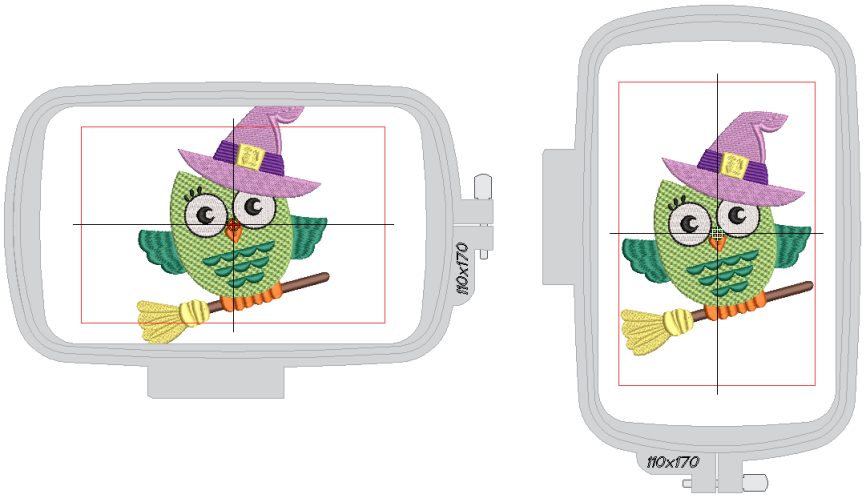
Related topics...

- Design viewing options
- Show auto-start & end points
- Automatic hoop selection
- Manual hoop selection
- Center design & hoop in design window
- Types of connectors
- Teamname production
- Printing designs in CorelDRAW Graphics

Hoop selection

A range of commercial brands is available in BE EmbroideryStudio for a wide variety of machines and design types. The **My Hoops** option allows you to define a filtered list of those hoops you have available for use. The simplest way to hoop a design is to prompt the system to select it for you.

Auto Hoop finds the smallest hoop which can accommodate the entire design. From your **My Hoops** list, you can also manually select your preferred hoop.



Note: Hoop orientation can be changed to accommodate your design.

Hoops & templates

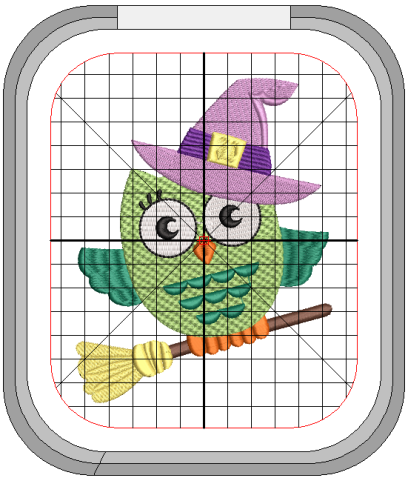
When it comes to stitching out, it is important to align the fabric squarely in the hoop, with even pressure on all sides, and fabric patterns and weaves running perpendicular to the hoop. Otherwise, fabric bias allows stretch. This can distort stitching and result in puckering. Each hoop contains vertical and horizontal centering marks on the frames. These help with aligning both the fabric and the design.

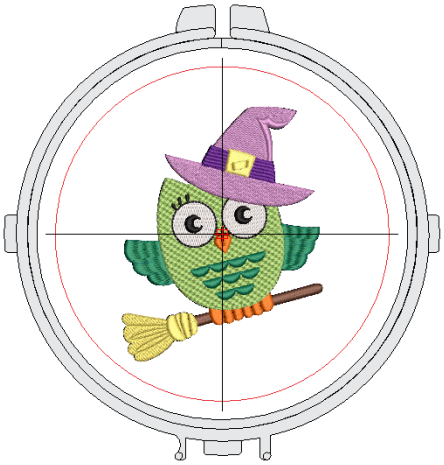


Tip: The HoopMaster **Mighty Hoop** is a magnetic hoop designed for easy, accurate hooping. There is no need to adjust the outer ring as the hoop holds the garment with magnetic force and automatically adjusts for different thicknesses. Unlike clamps, Mighty Hoops do not have a pinch point, making it easy to embroider almost anywhere on garments or specialty items. BE EmbroideryStudio supports the full range of Mighty Hoops.

Hoop templates

Many hoops also come with a clear plastic template overlay. These include alignment lines, with tiny holes which allow you to create positioning marks. Hoop template display can be toggled on or off independently of the hoop itself.





Usage tips...

- Templates include alignment and registration guide markings. These can help production staff align the design in the hoop.
- Templates can also be printed with alignment and registration markings. This allows you to cut out the printed design and align it in the hoop with the physical template.

Hoop lists

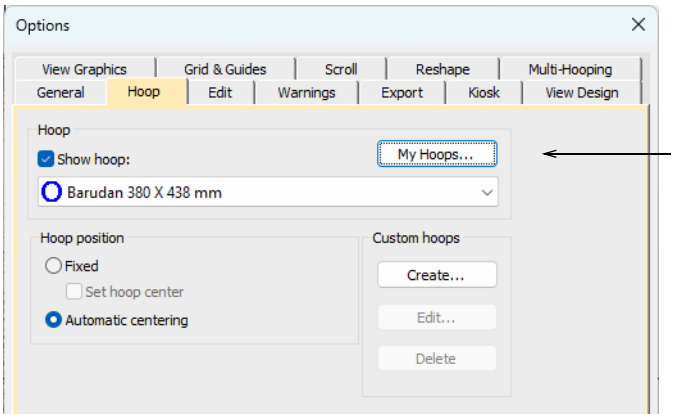
Click Hoop > Hoop Options to configure hoop lists, change hoop position settings, and define custom hoops.

Click Hoop > Show Hoop to turn hoop display on or off. Right-click to change hoop settings.

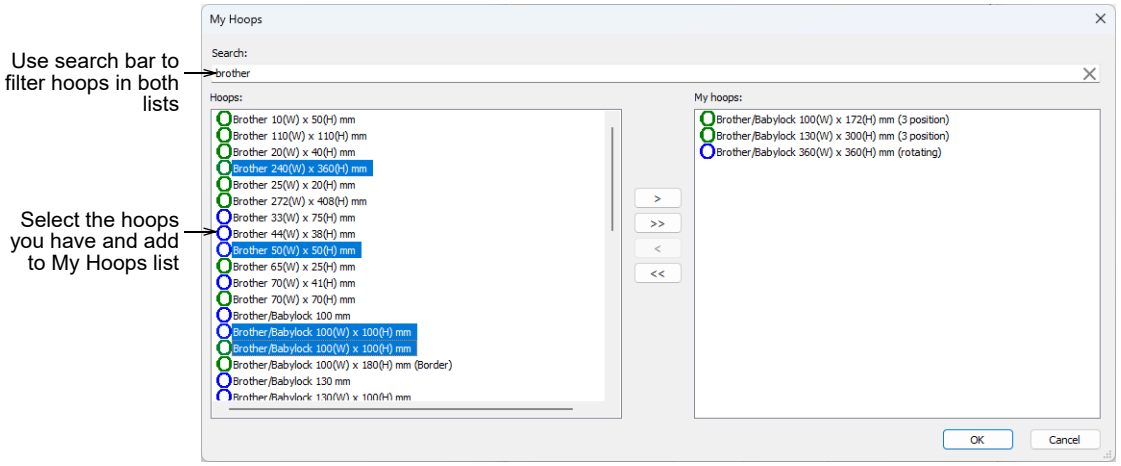
A range of commercial brands is available in BE EmbroideryStudio for a wide variety of machines and design types. The **My Hoops** option allows you to define a filtered list of those hoops you have available for use. If you are using a hoop not appearing in the hoops list, the **Options > Hoop** tab also lets you define your own and save for later use.

To set up a hoop list...

1 Click **Hoop Options** or right-click the **Show Hoop** icon. The first time you run it, the **Options** dialog will open with the **My Hoops** dialog already opened. Otherwise, click the **My Hoops** button.



2 Use the **My Hoops** dialog to set up your own list of available hoops. Optionally, use the **Search** bar to filter the list by hoop type. It's not limited to search by hoop type only. You can enter numbers – e.g. '150 x 150' – or key character/s to filter both lists at the same time.



Note: The blue icon indicates a hoop for a multi-needle type machine.

3 Select your hoops from the **Hoops** list.

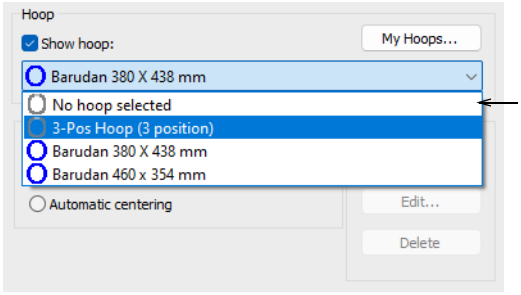
- To select a range, hold down **Shift** then select first and last.
- To select multiple items, hold down **Ctrl** and click.

4 Use the arrow buttons (or double-click) to assign to **My Hoops**. Use the reverse arrows to move any selected hoops back.

5 Click **OK** to confirm.

Usage tips...

- Only hoops from the **My Hoops** list will be available for manual or automatic selection.
- You may be working with hoops which don't appear in the standard hoop list. Define your own hoops using circle, oval, rectangle, and other shapes.
- When removing a hoop from the **My Hoops** list, it will persist in the droplist while it remains the currently selected hoop. Select 'No hoop selected' and close the dialog to remove the hoop altogether.



Related topics...

- Automatic hoop selection
- Custom hoops

Automatic hoop selection



Click Hoop > Auto Hoop to prompt the system to select a suitable hoop automatically.

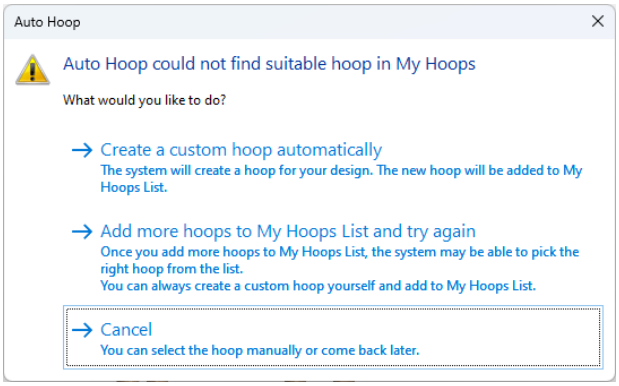
The simplest way to hoop a design is to prompt the system to select a hoop for you. **Auto Hoop** finds the smallest hoop which can accommodate the entire design. **Auto Hoop** only selects hoops from the **My Hoops** list thus only ever suggesting a hoop you have pre-selected as available for use.

To select a hoop automatically...

1 Open your design and click the **Auto Hoop** icon or access the command from **Design > Auto Hoop** menu. From the **My Hoops** list of available hoops, BE EmbroideryStudio chooses the smallest hoop that can accommodate the current design.



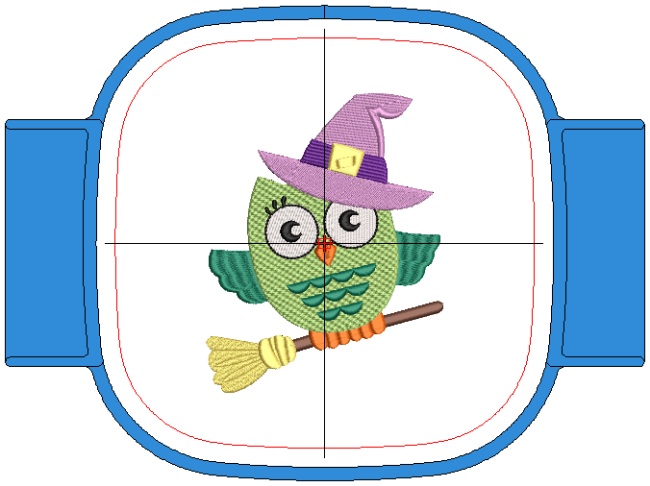
2 If BE EmbroideryStudio cannot find a suitable hoop, it prompts you to automatically generate a custom hoop or add more to **My Hoops**.



3 Click **Create custom hoop automatically...** if you want BE EmbroideryStudio to generate a hoop. It will create a circular or round rectangular hoop to suit design dimensions and will name it accordingly – e.g. 'Round Rectangle 158 x 129 mm'.

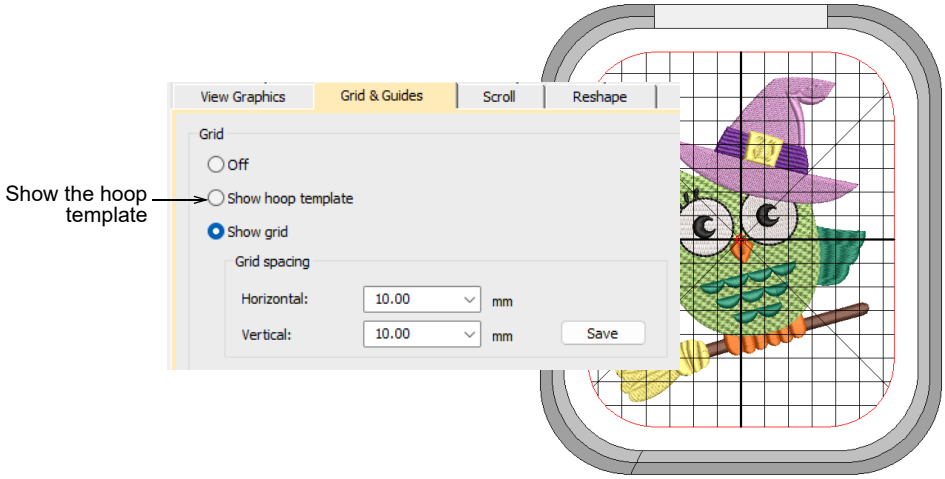


- Click **Add more hoops...** if you want to configure or modify the **My Hoops** list according to your available hoops.



Usage tips...

- The current hoop name is displayed in the **Prompt** bar.
- Select **View > Zoom > Zoom to Hoop** or press **Alt+0** to view the entire hoop in the design window.
- Turn on the **Hoop Template** display via the **Options** dialog or **View** menu. The template may be used to help position your design within the hoop.



- You can include the hoop template in the production worksheet. This allows you to cut out the printed design and align it within the hoop. Use the template markings to align it to physical hoop template.
- The selected hoop is saved with the design in native EMB file format. When the machine reads the machine file, the stitching area is limited by the selected hoop type.

Related topics...

- Hoop lists
- Define custom hoops
- Display grids, rulers & guides
- Customizing design reports

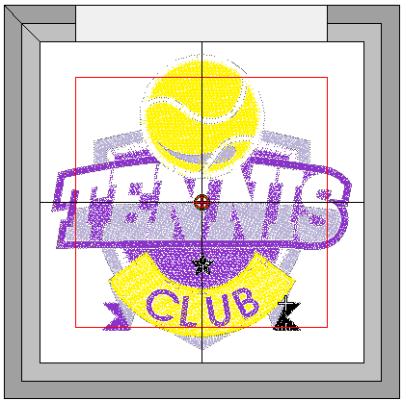
Manual hoop selection

	Click Hoop > Show Hoop to turn hoop display on or off. Right-click to change hoop settings.
	Click Hoop > Hoop Options to configure hoop lists, change hoop position settings, and define custom hoops.
	Click Zoom > Zoom to Hoop to view entire hoop in the design window.

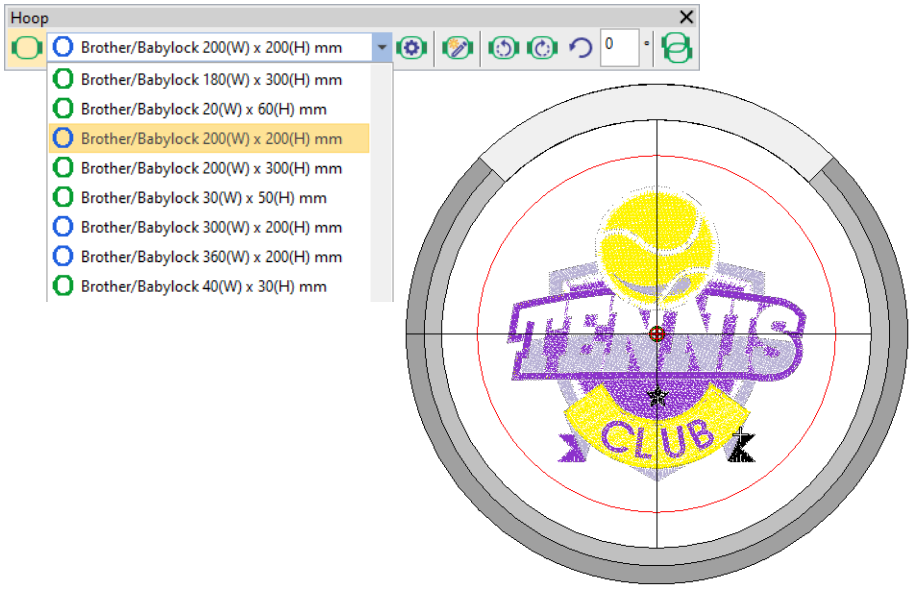
From your **My Hoops** list, you can manually select your preferred hoop. Generally you will want to select the smallest hoop which will accommodate your design. This will hold the fabric tight while stitching.

To select a hoop manually...

1 Open your design and click the **Show Hoop** icon. The current hoop is displayed. It may be too big or too small for your design.



2 Select a hoop from the **My Hoops** droplist. Configure the list to include only those hoops you currently have available for use via the **My Hoops** function.



Usage tips...

- Click the **Zoom to Hoop** icon, select **View > Zoom > Zoom to Hoop** or press **Alt+0** to view the entire hoop in the design window.

- The **Show Hoop** toggle on the **Hoop** toolbar does not control hoop display in the production worksheet. There is a separate **Hoop** checkbox control in the **Print Options** dialog to control this.
- Optionally, turn on the **Hoop Template** display via the **Options** dialog or **View** menu. The template may be used to help position your design within the hoop.
- You can include the hoop template in the production worksheet. This allows you to cut out the printed design and align it within the hoop. Use the template markings to align it to physical hoop template.

Related topics...

- Viewing design components
- Display grids, rulers & guides
- Scroll options
- Customizing design reports

Hoop placement

When you output your design, most machines will automatically center the design within the hoop according to its geometric extents. Some machines will center designs in the hoop at the start needle position. For these machines, you can set a starting point using **Auto Start & End** settings. For display purposes, BE EmbroideryStudio will generally ensure that the design is centered in the hoop. However, you can use the manual option to lock the hoop position onscreen. This means it won't automatically center while you are digitizing. It's always a good idea, however, to turn auto-centering back on to check that the design will fit within the selected hoop.

Common problems with hoop positioning

The table below summarizes some of the common problems associated with hoop positioning.

Problem	Description
Design not centered in hoop	Users expect the design to be centered but don't realize hoop position is fixed or auto-centering is off.
Hoop moves unexpectedly while digitizing	If auto-centering is on, the hoop may shift as objects are added, confusing the user or throwing off alignment with printed materials.
Machine doesn't match software hoop position	Some machines auto-center all designs, while others respect the original saved position. Misalignment here can ruin placement on garments.

Problem	Description
Multi-position hoops misaligned	These hoops need precise planning; incorrect hoop positioning leads to mis-registered or incomplete designs.
Design elements outside the hoop boundary	Especially in large or multi-hoop layouts, users may accidentally place design elements beyond the sewable area.

Set automatic or fixed hoop positioning

Click Hoop > Show Hoop to turn hoop display on or off. Right-click to change hoop settings.

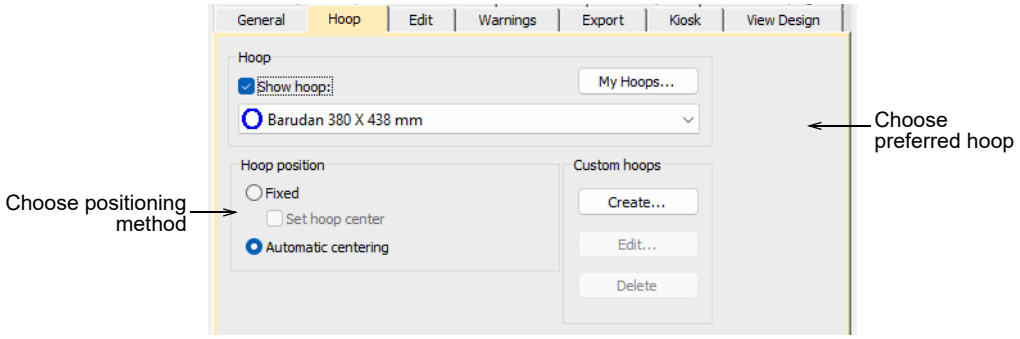
Click Hoop > Hoop Options to configure hoop lists, change hoop position settings, and define custom hoops.

By default, hoop position is fixed in BE EmbroideryStudio. This ensures that the hoop does not move from its original position. This means it won't automatically center while digitizing or editing. Alternatively, choose automatic centering to ensure that the geometric center of the design is always aligned with the hoop center.

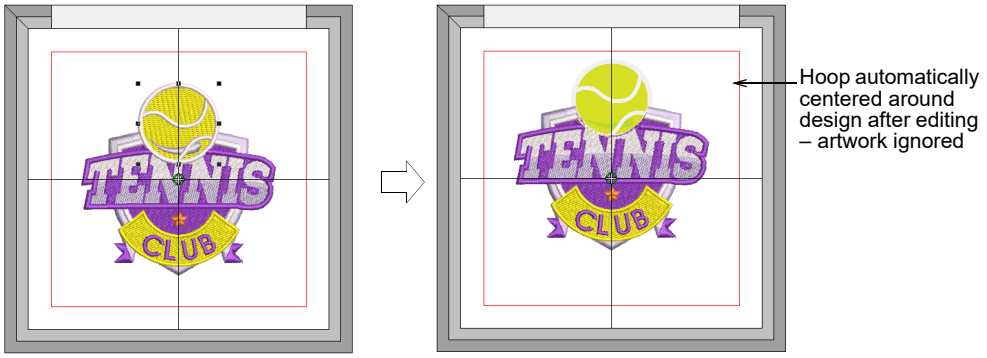
Note: Some embroidery machines will always center the design. Set your software to match the behavior of the machine.

To set automatic hoop positioning...

1 Click **Hoop Options** or right-click the **Show Hoop** icon. The **Options > Hoop** dialog opens.

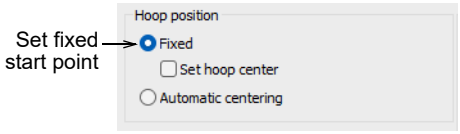


2 In the **Hoop position** panel, choose **Automatic centering**. The hoop will center itself around the geometric center of the design.

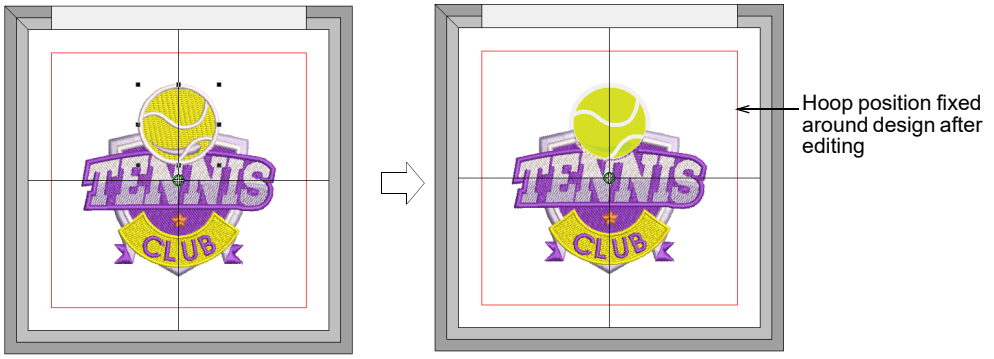


To set fixed hoop positioning...

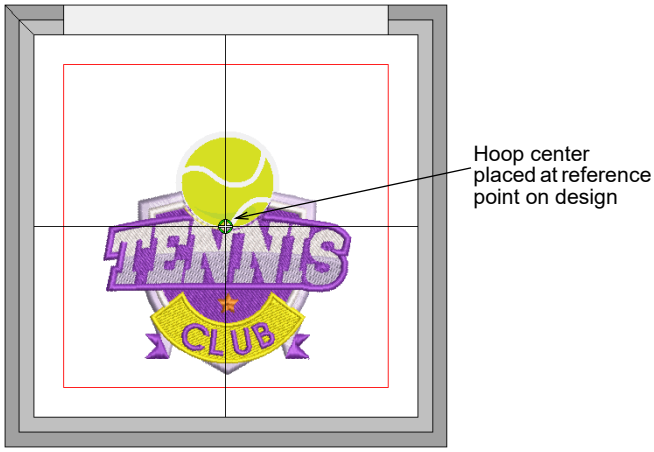
- In the **Hoop position** panel, choose the **Fixed** option:



- **Fixed**: Use this option to ensure the hoop does not move from its original position. This means it won't automatically center while digitizing. This may be important if you are combining embroidery with print or if you want to stitch out in certain locations like chest pockets.

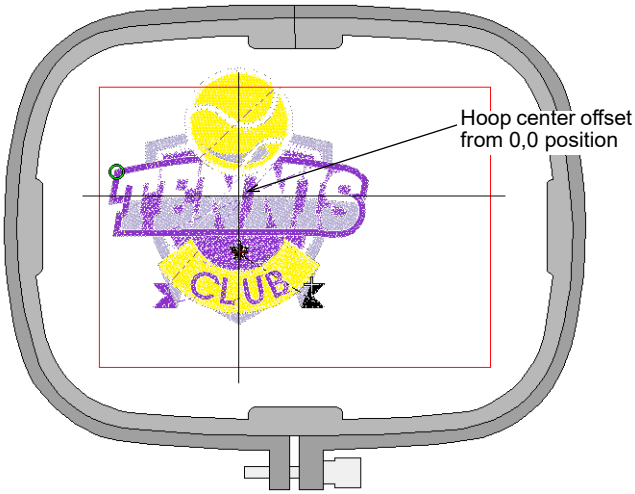


- **Fixed > Set hoop center**: This allows you to center the hoop around a fixed point. After clicking **OK**, mark a point on the design window where you want to center the hoop. You may do this if the project includes a reference point which is to be the hoop center.



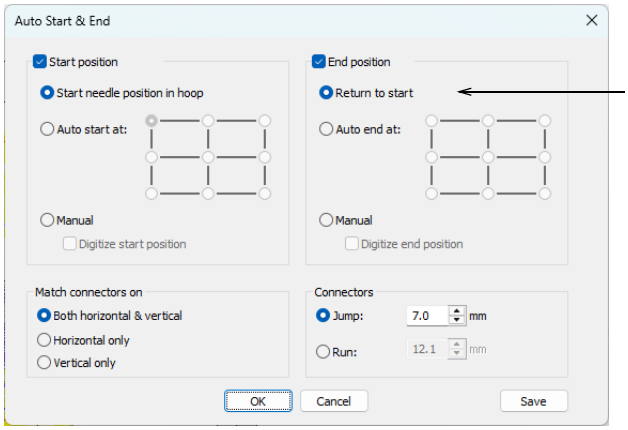
Usage tips...

- Choose **Fixed** vs **Auto-Centering** wisely: Use **Fixed** when aligning to prints or multi-position hoops. Use **Auto-Centering** for balanced designs.
- Know your hoop type: Some hoops such as the Janome No. 1 & 3 (126 x 90) are offset from the 0,0 position.



- Stay inside sewable area: Turn on **Hoop View** and watch for warning markers or elements outside boundaries.
- Sync with machine behavior: Set BE EmbroideryStudio to match your machine: if it auto-centers, align software settings accordingly.
- Save settings to your template: Lock in your preferred hoop and start/end behavior for all new designs.

- Use **Fixed** only with machines that allow you to maintain start and end connectors. Make sure your machine is set to maintain the saved start design position.
- With a **Fixed** hoop position, you are advised to use the 'Start needle position in hoop' + 'Return to start' auto start/end methods. The design will then stitch in the position shown in the software.



- Use **Property Bar > Center All** to reset design and hoop to 0,0.
- To keep the design in the same hoop position on machine as it is saved in BE EmbroideryStudio, set the start position to 'Start needle position in hoop' in the **Auto Start & End** dialog. Set **Hoop Position** to 'Fixed' in the **Options > Hoop** tab. See Start & end points for details.

Related topics...

- Start & end points
- Automatic hoop selection
- Manual hoop selection

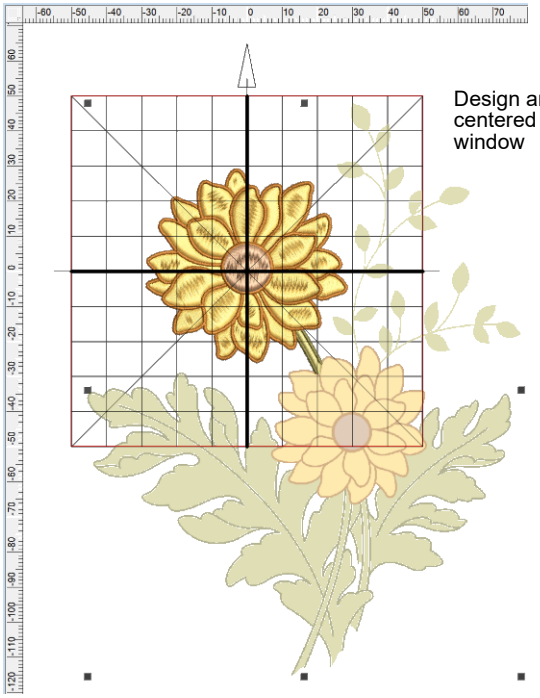
Center design & hoop in design window

Click Property Bar > Center All to center the whole design and hoop at the 0,0 position and display them in the design window.

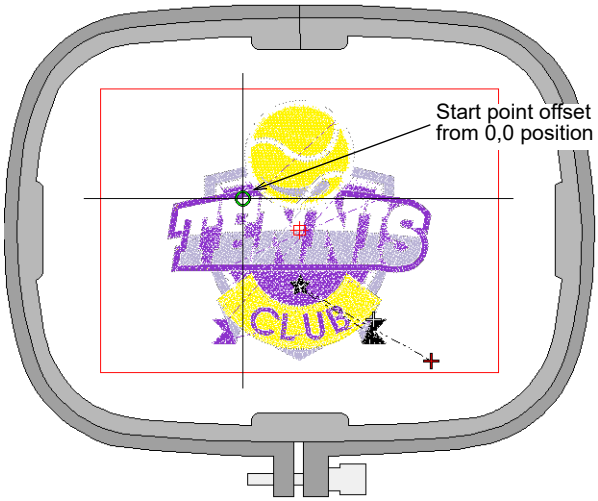
Use the **Center All** command to center the embroidery design and hoop at the 0,0 position in the design window. This means you can reposition the hoop around the design after you have finished digitizing without the need for auto-centering.

To center the design and hoop in the design window...

- With nothing selected, click the **Center All** command. This moves the entire design such that both embroidery and hoop are centered at 0,0. If, for instance, we digitize only one of the flowers in the image and then click **Center All**, the embroidered flower alone is centered at 0,0.



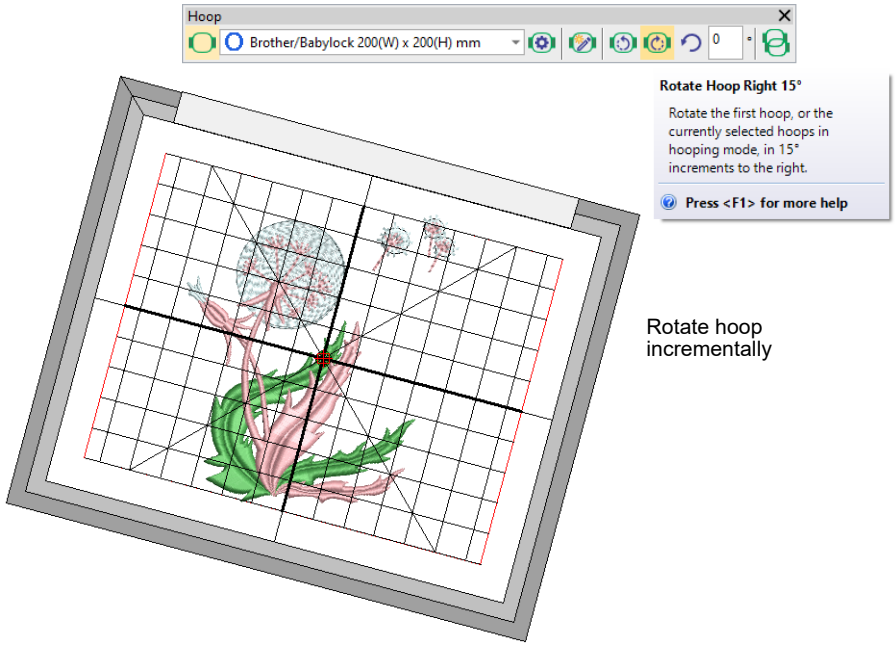
- Some hoops such as the Janome No. 1 & 3 (126 x 90) are offset from the 0,0 position. If you apply **Center All**, these hoops are centered at the 0,0 position. Set the start position to 'Start needle position in hoop' in the **Auto Start & End** dialog. This sets the start point to the offset hoop center rather than the design center.



Rotate hoops

	Click Hoop > Show Hoop to show or hide hoop. Right-click for settings.
 	Use Hoop > Rotate Hoop 15° to rotate the hoop and/or hoop template, or currently selected hoops in hooping mode, in 15° increments to left or right.
	Use Hoop > Rotate Hoop to rotate the hoop and/or hoop template, or currently selected hoops in hooping mode, by specified amount – positive or negative – in degrees.

You can rotate the hoop and/or hoop template for a single-hooped design using the hoop rotation tools on the **Hoop** toolbar. In **Hooping Mode** you first need to select the hoop. The **Rotate Hoop** tools are then activated.

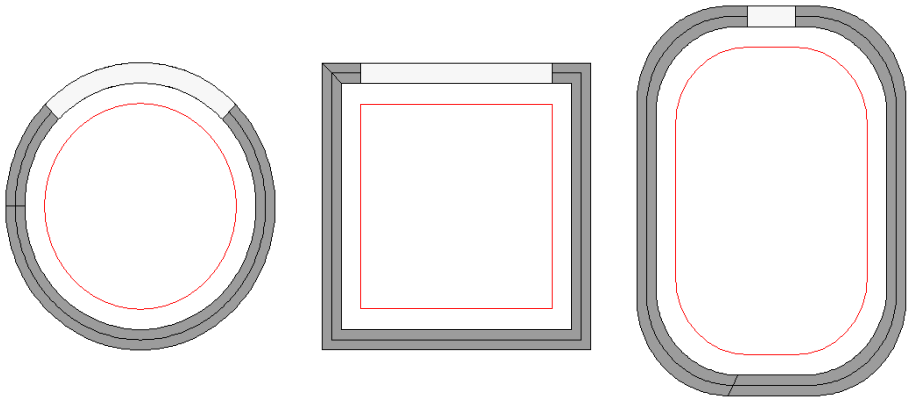


Rotate hoop incrementally

Tip: Use the same tools to rotate selected hoop/s in multi-hooping mode. See Manual multi-hooping for details.

Custom hoops

You may be working with hoops which don't appear in the standard hoop list. Define your own hoops using circle, oval, rectangle, and other shapes.



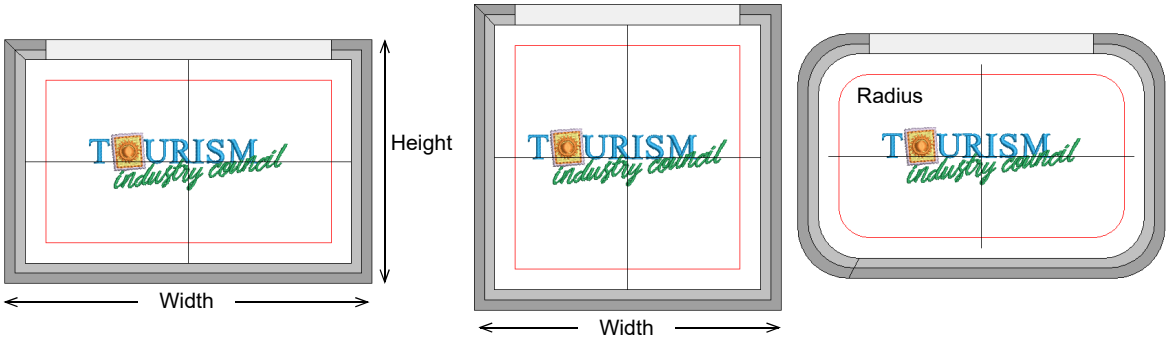
Custom hoop types

You can create or edit eight types of hoop:

- Rectangle
- Round rectangle
- Square
- Oval
- Circle
- 2 position
- 2 position rotating
- 3 position

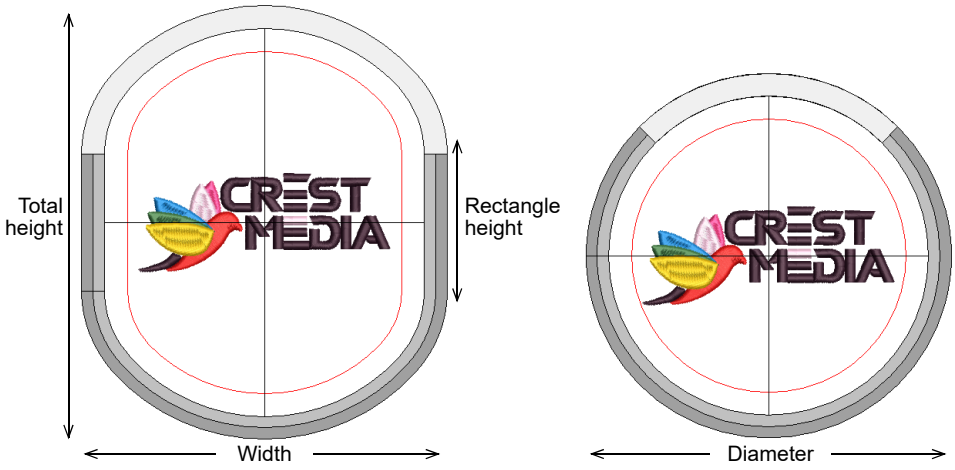
Rectangular and square hoops

Set height and width according to the dimensions of the hoop you are using. With rounded rectangle hoops, set a corner radius in addition to height and width values.



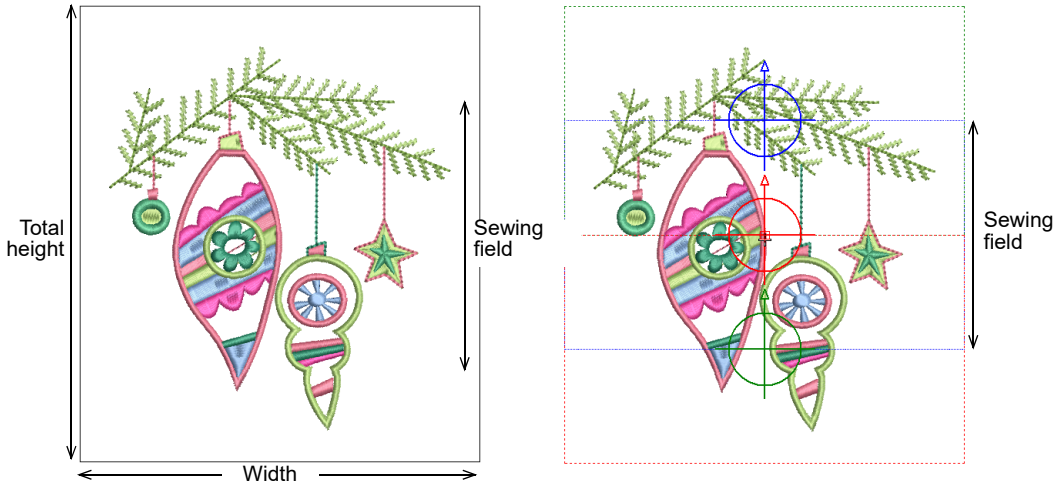
Oval and circular hoops

Set heights and width or diameter values according to the dimensions of the hoop you are using.



Multi-position hoops

Three-position and sliding hoops allow large designs to be split manually and stitched without the usual registration problems. Sewing fields are in fixed positions with known dimensions, making it easy to register objects stitched in each position. In BE EmbroideryStudio, they are displayed as colored rectangles – red, blue, or green. Define your own multi-position hoop according to the dimensions of the hoop you are using.



Define custom hoops

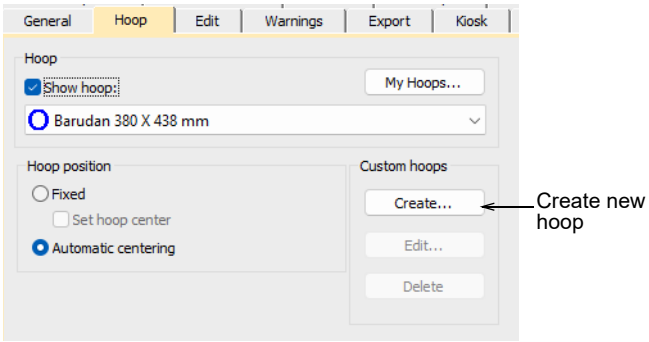
Click Hoop > Show Hoop to turn hoop display on or off. Right-click to change hoop settings.

Click Hoop > Hoop Options to configure hoop lists, change hoop position settings, and define custom hoops.

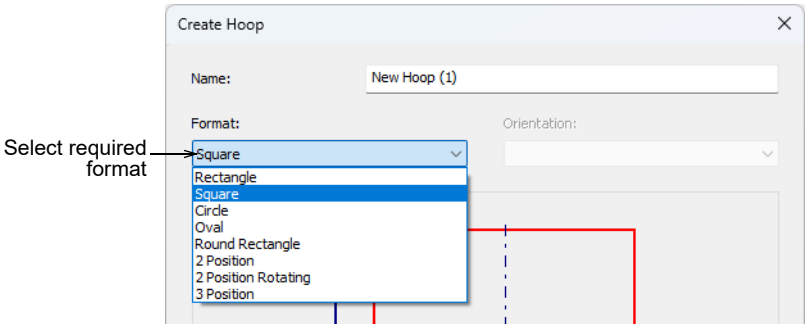
BE EmbroideryStudio allows you to define your own hoops and save for later use. Custom hoops are needed because new hoops become available for sewing machines more frequently than BE EmbroideryStudio is updated. Also some machines include hoop adapters for third-party hoops which need to be defined in BE EmbroideryStudio. You can edit and delete custom hoops at any time – both those you have defined yourself and those generated by **Auto Hoop**. Only custom hoops can be modified or removed, not those from the existing library.

To define a custom hoop...

1 Right-click the **Show Hoop** icon. The **Options > Hoop** dialog opens.



2 Click **Create**. The **Create Hoop** dialog opens.

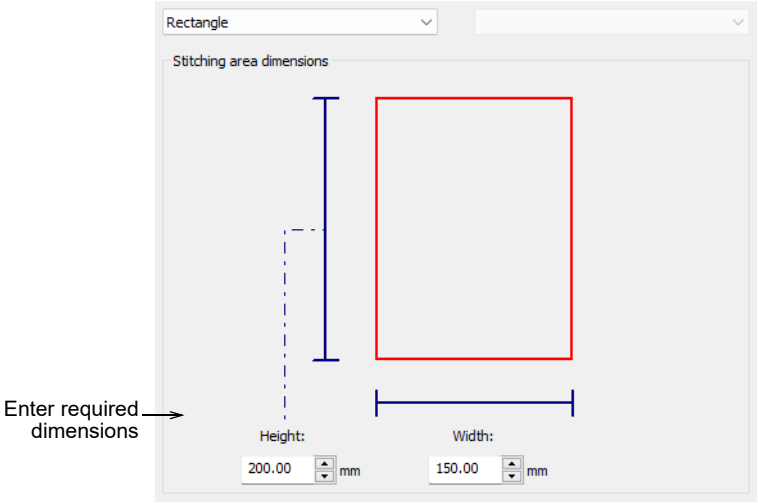


3 Select the required format for your hoop from the droplist – e.g. rectangle, circle, etc.

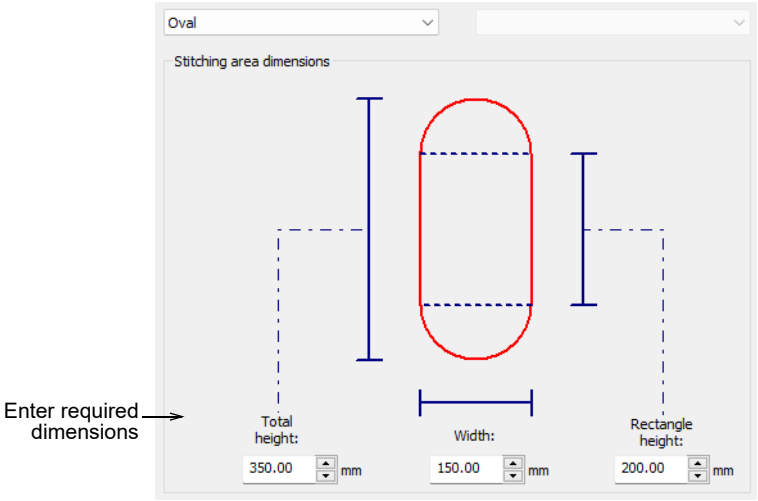
4 Give your hoop a meaningful title in the **Name** field – e.g. 'Rectangle 180x120'.

5 In the **Stitching Area Dimensions** panel, enter the dimensional characteristics of the stitching area. For instance...

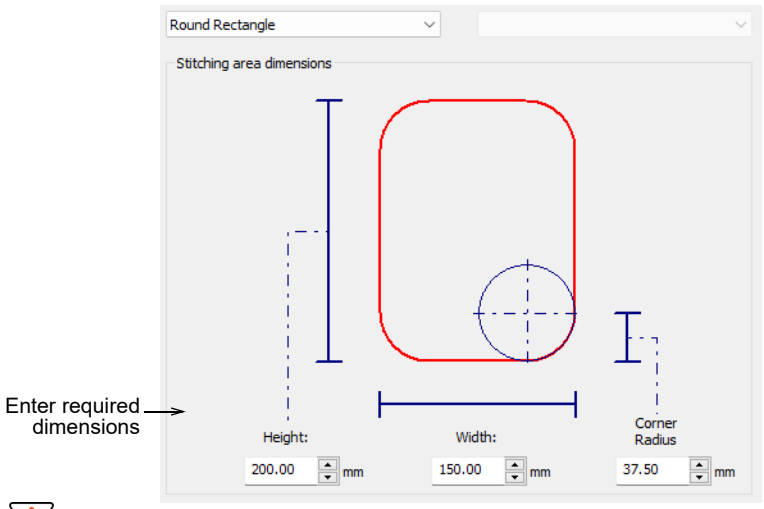
- **Rectangle**: Rectangular stitching areas require **Height** and **Width** dimensions.



- **Oval**: Oval stitching areas require three dimensions – **Total Height**, **Rectangle Height**, and **Width**.

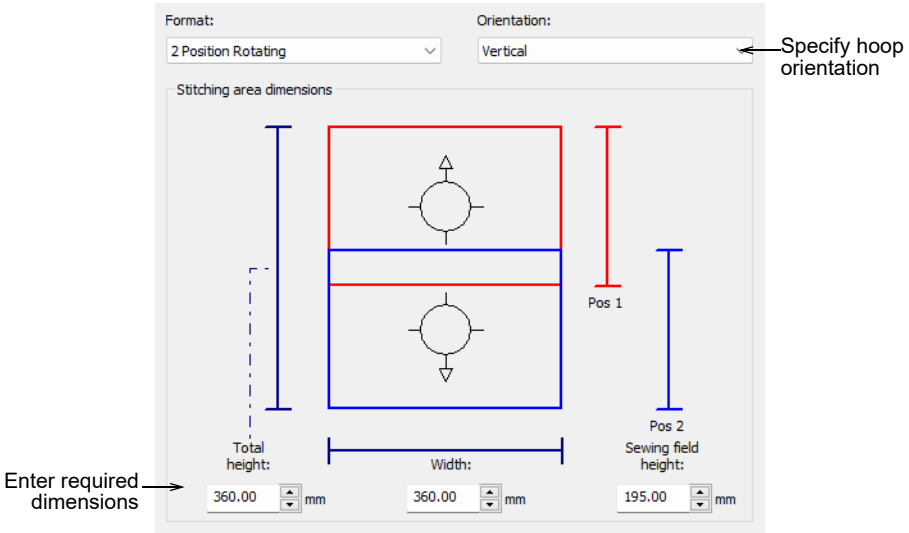


- **Round Rectangle**: Similar to oval stitching areas, round rectangles require three dimensions – **Height**, **Width**, and **Corner Radius**. The greater the radius, the rounder the corner.



Caution: Even if your unit of measurement is in inches, dimensions in the **Create Hoop** dialog are specified in millimeters. This is because hoops on the machine are specified in millimeters. If you are not sure of the hoop size in millimeters, check your machine manual. Sizes are generally listed in the machine parts and accessories list.

6 Similarly, use the **Create Hoop** dialog to define multi-position hoops – 2 position, 2 position rotating, and 3 position. Again, use the **Stitching area dimensions** panel to enter dimensional characteristics of the stitching area. For instance...

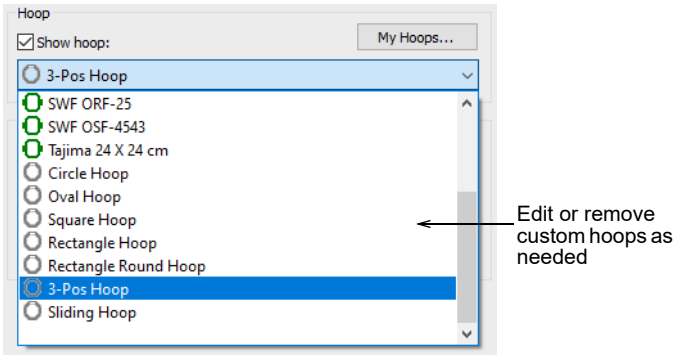


Tip: Two-position hoop formats also allow you to define hoop orientation – vertical or horizontal.

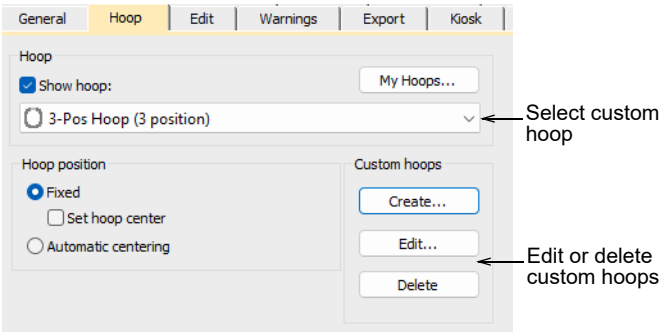
7 Click **Save Hoop** to save your custom hoop to the hoop list.

Usage tips...

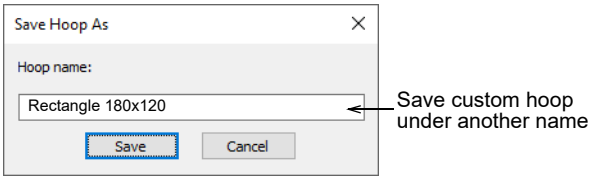
- Once a new hoop is saved, it is available for use from the hoop droplist in the **Options > Hoop** tab.



- When selected, custom hoops can be edited or removed via the available buttons in the **Options > Hoop** tab.



- When editing a custom hoop, the **Save Hoop As** option is available. Save the modified hoop under another name as preferred.



- If you open an EMB file which contains an unlisted custom hoop, or a listed hoop with modified settings, BE EmbroideryStudio creates a custom hoop and tags it with a system-generated name.

Production techniques

As an advanced user, you may want to produce designs larger than any available hoop. This could be a single large design or a continuous embroidery design with repeating patterns. Continuous embroidery is similar to the 'endless embroidery' function available on some machines.

To facilitate the accurate positioning of designs in more complex cases, BE EmbroideryStudio uses a combination of:

- Design layout templates
- Production worksheets with printed location markers
- Hoop templates.

Where the final output requires multiple hoopings, positioning and alignment of multiple hoopings at sewing time, or repeats of the same design, can be tricky. It takes practice to obtain accurate alignment where a design requires re-hooping.

Stitch out single designs

For most work, you will use designs that fit entirely within the available hoops for your particular machine. You will mostly use default settings both in the software and the machine. The hoop center becomes the reference point for all designs you do in this manner. This technique provides the basis for all other techniques you will use.

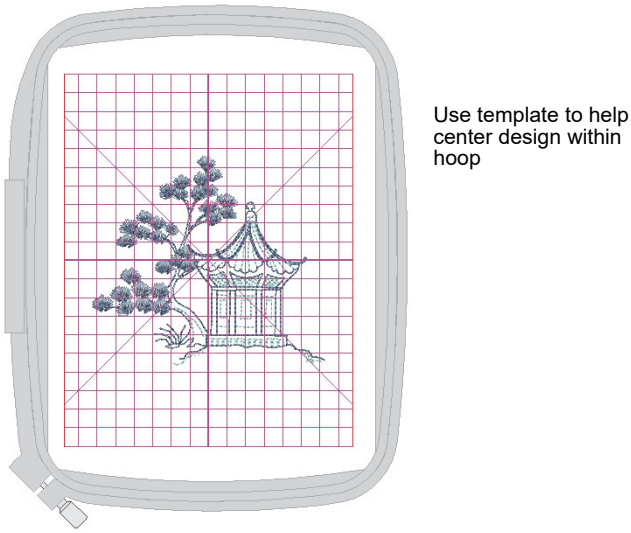
To stitch out a single design...

1 Insert or open a design.

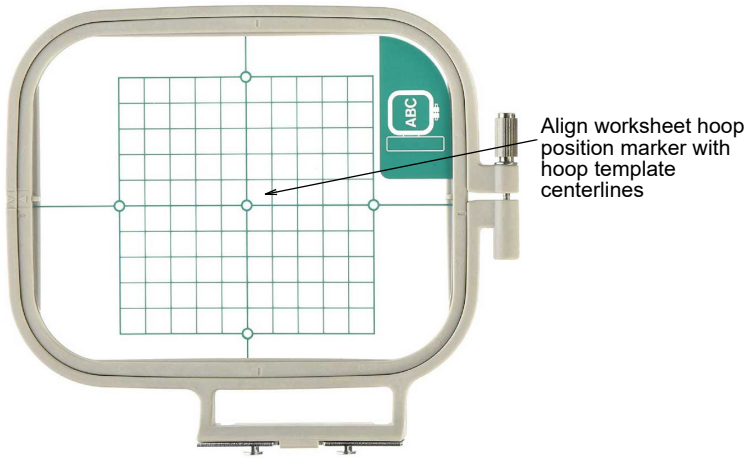
- The hoop automatically centers around design extents.



- Using the hoop template instead of the grid, you can ensure that the hoop center always aligns with the hoop template grid as the hoop centers around the design.



2. Optionally, adjust the design size or change hoops to suit the design.
3. Print a production worksheet. The worksheet can include the hoop position marker.
4. Send the design to machine. The design is automatically centered on the machine.
5. Fix the production worksheet to the fabric.
6. Hoop the fabric. Align the worksheet hoop position marker with the hoop template centerlines.



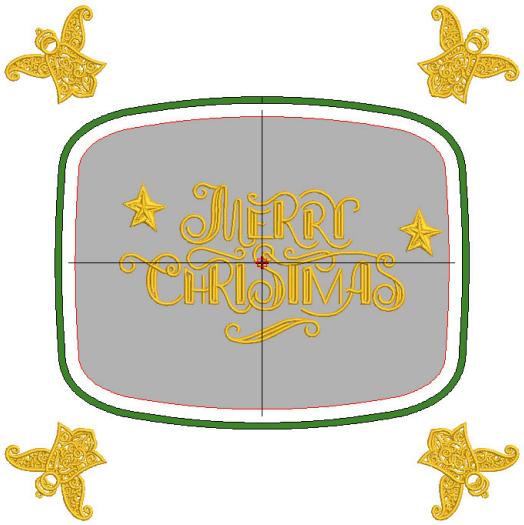
7. Start the machine. The needle will move to the hoop center.
8. Stitch out the design.

Related topics...

- Hoop selection
- Hoop placement
- Printing design reports
- Sending designs to machine

Stitch out work-piece layouts

As an intermediate user, you may want to create design layouts on large work-pieces. Each design will fit in a single hoop but there may be multiple designs in the piece. Each hooping has its own reference point that is used with the hoop template to accurately place the design at the correct orientation. As there is only one design per hooping, there is no need for secondary placement points. The main benefit of this technique is that all components can be accommodated within a single design file.



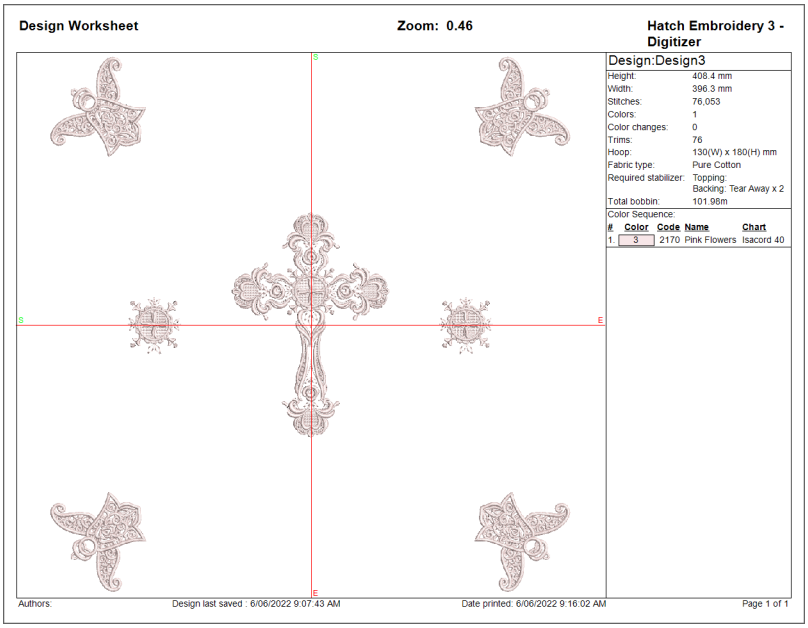
To stitch out a work-piece layout...

1. Insert or open a design. The hoop automatically centers around design extents, as it does on most machines.
2. Optionally, adjust design size or change the hoop to suit the design.
3. Create a design layout by combining designs and design elements.
   - There are various features within the software for creating geometric design layouts quickly and easily – Mirror-Merge, Layouts, etc.
   - Alternatively, place designs manually.
   - Optionally, include a background for a garment or large work piece.

4 Use multi-hooping in order to automatically place hoops for each design location. You can use the automatic feature to generate hoopings even in large layouts.

Tip: With work-piece layouts, you don't need to include registration marks, but you do need the hoop position markers for each hoop location. This will show the position and orientation of each design in the layout.

5 Print out the layout template with the production worksheet. Large layouts can be printed on small format printers and then pieced together. This establishes all hoops in the correct spatial relationship.



6 Piece together the production worksheet to show the entire layout. The worksheet shows the hoop position marker. Each hoop position marker has a number indicating the hooping sequence.

7 Send the design to machine. The design is automatically centered on some machines.

8 Fix the layout template to the work piece. Optionally, remove the non-stitched sections of the production worksheet to make the work piece easier to work with.

9 Hoop the work piece using the printed layout template and hoop template. Align the worksheet hoop position marker with the hoop template centerlines.

10 Once hooped, remove the layout template and stitch the design component for that hooping.

- The hoop location number is included on the hoop position marker.

- When sent to machine, designs have the hoop location number added to the design layout file name.

11 Stitch out the design.

12 Locate the next hoop in the sequence and repeat.

Usage tips...

- With work-piece layouts, you don't need to include registration marks, but you do need the hoop position markers for each hoop location. This will show the position and orientation of each design in the layout.
- Turn on hoop position marker via **Print Preview > Options**.

Related topics...

- Fabric & product backgrounds
- Scaling objects
- Mirroring & reflecting selections
- Multi-Hooping
- Printing multi-hooped designs
- Multi-hoop production

Stitch out embroidery at specified location



Click Property Bar > Center All to center the whole design and hoop at the 0,0 position and display them in the design window. When toggled off (the default), the hoop is automatically centered around the design.



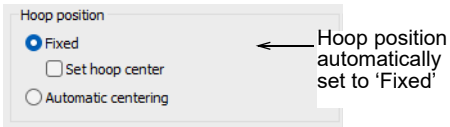
Use View > Auto Start & End to toggle the Auto Start & End function on/off according to the current settings. Right-click to adjust settings.

Sometimes, you want to stitch out at specific locations for garments, caps and other articles. For example, take the case where you want to embroider a monogram design on a shirt pocket. Use this technique with machines that allow you to maintain the start and end connectors.

To stitch out embroidery at a specified location...

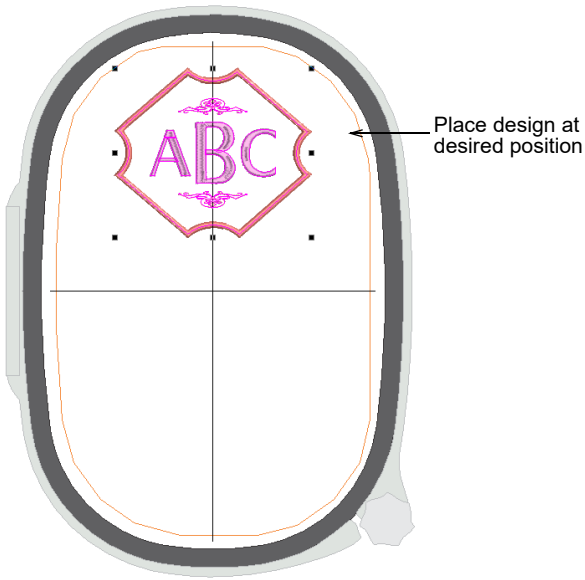
1 Open a blank design.

2 Click the **Center All** toggle to automatically set the hoop position to 'Fixed'. This allows you to place the design at the desired location.



Tip: The **Center All** toggle will also automatically activate 'Start position' in the **Auto Start and End** dialog and set it to 'Start needle position in hoop'.

3 Using the **Lettering** toolbox, create a lettering or monogram design.



4 Optionally, include a background for the garment you are using.

5 Optionally print the production worksheet. The worksheet shows the hoop position marker on the design at the on-screen location.

6 Send the design to the machine. The design is positioned in the same location as shown on screen. It uses the start needle to locate the design in relation to the hoop center.

7 Hoop the garment using the hoop template vertical centerline to locate the center of the pocket. Then place the respective horizontal centerline 10mm below the top of the pocket.

8 Make sure your machine is set to maintain the saved start design position.

9 Stitch out the design.

Related topics...

- Hoop placement
- Start & end points
- Monogramming
- Viewing colorways
- Viewing design information

Chapter 35

Multi-Hooping

You may want to produce designs larger than any available hoop. This could be a single large design or a continuous embroidery design with repeating patterns. Continuous embroidery is similar to the 'endless embroidery' function available on some machines. Multiple hooping can also be used by fashion studios for one-off projects.



To facilitate the accurate positioning of designs in more complex cases, BE EmbroideryStudio uses a combination of:

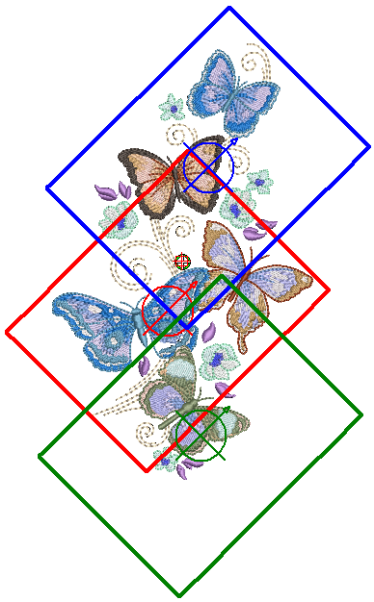
- Production worksheets
- Hooping sequence sheets with registration marks
- Hoop templates.

Where the final output requires multiple hoopings, positioning and alignment of multiple hoopings at sewing time, or repeats of the same design, can be tricky. It takes practice to obtain accurate alignment where a design requires re-hooping.

This section deals with multi-hooping concepts and covers both automatic and manual multi-hooping techniques. It also covers printing and stitching out multi-hooped designs. It also discusses multi-position hooping with sliding hoops.

Multi-hooping concepts

The goal of multi-hooping is to accommodate a design within a minimum number of hoopings. Each successive hooping should overlap a previously stitched hooping. Hoopings should be placed as near as possible to the stitching sequence. This will minimize the number of eventual hoopings.



In BE EmbroideryStudio you can specify multiple hoopings manually or automatically. Manual hooping is generally better than automatic, except for simple designs. Each hoop position contains an object or group of objects that can be stitched out in a single hooping. These are stitched consecutively to form the whole design.

Note: 'Hooping' is not the same thing as 'hoop position' – you can have more hoopings than hoop positions but you can never have less. In other words, a single hoop position may involve more than one hooping in order to preserve the stitching sequence.

Multi-hooping characteristics

Multi-hooping in BE EmbroideryStudio has the following characteristics:

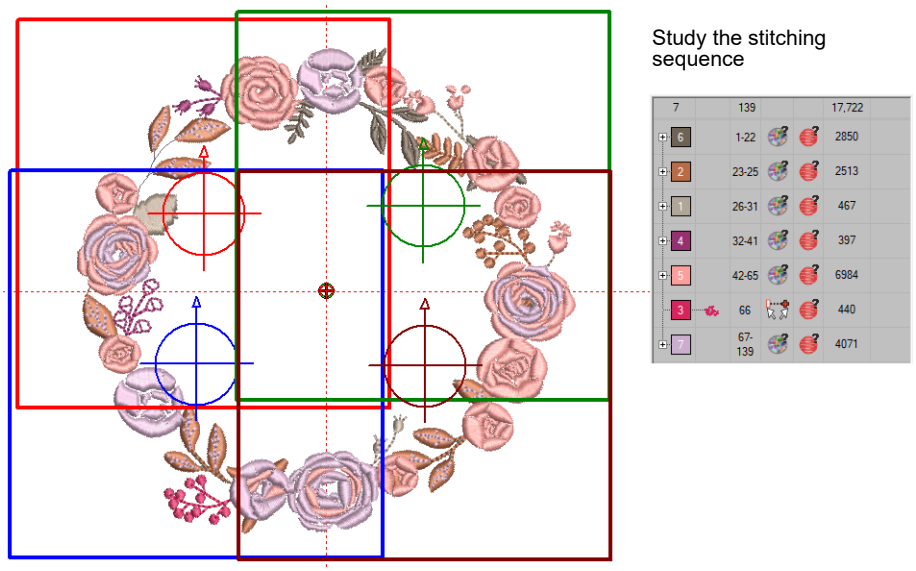
- Objects that are too large for a single hooping can be manually or automatically split. Splitting is done without additional needle penetrations, thus maintaining object appearance.
- Underlay is automatically recalculated for split objects in order to provide better stabilization.
- Registration marks are created automatically.
  - No need to manually digitize marks.
  - Automatically recalculated if hoop positions change.
  - Automatic registration marks are not a permanent part of the design.
- Registration marks can be turned off if you want to digitize your own.
- Designs can be saved with all hoopings as a single 'master' multi-hooping design.

Note: When BE EmbroideryStudio calculates multiple hoopings, it attempts to include whole objects within sequential hoopings. Where one

object overlaps another, the **overlapped** object must be stitched before the **overlapping** object.

Stitching sequence

It is always important to establish the stitching sequence so that objects in the foreground are sewn after those in the background. Knowing the stitching sequence helps you place hoops in the best possible order. Use the **Color-Object List** tool to study the stitching sequence.



Another useful tool is **Stitch Player**. When you run it, you are aiming to make sure that any split objects are split between **adjacent** hoops – both in terms of position and hoop placement – and that the object starts stitching in the earlier hooping.

Adjust stitching sequence

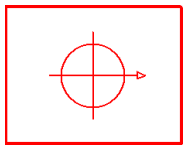
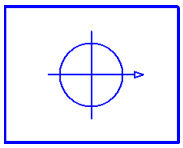
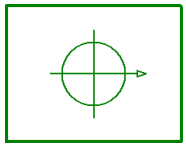
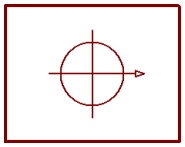
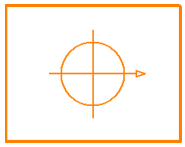
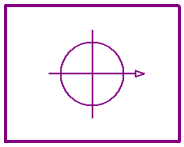
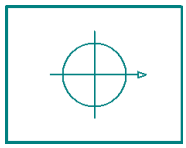
While correct hoop placements reduce the number of calculated hoopings, sometimes the stitching sequence may not be ideal. You may find that the only way to reduce the number of hoopings is to re-sequence the design itself. Bear in mind the following:

- Stock designs which have been created for a single hoop are generally sequenced to minimize the number of color changes.
- Enlarging a stock design to the point where it requires multiple hoopings may require adjustments to the stitching sequence.
- Since a given stitchout can use only one size of hoop, choose a hoop that will cover the **largest** object in the design.

- Similarly, use the largest hoop available for the specific machine model.

Color-coding

Multiple hoops are color-coded as follows, according to their position in the sequence:

Hooping	Color	Hooping	Color
1 Red		2 Blue	
3 Dark green		4 Brown	
5 Orange		6 Purple	
7 Teal		8 Aqua	

In the unlikely event that you use more than eight (8) hoopings, the color sequence is repeated, as long as none of the previously created hoop positions is deleted.

Automatic multi-hooping

	Click Hoop > Show Hoop to show or hide hoop. Right-click to change hoop settings.
	Toggle Hoop > Hooping Mode on to access the multi-hooping toolset.
	Use Hooping Mode > Multi-Hooping Options to change multi-hooping options in the Multi-Hooping tab of the Options dialog.
	Use Hooping Mode > Auto Layout Hoops to automatically add/rotate/delete hoops and split lines to cover the entire design.

Use Hooping Mode > Preview Hoopings to view hooping thumbnails in the docker. Click thumbnails to isolate hoopings.

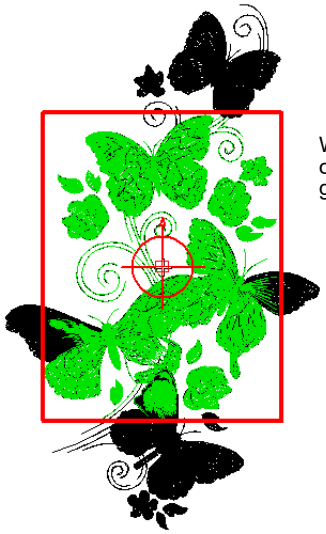
BE EmbroideryStudio provides a dedicated **Hooping Mode** toolbar which allows you to specify multiple hoopings for large designs, both manually or automatically. The easiest way to work out hoop positions is with the **Auto Layout Hoops** tool. Bear in mind that this method uses a purely rule-based software algorithm. It works best with simple designs.

To create automatic multiple hoopings...

1. Open or create the large design or design layout you want to sew out.
2. Check the stitching sequence with the **Color-Object List** tool and/or **Stitch Player**. This helps you place hoops in the best hooping sequence.
3. Choose the hoop you want to use. Since a given stitchout can use only one size of hoop, you need to choose a hoop that will cover the **largest** object in the design.

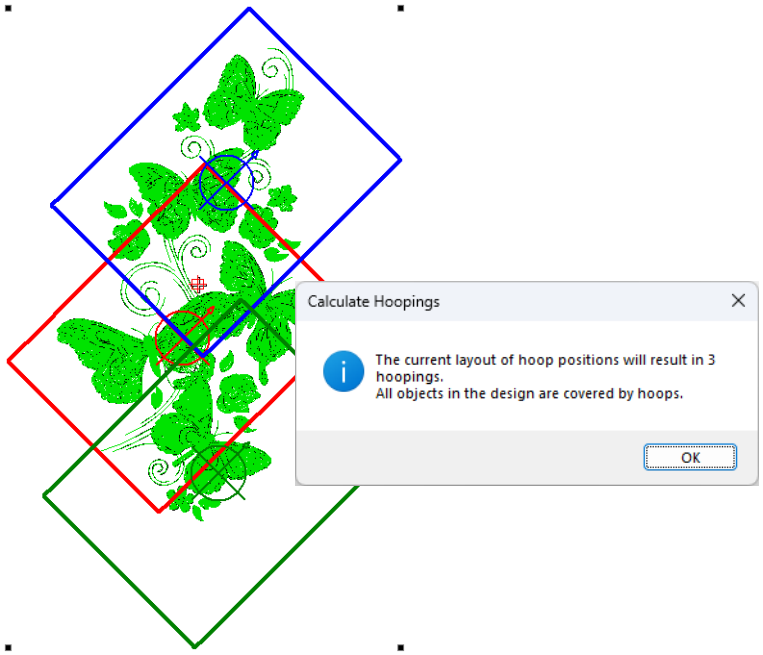


4. Switch to **Hooping Mode**. Covered objects – those that fit wholly within a hoop – display as green stitches. Uncovered objects – those that do **not** fit – display as black stitches.

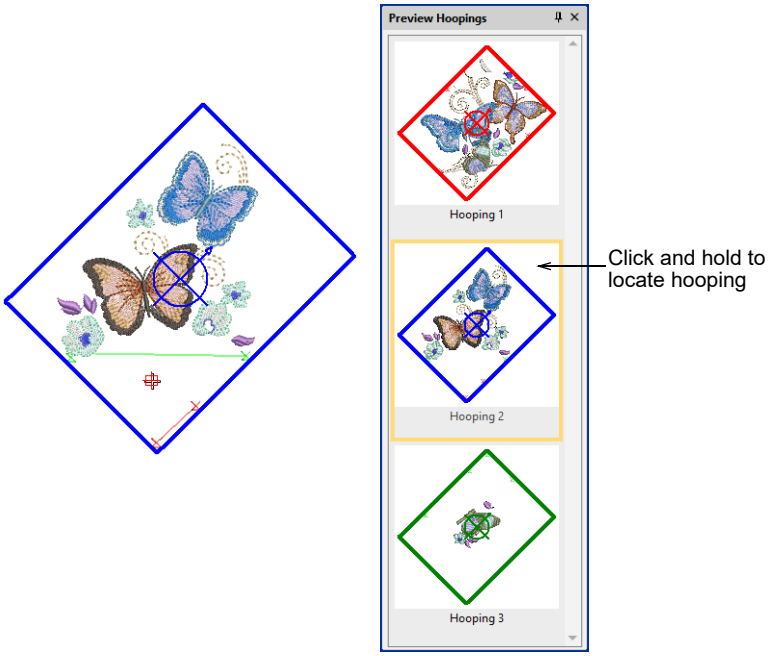


Note: No embroidery object can be selected or manipulated in **Hooping Mode**.

5 Use the **Auto Layout Hoops** tool to add hoop positions automatically. These are calculated according to the stitching sequence.



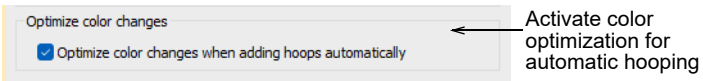
6 Use the **Preview Hoopings** tool to preview hoop positions in the docker. Click and hold to isolate the hooping in the design window.



7 Save the design to one or more files or send it to machine.

Usage tips...

- BE EmbroideryStudio always attempts to include whole objects within sequential hoopings. Where this is not possible, it will split objects between hoopings. Although split lines are only visible in **Hooping Mode**, they are maintained when switching to other modes. They do not affect object integrity.
- If the same hoop position is repeated in the hooping sequence, the hooping label will indicate this. Moving a hoop slightly to include objects shown can reduce repeat hoopings.
- It is important to minimize color changes in a design. If you activate color optimization in the **Options > Multi-Hooping** tab, color optimization is automatically applied to the design when generating automatic hoopings.



- Print a copy of the design showing the hoop positions to help you stitch it in the correct hooping order.

Related topics...

- Sequencing embroidery objects

- Hoop selection
- Split objects between hoopings
- Printing multi-hooped designs
- Multi-hoop production

Manual multi-hooping

BE EmbroideryStudio provides a dedicated **Hooping Mode** toolbar which allows you to specify multiple hoopings for large designs, both manually or automatically. Manual hooping is generally better than automatic, except for simple designs. However, it does require greater understanding of both design and production processes. An experienced embroiderer will generally be better able to weigh up alternatives than a purely rule-based software algorithm. This is especially so when it comes to splitting objects between different hoopings. Also, you may have definite ideas about how best to position hoops to make it easier to place fabric and reduce registration errors.

Create manual multi-hoopings


Click Hoop > Show Hoop to show or hide hoop. Right-click to change hoop settings.



Use Hoop > Rotate Hoop 15° to rotate the hoop and/or hoop template, or currently selected hoops in hooping mode, in 15° increments to left or right.


Toggle Hoop > Hooping Mode on to access the multi-hooping toolset.


Use Hooping Mode > Select to click or drag a selection marquee to select hoop or split line. Hold down <Ctrl> to select multiples. Click twice to activate rotation handles.


Use Hooping Mode > Calculate Hoopings to calculate hoopings resulting from current layout.

BE EmbroideryStudio provides a dedicated set of tools which for creating multiple hoopings manually. Use these if you cannot achieve the result you want with the automatic method.

To create manual multiple hoopings...

1 Open or create the large design or design layout you want to sew out.

2 Check the stitching sequence with the **Color-Object List** tool and/or **Stitch Player**. Knowing the stitching sequence helps you place hoops in the best order.

3 Choose the hoop you want to use. Since a given stitchout can use only one size of hoop, you need to choose a hoop that will cover the **largest** object in the design.



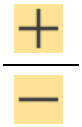
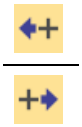
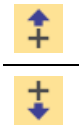
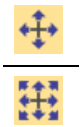
4 Switch to **Hooping Mode**. Covered objects – those that fit wholly within the hoop – display as green stitches. Uncovered objects – those that do **not** fit – display as black stitches.



5 Use the **Select** tool to select the hoop outline and drag till it covers the first object in the design.

6 Click the hoop again and use the rotation handles to orientate as necessary. Alternatively, use the controls on the **Hoop** toolbar to rotate by increments.

7 Use the **Add Hoop** tools to add one or more hoop positions.

Tool	Description
	Use Hooping Mode > Add/Delete Hoop to add or remove hoopings in a multi-hooping layout.
	Use Hooping Mode > Add Hoop Left/Right to place a new hooping to left or right of the selected hoop. A 10mm overlap is allowed between sewing fields.
	Use Hooping Mode > Add Hoop Up/Down to place a new hooping above or below the selected hoop. A 10mm overlap is allowed between sewing fields.
	Use Hooping Mode > Add N Hoops Around to generate 4/8 hoopings around a selected hoop. A 10mm overlap is allowed between sewing fields.

Aim to reflect the stitching sequence.



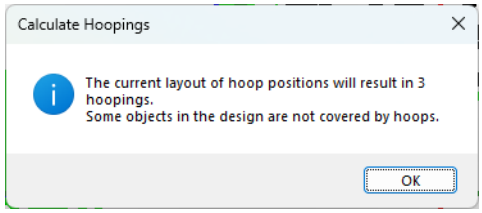
Note: As soon as a hoop is moved or joined by others, automatic centering is deactivated, meaning that it no longer centers itself automatically around objects in the design. If you remove all hoops in a design and create a new one, automatic centering is re-activated.

8 Re-position and rotate additional hoops until they completely cover all objects in the design. Nudge selected hoops into position using the arrow keys.



9 Finally, click the **Calculate Hoopings** icon to evaluate the hoopings that will result from the current hoop layout.

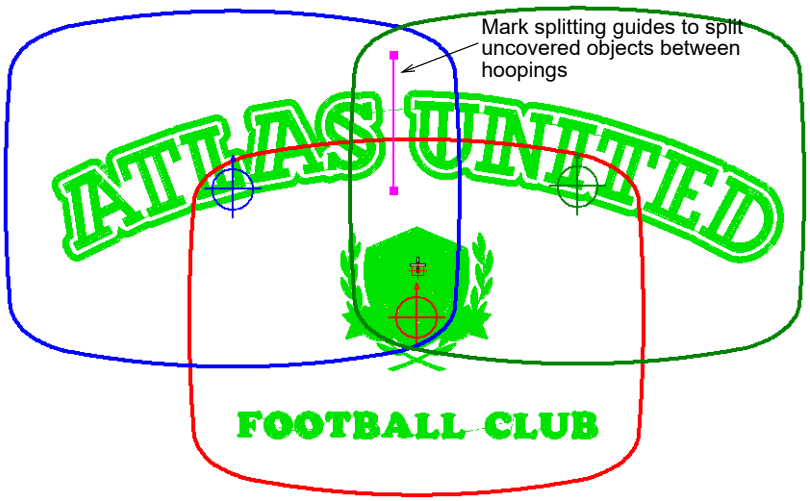
While a design may be entirely covered by separate hoop positions, some objects may remain uncovered. The confirmation message will tell you and uncovered objects will appear in black.



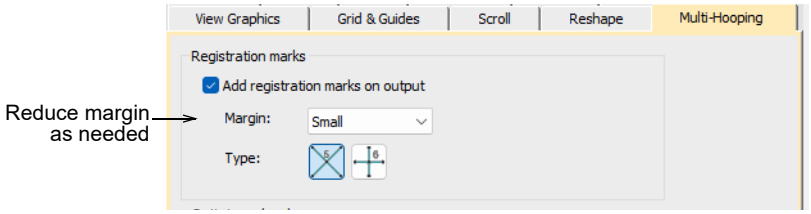
Note: The time to calculate design hoopings depends more on the number of objects and hoop positions than stitch count. Designs converted from EXP, PES, HUS, etc, will in general result in a larger number of objects than a native BE EmbroideryStudio design. Hence, these designs will take longer to calculate. However, even with pure EMB files, if the design is complex, large, and contains many hoop positions, calculation can take time.

Usage tips...

- Use the **Add Splitting Line** tool to split objects that would not otherwise fit within a hooping.



- Optionally, add registration marks via the **Options > Multi-Hooping** tab.



- Use the **Preview Hoopings** tool to check that registration marks have been added. If they haven't been added, it means there's insufficient overlap between hoopings. You can either increase the overlap by repositioning. Or reduce the margin for registration marks in the **Multi-Hooping** tab.
- Print a copy of the design showing the hoop positions to help you stitch it in the correct hooping order.

Related topics...

- Hoop selection
- Automatic multi-hooping
- Split objects between hoopings
- Printing multi-hooped designs
- Multi-hoop production

Split objects between hoopings

Use Hooping Mode > Add Splitting Line to digitize one or more guides in a multi-hoop layout to split objects between hoopings.

Use Hooping Mode > Reshape to reshape selected mode-specific objects, edit stitch angles, and adjust entry/exit points. Right-click for settings.

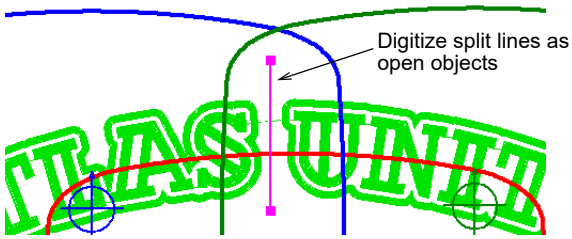
The **Add Splitting Line** tool allows you to split objects that would not otherwise fit within a hooping. In effect, it allows you to digitize one or more split lines in a multi-hooped design prior to outputting to file, machine or memory card. Although split lines are only visible in **Hooping Mode**, they are maintained when switching to other modes. Split lines do not affect object integrity and you can still reshape and transform split objects as before.

To split objects between hoopings...

1 Manually create your multiple hoopings. While a design may be entirely covered by separate hoop positions, some objects may remain uncovered. Uncovered stitching appears in black.

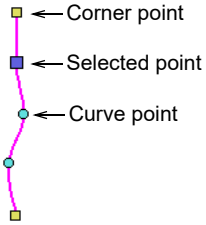


2 Select the **Add Splitting Line** tool. You are prompted to enter a split line.



3 Digitize split lines just as you would open objects, using right-clicks for curves and left-clicks for corner points.
   - As long as splits occur within the sewing field of overlapping hoopings, the resultant 'split objects' are displayed in green.
   - Object integrity is maintained but they are split on output. The resulting objects will preserve their original object type, stitch angle, parameters and color.
4 Repeat as necessary or press **Enter** to complete.

Note: Split lines can be reshaped using the **Reshape** tool.



Related topics...

- Create manual multi-hoopings

Adding registration marks

Use Hooping Mode > Multi-Hooping Options to change multi-hooping options in the Multi-Hooping tab of the Options dialog.

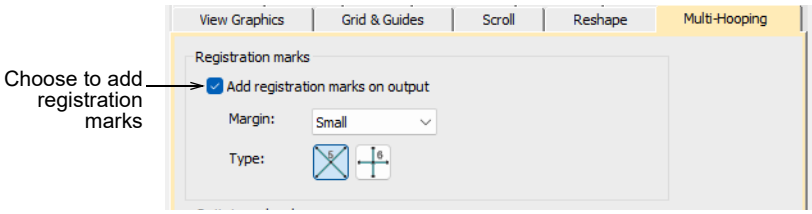
Use Hooping Mode > Preview Hoopings to view hooping thumbnails in the docker. Click thumbnails to isolate hoopings.

In order to align consecutive hoopings during stitchout, you can include registration marks for each hooping. Two sets of marks are generated in overlapping areas of each consecutive hooping. One set appears as the final stitches of the preceding hooping. The next set is included as the first of the subsequent hooping. These stitches do not form part of the design and are not saved with the design file. However, they are added during output and are viewable in the hooping preview and worksheet.

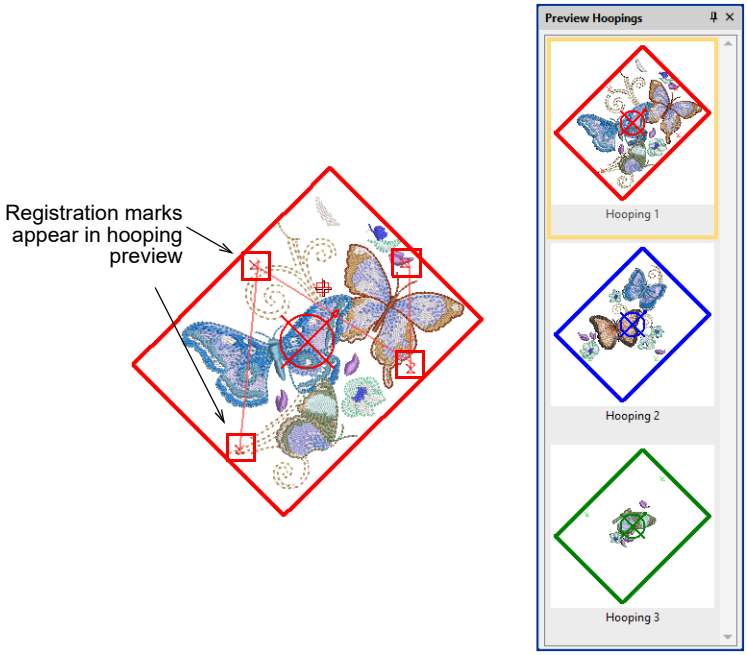
Tip: Correct alignment of multi-hooped designs requires some practice. Third-party training programs are available on the internet which demonstrate correct technique. Most recommend using a sticky-back tear-away stabilizer, heavy enough so that the registration marks do not tear the stabilizer. Use pins through the registration marks of one hooping to align the corresponding marks of the next hooping.

To output registration marks...

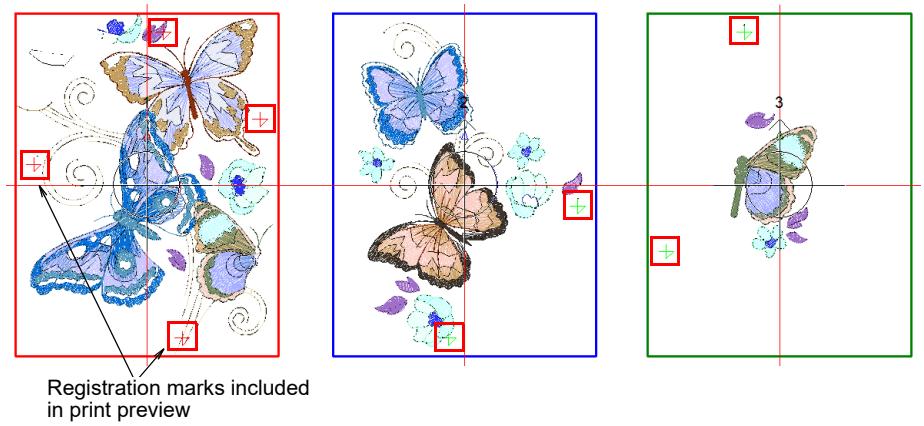
1. Open or create the large design or design layout you want to sew out.
2. Click the **Multi-Hooping Options** icon. The **Options > Multi-Hooping** tab opens.



3. Tick **Add registration marks on output** and set a margin. The larger the margin, the greater the distance between the registration mark and the maximum embroidery area of the hoop. This makes it easier to align but there may be some trade-off in the precision of your registration.
4. Choose your preferred type of registration mark – 5-point or 6-point. 5-point marks will work for most machines and are easy to remove. 6-point marks are sturdier. They can also be used if the machine cannot stitch the 5-point mark.
5. Use the **Preview Hoopings** tool to check that registration marks have been added. Click and hold to isolate the hooping in the design window. Red marks indicate the end of a hooping, green, the start of the next.



Registration marks are also shown in the hooping list in **Hooping Sequence** and **Hooping Thumbnails** worksheets.



Usage tips...

- As registration marks are not a permanent part of the design, they cannot be moved. By adjusting hoop positions and using **Calculate Hoopings**, you can vary where registration marks are placed in overlapping hoop positions.
- Use the 5-point registration mark if possible as this will have fewer needle penetrations.

- Run a test on your machine to see how it manages the registration marks. Check whether...
  - Threads are trimmed
  - Threads are pulled out before the next registration mark.

  Note: Some machines will pull the thread harder than others and hence the 5-point may pull out when moving from one point to the next. In this case, try the 6-point.
- Do all registration marks appear on the machine interface? If not, change to the 6-point mark. These will have additional needle penetrations because your machine adds tie-ins and tie-offs. This is not something you can prevent but you can try turning off trims on the machine.
- During production, align the last-stitched registration marks with the marks on the stabilizer, and smooth the fabric onto the sticky back. To assist, stick sewing pins through the center of the registration marks.

Related topics...

- Mirroring & reflecting selections
- Hoop display options
- Multi-hoop production

Printing multi-hooped designs

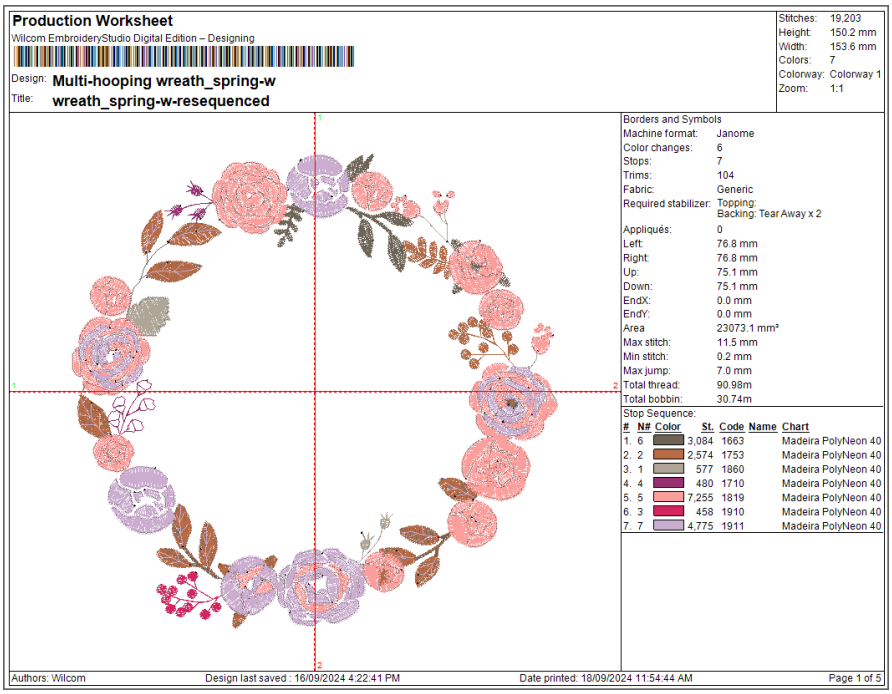

Use Standard > Print Preview to preview production worksheet. Print from preview window.


Use Standard > Print to print the current design.

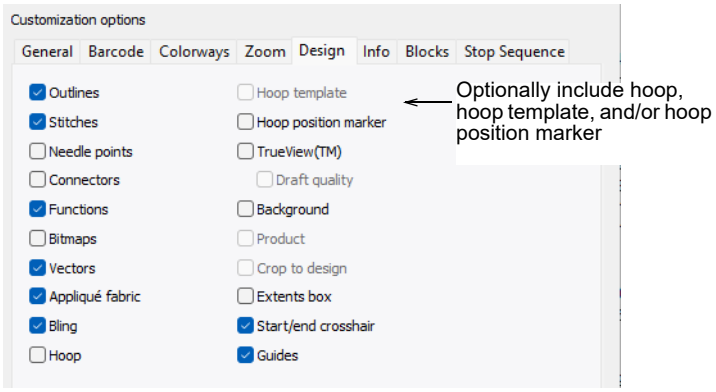
If there is more than one hooping in the design, you have the option of printing hoops in multi-hooping view in their correct color sequence. The **Hooping Sequence** option shows the objects in each hooping. The **Hooping Thumbnails** option provides a summary sheet. You can choose to print the hooping sequence and/or hooping thumbnails with or without the production worksheet.

To print multi-hooped designs...

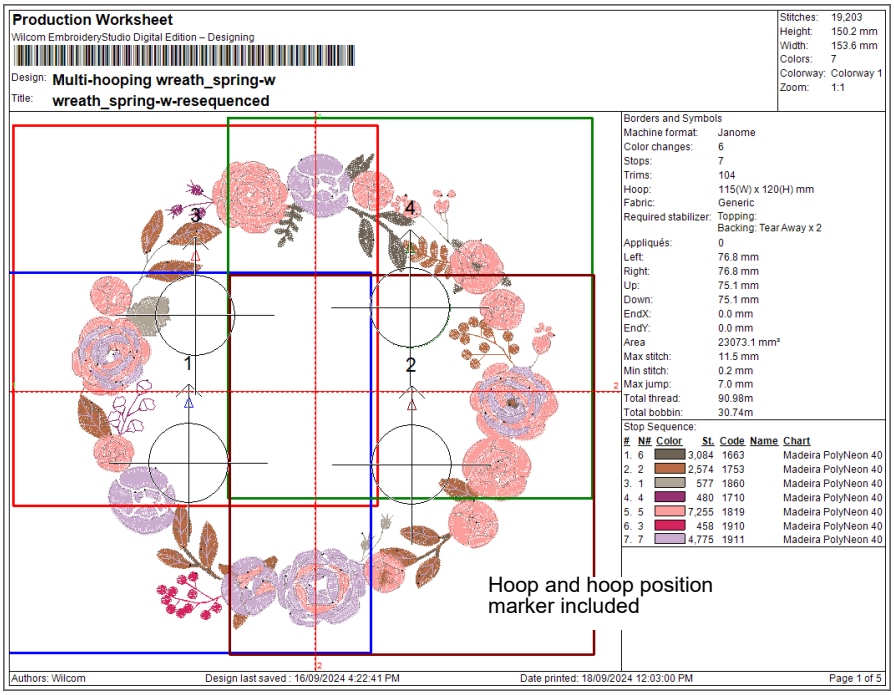
1 Select **File > Print Preview**.



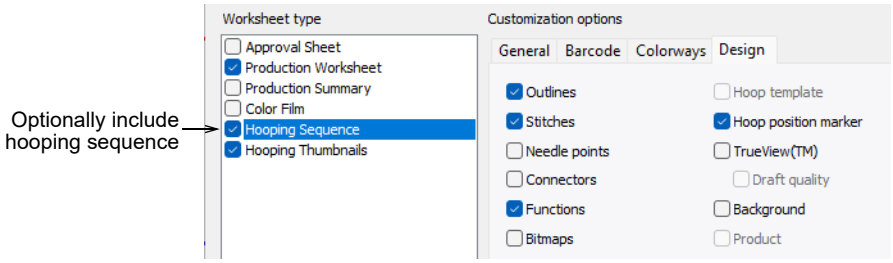
2 Click the **Options** button. Default view does not include hoop elements. Choose whether to include hoop, hoop template, and/or hoop position marker.



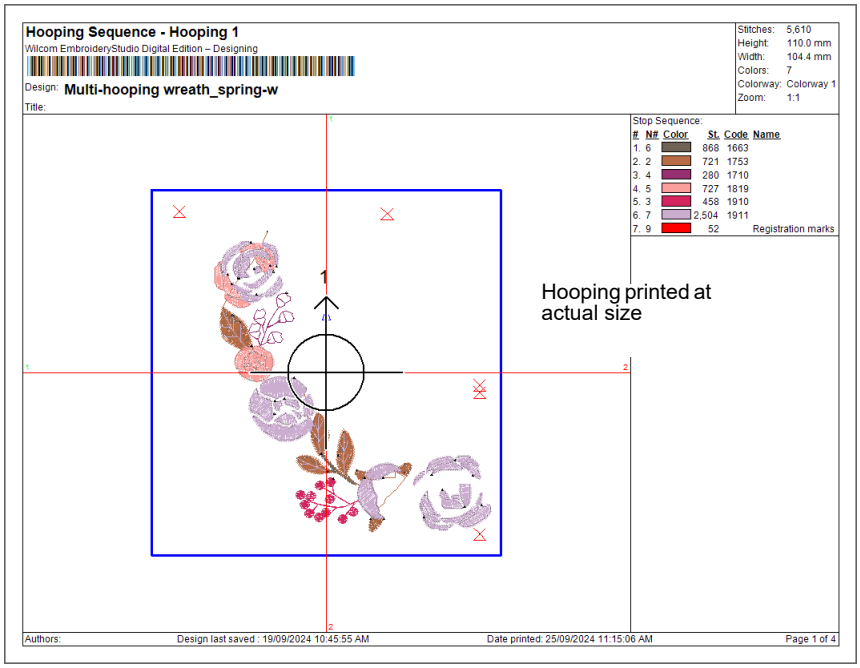
Hoop template and hoop position marker are both selectable but you would probably choose one or other but not both.



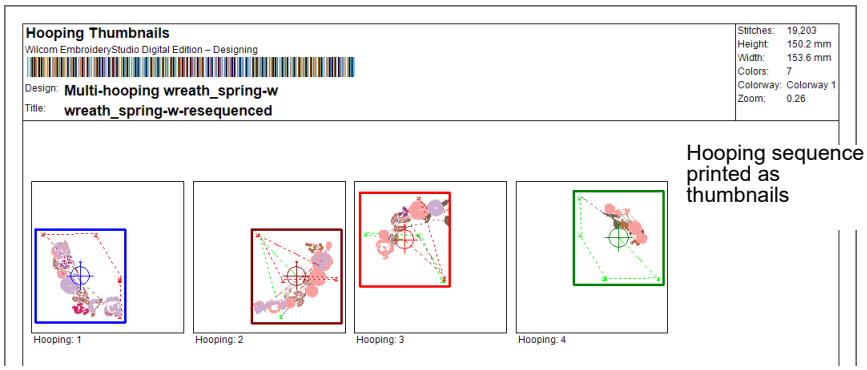
3 Optionally, tick the **Hooping Sequence** checkbox and/or **Hooping Thumbnails**. You can choose to print the hooping sequence and/or hooping thumbnails with or without the production worksheet.



- Separate hoopings at actual size are printed on separate pages.



- If you tick **Hooping Thumbnails**, a summary sheet is included.



Multi-hoop production

When working with designs that are larger than the available physical hoop, BE EmbroideryStudio will split them into parts, each containing an object or group of objects. When a multi-hooped design is output, each part is stitched separately after the fabric has been re-hooped. When outputting to machine file, multi-hoopings and split lines are applied. **Hooping Sequence** mode is activated, showing the separate hoopings.

Note: When aligning a multi-hooped design for stitchout, make sure you know where the true center of the overall design is. This should guide you

in the placement of your first hooping. Bear in mind that the center of the design will not generally coincide with the center of the first hooping. This is not a problem if you are stitching onto a piece of fabric which is to be cut and sewn onto something else. But if you are stitching directly onto a ready-made item, it is critical. To help in your placement of the first hooping, print out a worksheet which includes a background image of the article. See also Fabric & product backgrounds.

Export multi-hooped designs as machine files



Use Standard > Export Machine File to export the current design to a machine file for stitching.



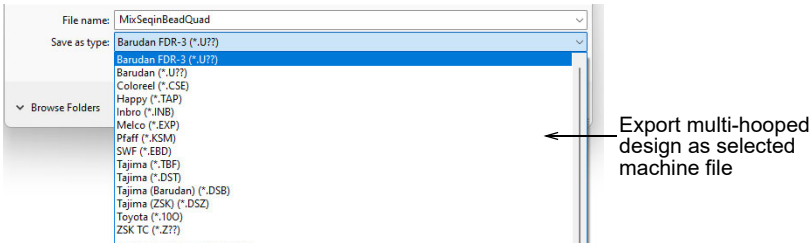
Use Docker > Exports to view the export status of the current session. Conversion to older formats or machine file is performed as a background task.

When you want to output multi-hooped designs as machine files, you use the **Export Machine File** function in the normal way. You are then prompted to split the design into separate files for each hooping.

To export a multi-hooped design...

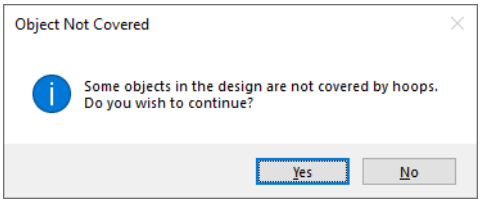
1 Create or open your multi-hooped design.

2 Click the **Export Machine File** icon. The dialog appears allowing you to browse to any folder.

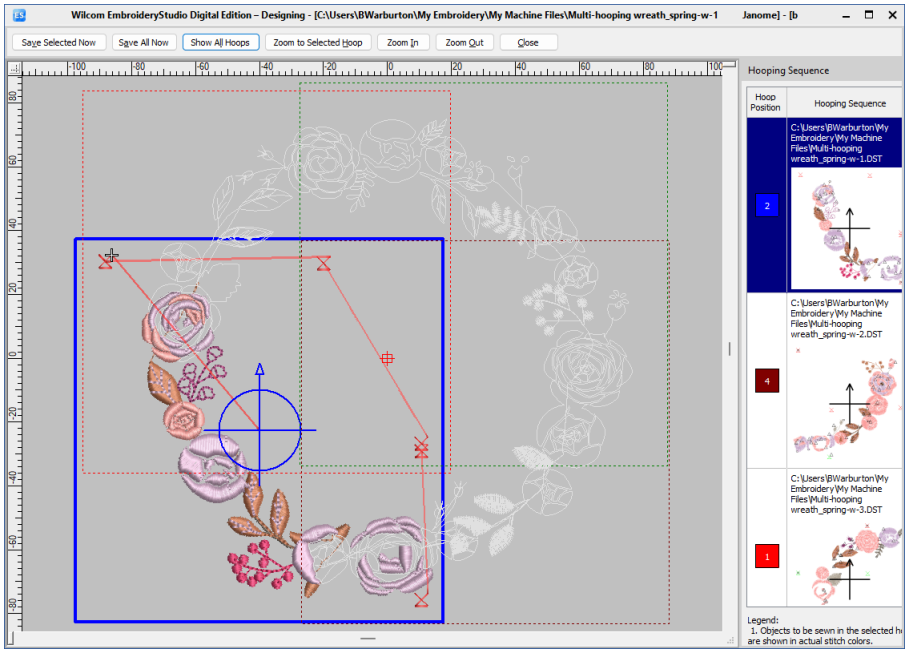


3 Choose a machine file type from the droplist.

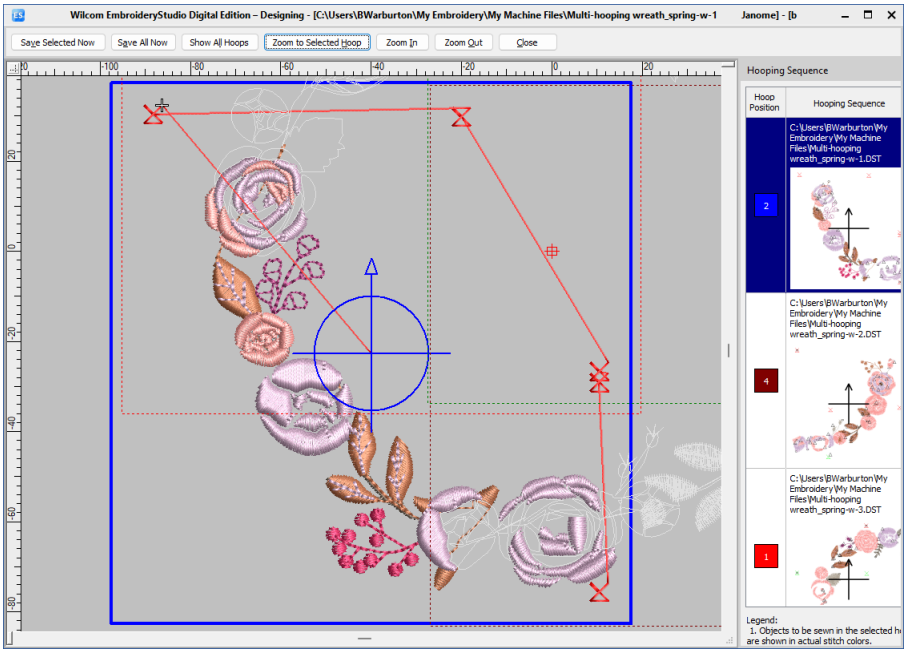
4 Change the export file name as required and choose a destination folder. The system checks that all embroidery objects are covered. You will be warned if they are not.



All hoopings needed to stitch the design are calculated and displayed in the **Hooping Sequence** panel. Hoopings are named as files with the chosen file extension. Any split lines which may have been applied are calculated and objects split between their respective hoopings.



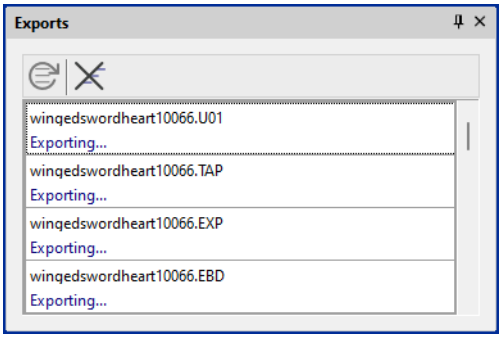
5 Optionally, click **Zoom to Selected Hoop** to view a closeup of each hooping. If you have activated registration marks, you will be able to see them clearly marked in red.



6 Select a hooping and click **Save Selected Now**. Alternatively, click **Save All Now** to save all files in the list. BE EmbroideryStudio outputs the hoopings to their individual files.

7 Click **Close** to return to the previous mode.

Tip: Click the **Exports** toggle to open the **Exports** docker. This allows you to view the export status of the current session. Conversion to older formats or machine file is performed as a background task.



Stitch out multi-hooped designs

Remember that the numbers of hoopings in a multi-hooped design do not necessarily correspond to the number of output files. It all depends on the layering of objects within the design. In order to preserve the

digitized stitching sequence, the same hooping may need to be visited more than once. Hoopings are stitched consecutively to form the whole design. The following provides a guide for stitching out multi-hoop files on the machine.

To stitch out a multi-hooped design...

1 Open your large multi-hooped design.



2 Print out the hooping sequence. Large layouts can be printed on small format printers and then pieced together. This establishes all hoops in the correct spatial relationship.

3 Fix the printout to the garment. Remove the unnecessary pieces of the layout to isolate individual hoopings.

4 Hoop the fabric (or garment) and stitch out the first hooping. Registration marks are stitched last. Use the hoop position marker to locate and rotate the garment using the physical hoop template.

5 Un-hoop the fabric.

6 Hoop a piece of sticky backed stabilizer and remove the protective paper.

7 Stitch the registration marks at the start of the next hooping onto the stabilizer.

8 Align the last-stitched registration marks with the marks on the stabilizer, and smooth the fabric onto the sticky back. To assist, stick sewing pins through the center of the registration marks.

9 Stitch the next hooping.

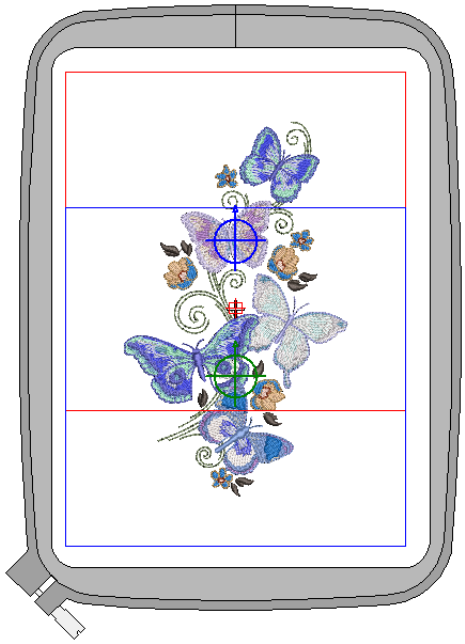
10 Repeat until the design is complete.

Usage tips...

- It is important that your fabric does not stretch or warp when stitching. To achieve this, you must take extra hooping precautions.
- If using knit, stabilize the back first so it does not stretch.
- Use a sticky-back stabilizer or a good spray adhesive. Most recommend using a sticky-back tear-away stabilizer, heavy enough so that the registration marks do not tear the stabilizer.
- Use pins through the registration marks of one hooping to align the corresponding marks of the next hooping.

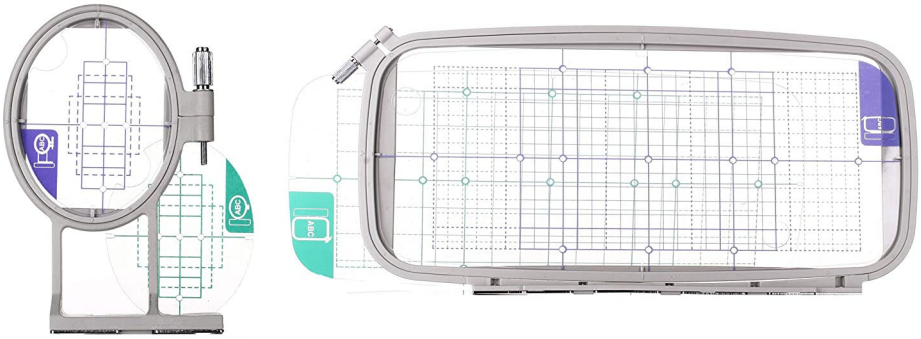
Multi-position hooping

Multi-position hoops allow you to utilize a larger area of fabric to combine several designs or split large designs. They generally consist of two (2) or three (3) overlapping sewing fields within the one frame. Design components are sewn in different stitching areas without the need to re-hoop the fabric. This helps to avoid the usual registration problems.



Multi-position hoops

Many proprietary and third-party hoops are available on the open market.



There are two main types:

Hoop type	Characteristics
Multi-position	These hoops have one bracket with multiple positions to place the hoop. Most hoops in this category have three (3) stitching areas, generally referred to as position 1, position 2, position 3 or position A, position B, position C.
Multi-position rotating	Most of these hoops have two brackets and generally only two (2) stitching areas. However, there are some specialty hoops that have more stitching areas. After stitching one area, you take the hoop off the machine and rotate it for the second.

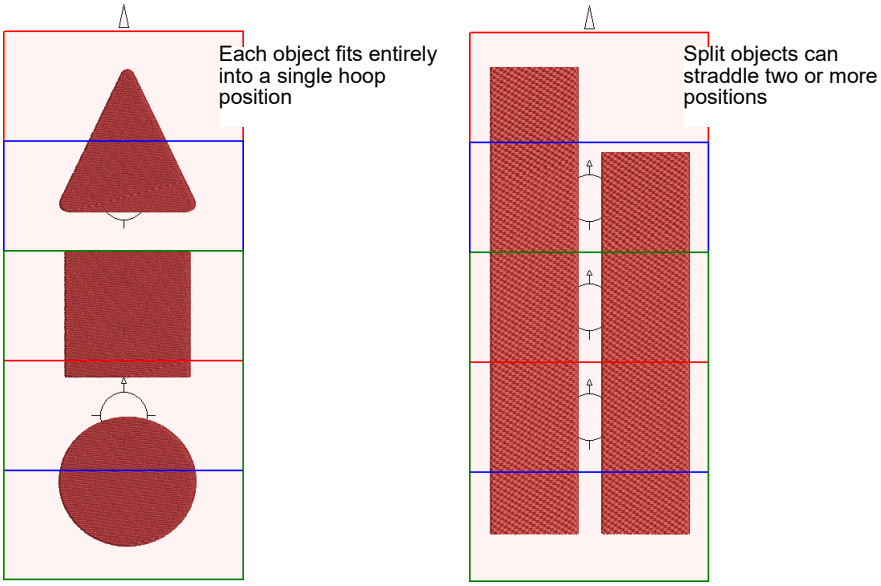
Popular multi-position hoops supported by BE EmbroideryStudio include...

- Brother/Babylock Jumbo Small 100(W) x 172(H) (3 position)
- Brother/Babylock 360(W) x 360(H) (rotating)
- Husqvarna/Viking/Pfaff 350(W) x 360(H) mm (rotating)
- Janome/Elna Hoop MA (200x280) (2 positions)
- Brother/Babylock Extra Large 130(W) x 300(H) (3 positions)
- bernette/Janome/Elna Hoop D (220 x 190) (Giga Hoop) (rotating)

Note: BE EmbroideryStudio allows you to define your own multi-position hoops and save for later use. See Custom hoops for details.

Object splitting

Multi-position hoops work differently to **Multi-Hooping** where designs are split into smaller machine files for separate stitchout on a standard hoop. Instead, design components are split between two (2) or three (3) overlapping sewing fields within the one frame. Each embroidery object may fit within a single hoop position. Alternatively, you may need to split objects between sewing fields as shown...



Multi-position hoop export

The fact that there are multiple stitching areas has no effect until outputting designs for machine. In most cases BE EmbroideryStudio will only create one file. However, if a return to a previous hoop position is required, it will create two (or on rare occasions, more) files.

To export to a format recognized by your selected machine, use the **Export Machine File** function. The results vary depending on the machine file format. For example, PES should create a single file containing multiple parts. DST or EXP will create multiple files. Currently split files are not supported for VIP/VP3 formats.

Export multi-position design as machine files



Use Standard > Export Machine File to export the current design to a machine file for stitching.

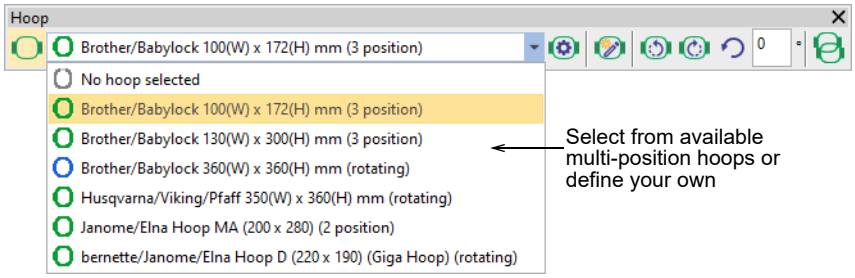


Use Docker > Exports to view the export status of the current session. Conversion to older formats or machine file is performed as a background task.

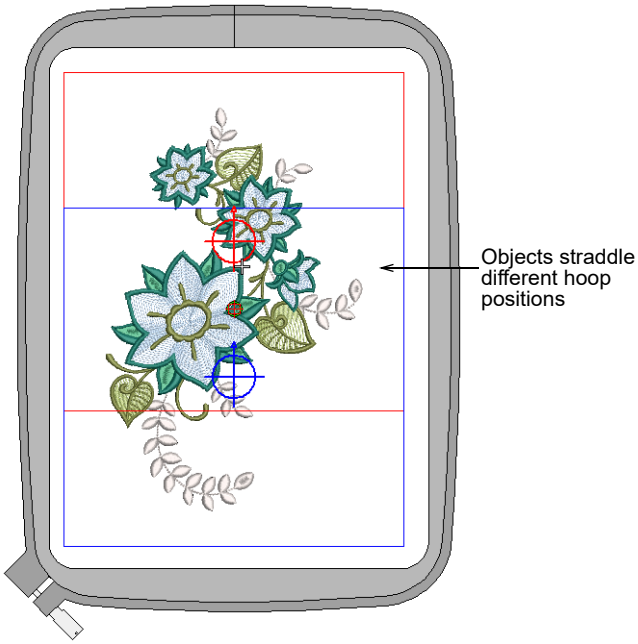
The behavior of the multi-position hoops during loading and editing of embroidery designs is exactly the same as for normal rectangular hoops. The fact that there are two (or more) stitching areas has no effect until you save the design or output to machine. In most cases, a single machine file is created to accommodate all hoop positions. However, if a return to hoop position 1 is required, BE EmbroideryStudio will create two (or more) files.

To export a multi-position design...

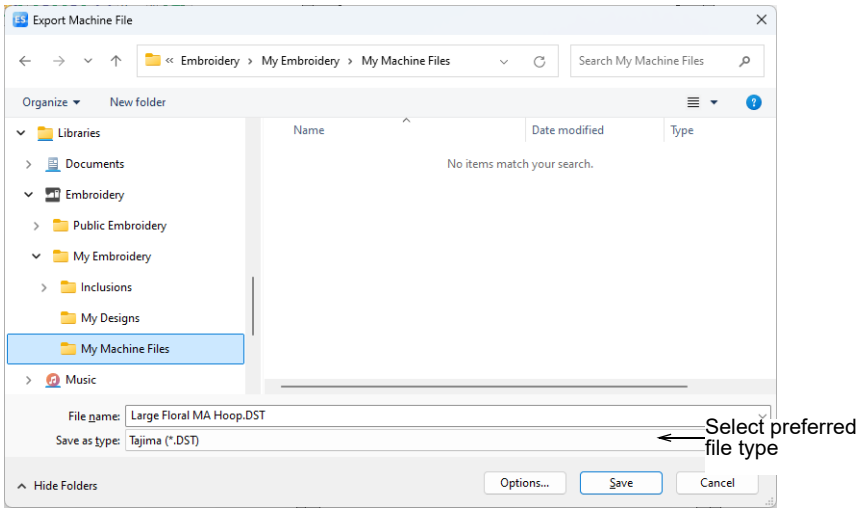
1 Open your design and select a multi-position hoop from the **My Hoops** list.



Objects may straddle different hoop positions or each object may fit within a single hoop position.

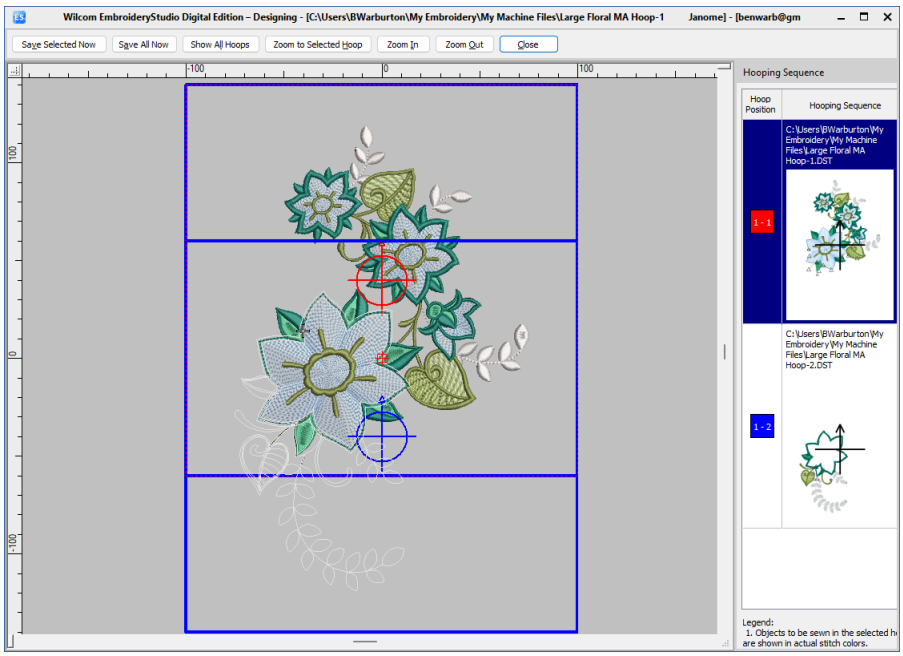


2 To export to a format recognized by your selected machine, click the **Export Machine File** icon.



3 Select the preferred machine file type and click **Save**.

All hoopings needed to stitch the design are calculated and displayed in the **Hooping Sequence** dialog. Hoopings are named as files with the chosen file extension. Any split lines which may have been applied are calculated and objects split between their respective hoopings.



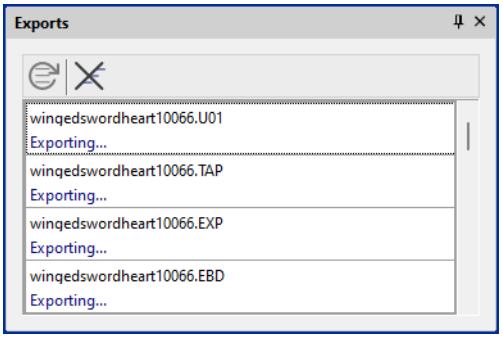
4 Select a hooping and click **Save Selected Now**. Alternatively, click **Save All Now** to save all files in the list. Each machine file format has its own way of handling multi-position hoops. For instance:

- Brother PES: exports all hoopings of factory multi-position hoops to the one PES file.
- Janome JEF: exports both hoopings of an MA hoop into one JEF file but will split into 2x JEF files for the Giga Hoop.

5 Click **Close** to return to the previous mode.

Usage tips...

- When the machine loads the first of the multiple machine files, it stitches the upper-position first, then prompts you to move the hoop to the lower position.
- Always have the hoop in the upper position when the machine starts stitching unless you are prompted to change positions. This may be necessary in cases where a hooping pair must be split because it has too many stitches or too many color changes.
- Click the **Exports** toggle to open the **Exports** docker. This allows you to view the export status of the current session. Conversion to older formats or machine file is performed as a background task.



Related topics...

- Split objects between hoopings

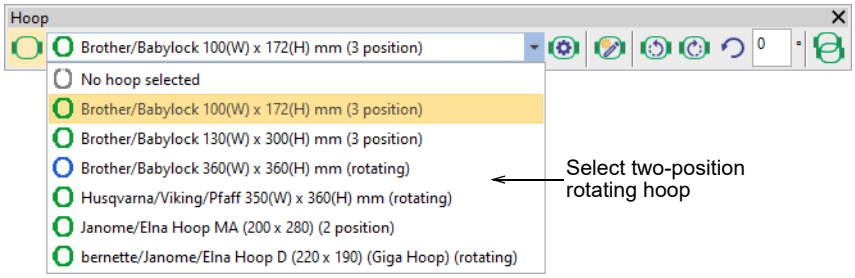
Output for two-position rotating hoop

Use Standard > Export Machine File to export the current design to a machine file for stitching.

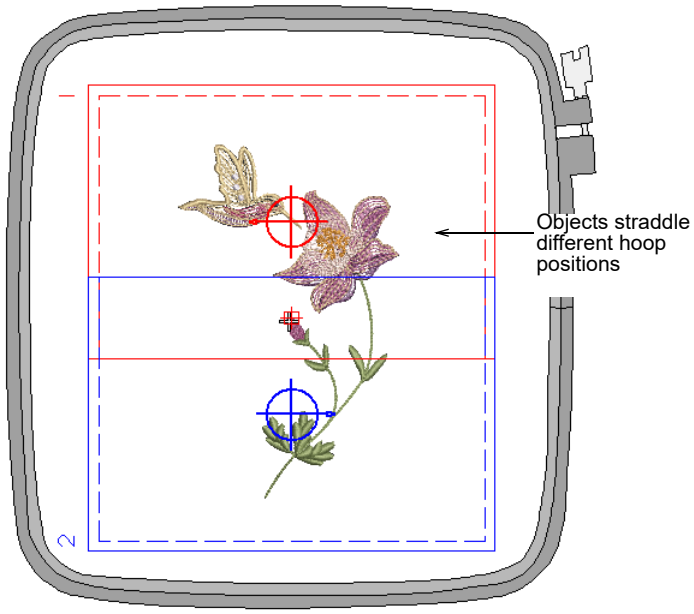
BE EmbroideryStudio supports two-position rotating hoops. The stitching areas are shown in red and blue. The red area is normally stitched first. Then, after rotating the hoop, the blue area is stitched.

To output a design for a two-position rotating hoop...

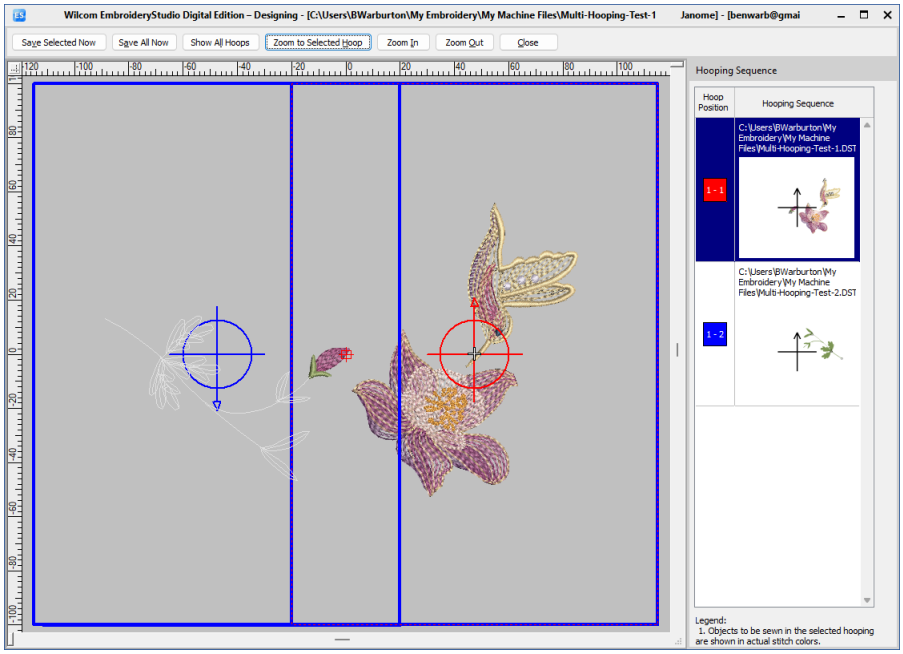
1 Open your design and select a two-position rotating hoop from the **My Hoops** list.



Objects may straddle different hoop positions or each object may fit within a single hoop position.



2 To export to a format recognized by your selected machine, click the **Export Machine File** icon.



If you have not already split objects between hoop positions, BE EmbroideryStudio determines whether there are any that do not lie wholly within one of the hoop's two positions:

- If so, they are selected in the design window and you are prompted to edit, split, or delete them.
- If the design can be stitched in the hoop, the **Export Machine File** dialog opens.
- If the design will not stitch as a single hoop design – i.e. more than one hoop rotation would be required – a warning message is displayed.

3 Click the **Save All Now** button.

Depending on your machine format, BE EmbroideryStudio may save all split designs to a single file that your machine can read. Or it may save each one to its own file, with the sewing order indicated as a suffix to each file name.

Usage tips...

- The physical embroidery area of multi-position hoops is represented by the solid line. However, any rotation of the hoop may cause a small positioning gap. To avoid this, a margin of 5mm is allowed on both sides. This is represented by the dashed line. We recommend you stay within the dashed area.

- If objects in the blue area are sequenced before the red, you cannot save as a multi-position hoop design. That is, you cannot create a single machine file which has its start in the second hoop position.

Related topics...

- Split objects between hoopings

Chapter 36

Design Reports

From the same EMB design file, you can output production worksheets or approval sheets for machine operators or customers respectively.



BE EmbroideryStudio allows you to customize information in the format you require. The printing capability also allows you to:

- Personalize worksheets with company name and logo
- Print approval sheets with or without design details
- Display the assigned hoop
- Visualize on selected fabric/garment
- Include selected colorways.

Optionally, email production worksheets in PDF format with the embroidery file as an attachment in a specified format – e.g. EMB or DST, etc. Screen images may also be captured in PNG format to distribute designs for viewing in real colors.

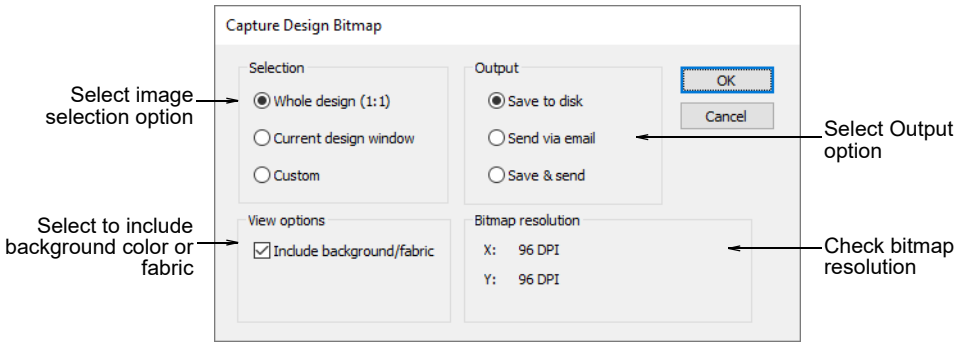
Outputting designs as images

Designers frequently want to distribute their designs for viewing in real colors, in **TrueView™** or otherwise, with or without fabric backgrounds. This might be for stock design sales purposes, for approval of digitized designs, or for presentation on the web or in catalogs. Screen images are captured in PNG format because it supports transparency.

To output a design as an image...

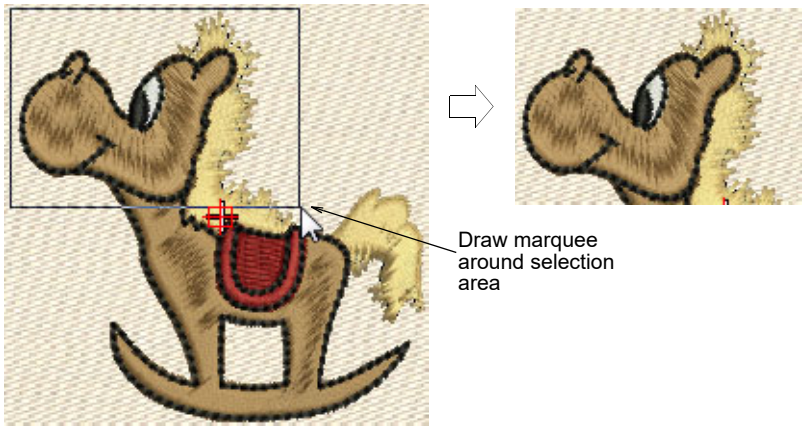
1 Open the embroidery design.

2 Select **File > Capture Design Bitmap**.



3 Select a **Selection** option:

Option	Function
Whole design (1:1)	Captures the screen image in a ratio of 1:1.
Current design window	Captures the screen image at the currently selected zoom factor.
Custom	Lets you specify a capture area. You are prompted to define the area to capture.



4 Select an **Output** option:

Option	Function
Save to disk	Save screen capture to disk. The Save Capture Screen dialog allows you to select a location, name and format for the captured design image.
Send via email	Lets you send the screen capture as an email. A new email message opens with the image attached. This option only works with the default MAPI compliant desktop email. It won't work with email apps or other clients that don't support the MAPI standard. Generally, this means MS Outlook email clients only.
Save & send	Lets you both save to hard disk and send as an email attachment.

5 Select **Include background/fabric** to include the background color or fabric with the screen capture.



Note: Bitmap resolution defaults to current screen resolution. Properly calibrated, this figure should be approximately 96 DPI.

Related topics...

- Virtual embroidery

Printing design reports

BE EmbroideryStudio allows you to print designs in various predefined formats. The most common are the approval sheet and the production worksheet. Approval sheets are usually sent to the client for confirmation prior to production. The production worksheet is the link between designer and embroidery machine operator. It contains a design preview as well as essential production information, including design size, color sequence and special instructions. Reports can be output as hard copy or in electronic (PDF) format.

Caution: If certain thread colors are not available on your printer, they may be mapped to a different color, including white. Print the design in TrueView™ color, or black and white, or turn off color mapping. See your printer manual for more information.

Print reports

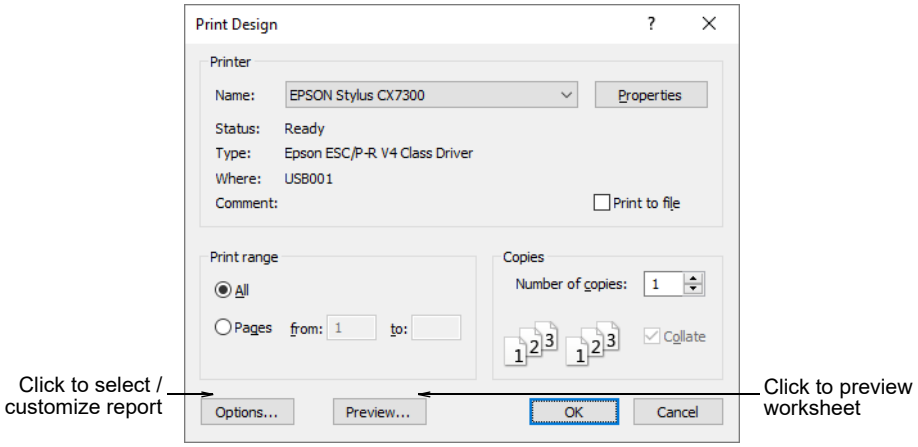
Use Docker > Design Information to view and modify design details prior to design approval or stitchout.

Use Standard > Print to print production worksheets for the current design using the current settings.

Create a hard copy of your design report using a printer or plotter. Alternatively create soft copy in PDF format. Optionally, send it directly as an email attachment. Preview the report prior to printing.

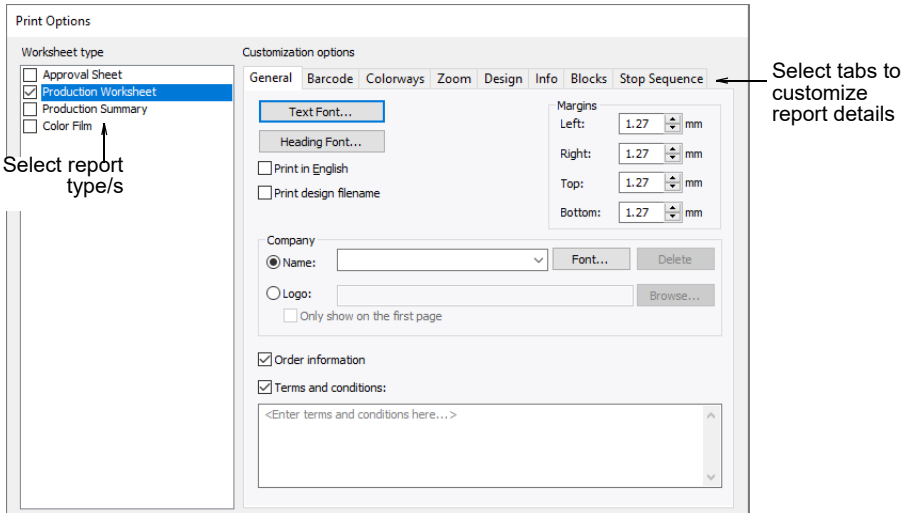
To print a report...

1. Before printing, it's a good idea to check design information to make sure all details are up-to-date.
2. Click the **Print** icon or select **File > Print**.



3 Select the printer or plotter you want to use and required number of copies.

4 To select a report type, click the **Options** button. The **Print Options** dialog opens.



5 Select a report type in the **Print** panel. Multiple reports can be batched as part of the same print run. Tick the checkbox next to each.

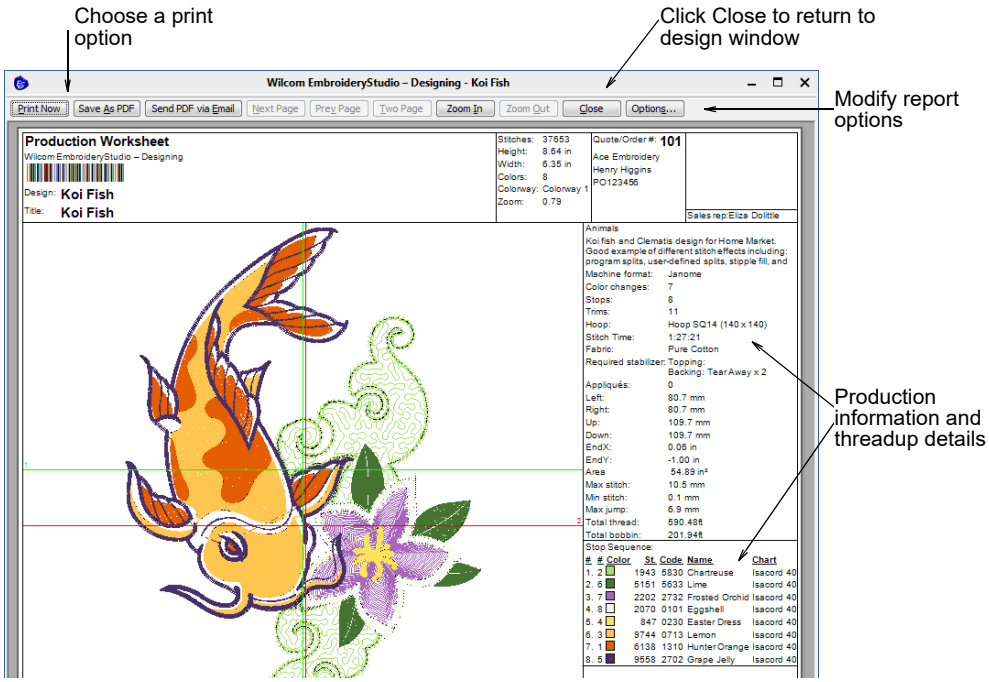
6 Select tabs to customize report details as required. Tabs vary with the report type.

7 Click **OK** to close **Print Options**.

8 If you are using a plotter, click **Properties**, and set pen colors to correspond with the thread colors in the design.

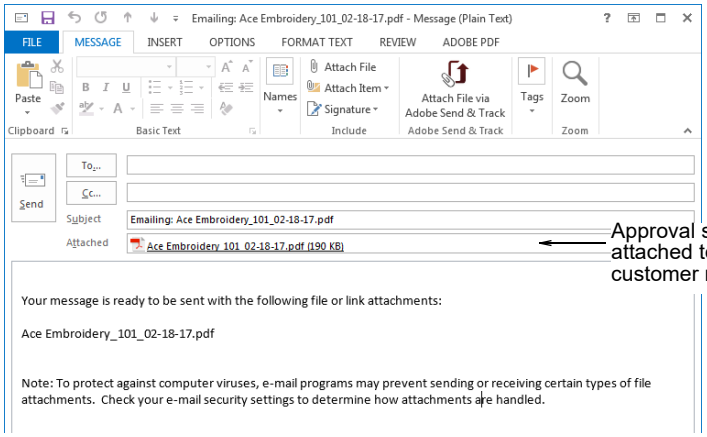
Note: Refer to your plotter manual for information on setting up pen colors.

9 Click **Preview** to inspect the report before sending to print.



10 To print the design, choose an option:

- **Print Now**: Click to send the design report to your local printer.
- **Save as PDF**: Click to save the report as a PDF document. You are prompted to save to the hard drive or network location.
- **Send PDF via Email**: Click to send the report – usually an approval sheet – as a PDF attachment to your local email client. The PDF is automatically identified by customer name, order number, and current date.

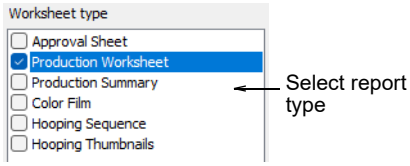


Related topics...

- Viewing & managing design information
- Customizing design reports

Report types

In addition to production worksheets, BE EmbroideryStudio provides a number of predefined report types including approval sheets, production summaries, color films, and appliqué patterns.

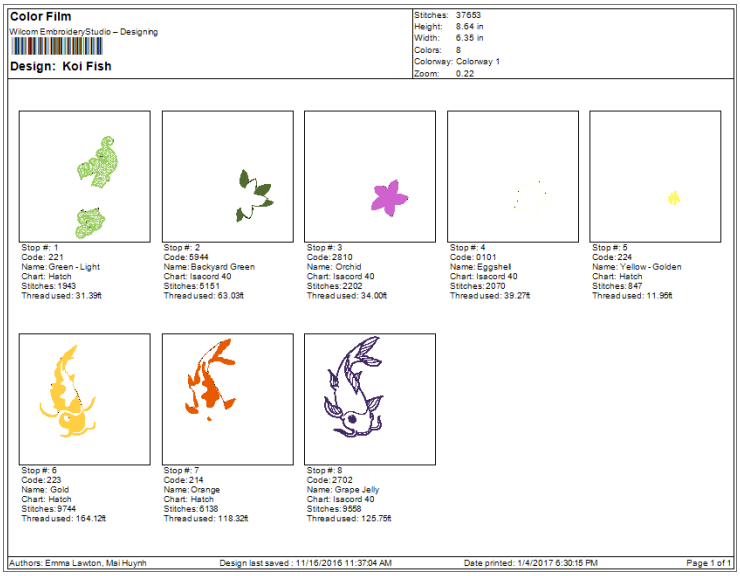


Report types include:

Report type	Function
Approval sheet	This is intended for the customer, not production staff. Customers can see what they are ordering and approve accordingly.
Production worksheet	This is intended for production staff. All production-related information, such as bobbin length, design size, garment fabric, etc, is provided.
Production summary	This provides two summary tables of the design and associated colorways – a Colorway Summary together with a Design Summary.
Appliqué patterns	This shows appliqué patterns – cutter information – isolated from the design. This tells the operator which appliqué pieces are to be included.

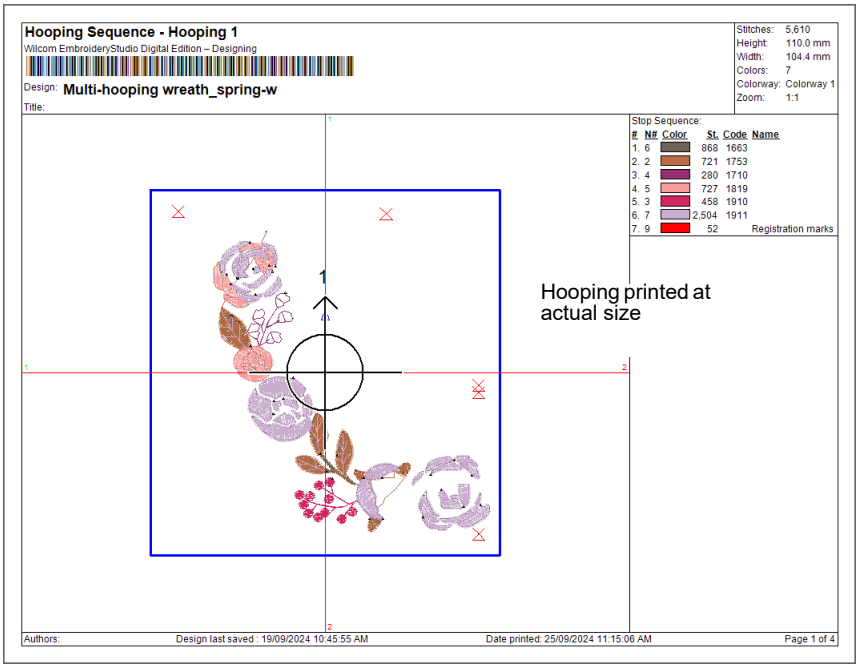
Color films

This report type lets you print color blocks in the design as they appear in the **Color-Object List**. This allows production staff to see each stitch color in order of stitchout. Separate color films are printed for selected colorways on the last page of the worksheet.



Hooping

If there is more than one hooping in the design, you have the option of printing hoops in multi-hooping view in their correct color sequence. The **Hooping Sequence** option shows the objects in each hooping. The **Hooping Thumbnails** option provides a summary sheet. You can choose to print the hooping sequence and/or hooping thumbnails with or without the production worksheet.

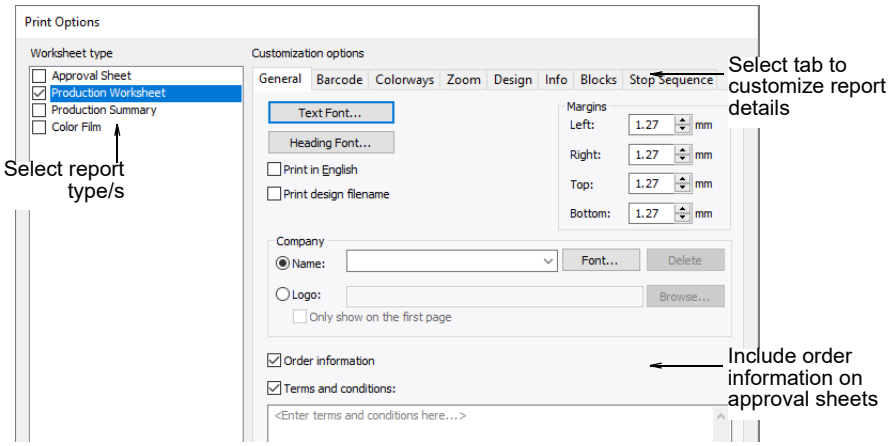


Related topics...

- Customizing design reports
- Print appliqué patterns
- Printing multi-hooped designs

Customizing design reports

All report types can be customized. For each type you select, tabs allow you to adjust report details. These vary with the report type. The Production Worksheet is the only report type that provides access to all available options.



Typically, reports will include customizations such as:

- Standard header/footer, incorporating company name/logo, customer name, colorway name, user-specified fonts, margin control, etc
- Company name/logo
- Barcode in header – available for all report types
- Multiple vertical 'full info' strips allocated on a single page if zoom parameters allow. Alternatively, there is a **Start New Page** option on **Info** tab to force the layout to start vertical info strips on a separate page.

Explore the following topics for details.

General options

The **General** tab includes the following layout settings:

Option	Function
Text / heading font	Set parameters for all text and headings appearing in the report – e.g. Arial for print, Verdana for online reports.
Print in English	Useful when printing to plotters where the device driver does not support the character set you require. Deselecting the checkbox prints the report in the language of the operating system.
Print design filename	Include the filename of the current design in the header of the product report.
Margins	Add a margin between the edge of the page and the content of the report. The page size itself is set via the Print dialog.
Company	Include your company name on the report. Enter a name and/or attach a company logo. If you have already entered one or more company names into the system, select from the droplist. Optionally, print the logo on the first page only.

Option	Function
Order information	Include customer name and order details.
Terms and Conditions	Include terms and conditions of use relating to your company designs. See below.

Terms & conditions

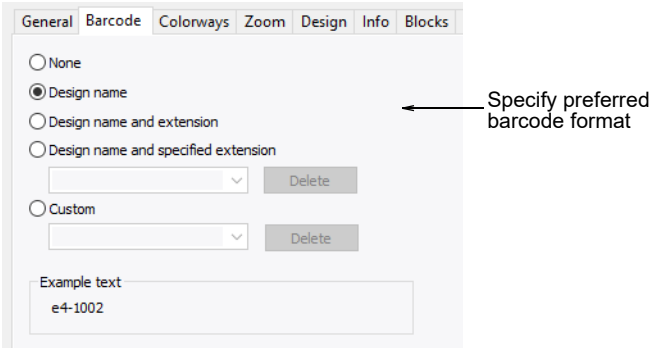
Terms and conditions text is stored in an internal defaults file. The only way to update the text and save it for later use it to do the following:

1. Open a new design sheet and digitize a simple object.
2. Open **Print Preview** and click **Options**.
3. Select the **Approval Sheet** report type.
4. Key in your own **Terms & Conditions** and close print preview.
5. Close the software – don't save the temporary design.

After restart, each time the approval sheet is used, it will contain the updated Terms & Conditions.

Barcode options

Some machines read barcodes in order to load designs. Typically, the digitizer will send the design to machine memory or database, then print out a worksheet. The operator will take the worksheet, scan the barcode, and the machine will load the associated file. The **Barcode** tab allows you to specify a standard format based on design name or a custom format.

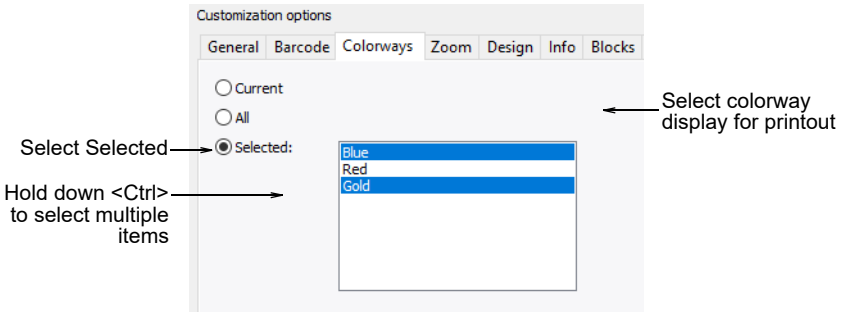


Many companies are switching to barcode readers on embroidery machines to 'pull' designs from Windows network locations rather than having the computer 'push' them to the machine. In addition to design name, some machines require the file extension. Amongst the barcode options, you can choose to include the current file extension or nominate one of your choice – e.g. 'DST'.

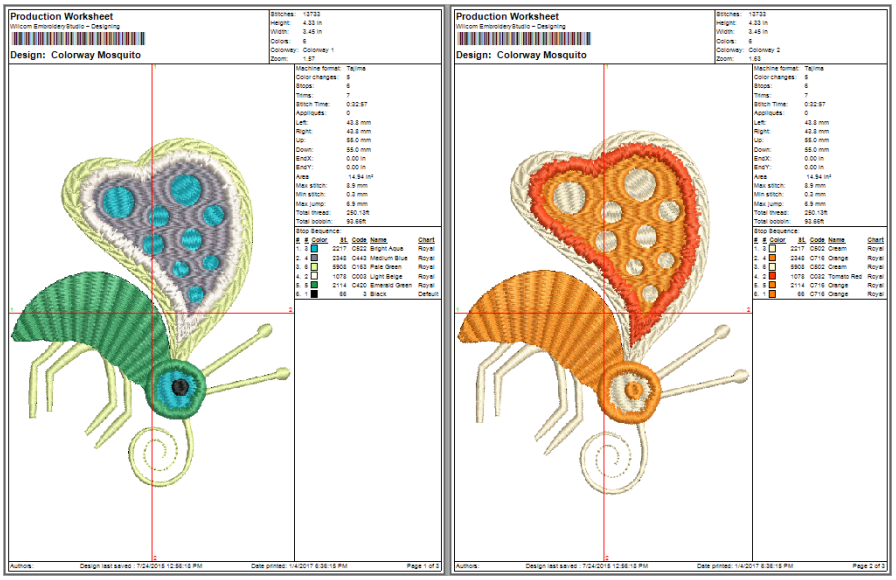
The ‘custom’ option is provided in case you have other barcode requirements – e.g. for pricing purposes.

Colorway options

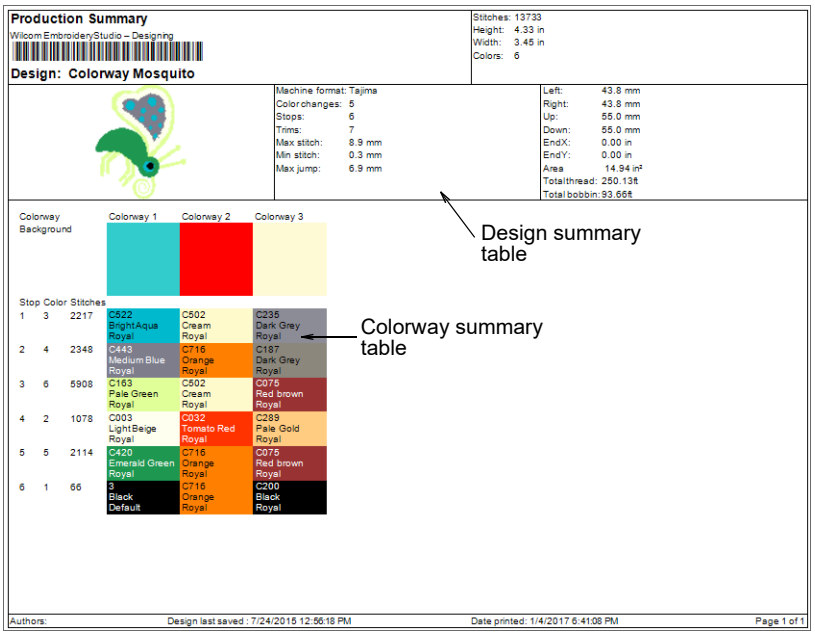
The **Colorways** tab allows you to include or exclude selected colorways for the current design.



Separate sheets are generated for each selected colorway.



If the **Production Summary** report type is selected, the **Colorway Summary** table is printed together with the **Design Summary** table. You can also print color blocks in the **Colorway Summary** table by selecting the **Show Colors in Summary** option in the **Stop Sequence** tab.



Zoom options

The **Zoom** tab lets you set a zoom factor for the design preview and physical printout.



Customizable options include:

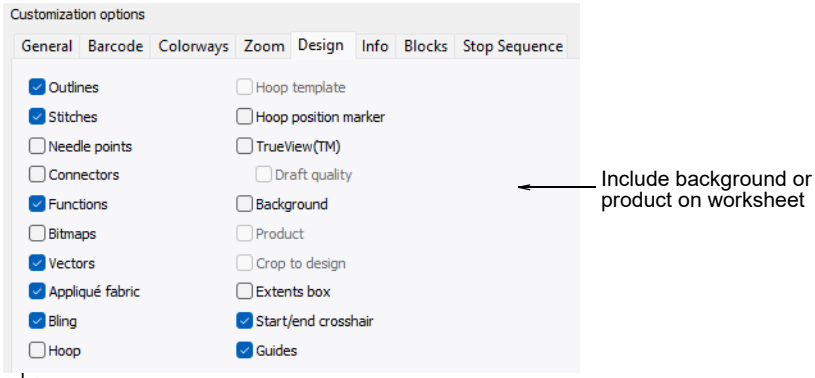
Option	Function
Zoom 1.1	Shows design at actual size.
Zoom to fit	Scales design to fill available space on the printout.
Zoom to product	Scales whole product to fill available space on the printout.
Custom	Sets a specific zoom factor.

Related topics...

- Visualize products

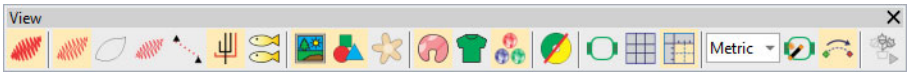
Design options

Use the **Design** tab to include background or product with the colorway.

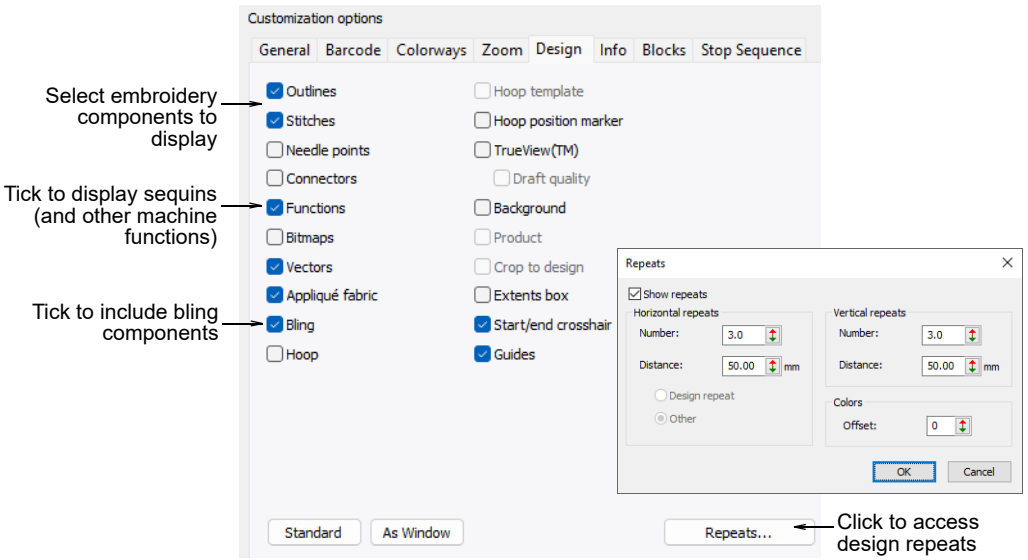


Tip: Select **Crop to Design** to crop the empty space around the design.

The **Design** tab allows you to toggle on/off the same options available on the **View** toolbar. Print designs in TrueView™ or stitch only, with needle points, connectors, etc, or without. Include background fabric or color as preferred.



Include the hoop with or without the template. Templates include alignment and registration guide markings. These can help production staff align the design in the hoop. You can also include the product backdrop which can guide staff in correct placement.



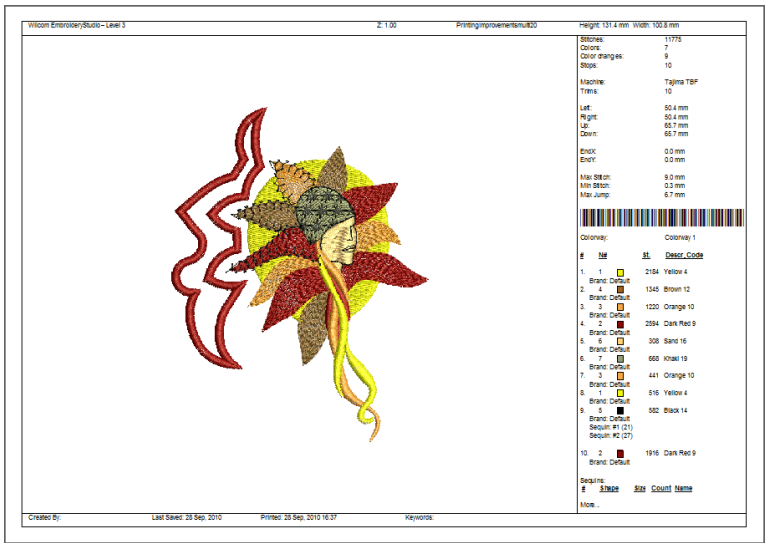
Print all types of multi-decoration supported by BE EmbroideryStudio, either separately or in combination. Click the **Repeats** button to access the dialog and set repeating design options.

Related topics...

- Viewing design components
- Viewing design repeats
- Hoops & templates

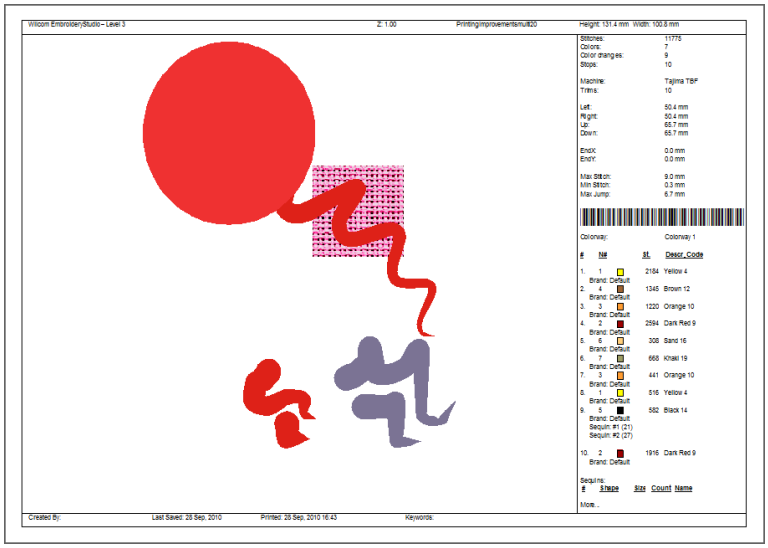
Embroidery components

To display embroidery components, select from amongst **Outlines**, **Stitches**, **Needle Points**, **Connectors**, **TrueView** in the **Design** tab. For **TrueView** to display, you must also have **Stitches** selected.



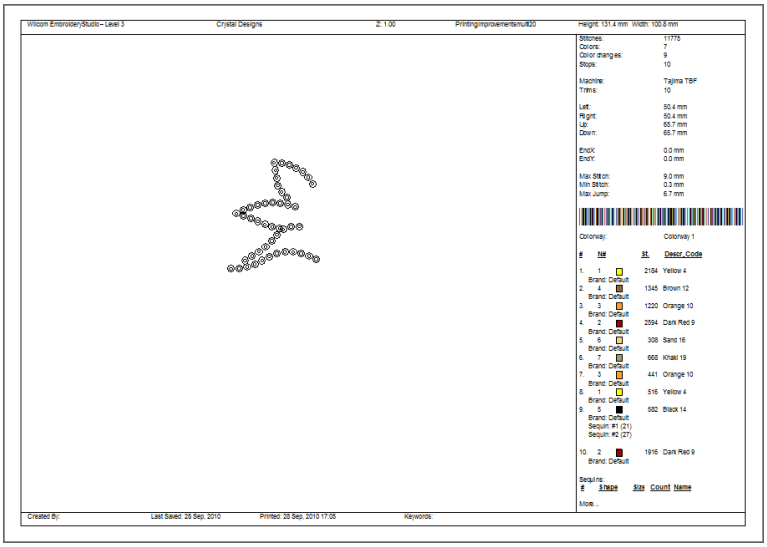
Print only

To display print components only, select between **Bitmaps** and **Vectors**.



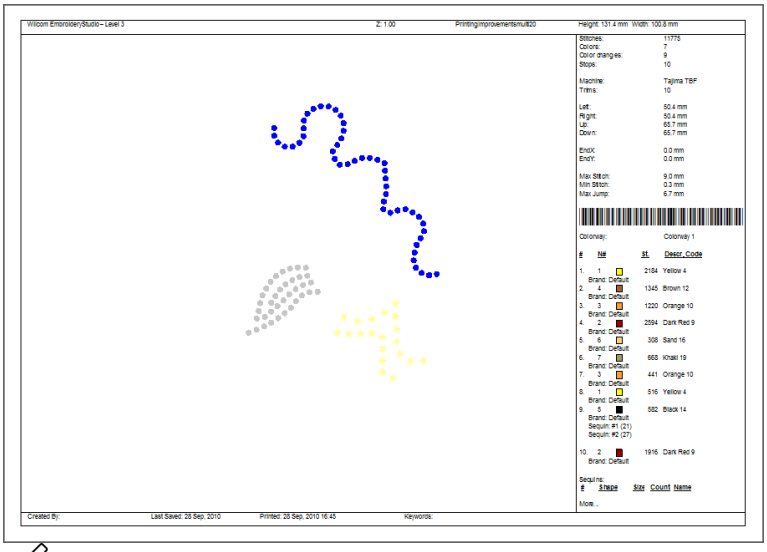
Sequin components

To display sequin components, select **Functions** in the **Design** tab. A sequin production summary shows color, size and quantities by sequin device as well as a summary on the first page.



Bling components

To display bling components, select **Bling** in the **Design** tab. The bling production summary shows stone colors, sizes, and quantities as well as a summary on the first page.



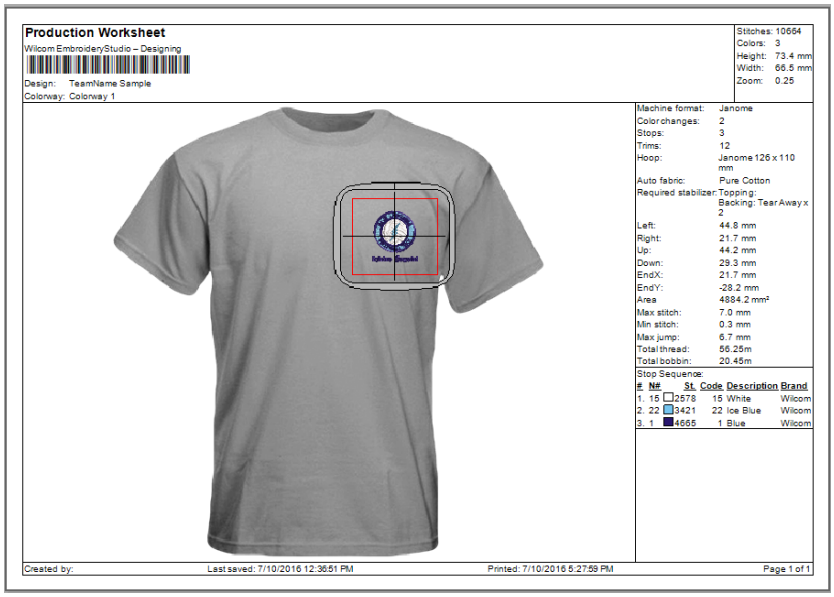
Note: When bling is output as multiple files, each color is separated into different templates for flood-filling with selected rhinestones.

Related topics...

- Output to bling cutter

Design backgrounds

The **Design** tab also provides options to display design backgrounds – e.g. fabric, product, and/or hoop.



Amongst background options, you can set:

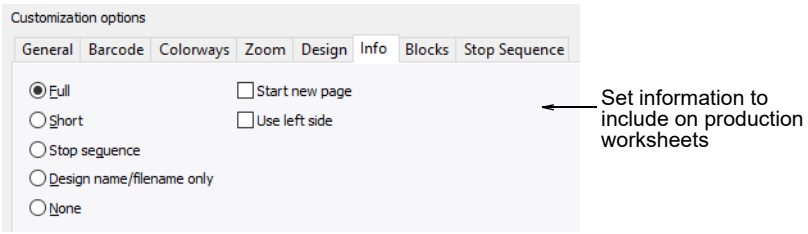
Option	Function
Hoop	Include the selected hoop, whether or not currently displayed on screen.
Hoop template	Templates include alignment and registration guide markings. These help align the design in the hoop.
Background	Include any background currently displayed – color or fabric.
Crop to design	Crop any background to the extends of the design, rather than the full page.
Product	Garment or product backdrop on which to position the design. Use it to display location, size and overall appearance for visualization or approval purposes.
Extents box	Place an outline around the design to delineate its full extents.
Start/end crosshair	Print a cross hair across the design indicating design start and end points.
Guides	When contrasting colors are used in the colorway for guide and background colors, guides can be turned off.
Standard	Reset printing options to default values.
As Window	Set printing options as per current settings in the design window.

Related topics...

- Fabric & product backgrounds
- Hoops & templates
- Start & end points

Information options

Reports include information entered in the **Design Information > Summary** tab, including comments but excluding keywords. The **Info** tab lets you filter this information for inclusion on production worksheets.



Customizable options include:

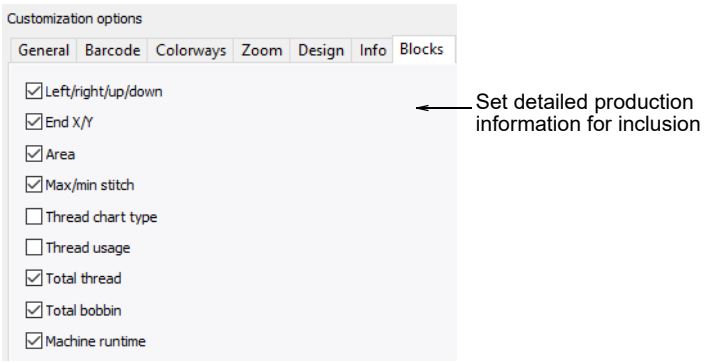
Option	Function
Full	Includes all design and production information included in the Design Information docker. This information can be further filtered via the Blocks tab.
Short	Includes only default header and footer information. Usually used in conjunction with full size design in order to visualize on garment. See also Zoom tab.
Stop sequence	Includes only stop sequence information on the worksheet. This information can be further filtered via the Stop Sequence tab.
Design name / filename only	Includes the design filename as the printout information without any other text.
None	Eliminates design details altogether and suppresses display of default header and footer information – again, can be used in conjunction with full size design in order to visualize on garment. See also Zoom tab.
Start new page	Prints design details on a separate sheet.
Use left side	Displays the information column on the left side of the page (rather than the default right-hand side).

Related topics...

- Viewing & managing design information

Blocks options

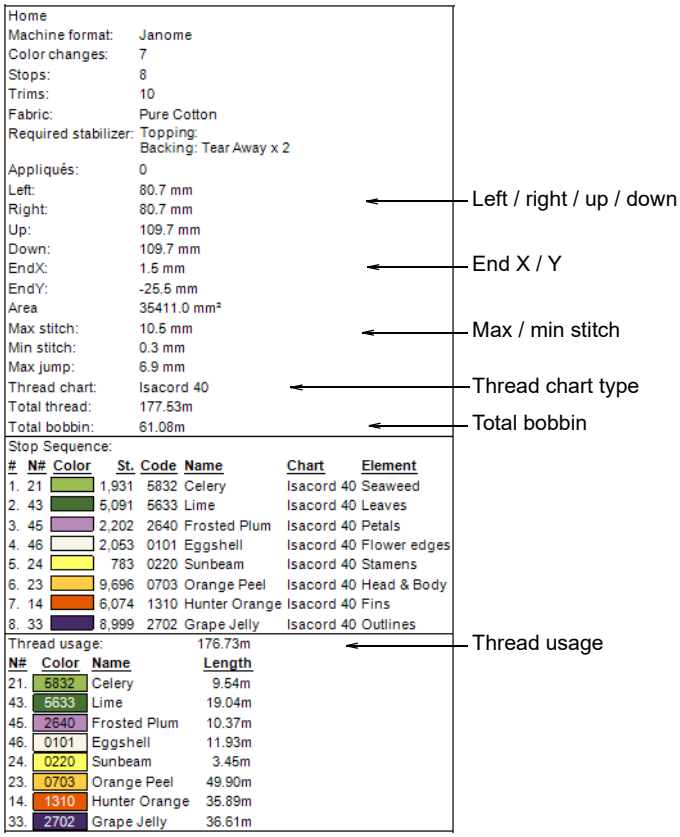
The **Blocks** tab lets you further filter production information available on the **Design Information** docker for inclusion in the printout.



Select design statistics to include on the worksheet:

Option	Function
Left / right / up / down	Depending on where the design start/end point has been set, these figures indicate the distance from that point.
End X / Y	The coordinates of the last stitch.
Area	Total area covered by design – used for estimating hoop sizes, fabric requirements, 3D foam, or whether design will fit target location.
Max / min stitch	The maximum and minimum stitch lengths, and maximum jump stitch length in the design.
Thread chart type	The name of the thread chart used in the design. All required brands for used threads are displayed in a comma-separated list.
Thread usage	Meterage of thread required per color.
Total thread	Total meterage of top thread required to stitch out the design.
Total bobbin	Total meterage of bottom thread (bobbin) required to stitch out the design.
Machine runtime	This checkbox is only available if the feature is available in the software. If there are no machines set up, checking ‘Machine runtime’ has no effect.

Here is a sample worksheet with all options selected:

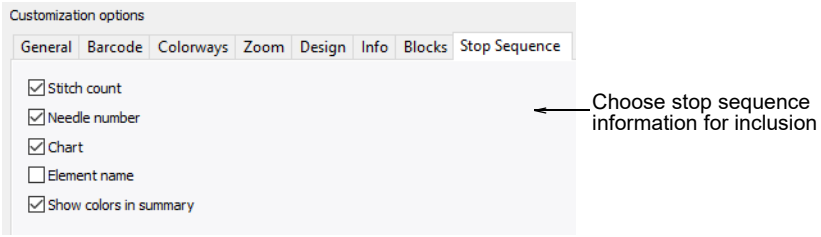


Related topics...

- Viewing & managing design information
- Assign thread colors
- Runtime estimates
- Design Hooping
- Start & end points

Stop sequence options

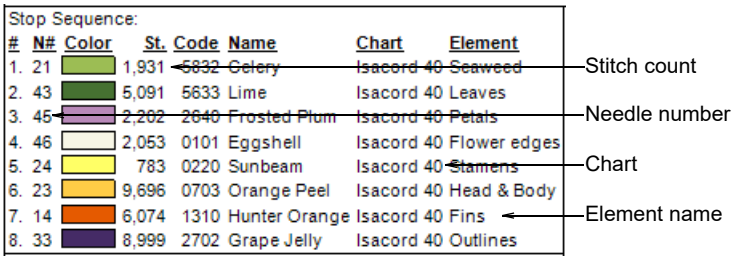
The **Stop Sequence** tab lets you further filter production information available on the **Design Information** docker for inclusion in the printout.



Select the statistics for each color block:

Option	Function
Stitch count	Include number of stitches per color.
Needle number	Include needle number corresponding to each color change. This is only really relevant to needle-addressing machines.
Chart	Brand name of thread chart used.
Element name	User-defined name to identify each color block.
Show colors in summary	Include color samples in a colorway summary table.

Here is a sample production worksheet with all options selected:



If the **Production Summary** report type is selected, the **Colorway Summary** table is printed together with the **Design Summary** table. You can also print color blocks in the **Colorway Summary** table by selecting the **Show Colors in Summary** option in the **Stop Sequence** tab.

Colorway				Yellow	Pink	Blue
Fabric Color						
Stop	Color	Element	Stitches			
1	3		154	3 Default Red	C714 Royal Pink	C131 Royal Marine Blue
2	9		73	9 Default White	9 Default White	9 Default White
3	1		6084	2 Default Sand	C050 Royal Dark Mauve	C111 Royal Medium Blue
4	4		316	4 Default Yellow	C096 Royal Ultra Marine	C096 Royal Ultra Marine
5	3		144	3 Default Red	C714 Royal Pink	C131 Royal Marine Blue
6	8		3271	8 Default Black	8 Default Black	8 Default Black

Colors displayed in colorway summary table

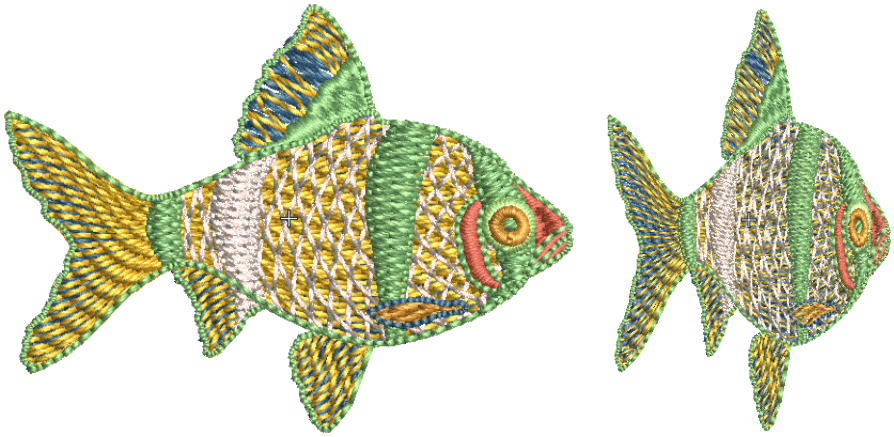
Related topics...

- Viewing & managing design information
- Name design elements
- Colorway options

Chapter 37

Machine Files

By default BE EmbroideryStudio saves to its native file format, EMB. This format contains all information necessary both for stitching a design and for later modification. When opening designs created or saved in other formats, BE EmbroideryStudio converts them internally to EMB format. They can then be modified using the full range of BE EmbroideryStudio features. Depending on the file type, you may need to provide additional information to assist BE EmbroideryStudio in the conversion process.



This section describes conversion options for opening and saving machine files. It also provides details about the processing of Melco CND outline files, including color merging, as well as reassigning colors to both stitch and Melco CND files. See Machine Files for details.

Opening machine files

If you want to scale a design, edit an outline or change a stitch type, then the design or selected elements must be first converted into 'objects'. By default, machine files are converted to outlines and objects upon opening. Open options should reflect how the design was originally digitized, not how you want it now. Experiment with the settings to get the best results.



Tip: To ensure object outlines, stitch types, stitch density and colors are correct, it is always a good idea to check and edit designs after conversion. To improve the quality of a machine file, it is sometimes better to edit stitches before conversion.

Object recognition

Machine files are generally not suited to modification because stitches are not regenerated. However, BE EmbroideryStudio can interpret object outlines, stitch types and spacing from stitch data with some success. In this way, you can re-constitute old tape format files and other machine file formats for modification in BE EmbroideryStudio. These 'recognized' designs can be scaled with stitches recalculated for the new outlines. Processing is effective for most machine files but cannot produce the same level of quality as original outlines and may not handle some fancy stitches.

When you convert a machine file to design file format, BE EmbroideryStudio reads stitch data stitch-by-stitch according to the needle penetration points. It recognizes stitch types, spacing and length values, stitch effects, and can determine object outlines. Stitch types are assigned as Satin, Tatami, or Program Split depending on the pattern of needle penetrations.

With Tatami, BE EmbroideryStudio recognizes stitch spacing and length, and applies a random factor. If a design is converted from ESD format, Zigzag and Triple Run objects are also recognized. If an object is not recognized, it becomes (or remains) a manual object with general and connector properties only. As such, it will not scale well.

Recognized object outlines and stitch values are stored as object properties in BE EmbroideryStudio. This means you can scale and transform recognized designs in the usual way. You can also change the stitch density of the whole or selected parts of a design, and/or of certain stitch types.

By default, machine files are converted to outlines and objects upon opening but you can also choose to open them **without** recognition. Designs opened in this way can be output for stitching in another format. Or you can edit stitches and add new elements. For such purposes, you do not need to retrieve information about how the design was created.

You can scale machine files which have been opened without object/outline recognition. However, because the stitch count does not change, the density increases or decreases with the design size. Thus you should not scale machine files by more than ±10% or some areas may be too thickly or too thinly covered.



Original stitch design

Scaled stitch design opened without object/outline recognition

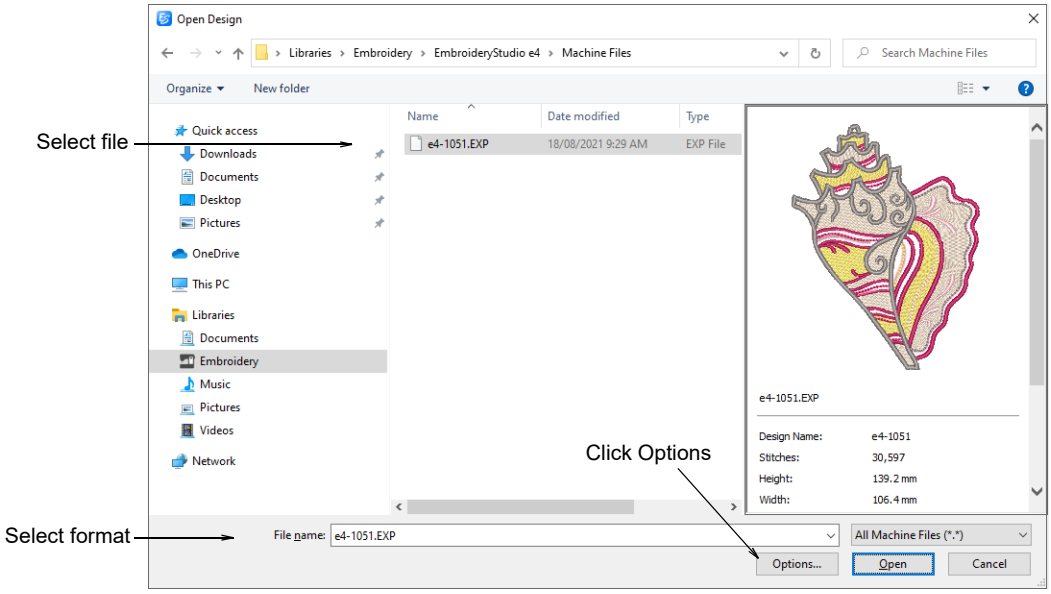
Note: With or without object/outline recognition, machine files can be saved in EMB format once they are opened in BE EmbroideryStudio.

Open machine files

When you open machine files **with** object/outline recognition, you can set options to determine how the design will convert. Options vary with file type. Alternatively, by opening a machine file **without** recognition, stitch data is preserved. This allows you to perform minor stitch edits and scaling operations without compromising the original machine file. Alternatively, you can process the whole or selected parts of a design after opening and editing.

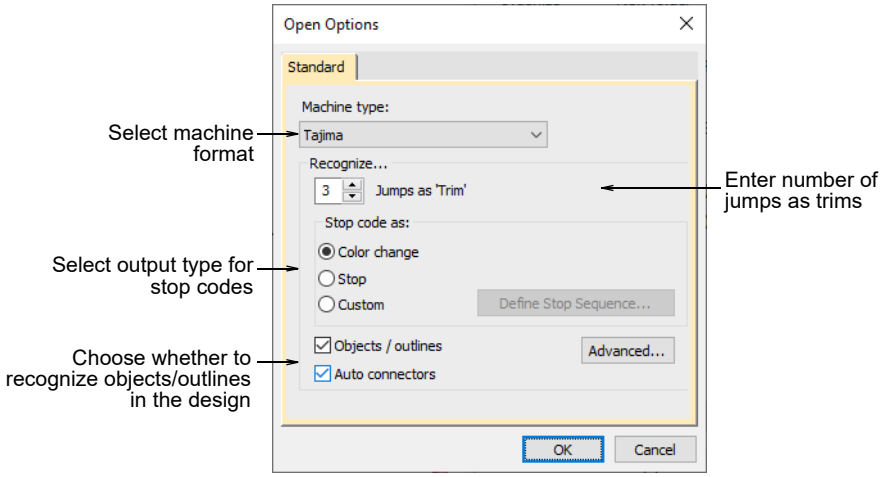
To open machine files with or without object recognition...

1 Open a file from hard disk or read it from embroidery disk.



2 Select a machine file format from the **Files of type** list and select the file to open.

3 Click **Options**. Depending on the file type selected, different options are available.



4 Select or deselect the **Objects/Outlines** checkbox.

Remember, when you open machine files **without** object/outline recognition, 'manual objects' are created wherever machine functions – e.g. color changes or trims – are detected in the design. They have only general and connector properties.

5 Select a different machine format from the **Machine Type** list as required.

The machine type will default to one suggested by the file format – e.g. DST will be interpreted as Tajima. However, you can choose to convert the file to a different machine format – e.g. Barudan.

6 Enter the number of jumps to recognize as trims.

When BE EmbroideryStudio encounters this number of consecutive jumps, it will convert them to a Trim function. If this value is different from the original design, Trim functions will be not be inserted correctly.

7 Use the **Stop code as** panel to select the output type for stop codes:

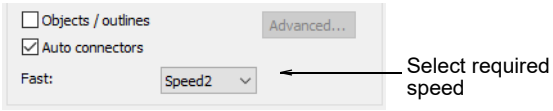
Option	Function
Color change	Stop codes are interpreted as 'Next Color' commands. The next color is selected from the default color palette.
Stops	Stop codes are interpreted as 'Explicit Stop' commands. The machine stops stitching.
Custom	Lets you map thread colors to every stop code in the file. This means you can color code machine files which do not contain needle addressing information. See Reassigning colors to machine files for details.

8 Toggle the **Automatic Connectors** checkbox as required.

Option	Function
On	Open appropriate designs with automatic connectors without having to use object/outline recognition.
Off	Open designs with connectors recognized as manual objects. This avoids stitch editing problems caused by automatic connectors – recommended for open fills.

9 Check the status of your embroidery machine. Then select the correct setting – **Speed1** or **Speed2** – from the list (if available).

On some Barudan machines there is a speed switch. Depending on its position, fast is assigned as either **Speed1** or **Speed2**. For example, if you select **Speed1**, each fast speed function will be translated into a **Speed1** command.



10 Click **Advanced** to set advanced recognition options.

11 Click **OK** and then **Open**.

If you have ticked the **Objects/Outlines** checkbox, the design is processed and converted to embroidery objects with fill or outline stitch properties as well as general and connector properties. If an object is not recognized, it becomes a manual object with general and connector properties only.



Design opened with recognition – mixed embroidery and manual objects

Design opened without recognition – manual objects only

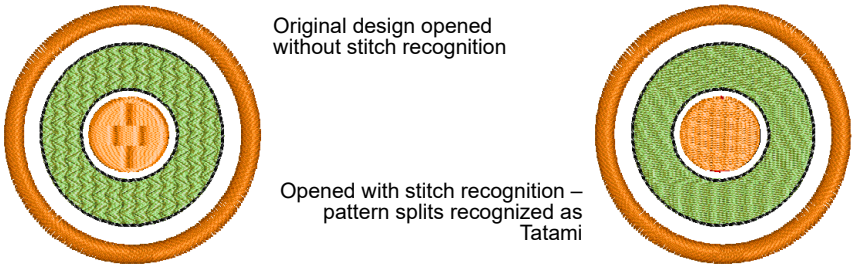
If you have opened without recognition, you can output the design without change or perform minor scaling and transforming actions without losing the original stitch information. Alternatively, you can process the whole or selected parts of a design after editing.

Related topics...

- Machine Formats
- Recognize object outlines
- Adjusting stitch densities
- Using embroidery disks
- Gunold PCH format
- Wilcom INP format

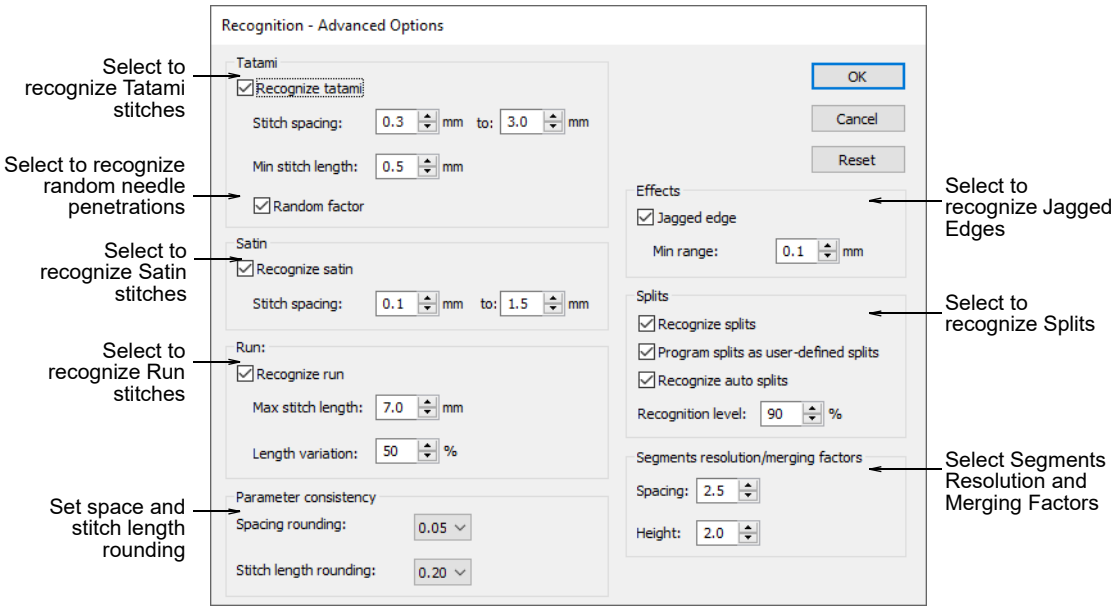
Advanced recognition settings

You can fine-tune how BE EmbroideryStudio converts machine files using advanced recognition options. By default, BE EmbroideryStudio converts stitches as Tatami, Satin, or Run stitches according to the settings in the **Recognition - Advanced Options** dialog. You can change these values, or choose not to convert certain stitch types at all. Generally, the default settings provide the best results for the most frequently used fill styles – Tatami and Satin – their properties – stitch length and spacing – and edge effects, such as stitch shortening. Default settings, however, cannot always guarantee the best results as the variety of embroidery designs is virtually unlimited.



To adjust advanced recognition settings...

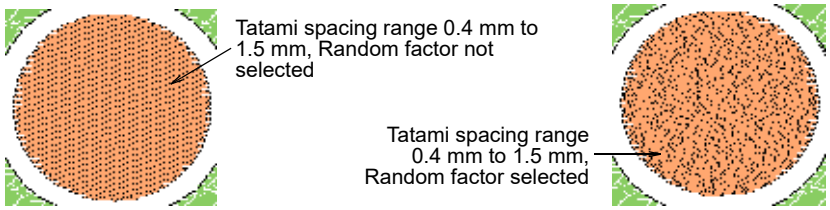
1 Access the **Open Options** dialog and click **Advanced**.
The **Recognition - Advanced Options** dialog opens.



To adjust Tatami recognition settings...

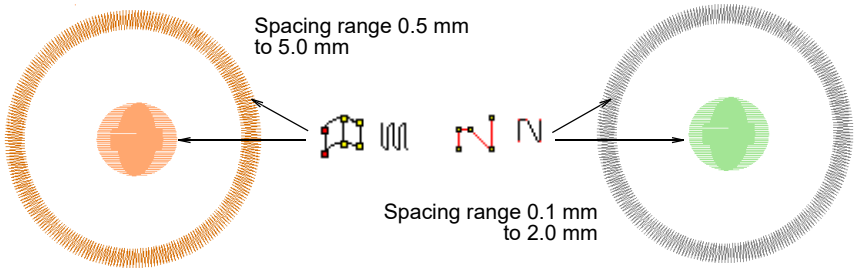
- In the **Tatami** panel, select **Recognize tatami** in order to process tatami fills, and adjust conversion options:

Option	Function
Stitch spacing	Enter spacing range to recognize. If the row spacing falls outside this range it will not be converted to tatami.
Min stitch length	Enter minimum stitch length to recognize as tatami.
Random factor	Select to allow for random needle penetrations. Tip: Deselect the Recognize Splits checkbox to detect Random Factor more accurately.



To adjust Satin recognition settings...

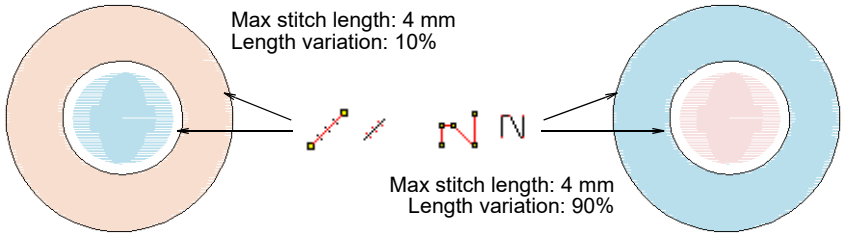
- In the **Satin** panel, select **Recognize satin** in order to process satin stitching, and adjust stitch spacings as required. If the row spacing falls outside the specified range it will not be converted to satin.



To adjust Run recognition settings...

- In the **Run** panel, select **Recognize run** in order to process run stitching, and adjust conversion options as required:

Option	Function
Max stitch length	Enter maximum stitch length to recognize.
Length variation	Enter percentage by which stitch length can vary in run objects.

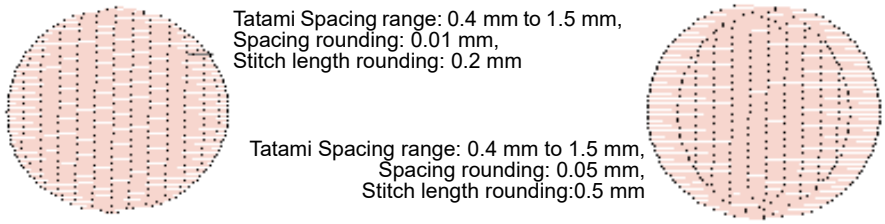


To adjust Complex Fill recognition settings...

- In the **Parameter consistency** panel, set options for complex fill segment recognition:

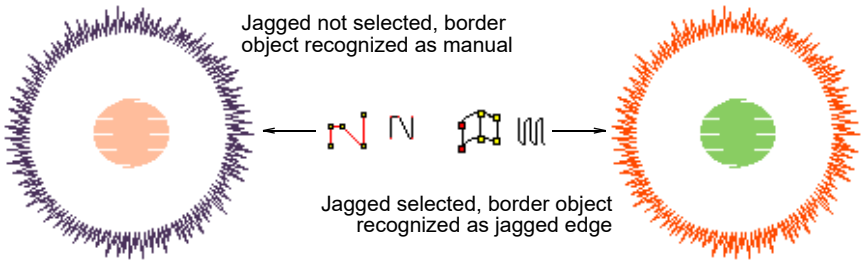
Option	Function
Spacing rounding	Enter rounding value for stitch spacings – 'snaps' spacing values in Tatami and Satin fills to specified increments.
Stitch length rounding	Enter rounding value for stitch lengths – 'snaps' stitch length values in Tatami fills to specified increments.

For example, if the Tatami minimum stitch length is 4 mm, and **Stitch length rounding** is 0.4 mm, stitches from 3.80 to 4.20 mm are 'snapped' to 4.0 mm, and recognized as Tatami.



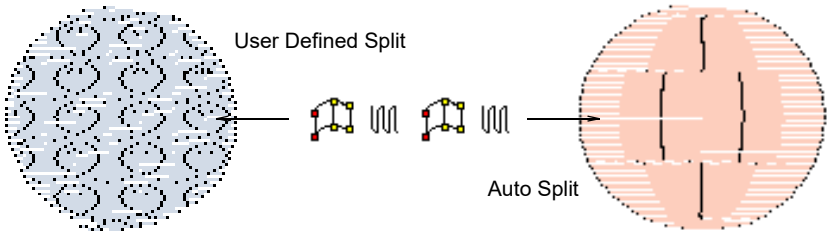
To adjust stitch effects recognition settings...

- In the **Effects** panel, select **Jagged** in order to recognize the **Jagged edge** effect. Specify a minimum range in millimeters – anything variation greater than this value will be recognized as **Jagged edge**.



- In the **Splits** panel, select **Recognize splits** to recognize splits in tatami fills, and adjust conversion options as required:

Option	Function
Program splits as user defined splits	Recognize split patterns as user-defined splits. Note, however, that user-defined splits are scaled when the design is scaled. This results in stitch lengths getting longer as the design is enlarged, thus limiting scaling. With native program splits, on the other hand, patterns – shape, size and spacing – remain the same after objects are scaled.
Recognize auto splits	Recognize Auto Splits in Satin objects. Otherwise, patterns created with Auto Split will be recognized as Tatami.
Recognition level	Restrict recognition of Program Splits by increasing percentage. Decrease to increase recognition. A low percentage number will detect more areas as Satin with User Defined Split than Tatami.



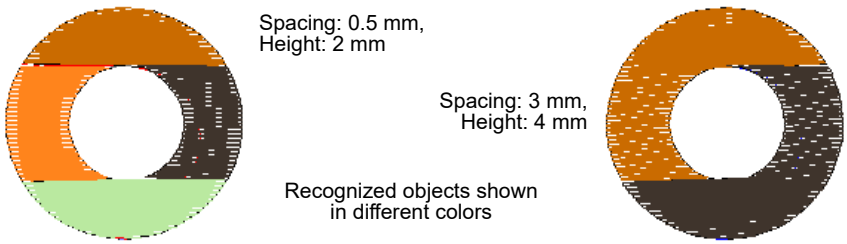
Tip: Program splits are reliably recognized when patterns are not overlapping. Split patterns can be complex, so the recognition process can take up to five times longer with this option.

To adjust segment recognition settings...

- In the **Segments resolution/merging factors** panel, enter values to fine-tune the recognition of segments and objects:

Option	Function
Spacing	This value expresses the ratio between stitch spacings in adjacent stitch blocks – e.g. adjacent spacings of 0.6 mm and 1.0 mm gives a ratio of 1.67. A value of 2.0 in the Spacing field means that these stitch blocks will be recognized as one segment or object. A value of 1.5 means that they will not. The default value is 3.0. Normal Satin and Tatami stitching ranges in spacing from 0.3 to 0.6 mm, so most continuous sections of stitching of the same type will not be split. To preserve spacing variations for color-blended designs and more artistic designs, you may need to reduce the spacing factor. In manually punched designs which include stitching with irregular spacing, segment breaks can be reduced by increasing the factor.
Height	This value expresses the ratio between heights of stitch blocks. It is important in recognizing Complex Fill shapes, particularly with holes.

Tip: Generally, the lower these values, the larger the number of segments/objects likely to be identified. Normally you want to obtain design information with a minimum number of identified segments/objects. In practice there is always a compromise between design recognition quality and the minimum number of correctly identified segments/objects.



- Click **OK**.

Tip: To revert to the original conversion settings, click **Reset**.

Related topics...

- Open machine files

Reassigning colors to machine files

When you open a machine file or CND file, a design without color code assignment automatically uses the default color palette. You can, however, map thread colors to every Color Stop code in the file. This means that **before** opening the file you can color-code designs which do not contain needle addressing information.

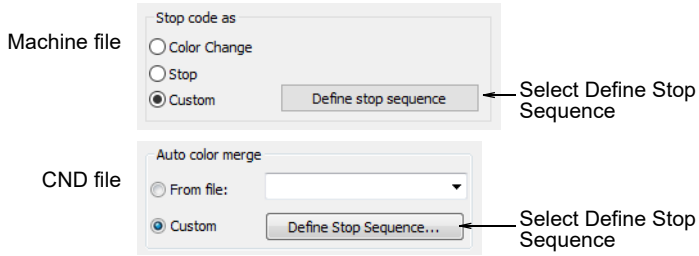


Note: In order to assign colors correctly, you need to consult a production worksheet for the necessary color sequence information.

To reassign colors to a machine file...

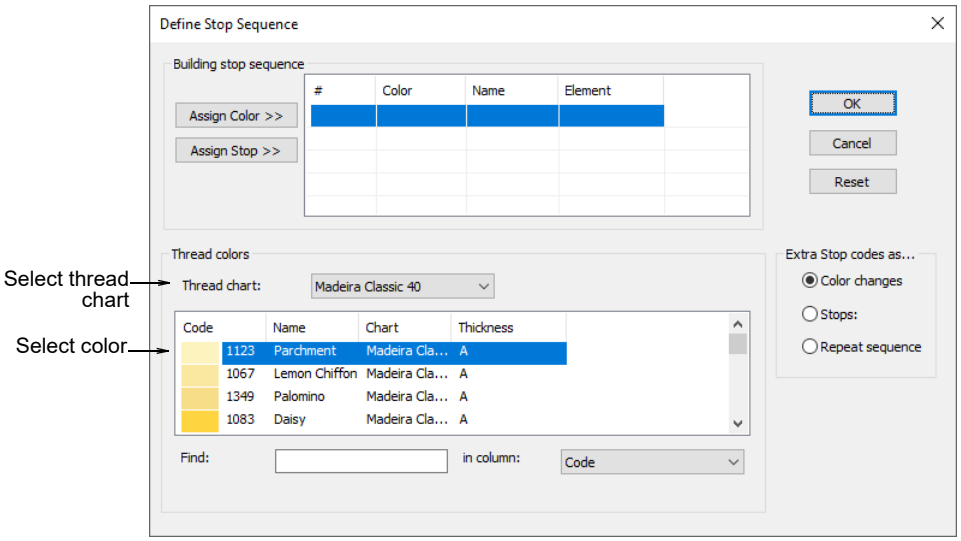
1. Select **File > Open**. The **Open** dialog opens.
2. Select a machine file or CND design and click **Options**.

   If you've selected a machine file, the **Open Options** dialog opens. If CND, the **Condensed File Input Settings** dialog opens. This procedure is the same.

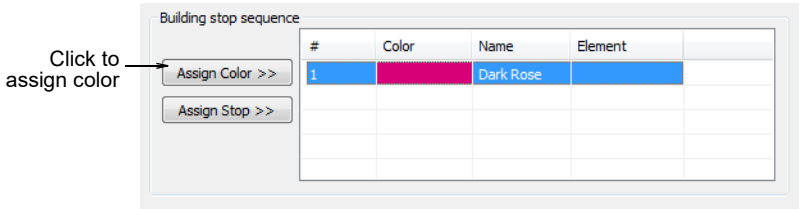


3 Select **Custom** and click **Define stop sequence**.

The **Define Stop Sequence** dialog opens. Initially the **Building stop sequence** panel is empty.



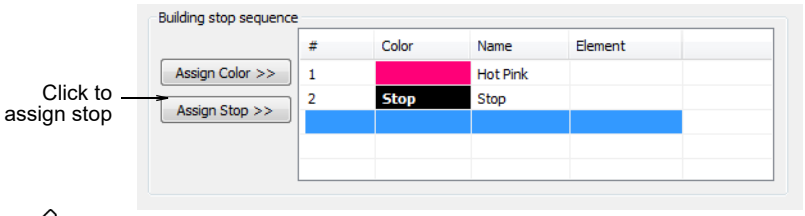
4 Select a thread chart and first color.



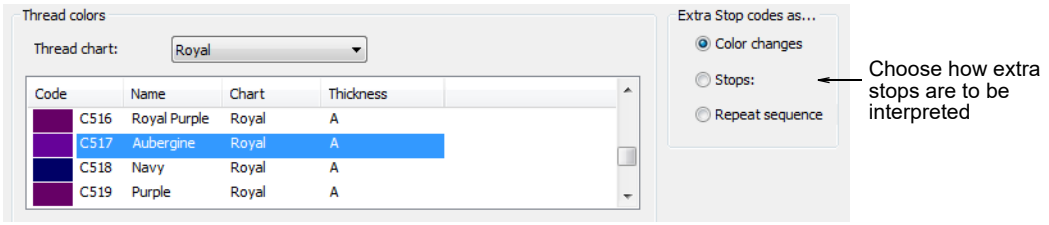
5 Click **Assign Color**. The color and the description are entered at the current Stop in the **Building stop sequence** grid.

Note: The selection moves to the next color in the thread chart. Two consecutive same colors are not allowed and **Assign Color** is disabled.

6 Click **Assign Stop** to enter an explicit Stop code.
Stop is entered in the **Description** field.



Note: A **Stop Sequence Warning** message displays if a redundant color function is assigned. Press **Delete** to delete a selected entry in the stop sequence. Click **Reset** to delete all the entries.



7 Use the **Extra Stop codes as** panel to select the output type for extra stop codes:

Option	Function
Color changes	Extra Stop codes are interpreted as 'Next Color' commands. The next color is selected from the default color palette.
Stops	Extra Stop codes are interpreted as 'Explicit Stop' commands. The machine stops stitching.
Repeat sequence	If you select fewer colors than the design requires, the selected colors are repeated. For example, if your design requires four colors and you've only selected two in the Building Stop Sequence list, colors 3 & 4 will be the same as original colors 1 & 2.

8 Repeat the operation as many times as indicated in the production worksheet.

9 Click **OK**. The design will have the desired colors and the correct number of Color Changes.

Note: You can convert color changes to an explicit Stop Code. You can also remove Color Stops by assigning the same color number to consecutive color blocks.

Related topics...

- Read CND files with color-merge TXT file

Reading Melco CND design files

Melco Condensed (CND) is the native file format of Melco embroidery digitizing software. CND files store only digitized outlines and stitch values. When you open CND designs in BE EmbroideryStudio, these outlines are scaled and stitches recalculated to preserve density. BE EmbroideryStudio recognizes all Melco machine functions and stitch types, including Partition Lines and Complex Fill, and automatically converts them to EMB format. However, CND files do not contain specialty features such as Pull Compensation or Auto Spacing, nor do they include actual stitches, thread colors, or design icons.

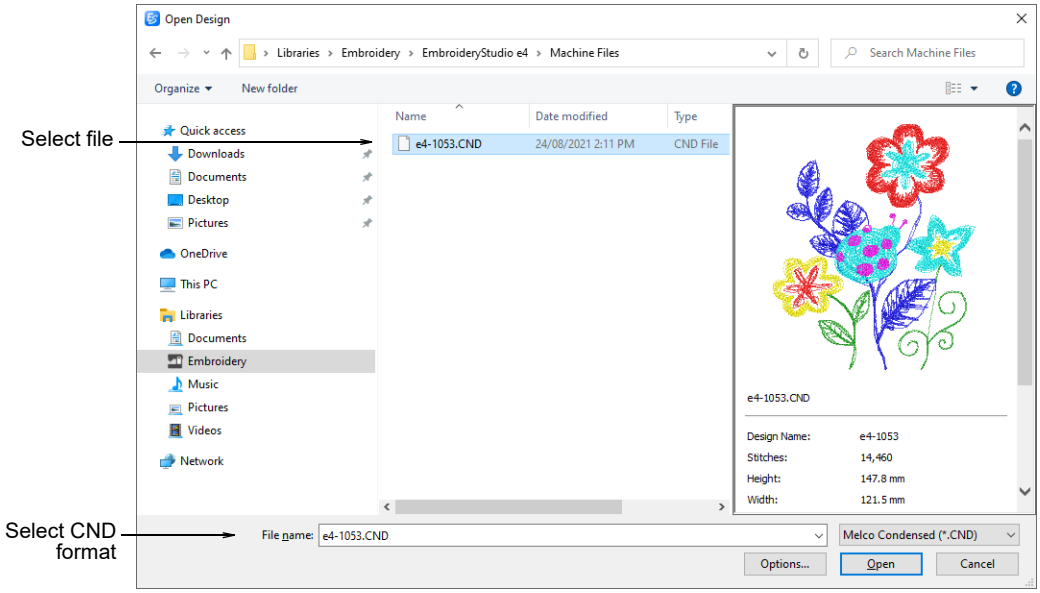
Convert CND files to EMB

There are several versions of CND, all of which can be read by BE EmbroideryStudio. While these designs scale accurately, the number and placement of stitches may differ somewhat from the original design. You may notice some difference (±10%) in the stitch counts between original and converted files. This is because of differences in the software methods used to calculate stitches. BE EmbroideryStudio cannot interpret certain specialty features of CND design objects because there is no direct equivalent. However, stock designs do not normally use these features and will generally convert without problem.

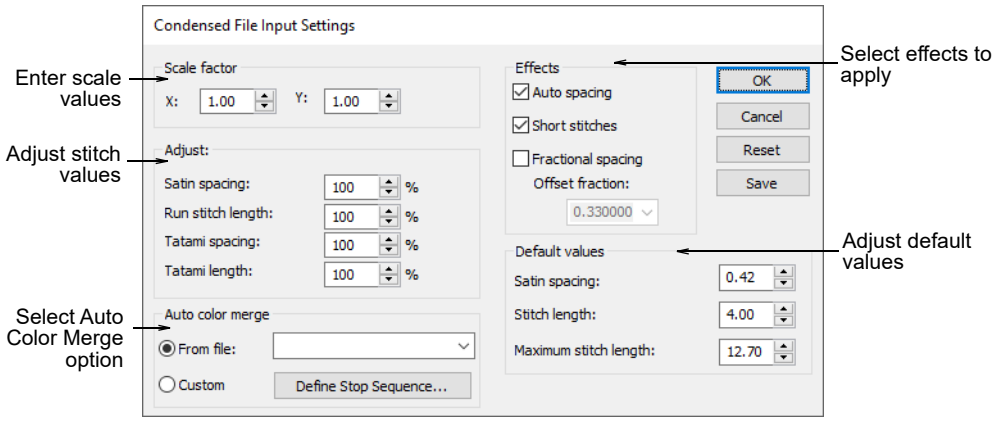
When you open Melco CND files, the Melco stitch types used in the design are converted to BE EmbroideryStudio stitch types – satin, run, tatami, etc. You can change conversion settings to adjust spacing, stitch length, effects and defaults applied to BE EmbroideryStudio stitch types. You can also set scaling values to open the design at a different size to the original.

To convert a CND file to EMB...

1 Open the file from your hard disk, or read it from tape or embroidery disk.

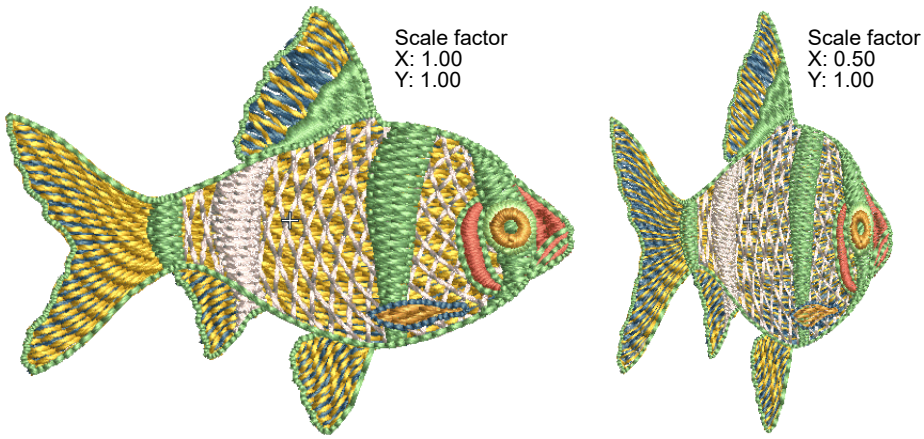


2 Select the **Melco (CND)** file to open and click **Options**. The **Condensed File Input Settings** dialog opens.



3 In the **Scale factor** panel, enter the scale at which you want to open the design.

New dimensions are expressed as a ratio of the original design size. For example, to scale to 120% of the original, enter a scale factor of 1.2 in each field.



4 In the **Adjust** panel, enter spacing and length values to apply to the design as a percentage of original values. You can adjust satin spacing, run stitch length as well as tatami spacing and length.

5 In the **Auto color merge** panel, choose whether you want to read thread color information from CND files. This ensures that stitches are displayed in the correct colors when converted to EMB.

6 In the **Effects** panel, select the effects you want to apply to the design.

For information about these, see the relevant sections of the manual:

Option	Function
Auto spacing	Auto Spacing automatically adjusts stitch spacing wherever a column changes width. See Apply satin stitch with auto spacing for details.
Short stitches	Standard stitch spacing is calculated at the outside edge of a shape. With sharp curves, spacing which provides adequate coverage on the outside edge may cause bunching along the inside edge. Stitch shortening reduces the length of some stitches in sharp turns so that the needle penetrations are distributed evenly, creating smoother stitching. See Apply stitch shortening for details.
Fractional spacing	With Fractional Spacing, BE EmbroideryStudio calculates spacing settings from a specified point called the offset fraction. This lies between the outside and inside edges of the shape. You can change the offset fraction to adjust stitch spacing at inside and outside edges. See Apply fractional spacing for details.

7 In the **Default values** panel, adjust the default values for **Satin spacing**, **Stitch length** and **Maximum stitch length** as required.

If the CND design was created with values different to the factory settings, you can override them in these fields.

- To save new settings as defaults, click **Save**.
- To revert to the Melco factory settings, click **Reset**.

8 Click **OK** and then **Open**.

The selected design opens in the design window. You can scale the design directly on screen or via the **Object Properties** docker. You can also rotate, mirror and skew the design.



Tip: Before CND designs are stitched out, an EXP format file is created. The EXP stores the actual stitches and can be stitched directly. This file too can be opened in BE EmbroideryStudio.

Related topics...

- Save designs in Melco CND format
- Reassigning colors to machine files
- Opening machine files
- Save designs in Melco CND format
- Conversion of Melco CND format to Wilcom EMB

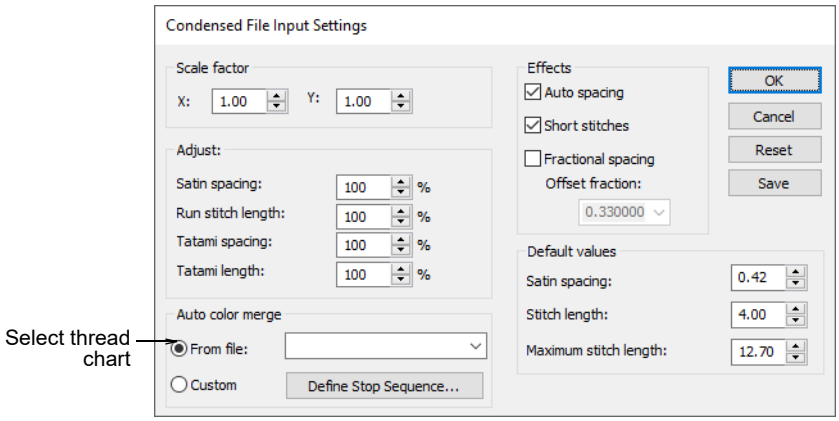
Read CND files with color-merge TXT file

While CND files contain no thread color information themselves, the **Auto color merge** feature can read thread colors for CND files from an associated TXT file. Thus stitches are displayed in the correct colors when they are converted to EMB. **Auto color merge** reads and interprets a TXT file containing colors from a named thread chart. You must specify the thread chart used when the design was originally created in EDS (or other design software).

To read CND files with color-merge TXT file...

1 Select **File > Open**. The **Open** dialog opens.

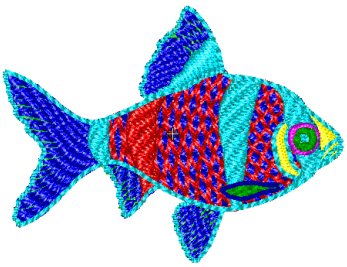
2 Select a CND design and click **Options**. The **Condensed File Input Settings** dialog opens.



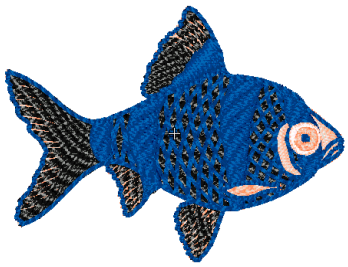
3 Select **From file** in the **Auto color merge** panel, and select a corresponding thread chart from the **Auto color merge** droplist.

Any thread color named in the text file must correspond to a color in the selected thread chart. If not, it will default to black.

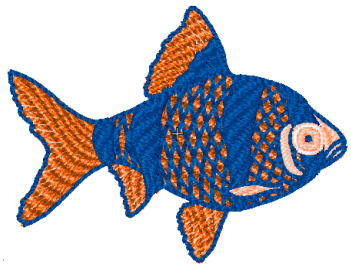
4 Click **OK**. The design opens, the stitches appear in the correct thread colors, and the color palette displays the selected thread chart.



No chart selected – default colors assigned



One color not correctly matched – defaults to black



Original colors correctly assigned from text file

Related topics...

- Reassigning colors to machine files
- Create a color-merge TXT file

Create a color-merge TXT file

Auto color merge reads and interprets a TXT file containing colors from a named thread chart. You can create this text file manually with a text editor such as MS Notepad. The text file must have the same file name as the CND file – e.g. Fish.TXT and Fish.CND. Both files must reside in the same folder. For the **Auto color merge** function to work correctly, information in the text file must be entered in a certain format. A typical text file might look like this:

```
Fish
```

```
Uses curve effects
File: Fish
55.9mmW X 74.5mmH
ST: 6,780
Colors: 8
1. Tropical Sunset
2. Saffron
3. Pale powder Blue
4. Tropical Sunset
5. Pale powder Blue
Curve effect
6. Tropical White
7. Tropical Sunset
8. Pale powder Blue
```

Text file structure

All text files contain some or all of the following elements.

Txt file item	Mandatory	Description	Example
Design name		This is the name of the design as it appears in File > Information > Design Information > Subject.	Fish
Comments		Lines inserted here appear under File > Information > Design Information > Comments.	Uses curve effects
File name	●	This is the file name of the CND design file. The file extension should not be included.	File: Fish
Design size		Enter the expected design size for the design. The actual design size is derived from the software.	55.9mmW X 74.5mmH
Stitch count		Enter the expected stitch count for the design. The actual stitch count is derived from the software.	ST: 6,780
Number of colors	●	States the total number of colors in the design.	Colors: 8
Thread name 1	●	Enter the first thread name. The name of the thread is searched against the Thread Chart. The thread name is shown in the File > Design Information > Stop Sequence tab.	1. Tropical Sunset
Thread name 2	●	Enter the second thread name.	2. Saffron
Thread name 3	●	Enter the third thread name.	3. Pale Powder Blue
Thread name 4	●	Enter the fourth thread name.	4. Tropical Sunset
Thread name 5	●	Add any extra threads to this list.	5. Pale Powder Blue
Thread comments		Place comments below the relevant thread number.	Curve effect

Txt file item	Mandatory	Description	Example
Thread name 6	●		6. Tropical White
Thread name 7	●		7. Tropical Sunset
Thread name 8	●		8. Pale Powder Blue

Chapter 38

Embroidery Output

Once an embroidery design is complete, you can output for actual stitchout in a variety of ways – sending directly to machine for stitching, or saving to specific machine formats and/or to embroidery disk.



Tip: From the same design file, you can also output a production worksheet for the embroidery machine operator. See Design Reports for details.

Sending designs to machine

BE EmbroideryStudio provides alternative means for sending designs directly to machine. Depending on your software options, you can stitch to machine using **Stitch Manager**, **Machine Manager**, or **Connection Manager**. Newer machines use USB or Wired-Wireless network connections. BE EmbroideryStudio supports these connections via the **Connection Manager**. Older-style machines generally use serial port

connections. BE EmbroideryStudio supports connection to these machines via the **Stitch Manager**.

Note: Machine Manager and its operations are described in a separate supplement.

Send designs to Connection Manager

Use Standard > Send to Connection Manager to connect to supported machines via proprietary machine software.

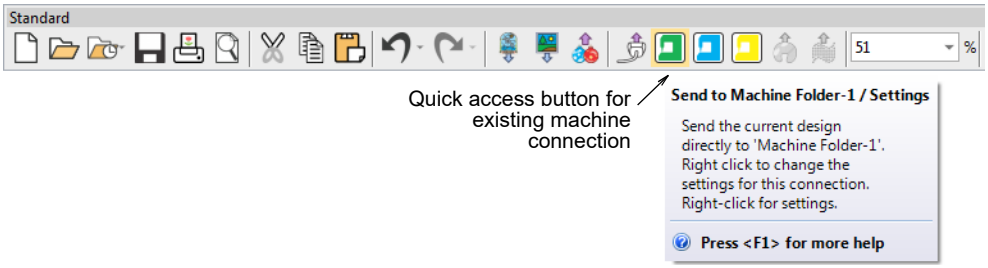
Use Docker > Exports to view the export status of the current session. Conversion to older formats or machine file is performed as a background task.

Newer machines use USB or Wired-Wireless network connections. They can appear as a disk drive or be setup to read designs from a folder on the PC. Some machines such as Janome MB-4 and Barudan LEM are supplied with propriety connection software. BE EmbroideryStudio supports connection to these machines via **Connection Manager**. Each machine connection:

- Has a unique name and 'quick-access' button
- May have a unique folder to which designs can be sent. From here they can be accessed from the machine control panel or third-party connection software.

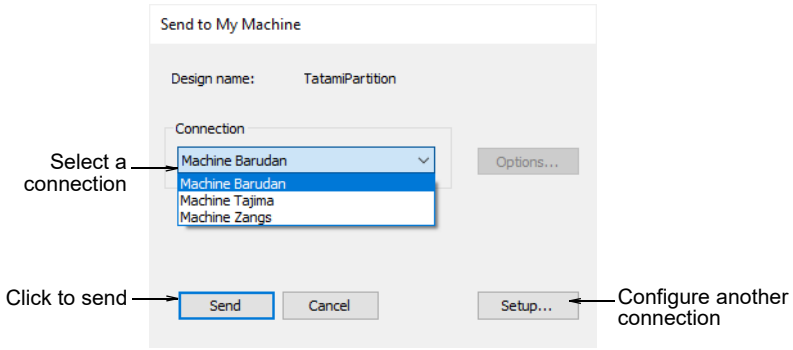
To send a design to Connection Manager...

1. Ensure that the target machine is correctly connected to your PC. See your machine documentation for details.
2. If a connection already exists, click the quick-access button to send the design to a predefined location.



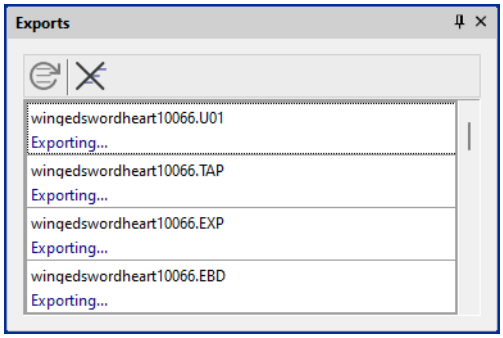
3. Alternatively, click the **Send to Connection Manager** icon.
   - If no connections currently exist, you will be prompted to set one up. See Setting up machines for Connection Manager for details.

- If a connection already exists, the dialog opens.



4. Select a connection from the droplist and click **Send**.
5. Using the machine controller or third-party connection software, access the design from the network or PC folder.
6. Load or send the design and stitch it on the machine.

Tip: The **Exports** docker automatically opens when a design is converted to machine file or saved as an earlier EMB design file. This shows you the export status of the current session. Machine file export is performed as a background task.



Related topics...

- Setting up machines for Connection Manager
- Embroidery file formats

Send designs to EmbroideryConnect

Use Standard > Send to EmbroideryConnect to send the current design to a named EmbroideryConnect device.

Use Standard > Queue Design to send the current design to the EmbroideryConnect design queue where they can be 'pulled' from the machine.

Once you have set up one or more EmbroideryConnect devices on your network, you have the choice of 'pushing' designs or 'pulling' them from the EmbroideryHub. The **Send to EmbroideryConnect** button allows you to send a design to a named EC device. Alternatively, use the **Queue Design** to 'push' designs to a queue where they can be 'pulled' from the machine itself.



Related topics...

- Wireless Machine Connection with EmbroideryConnect
- Sending designs to machine

Send designs to Stitch Manager

Use Legacy Features > Send to Stitch Manager to send a design to any supported embroidery machine without changing the original design format.

Once a design is complete, you can stitch it out to **any** supported embroidery machine **without** changing design format. If a selected machine does not support a particular function included in the design, it is simply ignored. When you send several designs in a row, they are automatically queued and stitched out one at a time.

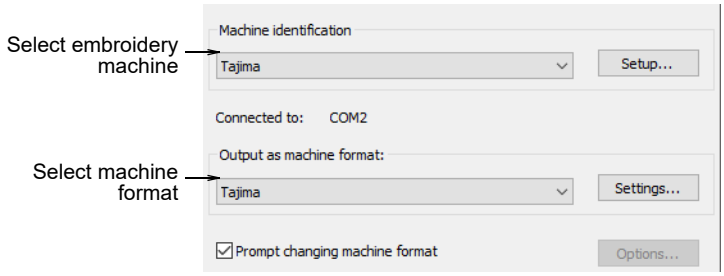
To send a design to Stitch Manager...

1 Ensure that the target machine is correctly connected to your PC. See your machine documentation for details.

Note: Before you can send designs for stitching, you must also configure the machine in BE EmbroideryStudio.

2 Open a design.

3 Click the **Send to Stitch Manager** icon. The dialog opens.



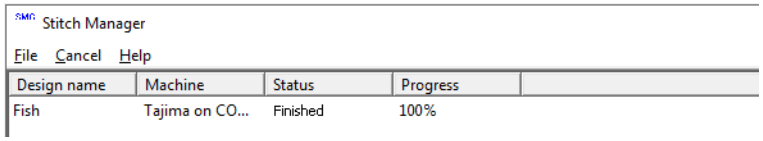
4 From the **Machine Identification** list, select an embroidery machine. Click **Setup** to modify machine settings as required.

5 From the **Output as Machine format** list, select the correct machine format. Click **Values** to modify the machine format settings as required.

Note: This field is automatically updated if the target machine format is different to the current format. Select the **Prompt Changing Machine Format** checkbox if you want to be prompted when the **Output as Machine Format** field updates.

6 Click **OK** to return to the **Send to Stitch Manager** dialog.

7 Click **OK**. The **Stitch Manager** dialog opens listing the files to be stitched out.



Tip: To delete a design from the queue, select it and click **Cancel**.

Related topics...

- Hardware Setup
- Setting up machines for Stitch Manager
- Embroidery machine formats
- Standard machine formats
- Embroidery file formats

Exporting designs for machine

Different embroidery machines understand different languages. Each has its own control commands. Before you can stitch out a design, it must be

in a format which can be interpreted by the machine. Machine or 'stitch' designs are low-level formats for direct use by embroidery machines. They contain only stitch coordinates and machine functions. They are generally created on-the-fly when sending designs to machine. Or they are converted when saving to disk or memory stick.

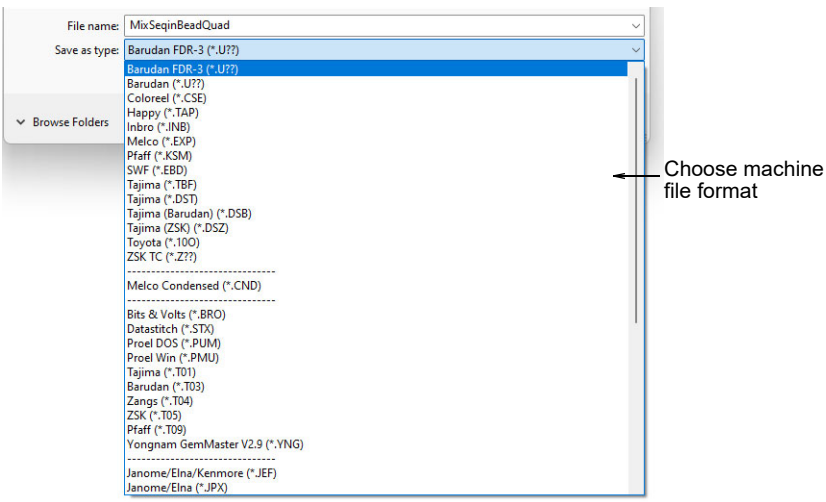
Note: The **Design Library** conversion function allows you to batch-convert to and from all EMB and other supported design file types. It also batch-converts many machine file formats such as DST, EXP, SEW. See also Convert designs.

Export designs to machine file

Use Standard > Export Machine File to export the current design to a machine file for stitching.

Use Docker > Exports to view the export status of the current session. Conversion to older formats or machine file is performed as a background task.

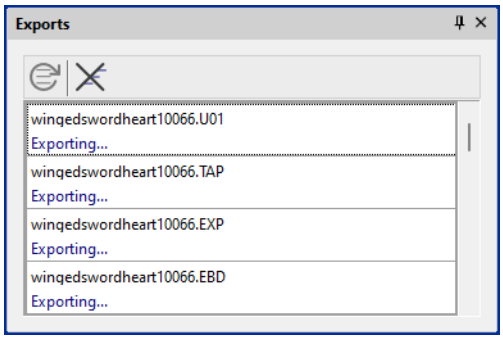
Converting an open design to machine file format is as simple as clicking the **Export Machine File** button or choosing the command from the **File** menu. BE EmbroideryStudio reads and converts all popular formats. Designs originally created in BE EmbroideryStudio generally give the best results. Other file types may not have all the data necessary for successful conversion.



Usage tips...

- For older machines, you can also save designs to proprietary embroidery disk.

- If a design feature is not available in the file type you select, it will be converted – e.g. **Flexi Split** stitching may be changed to plain Tatami.
- The **Exports** docker automatically opens when a design is converted to machine file or saved as an earlier EMB design file. This shows you the export status of the current session. Machine file export is performed as a background task.



Related topics...

- Convert designs
- Send designs to Connection Manager
- Using embroidery disks
- Machine Formats
- Embroidery file formats

Save designs in Melco CND format

You can save files to Melco CND format from BE EmbroideryStudio. Some stitch quality features, stitch types, and decorative fills and effects do not convert well. If you intend to save a file in CND format, you should only use input methods, stitch types and effects that are compatible with Melco EDS-III software.

Trim functions

Superstar-compatible machines do not have trimmers. If you want to stitch a design to a machine without trimmers, set machine values to **not** output Trim codes. Then digitize the design for manual trimming. Early versions of CND do not support Melco Trim codes. In this case, set the machine format values to output Trims as Jumps.

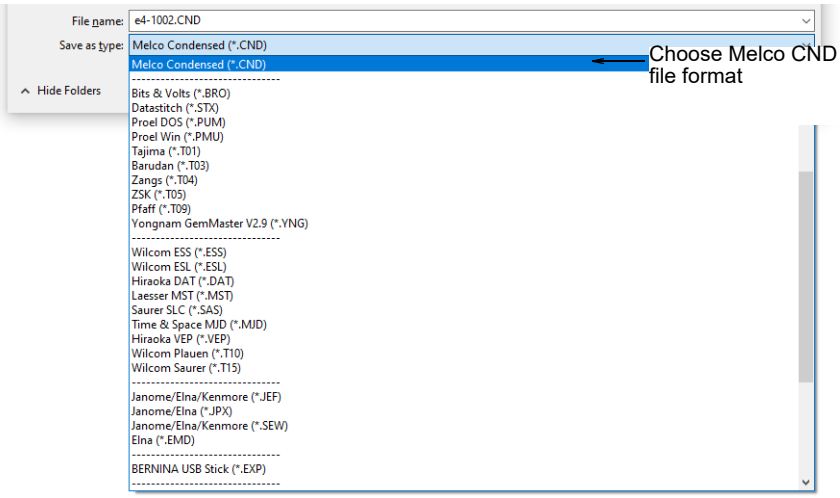
Turning Tatami fills

When you save to CND format, you need to specify how to convert turning tatami stitches. Objects with curving tatami stitches – e.g. Column A objects – are not supported by early versions of CND format.

For Superstar-compatible machines, turning tatami stitches are simply converted to **Walk** stitches, the EDS equivalent of Manual. For earlier machines, turning tatami fills need to be converted to normal tatami – i.e. with a single stitch angle – then to Normal Fill, the EDS equivalent of normal tatami.

To save designs in Melco CND format...

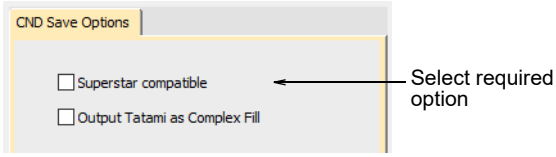
1 Select **File > Export Machine File**. The **Export Design** dialog opens.



2 Select **Melco CND** from the **Files of Type** list.

3 In the **File name** field, enter a name for the design.

4 Click **Options**. The **Save Options** dialog opens.



5 Select the required option for converting **Turning Tatami** fills:

Option	Function
Superstar Compatible	Converts turning tatami to Walk (EDS equivalent of Manual). Complex Fill tatami is output as Normal Fill (EDS equivalent of tatami). Superstar-compatible machines do not have trimmers.
Output Tatami as Complex Fill	Converts turning tatami fills to normal tatami – i.e. with a single stitch angle – then to EDS Normal Fill.

Note: These functions are also available when you send a CND design for stitching.

6 Click **OK** and then **Save**.

Related topics...

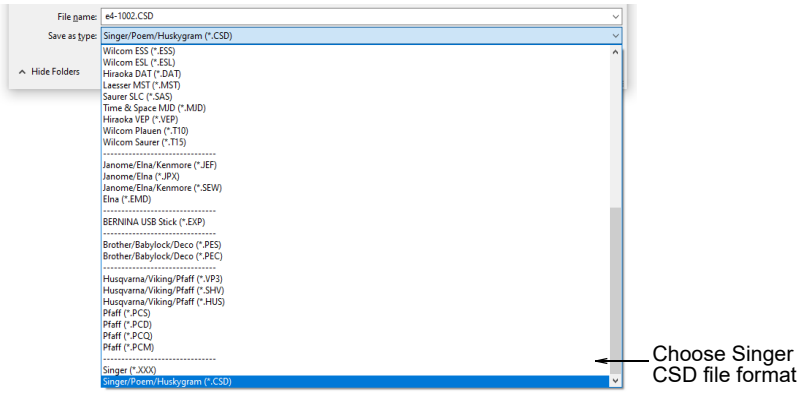
- Standard machine formats
- Melco CND format
- Conversion of Melco CND format to Wilcom EMB.

Save designs in Singer CSD format

The **CSD Save Options** allows you to select between CSD Type I and Type II.

To save designs in Singer CSD format...

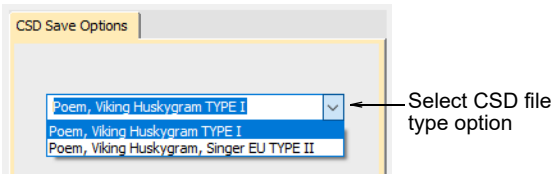
1 Select **File > Export Machine File**. The **Export Design** dialog opens.



2 Select **CSD** from the **Files of Type** list.

3 In the **File name** field, enter a name for the design.

4 Click **Options**. The **Save Options** dialog opens.



5 Select the required CSD file type option.

- Type II was introduced in CS 1.2B software for the POEM machine.

- Type II is also used by the Singer EU software for the POEM machine.
- Type II files also store thread color RGB values and an icon of the design.

6 Click **OK** and then **Save**.

Related topics...

- Opening machine files

Using embroidery disks

Paper tape is the traditional medium for storing designs in stitch data format. Embroidery disks, which largely replaced paper tape, are specially formatted floppy disks used to transfer designs from computer to older embroidery machines. You can format embroidery disks and save designs to them from within BE EmbroideryStudio. The format you use will depend on the machine. Designs are generally stored in stitch data format, although Melco CND, for example, is a 'condensed' file format.



You can also open designs from embroidery disks of various formats directly into BE EmbroideryStudio. Once read, you can output them without change, modify them and output them in the original format, or save them as EMB file. You can optionally convert them into objects. After conversion, a design can be scaled and changed. See also Opening machine files.

Read designs from embroidery disk



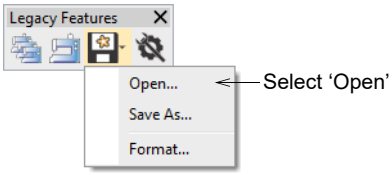
Use Legacy Features > Embroidery Disk to open designs from or save to proprietary embroidery disk formats.

You can open designs of other formats from specially formatted 1.44 Mb DS/HD (Double-Sided High-Density) embroidery disks.

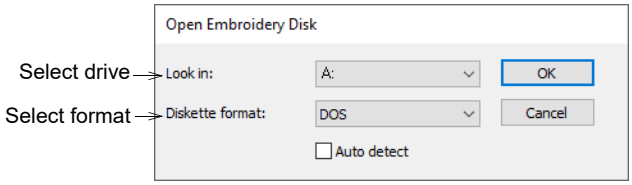
To read designs from embroidery disk...

1 Insert the embroidery disk in your computer's floppy disk drive.

2 Select **Embroidery Disk > Open**.



The **Open Embroidery Disk** dialog opens.

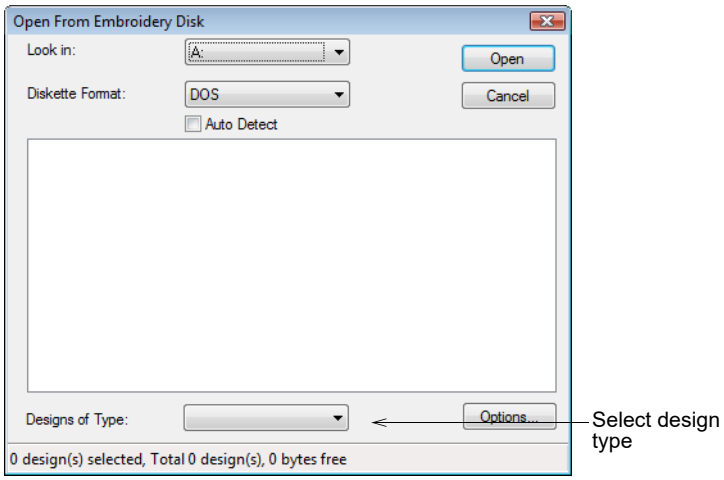


3 From the **Look In** list, select the floppy disk drive.

4 Select the disk format. Either:

- Select the format from the **Diskette Format** list.
- Select the **Auto Detect** checkbox and let BE EmbroideryStudio automatically determine the format. This generally takes longer.

5 Click **OK**. The **Open From Embroidery Disk** dialog opens.



6 From the **Designs of Type** list, select a design type. Any designs saved on disk are listed in the panel. If no designs are listed, make sure that the correct drive and disk format are selected.

Note: If the **Options** button is available, you can set recognition options for the design.

7 Click **Open**.

Related topics...

- Embroidery file formats
- Melco CND format
- Gunold PCH format
- Open machine files

Format embroidery disks

Use Legacy Features > Embroidery Disk to format proprietary embroidery disks.

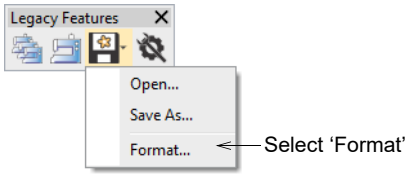
Embroidery disks must be formatted to suit the embroidery machine you intend to use or it will not be able to read the design. Older computers generally have a High Density 1.44 Mb drive. Most embroidery machines use High Density disks so there is usually no problem with transferring designs. See your machine manual for details.

To format embroidery disks...

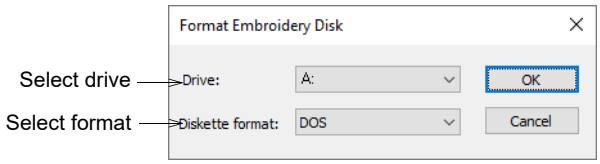
1 Insert a 3.5" floppy disk of the correct density in your computer's floppy disk drive.

Note: Use the disk type required by the embroidery machine, not the computer.

2 Select **Embroidery Disk > Format**.



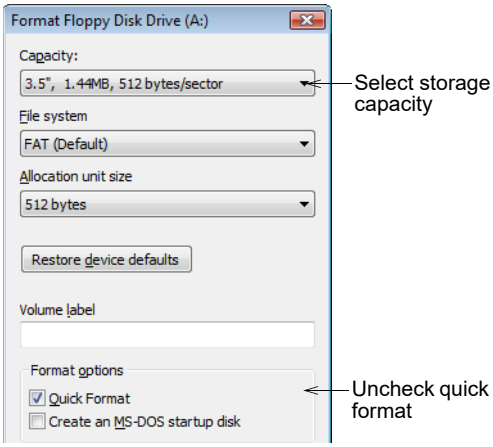
The **Format Embroidery Disk** dialog opens.



3 From the **Drive** list, select the floppy disk drive.

4 From the **Diskette Format** list, select the required disk format.

5 Click **OK** to confirm. The **Format** dialog opens. This is a MS Windows® system dialog and may vary with the particular operating system you are using.



6 From the **Capacity** list, select the disk storage capacity.

7 In the **Format Options** panel, select the 'full format' option. **Quick Format** erases all data from the disk but does not reformat it. Uncheck the option to reformat a blank disk. See your MS Windows® manual for details.

8 Click **Start**. A progress bar appears. You are prompted when formatting is complete.

Note: If you have trouble with formatting a Melco embroidery disk, check if your floppy disk drive can read and write single density floppy disks.

Write designs to embroidery disk

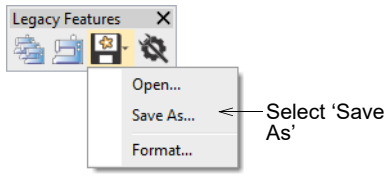
Use Legacy Features > Embroidery Disk to open designs from or save to proprietary embroidery disk formats.

Save designs to embroidery disk to stitch out on a specific machine. When you save to a new format, the design is converted to encode the machine functions and commands supported by the particular machine.

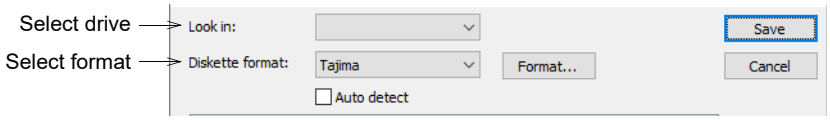
To write designs to embroidery disk...

1 Insert the embroidery disk in your computer's floppy disk drive.

2 Select **Embroidery Disk > Save As**.



The **Save to Embroidery Disk** dialog opens.



3 From the **Look In** list, select the floppy disk drive.

4 Select the disk format. Either:

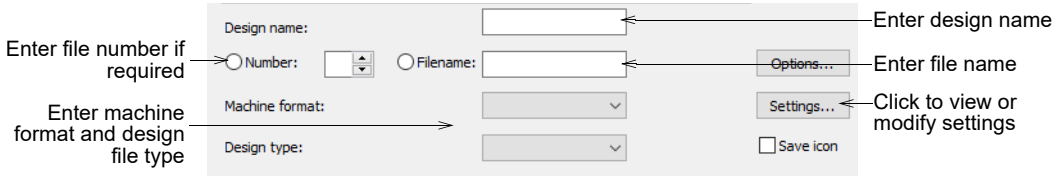
- Select the format from the **Diskette Format** list.
- Select the **Auto Detect** checkbox and let BE EmbroideryStudio automatically determine the format.

Any designs already saved on disk are listed in the panel.

Note: If the disk is not formatted, or its format is not correct, click **Format**.

5 In the **Design Name** field, enter a name for the design.

6 In the **Filename** field, enter a name for the design file.



7 If the **Number** field is enabled, enter a file number.

Not all machine formats require this information. This option is grayed out if the file naming mechanism is not supported by the particular embroidery disk type. Tajima uses a free-form file name, so both a numbering system and a text file name system are supported, as seen in the dialog.

8 From the **Machine Format** list, select a machine format.

Some machines can read different formats. For example, some Tajima machines can read Barudan as well as Tajima.



Tip: To view or modify machine format settings, click **Values**.

9 From the **Design Type** list, select the file type to save to embroidery disk. Only one file type is generally available.

10 If available, select the **Save Icon** checkbox to include a thumbnail image of the design with the design file.

This icon appears in the machine control panel during stitchout.

11 Click **Save**.



Caution: Wait until the light on the floppy disk drive stops flashing before removing the disk.

Related topics...

- Standard machine formats

Chapter 39

Multi-Decoration Output

Designs digitized in BE EmbroideryStudio and CorelDRAW® can be output in a variety of ways, both via the **Wilcom Workspace** and **CorelDRAW Graphics**.



Firstly, BE EmbroideryStudio provides a 'one-stop-shop' for the output of mixed decoration. The **Export Multi-Decoration Files** capability allows you to output multi-decoration components for various processes. It can provide:

- Direct input to required machines – the most efficient method – or
- A file format which can be used by the machine's supporting software.

This feature is accessed via a menu command in both **Wilcom Workspace** and **CorelDRAW Graphics** – **File > Export Multi-Decoration Files**.

For machines that support direct connection, there are two commands:

- **File > Send to Appliqué Cutter**
- **File > Send to Bling Cutter**

In order to output all multi-decoration components, it may be necessary to use more than one of these commands.

Multi-decoration types

In addition to normal embroidery (including sequins), the mixed decoration export capability supports all the following types of media, both singly and in combination.



Print designs

In the context of multi-decoration design, a portion may need to be output to a printing process for inclusion on the article. This component may be referred to as 'print' or 'graphics'. The most commonly used commercial printing processes are:

- Screen printing
- Sublimation
- Direct-to-garment (DTG)
- Heat-transfer printing

Direct-to-garment

Direct-to-garment printing is handled like most other printing from a PC: The print image is sent to the DTG printer through the MS Windows® print manager via a print driver. The image generally has a transparent background for DTG printing. DTG printing requires heat fixing to make the garment washable.

Sublimation

Sublimation printing is similar to DTG printing but the process uses solid inks which give a more even gradation of color compared to the liquid inks used in DTG printing. With sublimation printing, inks are printed onto a release paper and then transferred to fabric or other surface.

Sublimation means a change from a solid to gaseous state and back to a solid without becoming liquid. Thus dye particles migrate from the paper as a gas, to bond with a polymer – fabric or other material – and become solid again. The transfer is effected using high heat (205°C) and pressure, thus guaranteeing that the image penetrates and becomes an integral part of the substrate.

Screen printing

Screen printing is a more complex process than DTG, requiring the creation of a screen for each 'spot color' making up the design. Spot or 'direct' colors can be identified as a special ink or Pantone or other. There may be multiple screens for each one, depending on how the design is layered.

Heat-transfer printing

A fourth process, which is less likely to be used in the garment industry, employs heat transfer paper. Graphics are printed and then heat-fixed to a substrate using an iron or heat-press. Printers that support heat transfer media generally provide an automatic mirror function as the image must be mirrored in order to be heat-transferred to the substrate. Heat-transfer is the preferred process for point-of-merchandising substrates or media such as mugs, pens, etc.

Related topics...

- Outputting designs as images
- Virtual embroidery

Appliqué designs

Appliqué is a decoration or ornament made from cut pieces of one material applied to the surface of another. Pieces may be fixed to one another using an embroidered border of satin, raised satin, or none. Appliqué cutting is supported in BE EmbroideryStudio by outputting vectors that describe the appliqué material. The information can be sent directly to a supported MS Windows® cutter or output to printed templates for manual cutting of appliqué shapes.

Related topics...

- Appliqué Embroidery
- Appliqué production

Bling designs

Bling, rhinestones, crystals, and glitz are interchangeable terms referring to decorative objects placed on garments or templates. They are supplied in various sizes, shapes, colors and materials. There are two basic processes for creating bling designs:

- Hot-fix template production
- Direct-to-garment production

Hot-fix template production

Hot-fix templates can be produced in two ways:

- **Bling template**: This is the design layout on which rhinestones are initially placed prior to transfer. The template is created by cutters or engravers. Rhinestones are placed onto the template by a manual flood-fill process and then manually transferred to transfer tape.
- **Bling transfer**: In a semi-automatic process, bling is placed directly onto transfer tape (or sheet) by machine. Examples are IOline CrystalPress and CAMS machines. The bling design is ready for heat transfer to the final product – e.g. a T-shirt.

Direct-to-garment bling production

Direct-to-garment bling production is supported by many machines. Automatic rhinestone transfer machines are designed for high speed, high volume production. They enable users to fix any type of rhinestones, studs, and so forth directly to any type of fabric.



Tip: If you have neither CAMS automatic rhinestone placement machine nor a direct-connect cutting machine, you can use the **Convert Bling for Production** command to convert bling objects to vector shapes. These can be then output to vector file for use by third-party applications. See Outputting bling for details.

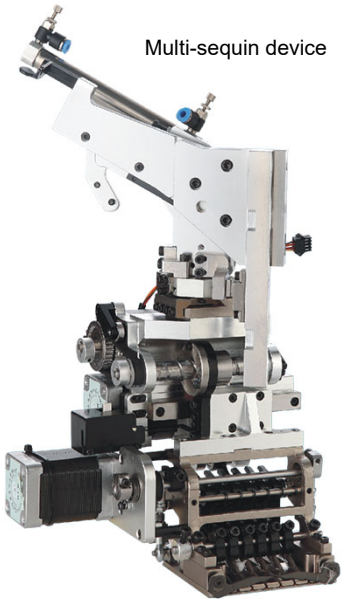
Related topics...

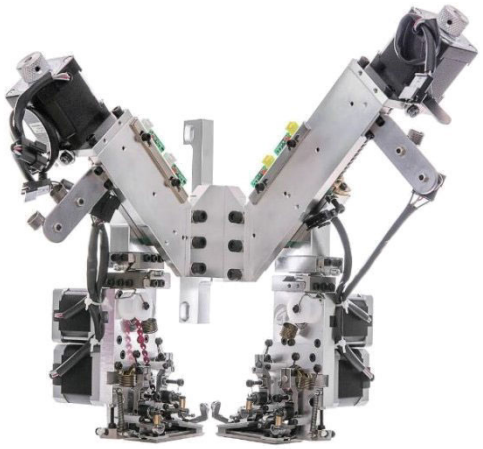
- Bling Digitizing
- Send bling to CAMS machine

Sequins & beads

Sequin machine capabilities vary widely. Some machines only support single-sequin devices. These may be mounted on the first or last needle, or sometimes both. Some machines support twin-sequin devices. These too can be mounted on first and last needles. Newer machines can support multi-sequin devices. These may perform consecutive sequin feeds – one at a time whilst stitching. Some may allow 'stack feeding', where multiple sequins are dropped and secured with a single fixing stitch.

Multi-sequin device





Double twin-sequin device with stack sequin capability

Bead devices are not as varied as sequin devices. There are two categories: bead tape and loose beads. For both types of setup, twin-bead configurations are currently the most popular.



Twin-bead tape device



Twin-beading loose bead device

Bead tapes, like sequin reels, provide controlled placement of beads on fabric. With loose beads, containers hold them on top of the dispenser. This method is not quite as reliable as beads on tape.

Note: An increasing number of machines support multiple decoration types including sequins in combination with chenille, beading, cording, and others.

Related topics...

- Setting up for sequin digitizing
- Machine beading

Printing designs in CorelDRAW Graphics

To send a multi-decoration design to production, you generally print the digital art design before stitching the embroidery. To do this, you first need to hide the embroidery because you don’t want it printing on the digital art printer.

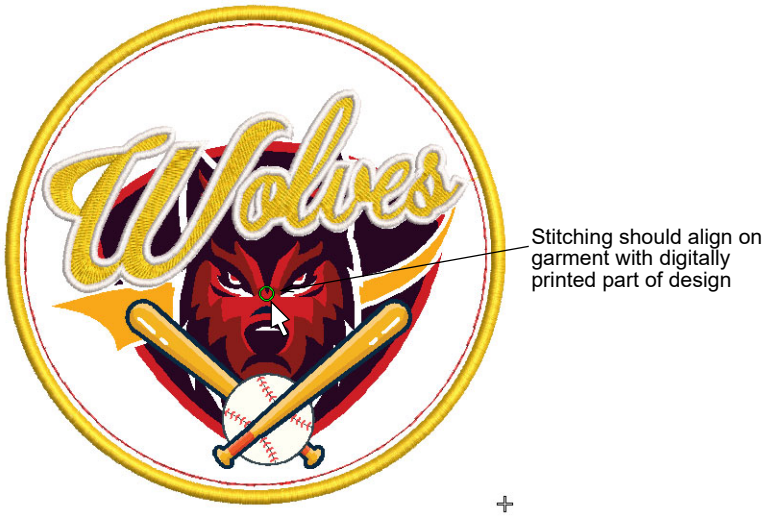
Note: BE EmbroideryStudio includes as standard the entire suite of CorelDRAW® Graphics Suite drawing tools which offer many techniques for drafting outlines and shapes on screen. Refer to the electronic User

Guide available via the MS Windows® **Start > Programs** group. Alternatively, use online help available from the **Help** menu.

To print a design in CorelDRAW Graphics...

1. Switch to **CorelDRAW Graphics**.
2. Toggle off **Show Embroidery** to hide any embroidery objects.
3. Click the **Print** icon on the **Standard** toolbar. The **Print** dialog opens.
4. Adjust print settings as required and click **Print Preview** button to preview. Otherwise click **Print** button to print.

   The design is printed with or without embroidery objects showing depending on whether the **Show Embroidery** button is toggled on or off.
5. To sew embroidery over top of the printed design, switch to **Wilcom Workspace** and toggle off **Show Graphics**.



Tip: Make sure you align the needle with a manually digitized start and end point to ensure that stitching aligns with the digitally printed part of the design.

Related topics...

- Operating modes
- Viewing design components
- Start & end points
- Hoop placement
- Send designs to Stitch Manager

Exporting embroidery as vectors

Once digitized in BE EmbroideryStudio, embroidery designs can be output as vectors. These can be opened in **CorelDRAW Graphics**. This can serve various purposes such as appliqué cutting, multimedia, screen printing, and so on. The **Export Design as Vector** command exports whole designs or selected objects only. Included bitmaps will remain as bitmaps in the resultant file.

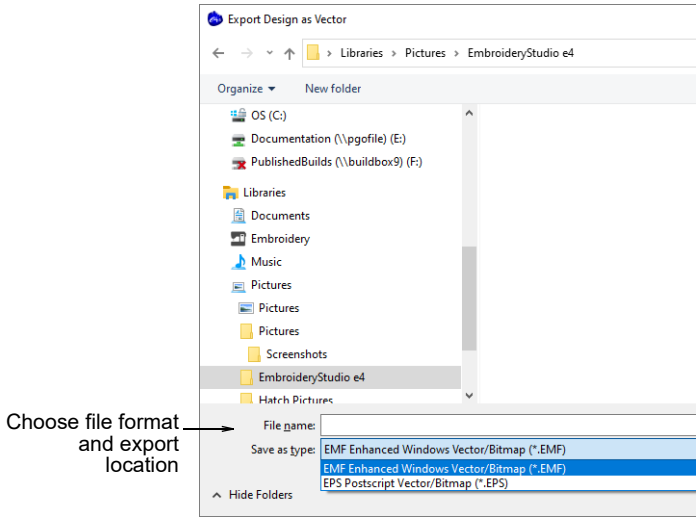
To export embroidery as vectors...

1 Open the embroidery design for export.

2 Optionally, select particular objects for export.



3 Choose **File > Export Design as Vector**.



4 Choose a file format – EPS or EMF – and export location.

5 Once saved, open in **CorelDRAW Graphics** or third-party application for further processing.



Related topics...

- Creating vector shapes in BE EmbroideryStudio
- Loading vector artwork
- Visualizing vector graphics

Exporting multi-decoration files

BE EmbroideryStudio allows all multi-decoration components to be exported as file formats suitable for the particular process or machine. Apart from embroidery, BE EmbroideryStudio supports design output for a number of related and sometimes complementary decoration processes. Namely, bling (rhinestone) designs, printed designs, as well as appliqué designs.



Export design components

Use Standard > Export Multi-Decoration Files to export all design components requiring different production processes.

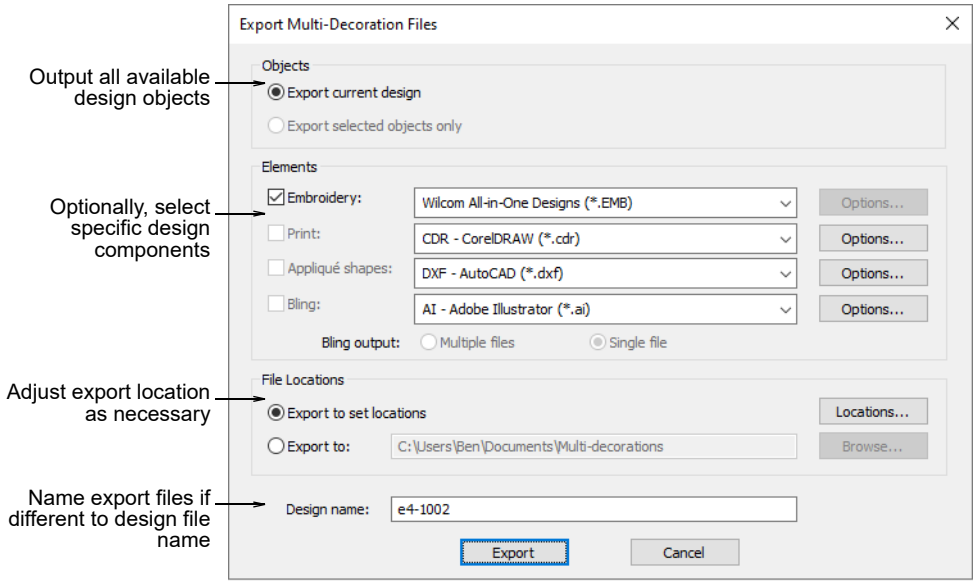
The **Export Multi-Decoration Files** capability allows you to output files for multi-decoration designs. The system recognizes whether a component is embroidery, graphic, appliqué, or bling. This, in turn, helps to increase the profitability of 'quantity 1' articles. It can provide:

- Direct input to supported machines, as this is the most efficient method, or
- A file format which can be used directly by the machine's supporting software.

Note: If the printer, appliqué, or bling machine is directly supported, this procedure is not required. For example, cutting appliqués or outputting bling templates have their own procedures.

To export design components...

1. Open the multi-decoration design you want to output.
2. Click the **Export Multi-Decoration Files** icon.



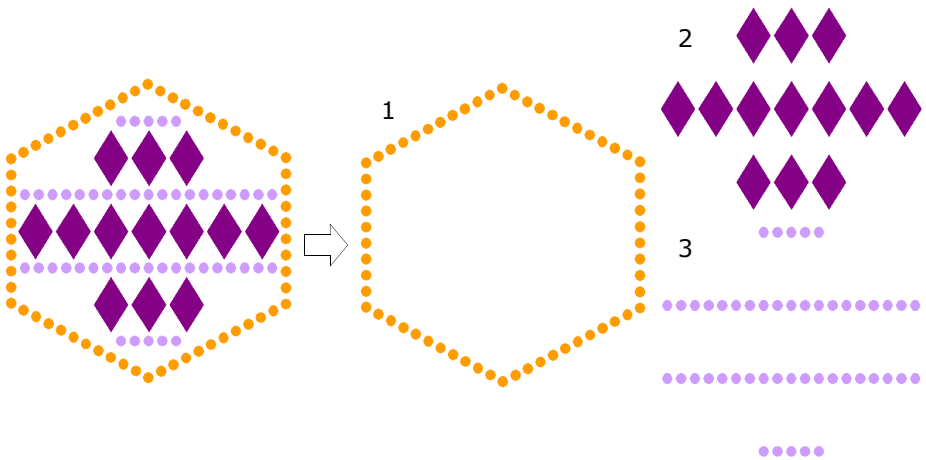
3 Select **Export Current Design** if you want to output all design objects.

This is the default option and, unless you have pre-selected certain objects for inclusion, the **only** option.

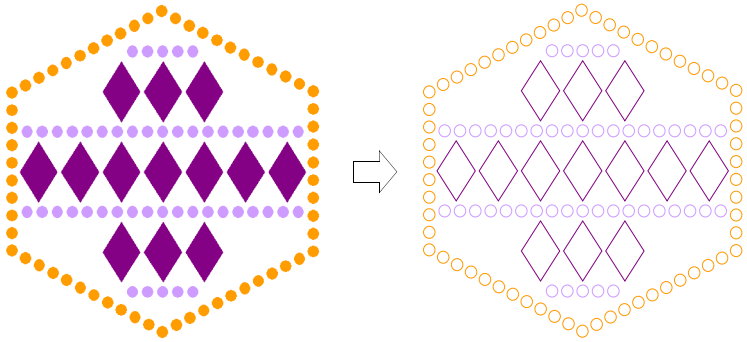
4 Optionally, select the multi-decoration components you want to export by ticking the relevant checkbox in the **Elements** pane.

5 If you have selected **Bling** as one of your export components, optionally select **Multiple Files** or **Single File**.

When **Multiple Files** is selected, different bling types – i.e. by size, color, and/or shape – will be output to separate files. Multiple file output is important for the manual flood-fill method of creating rhinestone templates.



Tip: Depending on your cutting machine, you may choose to export cutting outlines only. Preset in the **Bling Palette Editor**. Bling objects exported this way retain color information, and cutting outlines have hairline width.



6 For each component, select required file types from the droplist.

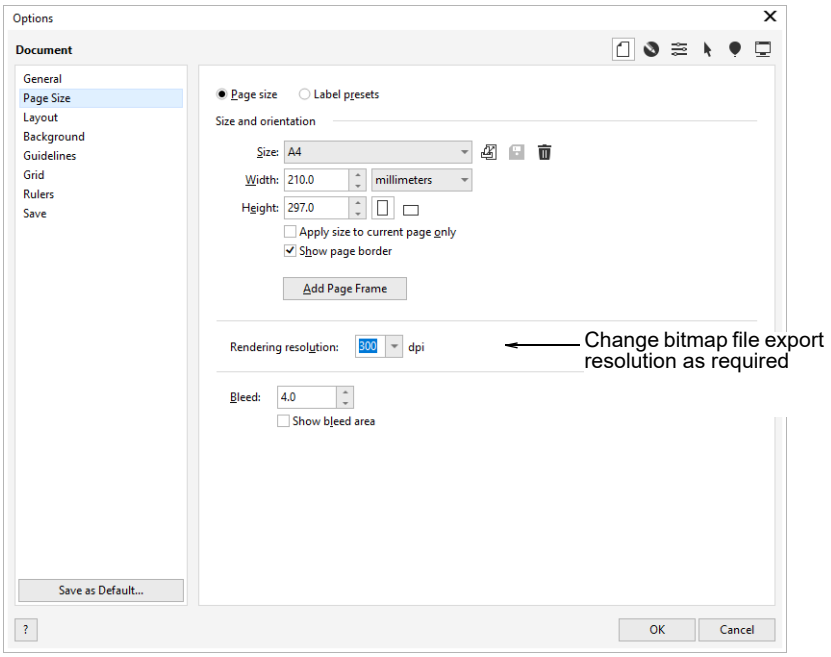
If you select an embroidery format, an associated **Options** button may be enabled. For bling, you can choose AI format for semi-automatic machines. For any other cutting machines, you can save directly to CDR format.

7 Optionally, click the **Options** button if available.

If no options are set, the system uses default options for each file format. If a selected file type is PNG, design components are exported with transparency on. Defaults are as follows:

- Color mode: RGB color (24Bit)
- Transparency: On
- Anti-alias: On
- Maintain aspect ratio: On
- Resolution: 300 DPI

The default DPI setting can be changed via the CorelDRAW **Options** dialog.



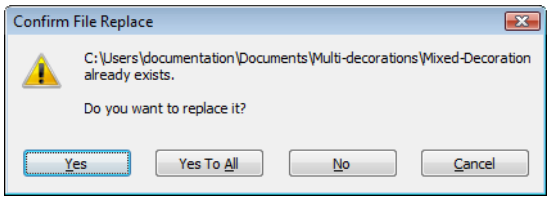
8 Select an export location:

- **Export to set locations** (the default): preset locations for different files. In some production environments, each file is placed in a network location where it can be used by the operator of that process.
- **Export to**: specify a location for all files – e.g. external USB stick. Folders are rarely changed once established, but occasionally they may need to be adjusted or temporarily overridden.

9 Optionally, enter a filename to be used by all selected multi-decoration components. If no filename is entered, the system will use the design filename by default.

10 Click **Export**. The system writes all selected components to their specified location/s.

- If no file types have been selected, the **Locations** dialog will display. You can set default file types at this stage or cancel out.
- If files have the same file extension and location, filenames will be created with a component suffix.
- If a file/s already exists in target folder/s, the system will give you the option to overwrite, skip, or cancel the process.



- If the embroidery file output contains team names, the system will display the team names **Output Option** dialog.

Related topics...

- Exporting multi-decoration files
- Set export locations
- File naming conventions
- Embroidery file formats
- Supported machine types
- Output to bling cutter
- Cut appliqué shapes
- Setting up bling palettes
- Teamname production

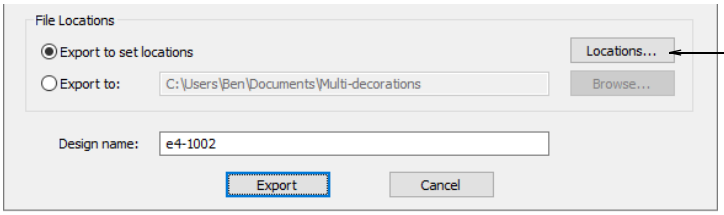
Set export locations

Use Standard > Export Multi-Decoration Files to export all design components requiring different production processes.

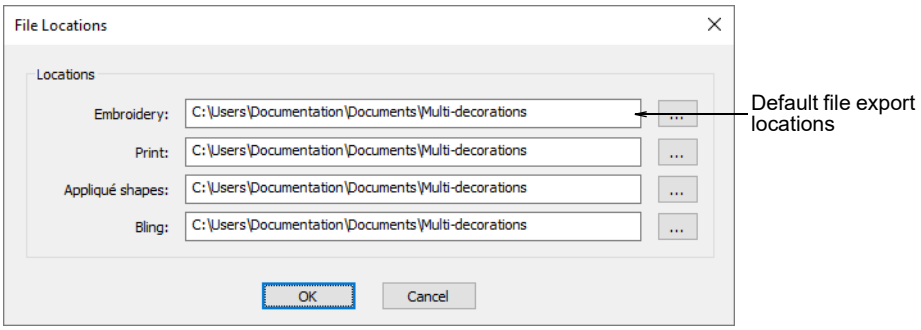
In some production environments, each file is placed in a specific location where it can be used by the operator of that process. For example, the Tajima Machine Network requires all files to be placed in a specific folder so they can be seen directly by the machine. Similarly, file formats used in any given process do not change unless the process changes – for example, if a machine is replaced. Use the following procedure when you want to set export defaults for the **Export Multi-Decoration Files** process.

To set export locations...

1 Run the **Export Multi-Decoration Files** procedure.



2 To set or change the default multi-decoration file export settings, click the **Locations** button.

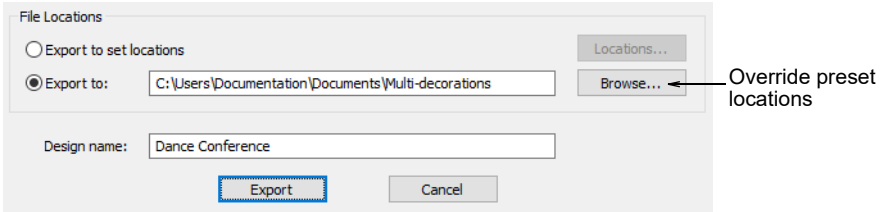


3 Select file locations via the browse (...) button for each design component.

4 Click **OK** to finish.

Once set, your settings are remembered for each successive session.

Tip: Preset locations can be overridden for one-off exports – e.g. to USB stick – by means of the **Export to** option.



Related topics...

- Export design components

Export selected objects

Use Standard > Export Multi-Decoration Files to export all design components requiring different production processes.

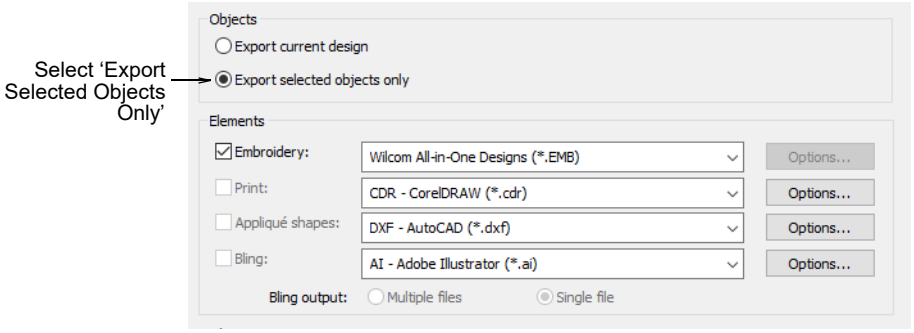
On occasion, you may want to export only selected objects from your multi-decoration design. The **Export Multi-Decoration Files** capability allows you to pre-select objects in the design window.

To export selected objects...

1. Open or create a multi-decoration design.
2. Select the individual objects you want to export. In the example below, we will export the word 'Cheerleading' only.



3. Click the **Export Multi-Decoration Files** icon.



4. Select the **Export Selected Objects Only** option. This checkbox will appear only if you have selected objects in the design window.
5. Make location adjustments as necessary and click **Export**. Only selected objects are exported to file.

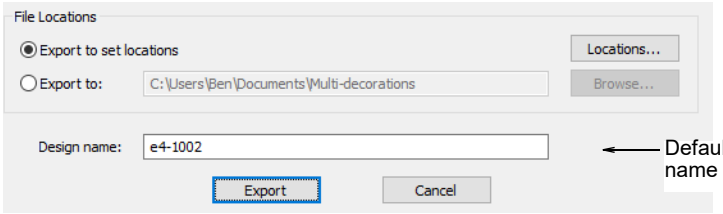


Related topics...

- Export design components

File naming conventions

By default, the **Design name** field will take the current design name – e.g. 'Design1'. You can change it if you wish. This name is applied to all files exported with the **Export Multi-Decoration Files** dialog.



If exported files for any components have the same selected file extension and location, the file name will be automatically suffixed as follows:

Design element	Suffix
Embroidery	_EMB
Graphics	_GFX
Appliqué	_APQ
Bling	_BLG (for a single file)

Example

The single multi-decoration file – 'Design1.EMB' – contains embroidery, graphic, appliqué, and bling components. Depending on chosen file types, you will see file names of the following kind:

Design element	File type	File name
Embroidery	Wilcom EMB	Design1_EMB.EMB
Graphic	CorelDRAW	Design1_GFX.CDR
Appliqué	AutoCAD	Design1_APQ.DXF
Bling	Adobe Illustrator	Design1_BLG.AI

Bling multi-file output

When bling objects in a design contain rhinestones of different size, shape, and/or color, and the **Multiple Files** output option is selected in the **Settings** dialog, files will take a suffix of the following form:

- <filename>_SSx_<color>
- <filename>_SSx_<color>_<shape_name>
- <filename>_<color>_<shape_name>_<XxY>

For example, consider a design with the following bling types:

Bling type	Output filename
Navette 8 x 4mm with color Emerald	Design1_Emerald_Navette_8x4.PLT
Flower SS16 with color Crystal	Design1_SS16_Crystal_Flower.PLT
SS04 with color Aquamarine	Design1_SS04_Aquamarine.PLT



Tip: The print preview shows which rhinestones are in which file.

Related topics...

- Embroidery file formats
- Output to bling cutter

Appliqué production

Print a copy of appliqué patterns to use in cutting out fabric pieces. Alternatively, use **Send to Appliqué Cutter** to send appliqué shapes from a design file to a laser cutter.



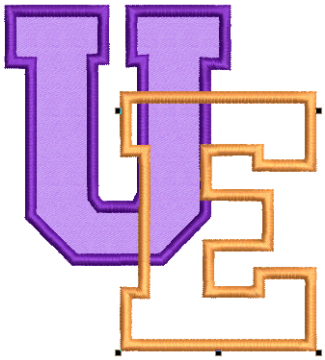
Tip: CorelDRAW Graphics also lets you output objects as a vector file. This can then be downloaded to a laser cutter using CorelDRAW® Graphics Suite. For a full description of the CorelDRAW® Graphics Suite tools, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the onscreen help available from the **Help** menu.

Print appliqué patterns

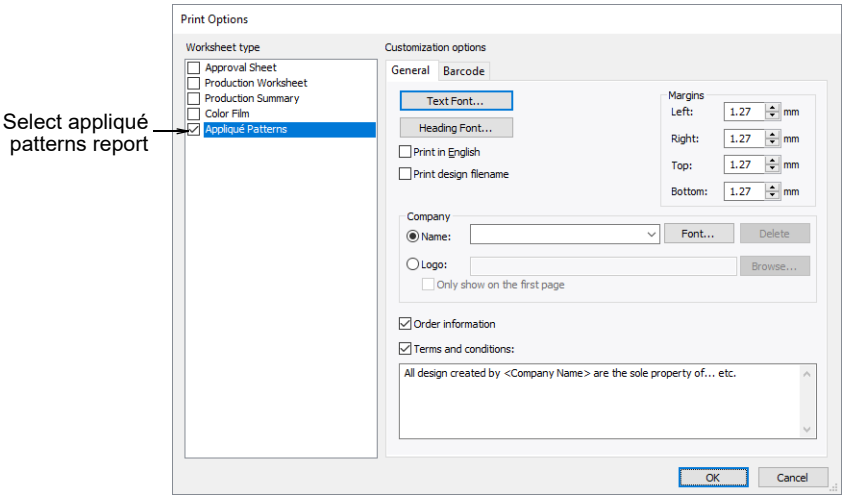
Print appliqué patterns for use in cutting out fabric pieces. Each piece is numbered according to stitching sequence. One copy of placement outlines is printed at 100% scaling, with each outline separated for use in cutting the fabric.

To print an appliqué pattern...

1 Create or open an appliqué design.

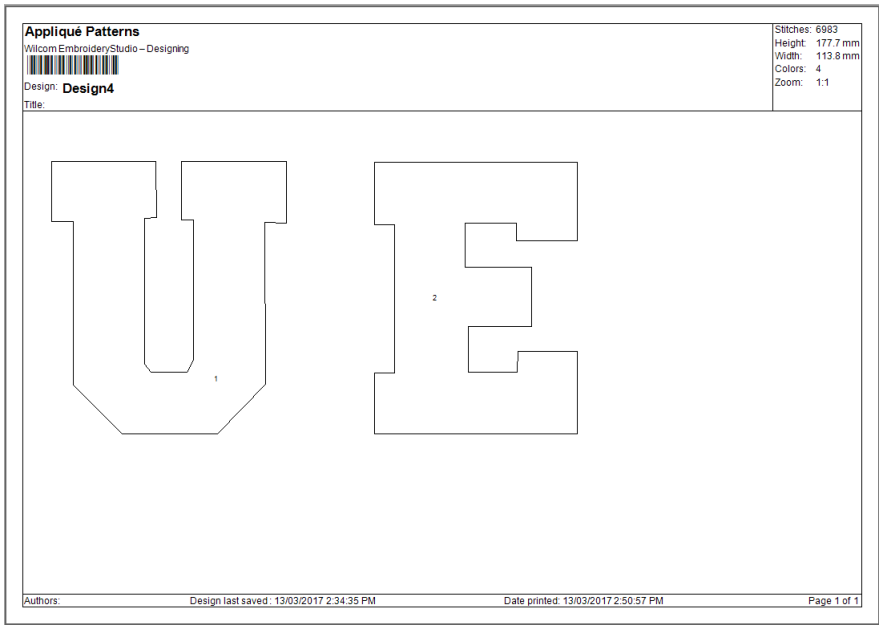


2 Select **File > Print Preview** and click the **Options** icon.



3 Select **Appliqué Patterns** report type.

4 Set **General** options and click **OK**. Each appliqué pattern is numbered according to the stitching sequence. Stitch count and colors are displayed.



5 Click **Print Now** to output appliqué shapes to printer.

Related topics...

- Customizing design reports

Cut appliqué shapes

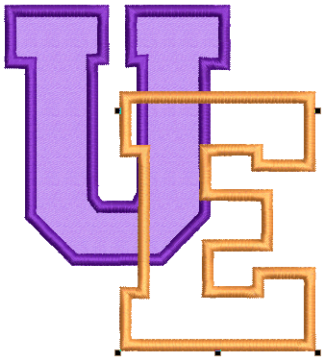
Use Standard > Send to Appliqué Cutter to send appliqué shapes from design file to laser cutter.

BE EmbroideryStudio can extract outlines from a design and send them to a laser cutter. This procedure is employed when the cutter is supported directly by a MS Windows® driver. Only shapes defining the actual appliqué fabric are sent.

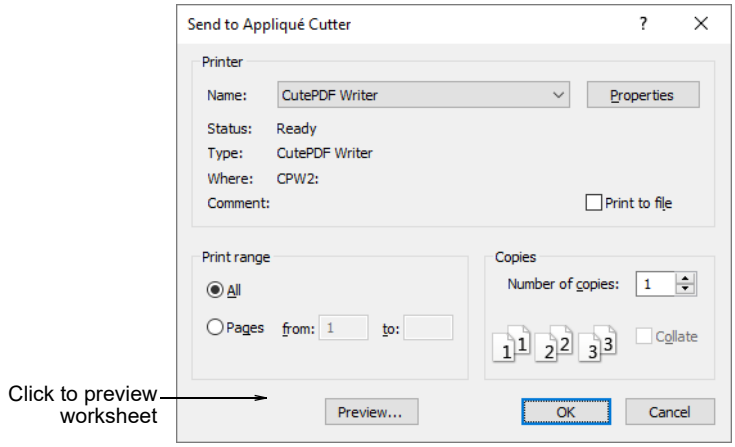
Note: Before you send appliqué shapes to a cutter, make sure it is set up on your system with the correct MS Windows® (printer) driver. Some cutters – e.g. Ioline – use a standard driver for HP-7475 plotters. Once the driver is installed in MS Windows®, there is no need for a separate hardware setup in BE EmbroideryStudio.

To output appliqué shapes...

1 Create or open an appliqué design.

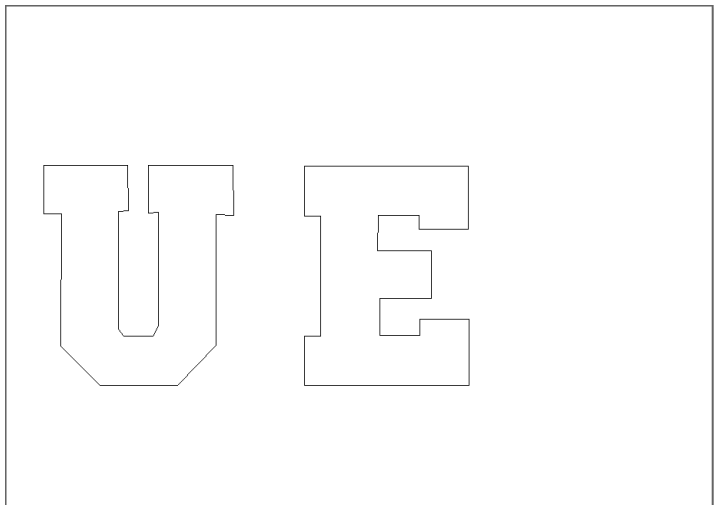


2 Click **Send to Appliqué Cutter** or select **File > Send to Appliqué Cutter**.



3 From the **Name** list, select the appliqué cutter. For more information, refer to the User Manual of the particular cutter you are using.

4 Click **Preview** to preview the pattern. The **Print Preview** dialog opens showing every appliqué shape in the order of the stitching sequence.



5 Click **Print Now** to output appliqué shapes to cutter.

Bling production

BE EmbroideryStudio supports a number of methods for exporting bling for production. Options include:

Output method	Details
CAMS machine	If you have a CAMS automatic rhinestone placement machine, use the dedicated CAMS connection.
Placement file	Alternatively, export your bling design to YNG format to be read by your placement machine.
Bling cutter	Send bling shapes direct to any supported cutting machine.
Vector file	Convert bling shapes to vectors in order to cut bling templates.

Note: The **Export Multi-Decoration Files** capability allows you to output files for multi-decoration designs. The system recognizes whether a component is embroidery, graphic, appliqué, or bling. See also Exporting multi-decoration files.

Caution: Bling designs can be saved to earlier versions of EMB. However, bling objects will convert to vector objects.

Send bling to CAMS machine

Use Bling > Show Bling Work Area to visualize the design within the work area of the selected machine model.

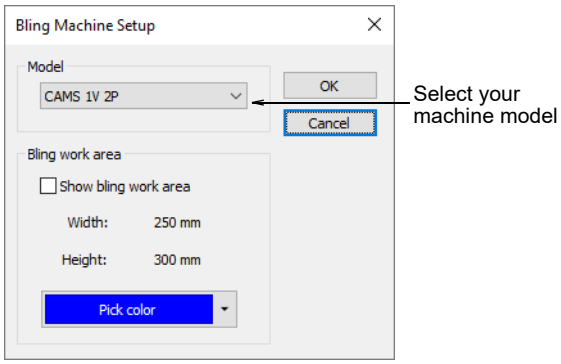
Use Standard > Send to Connection Manager to connect to supported machines via proprietary machine software.

BE EmbroideryStudio supports direct connection to CAMS automatic rhinestone placement machines. A general procedure is outlined below.

Note: Before executing the procedure, it is important that the machine drivers for your CAMS machine be properly installed. They need to be installed and the machine connected before setting up the COM port. Refer to your machine documentation.

To select bling machine...

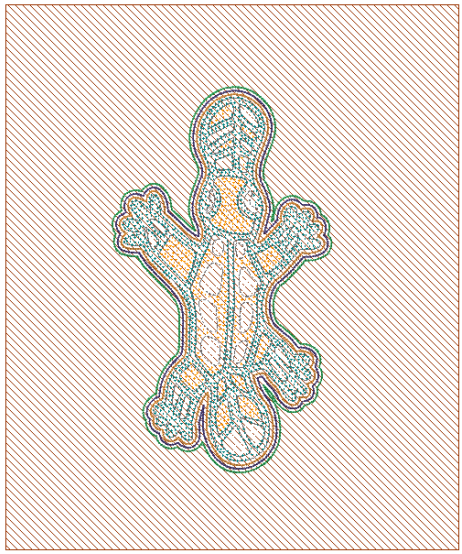
1 Select the machine you want to connect to via the **Setup > Bling Machine Setup** command.



2 In the **Model** panel, select the machine model you are using.

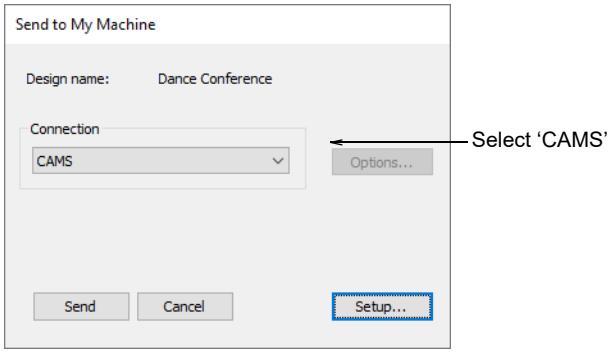
3 Activate the **Bling Work Area** to visualize the design within the work area of the selected machine model.

4 Set the color of the work area as desired.



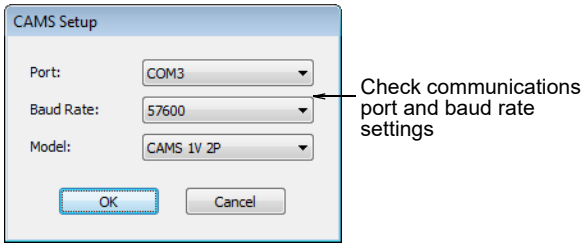
To send to Connection Manager...

1 From the **Standard** toolbar, click the **Send to Connection Manager** button.



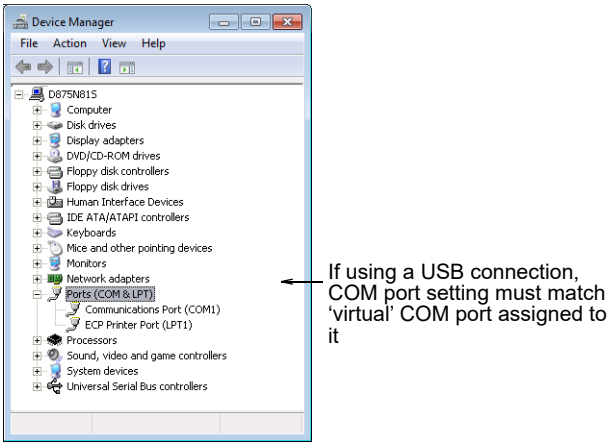
2 From the **Connection Manager** droplist, select 'CAMS'.

3 Click the **Setup** button. The **CAMS Setup** dialog opens.



4 Check the communications port and baud rate settings.

If you are using an 'old school' serial connection, the COM port in the software should match the port to which the cable is connected. If you are using a USB connection, the COM port in BE EmbroideryStudio must match the 'virtual' COM port assigned to it. You can find this in **Windows Control Panel > Device Manager**.

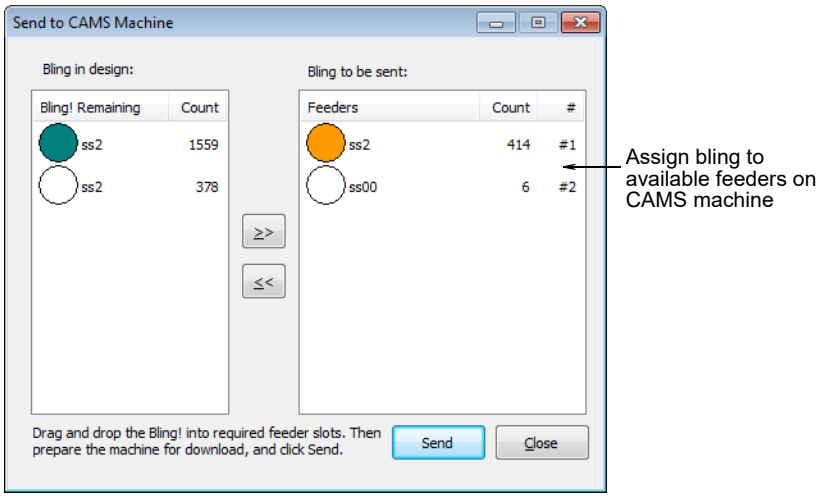


If you are using a USB connection and the COM port is not available for selection in BE EmbroideryStudio, you need to verify that your hardware drivers have been correctly installed and are up-to-date. Check your machine documentation for details.

The baud rate in BE EmbroideryStudio must match the baud rate at which the machine was configured to read the data. This is normally 57600 (the system default). However, you can confirm the value when you prepare the machine to receive data. The baud rate will be displayed on the machine console.

The model will default to the machine selected via the **Setup > Bling Machine Setup** function. You can change it here if required.

5 Click **OK**. The **Send to CAMS Machine** dialog opens.



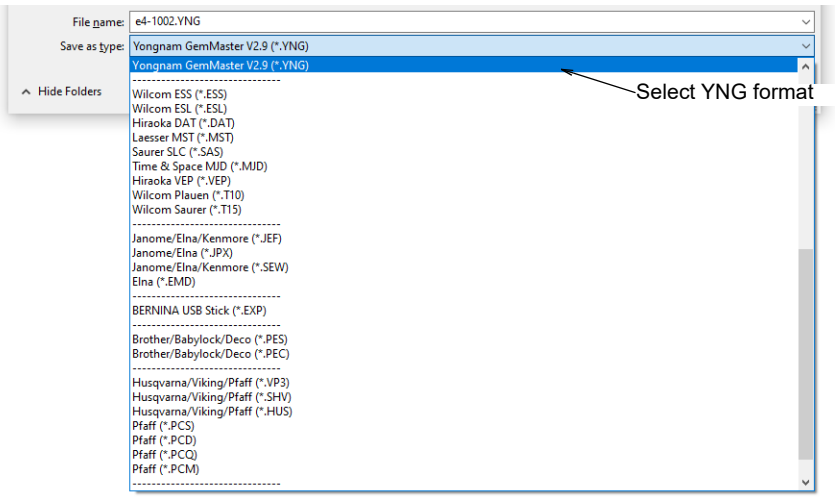
6 Use this dialog to assign bling in the design to the available feeders on the CAMS machine.

7 Prepare the machine to receive data and click the **Send** button.

Caution: If you try to send something before the machine is 'Ready', it may fail to read the next design.

To export to bling placement file...

- If your placement machine is not directly connected to the PC, use the **Export Machine File** option to output to Yongnam YNG format. This can loaded onto the machine via memory stick.

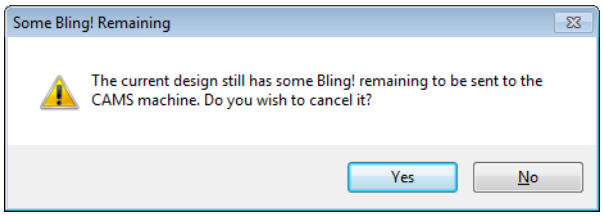


Suggested workflow

The precise workflow you follow will depend on the number of feeders available on the selected machine. For example, if you have a machine with two feeders which is currently set up to feed SS6 on Feeder #1 and SS10 on Feeder #2, and wish to output a design which contains SS6, SS8, SS10, you may do so like this:

- Drag SS6 to Feeder #1.
- Drag SS10 to Feeder #2.
- Prepare the machine for download.
- When the machine is 'Ready' for download, click **Send**.
- When the machine has finished receiving the file, run the machine to place all the SS6 and SS10 stones.
- Once the run is completed on the machine, replace the SS6 feeder on the machine with the SS8 feeder.
- In the software, drag SS8 to Feeder #1 (where you had previously dragged the SS6).
- Prepare the machine for download again.
- When the machine is again 'Ready', click **Send**.
- When the machine has finished receiving the file, run it in order to add the SS8 stones to the design already containing the stones from the previous run.

Depending on the number of bling types used in the design and number of available feeders, you may need to send bling more than once. You will be prompted if you exit before all bling has been sent to machine.



Related topics...

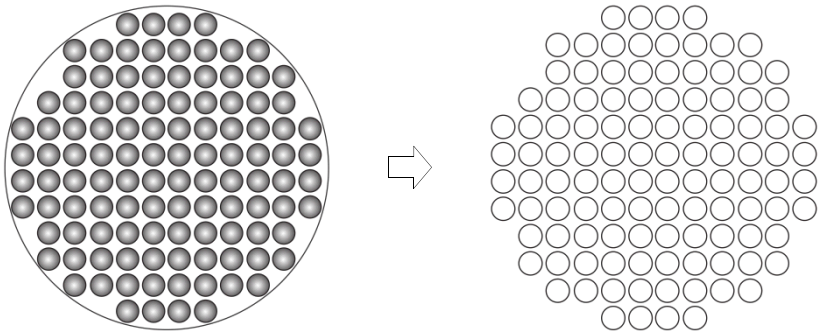
- Send designs to Connection Manager

Output to bling cutter



Use Standard > Send to Bling Cutter to send vectors for any bling in a multi-decoration design to a supported cutting machine.

The **Send to Bling Cutter** function sends vectors for any bling in a multi-decoration design directly to a cutting machine. Use it with any bling template cutter supported by MS Windows®.

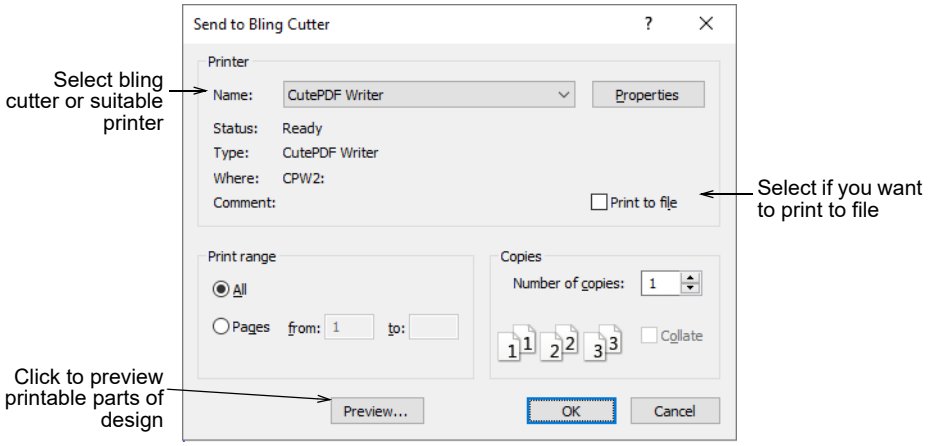


To output to a bling cutter...

1 Open or create a multi-decoration design. A cutting or engraving machine must be connected to the PC and configured to receive data.



2 Click the **Send to Bling Cutter** icon or select **File > Send to Bling Cutter**. The **Send to Bling Cutter** dialog opens.



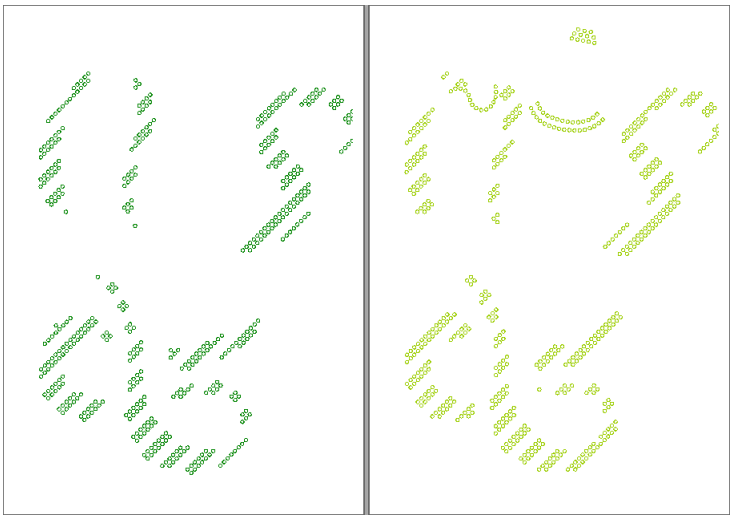
3 Select your bling cutter from the droplist or select a suitable printer.

4 Select the **Print to file** option if you want to print the design to file.

5 Click **Properties** and check your output settings.

6 For a realistic view click the **Preview** button.

Note: In multi-bling designs, each color is separated into different templates for flood-filling.



7 Click **OK** to send the bling templates to bling cutter or to file.

The bling cutting/engraving information is sent to machine in the required format. The machine cuts the desired template/s. The cutting data consists solely of vectors which describe the location, size, and shape of the bling in the template. There are no connecting lines or data that do not relate directly to bling placement.

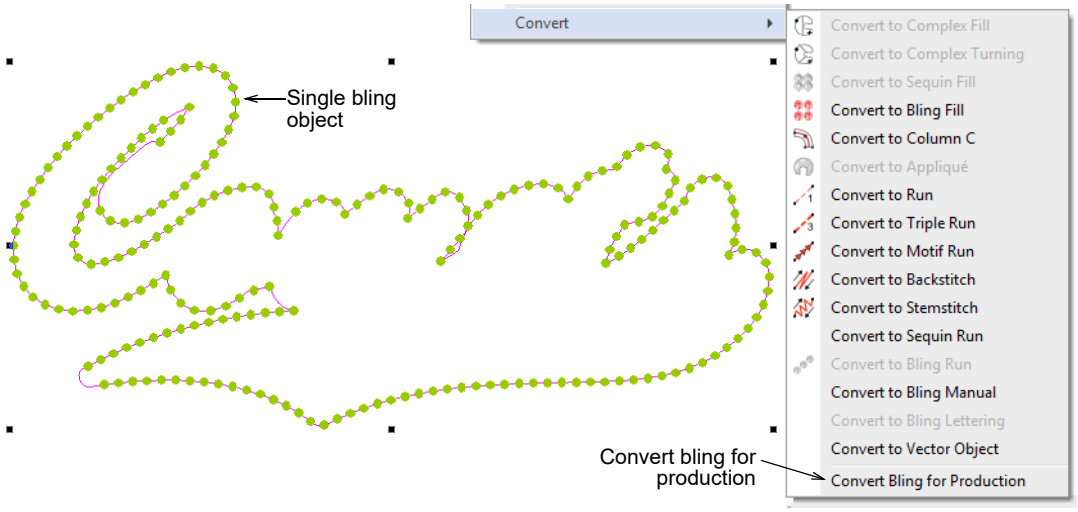
Tip: A bling production summary shows stone colors, sizes, and quantities as well as a summary on the first page.

Related topics...

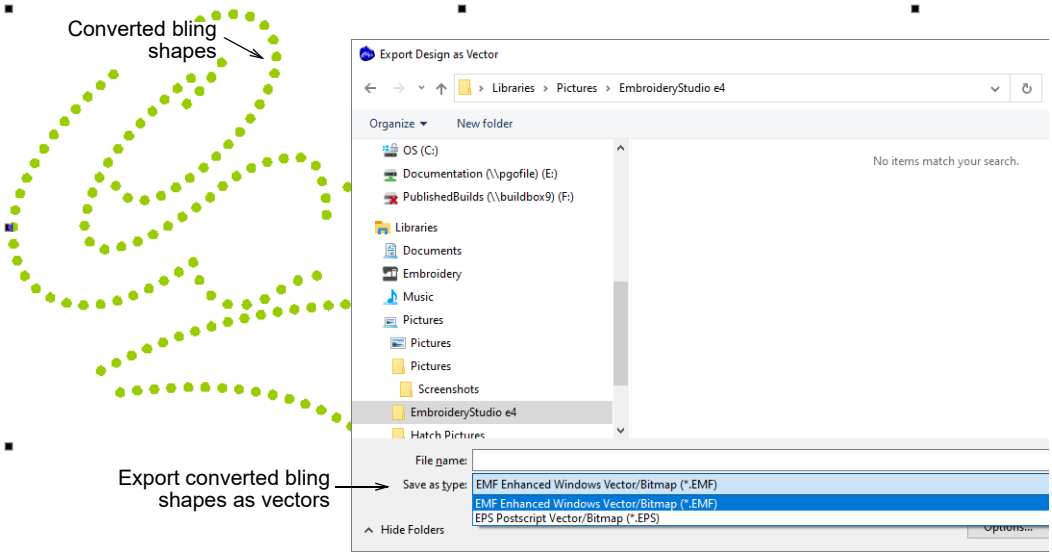
- Set up machines
- Print reports
- Customizing design reports

Convert bling for production

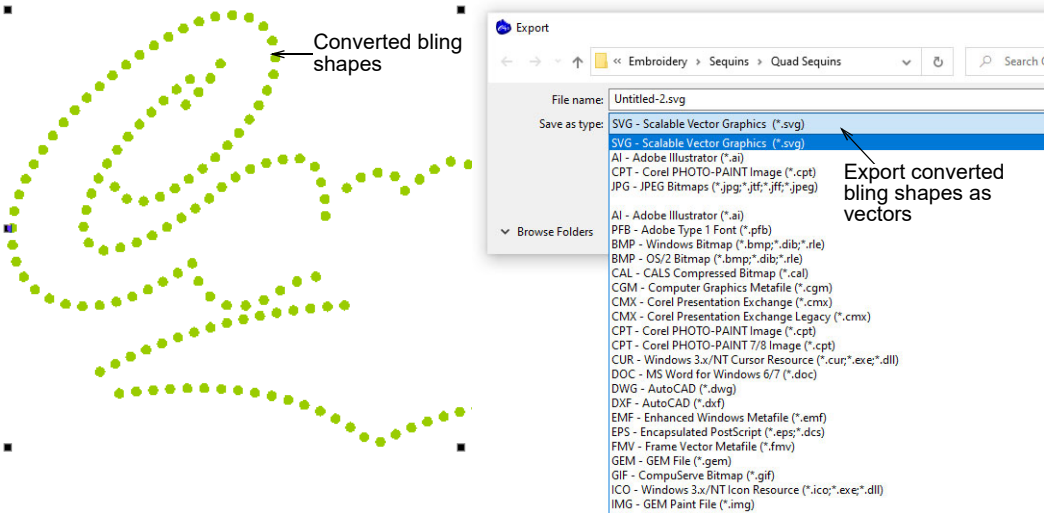
If you have neither CAMS automatic rhinestone placement machine nor a direct-connect cutting machine, you can use the **Convert Bling for Production** command to convert bling objects to vector shapes. These can be then output to vector file for use by third-party applications.



Once converted, individual bling shapes can be exported as a printable file – for example, EMF or EPS – via the **File > Export Design as Vector** command. This in turn can be imported into cutting software as a bling template.



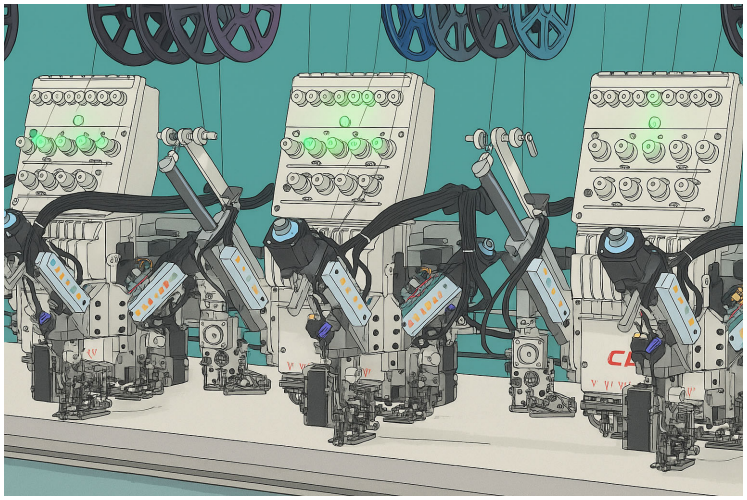
If your software level supports CorelDRAW Graphics, you can export the vector shapes to other formats, including SVG, FCM, DXF, and many others. These too can be used to cut a template sheet for bling design. Switch to CorelDRAW Graphics and use the **File > Export** command.



Note: The **Export Multi-Decoration Files** capability allows you to output files for multi-decoration designs. The system recognizes whether a component is embroidery, graphic, appliqué, or bling. See also Exporting multi-decoration files.

Sequin/bead production

Once your sequin/bead design is ready for production, you can output to machine file. BE EmbroideryStudio currently supports all popular sequin/bead file formats, including Dahao.



BE EmbroideryStudio provides separate **Drop Sequin** and **Drop Bead** functions which are saved with the native EMB design file. However, when

exporting to machine file, 'Drop Sequin' and 'Drop Bead' functions are replaced by Jump codes. Currently, BE EmbroideryStudio supports up to eight (8) sequins and/or eight (8) beads per design.

Note: Currently, BE EmbroideryStudio supports multiple sequins and multiple beads in the one design but no sequin/bead mix within a single object.

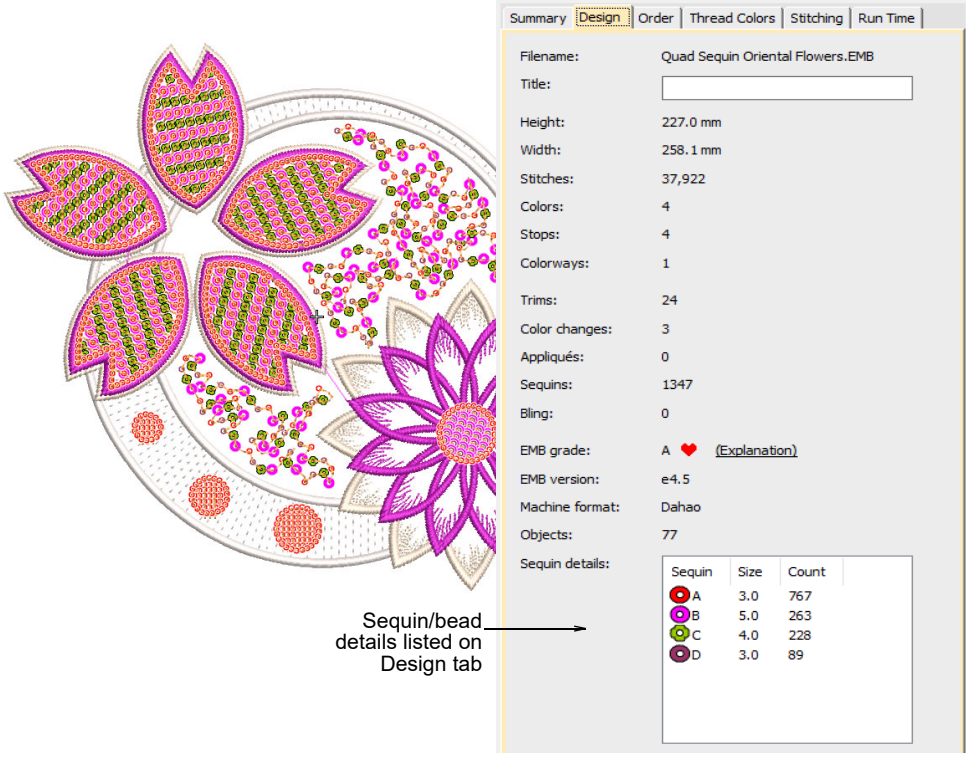
Output production files

Use Docker > Design Information to view and modify design details prior to design approval or stitchout.

Click Standard > Print Preview to preview the production worksheet on screen.

Use Standard > Export Machine File to export the current design to a machine file for stitching.

Once your design is ready for production, check all design details via the **Design Information** docker. The **Design** tab provides a summary of all sequins/beads used in the design.



Compatible machine files

When you come to output your design to machine file, make sure you are using the correct file format. BE EmbroideryStudio currently supports the following...

File format	Associated machine format	Sequins	Beads
DST	SWF	•	
DST	Tajima	•	
DST (Dahao)	Dahao	•	•
EBD	SWF Twin Sequin	•	•
ESS	Schiffli	•	
TBF	Tajima TBF	•	•
U??	Barudan FDR-3	•	
U??	Barudan FDR-3 Chenille Combination	•	
U??	Barudan FDR-II Twin Sequin	•	
U??	Barudan FDR-II Twin Sequin Chenille Combination	•	
ZSK	ZSK	•	



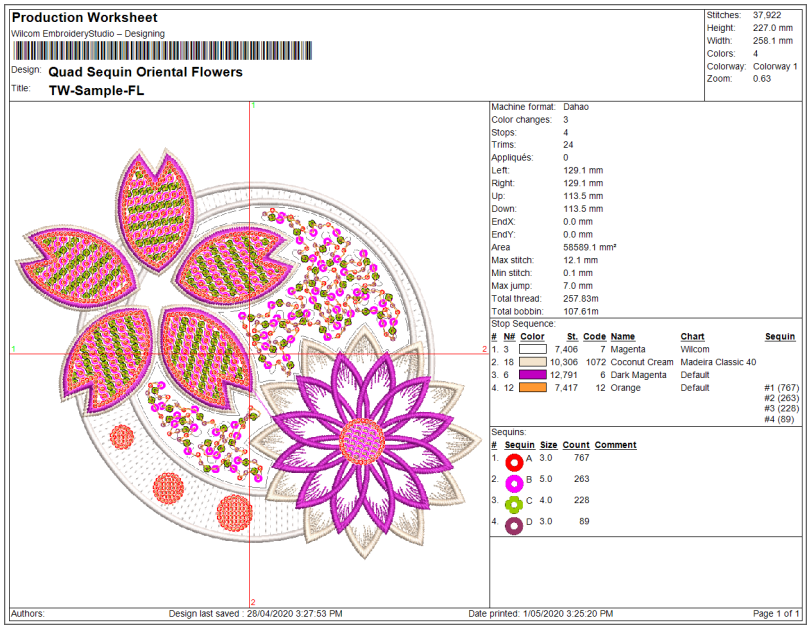
Note: When you select Dahao multi-sequin DST as your output file format, **Drop Sequin** and **Drop Bead** functions are inserted according to Dahao requirements. Dahao control panels include a protocol to interpret this encoding. Tajima machines, on the other hand, strictly follow the DST file specification.

Related topics...

- Select bead-capable machines
- Opening machine files
- Exporting designs for machine

Production worksheets

Create a hard copy of your production worksheet to provide thread and sequin/bead information for the machine operator.



Related topics...

- Printing design reports
- Exporting designs for machine

Resequence sequin palette

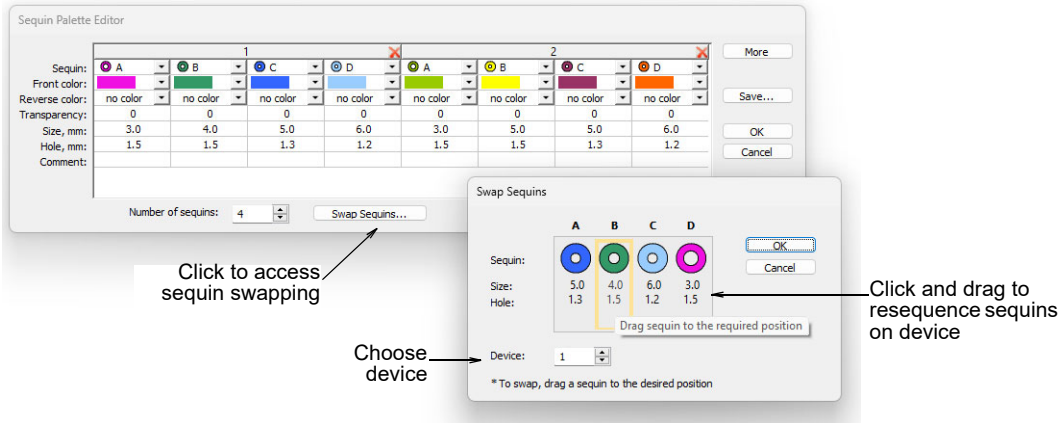
Generally, sequins are fitted on the machine first and the sequin palette configured accordingly. Sometimes the design may be stitched on another machine with a different configuration. Occasionally you may need to re-sequence the sequin palette in order to avoid reconfiguring feeders on the machine. Let's say the **Sequin Palette** has the following configuration...



On the target machine, however, the configuration is as follows...



Rather than reconfiguring the machine, it's much simpler to reconfigure the palette. The **Sequin Palette Editor** dialog includes a **Swap Sequins** button which makes this possible.



To swap sequin slots, simply drag-and-drop sequins to correspond to the sequin feeder setup on the machine. The result of swapping is immediately visible in the **Sequin Palette Editor**. Click **OK** to apply the changes. The existing design is not affected by these changes.

Related topics...

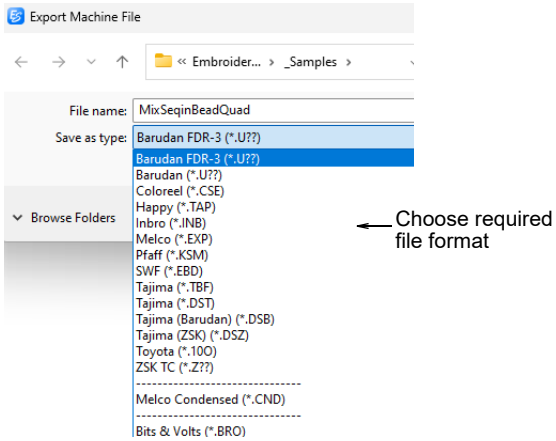
- Setting up for sequin digitizing

Assign sequin/bead device slots

BE EmbroideryStudio provides separate **Drop Sequin** and **Drop Bead** functions which are saved with the native EMB design file. However, when exporting to machine file, 'Drop Sequin' and 'Drop Bead' functions are replaced by Jump codes. Currently, BE EmbroideryStudio supports up to eight (8) sequins and/or eight (8) beads per design. If the current palette does not correspond to the current device configuration, sequins and beads can be assigned to their respective slots on export. Some machines support up to sixteen (16) 'slots' per device. Any of these can be used and assigned to 8 sequins and/or beads.

To assign device slots on export...

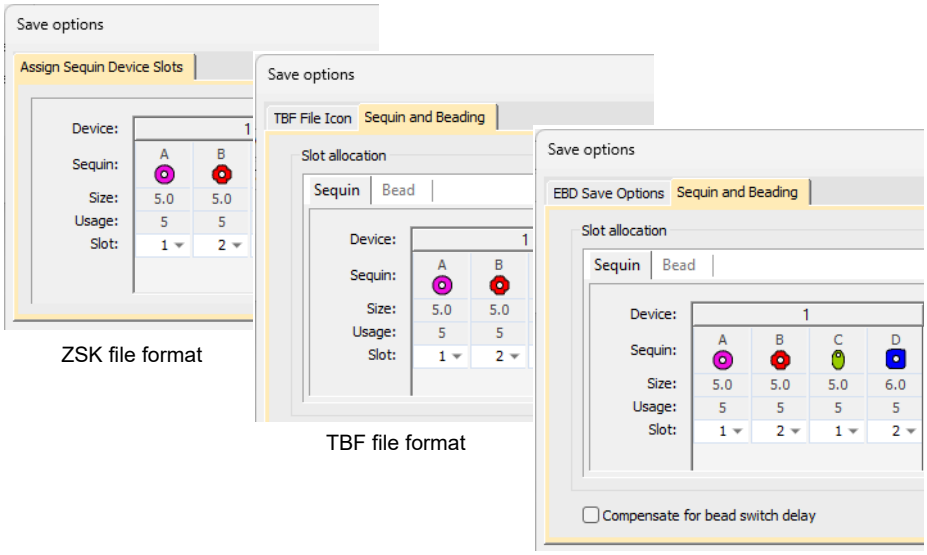
1. Open the sequin/bead design you intend to export.
2. Select **File > Export Machine File**. The **Export Machine File** dialog opens.



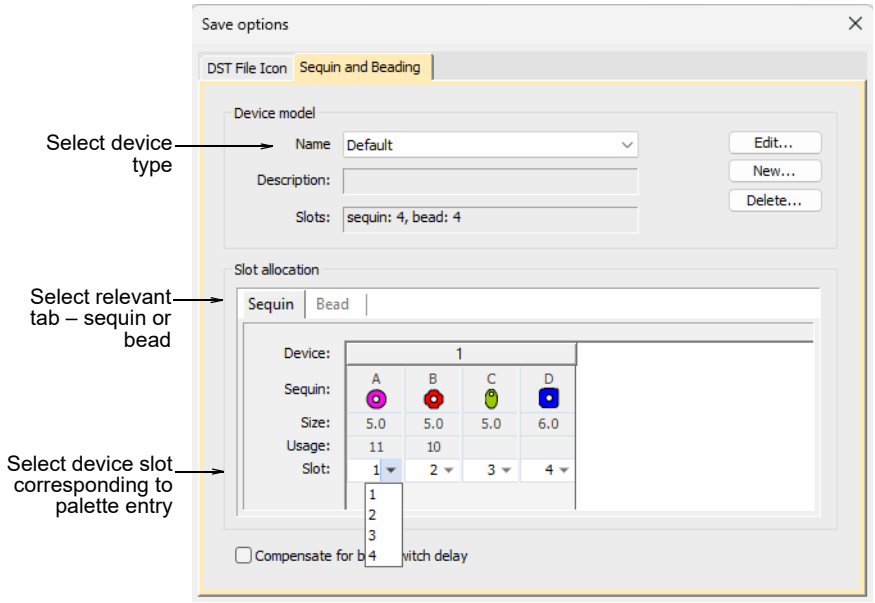
3 Choose the required format from the **Save as type** droplist.

4 Click **Options**. The **Save Options** dialog opens.

Depending on whether your file format supports sequins or beads, you will see a tab of the following kind...



If your design uses Dahao machine format, the DST machine file uses a modified protocol for non-standard use of Jump codes. You will see the tab shown below. The aim is always to assign sequins and/or beads to their respective slots on the device.

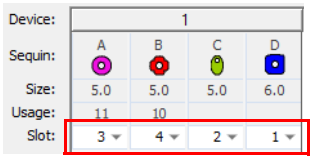


5 If using Dahao DST, select the device model you intend to use from the **Name** droplist – e.g. 'sequin: 4, bead: 4'.

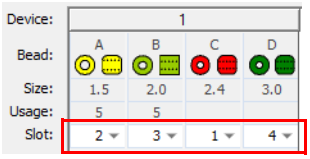
Different controllers use specific code combinations to address slots on the device. Some predefined factory mappings are provided. You can adapt these for use with your device. See Specify mapping rules for Dahao DST for details.

6 Select the required tab – **Sequin** or **Bead**.

From the **Slot** droplist in each column, select the corresponding device slot. In the case of our 4-sequin 4-bead design, we may end up with a mapping like this...



Sequins assigned to device slots

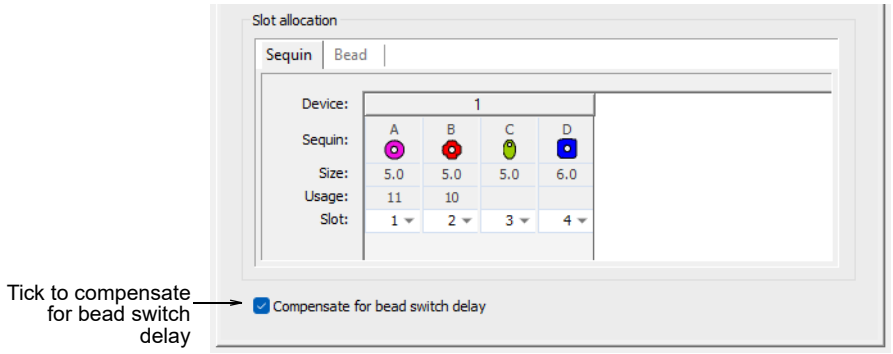


Beads assigned to device slots

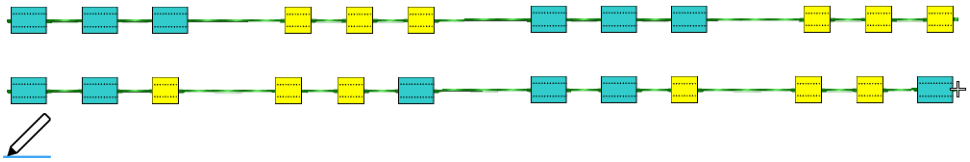
Note: This mapping is not indicated on the production worksheet since it only affects the machine file, not the design file.

Compensate for bead switch delay

Some machine configurations are one step late when switching beads. When controllers encounter a command to drop Bead X, the machine will drop whatever bead is in the picker and only then make the switch.



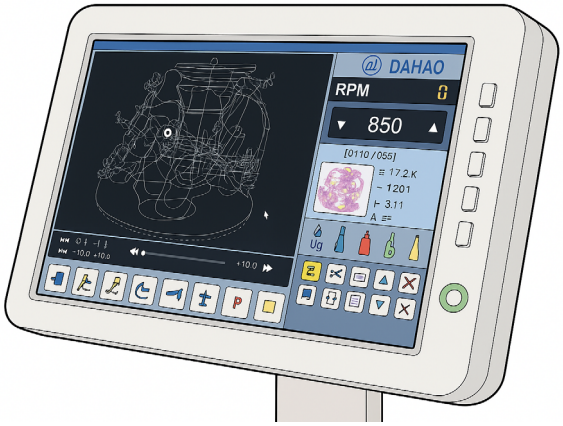
You can compensate for this behavior by employing a preemptive bead swap. This will shift bead changes by one step. By ticking **Compensate for bead switch delay**, the first line becomes re-encoded as shown...



Note: Installation engineers can advise if you need to compensate for 'bead shift'.

Specify mapping rules for Dahao DST

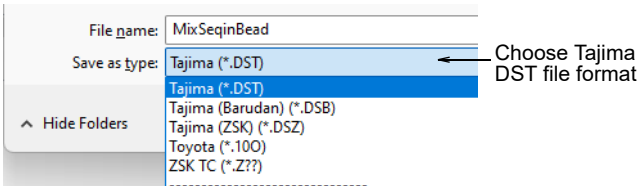
If your design uses Dahao machine format, the DST machine file uses a modified protocol for non-standard use of Jump codes. This format is also used by compatible controllers. Controllers use their own code combinations to address slots on the device. The mapping rules may be specified by the device manufacturer. Alternatively, it may involve an amount of trial and error with test samples. For flexibility and scalability, BE EmbroideryStudio supports all types of mapping. Some predefined factory mappings are provided. You can adapt these for use with your own device. This is a 'set and forget' operation.



To specify mapping rules...

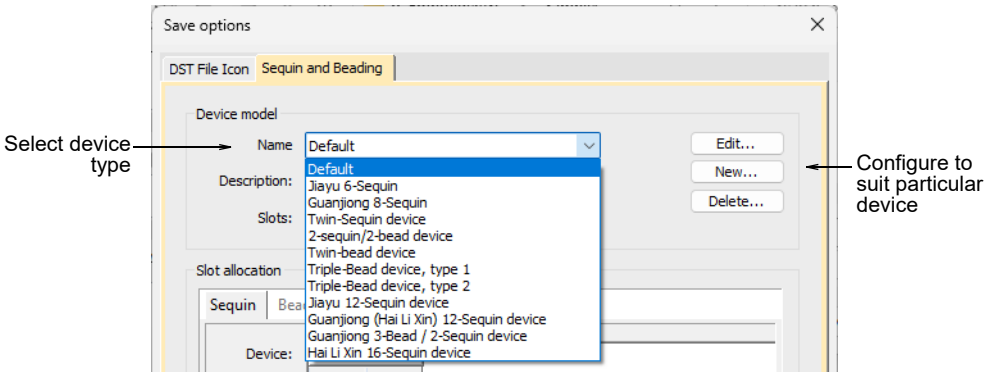
1 Open the Dahao-format design you intend to export.

2 Select **File > Export Machine File**. The **Export Machine File** dialog opens.



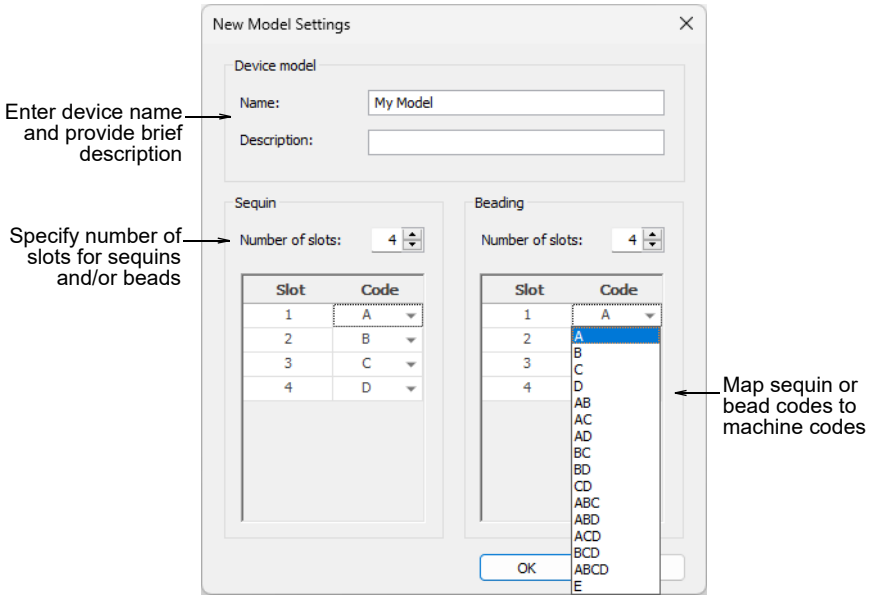
3 Choose **Tajima DST** from the **Save as type** droplist.

4 Click **Options**. The **Save Options** dialog opens. Select the **Sequin and Beading** tab.



5 From the **Name** list, select the model which most closely matches the device on the target machine. Here we use the default 'sequin: 4, bead: 4'.

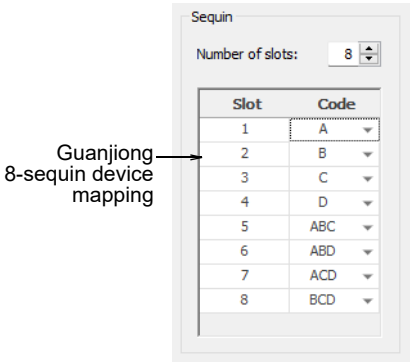
6 Click **New** to create a new device model based on the selected.



7 Give the device a name and brief description as necessary.

8 Specify the number of slots dedicated to sequins and/or beads.

9 Now map each slot to the required code – e.g. A, B, C, D, or combinations of these. For example, the Guanjiong 8-sequin device currently uses these mapping rules...

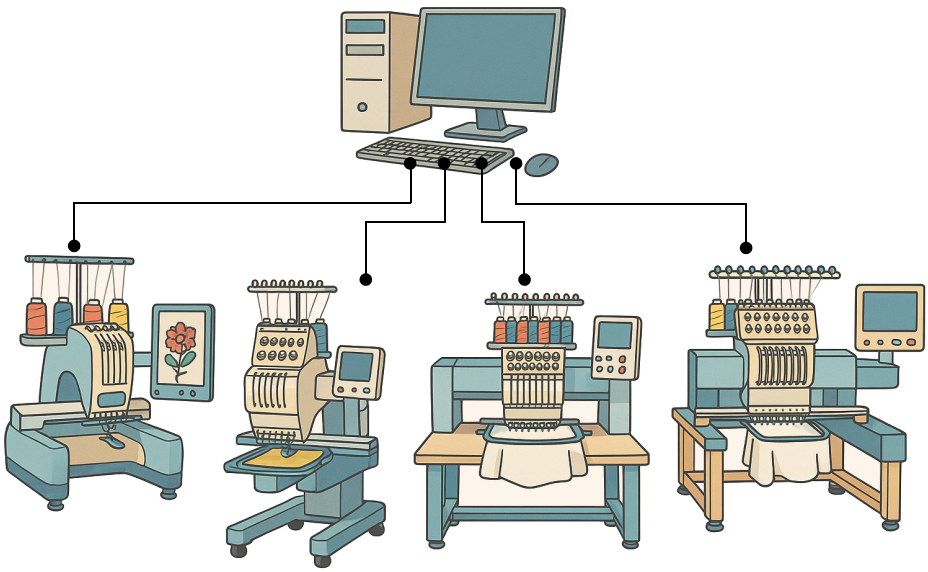


10 Click **OK** to confirm. This information is saved with the named device model and will be applied whenever you map a DST file using this model.

Chapter 40

Machine Manager Utility

Machine Manager is a tool for controlling the workflow of multiple embroidery machines. Its main tasks are to download designs to machines, manage queues, monitor machine and job status, and collect productivity and maintenance statistics. It is ideally suited for use in larger embroidery factories where production managers and supervisors must know exactly what many machines are doing and how jobs are progressing. Machine Manager can be used to send designs to machines both from within BE EmbroideryStudio or DesignWorkflow, and then view and manage job queues.



The section describes the key features of Machine Manager as well as basic operations such as starting and exiting from the application. It also covers sending designs to machine and collecting design statistics.

Machine Manager features

Depending on the options available in your software implementation, Machine Manager allows you to:

- Download multiple designs to many machines

- Manage and view all design queues simultaneously in an embroidery machine network
- Change the design queues by drag-and-drop and cut-and-paste – i.e. move designs around in the queue or move designs to a different machine. Designs can even be moved between different brands and models of machine
- Delete one or more selected designs, or the entire design queue, using Delete or Cut, or Delete Queue
- Drag-and-drop or cut-and-paste one or many designs from File Explorer directly onto a Machine Manager queue
- Recall designs that were queued when Machine Manager was last closed.

Serial line feedback

The following features are also available for machines that can send feedback via a serial connection:

- monitoring stitching progress of each design on each machine
- displaying a statistical summary of machine performance for a given period
- exporting machine statistics to other applications for further analysis and reporting
- producing sophisticated production analysis reports from machine feedback (including head, needle and thread break information, and performance for any given period)
- generating ready-made production efficiency reports.

Running Machine Manager

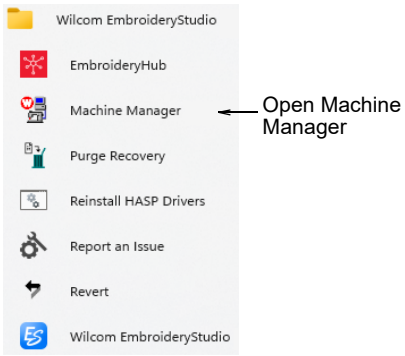


Double-click to start Machine Manager.

Machine Manager can be started and closed using the normal MS Windows® options. You can start it from the MS Windows® desktop or from inside BE EmbroideryStudio.

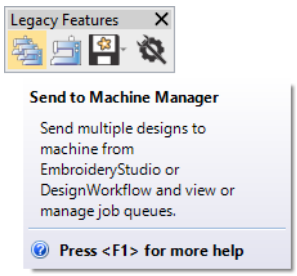
To start Machine Manager...

- If BE EmbroideryStudio is **not** being used...
  - Click **Windows Start > Apps > Wilcom EmbroideryStudio > Machine Manager**.



- Alternatively, double-click the Machine Manager icon on the MS Windows® desktop. If there is no Machine Manager icon on your MS Windows® desktop, add one by dragging it from the program group to the desktop.

- If BE EmbroideryStudio is being used, use the **Legacy Features** toolbar to send to **Machine Manager**.



To exit Machine Manager...

- Select **File > Exit**, or
- Click the **x** button at the top right of the window.

Note: If any designs are queued, you will be asked whether you want save the queue until the next time you open **Machine Manager**. We recommend that you save the queue.

Machine Manager views

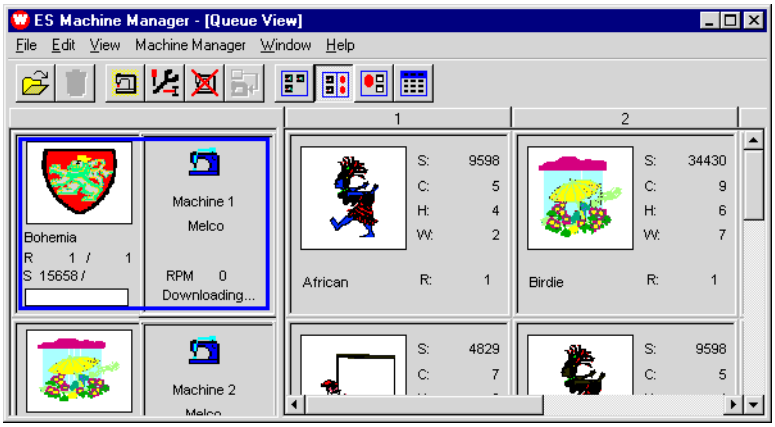
Depending on options available in your software implementation, Machine Manager provides a number of views for managing your design queues...

View	Details
Queue (default)	Shows each machine plus thumbnails of any designs.

View	Details
Machine	Shows all machines on line with details of their current status.
Design details	Shows large thumbnail of selected design plus design details.
Statistics	Shows all details of designs sent to machines over a selected period plus feedback from machines that generate serial feedback.

Switch to Queue view

The **Queue View** window provides a flexible visual environment for managing your design queues. You can scroll through all of your machines and see a thumbnail and brief details for all queued designs. Most designs are sent for stitching from this view.



To switch to Queue view...

1. Start Machine Manager. See Running Machine Manager for details.
2. Select **View > Queue View**.
3. Use the appropriate methods below:
   - To change a design's position in a queue, drag it to any position in the current queue.
   - To stitch a design to a different machine, drag-and-drop it to any position in that machine's queue.
   - To delete a design from a queue, select it and press **Delete**. You will be asked to confirm the deletion.
   - To stitch a copy of the same design in a queue, select the design, press **Ctrl + C**, then press **Ctrl + V** to paste the design in the queue.

     Alternatively, right-click the design, select **Number of Runs**, enter the number of runs required in the dialog and click **OK**.

- To add more designs to the queues, drag-and-drop one or more designs directly from File Explorer onto a Machine Manager queue.

Tip: Drag selected designs from Explorer over the minimized Machine Manager taskbar icon. Machine Manager will automatically maximize and allow you to drop the design/s onto a queue.

Where necessary, you will be prompted to change machine format.

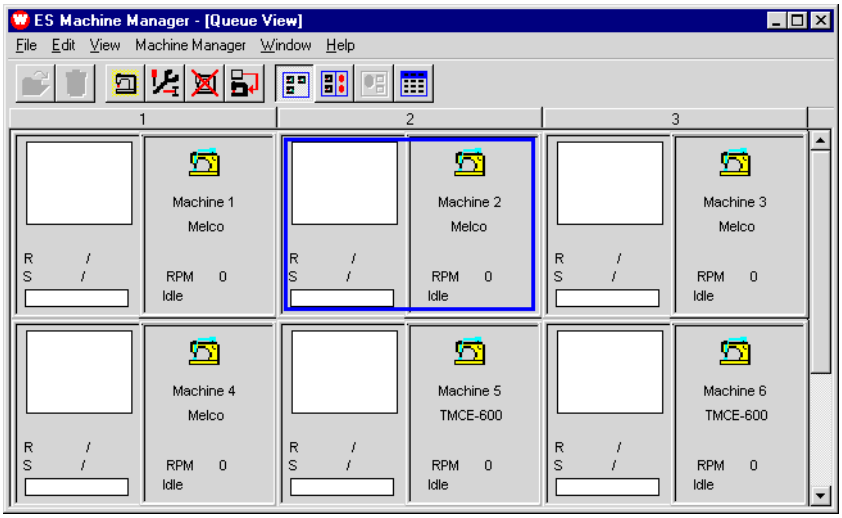
Switch to Machine view

Machine view displays details for all the machines in a factory. It shows the reference number (e.g. 'Machine 1') and model (e.g. 'Melco') of each machine, the name and icon of the last design that was downloaded, and the number of stitches and colors in the design. If no design is running on a machine, only the machine's reference information and status are displayed.

For machines without feedback, the download progress displays as a percentage. When the design is downloaded, the status displays as **Downloaded & Stitching**. Machines with serial feedback show the actual stitching progress of the current design and current machine status.

To switch to Machine view...

1. Start Machine Manager. See Running Machine Manager for details.
2. Select **View > Machine View**.



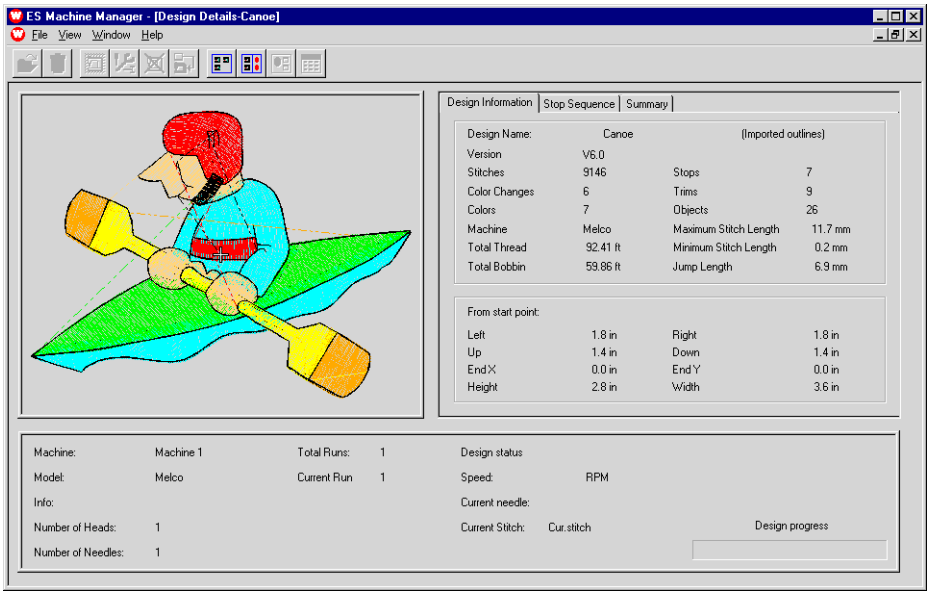
Switch to Design Details view

The **Design Details** window displays a selected design for detailed (enlarged) viewing. It includes the following information:

- basic machine information including machine reference number and model
- design information including design name, stitch count, number of colors and color sequence
- current stitch count progress and percentage completion (serial line feedback only)
- current machine status (serial line feedback only).

To switch to Design Details view...

1. Start Machine Manager. See Running Machine Manager for details.
2. Select **View > Queue View**.
3. Right-click the design thumbnail.
4. Select **View > Design Details** from the dropdown menu.



Switch to Statistics view

Machine Manager automatically collects machine data for machines that support serial line feedback. This data provides summary statistics (collected from each machine) for a given period. You can display it on screen or export it to Excel, Access or text files for further analysis, or

export it to the optional Reporting Utility for complete analysis of all available data. Summary statistics for each machine include:

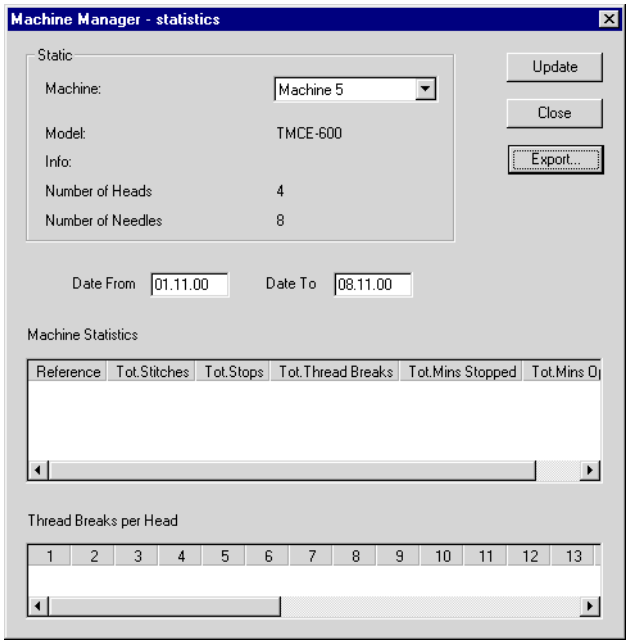
- Total number of stitches
- Total number of stops
- Total number of thread breaks
- Total minutes stopped
- Total minutes operated.

Caution: Once design stitching is finished, you need to wait two minutes before submitting statistics data. Before that, the information submitted may be wrong. This is because the operation of the Statistics database consumes system resources, causing a bottleneck in the system. To avoid this, it is delayed by two minutes.

To switch to Statistics view...

1 Start Machine Manager. See Running Machine Manager for details.

2 Select **View > Statistics**.



Setting up embroidery machines in Machine Manager

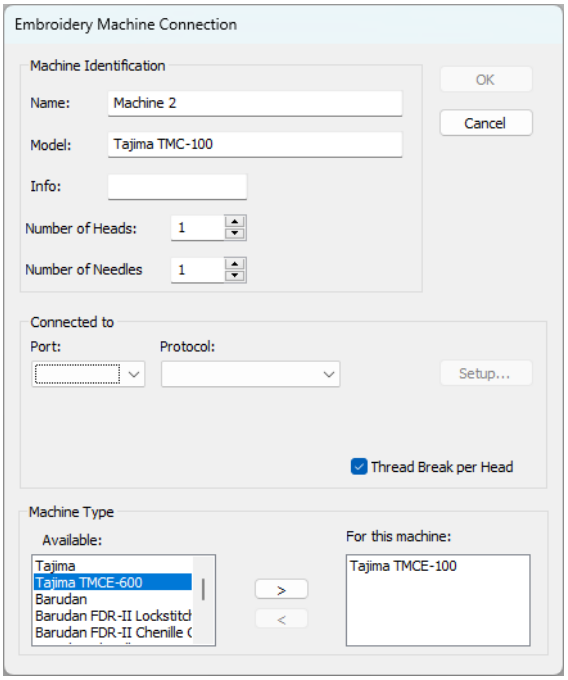
You can access all of your available machines from within Machine Manager using the procedures below. Details can be modified at any time, and you can delete machines when they are no longer needed.

Set up embroidery machines

To set up a machine you need to define a name, the port it is attached to, and the protocol it uses. You can select whether to download automatically to the selected machine and – for machines that support serial feedback – whether to view design feedback as you stitch out. For every machine, you need to select the machine formats it supports. You can select from a selection of standard formats, or create new formats if necessary.

To set up an embroidery machine...

1. Connect the embroidery machine using the instructions that came with the machine. Carefully note the port settings, which must also be entered in the **Embroidery Machine Connection** dialog.
2. Start Machine Manager. See Running Machine Manager for details.
3. Select **Machine Manager > Add Machine**. The **Embroidery Machine Connection** dialog opens.



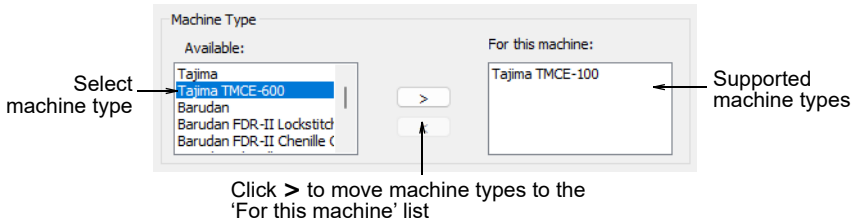
4. Adjust the available settings as required:

Field	Details
Name	Enter a name for the machine – e.g. 'Machine 1'.
Model	Enter the brand and model of the machine.
Info	Provide further machine details.

Field	Details
Number of heads	Enter the number of machine heads.
Number of needles	Enter the number of needles.

5 In the **Machine Type** panel, select the compatible machine formats.

To do this, select compatible machine types in the **Available** list, and click **>** to move them to the **For this machine** list.



Note: Machine format values can be added or changed if required. See the BE EmbroideryStudio User Manual for details.

6 From the **Port** dropdown list, select the port to which the machine is connected. See Adjust port settings below.

Adjust port settings

PC serial COM ports are male connectors and can be either 9-pin or 25-pin. They are named COM1, COM2, COM3, etc. Parallel ports are used to connect some embroidery machines. They are named LPT1, LPT2, etc. Read the instructions that came with the embroidery machine, and take note of the recommended Port and Protocol settings.

Note: You must be able to identify the ports on your computer. If in doubt, consult a PC technician.

To adjust serial port settings...

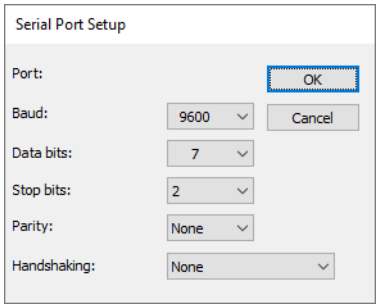
1 Complete the initial setup of the embroidery machine.

See Set up embroidery machines for details.

2 Select a serial port – e.g. COM1 – from the **Port** pulldown.

3 Select a serial protocol from the **Protocol** pulldown. The protocol selected should be one recommended by the machine's manufacturer.

4 Click **Setup** to open the **Serial Port Setup** dialog.



5 Enter the **Baud** rate, **Data Bits**, **Stop Bits** and **Parity** and **Handshaking** settings for the device.

Note: The port settings **must** match those of the embroidery machine or selected device. The type of handshaking **must** match the type of cable you are using. Check the communications setup section of the documentation that came with the device.

6 Select **Auto Download** if you want designs in Machine Manager queues to be sent to this machine as soon as it finishes stitching the previous design. Or clear **Auto Download** if you want to be prompted first.

7 Select **Feedback** if you want to view machine feedback and/or collect machine statistics. This option is only available for machines that support serial line feedback.

8 Click **OK** to complete the setup of this machine.

To adjust parallel port settings...

1 Complete the initial setup of the embroidery machine. See Set up embroidery machines for details.

2 Select a parallel port – e.g. LPT1 – from the **Port** pulldown.

3 Select a parallel protocol from the **Protocol** pulldown. The protocol selected should be one recommended by the machine's manufacturer.

4 Select **Auto Download** if you want designs in Machine Manager queues to be sent to this machine as soon as it finishes stitching the previous design. Or clear **Auto Download** if you want to be prompted first.

5 Click **OK** to complete the setup of this machine.

Modify machine settings

Embroidery machine settings can be changed at any time from within Machine Manager. The methods used are similar to those used to set up

the machine. Delete embroidery machines from your system when they are no longer required.

To modify machine settings...

1. Start Machine Manager. See Running Machine Manager for details.
2. Select the machine to be modified.
3. Select **Machine Manager > Modify Machine** to open the **Embroidery Machine Connection** dialog.
4. Follow the procedure in Set up embroidery machines.
5. Click **OK** when all settings are correct.



Note: You will see a message, 'Updating settings ... Please wait'. This may take up to several minutes to complete.

To delete a machine...

1. Select the machine in either **Queue View** or **Machine View**.
2. Select **Machine Manager > Delete Machine**. You will be prompted to confirm deletion of the selected machine.



Note: Any queued designs for that machine will also be removed.

Stitching out designs

Designs can be sent for stitching directly from Machine Manager, or sent to Machine Manager from inside BE EmbroideryStudio. You can also send designs for stitching from the DesignWorkflow option. Use the method that best suits your workflow and the type of work you do.

Stitch designs from Machine Manager

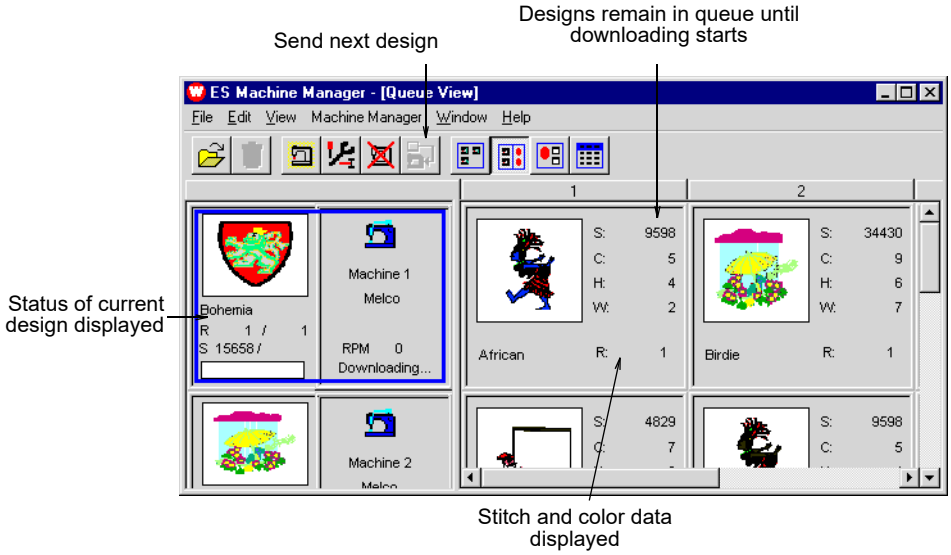
If you are working in the production area, you will probably send most designs to the machines from Machine Manager. It allows you to monitor the design's progress and lets you adjust the machine queues so that higher priority work is finished first.

To stitch designs from Machine Manager...

1. Open Machine Manager. See Running Machine Manager for details.



Note: If no machines are set up, you must do so now. See Setting up embroidery machines in Machine Manager for details.



2 Click the thumbnail of the machine that will stitch the design.

3 Add a design or designs to the selected machine's queue. To do this, either:

- Select **File > Open**, browse to the folder containing the design(s), select the design(s) and click **Open**.
- Drag-and-drop, or cut-and-paste, designs onto the machine's thumbnail from File Explorer.

Note: If you want queued designs to be sent to this machine automatically, select the **Auto Download** option in the **Embroidery Machine Connection** dialog. Or, if you want to control when designs are sent, clear the **Auto Download** option.

4 If the **Auto Download** option in the **Embroidery Machine Connection** dialog is not selected, select the machine and select **Machine Manager > Send Next Design**.

Related topics...

- Setting up embroidery machines in Machine Manager
- Switch to Design Details view

Stitch designs from BE EmbroideryStudio

Use Legacy Features > Send to Machine Manager to send multiple designs to machine from BE EmbroideryStudio or DesignWorkflow and view or manage job queues.

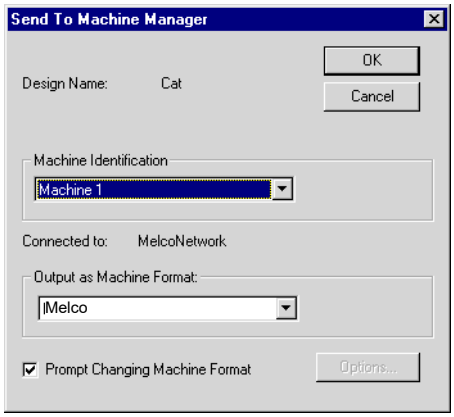
If you are a designer, most of your designs will be sent to production from inside BE EmbroideryStudio. This minimizes the time you spend before getting back to the next design. In larger factories, the design's progress will be monitored by production staff, but you can still monitor the design queue using Machine Manager if necessary.

To stitch a design from BE EmbroideryStudio...

1 From BE EmbroideryStudio open or digitize a design.

2 Choose **Legacy Features > Send to Machine Manager**.

Note: If no machines have been set up, you will be prompted to add a new machine unit. See Setting up embroidery machines in Machine Manager for details.

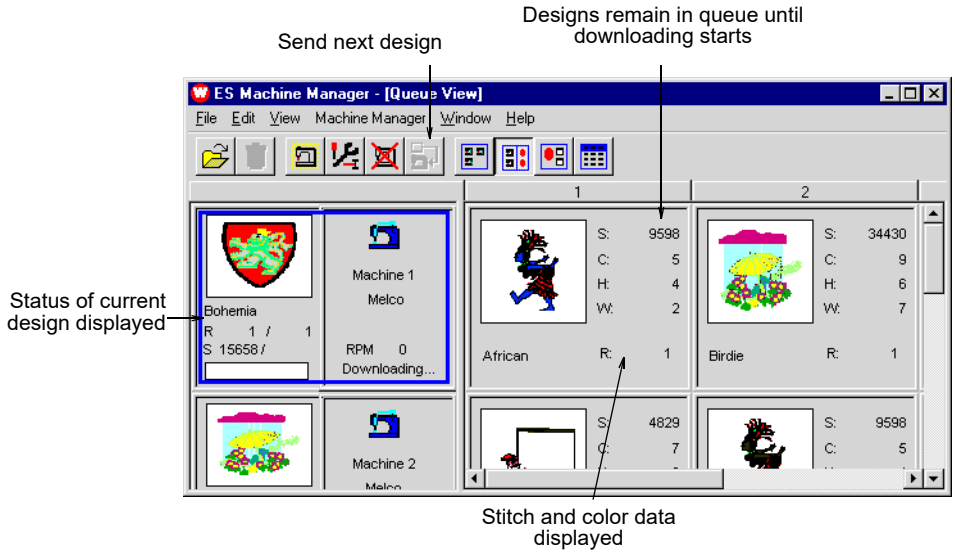


3 Select the required machine from the **Machine Identification** dropdown list.

4 Select the correct machine format from the **Output as Machine Format** dropdown, and click **OK**.

5 Machine Manager opens in **Queue View** mode. The machines registered in the system appear in the left side of the window. The design(s) for stitching are queued to the right.

Note: If you want queued designs to be sent to this machine automatically, select the **Auto Download** option in the **Embroidery Machine Connection** dialog. Or, if you want to control when designs are sent, clear the **Auto Download** option.



6 If the **Auto Download** option in the **Embroidery Machine Connection** dialog is not selected, select the machine and select **Machine Manager > Send Next Design**.

7 Send other designs to Machine Manager as required. Press **Alt** + **Tab** to toggle between BE EmbroideryStudio and Machine Manager.

The designs you send will appear in the design queues waiting to be stitched to the specified machines.

Related topics...

- Setting up embroidery machines in Machine Manager
- Switch to Design Details view

Collecting design statistics

Design statistics, collected by Machine Manager from serial-interfaced embroidery machines, can be displayed on screen and exported in Excel, Access and text formats for analysis.

Note: The optional Reporting Utility allows complete analysis of all available data from your embroidery machines. See your Wilcom dealer for full information about this valuable tool.

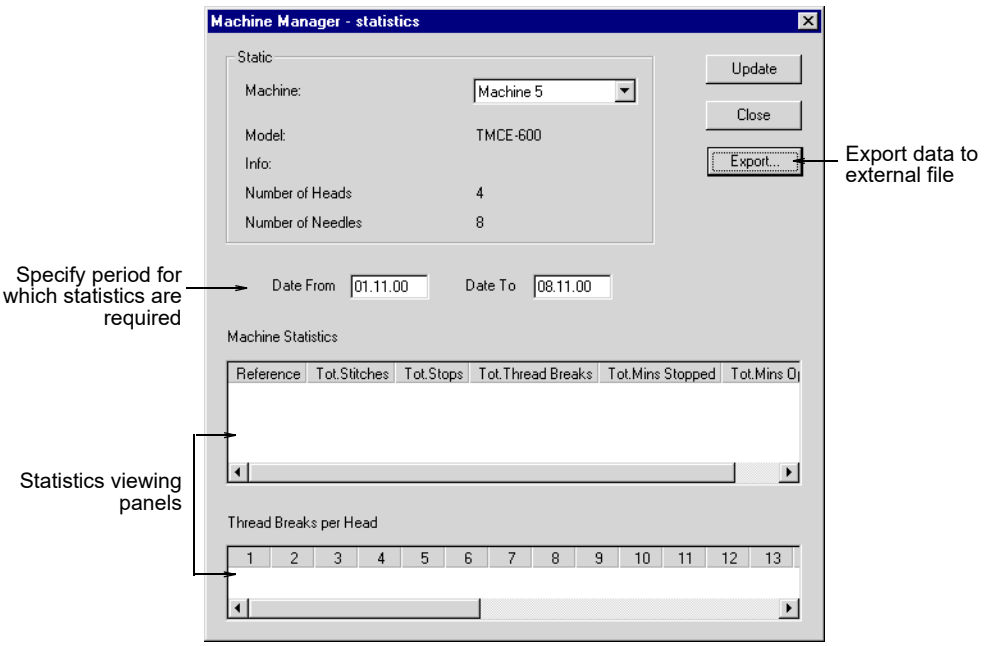
Export design statistics

You can export the statistics collected by Machine Manager in common spreadsheet, database and text formats. You can then use the power of

your spreadsheet or database program to provide meaningful management statistics.

To export design statistics...

1 Select **Statistics** from the Machine Manager menu. Or, right-click a machine unit in the left panel and select **Statistics** from the popup menu.

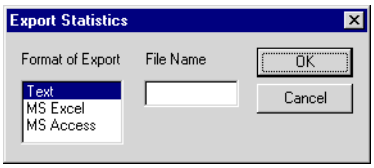


2 In the **Date From** and **To** fields, specify the period for which machine statistics are required.

3 Click **Update**.

Data stored in the Machine Manager database is extracted and displayed in the **Machine Statistics** and **Thread Breaks per Head** viewing windows.

4 Click **Export** to export the data for further analysis in a database or spreadsheet. The **Export Statistics** dialog opens.



5 Choose an export report file format from the list, enter a suitable file name, and click **OK**.



Note: Do not add a file extension – e.g. 'TXT' – to the file name. Machine Manager adds the correct extension automatically.

The export report file is written to the '\bin' subdirectory of your current software installation. You can now view and further analyze the data using a database or spreadsheet program, depending on the file format you have chosen.

Initialize Machine Manager database

Machine Manager will continue to collect machine data indefinitely. Periodically you may want to clear the database to free up disk space. You may decide to do so every time you export any required statistics to another application. Simply select **Initialize Database** from the **File** menu.



Caution: Once the Machine Manager database has been initialized, the data is no longer available for export.

Chapter 41

Wireless Machine Connection with EmbroideryConnect

The EmbroideryConnect capability allows you to wirelessly transfer embroidery designs from BE EmbroideryStudio to one or more USB-enabled embroidery machines. Machine files are automatically generated and sent via a standard WiFi network to an EC device plugged into a compatible machine. Design transfers are securely encrypted.

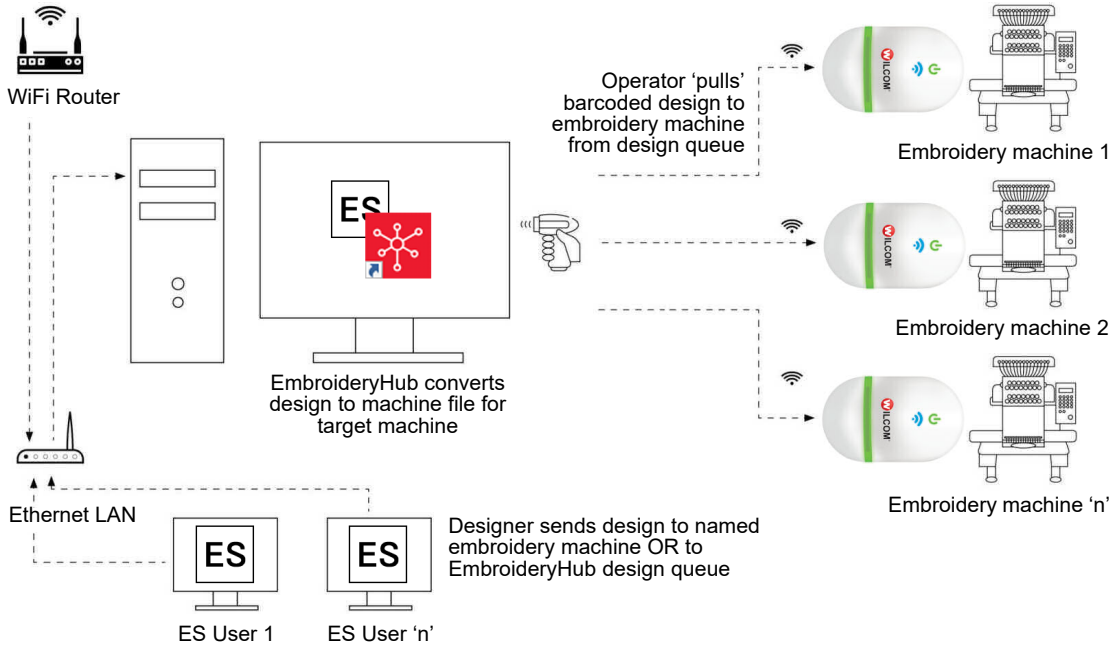


Most modern embroidery machines like Tajima, Barudan, Happy, ZSK, Ricoma and SWF, can read files from a standard USB memory stick. With EmbroideryConnect, there is no need for serial ports, different interface methods, or machine cabling.

This section presents an overview of the product concepts, installation, configuration, and basic usage for EmbroideryConnect.

Network overview

In summary, EmbroideryConnect allows you to wirelessly transfer embroidery designs from BE EmbroideryStudio to one or more USB-enabled embroidery machines. Designs are transferred to EC device via the EmbroideryHub application.

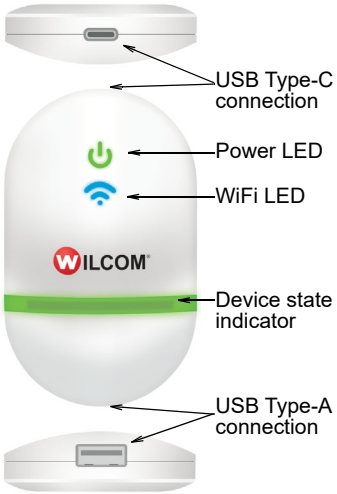


EmbroideryConnect is of great potential benefit to commercial embroiderers who want to network any brand of commercial or 'prosumer' embroidery machines and need a choice of 'push' or 'pull' wireless transfer methods. Benefits can also be found for retail kiosk operators. EmbroideryConnect is designed to meet the following usage requirements:

- BE EmbroideryStudio user wants to be able to send a design from PC directly to a nominated machine.
- BE EmbroideryStudio user wants to 'push' a design to a queue for eventual production.
- Machine operator wants to 'pull' a nominated design to embroidery machine from the design queue.

EmbroideryConnect device

A separate device is needed for each embroidery machine on the network.



Device features are summarized below:

Item	Description
EmbroideryConnect device	The device itself is small and compact. It can plug directly into an embroidery machine USB port via USB cable.
USB Type-C connection	USB Type-C connection at top to connect device to computer or embroidery machine.
USB Type-A connection	Used for USB barcode scanner.
Device state indicator	The device displays basic status information. See Send open designs to an EmbroideryConnect device for details.
Power from USB	No separate power supply needed – power is drawn from USB port.
Mounting strips	The EC device comes with mounting strips to attach it to the target machine.

Usage scenarios

There are two basic ways of setting up an EmbroideryConnect network using either a single PC or multiple PCs.

Single PC

If you are using a single PC to create, edit, and manage your designs as well as serve machine files to your embroidery machine/s, you will need both BE EmbroideryStudio and EmbroideryHub running.

Multiple PCs

If you are using two or more PCs to create your designs and a dedicated PC to serve your machine files, you will need:

- BE EmbroideryStudio with EmbroideryHub running on PC 1.
- BE EmbroideryStudio running on PC 2, PC 3, etc.

Design files may be saved anywhere on your network. These are sent to the EmbroideryHub where they are converted to machine files and sent to the EmbroideryConnect network.

Tip: Visit the Wilcom Support Center at www.wilcom.com.au/support for a current list of compatible machines.

EmbroideryConnect device setup



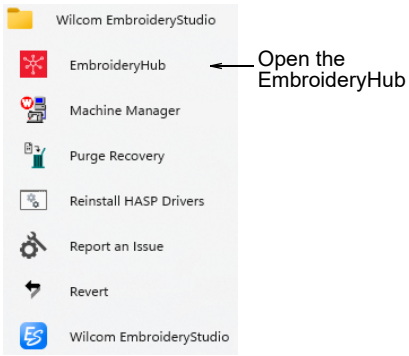
Double-click to start EmbroideryHub.

Setting up an EmbroideryConnect network is easy…

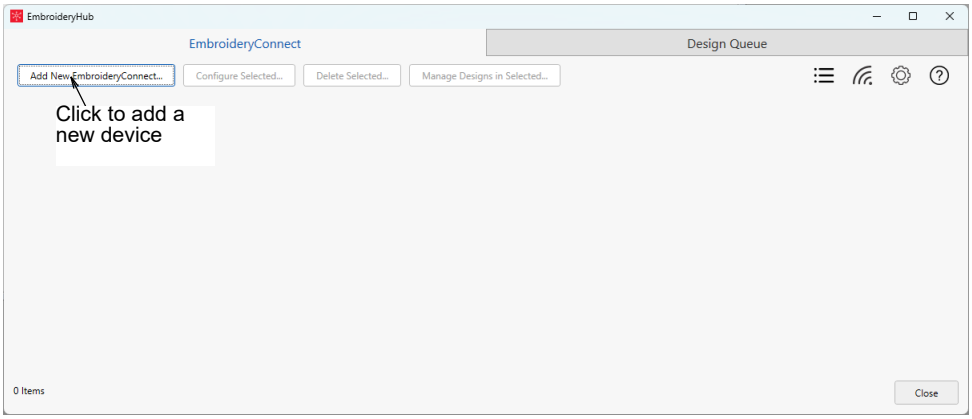
- A single device is required for each embroidery machine.
- A dedicated network PC acts as the 'hub' and runs the EmbroideryHub software.
- All EmbroideryConnect devices are configured on this PC.
- All secondary PCs access the EmbroideryConnect network via the EmbroideryHub.

To configure an EmbroideryConnect device...

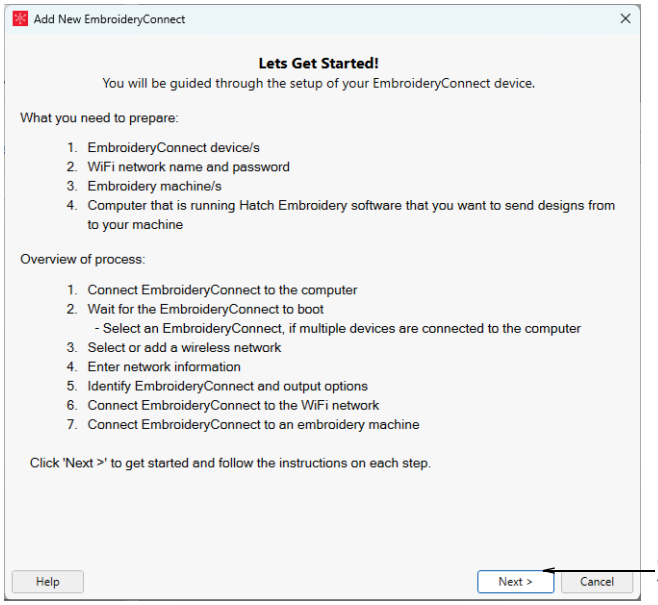
1. Ensure the computer has an active internet connection.
2. Start EmbroideryHub from the desktop icon or the program group.



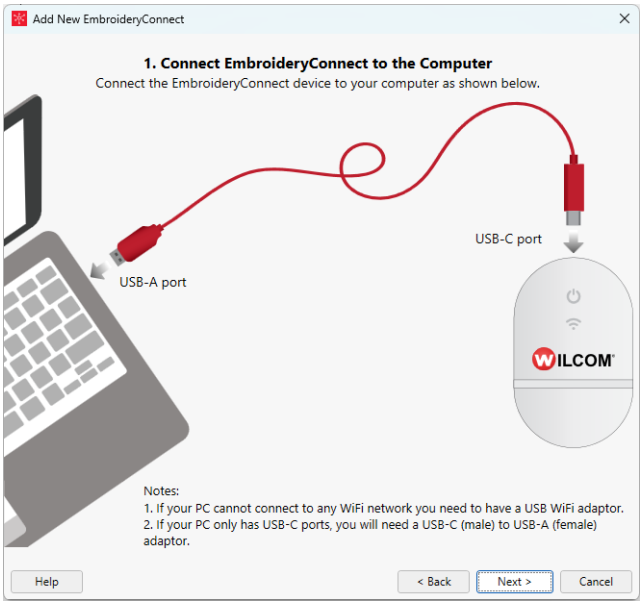
When first run, the device list in the EmbroideryHub main window is empty.



3 Click **Add New EmbroideryConnect**.



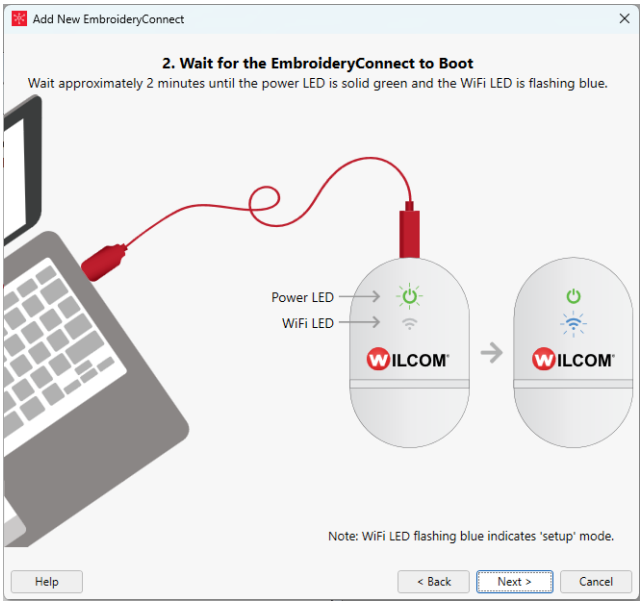
4 Click **Next >**. The below dialog will appear.



5 Plug your EC device into the computer via the cable connected to the USB-C port of the device.

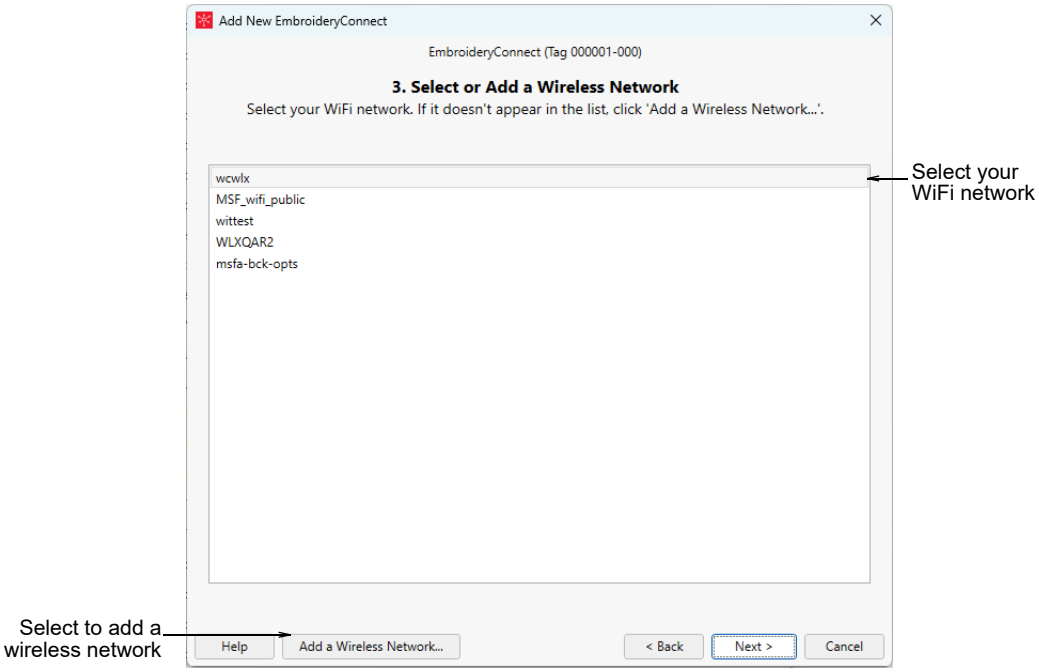


6 Click **Next >**. The below dialog will appear.



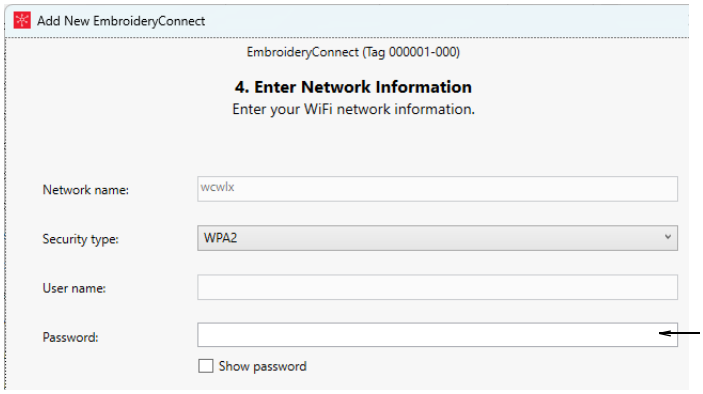
7 Ensure all lights are in 'Setup' mode as prompted. When the power LED is solid green and the WiFi LED is flashing blue, the device has finished booting. This generally takes about two (2) minutes.

8 Click **Next >**. The below dialog will appear.

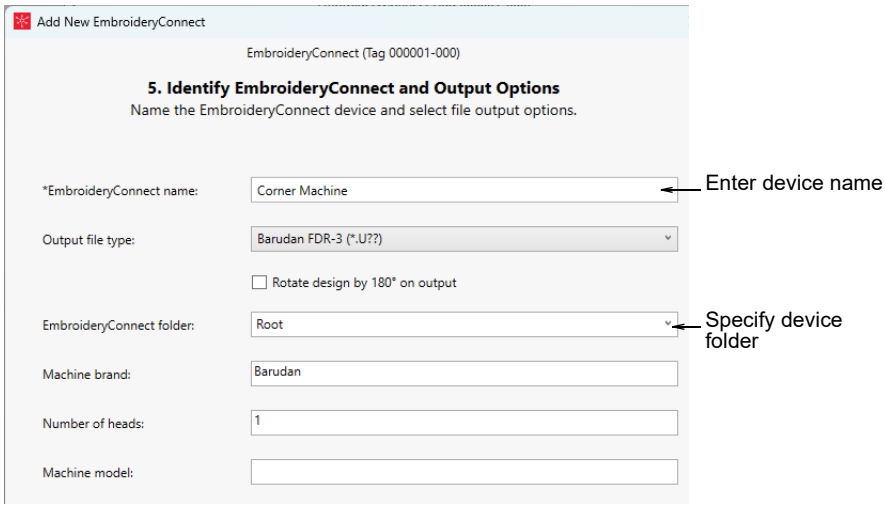


9 Select your WiFi network and click **Next**. If your WiFi network does not appear in list select the **Add a wireless network...** button.

10 Enter the WiFi password and click **Next >**.



11 Identify the EC device and specify output options.

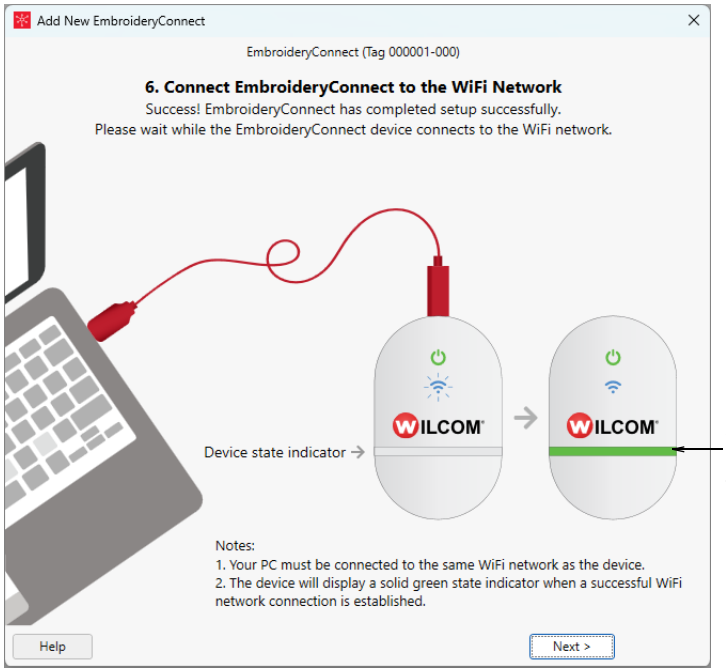


Options include:

Option	Function
EmbroideryConnect device name	Give the device a name associated with the connected machine – e.g. ‘Tajima #2’.
Output file type	Specify the machine file type for the selected machine – e.g. *.PES. Design files will be converted on-the-fly to this format.
Rotate design	If the machine is dedicated to cap designs, tick this option. The design will be auto-rotated 180° on the machine.

Option	Function
EmbroideryConnect device folder	Specify the folder on the device if different to the 'root' folder. Machine requirements are the same as those for transferring a design via normal USB stick.
Machine brand	This field is simply descriptive to help identify the machine associated with the EC device.
Number of heads	Descriptive field only
Machine model	Descriptive field only

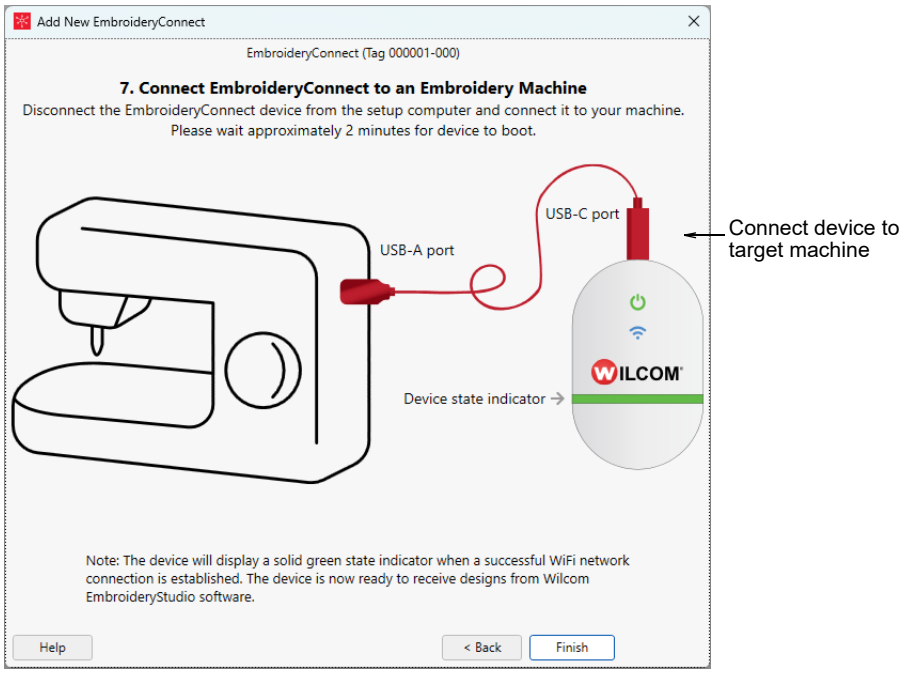
12 Click **Connect** to proceed. The below confirmation dialog appears.



The device displays a solid green state indicator when network connection is established

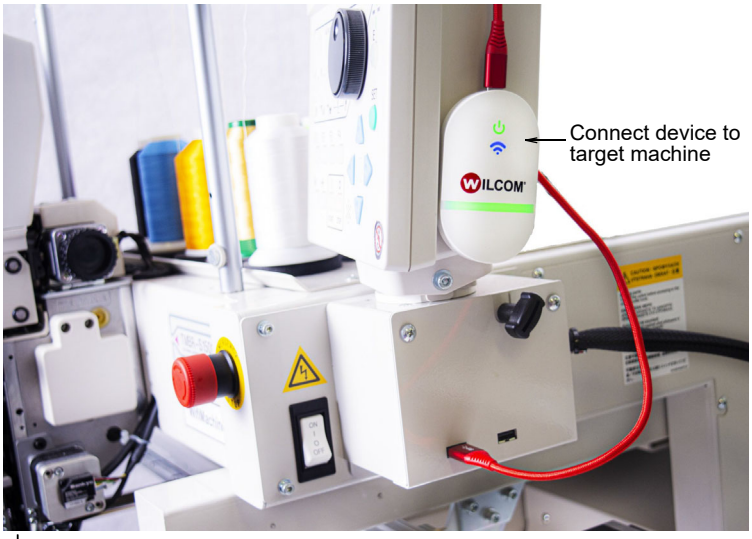
13 Wait for the EC device to connect to the network. Connection takes about 15 seconds depending on network traffic.

14 Click **Next >** to proceed. The below dialog appears.



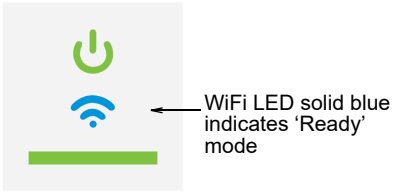
15 Click **Finish** to close the **Add New EmbroideryConnect** dialog.

16 Remove the cable from the EmbroideryHub computer and connect it to the target machine which is within the same WiFi network.

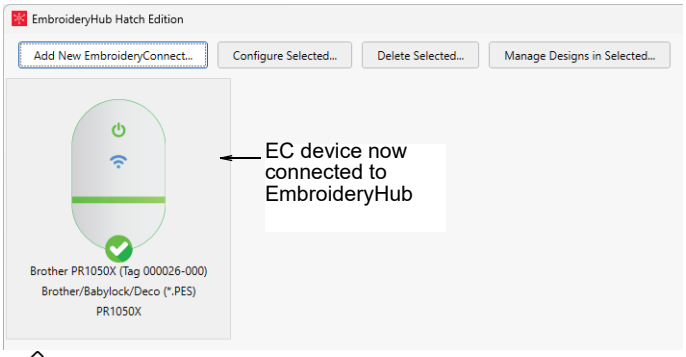


Tip: The EC device comes with 3M mounting strips to attach it to the machine.

17 Wait for the EC device to connect to the network. Connection takes about 15 seconds depending on network traffic. The blue WiFi LED will flash and then turn solid blue when it has successfully connected.



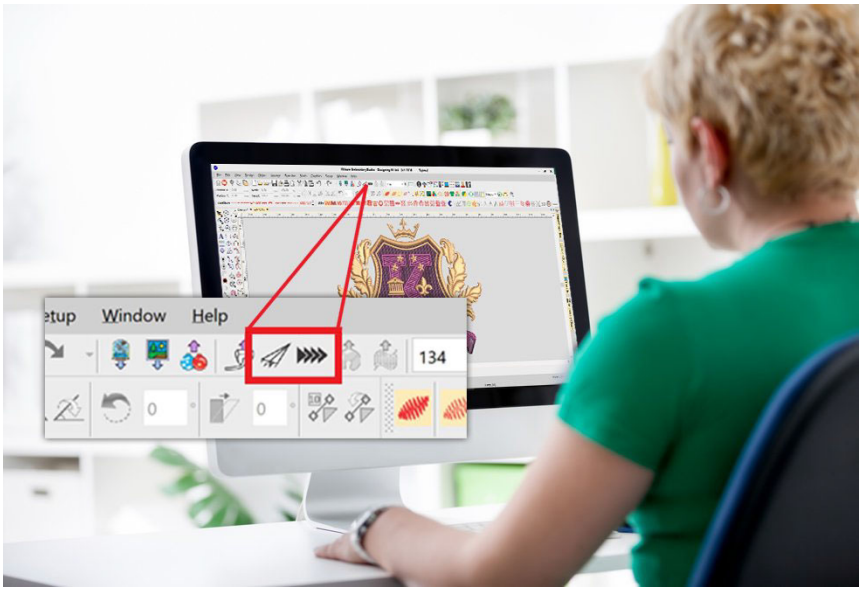
You can now send designs to this device from BE EmbroideryStudio.



Note: The EmbroideryHub needs to remain active at all times in order to send designs to connected devices.

Sending designs to machine

Once you have configured one or more devices on your EmbroideryConnect network, you can send designs to any named device from a computer running BE EmbroideryStudio on your local WiFi network. You can also read designs from a connected EC device into your BE EmbroideryStudio software.



Send open designs to an EmbroideryConnect device

Use Standard > Send to EmbroideryConnect to send the current design to a connected device.

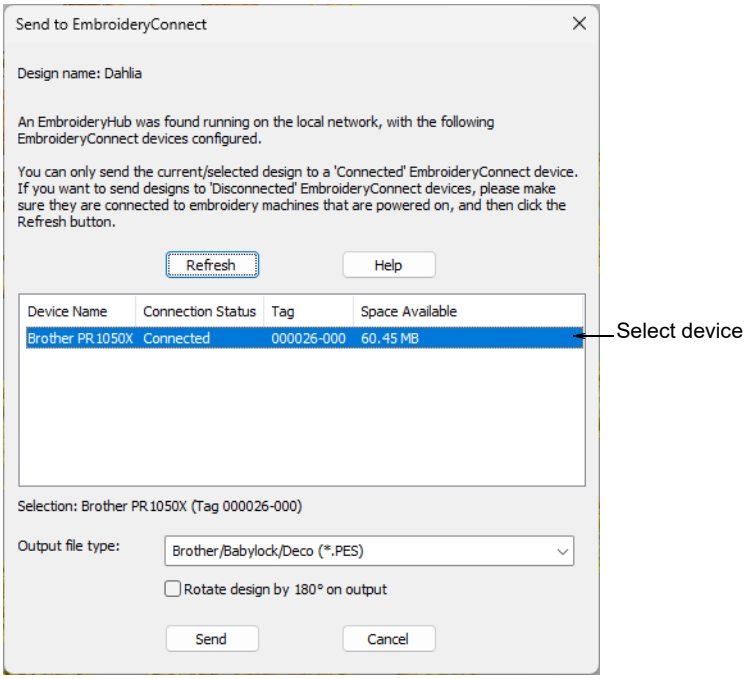
Open BE EmbroideryStudio and load the design or designs you want to send to device.

To send a design to an EmbroideryConnect device...

1 Make sure EmbroideryHub is running and that any devices on the network have been properly configured.

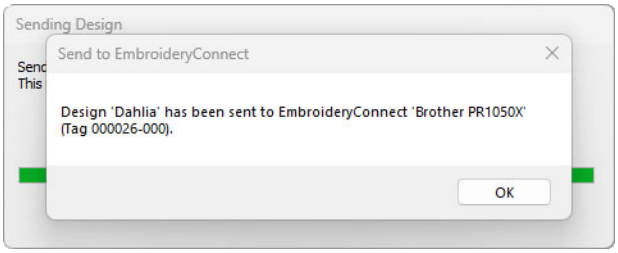
Note: The EmbroideryHub PC must be connected to the same local WiFi network as the EmbroideryConnect devices.

2 Select a design tab and click the **Send to EmbroideryConnect** icon. Alternatively, select the command from the **File** menu. The dialog will display a list of configured devices. Both connected and disconnected devices will be listed.



Tip: If you want to send a design to a 'disconnected' EmbroideryConnect device, ensure the embroidery machine is powered on and the device connected, then click the **Refresh** button.

3 Choose a connected EC device and click **Send**. The design will be automatically converted to the selected machine file format and sent to the device.



4 Check the state indicator of your EC device.



The following table explains the device state color coding…

Light color	Device state
Solid green	Device is running smoothly. Designs can be sent to machine.
Solid yellow	Device is currently inaccessible by embroidery machine.
Flashing yellow	Device is currently inaccessible by embroidery machine and file being uploaded (design or firmware update file).
Flashing orange	There are two cases: • After barcode scan: The scanned file was not found in the design queue. Barcode scan failed. • After push to device: The pushed file(s) already exist on the device. Push failed.
Flashing red	Error occurred while transferring file.
Flashing white	Factory reset in progress.

5 On the machine, the EC device is recognized as a USB stick. From here, you can load the design into machine memory for stitching.



6 Repeat for all designs you want to send. Only one file can be transferred at a time.

Push designs to EmbroideryConnect design queue

Use Standard > Queue Design to send the current design to the EmbroideryConnect design queue where they can be 'pulled' from the machine.

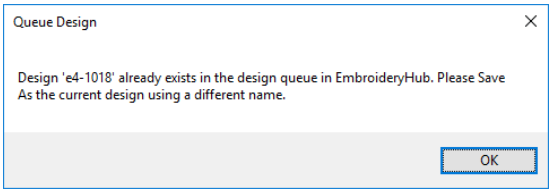
Open BE EmbroideryStudio and load the design or designs you want to send to EmbroideryHub. When you 'push' a design to a queue, you don't know (or care) which machine it gets stitched on. Different production environments employ different methods.

To push a design to the EmbroideryConnect design queue...

- Click a design tab and click the **Queue Design** icon. A confirmation message will appear indicating that the design is in the queue.



- An error check prevents you from sending multiples of the same design to the queue.



- Repeat for all designs you want to queue up in preparation for production.
- On the machine itself, the operator can 'pull' designs to the EC device by means of a barcode reader attached to the USB port. Scan the barcode printed on the production worksheet. The design will be pulled from the queue to the EC device. Here it can be loaded into machine memory for production.



View & manage designs on an EmbroideryConnect device



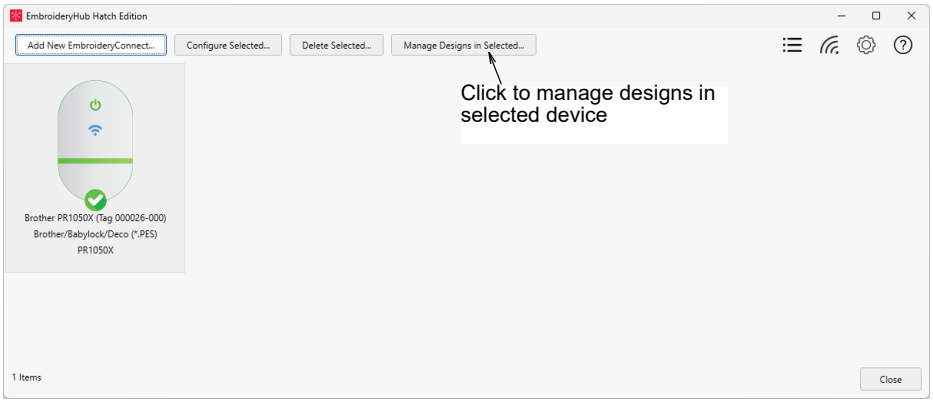
Double-click to start EmbroideryHub.

From EmbroideryHub, you can view designs sent to a particular EC device as well as create folders. You can also rename or delete designs.

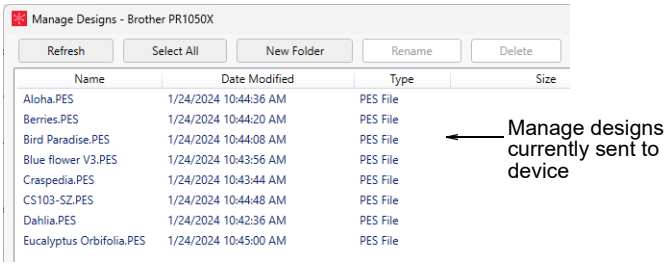
Note: When renaming files, take care not to change the extension – e.g. 'JEF', 'EXP' – as the file may become unusable.

To view and manage designs on an EmbroideryConnect device...

1. Open EmbroideryHub.
2. Select the EC device icon and click **Manage Designs in Selected** at the top of the main window.



A list of designs sent to machine is displayed. Here you can create new folders, and rename or delete designs as required.

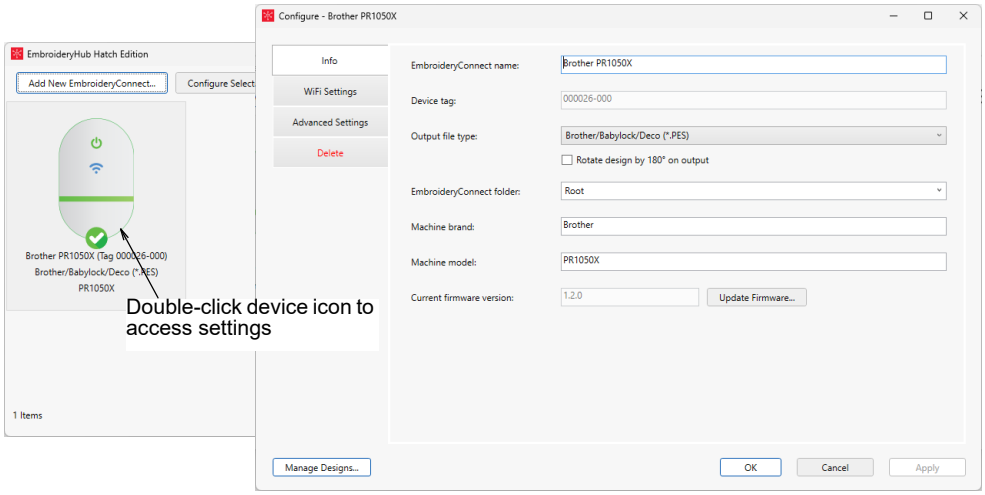


Usage tips...

- If you have created a folder structure, double-click the '..' at the top of the list to move up a folder level.
- When naming folders or files, special characters such as German umlauts – 'ä', 'ö', 'ü' – can cause problems. Avoid creating folders or copying files to the EC device directly via Windows Explorer. Folders are best created from within the **Manage Designs** dialog.

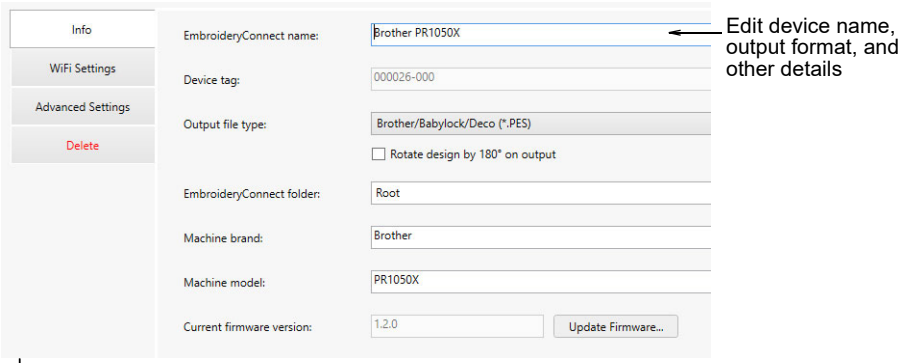
Managing EmbroideryConnect device settings

Once your device is set up and connected to your machine, you can further configure or modify it at any time. Normally there is no need to reattach the EC device to the EmbroideryHub computer. Settings can be modified across the network. The device only needs to be reattached if the WiFi settings have changed or if you want to set it up on a different computer. Make sure the power LED on the EC device is solid green before double-clicking the device icon in the main window to access settings.



Update device details

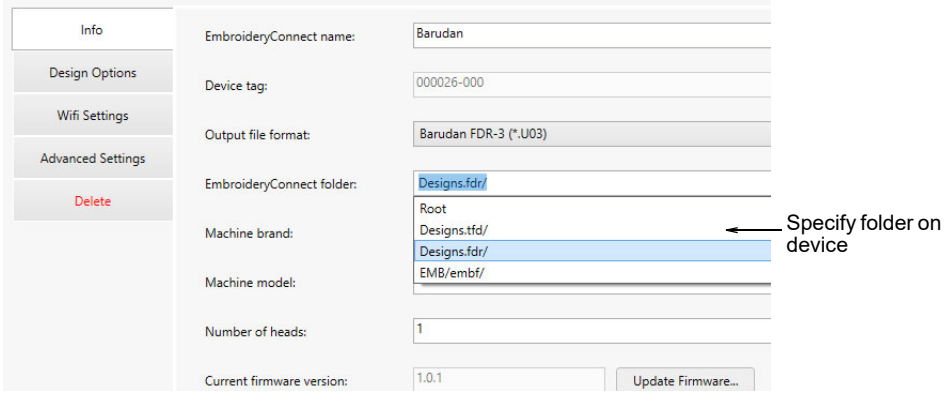
Use the **Info** tab to modify details provided during the setup procedure. Here you can change device name, output file type, and other details...



Tip: Use 'Rotate design by 180° on output' to auto-rotate the design when outputting to a connected EC device. If the machine is dedicated for cap designs, tick this option.

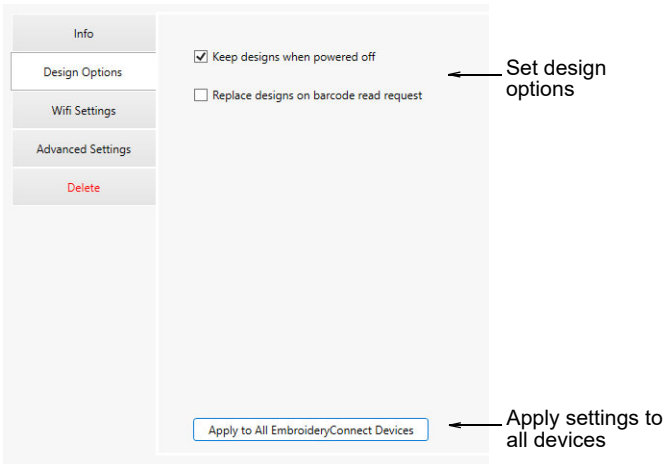
Configure sub-folders

Sometimes you may need to specify a folder on the device which is different to the 'root'. Different machines have different requirements. These will be the same as the requirements for sending a design via a USB stick. Make sure you include a 'slash' (/) at the end.



Design options

Access the **Design Options** tab to manage design options. All design transfers are securely encrypted across the EmbroideryConnect network. Various options are available for handling design transfers…



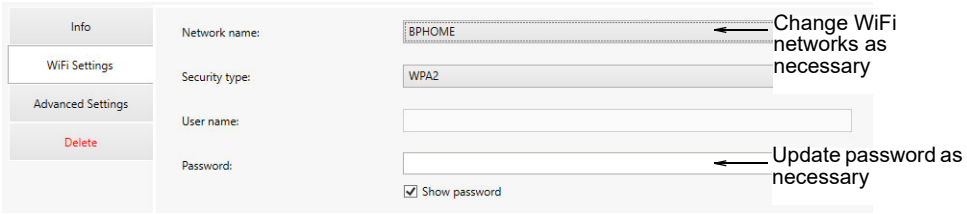
Design options can be modified as preferred for this EC device…

Option	Function
Keep designs when powered off	By default, designs stay on the device unless you remove them in the Manage Designs window. When unticked, designs are cleared after powering off so they can't be copied.
Replace designs on barcode read request	When ticked, whenever the operator does a barcode scan to fetch a design, EmbroideryConnect will delete all existing designs on the device before transferring the scanned design. Some users only want one design on the device at any given time.

Option	Function
Apply to all EmbroideryConnect devices	Click to apply the same settings to all EmbroideryConnect devices configured on the EmbroideryHub.

Adjust WiFi settings

The main reason for accessing the **WiFi Settings** tab is to change WiFi network and/or password. If WiFi details have changed, the EC device will not be able to access the network.

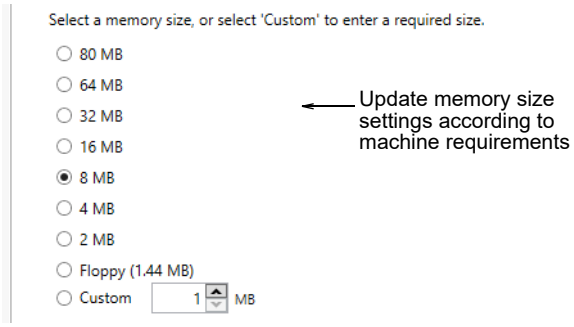


Occasionally you may also want to change WiFi networks. Make sure any new network is correctly configured and the computer running EmbroideryHub is connected.

Tip: The list of available WiFi networks may not refresh immediately. Try closing and re-opening the dialog for the selected EC device as necessary.

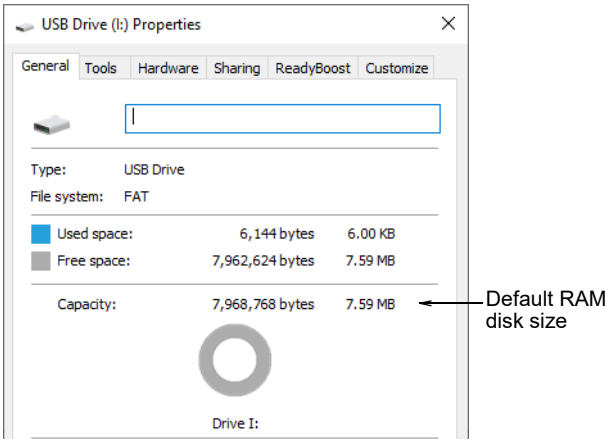
Reconfigure EmbroideryConnect memory size

Access the **Advanced Settings** tab to update USB memory size settings and machine compatibility settings as needed. The default capacity of the EC device is 8MB. Most machines accept this size of USB memory stick. Some older machines require smaller sizes such as 4MB or Floppy disk size (1.44 MB). It can take up to 30 seconds for changes to be made.



Caution: If you choose floppy memory mode (1.44 MB), it may not work on newer machines.

You can confirm the change in memory size when the EC device is connected to the PC.

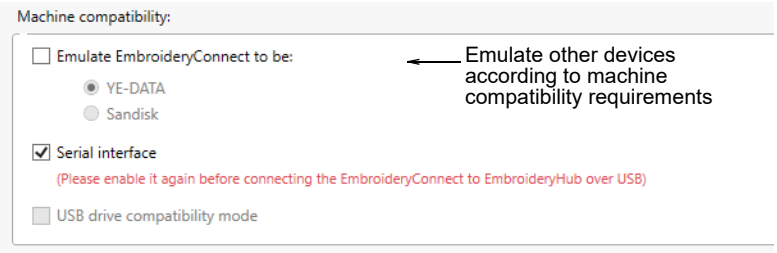


Tweak machine compatibility

A number of machine compatibility options are available under **Advanced Settings**. It may be necessary to enable one or other of these to ensure compatibility between your machine controller and the EC device. If for any reason you lose WiFi connection to the EC device, the only way to reconfigure it is to perform a 'hard reset'. See EmbroideryConnect troubleshooting for details.

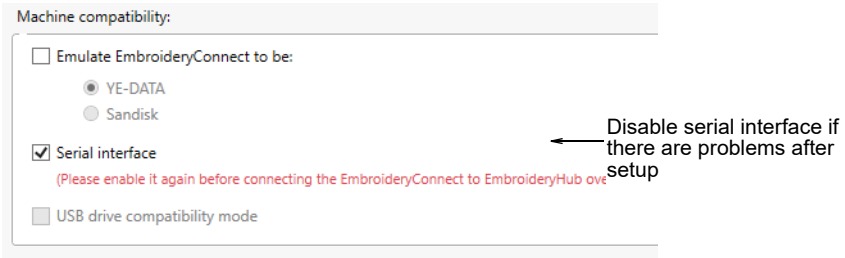
Emulating other devices

The EC device can emulate other types of device. Some machines can only read designs from YE-DATA or Sandisk. The EC device can be set to emulate them.



Disabling serial interface

By default, devices have the USB serial interface enabled in order to configure them on EmbroideryHub. It is best to leave the setting activated in case you need to reconfigure the device. However, if the embroidery machine has a problem with WiFi and serial interface, you may need to disable it. With the EC device connected, the machine may lock up and display an unexpected message.



Note: If you turn off the serial interface and subsequently lose WiFi connection to the EC device, the only way to reconfigure it is to perform a 'hard reset'. See EmbroideryConnect troubleshooting for details.

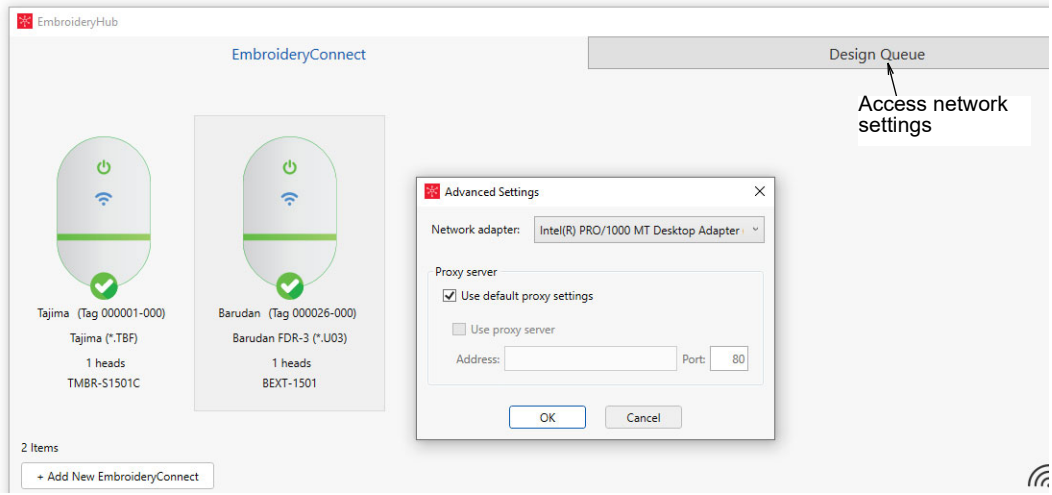
USB drive compatibility mode

There is an option to run the EC device in 'USB drive compatibility mode'. This may improve machine compatibility in some cases.

- Untick 'Serial interface' and enable 'USB drive compatibility'. Only do this after the device has been set up and is working.
- If you reset the device for any reason, make sure 'Serial interface' is re-enabled.

Adjust network settings

Normally you will not need to touch proxy and network adapter settings. However, the **Network** dialog exists to resolve any issues. For instance, proxy settings of the EmbroideryHub computer may not match those of the local network. Or, if the computer has multiple network adapter connections – e.g. both wired Ethernet connection and WiFi connection – conflicts may arise. To access settings, click the 'cog' button on the main window.



Network adapter settings

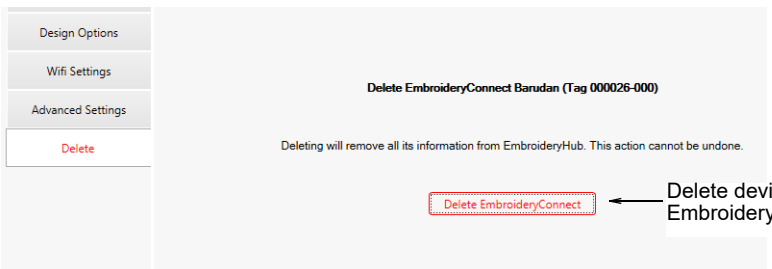
The network adapter should be left on default most of the time. It's only needed when there are multiple adapters connected to two different networks **and** there are device connectivity issues. If you have two adapters and find that the devices consistently switch from 'Connected' to 'Disconnected', select the adapter connected to the EmbroideryConnect network. EmbroideryHub should also be restarted.

Proxy settings

Default proxy settings are set in the Windows **Internet Options** dialog. Keep them ticked for most situations. If you are using two networks with different proxy requirements, this may cause '504 errors' to occur with the devices. You will need to untick default settings and use the other controls to specify the proxy configuration for your EmbroideryConnect network.

Delete an EmbroideryConnect device

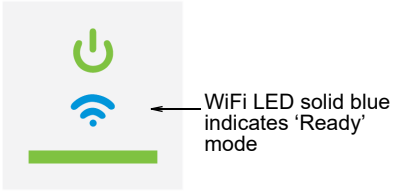
Access the **Delete** tab to remove a selected EC device from EmbroideryHub. This can also be done from the main window.



EmbroideryConnect troubleshooting

If experiencing problems using the EC device, double check that it connects to the WiFi and EmbroideryHub correctly.

- Make sure the settings on your wireless router allow communication between wireless devices.
- During setup and use, make sure the computer is in the same wireless network used by the EC device.
- If experiencing connectivity problems, make sure EmbroideryHub is open and running on one computer of the network.
- The Power and WiFi LEDs, and status bar on the EC device are all solid when connected.



- If they flash briefly and then fade out, the EC device is not connected. Disconnected devices are also displayed in red (not green) in the EmbroideryHub main window.
- Initialization will take approximately two (2) minutes from plugging in until it's ready for setup or sending designs.

Tip: If a mistake lies in the configuration settings, simply start again and double-check the settings. Please also refer to **Frequently Asked Questions** provided at the Help & Support Center.

EmbroideryConnect system components

The EmbroideryConnect system employs the following components…

Component	Details
EmbroideryConnect WiFi device	A Wilcom-supplied WiFi device – one per machine.
EmbroideryHub PC	A nominated PC will act as the EmbroideryHub. This PC should remain on at all times. All designs are routed through it to embroidery machines connected to the EmbroideryConnect network.

Component	Details
EmbroideryHub	EmbroideryHub software is activated on the dedicated PC… • Designers can send (push) designs to connected machine(s) using the EC device. • Alternatively, designers can send designs to the EmbroideryHub queue. • Machine operators can request (pull) specific design from the queue via barcode reader connected to the EC device.
BE EmbroideryStudio	Other BE EmbroideryStudio users can send designs to machines via the EmbroideryHub. All EmbroideryConnect devices on the network will be listed for selection. There is no need for shared folders, etc.

Third-party components

To set up an EmbroideryConnect network, some third-party hardware items are also required…

Component	Details
USB-capable embroidery machines	• Able to read designs from USB memory stick. • Preferably with the USB port built into the control panel. Add-on USB converters in old machines may not be compatible.
Compatible WiFi router	See below for details.
Barcode reader	Optional
Windows Administrator privileges	Access must be configured by a user who has full administrator privileges and is part of a Windows ‘Workgroup’ or ‘Domain’ network.



Note: EmbroideryConnect only supports Windows 10 or Windows 11 (64-bit edition), with the latest updates. It is compatible with MAC operating systems through the use of Parallels Desktop.

WiFi router compatibility requirements

Note the following WiFi router requirements to be compatible with the EC device:

Requirement	Details
Standard security protocol	The WiFi router must use one of the standard security protocols: WEP or WPA/WPA2 Personal. Security type ‘none’ or ‘unsecured’ is not supported at present. A WiFi password is mandatory.
Support for WLAN Protocol 802.11 G	The WiFi router needs to support WLAN Protocol 802.11 G in the 2.4 Ghz band. The EC device will not connect to a WiFi router using the 5 Ghz band. If unsure, consult the documentation provided with your router.
WiFi network name	You must know the WiFi network name (SSID) and WiFi router password (key). We recommend using a SSID (network name) that contains only alphanumeric characters – letters and numbers.
WiFi coverage	WiFi coverage must be sufficient to serve the entire production area.

Note: The EC device does not currently support WPS.

Reset the device

If you turn off the serial interface and subsequently lose WiFi connection to the EC device, the only way to reconfigure it is to perform a ‘hard reset’.

To reset the device...

1 Plug the device into your computer and insert a hairpin into the **Reset** aperture on the side. The device state indicator turns white to show that reset has started.



Reset EC device to factory defaults

2 Hold for 10 seconds. The EC device will produce a white flash.
3 Remove the hairpin. The firmware is restored to its initial state.
4 Reconfigure the EC device with EmbroideryHub.

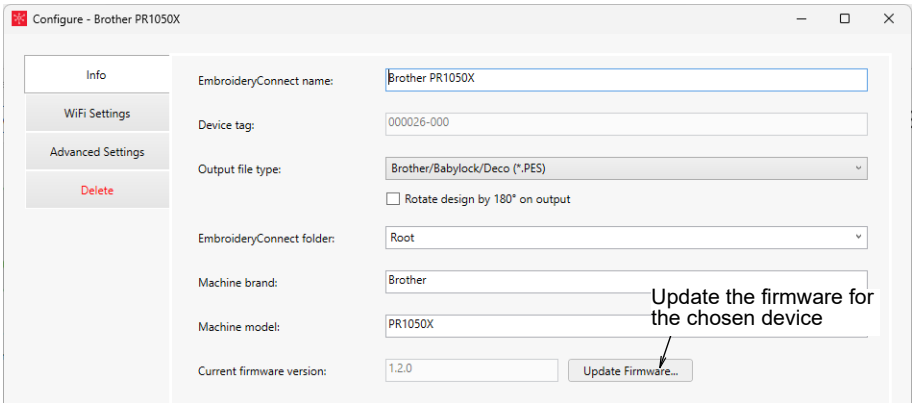
Update the firmware

The Help & Support Center will periodically publish firmware updates for the EC device. These may fix known compatibility problems for certain machines or support new features and fixes to the device. Any updates should not compromise your existing setup.

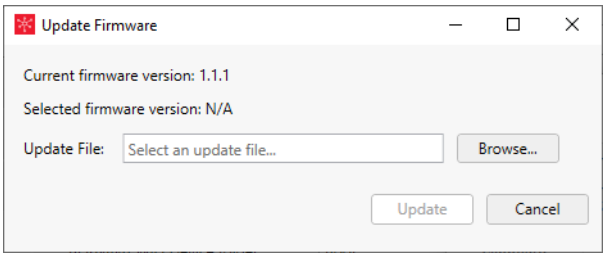
Caution: When updating firmware on your machine, make sure to unplug the EC device. This mainly applies to machines with twin USB ports.

To update the firmware...

1 Save a copy of the firmware update file to the EmbroideryHub computer. This will have been sent to you or downloaded from the Help & Support Center. Firmware files have a '.WIL' extension which is an encrypted format.
2 Double-click the device icon in the EmbroideryHub main window to access device settings.

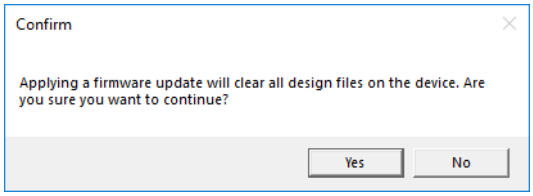


3 On the **Info** tab, click the **Update Firmware** button to access the dialog.

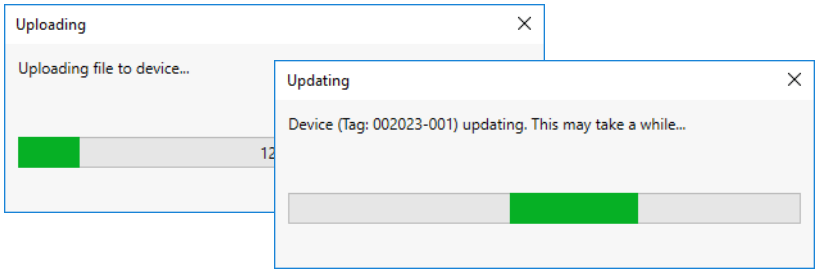


4 Click the **Browse** button and locate the firmware update file in the save location.

5 Click **Update** to proceed. A confirmation message warns you that all design files will be cleared from the device.



6 Click **Yes** to proceed. Progress messages will tell you the current status of the firmware update.



7 Once you have confirmation that the EC device is updating, you can close the device settings dialog and move to the next device. No need to wait until the current one has finished updating. Each device must be individually updated.

PART X
FILE MANAGEMENT

BE EmbroideryStudio allows you to create files or 'assets' of various kinds during normal use. The most important of these are your actual embroidery designs. But there are other assets you may create, such as design templates, custom motifs and borders. These are preserved from installation to installation, whether installing a new version of BE EmbroideryStudio or a software update.



Design management

Design Library is a design management tool. Use it to browse design and artwork files stored on your local PC or company network. Design Library capabilities make it fast and practical for daily commercial use, avoiding the need to switch to and from **File Explorer**. It recognizes all file formats used by BE EmbroideryStudio. It also makes it easy to search, sort and browse all embroidery designs on your network. See Design Management for details.

Asset management

It's a good idea to familiarize yourself with the locations and file names of your custom assets as a protection in case of computer crash, in order to share assets, and in cases where you need to manually copy the contents of your asset folders to new locations. See Asset Management for details.

Standard fonts

The tables in this section display all embroidery fonts that are standard with BE EmbroideryStudio. See Standard Fonts for details.

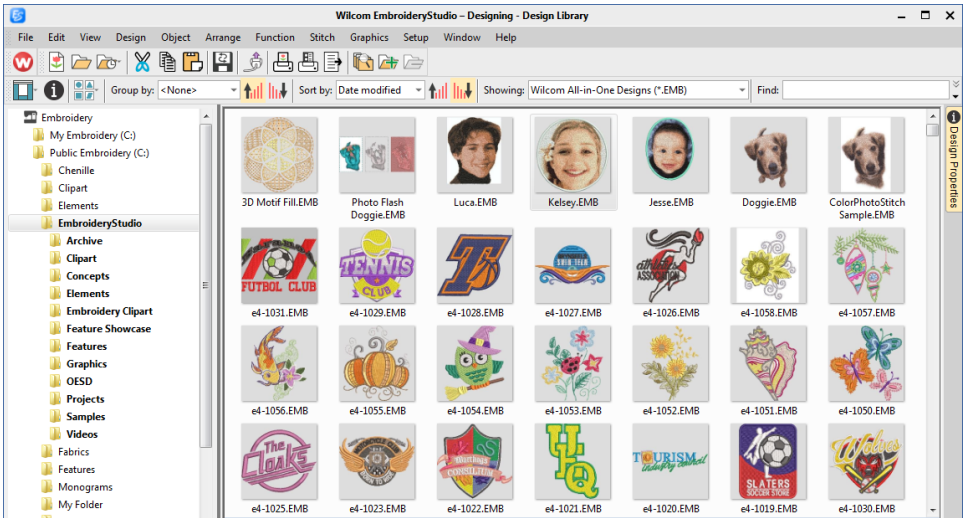
Machine, file & disk types

This section provides details of the file and disk types supported by BE EmbroideryStudio. Details are also provided about the conversion of Melco CND, Wilcom INP, and Gunold PCH design formats to and from EMB. The section also provides details of vector and bitmap (raster) formats. See Machine, File & Disk Types for details.

Chapter 42

Design Management

Design Library is a design management tool. Use it to browse design and artwork files stored on your PC or local network. **Design Library** capabilities make it fast and practical for daily commercial use, avoiding the need to switch to and from **File Explorer**. It recognizes all file formats used by BE EmbroideryStudio. It also makes it easy to search, sort and browse all embroidery designs on your network.



If you are already familiar with **File Explorer**, the interface will be quite intuitive to you. But there are some differences. **Design Library** is a 'virtual library' in that any designs on your system can be located and displayed within the navigation pane. Any folder containing embroidery designs which resides on your hard disk, external storage device, or local network can be included in the navigation pane. In a nutshell, **Design Library** lets you:

- Search for designs – including artwork files – anywhere on your local hard drive, network drives, or external devices such as USB or ZIP drive.
- Search by various means, including summary information such as design title, subject, authors, tags, etc. Order information can also be associated with any supported design file.

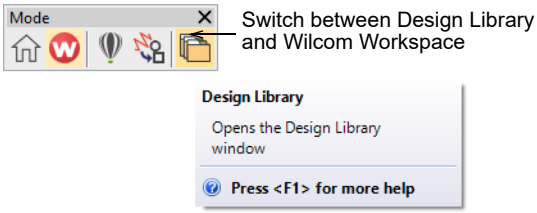
- Preview design information in the preview pane or **Design Information** docker.
- Create an organizing structure for easy categorization. Add to or remove design folders from your 'virtual library'.
- Record and manage quotes, orders, and approvals.
- Batch-convert selected design files to all commercial embroidery formats such as DST, EXP, SEW, and others.
- Print selected designs or send them for stitchout to embroidery machine or to folders which machines can access for stitching.
- Use **Design Library** to handle quotes, orders, and approvals.

Caution: Included artwork (clipart) and embroidery designs can only be used for personal use – i.e. they cannot be commercially sold in any form. Changing the medium – i.e. clipart to embroidery or embroidery to clipart – does not remove copyright protection.

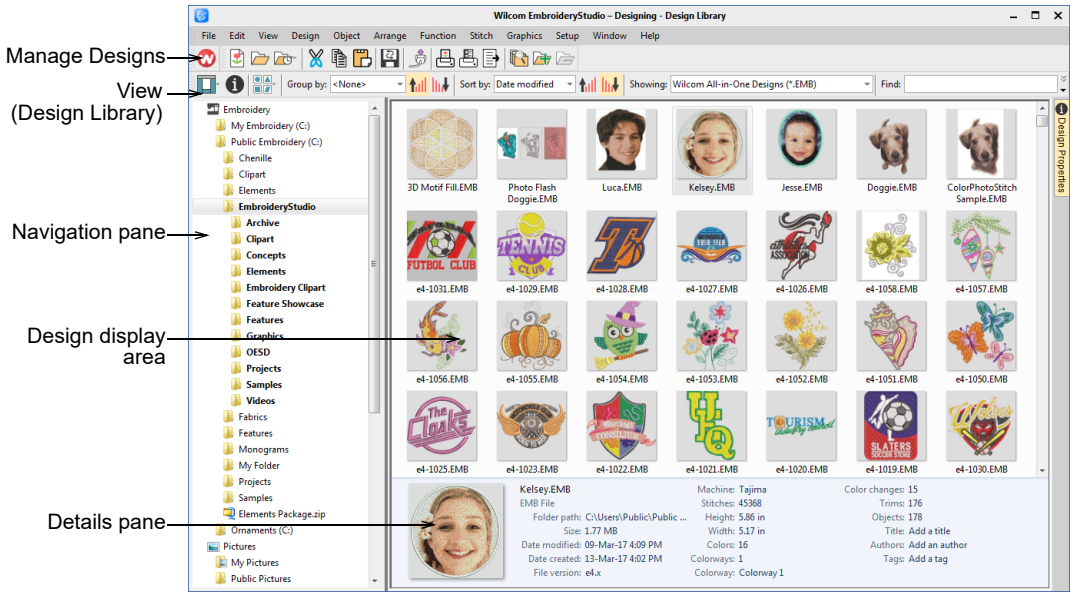
Note: CorelDRAW® needs to be registered before it can be used by BE EmbroideryStudio. Registration gives you access to the latest CorelDRAW® updates. It also provides CorelDRAW® Standard Membership which gives you access to content – clipart, fonts, stock photos, templates – via Corel CONNECT.

Design library layout

The **Design Library** is accessed from the **Mode** toolbar.



The library has five main components – toolbars, navigation pane, design display area, details pane, and **Design Information** docker. The appearance will differ somewhat depending on your operating system.



Library components are summarized as follows...

Component	Function
Navigation pane	The navigation pane in the Design Library is not an exact duplicate of your File Explorer folder structure. It is selective in that it only contains folders relevant to embroidery design and multi-decoration. Select and add any folder on your PC or network to view supported file types.
Design display area	The design display area shows any designs in selected folders corresponding to the filter selected or search criteria entered in the View (Design Library) toolbar. • Use the toolbar to filter the design display. • Right-click selected designs to access a popup menu. Use it to cut, copy and delete without leaving the software. • Use it also to zip designs and folders.
Details pane	When a design is selected, summary information is displayed in the preview pane.
Design Information docker	Check design details via this docker. This is always advisable prior to design approval or stitchout. Summary and order information may be provided by the digitizer or sales team. This information can be printed with approval sheets and production worksheets.
Toolbars	

Component	Function
Mode	Switch to Wilcom Workspace to digitize and edit embroidery designs.
Manage designs	Open selected or recent designs, cut, copy and paste them, convert them, print them, or output them to any connected embroidery machine or data media.
View (Design Library)	Search or sort the entire embroidery library or any chosen folders on any criteria selected. Find and manage folders containing designs.

Viewing designs in network folders

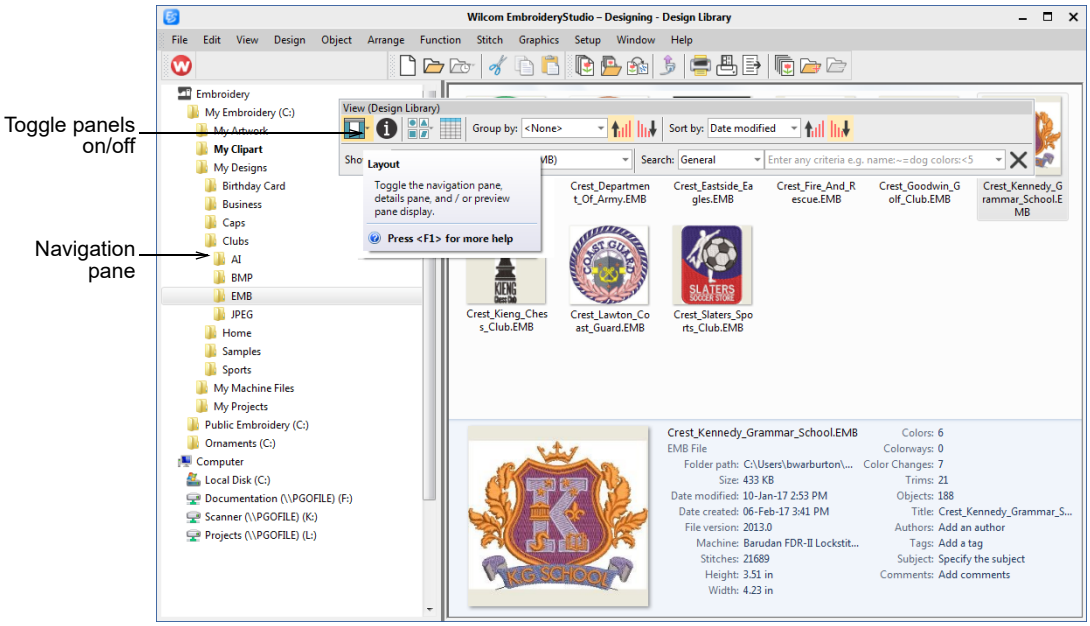


Click Mode > Design Library to open the Design Library window from which to search and catalogue designs as well as quotes, orders, and approvals.

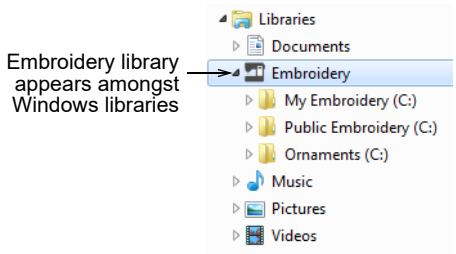


Use View > Layout to toggle navigation pane, details pane, and/or preview pane display.

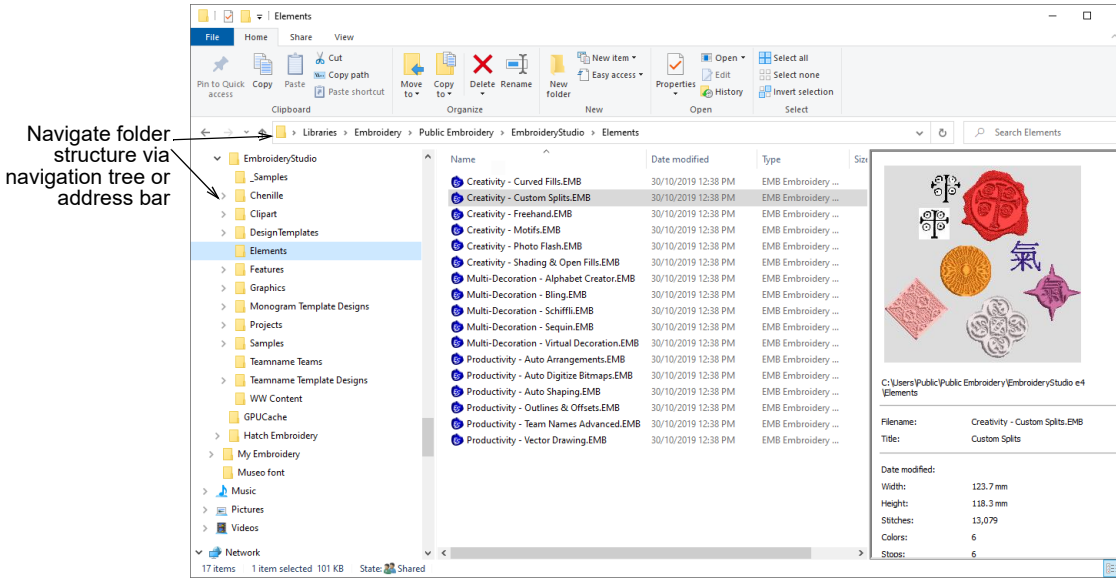
Navigating to design folders with **Design Library** is similar to browsing with **File Explorer**. Your access to design folders on your local network is only limited by access rights determined by your System Administrator. View any supported file type residing in design folders. Designs can be searched, sorted, grouped, and browsed by customer or order. Click the **Design Library** icon on the **Mode** toolbar. **Design Library** opens in its own window.



Design Library is 'virtual' in the sense that any designs on your system can be located and displayed within the library. This folder acts as a container which appears in **File Explorer** amongst your other Windows libraries.



You can add folders both in **File Explorer** and in the **Design Library** itself. The initial folder structure is created by your installation. However, any folders on your local network which contain embroidery designs or artwork can potentially be included and viewed in **Design Library**.

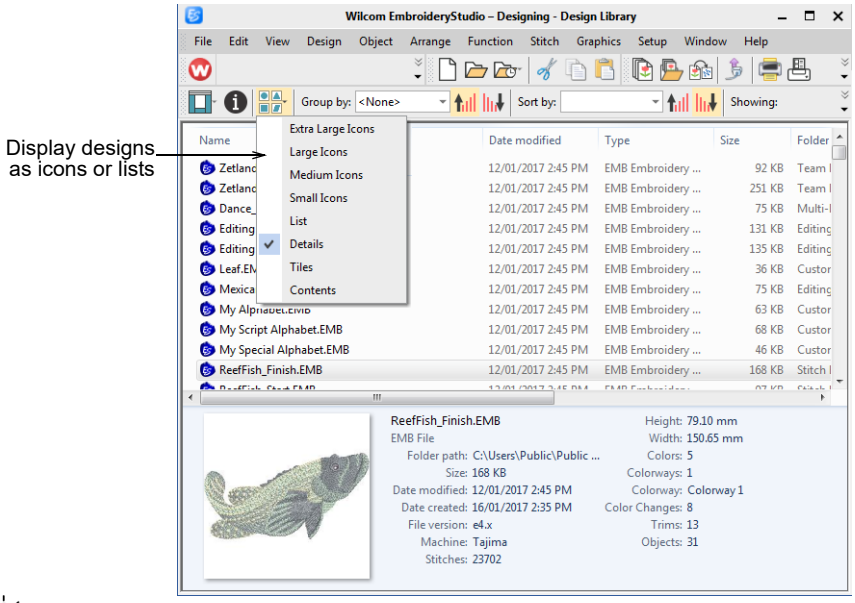


Tip: Like **File Explorer**, the **Design Library** display can be refreshed with a simple **F5** keypress.

Change design display

Use View > Change View to select thumbnails only, thumbnails with stitching details, or summary information only.

Use the **Manage Designs** toolbar to control display of the navigation pane as well as thumbnail appearance. Use the **Change View** droplist to display designs in the preferred format.

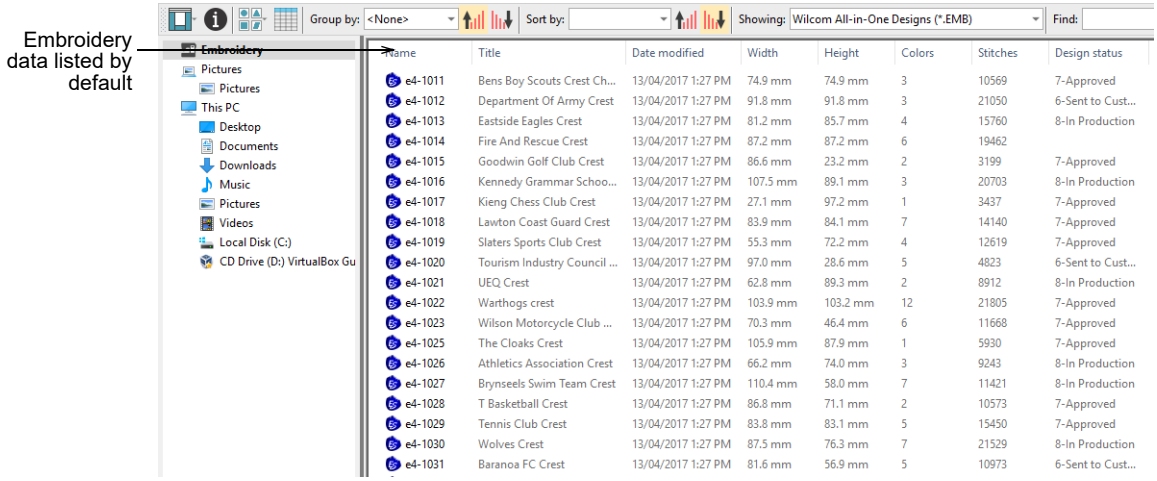


Tip: The **Design Library** display can be refreshed with a simple **F5** keypress, the same as **File Explorer**.

View design details

Use View > Reset Detail Columns to reset the columns displayed in details view to the default layout.

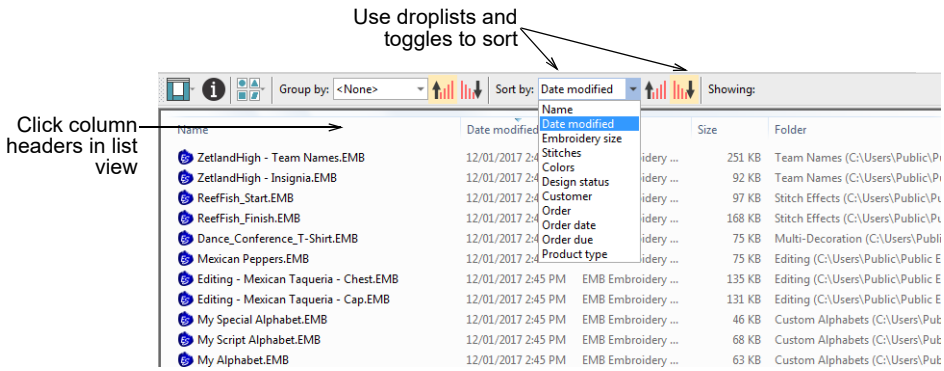
Default detail columns vary by file type and are controlled by MS Windows®. **Design Library**, however, provides additional columns for data derived from embroidery files. These may include design status, customer, order date, etc. Such details are primarily intended for use with EMB but can also apply to other embroidery formats.



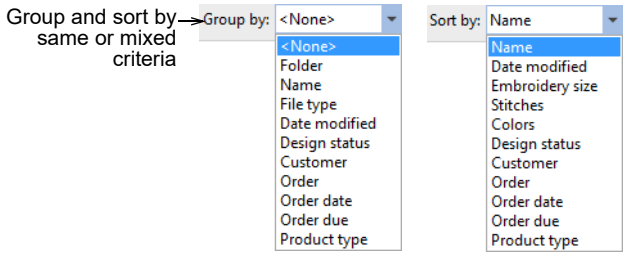
When viewing design lists in **Details** view, columns can be arranged in any order and with a variety of criteria. Sometimes Windows will reset detail columns to Windows defaults, even for EMB files. To return to the default layout, simply click the **Reset Detail Columns** button.

Group & sort designs

Various mechanisms are available for you to sort and group design listings...

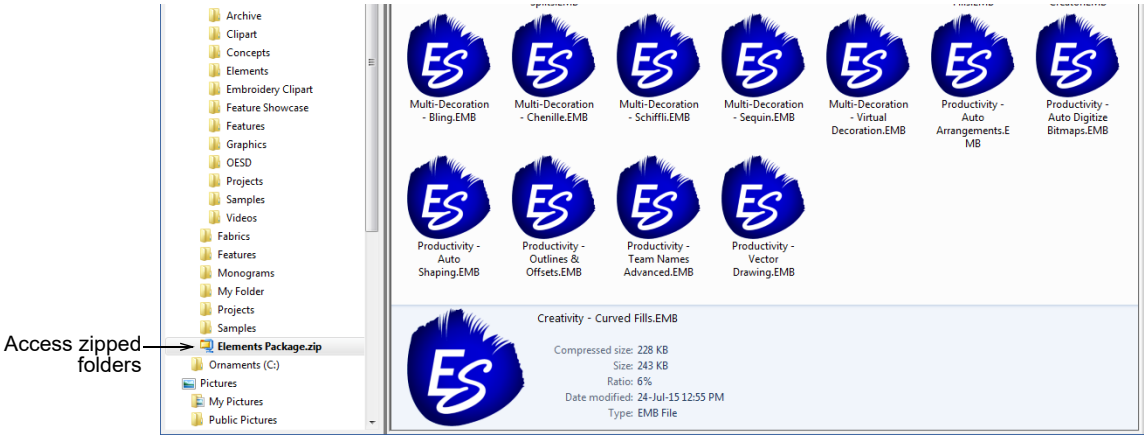


The **Group** and **Sort** by droplists also provide a convenient mechanism for managing orders...



View zipped designs

View designs in zipped folders. The limitation is that the contents of zipped folders cannot be viewed as thumbnail images.

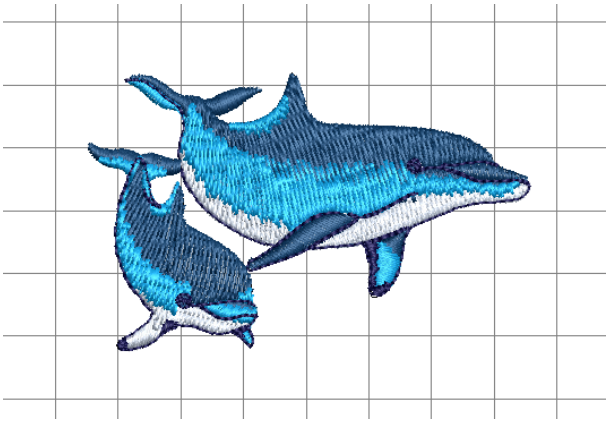


Related topics...

- Embroidery file formats

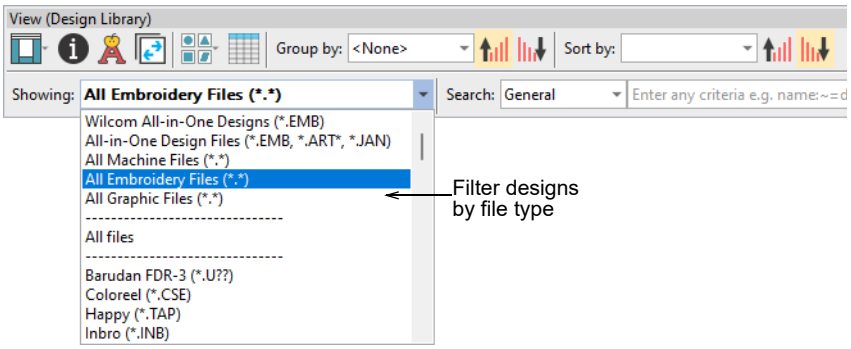
Opening designs from Design Library

Embroidery files fall into two broad categories – 'design files' and 'machine files'. Design files are ones you open and modify in **Wilcom Workspace**. Machine files are generally ones you send to machine for production. There is some inter-convertibility between the two formats.



Filter designs

You can filter your embroidery library between file categories – design files, machine files, or all.



The **Design Library** can filter:

- All Wilcom-supported design files: EMB, ART, JAN
- All machine formats such as DST, EXP, JEF, etc.
- All artwork files read by BE EmbroideryStudio, both vector and bitmap

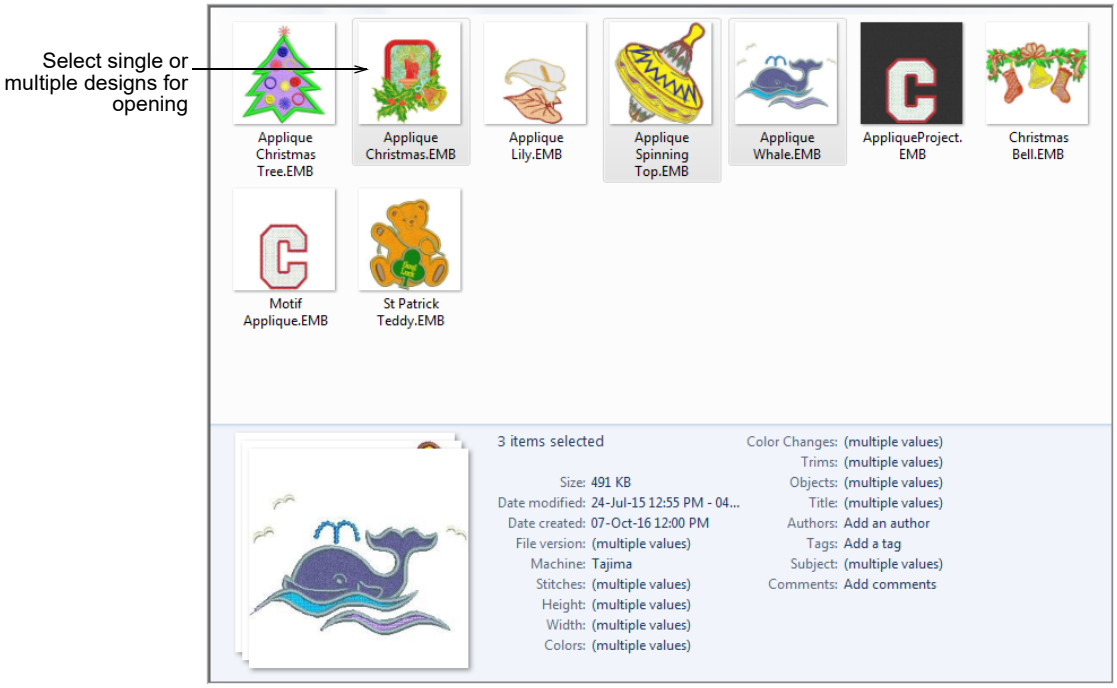
Related topics...

- Machine Files
- Embroidery file formats

Open design files

Use Manage Designs > Open Selected to open design(s) selected in the embroidery library.

Design files, also known as 'all-in-one' or 'outline' files, are high-level formats which contain object outlines, object properties and stitch data. When you open a design file in the software, corresponding stitch types, digitizing methods and effects are applied. Design files can be scaled, transformed and reshaped without affecting stitch density or quality. After modification, you can save to any supported file format.



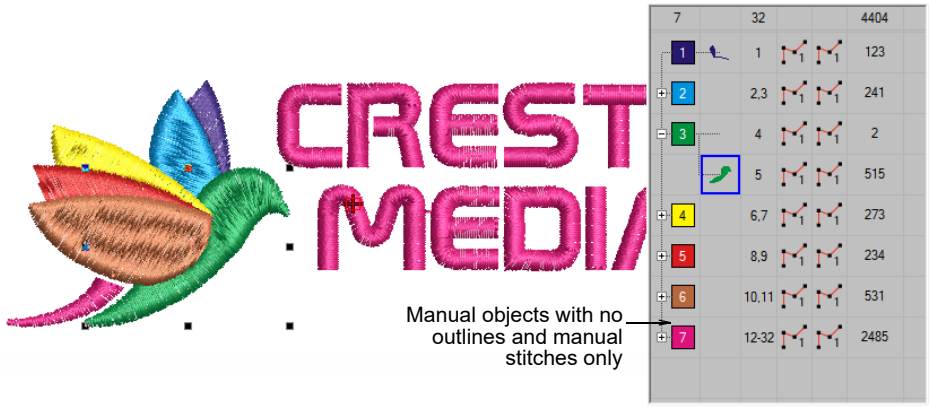
Using the **Design Library**, you have the option of opening one or more selected designs in their own design tabs. Simply select a design or designs by holding down **Ctrl** as you click, and then click **Open Selected**.

Caution: Be careful not to open too many designs simultaneously. Potentially you could select all designs in the library and click **Open Selected**. This operation cannot be stopped and may result in the computer running out of memory.

Open machine files

Different embroidery machines speak different languages. Each has its own commands for the various machine functions. Machine files, also known as 'stitch files', are low-level formats for direct use by machines. They contain information about the position, length and color of each stitch. When they are read into BE EmbroideryStudio, machine files do

not contain object information such as outlines or stitch types, but present the design as a collection of stitch blocks called 'manual objects'.



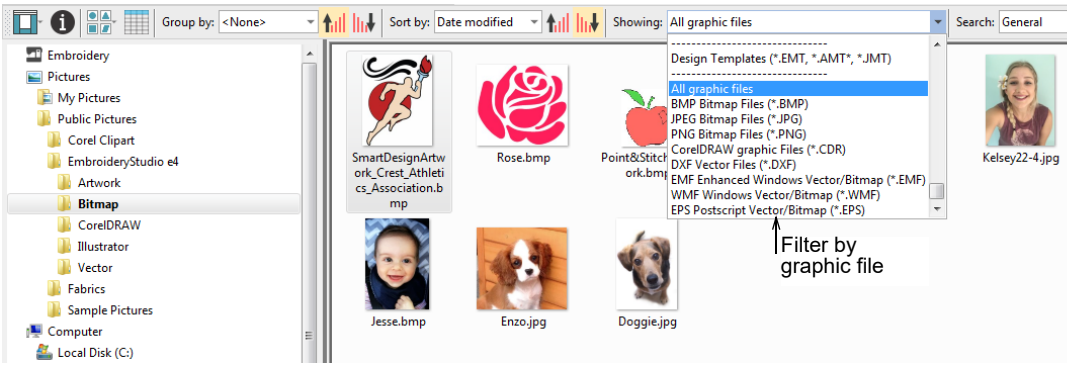
While machine files are generally not suited to modification, the software can 'recognize' object outlines, stitch types and spacing from stitch data with some success. By default, machine files are converted to outlines and objects upon opening. These 'recognized' designs can be scaled with stitches recalculated for the new outlines. Processing is effective for most stitch designs but cannot produce the same level of quality as original outlines and may not handle some fancy stitches.

Related topics...

- Machine Files

Open graphic files

Artwork can be opened in BE EmbroideryStudio in both vector and bitmap (raster) formats via **Design Library**. Samples of both file types are installed with BE EmbroideryStudio in the **Pictures** library shown below.



Extended support for CDR files

Design Library provides extended support for Corel CDR files. This includes:

- Right-click to access Windows operations – **Open**, **Open With** – directly into CorelDRAW Graphics. Or double-click to open a selected CDR file using the default template.
- Drag-and-drop from File Explorer into CorelDRAW Graphics.
- Drag-and-drop into Wilcom Workspace.
- Drag-and-drop into standalone CorelDRAW® Graphics Suite.



Note: For details of supported image file formats, refer to the CorelDRAW® Graphics Suite electronic User Guide. This is available via the MS Windows® **Start > Programs** group or the **Help** menu.

Related topics...

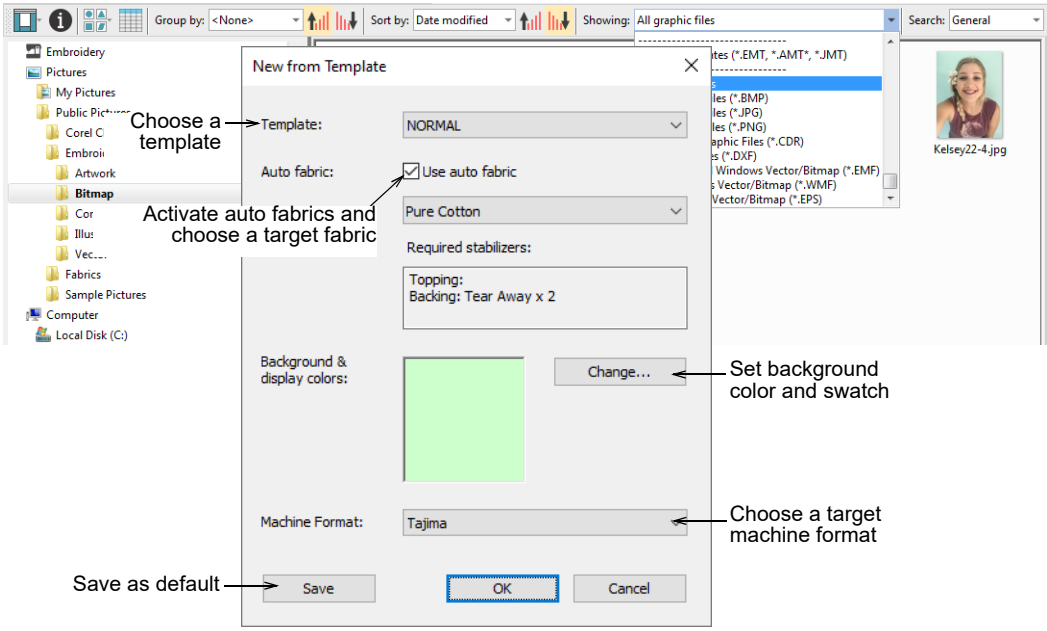
- Digitizing with Bitmaps

Open new files from existing



Use Manage Designs > New from Selected to create new designs based on designs selected in Design Library.

Instead of opening the original designs, you can use **New from Selected**. The only difference for practical purposes is that this command creates a copy which opens in a new design tab, thus preserving the original design file. Left-clicking uses the default template. Right-clicking allows you to select a different template from the dialog. Selection is remembered and used the next time the command is invoked.



The **New from Selected** command can also be used to open graphics files, including Corel CDR. With CDR, a new file is opened in BE EmbroideryStudio before switching to CorelDRAW Graphics.

Tip: If you want to open one design into another, an **Import Embroidery** function is available in **Wilcom Workspace**. Combine designs or design elements into a single design layout.

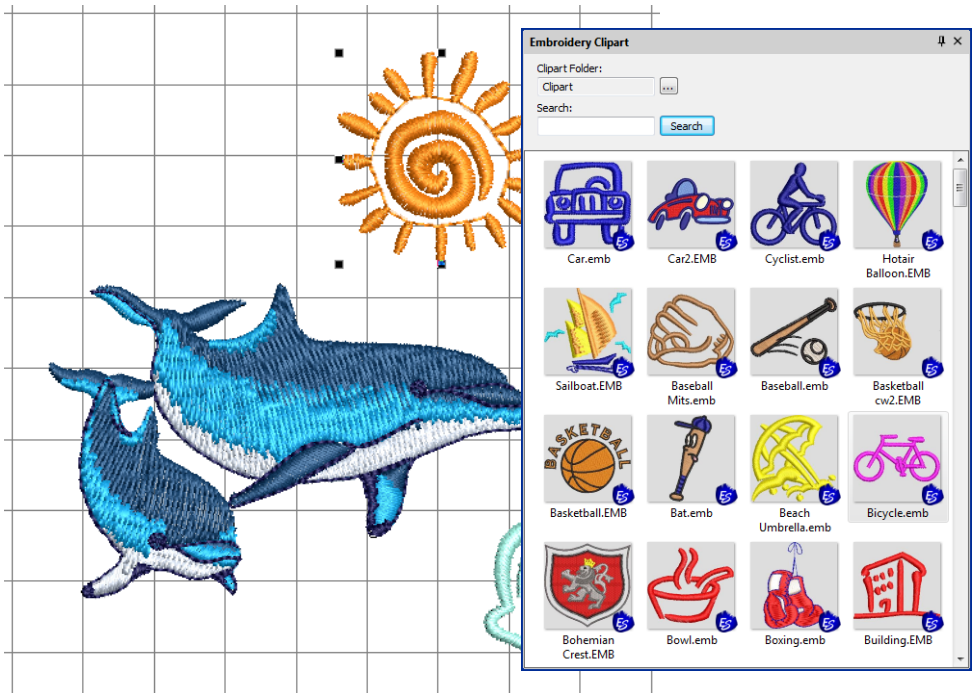
Related topics...

- Combining objects & designs
- Working with templates

Inserting designs with Embroidery Clipart

Use Docker > Embroidery Clipart to toggle the docker display. Use it to record and recover re-usable embroidery elements.

The **Embroidery Clipart** feature is a powerful productivity tool which allows you to recycle commonly used elements. When you install BE EmbroideryStudio, the **Embroidery Clipart** feature is installed with **Design Library** together with a sample clipart library.



Use the **Search** functionality to filter your list according to name, keywords, number of colors, or number of stitches, etc. Once a suitable design element is located, simply drag-and-drop it as 'embroidery clipart' into the current project. Scale to suit the design. Stitch colors are added to the **Color** toolbar.

Use the **Browse** button to change to any **Design Library** folder on your system. For example, you may want to put together a design such as a wreath with components such as ribbons, leaves, fruit and flowers. With the clipart library this becomes a simple task.

Use **Design Library** to manage design elements in your clipart folders. Use **Design Information** to assign names and keywords to each design element you save. Keywords play an important part in organizing a growing clipart library. Finding a suitable element can take time but keywords narrow the selection. Any number of keywords can be assigned to the same clipart element. See below.

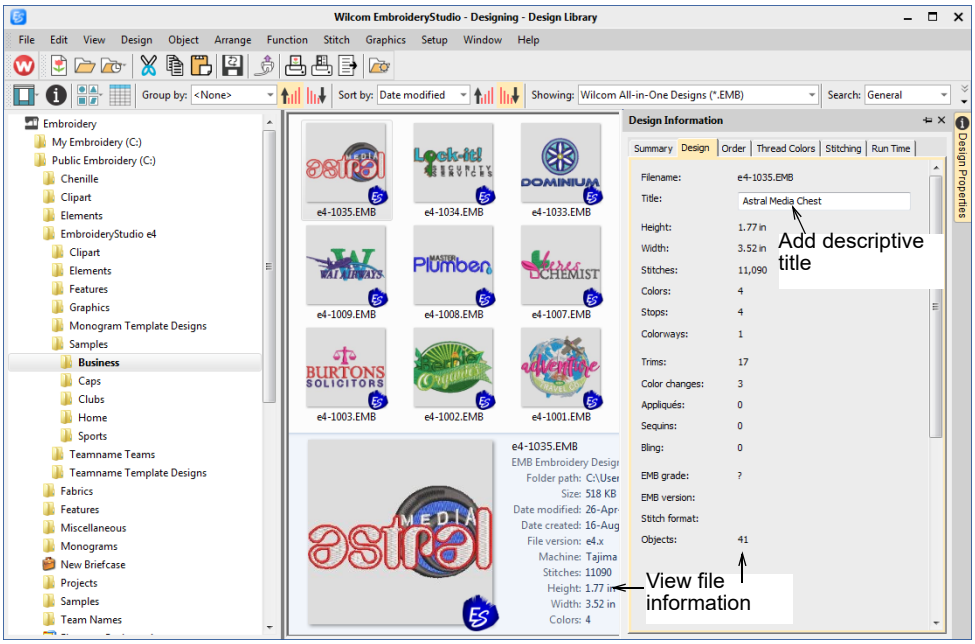
Related topics...

- Combining objects & designs
- Insert designs

Viewing & managing design information

Use View (Design Library) > Design Information to view and modify design details prior to design approval or stitchout.

Manage and check design details via the **Design Information** docker. This is always advisable when receiving orders or prior to design approval or stitchout. Summary and order information may be provided by the digitizer or sales team. This information can be printed on approval sheets and production worksheets. Choose a file and select **Design Information** via the **View** toolbar or **Design** menu.

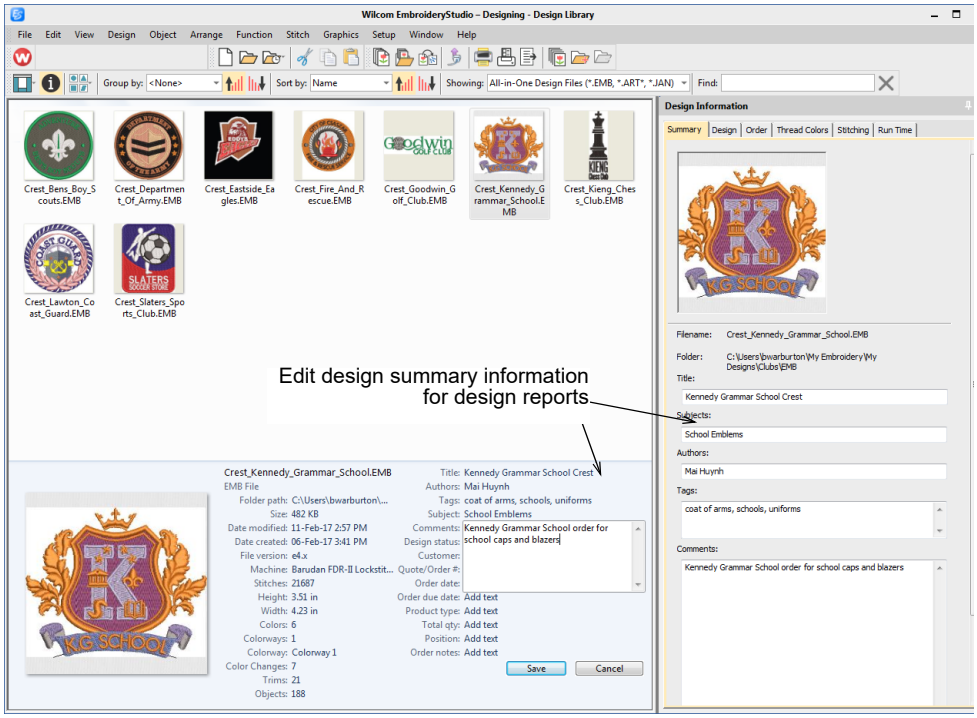


All designs in **Design Library** can be tagged for easy search and find. Summary information such as design title, subject, authors, tags, is fully customizable. Order information can also be associated with any supported design file. All additional information is saved with the actual design file and can be viewed in any software that can read EMB files. It is often desirable to edit design details within the **Design Library** without having to open in the design window. This also enables customer service staff to enter/change details without modifying the embroidery design itself.

Caution: When updating information in the **Design Information** docker, it may take some time for the index to update before you can search on that data.

Summary tab

Summary information about a design can be viewed and edited in the **Summary** tab. Generally this information is used to improve searchability. Use the information to search and filter designs by author, title, or subject. Tags can be added to improve searchability. Information can be added in the docker itself or in the **Details** pane (if activated). Click **Save** to save details with the design file.



Click a field and enter any text which will help you or others identify the design at a later date. All information on this tab is also included in the production worksheet. Information types include:

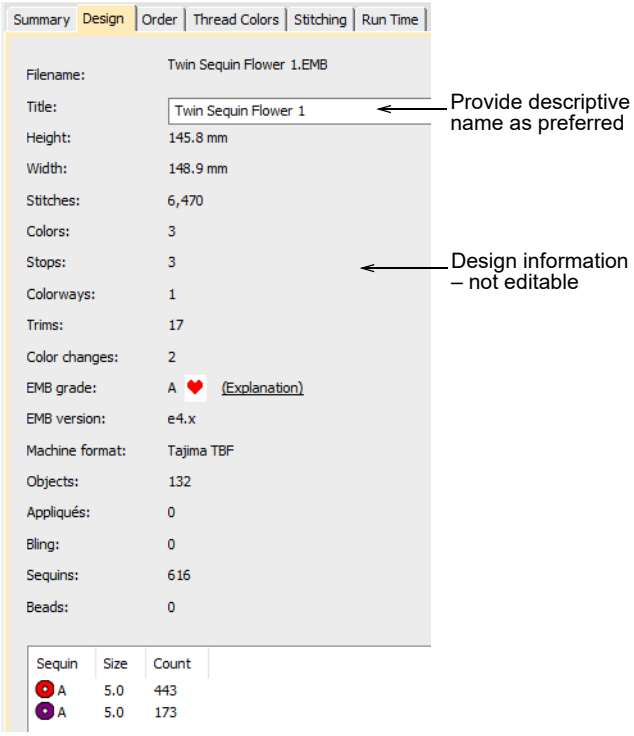
Field	Description
Title	Defaults to filename. Add a more descriptive name for easy searching. This name appears on the approval sheet or worksheet.
Subjects	This may conform to the primary category by which the design is cataloged – e.g. the name of the containing folder.
Authors	Name of digitizer and/or designer – appears in production worksheet footer.
Tags	Keywords for potential Design Library searches.
Comments	These comments are included in the production worksheet and are intended for production staff. They may include instructions for machine operators.

Related topics...

- Preview design reports

Design tab

Select the **Design** tab to view design details such as height, width, stitch count and colors. The data is extracted from the design file and, apart from design title, cannot be modified.



Fields include:

Field	Description
Filename	File name of the selected design. This will often be a number or alphanumeric format for easy cataloging.
Title	Defaults to filename. Add a more descriptive name for easy searching. This name appears on the approval sheet or worksheet.
Height / width	Total height and width of design extents.
Stitches	Total stitch count for design.
Colors	Number of thread colors involved in the design.

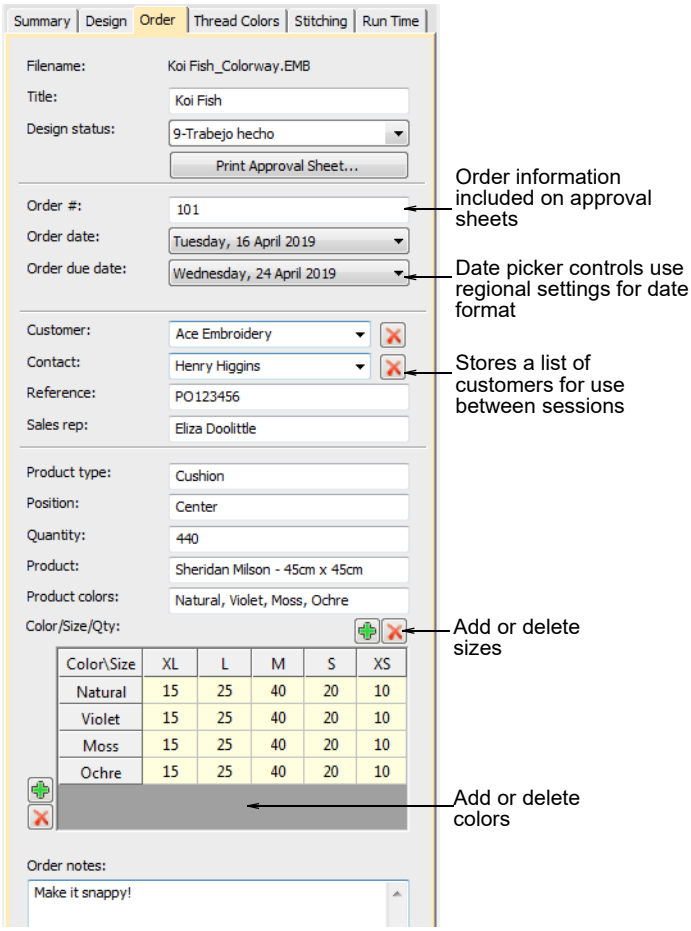
Field	Description
Stops	Normally color changes are associated with Stop functions. Depending on machine format, however, the design may include an additional last stop to ensure the machine returns to the starting needle for the next run.
Colorways	Number of colorways in the design.
Trims	Number of trims in the design. Generally, you will try to minimize the number of trims.
Color changes	Number of color changes required to stitch out design.
Appliqués	Number of appliqué objects in the design (if any).
Sequins	Number of sequins in the design (if any).
Bling	Number of bling objects in the design (if any).
EMB grade	While embroidery files are broadly classified as 'design' (oultine) or 'machine' (stitch), BE EmbroideryStudio internally tags each as belonging to one of four types – native design (A), imported outlines (B), processed stitches (C), or imported stitches (D).
EMB version	The version of BE EmbroideryStudio the file was created in – e.g. BE EmbroideryStudio 2025.
Machine format	The current machine format applying to the file. This generally corresponds to the target machine last used to stitch out the design.
Objects	Indicates total number of objects in the design.
Sequin details	Lists any sequins used in the design and their respective numbers.

Related topics...

- Embroidery machine formats
- Embroidery file formats
- Design Hooping
- Using automatic connectors

Order tab

Order information is saved directly with the design file. This allows embroidery orders to be managed via the designs they use without the need for a commercial database. The information is included on approval sheets.



Usage tips...

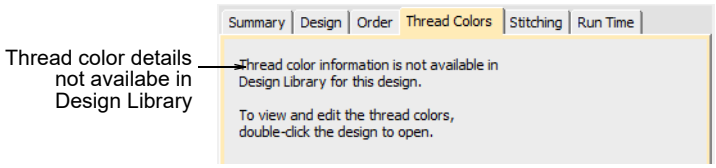
- All fields in the **Design Information** docker can be read and written in **Design Library**.
- Use **Save** and **Reset** buttons to ensure that updated fields are saved.
- The **Color/Size/Qty** table is included in the approval and production worksheets.
  - Click buttons to add rows and columns.
  - Double-click to edit labels.
- Numeric displays use locale settings.
- Date fields use locale settings.

Related topics...

- Managing quotes & orders

Thread Colors tab

The **Thread Colors** tab displays the color sequence and stitch counts for each design 'element'. Elements equate to color changes. The tab also provides thread usage estimates which may be used for costings as well as production requirements. This information cannot be viewed in **Design Library**. The design first needs to be opened in **Wilcom Workspace**.

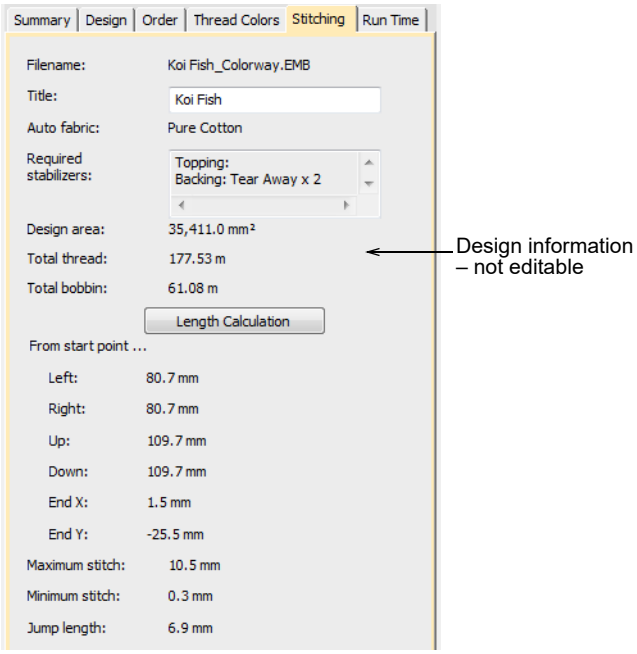


Related topics...

- Design thread colors
- Name design elements
- Assign thread colors
- Thread usage estimates
- Modify thread details
- Other general options

Stitching tab

The **Stitching** tab displays technical stitching details mainly of use to machine operators. Information includes such details as target fabric, required stabilizers, as well as total thread estimates. These may be used for costings as well as production requirements. Bobbin length calculation can be further refined if you are planning a large production run.



Data is extracted from the design file and, apart from title and bobbin length calculation, cannot be modified.

Field	Description
Filename	File name of the selected design. This will often be a number or alphanumeric format for easy cataloging.
Title	Defaults to filename. Add a more descriptive name for easy searching. This name appears on the approval sheet or worksheet.
Auto fabric	Predefined fabric settings used in current design.
Required stabilizer	Indicates recommended stabilizer(s) for selected fabric type.
Design area	Total area covered by design – used for estimating hoop sizes, fabric requirements, 3D foam, or whether design will fit target location.
Total thread	Indicates total meterage of top thread required to stitch out the design.
Total bobbin	Indicates total meterage of bottom (bobbin) thread required to stitch out the design. These figures may be required for inventory control depending on business practices.
Length calculation	Allows you to revise thread usage estimates according to target fabric thickness.
Left / right / up / down	Depending on where the design start/end point has been set, these figures indicate the distance from that point.

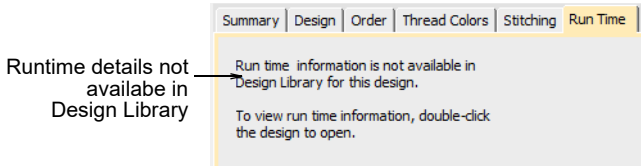
Field	Description
Max/min stitch / jump length	The maximum and minimum stitch lengths, and maximum jump stitch length in the design.

Related topics...

- Working with fabrics
- Manage fabrics
- Thread usage estimates
- Design Hooping

Runtime tab

Once your machines have been defined, running times are displayed in the **Design > Design Information** docker **Runtime** tab. This tab lists available machines together with estimated runtimes based on stitch count and machine criteria. Runtime estimate, based on selected machine, can also be included in the production worksheet. This information cannot be viewed in **Design Library**. The design first needs to be opened in **Wilcom Workspace**.



Related topics...

- Managing quotes & orders
- Runtime estimates

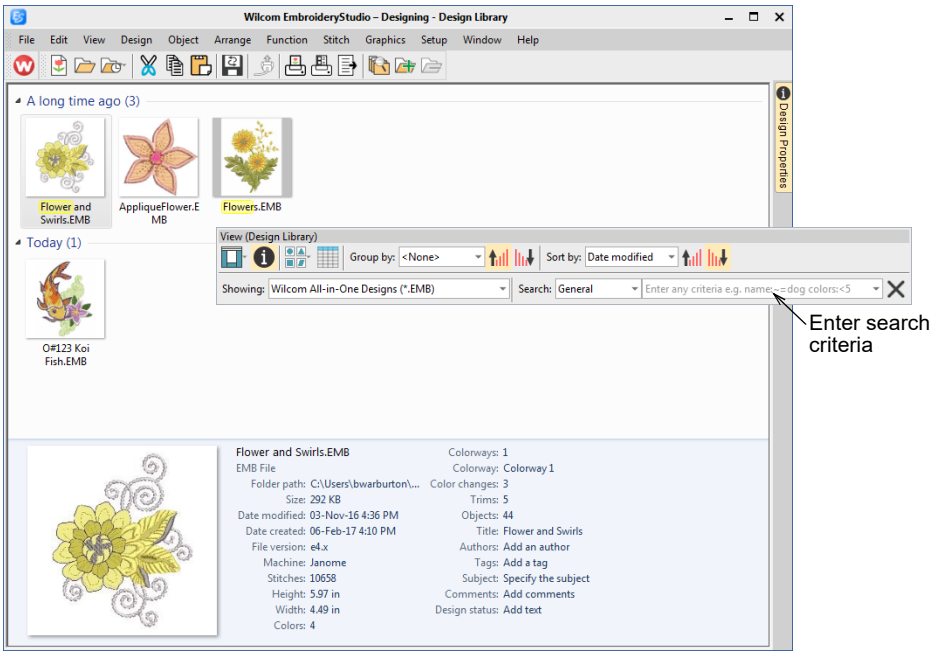
Locating designs in the library

Design Library is a 'virtual library' in that any designs on your system can be located and displayed within the navigation pane. The **Design Library** doesn't care where they physically reside on your hard disk, local network, or external storage devices. Any folder containing embroidery designs can be included in the navigation pane.

Searching the library

Design Library allows for fast searching of designs on shared local network drives. This is important for businesses with multiple computers

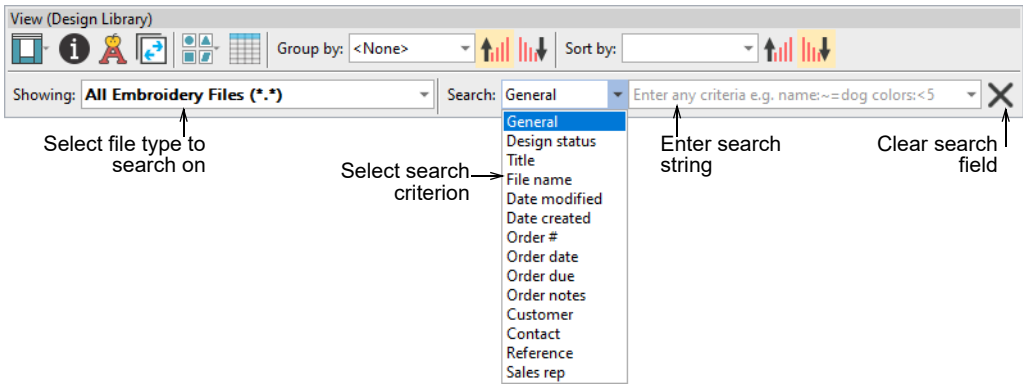
and multiple users creating and accessing EMB, machine files, or graphic files.



Use the **View** toolbar to search for names or keywords or sort designs by name, create date, and other criteria. The **Search** field is very powerful.

Search criteria

In fact you can search on any criterion displayed on the preview pane. To begin with, select a file type to search on, and select criteria from the droplists.

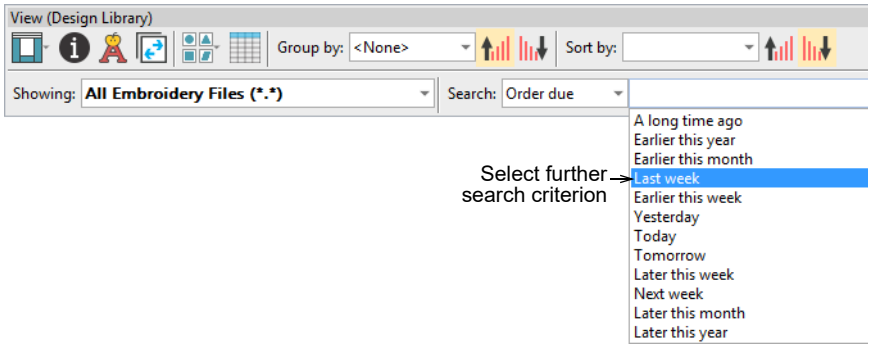


Searchable fields include common commercial categories:

- General

- Title
- File name
- Date modified
- Order #
- Order date
- Order due
- Order notes
- Customer
- Contact
- Reference
- Sales rep
- Design status

Once you have selected a search criteria – e.g. 'Order due' – select further criteria from the second droplist.



Search strings

Optionally, enter search strings directly into the search field – e.g. 'colors<5' – meaning, 'fewer than 5 colors'. Search strings default to 'CONTAINS' not 'EQUALS' unless you enter a different criteria.

There is also an 'All' criterion which allows you to do perform advanced queries using the Windows Search syntax such as:

author:"Wilcom" colors:<5 stitches:<3000

This will narrow the search to only those designs which:

- have been authored by 'Wilcom'
- have less than 5 colors, and
- have less than 3000 stitches.

Make sure you use correct syntax. Each field name must include a colon (:) after the name. Any names, such as 'Wilcom', need to be placed

between double quotes – "Wilcom". Use the **Clear** button to clear the **Find** field before conducting another search.

Reserved terms

Certain terms are 'hard-coded' in the design file. When conducting searches in languages other than English, you need to make sure that these 'reserved' terms are entered in English. Note that the following are not natively available in the Operating System and will always appear in English:

- Colors
- Height
- Machine
- Objects
- Stitches
- Trims
- Width



Note: Search criteria with two words needs to be entered without spaces as shown:

Search criteria	Enter...
Color changes	Colorchanges
Design status	Designstatus
Order date	Orderdate
Order due date	Orderduedate
Order notes	Ordernotes
Product colors	Productcolors
Product type	Producttype
Sales rep	Salesrep

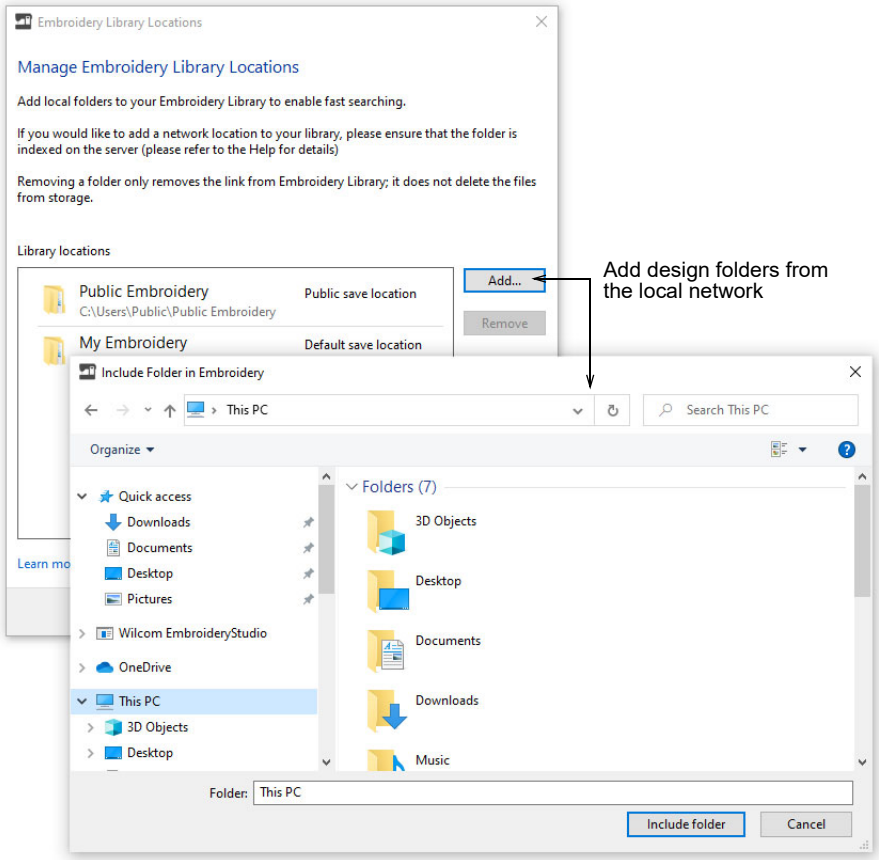


Note: When searching on non-reserved terms, you can search for two words separated by spaces and the search will turn up all designs with **either** word. If you want to find designs with **both** words, add a + between them – e.g. koi+fish. If you want an **exact** match, you need to include inverted commas in the search string – e.g "my design".

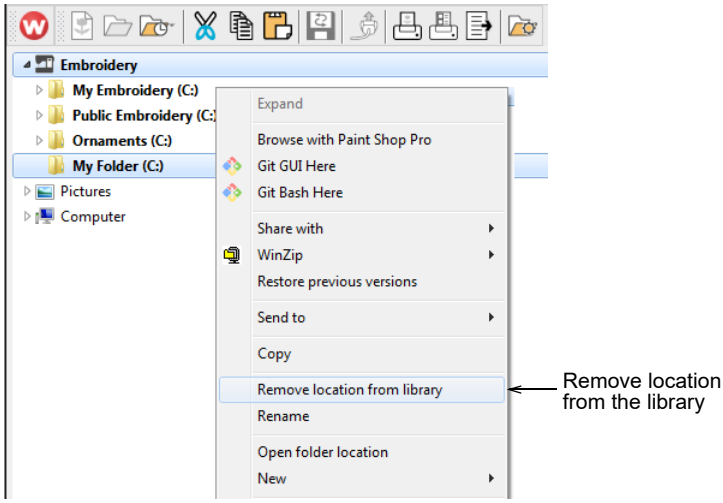
Adding folders to the library

Use Manage Designs > Manage Embroidery Library Locations to add or remove existing folders from the Embroidery Library, enabling fast searching and filtering.

Remember that the **Design Library** is a 'virtual library' in Windows. When you add or remove folders from the navigation pane, this only affects the **Design Library**. It does not affect the folder structure on your hard drive or network. To add design folders to your library, use the **Manage Embroidery Library Locations** function to locate folders containing designs anywhere on your local network.



Use the **Remove** button to remove a folder from the **Design Library**. All subordinate folders will disappear from the navigation pane. The same functionality is also available via popup menu.

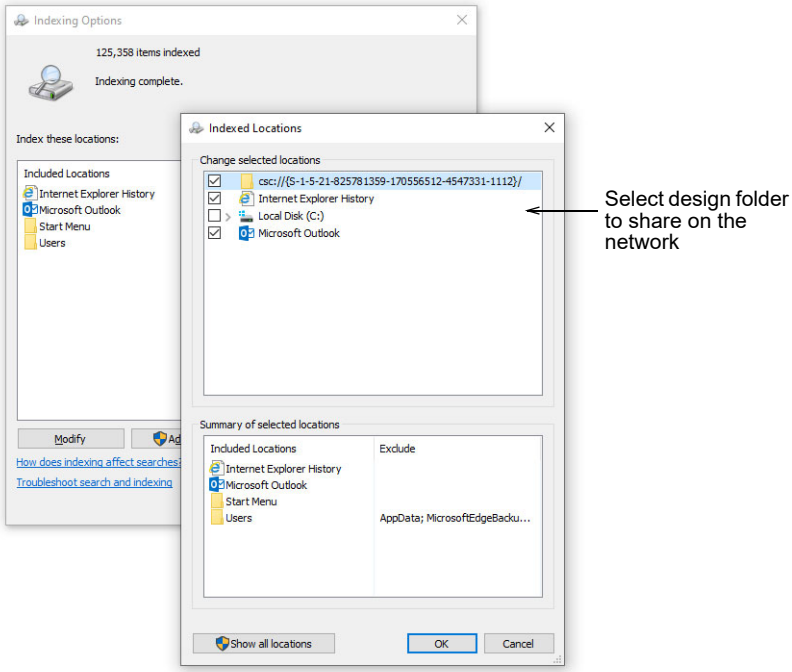


Fast searching on shared network drives

For businesses with multiple computers reading and writing EMB or machine format designs, there is usually a need to store designs in shared network folders. You may want to set up a company server as a central repository for all design files. Connect any folders on the server to each client PC via **Design Library**. **Design Library** relies on Windows indexing to ensure fast searching.

To set up fast searching on shared network drives...

- For the Windows file server, make sure you have the Windows Search service running. You will need a minimum of Windows Server 2008 on the server to enable fast-search indexing. You will also need some version of BE EmbroideryStudio installed.
- Add the design folder to be shared with the indexing function. Go to **Control Panel > Indexing Options > Modify** and select the correct path.

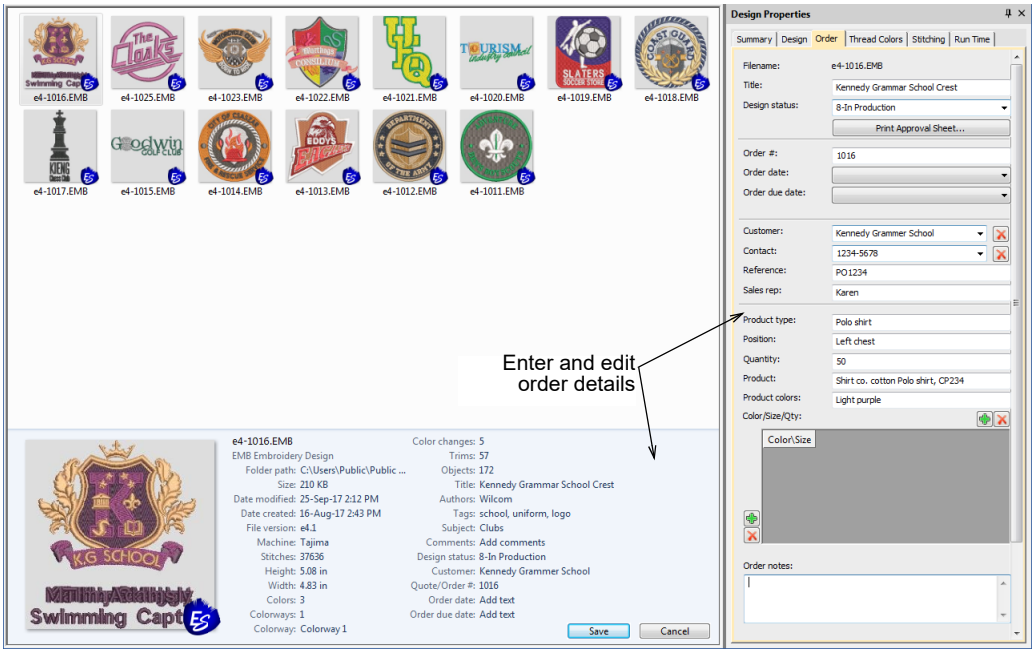


- Install BE EmbroideryStudio so that the Shell Extension is registered. This allows the server to index additional embroidery file properties.
- Once the server has finished indexing the folder, then, for every PC using the file server, add the design folder to **Design Library**. See above.

Note: Fast searching will not work with NAS type devices as they are non-windows based operating systems.

Managing quotes & orders

The **Design Library** provides a practical and simple method of recording and managing quotes, orders, and approvals. It is oriented mainly to 'Custom Logo' commercial embroidery, where a design needs to be stitched on a specified garment in a defined location. Order information is saved directly with the design file. This allows quotes and orders to be managed via the designs they use without the complications of a separate database.



Order details

Basic order details are stored as EMB file properties. Any alphanumeric information can be entered. Fields include:

Field	Details
Filename	File name of the selected design. This will often be a number or alphanumeric format for easy cataloging.
Title	Defaults to filename. Add a more descriptive name for easy searching. This name appears on the approval sheet or worksheet.
Design status	Use ‘design status’ for digitizing and approvals – e.g. ‘Logged’, ‘Verified’, ‘In Progress’, ‘For Review’, ‘Approved’.
Print approval sheet	Takes you to Approval Sheet print preview directly. You have the option of sending to a printer, printing a PDF, or sending by email.
Order details	
Order #	Embroidery company’s quote/order number
Order date	Date the order was placed
Order due date	Date the completed order is due

Field	Details
Order notes	Internal notes for the sales/order staff. They do not appear anywhere other than here. The comments in the summary tab are included in the production worksheet and are intended for production staff.
Customer details	
Customer	Customer name and/or ID
Contact	Customer contact person
Reference	Customer reference / PO order or similar
Sales rep	Name of salesman dealing with the customer
Product details	
Product type	Garment or article type – e.g. Polo Shirt
Position	Position of design on the product
Quantity	Total number of pieces to be stitched with design
Product	Brand, style code, product name
Product colors	May include product color code or name.
Color / Size / Qty	Matrix of product color, size, quantity for the product



Tip: Companies can and should establish guidelines for staff to enter consistent information. No checking or enforcement is done by BE EmbroideryStudio.

Related topics...

- Printing design reports

Production jobs

A 'production job' in BE EmbroideryStudio is essentially one design on one garment. It is defined as:

- A discrete embroidery design
- To be stitched on a specified product in a specified location
- For a specific order number relating to a specific customer on a specific order date
- For a specified order quantity, broken down by color / size / quantity.

A customer order might sometimes require multiple production jobs. If so, you use separate EMB files for each job in the order. To see all jobs for a specific order, list designs by order # or customer, etc.

Multiple production jobs in one order

If a customer order requires multiple production jobs, separate EMB design files are created for each one. You can handle this in one of two ways. Either define a different internal order number for each job with a common stem. For example:

Job	Order #	File Name
1	12345-1	DesignFile
2	12345-2	DesignFile

Alternatively, use the same order number and distinguish the job by file name. For example:

Job	Order #	File Name
1	12345	DesignFile-1
2	12345	DesignFile-2

Design status

Design Status is managed by company staff who change the status manually when relevant. Designs can be searched, grouped, and managed by status. The droplist contains the following default values:

Status	Usage
1-Requested	Customer Service or Sales requests a new design to be digitized.
2-Assigned	Digitizing manager assigns to an embroidery digitizer.
3-Digitized	Digitizer finishes – design is ready for internal review.
4-Not Ok	Digitizing was checked and found faulty – needs to be fixed.
5-Ok	Digitizing was checked and found ok – Sales rep to send to customer for checking and approval.
6-Sent to Customer	Sales rep has sent the design to customer for approval.
7-Approved	Sales rep records customer approval.
8-In Production	Production manager indicates the job is in production.
9-Job Done	Production manager signs off when production job is done.

A staff member sets the status to indicate what he has done, not what is to happen next. Other staff monitor status via the **Design Library** in order to know when they are supposed to take subsequent action, and update status when they have done so.

Grouping & sorting production jobs

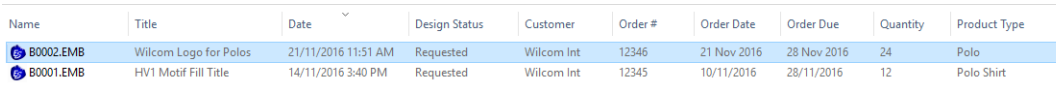
Company staff can use **Design Library** to see all jobs related to one order by searching or sorting by order number. You can also:

- Group by: Design Status, Customer, Order, Order Date, Order Due, Product Type
- Sort by: Design Status, Customer, Order, Order Date, Order Due, Product Type

Order tracking

Order tracking typically involves some or all of the following steps:

- Staff enter basic order details and status in **BE EmbroideryStudio** and save as an EMB design file:
  - Either a new file which serves as a design request to be digitized, or
  - An already digitized EMB design which is to be used for the new order.
- **Design Library** automatically indexes order and design details for quick search and find.
- Staff use **Design Library** to view and manage designs as well as quotes, orders, and approvals. Browse, list, or search for designs by:
  - Customer
  - Order
  - Date
  - Size
  - Design name
  - Description, etc
- Order details are printed on approval sheets and emailed for customer approval.
- Order details are printed on production worksheets for production staff.
- Staff use design status to track and manage order workflow, including list of designs:
  - To be digitized
  - Awaiting customer approval
  - Ready for production, etc.



Name	Title	Date	Design Status	Customer	Order #	Order Date	Order Due	Quantity	Product Type
B0002.EMB	Wilcom Logo for Polos	21/11/2016 11:51 AM	Requested	Wilcom Int	12346	21 Nov 2016	28 Nov 2016	24	Polo
B0001.EMB	HV1 Motif Fill Title	14/11/2016 3:40 PM	Requested	Wilcom Int	12345	10/11/2016	28/11/2016	12	Polo Shirt

Order tracking by job role

Various job roles within the organization may be involved in preparing and managing orders.

All staff

All staff who have access to **Design Library** can:

- Easily search and view designs
- Manage and modify design information
- Create design requests
- Create or modify actual designs
- Update design status.

Sales & customer service staff

Embroidery sales and customer service staff will use this kind of workflow:

- Create new design requests and enter order details in new or existing designs.
- Determine stitch estimates to help determine pricing for quotations.
- Visualize artwork or digitized design on the product to be embroidered.
- Estimate design run-time and job-time.
- Email approval sheets to customers for approval.
- Track status of designs and customer approvals.
- Release approved jobs for digitizing and/or production.

Digitizing managers & staff

Digitizing managers and staff will use this kind of workflow to plan and manage the design process:

- Review orders by customer, order, or date.
- Use 'design status' for digitizing and approvals. Staff update status manually as necessary.
- Designs can be searched, grouped, and managed by status.
- Track and manage internal checking status of newly digitized or modified designs.
- Track and manage previous and new designs by customer, order, date and other job details.

Production managers & staff

Production managers and staff will use this kind of workflow to plan and manage production jobs:

- Review orders which have been approved for production.
- Check order details including:
  - which designs to use for which order
  - how many pieces to embroider on what products and in what position
  - color/size/quantity details.
- Estimate design run-time and job-time.
- Help plan production schedules from order-due date, design statistics, and job quantities.

Outputting selected designs

Send designs to machine for stitching via **Connection Manager**. Create hard copy reports of a selected designs using a printer or plotter. Report types may include production worksheets, appliqué patterns, color films, as well as catalogs and lists of selected designs.

Convert designs



Use Manage Designs > Convert Selected Designs to convert the design selected in the embroidery library into different machine file types.

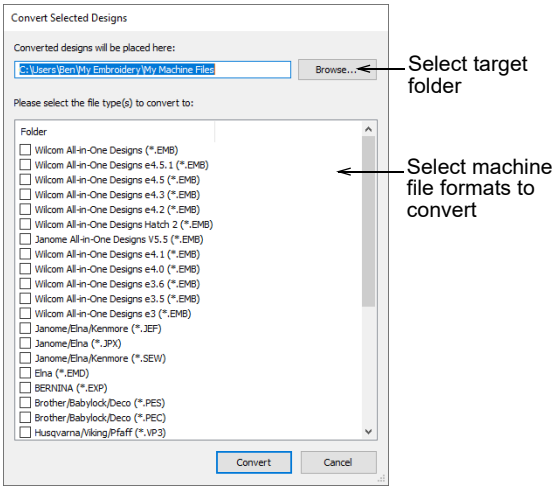


Use View (Design Library) > Exports to view the export status of the current session. Conversion to older formats or machine file is performed as a background task.

By default BE EmbroideryStudio saves designs to its native EMB format. This contains all information necessary both for stitching a design and for later modification. The **Design Library** conversion function allows you to batch-convert to and from all EMB and other supported design file types. It also batch-converts many machine file formats such as DST, EXP, SEW.

To convert designs...

1. Select the file(s) to be converted and click the **Convert Selected Designs** icon. The dialog lists all machine file formats supports by the software.

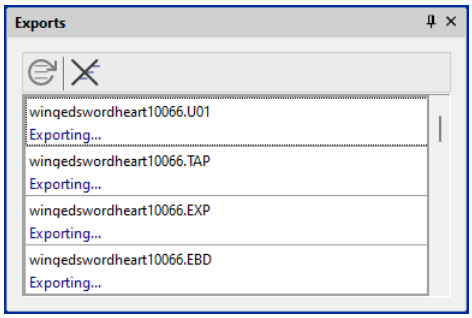


2 Select the file types you want to convert to.

3 Click **Browse** to locate a destination folder for the converted designs.

4 Click **Convert** to start the conversion. The converted designs will be stored in the nominated folder.

Tip: The **Exports** docker automatically opens when a design is converted to machine file or saved as an earlier EMB design file. This shows you the export status of the current session. Machine file export is performed as a background task.



Send designs to machine

Use Manage Designs > Send to Connection Manager to stitch out the design selected in Embroidery Library.

BE EmbroideryStudio supports various machine models. Some can be connected by cable directly to your PC via USB port. Others require files to be placed in a specific network location or 'watching folder'. Older-style machines do not support direct connection but they do read ATA PC cards

and/or USB memory sticks. **Connection Manager** provides a method of connection to machines that appear as removable media or make use of third-party connection software. Once set up in BE EmbroideryStudio, a single click is sufficient to send the design to machine.

Note: You can only send one design at a time via **Connection Manager**.

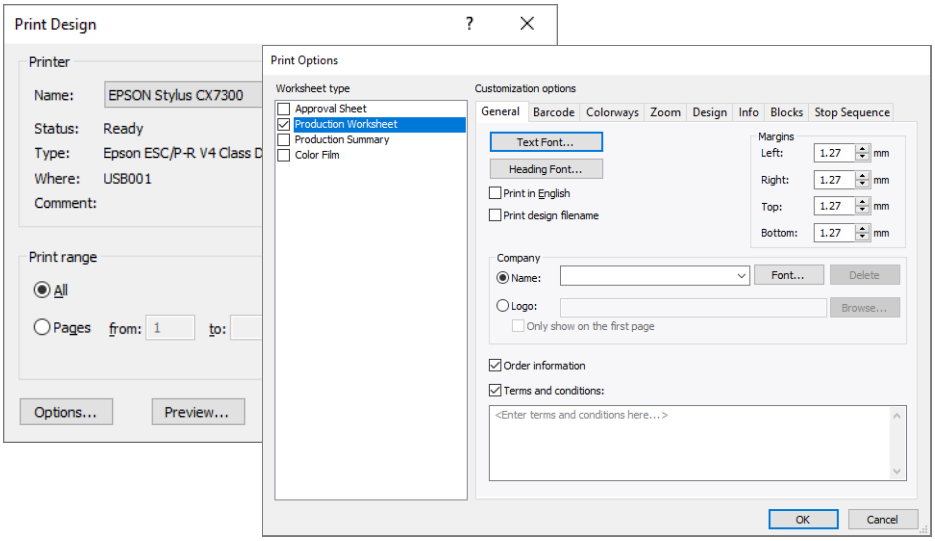
Print selected designs

Use Manage Designs > Print Selected to print designs selected in the embroidery library.

You can print worksheets for selected designs, and include thumbnails of each in the worksheet. Unlike **Print Designs**, this option can provide design and sewing information.

To print selected designs...

1. Sort the designs to be printed using **Sort**.
2. Select a design and click the **Print Selected** icon. The **Print Design** dialog opens.
3. To customize the printout, click **Options**.



4. Set design report options to include the information you want in the format you require.

Option	Function
Approval sheet	This is intended for the customer, not production staff. Customers can see what they are ordering and approve accordingly.
Production worksheet	This is intended for production staff. All production-related information, such as bobbin length, design size, garment fabric, etc, is provided.
Production summary	This provides two summary tables of the design and associated colorways – a Colorway Summary together with a Design Summary.
Appliqué patterns	This shows appliqué patterns – cutter information – isolated from the design. These can be used as a guide to cutting out fabric pieces. They also show which appliqué pieces are to be included.
Color film	Provides a list of colors in the design, together with color and stitch information for each color layer. This helps the machine operator to see each stitch color in order of stitchout.

5 The **Worksheet type** panel provides options for further customization.

6 Click **OK** and ensure correct printer settings in the MS Windows® **Print Setup** dialog. The dialog and the settings available vary from printer to printer. See your printer manual for details.

Print design catalogs



Use Manage Designs > Print Selected to Catalog to print selected designs to a catalog.

Printed catalogs contain thumbnails plus limited text details. You can prepare catalogs of your designs to suit your needs.

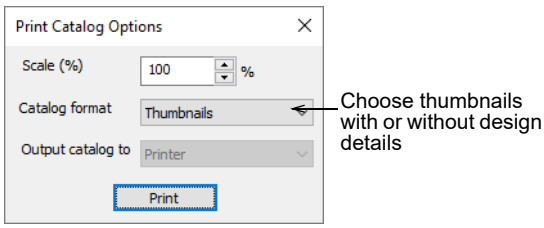
To print a design catalog...

1 Open **Design Library** and filter designs as desired.



2 Select the designs you want to include in the catalog.

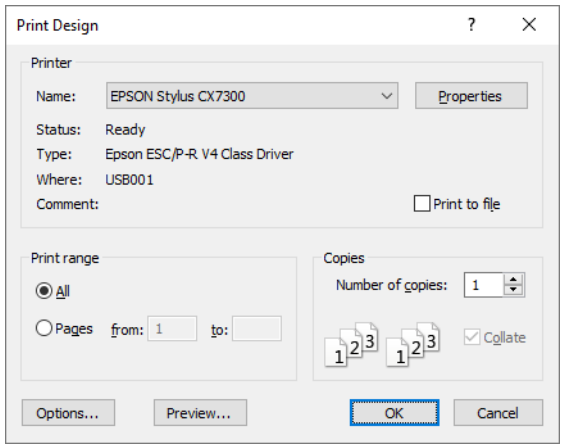
3 Select **Manage Designs > Print Selected to Catalog**. The **Print Catalog Options** dialog opens.



4 Adjust settings as preferred:

- Change **Scale (%)** to adjust thumbnail size.
- Select a catalog format – thumbnails with or without design details.
- Choose output target – PDF file or actual printer.

5 Click **Print**. The **Print Design** dialog opens.



6 Click **Preview** to view the catalog.



7 To print the design, choose an option:

Option	Purpose
Print now	Click to send the design report to your local printer.
Save as PDF	Click to save the report as a PDF document. You are prompted to save to the hard drive or network location.
Send PDF via email	Click to send the report – usually an approval sheet – as a PDF attachment to your local email client. The PDF is automatically identified by customer name, order number, and current date.

Tip: If the catalog requires more than one page, you can select which page to print in the MS Windows® **Print Setup** dialog.

Related topics...

- Group & sort designs
- Printing design reports

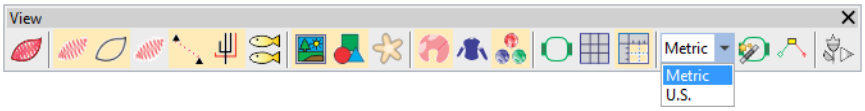
Export design lists

Use Manage Designs > Export Design List to export selected files to Tab and CSV (Comma Separated Value) formats suitable for use by most spreadsheets.

The **Export Design List** option can be used to print design lists for selected folders. This option allows you to create a simple design report which can easily be imported into a spreadsheet. You may want to use this in order to manage designs by file name.

To export a design list...

1 Preset the measurement units you want to use – metric or U.S.



2 Open the **Design Library** and select a design folder.

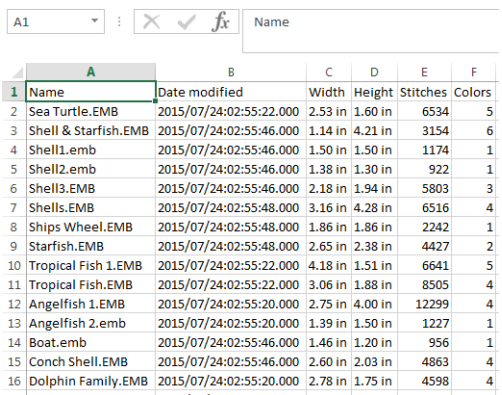
3 Sort and filter the designs to export.



4 Select all files to include in the export list.

5 Click the **Export Design List** icon and choose a location to save the list. Choose whether to save as a tab-delimited or comma-separated text file.

6 Open the text file in a spreadsheet for further sorting and printing.



A1 | Name

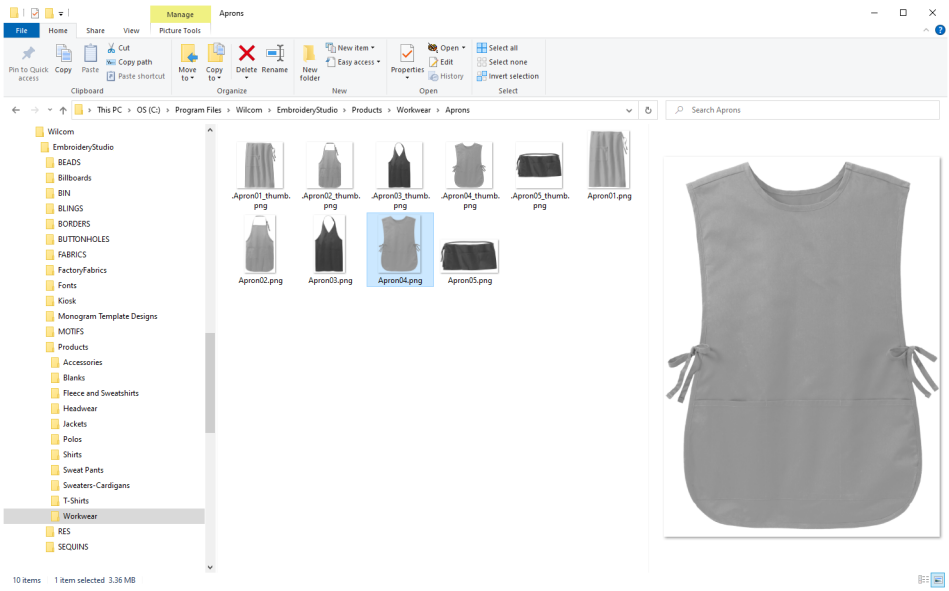
	A	B	C	D	E	F
1	Name	Date modified	Width	Height	Stitches	Colors
2	Sea Turtle.EMB	2015/07/24:02:55:22.000	2.53 in	1.60 in	6534	5
3	Shell & Starfish.EMB	2015/07/24:02:55:46.000	1.14 in	4.21 in	3154	6
4	Shell1.emb	2015/07/24:02:55:46.000	1.50 in	1.50 in	1174	1
5	Shell2.emb	2015/07/24:02:55:46.000	1.38 in	1.30 in	922	1
6	Shell3.EMB	2015/07/24:02:55:46.000	2.18 in	1.94 in	5803	3
7	Shells.EMB	2015/07/24:02:55:48.000	3.16 in	4.28 in	6516	4
8	Ships Wheel.EMB	2015/07/24:02:55:48.000	1.86 in	1.86 in	2242	1
9	Starfish.EMB	2015/07/24:02:55:48.000	2.65 in	2.38 in	4427	2
10	Tropical Fish 1.EMB	2015/07/24:02:55:22.000	4.18 in	1.51 in	6641	5
11	Tropical Fish.EMB	2015/07/24:02:55:22.000	3.06 in	1.88 in	8505	4
12	Angelfish 1.EMB	2015/07/24:02:55:20.000	2.75 in	4.00 in	12299	4
13	Angelfish 2.emb	2015/07/24:02:55:20.000	1.39 in	1.50 in	1227	1
14	Boat.emb	2015/07/24:02:55:46.000	1.46 in	1.20 in	956	1
15	Conch Shell.EMB	2015/07/24:02:55:46.000	2.60 in	2.03 in	4863	4
16	Dolphin Family.EMB	2015/07/24:02:55:20.000	2.78 in	1.75 in	4598	4

Tip: Designers frequently want to distribute designs for viewing in real colors, in TrueView™ or otherwise, with or without fabric backgrounds. Screen images can be captured in PNG format and send as email attachments.

Chapter 43

Asset Management

BE EmbroideryStudio allows you to create files or 'assets' of various kinds during normal use. The most important of these are your actual embroidery designs. But there are other assets you may create, such as design templates, custom motifs and fonts, etc. These are preserved from installation to installation, whether installing a new version of BE EmbroideryStudio or a software update.



It's a good idea to familiarize yourself with the locations and file names of your custom assets for various reasons...

- In the first instance, you should back up your custom assets in case of computer crash.
- Also, you may want to share custom assets with other BE EmbroideryStudio users, or install third-party assets such as custom fonts.
- Finally, if you want to install your software to a new computer, you will need to manually copy the contents of your custom assets to the new installation.

Tip: If you are installing your existing setup to a new PC, it's a good idea to create a single ZIP file of all your custom data and pre-install it to the new computer before installing BE EmbroideryStudio.

Assets in BE EmbroideryStudio

The table below summarizes assets which are packaged with the software. You will create and need to manage in your own assets in BE EmbroideryStudio.

Design files

Assets	Description
Embroidery designs	The built-in Design Library makes it easy to search, sort and browse all embroidery designs on your network. Any folder containing embroidery designs can be included in the navigation tree. See Design Management for details.
Machine files	Similarly, the Design Library makes it easy to search, sort and browse all machine files on your system. See Design Management for details.
Artwork	Artwork files in both bitmap and vector formats may also be managed with the Design Library. Sample files are installed together with sample embroidery design files. See Design Management for details.
Recovery files	The Auto Save function creates a temporary file in the RECOVER folder with the extension EMA. This is automatically restored when BE EmbroideryStudio is restarted after a computer crash and is deleted upon normal exit. You can manually access these files by browsing to the folder and renaming files from EMA to EMB.
Backup files	If the Backup Copy option is activated, a backup copy of the current design file is automatically created in its previously saved form. The backup copy is saved in the BACKUP folder with the original file name and native file format.

Design presets

Assets	Description
Design templates	Templates are special files used to store fabrics, objects and default settings. Use templates when digitizing frequently-used design types so that you do not have to adjust current settings every time. See Working with templates for details.

Assets	Description
Styles	A style is a group of property settings stored under a unique name. This makes it easy to apply them to selected embroidery and lettering objects. Define new styles for a design template, either from scratch or based on an existing style or object. See Working with styles for details.
Auto fabrics	Normally you choose a fabric when you start a design although you can change it at any stage. Fabric settings affect all object types other than motif fills, appliqué, and run stitches. In addition to predefined fabric settings, you can create your own custom fabrics to suit particular needs. See Working with fabrics for details.

Lettering assets

Assets	Description
Fonts	BE EmbroideryStudio provides methods for defining custom and 'user-refined' embroidery fonts. You can digitize letters from backdrop images, convert vector objects, or digitize freehand using any of the input method tools. See Custom Lettering for details.
Monogram templates	You build monograms using the Monogramming docker. The simplest way to get started is to select a monogram template from the Designs tab. The Custom folder contains your custom templates. See Monogram designs for details.
Teamname teams	A teamname design may include names from predefined teams which can be used any number of times. You can even combine members from different teams. See Managing teams for details.
Teamname templates	When creating teamname designs, you can use a preset layout or a custom layout based on artwork you may have received. Typically, you will receive a brief and possibly artwork from a customer. This design can be saved for reuse as a teamname template. See Create custom templates for details.
Kiosk templates	BE EmbroideryStudio provides an easy-to-use lettering 'kiosk' capability for cap and other embroidery. The kiosk is primarily intended for retail outlets where fast and simple personalization is required. The kiosk provides a set of predefined design layouts. You can create your own layouts for use in the kiosk. The default banner can also be customized. See Lettering Kiosk for details.

Stitch presets

Assets	Description
Motifs	Motifs are ready-made design elements, such as hearts, leaves or geometric patterns which are contained in libraries or 'sets'. You can define your own motifs for use in motif outlines or fills, or individually. See Custom motifs for details.
Program splits	Program Split is a decorative fill stitch where needle penetrations form a tiled pattern. Make your own patterns to use in Program Split fills. The same patterns can also be used with Flexi Split effects. See Creating patterns with custom splits for details.
Carving stamps	The Carving Stamp feature allows you to select object outlines from the design window and apply them directly as stamps or save them to a library for future reference. You can use vector or embroidery objects as a basis for stamps. See Add stamps to a library for details.

Other assets

Assets	Description
Hoops	The software allows you to define your own hoops and save for later use or associate with a custom machine type. Custom hoops are needed because new hoops become available for sewing machines more frequently than the software is updated. See Custom hoops for details.
Beads	Bead embroidery is a type of applied decoration where beads, like sequins, are stitched rather than glued to fabric, suede, or leather. Bead shapes and bead patterns are defined for use with the Beading feature. See Bead Embroidery for details.
Bling	Bling refers collectively to decorative objects placed on garments or templates. Bling is supplied in varying sizes, shapes, colors and materials. Bling shapes and fonts are defined for use with the Bling feature. See Bling Digitizing for details.
Borders	Predefined embroidered borders such as rectangles, ovals, and shields can be added to designs. See Add design borders for details. See also Monogram borders.
Machine formats	BE EmbroideryStudio provides standard formats for most machines. However, if your machine is different, you may need to customize the machine format settings. See Custom machine formats for details.

Assets	Description
Products	BE EmbroideryStudio lets you choose a garment or product backdrop on which to position your decoration. Use it to display location, size and overall appearance for visualization and approval purposes. It is possible to create custom product backdrops for use in your business. See Product Backdrops for details.
Thread charts	The thread charts contained in the software represent the many different brands and colors of thread available. You can modify thread charts to reflect the threads you are currently using. You can even create your own. See Create & modify thread charts for details.



Note: In order to preserve any custom assets, do not uninstall your existing version of BE EmbroideryStudio. Any new updates can be installed over top of your existing installation. If you want to move your BE EmbroideryStudio to another PC, you will need to manually transfer any custom assets you have created or received from third parties.

Asset locations

In BE EmbroideryStudio, asset file locations divide into two broad categories – program data and user or 'custom' data. Pre-packaged or 'factory' assets installed with the software include designs, fabrics, templates, motifs, borders, fonts, monograms, and more. These assets are stored in dedicated folders at the following location...

`C:\Program Files\Wilcom\<ProductName>\`

Personal designs & artwork

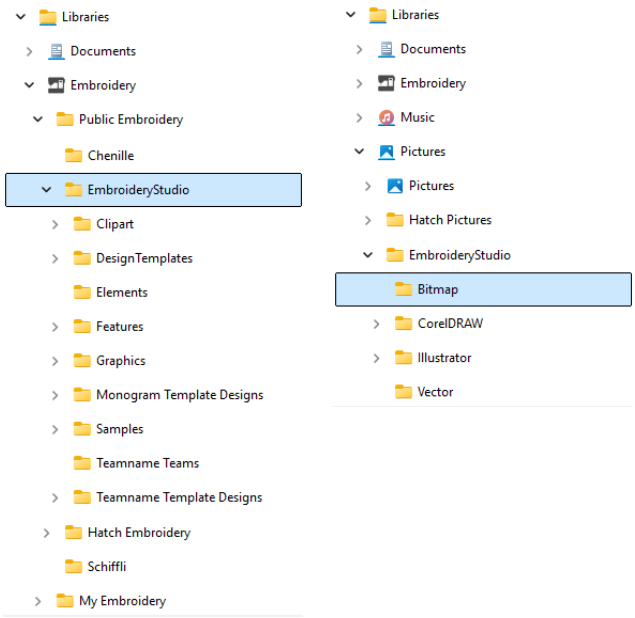
Amongst your most important assets are of course your embroidery designs and any artwork files you may use. These can potentially be saved anywhere on your system. By default however...

- Any designs, cutting files, multi-decoration files, or machine files that you save from BE EmbroideryStudio will be saved by default to the 'My Embroidery' folder at this location...

  `C:\Users\<UserName>\My Embroidery\`

- Similarly, any artwork you save from BE EmbroideryStudio will be saved by default to the 'Pictures' folder at this location...

  `C:\Users\<UserName>\Pictures\EmbroideryStudio\`



To quickly access personal embroidery and artwork folders in **File Explorer**, enter these shortcuts in the navigation bar and press **Enter**:

File type	Shortcut
Saved EMB design files	`%USERPROFILE%\My Embroidery\My Designs`
Exported machine files (e.g. DST, EXP, etc)	`%USERPROFILE%\My Embroidery\My Machine Files`
Exported graphics – design bitmaps and vectors	`%USERPROFILE%\Pictures`

Note: Whenever you install updates or upgrades to your existing software, the folder structure will be preserved. However, if you install your software to another PC, you will need to manually copy the contents of the 'Embroidery' and 'Pictures' folders to the new location.

Backup & recovery

The **Auto Save** function creates a temporary file with the extension EMA in the RECOVER folder. This is automatically restored when BE EmbroideryStudio is restarted after a computer crash. By default, a backup copy of the current design file is created in its **previously** saved form. This data is stored at this location...

`C:\ProgramData\Wilcom\EmbroideryStudio\`

Access backup and recovery files manually by browsing to these sub-folders...

Asset	Location	File types
Backup files	.\BACKUP	*.EMB
Recovery files	.\<ProductName>\RECOVER	*.EMA

Related topics...

- Automatic save & backup options

Other custom assets

During normal use, you may create your own fonts, hoops, motifs, fabrics, and other custom assets. This data is stored at this location...

`C:\ProgramData\Wilcom\EmbroideryStudio\`

Access these sub-folders as needed...

Asset	Location	File types
Auto fabrics	.\RES\AUTOFABRIC	userdefined.autost
Borders	.\BORDERS	*.ESA
Fonts	.\FONTS	*.ESA
Hoops	.\RES\Hoops	USRHOOPS.DSC
Machine formats	.\<ProductName>\DEFAULTS	defaults.dfl
Motifs	.\MOTIFS	*.ESA
Program splits	.\TEMPLATE	*.EMT
Sequin shapes	.\SEQUINS	SEQSHAPE.ESA
Sequin fixings	.\SEQUINS	SEQPATT.ESA
Sequin patterns	.\RES\SEQUINS	sequinlib.dat
Stamps (carving)	.\STAMPS	*.ESA
Styles	.\TEMPLATE	*.EMT
Templates	.\TEMPLATE	*.EMT
Thread charts	.\RES\ThreadCharts	*.TCH

Note: Some data folders will only be created when the software is opened for the first time after restarting your system.

Remember, assets you create are preserved from installation to installation, whether installing a new version of BE EmbroideryStudio or a software update. However, if you want to install your software to a new

computer, you will need to manually copy your custom assets to the new installation.

Note: The **C:\ProgramData** folder may be hidden on some PCs depending on the permissions of the user who is logged in. See Showing hidden folders for details.

Product backdrops

BE EmbroideryStudio allows you to choose a garment or product backdrop on which to position decorations.



Product backdrops are PNG artwork files but they are considered 'program data'. They are found at this location...

`C:\Program Files\Wilcom\<ProductName>\Products`

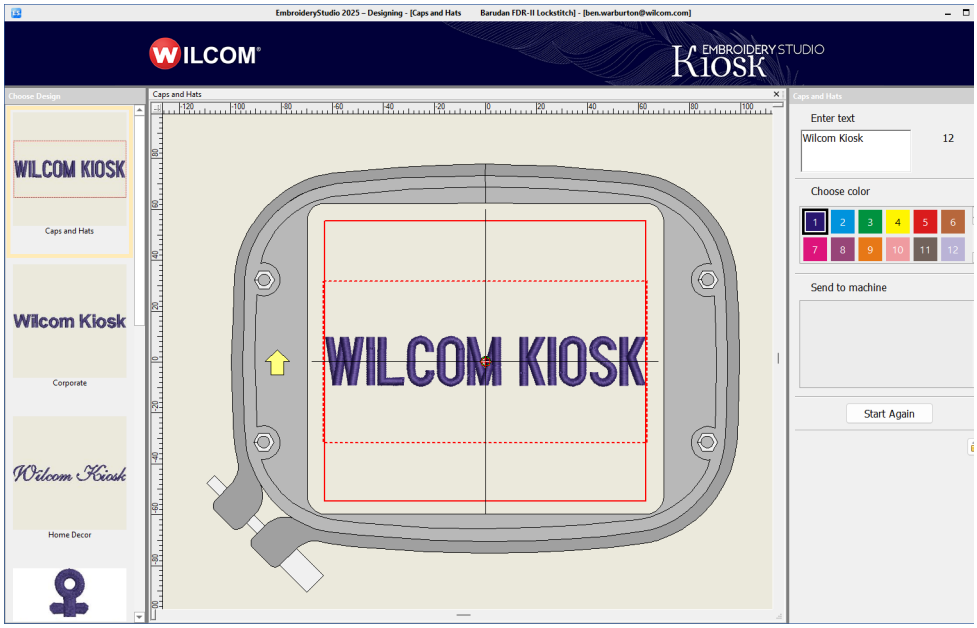
Tip: You can add your own single-color and multi-color product templates to the software.

Related topics...

- Visualize products
- Product Backdrops

Lettering kiosk assets

BE EmbroideryStudio provides a **Kiosk** capability for cap and other embroidery. The lettering kiosk is primarily intended for use at retail outlets where fast and simple personalization of standard design layouts is required in consultation with customers.



The lettering kiosk provides a set of predefined design layouts and the ability to easily personalize them by modifying text and color. You can create your own kiosk design layouts. The default location is here...

`C:\Program Files\Wilcom\<ProductName>\Kiosk\Designs`

The default kiosk banner – dimensions 1200 x 100 pixels – is located at the same location...

`C:\Program Files\Wilcom\<ProductName>\Kiosk\`

If you want to modify the banner in any way – e.g. with a specific location name – it is a simple matter to update or replace it. Alternatively, you can place your custom banner at a separate location on your hard disk or network and reference it there. If you have more than one kiosk set up, they can all reference the same banner.

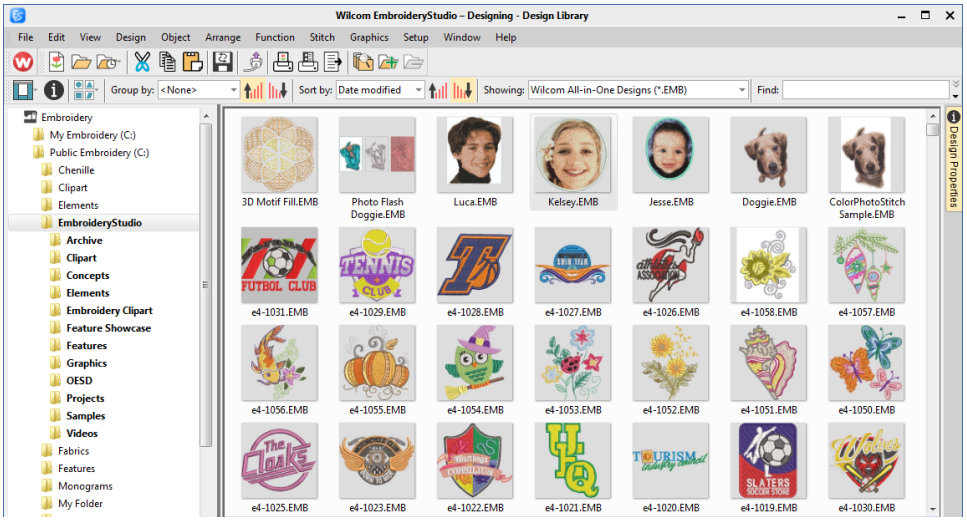
Related topics...

- Operations summary
- Change design location
- Customize kiosk banners

Navigating to assets

Design Library is an in-built design management tool. Use it to browse design and artwork files stored on your PC or local network.
Design Library capabilities make it fast and practical for daily

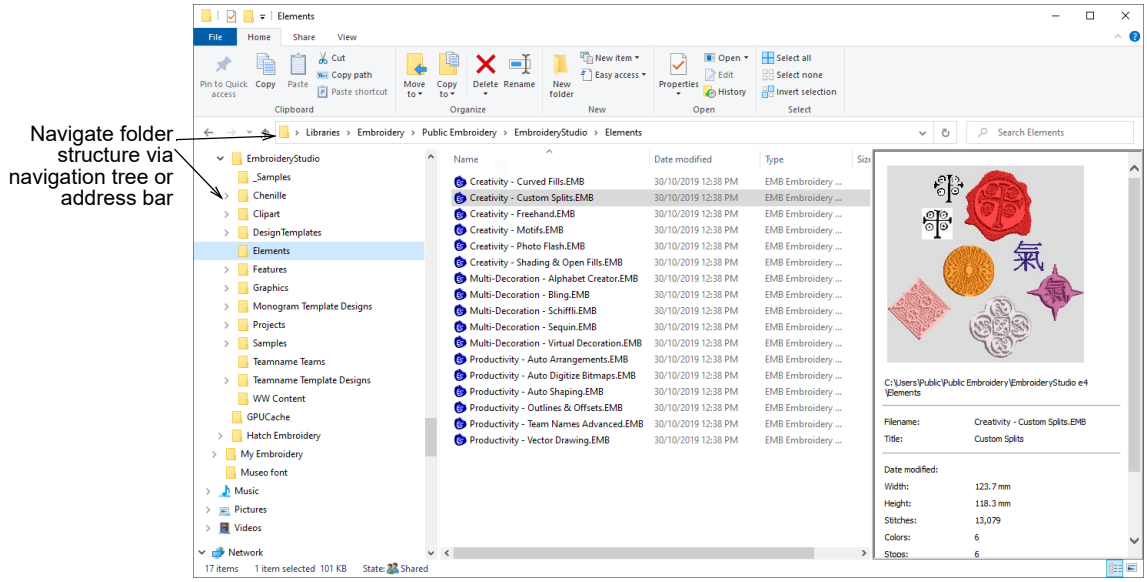
commercial use, avoiding the need to switch to and from **File Explorer**. It recognizes all file formats used by BE EmbroideryStudio. It also makes it easy to search, sort and browse all embroidery designs on your network.



If you are already familiar with **File Explorer**, the interface will be quite intuitive to you. But there are some differences. **Design Library** is a 'virtual library' in that any designs on your system can be located and displayed within the navigation pane. Any folder containing embroidery designs which resides on your hard disk, external storage device, or local network can be included in the navigation pane. See Design Management for details.

Navigating with File Explorer

Using **File Explorer**, you can navigate to the precise location of your BE EmbroideryStudio assets with the navigation tree on the left of the window. Alternatively, type or copy the path name into the address field and press **Enter**.



Whenever you install updates or upgrades to your existing software, the above folder structure, together with any custom assets, will be preserved. However, if you install your software to another PC, you will need to manually copy the contents of these folders to the new location.

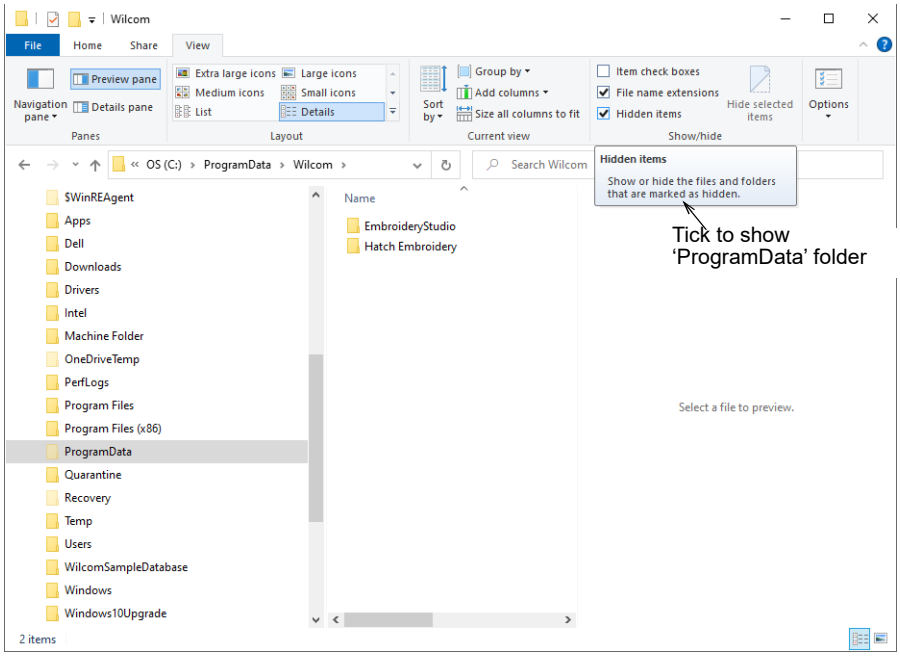
Note: The **C:\ProgramData** folder may be hidden on some PCs depending on the permissions of the user who is logged in. See below.

Showing hidden folders

If you need to manually copy the contents of your asset folders to a new location, you may find that the **C:\ProgramData** folder is hidden on your PC, depending on the permissions of the login you are using.

To show hidden folders...

1 Open the **View** tab in **File Explorer** as shown.



2 Tick the **Hidden files** option. This will reveal the 'ProgramData' folder and all its contents.

Chapter 44

Standard Fonts

The tables below display all embroidery fonts that are standard with BE EmbroideryStudio.

Roman fonts

Roman character fonts include:

3D fonts	Created especially for use with foam – commonly used on caps as foam is not suitable for washing.
Appliqué fonts	Created especially for appliqué, containing all the required outline, tack and cover stitches. Great for use on large scale and to reduce stitch count.
Bling fonts	Created especially for rhinestone and diamantes. They are vector format.
Block fonts	San-serif typeface style, very common with names and business logos. A great style for embroidery as it is clear and easy to read.
Chenille fonts	Created especially for chenille embroidery but only suitable if your machine supports it. Commonly used for sport and street wear.
Faux chenille fonts	It is possible to modify Stipple Stemstitch Fill settings for a denser coverage. Combined with a thicker yarn such as Madeira's Burmilana thread, it is possible to achieve a chenille effect. These dedicated fonts utilize this proven technique to create 'faux chenille' lettering.
Fancy fonts	Anything that is not 'blocky' can be used in a decorative way, depending on the style of logo.
Monogram fonts	Especially designed for monogramming purposes – commonly used for creating initials popular with gifts such as towels and linen.
Outline fonts	Commonly used for sports wear, on back of jackets. Work best at larger scale.
Run stitch fonts	Commonly used for small lettering, anything under 5mm and where satin column are not suitable.

Script fonts	Fluid strokes where characters connect, resembling a hand written style.
Serif fonts	Older style font which includes an embellishment at the ends of the stroke, popular with sportswear.
Small fonts	Fonts which are 6mm and below, including satin stitch columns with push and pull adjustments.
Special fonts	Graphical, multi-colors and fill effects are some of the things that are associated with special fonts. Commonly used for decorative purposes.
Two-color fonts	Each character contains two colors. Commonly used for sports wear, on back of jackets. Work best at larger scale.

Non-Roman fonts

Non-Roman character fonts include:

- Cyrillic fonts
- Hebrew fonts
- Japanese fonts

Minimum & maximum sizes

For best results when stitching, do not exceed the recommended maximum or minimum sizes. Note, however, that recommended maximum and minimum heights refer to UPPER CASE letters. Most embroidery fonts are digitized from an original TrueType Font (TTF), some of which have lower-case letters – e.g. 'a' and 'c' – which are about 70% the height of a capital letter. As a result, these letters may be too small to embroider neatly. You may need to increase the size of the lower-case characters to suit the embroidery.

TrueType Font

Embroidery Letters

Special characters

You can create special characters in each font by holding down the **Alt** key on your keyboard and typing **0** (zero), its code, using the numbers on the keypad. For example, to type **ê** with the code **234**, type **Alt+0234**. The accented letter will appear when you release the **Alt** key. See also Adding special characters.

Note: Not **all** characters are available in **all** fonts.

Join method

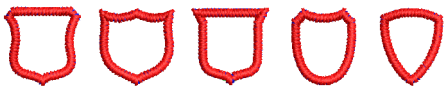
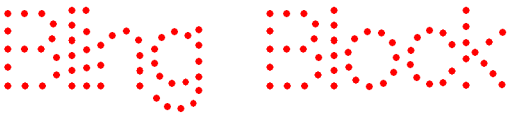
The lettering join method is preset to give the best results for each font. Options include:

Join		Purpose
Bottom join	BJ	Letters are joined along the baseline. Use it when stitching on towelling – joins are hidden in the pile.
Closest join	CJ	Letters are joined at the closest point. Use it to minimize trims.
As digitized	AD	Letters are joined as they were digitized. Use it with fonts combining different fill stitch types or special effects.

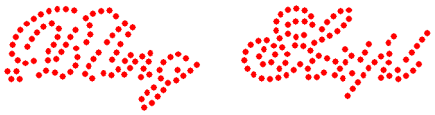
Roman fonts

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
3D fonts						
3D Block2		0.7	18	1.2	30	AD
3D Brush Script		0.8	20	1.6	40	AD
3D Emphatic		1.2	30	1.8	45	AD

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
3D Futuro		0.6	15	0.8	20	AD
3D London		0.8	20	1.2	30	AD
3D Monoglyceride		0.7	18	1.2	30	AD
3D Sofachrome		0.4	10	0.5	0.5	AD
Appliqué fonts						
College Appliqué		1.0	25	3.1	80	AD
Crest Appliqué		1.6	40	5.9	150	N/A
Glory Appliqué		1.2	30	1.6	40	AD
Bling fonts						
Bling Block		-	-	-	-	N/A
Bling Hollow		-	-	-	-	N/A

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Bling Script		-	-	-	-	N/A
Block fonts						
Advent		0.3	8	0.8	20	CJ
Albert		0.4	10	0.8	20	CJ
Angle Block		0.4	10	1.2	30	CJ
Architect		0.5	12	1.4	35	CJ
Arial Rounded		0.3	8	0.8	20	CJ
Art Block		0.4	10	1.6	40	CJ
^ New to BE EmbroideryStudio 2025						

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Athletica		0.4	10	1.2	30	CJ
Avant Garde		0.3	8	1.2	30	CJ
Avatar		0.4	10	1.2	30	CJ
Bauhaus		0.3	8	1.0	25	CJ
Block1		0.3	8	0.8	20	CJ
Block2		0.2	6	0.8	20	CJ
Block2-Auto		0.2	6	0.8	20	CJ
^ New to BE EmbroideryStudio 2025						

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Block Caps		0.2	5	1.0	25	CJ
Bounty		0.4	10	0.8	20	CJ
Bravo		0.5	12	1.6	40	CJ
Castle		0.6	15	1.0	25	CJ
Folio Condensed		0.3	7	1.0	25	CJ
Futura		0.4	10	0.8	20	CJ
Goudy Sans		0.3	8	0.7	18	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Gypsy		0.2	6	0.8	20	CJ
Handel Gothic		0.3	8	0.7	18	CJ
Helvetica		0.3	8	1.2	30	CJ
Impress		0.3	8	0.8	20	CJ
Informal		0.2	6	0.4	10	CJ
Jolt		0.4	10	0.8	20	CJ
Kabel		0.3	8	1.0	25	CJ
Lazer		0.2	6	0.7	18	CJ

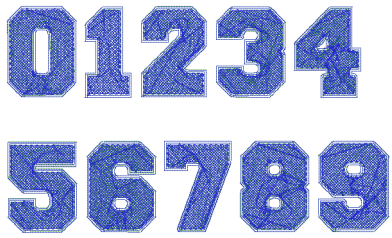
^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Legal Block		0.2	6	0.8	20	CJ
Lydian		0.5	12	1.0	25	CJ
Meister Block		0.4	10	0.8	20	CJ
Microgramma		0.4	10	1.0	25	CJ
Microscan		0.3	8	1.0	25	CJ
Monoglyceride		0.4	10	1.2	30	CJ
Monoglyceride Bold		0.4	10	0.6	15	CJ
Narrow Block		0.7	18	2.6	65	CJ

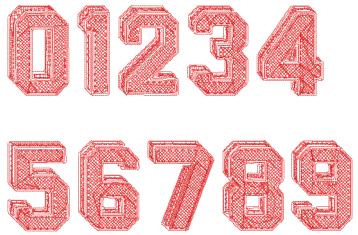
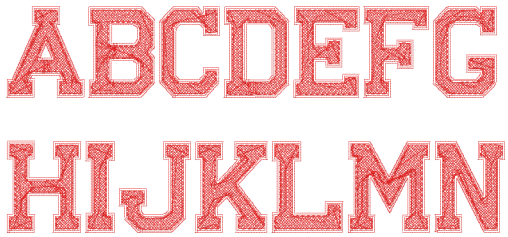
^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Round Block		0.4	10	0.8	20	CJ
Slim Block		1.0	25	4.9	125	CJ
Sofachrome		0.15	4	0.25	6	CJ
Spatial		0.4	10	0.8	20	CJ
Square Block		0.4	10	1.4	35	CJ
Stencil Block		0.4	10	0.6	15	CJ
Super Block		0.4	10	1.2	30	CJ
Swiss		0.4	10	1.2	30	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Tahoma		0.3	8	1.2	30	CJ
Text Block		0.3	8	1.0	25	CJ
Urbane		0.4	10	0.8	20	CJ
Utility Block		0.4	10	1.1	28	CJ
Veranda		0.3	8	1.0	25	CJ
Yama		0.2	6	1.2	30	CJ
Chenille fonts						
CH 2Color Numbers		2.0	50	4.9	125	AD

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
CH 2inch Pennant Script		2.0	50	2.0	50	AD
CH 3inch Pennant Script		3.0	75	3.0	75	AD
CH 3.5inch Shadow Nos		3.4	87	3.4	87	AD
CH 6inch 3D-Block		5.9	150	5.9	150	AD
CH Chenille Block		2.0	50	5.9	150	AD
CH Playbill		2.0	50	5.9	150	AD

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
CH Prince Athletic		2.0	50	5.9	150	AD
CH Square Block		2.0	50	5.9	150	AD
CH Tall Pennant Script		3.0	75	3.9	100	AD
Faux chenille fonts						
Yale		2.0	50	3.9	100	AD
Vermicelli		2.0	50	3.9	100	AD
Fancy fonts						
Agatha		0.4	10	0.8	20	AD
Anaconda		0.4	10	1.0	25	CJ

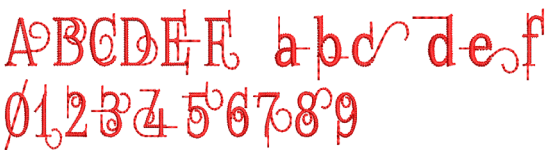
^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Arnold		0.5	12	0.7	17	CJ
Blacklight		0.4	10	0.7	18	CJ
Carla		0.4	10	1.0	25	CJ
Charcuterie		0.8	20	1.6	40	AD
Cheshire		0.4	10	1.0	25	CJ
Columbo		0.4	10	0.7	18	CJ
Comics		0.4	10	1.0	25	CJ
Crayfish		0.4	10	0.8	20	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Crevasse		0.3	8	0.6	15	CJ
Croissant		0.3	8	0.7	18	CJ
Curly		0.7	18	1.6	40	CJ
Dotti		0.4	10	0.8	20	CJ
Dr Zeus		0.4	10	1.0	25	CJ
Enchantment		0.4	10	1.0	25	CJ
Energy		0.6	15	1.2	30	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Enviro		0.6	15	1.6	40	CJ
Felt Tip		0.4	10	1.2	30	CJ
Flash		0.3	8	1.0	25	CJ
Flourish Light		0.8	20	1.2	30	AD
Free Style		0.4	10	0.8	20	CJ
Gaelic		0.4	10	1.0	25	CJ
Hana		0.6	15	1.0	25	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Handicraft		0.4	10	1.2	30	CJ
Hobo		0.3	8	0.8	20	CJ
Kids		0.4	10	0.8	20	CJ
Kindergarten Block		0.4	10	1.0	25	CJ
Lariat		0.4	10	1.2	30	CJ
Locker		0.4	10	0.6	15	CJ
Lublik		0.4	10	0.8	20	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Mandarin		0.4	10	0.6	15	CJ
Market		0.4	10	1.2	30	CJ
Matisse		0.4	10	1.2	30	CJ
Old English		0.8	20	1.2	30	CJ
Olivia		0.3	7	0.8	20	CJ
Orient Express		0.4	10	0.8	20	CJ
Pacific North West		1.0	25	1.6	40	CJ

^ New to BE EmbroideryStudio 2025

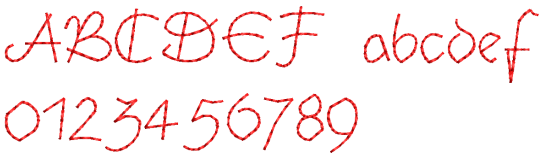
Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Pastille		0.4	10	0.8	20	CJ
Pixie		0.5	13	1.0	25	CJ
Racer		0.4	10	0.6	15	CJ
Speedy		0.3	8	0.6	15	CJ
Sports		0.4	10	0.6	15	CJ
Staccato		0.6	15	1.0	25	CJ
Thriller		0.6	15	0.9	23	CJ
Toddler		0.4	10	1.4	35	CJ

^ New to BE EmbroideryStudio 2025

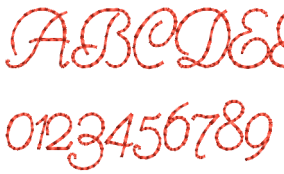
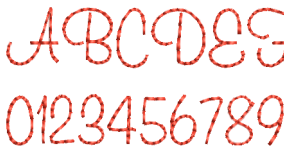
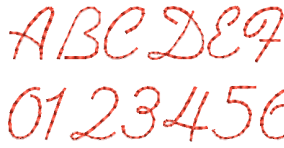
Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Toon		0.4	10	0.6	15	CJ
Victorian		0.3	7	0.6	15	CJ
Viking		0.4	10	0.8	20	CJ
Western		0.4	10	0.8	20	CJ
Western Serif		0.2	6	0.8	20	CJ
Westminster		0.4	10	0.7	18	CJ
Woodstock		0.3	8	0.8	20	CJ
Monogram fonts						
Fancy Monogram		2.0	50	3.9	100	CJ
^ New to BE EmbroideryStudio 2025						

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Octagon Monogram		0.7	18	2.4	60	CJ
Point Monogram		0.7	18	3.0	75	CJ
Seal Monogram		0.8	20	2.4	60	CJ
Outline fonts						
Detex Normal		0.4	9	1.2	30	CJ
Discoteque		0.6	15	1.6	40	CJ
Futura Outline		0.6	15	1.2	30	CJ
News Outline		0.8	20	1.8	45	CJ
Outline Block		0.7	18	1.4	35	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Petrol Shadow		0.8	20	2.0	50	CJ
Swiss Run Hollow		1.0	25	3.9	100	AD
Swiss Run Satin		1.0	25	3.0	75	AD
Turncoat		0.5	12	1.0	25	CJ
Run stitch fonts						
Run Block		0.2	5	0.5	12	AD
Run Cardigan		0.2	5	0.5	12	AD
Run Freehand		0.2	5	0.5	12	AD

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Run Liberty		0.2	5	0.5	12	AD
Run Murray Hill		0.2	5	0.5	12	AD
Run Script		0.2	5	0.5	12	AD
Script fonts						
Ballantine Script		1.2	30	1.4	35	CJ
Book Script		0.4	10	1.2	30	CJ
Cayman		0.4	10	1.0	25	CJ
Chancery		0.7	17	1.0	25	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
City Script		0.3	8	0.8	20	CJ
Crescent Script		0.6	15	1.4	35	CJ
Easy Script		0.4	10	1.2	30	CJ
Edwardian Script		1.2	30	1.6	40	CJ
Formal Script		0.3	7	0.6	15	CJ
Handy Script		0.8	20	2.0	50	CJ
Italian Script		0.6	15	0.8	20	CJ
Karin Script		0.4	10	0.8	20	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Lila		0.4	10	1.2	30	CJ
Memo Script		0.4	10	0.6	15	CJ
Moly		0.4	10	0.6	15	CJ
Poetic Script		0.8	20	1.6	40	CJ
Pomander		1.6	40	2.6	65	CJ
Python Script		0.8	20	1.4	35	CJ
Royale		0.8	20	1.4	35	CJ
Script1		0.6	15	1.2	30	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Script2		0.5	12	1.0	25	CJ
Script3		0.8	20	2.2	55	CJ
Script4		1.2	30	2.0	50	CJ
Script5		0.4	10	1.0	25	CJ
Script6		0.4	10	1.2	30	CJ
Script7		0.6	15	1.6	40	CJ
Script8		0.6	15	1.2	30	CJ
Upright Script		0.8	20	2.0	50	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Vivid Script		0.5	12	1.4	35	CJ
Serif fonts						
Adelle		0.4	10	0.6	15	CJ
Algerian		0.4	10	0.6	15	CJ
Bodoni		0.6	15	0.8	20	CJ
Casual Serif		0.4	10	1.4	35	CJ
Centurion		0.7	17	1.4	35	CJ
Cheltenham Tall		0.4	10	0.8	20	CJ
City Medium		0.3	8	0.8	20	CJ

^ New to BE EmbroideryStudio 2025

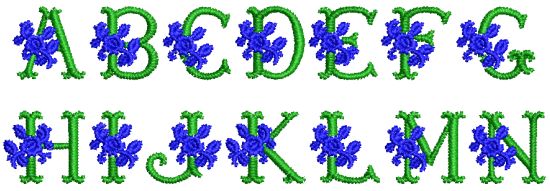
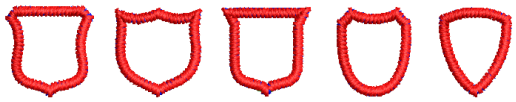
Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Civic		0.4	10	1.4	35	CJ
College		0.4	10	0.8	20	CJ
Copperplate		0.4	10	0.8	20	CJ
Dauphin		0.6	15	1.2	30	CJ
Flares		0.3	8	1.0	25	CJ
Garamond		0.6	15	0.8	20	CJ
Krone		0.3	8	0.7	18	CJ
Matrix		0.4	10	0.8	20	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Museo		0.4	10	0.8	20	CJ
Scope		0.4	10	1.6	40	CJ
Schoolbook		0.6	15	1.2	30	CJ
Seagull		0.4	10	0.8	20	CJ
Serif1		0.3	8	0.6	15	CJ
Serif2		0.5	12	0.6	15	CJ
Serif3		0.4	10	1.2	30	CJ
Serif4		0.4	10	0.8	20	CJ
Souvenir		0.3	8	0.8	20	CJ

^ New to BE EmbroideryStudio 2025

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Times Roman		0.6	15	1.0	25	CJ
Typewriter		0.4	10	1.0	25	CJ
Small fonts						
Helvetica Small		0.2	6	1.0	25	CJ
Micro Block		0.2	6	0.8	20	CJ
Miniature Block		0.2	6	0.6	15	CJ
Sm Cooper		0.2	6	0.5	12	CJ
Sm HighTower		0.3	8	0.6	15	CJ
Sm Script		0.15	4	0.25	6	CJ
^ New to BE EmbroideryStudio 2025						

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Small Block1		0.15	4	0.25	6	CJ
Small Block2		0.15	4	0.25	6	CJ
Small Serif 1		0.15	4	0.25	6	CJ
Times Small		0.4	10	0.6	15	CJ
Special fonts						
Antique Ros		1.6	40	2.4	60	AD
Crests		1.6	40	5.9	150	N/A
Flair Script		0.4	10	1.6	40	CJ
^ New to BE EmbroideryStudio 2025						

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Tusj		0.8	20	3.9	100	AD
Two-color fonts						
2 Col Arial Shadow		0.6	15	1.0	25	AD
2 Col Plain Script		0.5	13	2.0	50	AD
Border Block 2		0.6	15	0.9	22	AD
Dextor		0.5	13	1.0	25	AD
English Village		0.6	15	1.2	30	AD
Futura Border 2 C		0.6	16	2.0	50	AD
Shadow Street		0.6	15	1.0	25	AD

^ New to BE EmbroideryStudio 2025

Non-Roman fonts

Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Cyrillic fonts						
Greek		0.4	10	0.6	15	CJ
Greek Script		0.5	12	1.4	35	CJ
Greek Spionic		0.4	10	1.4	35	CJ
Jikharev		0.4	10	1.2	30	CJ
Russian Textbook		0.3	8	1.2	30	CJ
Hebrew fonts						
Hebrew Chaya		0.3	8	0.6	15	CJ
Japanese fonts						
Japanese Kaisho		0.3	8	2.7	70	CJ

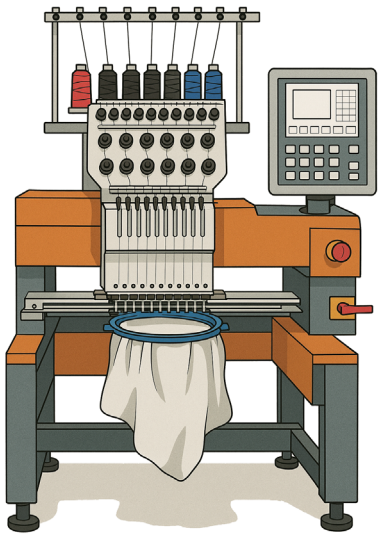
Font	Sample	Recommended sizes				Join method
		Min		Max		
		in.	mm	in.	mm	
Heisei Gosic	平成ゴシック あいうえおアイウエオ	0.4	10	2.7	70	CJ
Heisei Gyosho	平成行書 あいうえおアイウエオ	0.3	8	2.7	70	CJ
Heisei Kaisho	平成楷書 あいうえおアイウエオ	0.3	8	2.7	70	CJ
Heisei Kantei	平成勘亭 あいうえおアイウエオ	0.4	10	2.7	70	CJ
Heisei Maru Gosic	平成丸ゴシック あいうえおアイウエオ	0.4	10	2.7	70	CJ
Heisei Mincho	平成明朝 あいうえおアイウエオ	0.4	10	2.7	70	CJ

Note: Japanese fonts (3000 characters each) are available for download from help.wilcom.com for customers who wish to use them.

Chapter 45

Machine, File & Disk Types

This section provides details of the file and disk types supported by BE EmbroideryStudio. Details are also provided about the conversion of Melco CND, Wilcom INP, and Gunold PCH design formats to and from EMB. The section also provides details of vector and bitmap (raster) formats.





In conjunction with CorelDRAW® Graphics Suite, BE EmbroideryStudio reads and writes a wide variety of related and sometimes complementary decoration processes or techniques. See also Exporting multi-decoration files.

Note: There are many additional Schiffli file formats to suit specific Schiffli machines. BE EmbroideryStudio supports the most important of these. See the ES Schiffli User Manual Supplement for details.

Supported machine types

The table shows the machine types supported by BE EmbroideryStudio. Make sure you first check the recommended connection settings for your

particular machine. If you don't have a record of the connection settings required to set up your embroidery machine, a list can be found at the Wilcom Support Center. This provides connection information for all the machines listed in this table. See Hardware Setup for details.

Machine format	Description	Machine files
Tajima		
Tajima	Use this format for main types of Tajima machines.	DST, EMX, T01, TAP
Tajima TBF	Use this format for Tajima needle addressing capable machines. TBF (Tajima Binary Format) file format is a more intelligent machine format which holds needle addressing information. The design needs to be digitized using this machine format for it to run on Tajima machines with a twin-sequin attachment.	TBF
Tajima TMCE-100	Use this format for Chenille-enabled Tajima machines.	DST, T01
Tajima TMCE-600	Use this format for Chenille-enabled Tajima machines.	DST, T01
Barudan		
Barudan	Use this format for many Barudan machines. It supports up to 9 needles. The Barudan format is suitable for paper tape, FMC disks, and the DSB file format.	DSB, T03, TAP, U??, XXX
Barudan Chenille	Use this format for the older BELM - A3C series of Barudan Chenille Machines with 5 Chenille colors. Newer models use Barudan FDR-II Chenille Combination.	DSB, T03, U??
Barudan Z Series	Use this format for Barudan Z series machines with 10 or more needles.	DSB, T03, U??
Barudan FDR-II Lockstitch	Use this format for BED* series lockstitch machines and is the standard for all new Barudan lockstitch machine models. It supports up to 15 needles and optional sequin attachments.	U??
Barudan FDR-II Chenille Combination	This format is used for newer models of Barudan Chenille machines supporting 6 chenille colors such as the BEDYH and BEDSH. Using this format, you can digitize pure Chenille or even a combination of Chenille and Lockstitch in the one design.	U??
Barudan FDR-II Twin Sequin	This is a Barudan twin sequin machine. The design needs to be digitized using this machine format for it to run on Barudan machine with a twin-sequin attachment.	U??
Barudan FDR-II Twin Sequin Chenille Combination	This is a Barudan twin sequin and Chenille combination machine. The design needs to be digitized using this machine format for it to run on Barudan machine with a twin-sequin and chenille attachment.	U??

Machine format	Description	Machine files
Barudan FDR-3	The FDR-3 file supports correct color thread display in its thumbnail in both Design Library and on the Barudan machine to help eliminate costly production errors resulting from incorrect colors. Save actual thread color info in your machine files and view correct color and thread codes (.U03) instead of default software colors.	U??
Barudan FDR-3 Chenille Combination	Use this format for newer models of Barudan Chenille machines supporting embroidery on flat items, embroidery on thick fabric, loop and chain stitches, add-on sequin devices, etc.	U??
Melco		
Melco	Use this format for main types of Melco machines.	ARX, CSD, DSN, DST, EMD, STX
Melco Chenille	Use this format for Chenille-enabled Melco machines.	STX
SWF		
SWF	Use this format for main types of SWF machines.	DST
SWF Twin Sequin		DST, EBD
ZSK		
ZSK 1	Use this format for ZSK machines that have 7 or fewer needles – generally those older than 1991.	DSZ, T05, TAP
ZSK 2	Use this format for ZSK machines that have more than 7 needles and those characterized by a single-top thread trimmer.	DSZ, T05, TAP
ZSK TC	Use this format for ZSK machines that accept Transport Code Disks (DOS format disks).	Z??
Other		
BERNINA	Use this format for all BERNINA machines.	CSD, DST, ARX, EMD, EXP, GNC, HUS, JEF, PCD, PCM, PCQ, PCS, PEC, PES, SEW, SHV, VIP, VIP3, XXX
Brother / Babylock		PEC, PES
Coloreel	Coloreel ‘Instant Thread Coloring’ technology enables thread coloring on-demand.	CSE
Dahao		DST, DHA, DHB, DHP,

Machine format	Description	Machine files
Happy		TAP
Inbro	Use this format for main types of Inbro machines.	INB
Janome	Use this format for all Janome machines.	CSD, DST, EMD, EMX, EXP, HUS, JEF, JEF+, JXP, PCD, PCM, PCQ, PCS, PEC, PES, SEW, VIP, VIP3, XXX
Melco	Use this format for all Melco machines.	ARX, BRO, CND, CSD, EMX, EXP, GNC, HUS, JEF, PCD, PCM, PCQ, PCS, PEC, PES, PMU, PUM, SEW, STX, VIP, VIP3, XXX
Melco Chenille		EXP, STX
Pfaff	Use this format for main types of Pfaff machines.	KSM, T09
Pocket		DPS
Schiffli	Use this format for Schiffli machines.	DAT, DHT, ESL, ESS, MUD, MST, PAT, SAS, T11, T12, T13, T18, T20, T22, VDT, VEP
Toyota	Use this format for main types of Toyota machines.	10O
Zangs	Use this format for Zangs and Marco brand machines and pre-1988 ZSK machines without trimmers.	DSZ, T04, TAP



Note: If not already a member of the WSC, you will need to register as a licensed user of Wilcom software. See www.wilcom.com/support for details.

Graphics & multi-decoration file formats

Artwork can be imported into BE EmbroideryStudio in both vector and bitmap (raster) formats. See Digitizing with Bitmaps for details.

Supported vector file formats

BE EmbroideryStudio supports the following vector graphic formats:

Extension	Format	Read	Write
AI	Adobe Illustrator	●	●
CDR	CorelDRAW	●	●
CDT	CorelDRAW Template	●	●
CGM	Computer Graphics Metafile	●	●
CLK	Corel R.A.V.E.	●	●
CMX	Corel Presentation Exchange 5.0	●	●
CSL	Corel Symbol Library	●	●
DES	Corel Designer	●	●
DWG	AutoCAD	●	●
DXF	AutoCAD	●	●
EMF	Enhanced Metafile	●	●
EPS	Encapsulated Postscript	●	●
FMV	Frame Vector Metafile	●	●
PLT	HPGL Plotter File	●	●
PS	Postscript	●	
SVG	Scalable Vector Graphics	●	●
WMF	Windows Metafile	●	●

Supported bitmap file formats

BE EmbroideryStudio supports the following bitmap image formats:

Extension	Format	Read	Write
BMP	Windows Bitmap	●	●
GEM	GEM file	●	●
JPEG	JPEG Group	●	●
JPG	JPEG File Interchange	●	●
PAT	Pattern File	●	●
PCT	Macintosh PICT	●	●
PCX	PC Paintbrush	●	●
PNG	Portable Network Graphics	●	●
SVGZ	Compressed SVG	●	●
TIFF	Tagged Image Format	●	●
WMF	Windows Metafile	●	●

Extension	Format	Read	Write
WPG	Corel WordPerfect Graphic	●	●



Note: For a full description of image file formats supported by CorelDRAW® Graphics Suite, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **Help** menu. See Digitizing with Bitmaps for details.

Embroidery file formats

There are two types of embroidery file format:

File type	Description
Design	Design files usually contain digitized shapes and lines, selected stitch types and stitch values and effects.
Machine	Machine files generally contain stitches and machine functions and are only suited to specific embroidery machines.

Wilcom file formats

BE EmbroideryStudio uses its own native EMB embroidery file format which combines the advantages of design files and machine files. Outlines, stitches, thread colors, and other data are stored together. Outlines mean the file can be scaled and manipulated on an object basis while the stitch data preserves manual stitch-by-stitch edits and touchups. Features of most third-party formats are supported. Variants and precursors of the EMB file format are also shown in the table below.

Extension		Format	Read	Write
EMB		BE EmbroideryStudio design file (up to & including BE 2025)	●	●
EMC		Clipart files	●	●
EMX	^	Wilcom Cross Stitch	●	
ESD	†	Wilcom DOS format	●	
ESL		Wilcom ESL	●	●
ESS		Wilcom ESS (Schiffli)	●	●
INP	‡	Wilcom condensed format	●	
Legacy formats *				
T01		Tajima (Wilcom DST format)	●	●

Extension	Format	Read	Write
T03	Barudan (Wilcom DSB format)	●	●
T04	Zangs	●	●
T05	ZSK (Wilcom DSZ format)	●	●
T09	Pfaff (Wilcom KSM format)	●	●
T10	Wilcom Plauen	●	●
T15	Wilcom Saurer	●	●

Usage tips...

- ^ Can only be written by ES Cross Stitch application.
- † ESD is the native file format of DOS ES, the precursor to the current BE EmbroideryStudio. It is actually a machine file format with stitch blocks, stitch types and parameters, and an icon. It has few of the advantages of the current EMB file format.
- ‡ Wilcom INP is the native file format of Wilcom Computer Embroidery Design software. It is a design file format but it contains no stitch data. Wilcom INP designs can be directly converted to EMB files although BE EmbroideryStudio interprets some of the stitch types differently. See Wilcom INP format for details.
- * T0? formats contain stitch data that can be used to create paper tapes. This is the purpose for which they were originally created.

Supported design file formats

BE EmbroideryStudio supports the following design file (condensed) formats:

Extension	Format	Read	Write
ART	artista V4.0 design files	●	
ART42	Explorations project file	●	
ART?0	BERNINA Embroidery Software file	●	
CND	Melco condensed file	●	●
GNC	Great Notions	●	
JAN	Janome Embroidery Software file	●	
PCH	Gunold APS design format	●	



Note: See below for conversion details when reading these files into EMB format or writing to CND format. See Melco CND format and Gunold PCH format.

Design template formats

BE EmbroideryStudio supports the following design template formats:

Extension	Format	Read	Write
EMT	Wilcom ES templates	●	●
AMT	artista V4.0 template	●	
AMT42	Explorations template	●	
JMT	Janome Embroidery Software template	●	

Supported machine file formats

BE EmbroideryStudio supports the following machine file (expanded) formats:

Extension		Format	Read	Write
10O		Toyota	●	●
ARX		artista (cross stitch)	●	
BRO		Bits & Volts	●	
CSD		Singer / Poem / Huskygram	●	●
DAT		Hiraoka DAT	●	●
DSB	†	Barudan (Tajima machine format)	●	●
DSN		Nova	●	
DST		Tajima	●	●
DSZ	¥	ZSK (Tajima machine format)	●	●
EBD		SWF	●	●
EMD		Elna	●	●
EXP		Melco / BERNINA USB Stick	●	●
HUS		Husqvarna / Viking / Pfaff	●	●
INB		Inbro	●	●
JEF		Janome / Elna / Kenmore	●	●
JPX		Janome / Elna (cross stitch)	●	●
KSM		Pfaff	●	●
MJD		Time & Space	●	●

Extension		Format	Read	Write
MST		Laesser	●	●
PCD		Pfaff	●	●
PCM		Pfaff	●	●
PCQ		Pfaff	●	●
PCS		Pfaff	●	●
PEC		Brother / Babylock / Deco	●	●
PES	#	Brother / Babylock / Deco	●	●
PMU		Proel, ProWin (Proel TSI)	●	●
PUM		Proel, ProFlex (Proel TSI)	●	
SAS		Saurer SLC	●	●
SEW		Janome / Elna / Kenmore	●	●
SHV		Husqvarna / Viking / Pfaff	●	●
STC		Gunold APS	●	
STX		Datastitch	●	
TAP	§	Happy	●	●
TBF		Tajima	●	●
U??	†	Barudan	●	●
VEP		Hiraoka		●
VP3		Husqvarna / Viking / Pfaff	●	●
XXX	†	Singer	●	●
Z??	£	ZSK TC	●	●

Usage tips...

† Includes needle addressing data.

¥ Two options – ZSK1 and ZSK2.

On exporting to PES file format, BE EmbroideryStudio sets the start connector to top-left and turns off the end connector. On re-opening, it resets **Auto Start & End** to the default. This means you cannot use these settings with PES format. See also Start & end points.

§ TAP and MON files are written together – TAP is the machine file, MON the header file.

£ Used with Transport Code Disks.

Supported bling file formats

BE EmbroideryStudio supports the following rhinestone file formats:

Extension	Format	Read	Write
YNG	Yongnam GemMaster v2.9	●	●



Note: The YNG file format can be read by BE EmbroideryStudio and sent directly to CAMS machine. See Send bling to CAMS machine for details.

Melco CND format

Melco Condensed (CND) is the native file format of the Melco embroidery digitizing software. CND files store only digitized outlines and stitch values. See also Reading Melco CND design files.

Conversion of Melco CND format to Wilcom EMB

When you open CND designs in BE EmbroideryStudio, outlines are scaled and stitches recalculated to preserve density. BE EmbroideryStudio recognizes all Melco machine functions and stitch types, including Partition Lines and Complex Fill, and automatically converts them to EMB format. This table details how Melco features are converted.

Melco CND	EMB	Notes
Stitch Types		
Column Stitches	Column A, Satin stitch	
Simple Fill	Complex Fill, Tatami	The stitch angle is determined by the longest stitchline.
Complex Fill	Complex Fill	Melco EDS Complex Fill are recognized and converted to BE EmbroideryStudio Complex Fill.
Column Fill	Column A, Tatami fill	
Walk	Run	
Bean Stitch	Triple Run	
Singleline Column Input, Centerline	Column C	
Singleline Column Input, Left Line / Right Line	Column C Side 1 / Side 2	

Melco CND	EMB	Notes
Partition Lines	Tatami partition lines	
Underlays		
Complex Underlay	Tatami underlay in Complex Fill object	
Edge Walk	Edge Run	Column stitches only
Center Walk	Center Run	
Narrow Column	Zigzag	
Machine functions		
Needle Up	Jump, Begin Jump	
Reset Stitch	End Jump	
Manual Lock Stitch		Added in Tie Off
Automatic Lock Stitch	Tie In, Tie Off	If Automatic Lock Stitch is set for every Color Change, and at the start and end of the design, tie off and tie in stitches are inserted in the EMB design.
Chain	Chain	
Moss	Moss	
Needle Height	Needle Height	
Slow	Slow	
Fast	Fast	
Borer In/Out	Borer In/Out	
Sequin On/Off	Sequin On/Off	

Conversion of Wilcom EMB format to Melco CND

You can save files to Melco CND format from BE EmbroideryStudio. Designs originally created in BE EmbroideryStudio generally give the best results. Other file types may not have all the data necessary for successful conversion. This table details how BE EmbroideryStudio stitch types and effects are converted to CND format.

Tip: When you convert to CND, many BE EmbroideryStudio effects will be lost. If it is important to preserve the effects, save in Melco EXP machine format instead. Alternatively, turn off all effects before saving to CND format. See also Best BE EmbroideryStudio input methods for Melco CND output.

EMB	Melco CND	Notes
Stitch types		
Manual	Walk	
Run	Walk	
Triple Run	Bean Stitch	Only if the design is an original Wilcom EMB design
Triple Run (run count > 3)	Bean Stitch	Reverts to Triple Run (run count = 3).
Satin stitch	Column Fill	
Tatami - standard	Fill Stitch	Use Complex Fill to make sure that the stitch lines are parallel.
Tatami - with random factor applied	Walk	
Tatami - with sharply turning stitches	Walk or Complex Fill	Changes to Walk if Superstar compatible, otherwise Complex Fill with a fixed angle.
Tatami - with slightly turning stitches	Fill Stitch, several sections	The shape is divided into several sections, filled with parallel Fill Stitch. There may be small gaps between these sections.
Zigzag	Walk	Density is not preserved when the design is scaled.
E Stitch (Inputs A, B & C)	Column Stitches	
E Stitch (Complex Fill)	Walk	
Stitch settings		
Run length	Set length	CND Walk stitch length is the same as EMB Run stitch length.
Tatami length and spacing	Fill or Complex Fill settings	The length and density of Fill Stitches will be the same as EMB Tatami length and spacing.
Underlays		
Center Run	Walk	Uses CND Auto Underlay.
Edge Run		
Zigzag		
Double Zigzag		
Zigzag (for objects with Satin cover only)	Narrow Column	

EMB	Melco CND	Notes
Effects		
Accordion Spacing	Not preserved	The effect is lost.
Motif Fill	Not preserved	The effect is lost.
Contour Stitch	Not preserved	The effect is lost.
Flexi Split	Not preserved	The effect is lost.
Auto Split	Not preserved	The effect is lost.
Jagged Edge	Not preserved	The effect is lost.
Trapunto style	Not preserved	The effect is lost.
Program Split	Not preserved	The effect is lost.
User Defined Split	Not preserved	The effect is lost.
Photo Flash	Walk	Density is not preserved when the design is scaled.
Quality features		
Pull Compensation	Not preserved	The original shape is preserved. The effect is lost.
Fractional Spacing	Not preserved	In BE EmbroideryStudio, turn on Fractional Spacing and set it to 0.5mm. Although there is no direct equivalent in CND, effectively it uses a fixed fractional spacing with a value equal to 0.5.
Stitch Shortening	Not preserved	Outlines are more accurately recognized if Stitch Shortening is turned off.
Auto Spacing	Not preserved	Auto Spacing is converted to fixed spacing, based on the average space value. It is best to turn off Auto Spacing when digitizing a design for CND.
Smart Corners	Not preserved	Avoid digitizing pointed ends.
Machine functions		
Color Change / Stop functions	Color Change / Stop	Functions inserted on stitches inside objects are not converted.
Empty	Walk	Two MK1 points are repeated at the current position.
Jump	Needle Up	
Needle Up	Needle Up	
Tie In (Lettering)	Walk	

EMB	Melco CND	Notes
Tie Off	Walk	
End Jump	Reset Stitch	
Begin Jump	Needle Up	
Needle Height	Needle Height	
Moss	Moss	
Chain	Chain	
Trim	Trim	The ability to output without Trim function does not apply to this version.

Best BE EmbroideryStudio input methods for Melco CND output

This table details which input methods give the best results when digitizing a design for Melco EDS-III CND output.

Input method	Compatibility	Notes
Column A, B, C	OK	Use with Satin only.
Complex Fill	OK	Only use with Tatami fill. Do not digitize pointed ends as they will be 'squared off' during conversion. Cut off pointed ends with a straight line, parallel to the stitch angle, to avoid conversion problems.
Complex Turning	Not recommended	Complex Turning objects are separated into a single object per segment. Conversions may produce undesired results.
Circle	OK	
Ring	Not recommended	The exit point will be on the wrong side of the shape.
Star	Not recommended	The stitches are output as Walk.
End - Keep Last Stitch	OK	The exit point should always be on the opposite side to the entry point.
End - Omit Last Stitch	Do not use	Start digitizing the next shape on the opposite side instead.

Gunold PCH format

PCH 'Punch and Stitch' is the native file format of the Gunold Embroidery Design software. Gunold PCH designs can be directly converted to EMB files although BE EmbroideryStudio interprets some of the stitch types differently. This table details how Gunold PCH features are converted to EMB format.

Gunold PCH	EMB
Outline types	
Parallel	Column A
Serial	Column C
Block Outline	Complex Fill
Run	Run
Incline	Run
Manual	Manual
Stitch types	
Satin	Satin
Ceding	Tatami
Random Ceding	Tatami with random factor applied
Step	Tatami
Piping	Contour
OBI	Tatami
Zigzag	Zigzag
Cross	not supported
Photo	not supported
Satin underlays	
none	none
Single	Center Run
Edge	Edge Run
Zigzag	Zigzag
Cross	Zigzag
Edge Zigzag	Edge Run + Zigzag
Edge Cross	Edge Run + Zigzag
Netting	Double Zigzag
Double Zigzag	Double Zigzag
Triple Zigzag	Double Zigzag
Step / block fill levels	
Complex Fill	Holes in Complex Fill
Form Fill	User Defined Split in Complex Fill
Vector Fill	User Defined Split in Complex Fill
Block Fill	Program Split in Complex Fill

Gunold PCH	EMB
Miscellaneous	
Branches	Grouped object (uses lettering sequence algorithm)
Random - side 1 / side 2	Jagged Edge effect
Pitch	Stitch Spacing
Length	Stitch length
Stitch angle	Complex Fill stitch angle
U turn	Backtrack
Compensation	Pull Compensation
Corner mode	Smart Corners
Short / Long	Stitch Shortening
Square backstitch Satin Step	 Straight stitch Trapunto
Styles	Motifs
Patterns	none

Wilcom INP format

Wilcom INP is the native file format of Wilcom Computer Embroidery Design software. Wilcom INP designs can be directly converted to EMB files although BE EmbroideryStudio interprets some of the stitch types differently. This table details how Wilcom INP features are converted to EMB format.

Wilcom INP	EMB	Notes
Auto Spacing	Auto Spacing	Values are different. Can be changed before stitching.
Backtrack/Repeat section/marked	Separate objects are added.	Functions are supported correctly.
Backup Lock	Satin tie off	
Borderline Tatami	Borderline Tatami	
Borer In/Out	Borer In/Out	
CED Block lettering	Block2 font	Font can be changed after conversion.
CED Block, Jump out	Block2 font	Manual edits and trimming
Circle	Circle	

Wilcom INP	EMB	Notes
ES Cross Stitch	Paths imported as Run objects only	Change the stitch type to Motif Run to generate cross stitch.
Delete Stitch	Manual only, ignored for other stitch types	Can be edited
Family of Curves Split	Satin, single curve as split line	Noticeably different from Satin. You can copy imported curve to get multiple curves. Alternating number is ignored.
Geflecht	Standard Tatami	Can be edited
Matching Tatami	Non-matching Tatami	Complex Fill will have matching Tatami.
Motifs	Patches	Normal objects
Needle In/Out	End/Begin Jump	
Other Multihead Machine Functions	Stop (with info label)	For example, Insert Appliqué is converted to Stop.
Program Stitch	Manual stitch	
Ring	Ring	
Scattered Tatami	Tatami with random factor applied	Will look slightly different
Schiffli Functions	Stepp/Blatt only, others are ignored	
Slow/Fast	Slow/Fast	
Split Alternate	Tatami	
Split Stitch	Standard Tatami	Looks different but can be edited
Tajima style Lock	Tajima tie off	OK most of the time
Tourenblat	E Stitch	Looks different, so that it is easy to locate and edit
Trim/Tie In/Tie Off	Connector properties	
Turn fill (spacing measured along shape boundary)	Turning fill (generally fewer stitches)	Will look different but can be re-digitized in smaller sections
Underlays – slant	Zigzag underlay	Can be added manually
Underlays, 3 or 4 layers	Two underlays only	Can be edited

Supported embroidery disk formats

You can write designs to disks which are formatted for a specific embroidery machine. The disk can then be read through the machine's Floppy Disk Reader. The following formats are supported:

Format	Density	Read	Write
Barudan 2HD	DS/HD	●	●
Barudan S-FMC	DS/HD	●	●
DOS	DS/HD	●	●
Happy	DS/HD	●	●
Tajima	DS/HD	●	●
Toyota	DS/HD	●	●
ZSK TC	DS/HD	●	●

PART XI
QUICK REFERENCE

The BE EmbroideryStudio design window contains the pulldown menus and toolbars described in the following section. Some commands are available both as toolbar buttons and menu items. Some are exclusive to either category. The most commonly used commands are available as 'keyboard shortcuts'. This section contains a complete summary of all commands available in the software.



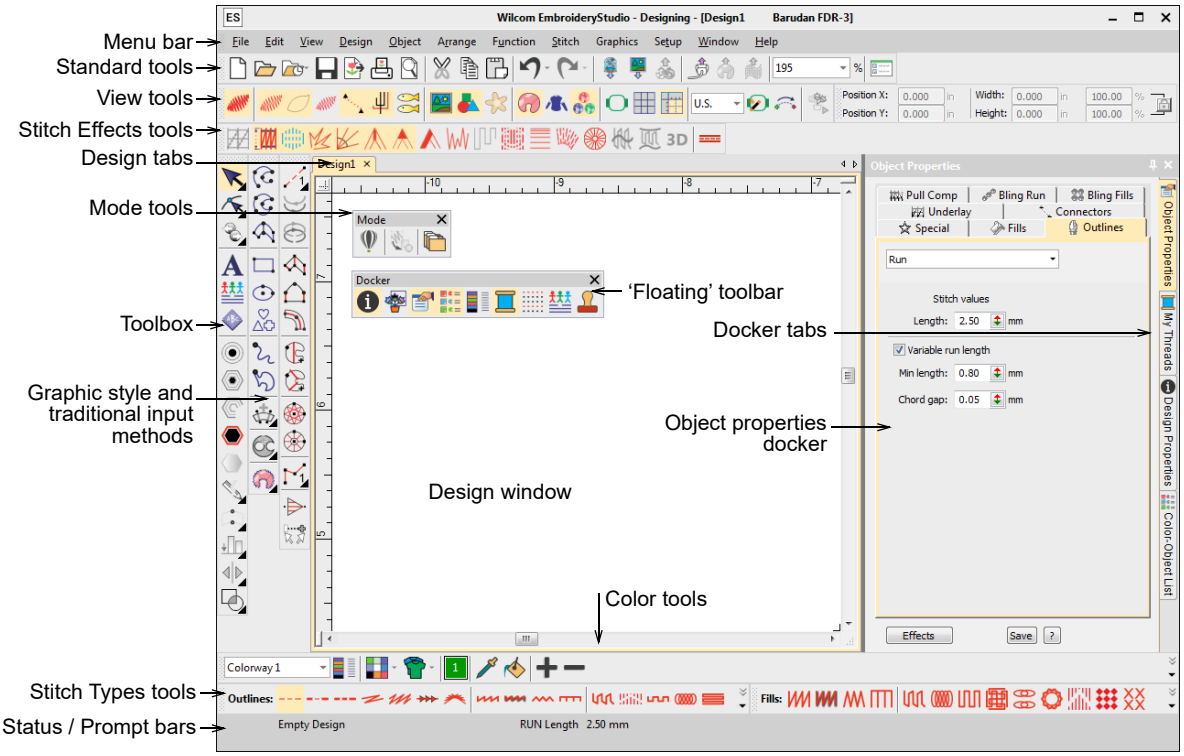
Tip: Standard MS Windows® **Alt** key shortcuts also apply. Use the **Alt** key with the letter underlined in the menu. To cancel an operation, press **Esc** twice.

Menus & Toolbars

There are two fundamental design modes in BE EmbroideryStudio:

Wilcom Workspace

This mode allows you to create and edit embroidery objects using the embroidery digitizing toolset.



CorelDRAW Graphics

This mode allows you to create and edit vector objects using the CorelDRAW® Graphics Suite toolset. For a detailed description of the **CorelDRAW Graphics** interface, refer to the electronic User Guide available via the MS Windows® **Start > Programs** group. Alternatively, use the online help available from the **Help** menu.

BE EmbroideryStudio menus

The BE EmbroideryStudio design window menu bar contains the pulldown menus described below. Some commands are also available as toolbar buttons.

Tip: Standard MS Windows® **Alt** key shortcuts apply. Use the **Alt** key with the letter underlined in the menu. To cancel an operation, press **Esc** twice.

File menu

New design	Create new blank design based on a fabric or template.
New from template	Create new design from a template.
Open design	Open existing design.
Open recent	Most recently used files listed – select to open file.
Open backup design	Opens directly onto the backup folder for quick access to backup files in case of software failure.
Close	Close current design window.
Close all	Close all open design windows.
Save	Save current design.
Save as	Save current design with a different name, location or design file format.
Save as template	Save current design as a design template for future use.
Save as monogram template design	Save current design as a monogram template for future use with the Monogramming tool.
Save as teamname template design	Save current design as a teamname template for future use with the Team Names tool.
Export machine file	Convert current design to a machine format other than your selected machine.
Print	Print the current design.
Print preview	Show production worksheet / approval sheet. Print from preview window.
Import embroidery	Insert one design into another to create combined design. Color palettes are also combined. Colors with same RGB values are automatically identified as having the same thread color.
Import graphic	Import artwork into current design as a backdrop for manual or automatic digitizing.
Scan graphic	Scan images directly into BE EmbroideryStudio.
Export design as vector	Save design as vectors in EMF or WMF format.
Export multi-decoration files	Export mixed decoration design components as file formats for use by control software or machine.
Capture design bitmap	Save design image as bitmap exactly as it appears on screen.
Capture virtual decoration bitmap	Output high resolution digital print TrueView for ‘virtual embroidery’.
Send via email	Send design as email attachment.
Export design properties	Output current design information and machine runtime settings to CSV file.
Send to Connection Manager	Connect to supported machines via proprietary machine software.
Send to Embroidery Connect	Send current design to named EmbroideryConnect device.
Queue design	Send current design to EmbroideryConnect design queue to be ‘pulled’ from machine.
Send to appliqué cutter	Send appliqué shapes from design file to laser cutter.

Send to bling cutter	Send vectors for any bling in a multi-decoration design to a supported cutting machine. Configure the machine via Setup.
Cross stitch	Access Cross Stitch application.
Sign out and exit	Exit BE EmbroideryStudio and sign out of Wilcom account.
Exit	Close all open designs and exit BE EmbroideryStudio.

Edit menu

Undo	Undo previous action.
Redo	Redo previously undone action.
Cut	Cut selection and place on Clipboard.
Copy	Copy selection and place on Clipboard.
Paste	Paste contents of Clipboard. Options available in Options > Edit tab.
Paste after selected	Override current defaults and paste directly after selected object in the stitching sequence.
Paste special >	Override current Paste setting and select from paste options available in Options > Edit tab.
Duplicate	Duplicate selected objects within the design (rather than copy to clipboard).
Duplicate with offset	Duplicate an object with an offset. Adjust settings via the Options > Edit dialog.
Delete	Delete selected objects.
Select / deselect all	Select or deselect all objects in a design.
Select by color / stitch type	Select all objects of the same color or same stitch type.
Close curve with straight line / curve line	Close an open outline with a straight or a curved line.
Reverse >	Reverse stitch direction to control push-pull effect – affects Jagged Edge, Contour Stitch and E Stitch objects. Can also affect Tatami offsets, Flexi Split and Motif Run orientation.
Smooth curves	Apply curve 'smoothing' to both embroidery and vector objects.
Transform >	Transform selected objects using a combination of reference points and numeric values. Rotate selected objects with the aid of reference points alone.
Envelope >	Apply Bridge, Pennant, Perspective, and Diamond effects to lettering objects.

View menu

TrueView	Toggle between normal (stitch) view and TrueView™.
Show >	Access same design viewing commands as available on View toolbar.
Flip sequins	Toggle between front and reverse sides of sequins in flip sequin designs.
Hoop	Show/hide hoop.
Hoop template	Show/hide hoop template as an alternative to grid lines, in order to align design at correct location and orientation.
Show grid	Show/hide grid.
Show rulers & guides	Show/hide rulers and guides.
Zoom >	Zoom in to selected area of design.
Zoom 1:1	Show design at actual size.
Zoom factor	Set precise viewing scale.

Zoom in/out 1.25x	Zoom in/out for greater or lesser detail.
Zoom in/out 2x	Show design at twice/half current size.
Zoom to fit	Show whole design in design window or just selected objects.
Zoom to selected	View selected objects in design window.
Zoom to product	View whole product backdrop in design window.
Zoom to hoop	View whole hoop in design window.
Pan	Pan across current design.
Previous view	Return to previous view.
Center at current stitch	Center design in design window at current stitch cursor position.
Measure	Measure distance between two points on screen.
Stitch player	Simulate embroidery design stitchout on screen.
View by color	View embroidery objects by color – e.g. when resequencing objects.
View all colors	Show all colors after activating View by Color.
View by machine function >	View machine Chenille and Schiffli functions – Chain/Moss, Stepp/Blatt, etc.
Refresh screen	Refresh screen display.

Design menu

Design properties	Show design information – size, number of stitches, job order details, etc – and add comments for worksheets.
Select machine format	Select machine format corresponding to embroidery machine you intend to use.
Machine format settings	Define values to encode when outputting to a specific machine format.
Auto fabric	Change current fabric type and associated settings.
Auto hoop	Prompt system to select a suitable hoop from My Hoops list.
Background & display colors	Change background colors, fabric swatches, and display colors for current colorway.
Auto start & end	Access automatic design start/end settings.
Remove small stitches	Automatically remove unwanted small stitches.
Repeats	Use in combination with Show Repeats tool to define design repeat settings for continuous and overlapping designs.

Object menu

Make properties current	Make properties of a selected object current for the design.
Apply current properties	Apply current settings to selected objects.
Apply favorite style	Assign up to 10 favorite styles via Manage Styles. Select object and click button to apply.
Apply style	Apply predefined style to selected objects.
Use for Florentine / Liquid effect	Make guidelines for Florentine or Liquid effects.
Create motif	Add individual motifs to a design. Save own motifs for future use.
Create program split	Turn embroidery or drawing objects into patterns for use in Program Split fills.
Create letter	Access command used in custom fonts. See Custom Lettering for details.
Create user-refined letter	Save a reshaped letter as a ‘user-refined letter’. Only available when selected in Reshape mode.

Update kerning settings	Update kerning settings for contiguous pairs of selected letters of the same font. Only available when Automatic Kerning is in use.
Create sequin shape	Define sequin shapes with custom hole position and size. Save to custom sequin library.
Create sequin fixing	Define custom fixing stitches to support multi-head sequin devices.
Set color	Change color of consecutive objects of same color.

Arrange menu

Group / Ungroup	Group or ungroup selected objects.
Lock / Unlock all	Lock selected objects or unlock all objects in a design.
Branching	Automatically sequence and group like embroidery objects.
Apply closest join	Join selected objects at the closest point. Re-apply closest join after editing.
Break apart	Split branched objects – monograms, appliqués, lettering, etc – into components. Allows each to be edited individually.
Sequence >	Resequence selected objects in order selected, or resequence objects by color to reduce color changes.
Align >	
Space evenly >	Same functions as the Arrange toolbar. See Arrange tools for details.
Make same size >	
Shaping >	Same functions as the Shaping toolbar.
Remove overlaps	Remove the underlying layer of stitching in overlapping objects.

Function menu

Penetrations	Toggle Penetrations function on/off. Engage needles or borers, or disengage to create jumps.
Borers	Toggle Borers function on/off.
Insert Stop	Insert Stop function at current stitch cursor position.
Insert Tie-off	Insert a tie-off.
Insert Trim	Insert a trim.
Insert Empty stitch	Insert an empty stitch.
Insert Empty jump	Insert an empty jump.
Insert function	Insert machine function at current stitch cursor position.
Clear function	Remove machine functions from current stitch cursor position.
Edit function	Edit machine function at current stitch cursor position.

Stitch menu

Generate stitches	Generate stitches for selected objects.
Stitch edit selection	Select a range of objects as you travel through the design.
Process stitches	Adjust stitch density of and/or scale whole or selected parts.
Recognize objects / outlines	Recognize new or revised object outlines after stitch editing – use with machine files opened without object/outline recognition.
Split object	Split object in two at current needle position. Use with Travel by Stitch functions.

Graphics menu

Import graphic	Import artwork into current design as a backdrop for manual or automatic digitizing.
Instant smart design	Automatically create embroidery from imported artwork instantly.
Smart design	Create whole embroidery designs directly from imported artwork.
Keep graphic objects	Retain original artwork during conversion.
Color matching method	Set color matching for auto digitizing. Add or match bitmap colors to palette, or match to thread colors in selected chart/s.
Crop bitmap	Crop bitmap images to remove unnecessary detail and save processing time.
Remove crop	Remove cropping area.
Finalize crop	Turns a 'virtual crop' into a 'hard crop' by reducing an image to its new visible extents.
Prepare bitmap colors	Prepare bitmap images for automatic digitizing.
Edit using >	Edit bitmaps using Paint, Corel PHOTO-PAINT, or Paint Shop Pro.
Turning satin object	Fill narrow column shapes with turning stitching.
Tatami fill object with holes	Fill large shapes with tatami stitching, preserving any holes
Tatami fill object	Fill large shapes with tatami stitching, ignoring any holes.
Centerline run object	Create centerlines in narrow shapes with Run stitching.
Outline run object	Create outlines around shapes with Run stitching.
Auto trace to vectors	Convert artwork to vector objects. These can be converted to embroidery objects.
Adjust bitmap	Adjust image lightness and contrast.
Photo Flash	Create whole embroidery designs directly from photographs.
Color PhotoStitch	Convert photographs and other bitmap artwork into multi-colored embroidery.
Reef PhotoStitch	Convert photographs into reef-like embroidery.
Add bitmap colors	Assign matching thread colors from selected chart/s to the current colorway.

Setup menu

Options	Access current settings for object display.
Manage thread charts	Define your own thread charts. When you create a thread chart, you are creating a store of colors for future use.
Manage auto fabrics	Modify existing fabric definitions and create new ones.
Manage styles	Define new styles for a template, either from scratch or based on an existing style or object.
My hoops	Configure My Hoop list to include only hoops available for use.
Manage motifs	Manage your custom motif sets.
Manage user-refined letters	Adjust height range and other settings for custom 'user-refined' letters.
Manage sequin fixing	Rename or delete custom sequin fixings from the library. See also Object > Create Sequin Fixing.
Manage sequin shape	Rename or delete custom sequin shapes from the library. See also Object > Create Sequin Shape.
Manage alphabets	Modify custom alphabets by changing names, default letter spacings and join types.
Convert TrueType font	Convert a TrueType font to an embroidery font.

Calibrate screen	Set up your monitor.
Connection Manager setup	Connect to machines that appear as removable media or make use of third-party connection software.
Tablet setup	Set up digitizing tablet.
Scanner setup	Set up Scanner.
Bling machine setup	Set up direct connection to CAMS automatic rhinestone placement machine.
Machine runtime setup	Set up multiple named machines for the purposes of runtime analysis.

Window menu

New tab group...	Split the design window into a second tab group, either vertical or horizontal. Each tab group can contain multiple designs.
Move to tab group...	Move a current design to the other design tab. Can also be dragged to the other design group.
Remove tiling	Remove tab groups and split windows and return to a single design window.
Split window	Split design tab into multiple views of the same design.
Dockers >	Show/hide dockers to optimize working area.
Toolbars >	Show/hide toolbars to optimize working area.
Kiosk	Lettering kiosk capability for cap and other embroidery for use at retail outlets where simple personalization of standard design layouts is required.
More windows	View more open windows.

Help menu

BE EmbroideryStudio provides various ways to access information about the software and how to use it via the **Help** menu. See Resources & support for details.

BE EmbroideryStudio toolbars

The **Wilcom Workspace** contains the toolbars described below. Some tools are shortcuts to pulldown menu commands. Details of optional toolbars are provided in the onscreen documentation.

Note: Only the most commonly used toolbars are on by default.

Standard tools

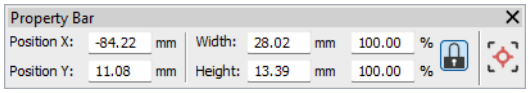
The **Standard** toolbar contains commonly used tools and commands, specific to and only visible in **Wilcom Workspace**.

New design	Create new design file.
Open design	Open embroidery design.
Open recent designs	Open design from list of recently opened designs.
Save design	Save current design file.
Export machine file	Export current design to machine file for stitching.
Print	Print current design using current print settings.

Print preview	Preview production worksheet/approval sheet. Print from preview window.
Cut	Cut selection and place on clipboard.
Copy	Copy selection and place on clipboard.
Paste	Paste contents of clipboard. Options available in Options > Edit tab.
Undo	Undo previous action.
Redo	Redo previously undone action.
Import embroidery	Import embroidery design file into current design.
Import graphic	Import artwork into current design as a backdrop for manual or automatic digitizing.
Export multi-decoration files	Export mixed decoration design components as file formats for use by control software or machine.
Send to Connection Manager	Send current design to machine via proprietary machine software.
Send to Embroidery Connect	Send current design to named EmbroideryConnect device.
Queue Design	Send current design to EmbroideryConnect design queue.
Send to appliqué cutter	Send appliqué shapes from current design to laser cutter.
Send to bling cutter	Send bling shapes in current design to cutting machine. Configure machine via Setup menu.
195	Select zoom scale from droplist or key in zoom factor and press Enter.
Options	Access application options for design view, grid & guides, and other settings.

Property bar

Adjust general properties – width, height, position – by means of the **Property Bar**. Changes to the values are applied by pressing **Enter** on the keyboard. They are discarded when you press **Esc** or click anywhere outside the fields. See Access object properties for details.



The **Center All** command can be used to center the whole design and hoop at the (0,0) position. This means you can reposition the hoop around the design **after** you have finished digitizing without the need for auto-centering. See Set automatic or fixed hoop positioning for details.

Status & Prompt bars

The **Status** and **Prompt** bars provide continuous display of current cursor position status as well as instructions for use of selected tools. See Operating modes for details.

View tools

Use the **View** tools to visualize your designs – e.g. as design outlines, by stitches, by machine functions, as they will stitch out on the fabric. Right-click to access settings. See also Viewing Designs.

TrueView	Toggle between stitch view and TrueView™.
Show stitches	Show/hide embroidery stitching.

Show outlines	Show/hide object outlines.
Show needle points	Show/hide needle points.
Show connectors	Show/hide connecting stitches.
Show functions	Show/hide machine function symbols.
Show repeats	Show/hide design repeats.
Show bitmaps	Show/hide bitmap images.
Show vectors	Show/hide vector graphics.
Dim artwork	Dim graphic backdrops to display stitches more clearly when digitizing.
Show appliqué fabric	Show/hide appliqué fabrics.
Show product	Show/hide product backdrop. Right-click for Product Visualizer settings.
Show bling	Show/hide bling (rhinestones).
Flip sequins	Toggle between front and reverse sides of sequins in flip sequin designs.
Show grid	Show/hide grid.
Show rulers & guides	Show/hide rulers & guides.
Metric	Change measurement units in BE EmbroideryStudio without changing system settings.
Auto start & end	Set auto start and end points for whole design.
Stitch player	Simulate embroidery design stitchout on screen.

Zoom tools

Use the **Zoom** tools to magnify the design view by zooming in on individual stitches or details. See Zoom & pan designs for details.

Zoom	Zoom in/out with left/right mouse clicks, or drag selection marquee to view design detail.
Zoom 1:1	Show design at actual size.
Zoom in/ out 1.25x	Zoom in/out for greater or lesser detail.
149	Select zoom scale from droplist or key in zoom factor and press Enter.
Zoom to fit	Show whole design in design window.
Zoom to selected	Magnify selected objects.
Zoom to product	Show whole product backdrop in design window.
Zoom to hoop	Show whole hoop in design window.

Hoop tools

Use the **Hoop** tools to configure, select, and place both single and multiple hoopings. See Design Hooping for details.

Show hoop	Show/hide current hoop. Right-click for settings.
bernette 110(W) x 170(H) mm	
My hoops	Select new hoop from My Hoops list. Displays currently active hoop.
Hoop options	Configure hoop lists, change hoop position settings, and define custom hoops.

Auto hoop	Prompt system to select a hoop from My Hoops list.
Rotate hoop left 15°	Rotate hoop and hoop template, or selected hoops in hooping mode, in 15° increments to left or right.
Rotate hoop right 15°	
0	Rotate hoop by specified amount in degrees – positive or negative.
Hooping mode	Toggle on to access hooping toolset. Toggle off to access digitizing and editing toolset.

Hooping Mode tools

BE EmbroideryStudio provides a dedicated **Hooping Mode** toolbar which allows you to specify multiple hoopings for large designs, both manually or automatically. See Multi-Hooping for details.

Select	Click or drag a selection marquee to select hoop or split line. Hold down <Ctrl> to select multiples. Click twice to activate rotation handles.
Reshape	Reshape selected mode-specific objects, edit stitch angles, and adjust entry/exit points. Right-click for settings.
Multi-Hooping Options	Change multi-hooping options in the Multi-Hooping tab of the Options dialog.
Auto Layout Hoops	Automatically add/rotate/delete hoops and split lines to cover the entire design.
Add Splitting Line	Digitize one or more guides in a multi-hoop layout to split objects between hoopings.
Preview Hoopings	View hooping thumbnails in Preview Hoopings docker. Click thumbnails to isolate hoopings.
Calculate Hoopings	Calculate hoopings resulting from current layout.
Add/Delete Hoop	Add or remove hoopings in a multi-hooping layout.

Mode tools

The **Mode** tools control interactions between **Wilcom Workspace** and **CorelDRAW Graphics**.

Home	Switch to Home screen to access My Wilcom account, access announcements, community forums, blogs, tutorials and other product information.
Wilcom Workspace	Switch to Wilcom Workspace to access access digitizing and editing toolset.
CorelDRAW Graphics	Switch to CorelDraw Graphics to access full graphic creation and editing toolset.
Design Library	Open Design Library to search for and catalogue designs as well as quotes, orders, and approvals.
Convert embroidery to graphics	Convert selected embroidery to vector graphics and switch to CorelDRAW Graphics.
Convert graphics to embroidery	Convert selected graphics to embroidery and switch to Wilcom Workspace.
Tag as appliqué	Convert selected vector lettering to appliqué with turning stitching.
Tag fill as turning satin	Convert selected narrow vector objects to turning satin.
Tag as Photo Flash	Convert photos to Photo Flash embroidery.
Keep graphic objects	Retain original artwork during conversion.

Match to embroidery palette	Toggle thread-color matching for converted vector objects.
Show embroidery	Toggle embroidery object display.
96 dpi	Virtual Decoration Quality: set the rendering quality of embroidery TrueView for a virtual decoration.

Docker tools

Use the **Docker** tools to toggle modeless dialogs (dockers) on or off. See also Work with dockers.

Design information	Show design information – size, number of stitches, job order details, etc – and add comments for worksheets.
Overview window	Show/hide Overview Window. Zoom and pan thumbnail of current design.
Object properties	Show/hide Object Properties docker. Preset properties or adjust for selected objects.
Color-object list	Show/hide Color-Object List. View and sequence design objects.
Colorway editor	Show/hide Colorway Editor. Assign thread colors to color palette and define multiple colorways.
Threads	Show/hide Threads docker. Find threads from different charts and change design colors.
Stitch list	Show/hide Stitch List. View, filter and select stitches.
Team names	Show/hide Team Names docker. View and edit teamname lists.
Carving stamp	Show/hide Carving Stamp. Create needle penetrations using a 'carving stamp' as template.
Embroidery clipart	Show/hide Embroidery Clipart docker. Record and recover re-usable design elements.
Keyboard design collection	Show/hide Keyboard Design Collection docker. Create new or edit current collections.
Exports	Show/hide Exports docker. View export status of current session. Conversion to older formats or machine files performed as background task.

Color tools

The **Color** toolbar contains a palette specific to and only visible in **Wilcom Workspace**. See Thread selection for details.

Blue	Switch between colorways. Define via Colorway Editor.
Colorway editor	Show/hide Colorway Editor. Assign thread colors to color palette and define multiple colorways.
Background & display colors	Change background colors, fabric swatches, and display colors for current colorway.
Product visualizer	Show/hide Product Visualizer. Set current product backdrop.
6 Current color	Displays the current color.
Pick color	Pick color from design and make current.
Apply current color	Apply current color to embroidery objects.
Add color	Add color slot to palette. Edit via Colorway Editor.
Remove color	Remove last unused slot from color palette.

Hide unused colors	Show/hide unused colors in color palette.
Remove unused colors	Remove unused colors from color palette.
Split palette color	Split selected color in two color slots. Used with multiple colorways.
Cycle used colors	Cycle through combinations of used colors. Left- or right-click.
Color wheel	Access Color Wheel to test combinations of related colors.
Threads	Show/hide Threads docker. Find threads from different charts and change design colors.

Colorway Editor

The **Colorway Editor** contains tools for editing colorways.

Create colorway	Add new colorway to current design.
Rename colorway	Rename selected colorway.
Delete colorway	Delete selected colorway.
Move left	Move selected colorway in Colorway Editor to right or left.
Move right	
Background & display colors	Change background colors, fabric swatches, and display colors for current colorway.
Edit color	Edit specification and color of selected color slot.
Show colorway details	Show selected colorway details.
Hide unused colors	Show/hide unused colors in color palette.

Toolbox

The **Toolbox** contains embroidery digitizing/editing tools specific to and visible only in **Wilcom Workspace**. By default, the **Toolbox** docks vertically to the left of screen but can be floated, re-configured, and docked like any other toolbar.

Select	See Selection tools for details.
Reshape	See Reshape tools for details.
Edit	See Edit tools for details.
Lettering	Create embroidery lettering onscreen using embroidery fonts, keyboard design collections, or TrueType fonts. Right-click for settings.
Team names	Show/hide Team Names docker. View and edit teamname lists.
Monogram-ming	Show/hide Monogramming docker. Create monograms using predefined styles, border shapes and ornaments.
Laydown stitch	Generate light fills to flatten nap of fabrics like terry toweling as substrate for embroidery.
Simple offsets	Create precise offsets for closed embroidery or vector objects.
Outlines & offsets	Create outlines and offsets for closed embroidery or vector objects.
Open offsets	Create precise offsets for open embroidery or vector objects.
Add border	Add predefined borders to designs or selected objects.
Color blending	Generate color blends, perspective and shading effects in selected objects.
Auto-digitizing	See Property bar for details.

Envelope	See Envelope tools for details.
Arrange	See Arrange tools for details.
Shaping	See Shaping tools for details.

Selection tools

Use the **Select** tools to select embroidery objects in a variety of ways. See Selecting objects for details.

Select	Use with <Ctrl> or <Shift> keys to select groups or ranges of objects. Drag selection marquee to select multiple objects.
Freehand select	Select objects by dragging freehand selection marquees.
Select current	Select object at current cursor position.
Polygon select	Select objects by digitizing a selection marquee around them.
Polyline select	Select objects by digitizing line through them.

Reshape tools

Use the **Reshape** tools to reshape objects with control points as well as edit individual stitches. See Reshaping objects for details. See also Stitches & Machine Functions.

Reshape object	Reshape selected objects, edit stitch angles, and adjust entry/exit points.
Show reshape nodes	Show/hide reshape nodes for selected objects.
Show bézier handles	Show/hide Bézier handles for selected objects. (Activate in Options > Reshape.)
Show stitch angles	Show/hide stitch angles for selected objects.
Show entry/exit	Show/hide entry (green diamond) and exit (red cross) points for selected objects.
Stitch edit	Select individual stitches for editing.
Keep last stitch	Set last stitch in selected column (A/B) shapes.
Omit last stitch	

Edit tools

Use the **Edit** tools for object editing operations. See Reshaping & Splitting Objects for details.

Break apart	Split branched (composite) objects – monograms, appliqués, lettering, etc – into components. Allows each to be edited individually.
Knife	Cut objects along a digitized line, preserving stitch settings and colors.
Automatic knife	Slice large objects into smaller ones with automatic overlaps.

Envelope tools

Envelopes are typically applied to lettering objects, but they can also be applied to other types of embroidery object. See Applying envelopes for details.

Bridge envelope	
Pennant envelope	Apply to lettering objects to make them bulge or arch, stretch or compress.
Perspective envelope	
Diamond envelope	
Delete envelope	Delete envelopes from selected objects.

Arrange tools

Use the **Arrange** tools for moving, aligning and distributing objects, as well as grouping and locking operations. See Transforming Objects for details.

 Group	Group selected objects.
 Ungroup	Ungroup selected grouped objects.
 Lock	Lock selected objects.
 Unlock all	Unlock all locked objects in design.
 Branching	Automatically sequence and group like embroidery objects.
 Apply closest join	Join selected objects at closest point. Re-apply closest join after editing.
 Break apart	Split branched (composite) objects – monograms, appliqués, lettering, etc – into components. Allows each to be edited individually.
 Align left	Left-align selected objects.
 Align centers vertically	Vertically align centers of selected objects.
 Align right	Right-align selected objects.
 Align top	Align tops of selected objects.
 Align centers horizontally	Horizontally align centers of selected objects.
 Align bottom	Align bottoms of selected objects.
 Align centers	Align selected objects through their centers.
 Space evenly across	Evenly distribute three or more selected objects horizontally.
 Space evenly down	Evenly distribute three or more selected objects vertically.
 Make same width	Scale selected object/s to same width as last-selected reference object.
 Make same height	Scale selected object/s to same height as last-selected reference object.
 Make same width & height	Scale selected object/s to same dimensions as last-selected reference object.

Traditional digitizing tools

The **Traditional Digitizing** toolset provides all the input methods embroidery digitizers are familiar with. Traditional digitizing methods divide into three main categories – 'free shapes', 'column shapes', and 'outlines'. See also Embroidery digitizing.

 Outlines	See Outline tools for details.
 Backtrack	Reinforce outlines, stitching in reverse direction to original.
 Repeat	Duplicate outlines in same direction – normally used with closed shapes.
 Column A	Digitize columns of turning stitches of varying width.
 Column B	Digitize columns of turning stitches where opposing sides are different.
 Column C	Digitize columns or borders of fixed width.
 Complex fill	Digitize filled shapes with a single stitch angle.
 Complex turning	Digitize filled shapes with turning stitches.
 Star	Digitize star shapes with zigzag stitching.

Ring	Digitize circles and oval-shaped rings.
Manual	See Manual stitch tools for details.
Use motif	Add single motifs to design. Rotate, scale, or mirror into position.
Branching	Automatically sequence and group like embroidery objects.

Outline tools

Use the **Outline** tools for digitizing embroidery outlines. See Digitizing outlines & details for details.

Digitize run Triple run	Place row of single or triple stitches along digitized line.
Motif Run	Place row of motifs along digitized line.
Backstitch	Place row of backstitches along digitized line.
Stemstitch	Place row of stemstitches along digitized line.

Manual stitch tools

The **Manual** tools are used for digitizing individual stitches. Manual objects have no outlines, only stitches. Stitch density does not change. See Digitize stitches for details.

Manual	Digitize single stitches.
Triple manual	Digitize three stitch layers at a time.

Graphics digitizing tools

Graphics Digitizing tools operate in a similar way to **CorelDRAW® Graphics Suite** or other graphics applications. Assign a stitch type to a digitized shape from **Outline Stitch** or **Fill Stitch** toolbars. See also Digitizing with graphical tools. See also Appliqué Embroidery.

Digitize open shape	Digitize open shapes with left and right mouse clicks for straight lines and curves.
Digitize closed shape	Digitize closed shapes with left and right mouse clicks for straight lines and curves.
Digitize column	Digitize column shapes of varying width, setting the stitch angle at each pair of points.
Rectangle	Digitize two corners of a rectangle, or press <Ctrl> for a perfect square.
Ellipse	Digitize the center points plus 2 size points for an ellipse or press <Enter> for a perfect circle.
Basic shapes	Digitize basic shapes. Press <Ctrl> to maintain proportions. Press <Shift> to center around starting point.
Freehand open shape	Click and hold to draw freehand open shapes. Adjust smoothing control for preferred result.
Freehand closed shape	Click and hold to draw freehand closed shapes. Adjust smoothing control for preferred result.
Stitch angles	See Stitch angle tools for details.
Holes	See Hole tools for details.
Appliqué	See Appliqué tools for details.

Stitch angle tools

Add or remove stitch angles with the **Stitch Angle** tools. See Adjusting stitch angles for details.

Stitch angles	Add stitch angles to selected objects.
Remove stitch angles	Remove stitch angles from closed objects with turning stitches.

Hole tools

Hole tools are used to cut as well as fill holes in embroidery objects. See Adding & filling holes for details.

Add holes	Cut holes in filled objects.
No holes	Remove hole/s from selected object.
Fill holes	Fill holes formed by existing boundaries. Choose an exact fit or offset.

Appliqué tools

Appliqué tools are specialized for appliqué work. Use them to create appliqué objects, resequence objects for efficient stitchout, as well as generate partial cover stitching for overlapping appliqué. See Appliqué Embroidery for details.

Appliqué	Digitize appliqué objects, with or without holes, with up to four layers of stitching – guide runs, cutting lines, tack stitches, and cover stitches.
Appliqué without holes	Digitize appliqué objects (without holes) with up to four layers of stitching – guide runs, cutting lines, tack stitches, and cover stitches.
Combine appliqué	Break appliqué into component objects and recombine and resequence for efficient stitchout.
Partial appliqué	Create partial cover stitching for overlapping appliqué objects.
Remove overlaps	Remove underlying layers of stitching in overlapping objects using selected 'cutter' object(s). Right-click for settings.

Auto-digitizing tools

Auto-Digitizing tools provide everything necessary to automatically digitize shapes in electronic artwork, both bitmap and vector, without using manual input methods. See Auto-digitize individual shapes for details.

Instant smart design	Automatically convert imported artwork to embroidery.
Smart design	Create whole embroidery designs from imported artwork.
Keep graphic objects	Retain original artwork during conversion.
Color matching method	Set color matching for auto digitizing. Add or match bitmap colors to palette, or match to thread colors in selected chart/s.
Crop bitmap	Crop artwork for use with auto-digitizing. Digitize points and press Enter to create cropping shape.
Remove crop	Click to remove cropping area.
Finalize crop	Make cropping permanent. Once finalized, cropping cannot be removed.
Prepare bitmap colors	Prepare artwork for automatic digitizing.
Turning satin object	Fill narrow column shapes with turning stitching.
Tatami fill object with holes	Fill large areas with tatami stitching, preserving any holes.

Tatami fill object	Fill large areas with tatami stitching, ignoring any holes.
Centerline run object	Create centerlines in narrow shapes with run stitching.
Outline run object	Create outlines around shapes with run stitching.
Auto trace to vectors	Convert artwork to vectors. These can be converted to embroidery.
Adjust bitmap	Adjust image lightness and contrast for auto-digitizing.
Photo Flash	Create whole embroidery designs directly from photos.
Color PhotoStitch	Automatically convert grayscale or color photos to embroidery.
Reef PhotoStitch	Automatically convert photos into reef-like embroidery.

Outline Stitch tools

The **Outline Stitch** toolbar provides a range of basic outline stitch types as well as those of a more decorative nature. These stitch types can be applied to open or closed shapes. Right-click to access stitch settings. See also Stitch Types.

Run	Create outlines and details.
Sculpture run	Create alternating triple/single stitch runs for a hand-stitched look.
Triple run	Create heavier triple stitch outlines and details.
Backstitch	Create traditional backstitch outlines for delicate borders.
Stemstitch	Create traditional stemstitch outlines for decorative details such as stems and vines.
Motif run	Create ornamental craftstitch outlines. Choose from a motif library.
String	Create craftstitch outlines for delicate borders.
Satin	Create glossy satin borders or columns of even width.
Satin raised	Create layered satin borders or columns of even width for a raised surface.
Zigzag	Create borders or columns of even width for an open ‘sawtooth’ effect.
E stitch	Create borders or columns of even width for an open ‘comb’ effect.
Tatami	Create borders or columns of even width for different needle penetration patterns.
Program split	Create borders or columns of even width for decorative needle penetration patterns.
Square	Create borders or columns of even width for an open ‘toothed’ effect.
Coil	Create borders or columns of even width for an open ‘coil’ effect.
Contour	Create contoured stitching following borders or columns of even width.
Vector outline	Create vector outlines without stitch properties.

Fill Stitch tools

The **Fill Stitch** toolbar provides a range of basic fill stitch types as well as those of a more decorative nature. Apply to closed shapes. Right-click to access stitch settings. See also Stitch Types.

Satin	Create glossy satin fills for narrow shapes.
Satin raised	Create layered satin fills for a raised surface.

Zigzag	Create zigzag fills for an open ‘sawtooth’ effect.
E stitch	Create an open ‘comb’ effect.
Tatami	Create solid stitching for large shapes with different needle penetration patterns.
Coil	Create open coil fills.
Square	Create open straight parallel fills.
Double square	Create grid fills.
Island coil	Create concentric rows of coil fills.
String	Create string craftstitch fills.
Program split	Create solid decorative fills using needle penetrations to form tiled patterns.
Motif fill	Create decorative fills using embroidery motifs to form repeating patterns. Choose from a motif library.
Motif column	Place motifs along the center line of a column shape and resize to fit. Right-clicking for settings.
Cross stitch	Fill large areas with cross stitching on an invisible grid that applies to all design objects.
Contour	Create curved fills where stitches follow contours of a shape.
Spiral	Create spiral stitching radiating from the center of the object.
Maze	Create maze-like stitching which follows object contours for open fills.
Offset	Create offset fill stitching in any closed shape.
Stipple	Create a stipple fill which meanders randomly within a shape.
Stipple backstitch	Create a stipple backstitch fill which meanders randomly within a shape.
Stipple stemstitch	Create a stipple stemstitch fill which meanders randomly within a shape.
Laydown	Generate a light fill to flatten the nap of textured fabrics like terry toweling for subsequent embroidery.
Vector fill	Create vector fills without stitch properties.

Stitch effect tools

Use the **Stitch Effects** tools for modifying or improving stitch quality, including applying automatic underlay to selected objects. Right-click for settings.

Auto underlay	Generate automatic underlay for selected objects.
Pull compensation	Apply to selected objects to compensate for fabric stretch.
Auto jump	Preserve long stitches in new and selected objects.
Shortening	Reduce stitch bunching in tight curves by shortening stitches along inside edge.
Fractional spacing	Even out stitch density along inside and outside edges.
Mitre corners	Create sharp mitre corners at intersections.
Cap corners	Create capped corners for fewer stitches.
Lap corners	Create ‘Tidori’ style corner stitching.

Jagged edge	Create rough edges, shading effects, or imitate fur and other fluffy textures in selected objects.
Trapunto	Force underlying travel runs to the edges of selected objects. Use with open stitching.
User-defined split	Create custom split-line effects.
Accordion spacing	Create perspective and shading effects with stitch spacing varying between dense and open fill.
Flexi split	Create decorative split patterns following stitch angles and scaled according to object width.
Radial fill	Create radial turning stitching with various stitch types including satin, tatami and program splits. Can be applied to ring shapes.
Florentine effect	Create custom curve-line stitching with a single guideline.
Liquid effect	Create custom curve-line stitching with twin guidelines.
3D Warp	Create 3D effects in selected motif fills.
Hand Stitch Effect	Create hand-stitch effects which combine randomized stitch length, angle and count.
Cording	Apply cording effect to new or selected objects with run stitching. Contour, spiral, offset or stipple may be used.

Mirror-merge tools

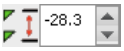
Mirror Merge tools allow you to duplicate and transform selected embroidery objects, as well as merge them into a single object. See Mirroring objects for details.

Mirror copy horizontal	Duplicate and mirror horizontally and merge overlapping objects (optional).
Mirror copy vertical	Duplicate and mirror vertically and merge overlapping objects (optional).
Mirror copy horizontal & vertical	Duplicate and mirror selected objects around a center point.
Array	Duplicate designs, such as badges, automatically re-sequencing color blocks for efficient multiple design stitchouts.
Reflect	Duplicate and mirror objects or designs. Create decorative borders.
Wreath	Duplicate objects around a center point.
Kaleidoscope	Duplicate and mirror paired objects in a wreath.

Mirror Merge settings include...



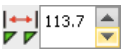
Rows: Set number of rows in the array.



Row spacing: Set spacing between rows in the array.



Columns: Set number of columns in the array.



Column spacing: Set spacing between column in the array.



Wreath points: Set number of duplicates (including source). Kaleidoscope works best with an even number.





Set precise distance and angle – measured from center of source object to center of wreath or kaleidoscope.

Shaping tools

When working with overlapping vector or embroidery objects, you can merge, trim or split them with the **Shaping** tools. See Shaping objects for details.

Weld	Merge selected overlapping objects into a single 'flattened' object.
Intersect	Trim selected overlapping objects so that only intersected areas remain.
Exclude	Trim selected overlapping objects and preserve individual properties.
Front-back	Trim selected overlapping objects so that only non-overlapping areas of the topmost object remain.
Back-front	Trim selected overlapping objects so that only non-overlapping areas of the bottommost object remain.
Flatten	Trim all overlaps in selected overlapping objects.
Divide	Split selected objects into separate adjoining objects wherever they intersect.
Combine	Merge properties of selected overlapping objects and trim overlapping areas.
Keep original objects	Preserve original objects after shaping operations.
	Overlap: Adjust object overlaps resulting from Flatten or Divide shaping operations.

Sequence tools

Sequence tools are used to resequence selected objects. Use them in conjunction with the **Color-Object List**. See Sequencing embroidery objects for details.

Back 1 object	Move selection back one object in the stitching sequence.
Forward 1 object	Move selection forward one object in the stitching sequence.
Back 1 color	Move selection back one color in the stitching sequence.
Forward 1 color	Move selection forward one color in the stitching sequence.
Move to start	Move selection to start of stitching sequence.
Move to end	Move selection to end of stitching sequence.
Sequence by selects	Resequence objects in order of selection.
Sequence by color	Resequence all blocks of like color. (To maintain separate color blocks, use the Color-Object List.)

Transform tools

Use the **Transform** tools to mirror, rotate and skew objects. See Transforming Objects for details.

Mirror horizontal	Flip selected objects horizontally.
Mirror vertical	Flip selected objects vertically.
Mirror by reference line	Mirror objects around a defined axis using a reference line.
Rotate left 15°	Rotate selection in 15° increments to the left.
Rotate right 15°	Rotate selection in 15° increments to the right.
	Rotate selection by specified amount – positive or negative – in degrees.
	Skew selection by specified amount – positive or negative – in degrees.

Transform by reference line numerically	Transform selected objects using a combination of reference points and numeric values.
Transform by reference line freely	Rotate selected objects with the aid of reference points alone.

Styles tools

Use the **Styles** toolbar to apply predefined styles to a design. The tools let you:

- Apply current settings to selected objects
- Change current settings, and
- Apply styles to selected objects.

The styles you select as 'favorites' are each assigned a tool icon on the toolbar. See Working with styles for details.

Make properties current	Make properties of a selected object current for the design.
Apply current properties	Apply current settings to selected objects.
Favorite style	Assign up to 10 favorite styles via Manage Styles. Select object and click button to apply.
Apply style	Apply predefined style to selected objects.

Stitch editing tools

Use the **Stitch** tools for stitch editing and processing operations. See also Stitches & Machine Functions.

Generate stitches	Generate stitches for selected objects.
Stitch edit	Select individual stitches for editing.
Selects on / off	Select a range of objects as you travel through the design.
Process stitches	Adjust stitch density of and/or scale whole or selected parts.
Split object	Split object in two at current needle position. Use with Travel by Stitch functions.

Function tools

Use the **Function** tools to insert machine functions manually. See Stitches & Machine Functions for details.

Penetrations	Engage needles or borers. Disengage to create jumps.
Borers	Engage Borers function. Use for cutting holes in fabric.
Insert Stop	Insert Stop function at current stitch cursor position.
Insert Tie-off	Insert Tie-off function at current stitch cursor position.
Insert Trim	Insert Trim function at current stitch cursor position.
Insert Empty stitch	Insert Empty stitch function at current stitch cursor position.
Insert Empty jump	Insert Empty jump function at current stitch cursor position.
Insert function	Insert machine function at current stitch cursor position.
Clear function	Remove machine functions from current stitch cursor position.
Edit function	Edit machine function at current stitch cursor position.
Slow	Insert Slow function to set machine to low speed.
Fast	Insert Fast function to set machine to high speed.

Caution: When you insert stitches or machine functions manually, you must maintain them manually. If an object's

stitches are regenerated for any reason, all stitch editing and machine functions are lost.

Legacy feature tools

Newer machines use USB and wired or wireless network connections. Older machines use serial ports or even proprietary embroidery disks. Use the **Legacy Features** for connecting to older style machines. See Embroidery Output for details.

Send to Machine Manager	Send multiple designs to machine from BE EmbroideryStudio or DesignWorkflow and view or manage job queues.
Send to Stitch Manager	Send current design direct to embroidery machine for production.
Embroidery disk	Open designs from or save to proprietary embroidery disk formats.
Hardware setup	Set up a machine connection with name, port, and protocol.

Travel tools

Use the **Travel** tools to view the stitching sequence of a design color-by-color, object-by-object, or stitch-by-stitch. Traveling can be initiated from any stitch in a design. See Viewing stitching sequence for details.

Start / end design	Move stitch cursor to start/end of design. Left/right-click.
Travel by object	Move stitch cursor to next/previous object. Left/right-click.
Travel by segment	Move stitch cursor to next/previous segment. Left/right click.
Travel by color	Move stitch cursor to next/previous color change. Left/right click.
Travel by function	Move stitch cursor to next/previous machine function. Left/right click.
Travel by trim	Move stitch cursor to next/previous Trim function. Left/right click.
Travel 1000 stitches	Move stitch cursor forwards/backwards 1000 stitches at a time. Left/right click.
Travel 100 stitches	Move stitch cursor forwards/backwards 100 stitches at a time. Left/right click.
Travel 10 stitches	Move stitch cursor forwards/backwards 10 stitches at a time. Left/right click.
Travel 1 stitch	Move stitch cursor forwards/backwards 1 stitch at a time. Left/right click.

Sequin tools

Use the **Sequin** tools to digitize sequined designs for compatible machines. There are also tools for creating boring holes. See Sequin Embroidery for details.

Sequin palette editor	Select sequins for the design from a sequin library.
A 5.0	Sequin Palette: Select sequin shapes for the current design.
Manual sequin	Digitize individual sequin drops. Right-click for settings.
Left sequin	Switch to left sequin when digitizing twin-sequin designs.
Right sequin	Switch to right sequin when digitizing twin-sequin designs.
Sequin run auto	Create a string of sequins along a digitized line. Right-click for settings.

Sequin run manual	Digitize sequin-drops along a digitized line. Right-click for settings.
Sequin fill	Digitize and fill larger shapes with sequins. Right-click for settings.
Sequin edit	Fine-tune placement of individual sequins within selected sequin objects.
Sequin Split Edit	Assign sequins to split areas of sequin fills.
Vectors to sequins	Create sequin runs from sequin artwork. Digitize a guideline connecting the sequins to include within a run.
Drop sequin	Left-click to insert a Drop Sequin function at current needle position. For twin-sequin machines, left- and right-click for alternative sequin drops.
Clear function	Remove machine functions (inc sequin) from current needle position.

Beading tools

Use the **Beading** tools to create bead runs as well as fills for compatible machines. See Bead Embroidery for details.

Bead palette editor	Select shapes from a bead library, and define bead colors and sizes.
A 3.0	Bead palette
Manual bead	Digitize individual bead drops.
Bead run auto	Create a string of beads along a digitized line. Right-click for settings.
Bead run manual	Digitize bead-drops along a digitized line. Right-click for settings.
Bead edit	Fine-tune placement of beads within selected Bead objects.
Clear function	Remove machine functions (inc bead) from current needle position.

Bling tools

Use the **Bling** tools to create bling runs as well as fills for compatible machines. See Bling Digitizing for details.

Bling palette editor	Select shapes from a bling library, and define bling colors and sizes.
Bling manual	Digitize individual bling drops.
Bling run auto	Create a string of rhinestones along a digitized line. Right-click for settings.
Bling fill	Digitize and fill larger shapes with rhinestones. Right-click for settings.
Bling lettering	Create bling lettering onscreen using native embroidery fonts or TrueType fonts. Right-click for settings.
Automatic overlap removal	Toggle on to remove excess rhinestones in overlapping Bling objects.
No automatic overlap removal	Toggle on to preserve rhinestones in overlapping Bling objects.
Highlight bling overlaps	Toggle on to highlight overlapping rhinestones. Use with manual edits.
Bling edit	Fine-tune placement of individual rhinestones within selected Bling objects.
Show bling work area	Visualize design within work area of selected machine model. Right-click for settings.

Chenille tools

If you have the **Chenille** option installed, the Wilcom Workspace will include a **Chenille** toolbar containing specific Chenille stitch types and machine functions. See Chenille User Manual Supplement for details.

Chain	Switch to chain stitch mode to create decorative stitching resembling links of a chain – used for outlines and borders as well as monograms.
Moss	Switch to moss stitch mode to create dense cover using looped stitch typical of Chenille raised stitching – best with simple shapes.
Needle height	Control moss stitch loop height and chain stitch width.
Compound chenille	Use with Complex Fill to automatically generate moss or chain stitch run-arounds for complex shapes. Right-click for settings.
View by Chain / Moss	View chenille objects in special mode for easy identification of lockstitch (green), chain (blue), and moss (red) elements.

Schiffli tools

If you have the **Schiffli** option installed, the Wilcom Workspace will include a **Schiffli** toolbar containing specific Schiffli stitch types and machine functions. See Schiffli User Manual Supplement for details.

Blatt	Reduce thread tension.
Stepp	Increase thread tension.
End jump	Engage needles or borers.
Begin jump	Disengage needles or borers.
Slow	Decrease machine speed.
Fast	Increase machine speed.
Borer in	Engage borer.
Borer out	Disengage borer.
7	Borer depth: Determine borer hole size – valid depths are 1-13 for Plauen and 0-12 for Saurer.
RPM-	Decrease turning speed of machine.
RPM+	Increase turning speed of machine.
Fadenleiter-	Decrease Fadenleiter stroke by one increment.
Fadenleiter+	Increase Fadenleiter stroke by one increment.
Thread brake-	Decrease thread brake pressure.
Thread brake+	Increase thread brake pressure.
Drop sequin	Trigger a sequin drop.
Schiffli arrangement	Split designs into color blocks arranged into logical parts.

Manage design tools

Use the **Manage Designs** tools for fast searching of designs on shared network drives. This is important for businesses with multiple computers and multiple users creating and accessing EMB or machine format designs. See Design Management for details.

New from selected	Create new designs from chosen template based on selected designs and/or bitmaps. Right-click to select template.
Open selected	Open designs currently selected in Design Library.
Open recent designs	Open a design from list of recently opened designs.
Cut	Cut selection and place on clipboard.
Copy	Copy selection and place on clipboard.
Paste	Paste contents of clipboard.
Convert selected designs	Convert all designs currently selected in Design Library to different file formats.
Send to Connection Manager	Send current design to machine via proprietary machine software. Right-click for settings.
Print selected	Print designs currently selected in Design Library to connected and configured printer.
Print selected to catalog	Print designs currently selected in Design Library to HTML catalog.
Export design list	Export list of design files visible in Embroidery Library, together with associated design information, to CSV or TXT file.
Manage embroidery library locations	Add or remove folders to/from Embroidery Library for fast searching and filtering.

View (Design Library) tools

Design Library allows for fast searching of designs on shared network drives. The **View** (Design Library) toolbar contains functions for quick search, sort, and location of designs on your company network. See Design Management for details.

Layout	Show/hide navigation pane, details pane, and/or preview pane.
Design information	Show design information – size, number of stitches, job order details, etc – and add comments for worksheets.
Keyboard design collection	Show/hide Keyboard Design Collection docker.
Exports	Show/hide Exports docker. View export status of current session. Conversion to older formats or machine files performed as background task.
Change view	Change current view of design lists.
Reset detail columns	Reset columns in details view to default layout.
Group by: <None>	Group current design list by selected property.
Ascending order Descending order	Sort designs in ascending or descending order.
Sort by:	Sort current design list by selected property and sort order.
Showing: All-in-One Design Files	Filter current design list by file type.
Search: General Enter any	Filter designs based on specified search criteria – e.g. stitch range.

Keyboard Shortcuts

In addition to shortcut keys, standard MS Windows® **Alt** key shortcuts apply in some cases. Use the **Alt** key with the letter underlined in the menu. To cancel an operation, press **Esc** twice.

General functions

To...	Press
open design	Ctrl+O or Alt+F+O
close design	Alt+F+C
export machine file	Shift+E
open Lettering dialog	A
open online help	F1
print design	Ctrl+P or Alt+F+P
save design	Ctrl+S
save as	Alt+F+A
send design to EmbroideryConnect	Shift+Alt+S
send design to EC Queue	Shift+Alt+Q
start new design	Ctrl+N
toggle Color-Object List	Shift+L
toggle Design Information docker	Alt+P
toggle Grid	Shift+G
toggle Overview window	Shift+V
toggle Stitch List	Shift+J
toggle measure tooltip	Ctrl+I
measure distance on-screen	M
cancel command	Esc
redo command	Ctrl+Y
undo command	Ctrl+Z
exit application	Alt+F4

Digitizing functions

To...	Press	or
activate Auto Trace To Vectors for selected artwork	Ctrl+M	
activate Branching	I	
activate Complex Turning	F2	

Digitizing functions (cont)

To...	Press	or
activate Complex Fill	F3	
activate Column A	F4	Shift+A
activate Column B	F5	
activate Column C	F6	
activate Backtrack		Shift+X
activate Appliqué	F7	
activate Single Run	F8	Shift+N
activate Triple Run	F9	
activate Motif Run	F10	
activate Backstitch	F11	
activate Stemstitch	F12	
apply Satin stitch	Shift+I	
apply Tatami stitch	Shift+M	
delete last input point	←Bksp	
finish digitizing object (keep last stitch)	Enter↵	
finish digitizing object (omit last stitch)	Spacebar	
finish digitizing free shape boundary	Enter↵	
generate stitches	G	
make combined vector object	Shift+H	
switch between fill and run stitch	Spacebar	
switch between fill and manual stitch	Enter↵	

Selecting objects

To...	Press
activate Select tool	O
deactivate Select tool	Esc
select all objects	Ctrl+A
deselect all objects	Esc or X
activate Polygon Select tool	Ctrl+L
select by color	Ctrl+Alt+A

* Stitch Edit tool selected

Selecting objects (cont)

To...	Press
select object at current needle position	Shift+O
select multiple objects	Ctrl+🖱
select range of objects	Shift+🖱
select next object	Tab⇆
select previous object	Shift+Tab⇆
select object beneath	2+🖱
add next object to selection	Ctrl+Tab⇆
add previous object to selection	Ctrl+Shift+Tab⇆
group selected objects	Ctrl+G
ungroup selected objects	Ctrl+U
lock selected object	K
unlock all locked objects	Shift+K

* Stitch Edit tool selected

Viewing designs

To...	Press
toggle TrueView™ on/off	T
toggle stitches	S
toggle outlines	L
toggle needle points	† .
toggle connectors	Shift+C
toggle function symbols	Shift+F
view by color	Alt+C
hide others	Shift+S
toggle bitmaps	D
toggle vectors	Shift+D
zoom (marquee)	B
zoom to 1:1 scale (100%)	1
specify zoom factor	F
zoom in 2X	Z
zoom out 2X	Shift+Z
zoom to all design	* 0
zoom to selected objects	* Shift+0
zoom to product	* Ctrl+0
zoom to hoop	* Alt+0
zoom box in Overview window	Shift+B
activate panning	P
deactivate (temporarily) Auto Scroll	^ Shift
toggle Auto Scroll on/off	Ctrl+Shift+A

† Period * Zero ^ Hold down

Viewing designs (cont)

To...	Press
center current stitch in design window	C
return to previous view	V
redraw (refresh) screen	R

† Period * Zero ^ Hold down

Viewing stitching sequence

To travel...	Press
activate Stitch Player	Shift+R
to start of design	Home
to end of design	End
to next color	PgDn
to previous color	PgUp
to next object	Ctrl+T
to previous object	Shift+T
to next segment	^ Ctrl+→
to previous segment	^ Ctrl+←
to next function	^ Ctrl+PgDn
to previous function	^ Ctrl+PgUp
to next trim	^ Alt+→
to previous trim	^ Alt+←
1 stitch forward	^ →
1 stitch backward	^ ←
10 stitches forward	^ ↓
10 stitches backward	^ ↑
100 stitches forward	† +
100 stitches backward	† -
1000 stitches forward	† Shift+ +
1000 stitches backward	† Shift+ -

^ No object selected † Numeric keypad only, no object selected

Cutting & pasting objects

To...	Press	or
cut object	Ctrl+X	Shift+Delete
copy object	Ctrl+C	Ctrl+Ins
paste object	Ctrl+V	Shift+Ins
duplicate object	Ctrl+D	
duplicate with offset	Ctrl+Shift+D	
paste special > object property position	Shift+Ins	
paste special > shift pasted objects	Ctrl+Shift+V	

Cutting & pasting objects (cont)

To...	Press or
paste special > center at current stitch	Ctrl+Alt+V
paste special > start at current stitch	Shift+Alt+V
delete selected objects or last object	Delete

Modifying objects

To...	Press or click
activate Reshape tool	H
activate Show Stitch Angles tool	Alt+A
activate Show Reshape Nodes tool	Alt+N
activate Stitch Angles tool	Ctrl+H
add outlines and/or offsets	Ctrl+Shift+O
add stitch angles (Complex Turning)	Ctrl+H
change reshape node type	^ +Space
check design integrity	!
maintain proportions while resizing	† Shift+
mirror horizontally	Ctrl+1
mirror vertically	Alt+1
move selected object horizontally or vertically	* Ctrl+
nudge selected object	+↑ ↓ ← →
remove overlaps	Ctrl+Shift+E
toggle Auto Underlay on/off	U

* Drag object † Drag handle ^ Select control point

Schiffli functions

To...	Press
insert Blatt/Stepp function	[ ]
insert Fadenleiter Plus/Minus	< >
insert Boring Tension Start/End	/ \
insert RPM Plus/Minus	: "
change Schiffli borer depth	;
show Schiffli repeats	W

Editing stitches (Stitch Edit mode)

To...	Press or click
activate Stitch Edit tool	E

Editing stitches (cont)(Stitch Edit mode)

To...	Press or click
toggle stitch selection	Q
toggle stitch selection while traveling by stitches	Tab

Glossary

10O: Machine file format native to Toyota machines.

3D foam embroidery: This type of embroidery gets its three-dimensional appearance from foam that is placed over the area to be embroidered. As the design is stitched, the needle perforates the foam. Once completed, the unused foam is pulled away. Foam is available in a variety of colors and thicknesses.

3D Warp: 3D Warp is used with Motif Fill to create three dimensional effects. You can make shapes appear concave or convex using Globe In or Globe Out. You can also create distance effects using Perspective.

ABC Pattern Arrangements: See Pattern Arrangements (ABC).

Accordion spacing: Artistic stitch effect that gradually varies stitch spacing between dense and open fill along an embroidery object, producing shading and color effects which are difficult to achieve manually.

Acetate: A salt or ester of acetic acid of cellulose made into a synthetic filament, yarn, or fabric.

Active window: The active window is one to which the next command or action will apply. If a window is 'active', its title bar changes color to differentiate it visually from other open windows.

Aetze: The breaking down or dissolving of a base fabric on which a lace pattern has been stitched, leaving only the stitched threads. Or lace processing – 'wet aetze' involving a caustic soda bath or 'dry aetze' involving heat.

Aetzing: The process of eliminating the base fabric to make Schiffli laces, leaving only the threads remaining.

Allover: Continuous embroidery which covers all of the goods from selvage to selvage.

Anchor point: A fixed point used when rotating, scaling, skewing or mirroring a design.

Anti-aliasing: A software technique similar to dithering which is used to soften hard outlines where color blocks intersect. It produces smoother outlines by 'blurring' the pixels where colors join.

Appliqué: Decoration or trimming cut from one piece of fabric and stitched to another to add dimension and texture. Designs with appliqué can be more economical than embroidery alone, if appliqué occupies a significant amount of the design, thereby lowering stitch count. In Schiffli embroidery, appliqué refers to an embroidered motif, hand-cut or aetzed away from base fabric.

Appliqué cutter: A device that can cut fabric along a line, somewhat like old pen plotters. It requires a vector file as input. In MS Windows® they can be set up as a type of printer device.

ARQ: BERNINA Quilter format.

ART: BERNINA format.

Artwork: Bitmap image or vector graphic used as a digitizing template. See also Bitmap and Vector graphic.

Artwork preparation: See Image preparation.

Aufsatz: The last stitch of a design before it repeats itself.

ARX: ES Cross Stitch format.

Auto appliqué: Auto Appliqué is an embroidery object associated with an appliqué which provides automatic stitching to place it, tack it down, and cover its edges.

Auto center: Auto Center automatically centers the start and end points of a design.

Auto-digitizing: Toolset used to create embroidery designs by automatically digitizing blocks of color in electronic images, or converting vector outlines directly to embroidery objects. See also Smart Design.

Auto kerning: For lettering objects, auto-kerning involves looking up in a 'kerning table'. This specifies the spacing adjustments for each pairwise combination of letters so that whenever a predefined pair occurs, the letter spacing is automatically adjusted.

Auto scroll: The Auto Scroll feature automatically scrolls the screen while you are digitizing.

Auto spacing: Auto Spacing only affects Satin stitch. It adjusts stitch spacing according to column width.

Auto split: Auto Split only affects Satin stitch. When applied, it breaks any long Satin stitches into shorter ones. It also distributes needle penetrations in a random pattern so that they do not form a line in the middle of the shape. Used primarily to prevent long stitches in wide columns, it can also be used as an alternative to Tatami fill. Auto Split looks more Satin-like and works well with turning stitches, creating soft lines and a little more depth.

Auto start and end: Before stitching, some embroidery machines require you to position the starting needle exactly above the first needle penetration point. Use Auto Start and End to connect the first and last stitches in the design. This makes it easy to position the needle before stitching, and reduces the chance of the needle hitting the side of the frame.

Automat: The 'Automat' is the Schiffli card decoder that converts X-Y coordinate codes into frame movements. Saurer machines were later developed in Switzerland and their Automat allowed movements of 1/10 mm, the same as modern multihead machines. Wilcom developed the WESS (Wilcom Electronic Servo System) to replace the Automat.

Automatic color change: Ability of multi-needle embroidery machine to follow a command to change to a specified needle with a different thread color.

Automatic pull compensation: Embroidery stitches pull the fabric inwards where the needle penetrates. This can cause the fabric to pucker, and gaps to appear in the embroidery. Automatic pull compensation counters this effect

by 'overstitching' outlines of filled shapes on the sides where the needle penetrates. This means the design can be optimized for different fabrics. See also Pull compensation.

Automatic stitch shortening: Reduces stitch bunching at sharp corners. See also Stitch shortening.

Auto Trace: Auto Trace is used to convert bitmap images to vector drawings.

Back appliqué: A fabric piece used behind a design where the front fabric will be cut away to reveal the fabric beneath it.

Backdrop: An electronic image used as a guide for digitizing designs on screen. Two types are used – vector or bitmap. Insert them from various file sources, or copy and paste them via the MS Windows® clipboard.

Background: BE EmbroideryStudio lets you change the background color of the design window to match the color of your fabric. Or you can select a background fabric for more realistic previews and presentations. The background is saved with the colorway.

Backing: Also known as 'stabilizers', backings are woven or non-woven materials placed beneath the item or fabric being embroidered for stability and support. A backing can be hooped with the item or placed between the machine throat plate and hooped garment. The more stitches a design has, the heavier the backing required. Backings are available in various weights and types such as cut-away, tear-away and wash-away (soluble). Professional embroiderers use tear-away stabilizers for woven fabrics and cut-away stabilizers for knits. See also Topping.

Backstitch: Backstitch is an input method which can be used for delicate outlines. This stitch follows intricate curves well. It is also is the term used for every second row of stitches in a Tatami fill. See also Standard backstitch, Borderline backstitch, and Diagonal backstitch.

Backtrack: Use Backtrack and Repeat to reinforce outlines while specifying the direction of the stitching. Backtrack stitches in reverse direction to the original. It is typically used to make run stitch outlines thicker without creating unwanted connecting stitches. Repeat duplicates the original stitch direction and is typically used with closed shapes.

Backup: The copying of files onto floppy disk or other storage media in order to duplicate and secure data. Usually two copies are made and kept separately.

Batting: A layer of padded material between the front and back fabric to add thickness and substance.

Begin jump function: Begin Jump functions instruct the machine not to use needle penetrations. When encoded in an output file, it normally converts to a Needle In function. See also End Jump function.

Bézier curve: Vector shape produced according to principles invented by French engineer, Pierre Bézier. A Bézier curve consists of a series of segments with shapes generated by cubic functions. Each segment is bounded by nodes, and its curvature is affected by a control point associated with the node at each end. The displacement and direction of the control point from the node are parameters from which the cubic curve shape is derived.

Bitmap: Also known as raster images, bitmaps are electronic images made up of dots or 'pixels', in contrast to vector 'outlines'. Each pixel is mapped to a location in an image and has numerical color values. Typically created in paint programs, bitmaps have file extensions such as BMP, JPG, GIF, TIF and PCX. When enlarged or scaled down, vector drawings preserve image quality while bitmap images generally cause problems of pixelation and image degradation. See also Pixels.

Blackwork: Blackwork gets its name from the black silk thread traditionally used in this form of embroidery. It can be used to decorate articles such as hankies, table napkins, table clothes, and doilies.

Blatt stitch: Schiffli term meaning 'to feed the yarn', thereby producing a long zigzag stitch with threads lying close together. Adapted for Multihead use. See also Satin stitch.

Blending: See Color Blending.

Bling: Refers to decorative objects placed on a garment or template. They are supplied in various sizes, shapes, colors and materials. Often referred to as rhinestones.

Block: The basic unit of a quilt top.

BMP: MS Windows® bitmap image format. See also Bitmap.

Bobbin: Spool or reel that holds the bobbin thread, which helps form stitches on the underside of the fabric.

Bobbin thread length: This factor provides a simple mechanism for a more accurate bobbin thread length estimate. The default value (100%) is suitable for a design with a mixture of stitch types. If the design is all run stitches or all tatami, more bobbin thread will be used and the factor can be increased say to 125%. If the design is all satin stitch, the factor can be reduced to say 65%.

Bonding: Permanently joining two fabrics together with a bonding agent. Heat sealing.

Border: Single closed-curve object which can be optionally added to a monogram. Also, a strip of fabric that is joined to an inner quilt to enhance it.

Borderline backstitch: The rows are approximately parallel. With lower density fills, borderline backstitch creates a smooth, well-defined edge. Borderline backstitch is also called Trapunto style. See also Backstitch.

Borer: Borer is a sharp instrument attached to embroidery machines to puncture fabrics. Schiffli machines have built-in borer knives under the needle line which can cut different sized holes in fabric.

Borer depth: You can choose the numbering system for specifying Borer depth – Plauen where one is the base and seven (7) the normal middle position and Saurer where the base is zero and the normal middle position is six (6).

Borer depth function: The Borer Depth function controls the size of the boring hole. The deeper the borer cuts, the larger the hole. The borer depth on Schiffli machines is changed one value at a time. Thus a change in depth of three (3) units will be automatically distributed by Schiffli to three (3) stitches.

Borer functions: Borer In/Out functions are available for embroidery machines equipped with a borer. They instruct the machine when to use the boring knife or tool instead of a needle.

Boring: 'Open-work' incorporated into embroidered designs. A sharp-pointed instrument punctures, or bores, the fabric, and

stitches are made around the opening to enclose the raw edges.

Boring tension functions:
Start/End Boring Tension functions instruct servo thread machines to feed less thread for stitching in boring holes. For Hiraoka TNS Ein, it overrides/restores Stepp/Blatt tension.

Bounding box: The dotted rectangle that appears when you select a range of items.

Branching: The Branching feature lets you digitize like objects – e.g. the fingers of a hand – without having to think about the most efficient stitching sequence and joins.

BRO: Bits & Volts file format.

Buckram: Coarse, woven fabric, stiffened with glue, used to stabilize fabric for stitching. Commonly used in caps to hold the front panel erect.

Candlewicking: A traditional white-on-white embroidery technique, usually done on white linen or cotton fabric with heavy cotton threads.

Card: A paper tape to control the frame. Various sizes for Schiffli machines, 7 channel for multihead. See also Jacquard card.

Cap Corner: A type of Smart Corner. Cap corners are used for very sharp corners as they produce fewer stitches.

Cap frames: Specialized embroidery frames (hoops) designed to hold finished caps for embroidering. Available in a variety of styles for various machines, with two basic styles being to sew the finished cap flattened out—for use on a flat machine—or sewing the finished cap—for use on a tubular machine—in its natural curve.

Cascade: A way of arranging open windows on the desktop so that they overlap each other, with the title bar of each window remaining visible.

CED: A data condensed file format.

Center at current stitch: The object will be placed with its center at the needle position marker.

Center run underlay: Center Run underlay places a row of stitches along the center of a column. It is used to stabilize narrow columns (e.g. 2-3 mm wide).

Chain stitch: Stitch that resembles a chain link, formed with one thread fed from the bottom side of the fabric. Done on a manual or computerized machine with a hook that functions like a needle.

Checkbox: A small square box that appears in a dialog box and that can be selected or cleared. When selected, a tick or a cross appears. A checkbox represents an option that you can set.

Chenille: Form of embroidery in which a loop (moss) stitch is formed on the top side of the fabric. Uses heavy yarns of wool, cotton or acrylic. Created by a chain stitch machine that has been adjusted to form this stitch type. Also known as 'loop piling'.

Click: Press and release the left mouse button. See also Right-click.

Click-and-drag: Click to select, hold down the left mouse button, move the cursor and release.

Clipboard: A temporary storage area in PC memory for what was last cut or copied. Images on the clipboard can be pasted into designs any number of times.

Close button: Used to close a window or an application. In MS Windows®, it appears as a small box with an 'X' in it at the top-right of the title bar.

CND: Melco Condensed (CND) is the native file format of the Melco embroidery digitizing software. CND files store only digitized outlines and stitch values.

Color blending: Digitizing technique which creates interesting perspective, shading and color effects by blending colored layers. Two colors are merged smoothly from one to another using a mixture of dense and open fill.

Color block: A color block or 'element' corresponds to a color change in the design. It may be comprised of one or more same-color objects. These may form a single group – e.g. 'ropes' – or more – e.g. 'ropes and birds'. Each color block, or element, can be given a descriptive name for easy identification. These then appear on the production worksheet. The operator generally uses them to ensure correct colors are used during production. The Color-Object List provides a sequential list of objects as digitized, grouped by 'color block'. This list shows a separate icon for all color blocks and objects used in the design. The Color Palette Editor also shows a list of color blocks.

Color-change function:
Color-change functions tell the Schiffli machine to change thread color. In RCC/INC machines, the command also moves the frame under the next selected needle. They are automatically inserted when you select a new color from the color palette.

Color depth: Color depth, also called 'pixel depth', refers to the amount of color information available to each pixel in an image. An image with a color depth of 1-bit can display only two colors. As the color depth increases, more colors are available – 16 Colors (4 bit), 256 Colors (8 bit), High Color (16 bit), True Color (24 bit).

Color palette: The color palette contains a selection of thread colors tailored for each design. This color scheme, or 'colorway', represents the actual thread colors in which a design will be stitched. See also Thread chart.

Color Reduction: See Image Preparation.

Colorways: Colorways are multiple color schemes for the same design. They are made up of colors defined in 'color blocks' which may be created in BE EmbroideryStudio or similar design program, or may be selected from a patent color system such as Chromatone or Pantone.

Column: Narrow, long, curving shape.

Column A: An input method used to digitize columns of varying width and stitch angle. Digitized pairs of reference points define the outline, while lines connecting the pairs define the stitch angles.

Column B: An input method used to digitize shapes where one side is different to the other, especially where one side requires more reference points than the other. Stitches turn evenly throughout the entire shape. You can use any fill stitch type except Motif Fill.

Column C: An input method used to digitize columns of fixed width. It is typically used for digitizing borders and outlines of larger shapes. You can digitize columns to create thick lines or borders. Column C is typically used with Satin stitch.

COM port: A standard serial port used as a connection point for peripherals. Other ports may be present if the appropriate internal option cards have been installed. The computer must be informed

which port is being used by which peripheral – e.g. COM1, COM2, etc.

Combination split: Use of different combinations of Satin and Tatami stitches in Program Split to create various effects with the same pattern. There are three Combination Split options – Satin in Satin, Satin in Tatami and Tatami in Tatami.

Command: An instruction issued to the software in order to carry out an action. It may be as simple as 'paste an object' or as complex as 'regenerate stitches'. It is usually activated via a menu item, toolbar icon, or command button in a dialog.

Command button: A button in a dialog which executes or cancels the selected action. Two common command buttons are Cancel and OK.

Complex fill: Input method, used to digitize large and complex shapes. Allows holes to be designated at the same time the object outline is digitized. The object is thus digitized as one fill area, instead of being broken down into multiple sections. Objects so created are known as Complex Fill objects.

Complex turning: This is an input method used to digitize complex shapes with turning stitches. Many shapes can be digitized with this tool. Create objects using left and right clicks to mark reference points to form the boundary outlines. By digitizing boundaries within shapes, you can create filled objects with holes.

Condensed file: See Design file.

Configuration: The size and type of computer hardware. Can also be used to mean the options provided with your software.

Confirmation message: A message displayed by the software asking you if you are sure you want to proceed – e.g. when you want to delete a design.

Connection Manager: A software feature to allow the sending of files to shared folders.

Connector stitches: Connector stitches link objects in a design. They can be run stitches or jumps. You can use automatic settings to generate connectors, trims and tie-offs, or add them manually. However, automatic connectors are not recommended for Schiffli designs because machine functions cannot be placed on connector stitches (stitches in the Needle Out position).

Connectors: Hardware devices to connect cables to ports. If the connection is male, the port is female, and vice versa. The wiring configuration of each device is determined by its function.

Copy: To place a copy of a selection onto the clipboard. See also Duplicate.

Control panel: The panel on an embroidery machine by which the operator sets up the machine for embroidery production.

Control points: Control points are used to modify object shapes, stitch angles and entry and exit points. You can change the shape of an object by moving, adding or deleting control points on the outline. For most objects, you can also change control points from corner points to curves.

Contour stitch: Contour is a curved fill stitch type – stitches follow the contours of a shape, creating a curved, light and shade effect. It only works on columnar shapes. There are two types – Standard and Spiral – both of which can be applied to Column A, Column B, Column C or Ring objects. Standard Contour can also be applied to Circle objects.

Copyright: A right granted by the government or by international agreement giving the owner the exclusive privilege to publish and sell artistic work during the life of the creator plus 50 years.

Cord functions: Cord In/Out functions tell the machine to engage or disengage the cord device.

Cording: Cording is a technique which employs a single decorative cord laid on fabric and attached with transparent zigzag stitches. It forms relatively simple, low-stitch-count designs featuring lots of swirls and curves. Raised cording is achieved by sewing the garment around the cord from the wrong side. The result is a self-fabric raised effect. Different widths of cording are available to provide a wide range of looks. A special attachment is required for the embroidery machine.

Cord-in-lay: A special apparatus to automatically lay on cord or ribbons on a Schiffli machine.

Cover stitch: Cover stitch is the border around an appliqué shape. You can control various settings including cover stitch type – Satin or E Stitch – width, stitch spacing, as well as the offset.

Conversion software: Programs that read information, other than from a card, and translate it from one sewing machine format to another.

Converter box: A converter box acts like a translator from one memory card format to another, via computer. Various companies offer this technology under names like the Magic Box™ from Oklahoma Embroidery. They translate designs from memory cards in other formats or from a hard drive, disk, or CD and write the design to a blank card.

Crest: An embroidered motif like an emblem, an insignia or a Coat of Arms.

Crystals: See Bling.

CPU: Central Processing Unit.

CSD: POEM/Singer/Huskygram file format

Current settings: Current property settings override the template defaults. Unless you deliberately change them, these take the default values. You generally change them to save time when digitizing. For example, you may preset Tatami stitch spacing to use a specific density for all new Tatami objects you create. See also Object properties.

Custom: Lets you map thread colors to every stop code in the file. This means you can color-code machine files which do not contain needle addressing information, before opening the file.

Custom fonts: Custom fonts are made up of letters, numbers or symbols you digitize.

Custom designs: Designs created by digitizing artwork or manipulating existing patterns.

Cut: An editing function. To remove a selection from a design. The cut selection is stored in memory (on the 'clipboard') and can be pasted into the same or different design.

Cut appliqué: See Back appliqué.

Cutter: See Appliqué cutter.

Cutting lines: A second line of run stitches that forms a guide when trimming the fabric of an appliqué patch.

DAT: DAT is the machine file extension used with Hiraoka, Laesser, and Wilcom SPES formats.

Default object properties: See Default values.

Default values: predefined settings which determine object properties such as stitch spacing, as well as certain system settings. These are stored in the design template. They are automatically applied to any newly created objects. They remain 'current' unless you override them with new settings. See also Current property settings.

Defects: See Stitching defects.

Denier: Unit or weight used to measure the fineness of thread. Equal to the weight in grams of 9,000 meters of thread. Deniers are represented by the weight of the strands of thread, a slash and the number of strands per thread—120/2Den. The low numbers represent the finer thread sizes and higher numbers, the heavier yarns.

Density: See Stitch density or Thread density.

Design: A 'design' is a file in the native embroidery format – e.g. EMB, JAN, ART – of embroidery digitizing software. The design source may be a stitch format design. The design contains stitching information such as fabric type in addition to stitched shapes.

Design card: Disk containing computerized embroidery designs read by the embroidery machine's computer.

Design elements: The decorative design components that make up a monogram (including ornaments and borders).

Design file: Design files, also known as 'all-in-one' or 'outline' files, are high-level formats which contain object outlines, object properties and stitch data. Examples include CND, GNC, INP and PCH. When you open a design file in BE EmbroideryStudio, corresponding stitch types, input methods and effects are applied. Design files can be scaled, transformed and reshaped without affecting stitch density or quality. See also Machine file.

Design object: See Objects.

Design information: Designs themselves have properties, some of which can be modified, others not. The most important design property is its source – Native Design, Imported Outlines, Processed Stitches, or Imported Stitches. Other properties include the software version number, stitch count, and so on. Colorways too are properties of the whole design.

Design repeat: A Schiffli design is repeated horizontally as many times as it fits across the frame. Repeat values increment in multiples of 4 to a maximum of 96. For example, the design can be stitched by every needle (Repeat=4/4), every second needle (Repeat=8/4), or every third needle (Repeat=12/4), and so on.

Design source: While embroidery files are broadly classified as 'design' (outline) or 'machine' (stitch), BE EmbroideryStudio internally tags files as belonging to one of four types–Native Design, Imported Outlines, Processed Stitches, or Imported Stitches. See also Design information.

Design template: See Template.

Design window: The design window is where designs are displayed for viewing and modification.

DW Administrator: It is the DW Administrator who is generally responsible for the high-level setup of DesignWorkflow databases. The DW Administrator determines who gets access to databases, what users can see and do, and who defines the categories under which information will be stored. The DW Administrator is generally the manager of the company's design section. This person has the necessary background knowledge and authority to control what goes into databases and how the information is to be used.

Desktop: MS Windows® terminology for the screen background on which program icons are displayed.

Destination folder: The folder (directory) where you intend to copy or move one or more files.

Detail: An outline, a border, a pickout run, or a small area of the design you want to be stitched out last when using Smart Design.

Diagonal backstitch: The backward rows are diagonal, directly connecting the forward rows. Diagonal backstitch is suitable for turning shapes, and gives good results with Jagged Edge. See also Backstitch.

Dialog: An onscreen box that either requests or provides information. Many dialogs present options to choose among before a command is carried out. Some dialogs present warnings or explain why a command cannot be completed.

Digitizer: Usually refers to the person punching or digitizing the design. Digitizer can also refer to the digitizing tablet used by the digitizer. See also Digitizing tablet.

Digitizing: Process of encoding a design. Artwork is converted into a series of 'embroidery objects' to be read and manipulated by a specialist CAD/CAM application. Before outputting to embroidery machine, it is converted into 'stitch data'. See also Punching.

Digitizing puck: With a digitizing tablet, you generally use a puck instead of a mouse to mark reference points and select commands from the menu chart.

Digitizing tablet: Design device used by digitizers to plot needle penetrations for embroidery designs. Sometimes used as an alternative to digitizing directly on-screen. Typically, a pencil drawing of the design is enlarged and then taped to this tablet. The digitizer then uses a device known as a puck to indicate stitch types, shapes, underlay and actual needle penetrations.

Digitizing tool: Digitizing tools, sometimes referred to as 'input methods', are similar to drawing tools except that the end result is an embroidery object rather than a vector object. Different digitizing tools are suited to creating different shapes or design elements.

Direct-to-garment printing: DTG is performed like most other printing from a PC. The print image is sent to the DTG printer through the MS Windows® print manager using a print driver. The image must have a transparent background for DTG printing. DTG printing requires heat fixing to make the images washable.

Disk: See Floppy disk.

Disk drive: Computers usually have three types of disk drive: a hard disk (or fixed disk) which usually supports the mass storage of information and applications, a floppy disk drive, and a CD ROM drive.

Display: A screen used to display the output of a computer. Also known as the monitor.

Dithering: A software technique which combines existing colors in a checkerboard arrangement of pixels. It is typically used to simulate colors that are missing from an image palette. A type of optical illusion created by placing two pixels of different color next to

each other. The human eye automatically resolves the two colors into a third color.

Docker: A dialog which, while open, allows the user to select objects freely. Controls in the dialog change to conform to the values of selected objects, or show relevant system information when no object is selected. Changes made to settings in the dialog may be applied while it remains open. Other dialogs and commands may be opened and used while the modeless dialog remains open.

Dongle: A security hardware device required to run protected software. Some are attached to a parallel port, others to a USB port.

Dots per inch (DPI): A measurement of screen or printer resolution – the number of dots in a line of 1".

Double split alternate: A variant of Tatami split. See User Defined Split.

Double-click: Click the left mouse button twice without moving the mouse. Double-clicking carries out actions such as opening a program from an icon.

Download: The process of transferring a copy of a file from a remote computer or the internet to a computer or other device such as an embroidery machine.

Drag: An operation of the mouse. Holding the (left) mouse button while moving the mouse. Typically used for moving something on the screen.

Drawing object: See Vector object.

Drawing package: Software application that creates or allows you to edit vector graphics made up of separate individual vector objects. Vector graphics can be scaled with no loss of sharpness. Examples of vector editing programs are Adobe Illustrator, MacroMedia Freehand and Corel Draw. See also Graphics application.

Droplist : A single-line dialog box control that opens to display a list of choices.

Drop sequin function: The Drop Sequin function is available for embroidery machines equipped with a sequin dispenser. It instructs the machine when to drop a sequin on the fabric for stitching.

DSB: Barudan file format. Basically the same as the T03 tape file but wit a 'header' in front so that it can be written to floppy disk – i.e. it is the floppy disk version of the T03 file.

DST: Machine file format native to Tajima machines.

DSZ: ZSK stitch or 'expanded' file format.

Duplicate: When an object is duplicated, it is not copied to the clipboard. This leaves the clipboard free for you to cut or copy other objects.

DXF: AutoCAD vector graphic format.

E Stitch: Widely used for tacking down appliqués as a decorative border. The stitches form a comb pattern.

Editing: Changing aspects of a design via a computerized editing program. Most programs allow you to scale designs up or down, edit stitch-by-stitch or block-by-block, merge lettering with the design, move aspects of the design around, combine designs and insert or edit machine commands.

Elastic lettering: Special effects applied to lettering objects to make them bulge, stretch or compress.

Electronic artwork: There are two broad categories of artwork file, both of which can be imported into BE EmbroideryStudio for use as digitizing backdrops – vector and bitmap. To create good quality embroidery, you need to choose or create suitable artwork of either format.

Element: An element, in software terms, is a color block consisting of sequential, same-color objects. You can assign names to elements which then appear on the production worksheet. The operator generally uses these to make sure colors are correct during production. See also Production worksheet.

EMB: Design file format native to Wilcom ES. EMB designs contain a complete set of design information in a single 'all-in-one' file – object outlines and properties, actual stitches and machine functions, thread colors, a picture icon, summary information, and more. Even the original design bitmap image can be included in EMB format. Only native EMB files provide 100% perfect scaling and transformation.

Emblem: Embroidered design with a finished edge, applied to a garment after stitching, commonly an insignia of identification. Also known as a 'crest' or 'patch'.

Emblem work: Many Schiffli machines are used for creating emblems or logos. This work, however, uses only a small subset of the available functions of the Schiffli machine. Typically, for example, emblem work does not contain the bored holes or long Satin stitches which occur in lace designs. Emblem work is also stitched on Multihead machines.

Embroidery: Decorative stitching on fabric. Generally involves non-lettering designs, but can also include lettering and/or monograms. Evidence of embroidery exists during the reign on Egyptian pharaohs, in the writings of Homer and from the Crusaders of the 12th century. Has evolved from hand-work to manual sewing machines and from hand-looms and Schiffli machines with hundreds of needles to high-speed, computerized multihead machines.

EmbroideryConnect device:

Wilcom-supplied device to enable connection of USB-enabled embroidery machines to an EmbroideryConnect machine network via a WiFi router.

Embroidery disk: Embroidery disks are specially formatted floppy disks used to transfer designs from computer to embroidery machine. You can format embroidery disks and save designs to them from within BE EmbroideryStudio. The format you use will depend on the selected embroidery machine. You can also open designs from embroidery disk directly into BE EmbroideryStudio.

Embroidery objects: In embroidery design, you build designs from basic shapes or 'embroidery objects'. They are called 'objects' because they are discrete entities which can be selected and manipulated independently of each other. They are like ordinary vector objects in that they have certain characteristics or 'properties' such as color, size, position, and so on. They also have properties unique to embroidery such as stitch type and density. See also Vector objects.

Embroidery thread: See Thread.

Emery roller: The Schiffli roller on which threads are twisted and tensioned.

Empty function: An 'empty stitch', or non-data stitch, is an industry term for any stitch with a zero movement (0, 0). However, BE EmbroideryStudio distinguishes

between intentional empty stitches related to the machine functioning, and unintentional empty stitches, which can occur in small or pointed parts of shapes. An empty function is an empty stitch that the system processes as a machine function. It is not removed by the small stitch filter and is preserved when stitches are regenerated or the design is resized. See also Empty stitch.

Empty jump: You create empty jumps (0,0) manually in BE EmbroideryStudio by digitizing with Penetrations Out. This prevents the needle from penetrating the fabric, forcing the machine to move across the design in a series of jumps. Also, use empty stitches or empty jumps when required by the selected machine format. See also Empty stitch.

End Jump function: End Jump functions instruct the machine to use needle penetrations. When encoded in an output file, it normally converts to a Needle In function. See also Begin Jump function.

Empty stitch: Empty stitch is a tight (zero length) lockstitch, used together with, or as an alternative to, tie-in and tie-off stitches, particularly in objects filled with light density stitching where standard tie-ins and tie-offs may be visible. Also, use empty stitches or empty jumps when required by the selected machine format. See also Empty jump and Empty function.

EMX: Wilcom cross stitch file format.

End X/Y: The coordinates of the last stitch.

Enlargement drawing: The technical drawing, usually six times larger than the original design, indicating the stitches to be digitized. When you digitize with a tablet, you use an enlargement drawing to trace the shapes and outlines of the design in the same way you use backdrops on-screen. Before you start, you need to prepare the enlargement drawing. See also Digitizing tablet.

Enlarger: The draftsman or designer who draws the technical drawing for the puncher to follow.

Entry point: The entry point is the point where the thread enters the embroidery object. This should coincide with the exit point of the preceding object.

Envelope: Special effect which makes objects bulge or arch, stretch or compress. Envelope is typically applied to lettering objects, but can also be applied to other types of embroidery object.

EPS (Encapsulated PostScript): A standard file format for importing and exporting PostScript language files among applications in a variety of environments. An ESP file is a PostScript file which describes a single page, usually an illustration. In general, the purpose of the EPS file is to be included (encapsulated) in another PostScript file and can contain any combination of text, graphics and images. EPS files normally include a small, low-resolution TIFF, or vector-based MS Windows® metafile image preview, as it will appear on a printed page.

ESD: Native DOS format of Wilcom DOS ES – contains stitch data, like stitch types and densities, which permits better processing. ESD in later versions contains lettering objects with outlines.

ESL: ESL is a file used to produce any Wilcom Schiffli Tnn file from BE EmbroideryStudio. It is read but not written by the Schiffli Converter to produce RCC Tnn files.

ESS: ESS is the primary machine file format for Wilcom-developed Schiffli servo control systems. When the ESS file is read directly by a Wilcom Electronic Servo System (WESS), high data resolution and stitch accuracy are possible.

Exit: To leave a current window or application.

Exit point: The exit point is the point where thread leaves the embroidery object. This should coincide with the entry point of the next object.

EXP: Stitch or 'expanded' file format native to Melco machines.

Expanded file format: See Machine file.

Expanded tape: An expanded tape which has every stitch of the design punched.

Extension: See File extension.

Eyelet: A hole bored into a fabric with reinforced stitching around its edges.

Fabrics: Fabrics have many properties, the main one being elasticity or 'fabric stretch'. Surface texture, if present, is another property that requires different underlay types. When you choose a fabric for use with a particular design, the system pre-loads settings optimized for that fabric. These can be overridden on an object-by-object basis. See also Fabric settings.

Fabric settings: predefined fabric settings include settings for all full-coverage stitch types. For each stitch type, spacing is preset. Additionally, the quality effects of pull compensation and underlay are also preset for each stitch type. Push, warping, and shearing are reduced by suitable underlay for the stitch type and fabric. Decorative effects such as Motif Fill are not affected when fabric settings are changed.

Fabric stretch: Embroidery stitches pull the fabric inwards where the needle penetrates. This can cause the fabric to pucker, and gaps to appear in the embroidery. Use automatic pull compensation to counter this effect by 'overstitching' outlines of filled shapes.

Facing: See Topping.

Factory settings: These are the initial system settings as installed. They are a standard known setting that you can return to. Some customers want to create custom settings tailored to the exact fabric they are using most frequently. The 'My Fabric' settings are those retained in the design and can be saved to the template file.

Fadenleiter: Fadenleiter is a mechanism on some Schiffli machines for controlling the feed and tension of yarns. Fadenleiter +/- functions instruct the machine to increase or decrease Fadenleiter stroke one increment. This means increasing or decreasing thread feed because the section is getting wider/narrower.

FDR: An embroidery disk format native to Barudan machines.

Festoon: Festoon is a mechanism on some Schiffli machines for reinforcing edges on scallops, etc, for a strong cutting edge. It is also the name of a stitch type. Festoon In/Out functions instruct the machine to engage or disengage the festoon device.

File: A named collection of specifically related information stored on a disk. Designs that have been saved are stored as files.

File extension: The dot and three letters at the end of a filename such as '.BMP'. The extension identifies the file as a certain type, readable by certain applications.

Filename: The name of a file, including the extension, e.g. Cat.BMP.

Fill stitch: Series of running stitches commonly used to cover large areas. Different fill patterns can be created by altering the angle, length and repeat sequence of the stitches. Also known as Geflect stitch.

Finishing: Processes done after embroidery is completed. Includes trimming loose threads, cutting or tearing away excess backing, removing facing or topping, cleaning any stains, pressing or steaming to remove wrinkles or hoop marks and packaging for sale or shipment.

FIXPAT: The FIXPAT (Fix Pattern) utility is a conventional Schiffli visual-editing program which displays the tape file in the Jacquard card format with holes. The program is good for safety-checking designs and can be useful as a fast editor for known problem patterns as well as direct function editing.

Flagging: Up and down motion of fabric under action of the needle, so named because of its resemblance to a waving flag. Often caused by improper framing of goods. Flagging may result in poor registration, unsatisfactory stitch formation and birdnesting.

Float: Longer-than-normal Satin stitches that lay on top of a design, or the stitches made when the needle is disconnecting from the design, later removed.

Floppy disk: A flexible disk permanently sealed in a square plastic jacket – e.g. HD/DD 3.5" floppy disk. Used for information storage 'off-line' for security and/or infrequently used data. Also used for transferring punched embroidery design (machine file) data from computer to embroidery machine.

Florentine effect: With Florentine Effect you can curve Complex Fill along a digitized line to create flowing stitch effects. The stitches follow the digitized line but maintain uniform density and needle penetration patterns.

FMC: An embroidery disk format native to Barudan machines.

Folder: A collection of files and subfolders that are stored together on a disk. Part of structure for organizing files on a disk.

Font: A set of characters, including letters, numbers and other typographic symbols, of the same design and style. Sometimes called 'alphabet', even if it includes non-letter characters. See also Lettering.

Following: The directions drawn on the enlargement by the designer as a guide for the puncher's advancement and sequence in punching.

Fox test: Method of testing thread tension and soundness of timing. Sew the word FOX in one-inch Satin stitch block letters with each needle bar, then examine the reverse side for skipped stitches and correctly balanced ratio of top thread to bobbin thread. The correct balance is generally considered to be a one-third ratio of bobbin thread to two-thirds top thread. These letters are used because they require the movement of the pantograph in all directions, increasing the likelihood that the beginnings of timing irregularities will be discovered.

Fractional spacing: Fractional spacing is used to place stitches more evenly in curved shapes, producing better quality embroidery with fewer stitches. Fractional spacing is particularly useful for columns of Satin stitches with sharp turns.

Frame: Holding device to secure fabric under an embroidery head for stitching. May employ a number of means to maintain stability during the embroidery process, including clamps, vacuum devices, magnets, or springs. See also Hoop.

Frame-out position: When you stitch out appliqué objects, you can set a frame-out position. This shifts the hoop out from under the needle, making it easier to place and trim the appliqué shapes. The frame out settings determine the distance and direction of the hoop movement.

Free Line baseline: Free Line is the only type of baseline which does not have a fixed or pre-determined length. When you choose Free Line, the baseline will extend as long as you keep adding letters. You only need to mark its start point. See also Baseline.

French inch: The French inch is a measurement used for spacing needles on the Schiffli machines (c. 27mm). See also Needle spacing.

Fringe: Threads that are cut and hang loosely from the edge of a design.

Function: See Machine Function.

Geflect stitch: Geflect refers to light or heavy stitching used to fill in an area of a design with run stitches. It is also known as Ceeding or Tatami. See also Fill stitch.

Generic Shiffli machine format: Because there are many types of Schiffli machine, individual settings can be quite different even though the capabilities are the same. To deal with this, Schiffli uses the concept of the 'Generic Schiffli Machine'. The Schiffli generic machine format supports functions required for a wide range of machine types.

Glitz: See Bling.

Graphics application: Software application that creates or allows you to edit bitmap images and/or vector graphics. See also Paint package and Drawing package.

CorelDRAW Graphics: An operating mode in which the CorelDRAW® Graphics Suite application is active.

Gradient fill: An artistic stitch effect that gradually varies stitch spacing between dense and open fill along an embroidery object, producing shading and color effects which are difficult to achieve manually.

Grayscale: A grayscale picture is made up of 254 different shades of gray, plus solid black and solid white for a total of 256 different tones. Black and white photographs are grayscale.

Grid: Grid lines provide visual cues to help you accurately place a design. When you start the software for the first time, grid lines appear by default.

Guide runs: Series of stitches used to align embroideries in multi-hooping situations or to assist in fabric placement for appliqué. It is the first appliqué layer stitched and is used to position the pre-cut appliqué patches on the background material. See also Appliqué.

Hard disk: A device for mass information storage. Usually the disk is fixed inside the system unit, and a second hard disk can be added. When you store information on the hard disk it will remain there until you delete it. As it has a finite capacity, file management is required.

Hardware: Computer componentry, including monitor, keyboard, digitizing tablet, printer, scanner, sewing machine, etc.

Heat transfer printing: A process which is sometimes used in the production of a printed design for commercial use employs heat transfer paper to which graphics are printed. This is then heat-fixed to a

garment using an iron or heat-press. The process falls into the same category as printing. Printers that support heat transfer media in most cases provide an automatic mirror function in the printer driver as the image must be printed in reverse in order to be heat-transferred to a garment. See also Direct-to-garment printing.

Heinzle: Heinzle is a Schiffli disk format.

Heirloom embroidery:

Embroidered goods designed to be passed down from generation to generation.

Hiraoka DAT: Hiraoka DAT is a Schiffli disk version of the Plauen card format for Hiraoka machine.

Hoop: Device made from wood, plastic or steel used to tightly grip fabric and stabilizer between an inner and outer ring. Designed to hold fabric taut against the machine bed for embroidering, it attaches to machine's frame.

Hooping: The process of placing the fabric and/or stabilizer into the embroidery hoop. One of the most common reasons for a poorly stitched design is improper hooping.

I-beam: One shape taken by the PC pointer, it indicates that text can be input at the point selected. The shape is like the capital letter 'I'.

Icon: Miniature picture used in the screen display instead of, or as well as, text. The file list can be displayed as icons with the filenames beneath. The toolboxes which appear in the left of the screen are composed of icons.

Image editing program: See Graphics application.

Image preparation: Cleaning up scanned images as input to embroidery digitizing. This may involve any one or a combination of the following techniques: reducing the number of colors, adding or emphasizing outlines, removing noise, dithering or anti-aliasing, eliminating unnecessary detail, cropping sections or eliminating backgrounds.

Imported outlines: Designs read from non-EMB outline – CND or PCH – where stitches have been generated in BE EmbroideryStudio (or equivalent) from original outlines and stitching data.

Imported stitches: Designs read from stitch or 'expanded' files, with or without outline recognition, but stitches have not been regenerated through stitch processing. Note that if you change a stitch design – e.g. add a lettering object – the status changes to 'Processed Stitches' even though the imported stitches may not have been regenerated.

INC: Individual Needle Control (INC) was a mechanism originally developed for Saurer Pentamat machines whereby each needle/borer position across the whole machine could be activated or de-activated individually, either under program or manual control.

INP: Wilcom condensed file format.

Input method: See Digitizing tool.

Jacquard card: Historically Schiffli designs were stored on Jacquard cards of which there are two types – Plauen and Saurer. Named after Joseph M Jacquard, inventor of the Jacquard loom, Jacquard cards contain a stitch-by-stitch interpretation of the design together with machine functions, exactly as the embroidery machine will read it, encoded as a series of holes. Later applied to 68 mm tape used to program automated embroidery machines. See also Tape code.

Jagged edge: Technique for creating rough edges, to create shading effects, or to imitate fur or other fluffy textures in your design.

JPG: JPEG file interchange bitmap image format.

Jump: A frame or hoop movement without a needle penetration, commonly used to get from one point in a design to another. In Schiffli terms a Jump stitch means a frame movement in Needle Out mode.

Jump function: Jump(M) functions cause frame movements without needle penetrations and are used to move smoothly from one part of a design to another.

Justification: The position of lettering on the embroidery baseline.

Lacework: Lacework involves the use of threads to produce overall embroidery of full-length fabrics. Most often used to embellish women's apparel and home fashions. Such work typically uses boring. It is the most widely used application for Schiffli machines.

LAN: Local Area Network – a wired network of interconnected PCs and other network enabled devices such as printers.

Letter spacing: The space between adjacent letters.

Length calculation: On some machines the maximum stitch is measured as the distance between two consecutive needle penetrations. Other machines are limited to a maximum X (horizontal) and Y (vertical) movement.

Letters: Initials or name making up a monogram. Letters of a font.

Lettering: Embroidery using letters or words. Lettering commonly called 'keyboard lettering' may be created from predefined font styles or fonts, allowing variance of size, height, spacing, density and other characteristics.

Line art: A drawing with only two colors – usually black and white.

List box: A single-line dialog that opens to display a list of choices.

Lockstitch: Commonly referred to as a lock-down or tack-down stitch, a lockstitch is formed by three or four consecutive stitches of at least a 10-point movement. It should be used at the end of all columns, fills and at the end of any element in your design where jump stitches will follow, such as color changes or the end of a design. May be stitched in a triangle, star or in a straight line. Lock stitch is also the name of the type of stitch formed by the hook and needle of home sewing machines, as well as computerized embroidery machines.

Lockstitch machines: Both Schiffli and Multihead machines are lockstitch machines, forming stitches in the same way as a home sewing machine. Lockstitch operations involve two threads – top and bottom. The top thread is driven by a needle, the bottom by a shuttle. The bottom thread 'locks' the top thread in place, hence the name 'lockstitch'. See also Multihead lockstitch machine.

Logical machine functions: Schiffli makes a distinction between 'logical' and 'physical' machine functions. The logical machine function is what you, the digitizer, want to perform – for example, start or stop boring. Logical functions are saved as 'object properties' in the native Wilcom EMB design file.

Logo: Name, symbol or trademark of a company or organization. Short for logotype.

Looms: See Schiffli.

Loom run: The stitching of one complete pattern in one row on a Schiffli machine.

Looping: Loops on the surface of embroidery generally caused by poor top tension or tension problems. Typically occurs when polyester top thread has been improperly tensioned.

Machine file: Machine or 'stitch' files are low-level formats for direct use by embroidery machines. They contain only stitch coordinates and machine functions. Machine files are generally not suited to scaling because stitches are not regenerated during rescaling. See also Design file.

Machine format: Different embroidery machines understand different languages. They have their own control commands for the various machine functions. Before you can stitch a design, it must be in a format which can be understood by the target machine. Common formats include Barudan, Brother, Fortran, Happy, Marco, Meistergram, Melco, Pfaff, Stellar, Tajima, Toyota, Ultramatic and ZSK.

Machine function: Machine functions are commands for a specific embroidery machine. These include color changes, thread trims, jumps, machine stops, needles in/out, and boring begin/end. Schiffli makes a distinction between 'logical' and 'physical' machine functions. See also Logical machine functions and Physical machine functions.

Machine unit: The 'machine unit' is the smallest frame movement which the embroidery machine can perform. In Schiffli machines there are three types – Plauen (1/6 mm or 0.1667mm), Saurer (0.1mm), and hi-resolution WESS.

Machine setup: Before you can send designs for stitching, you must configure the machine in BE EmbroideryStudio. You can add machines, change settings for machines already set up, or delete machines that are no longer required.

Magic wand: Technique for creating embroidery designs by automatically digitizing color blocks in electronic images.

Manual object: When you open a stitch format file without outline recognition, it becomes a single 'manual' object. This object consists of individual needle penetration points and has only general and connector properties. When you transform (scale, rotate, mirror) a manual object, the original stitch density does not change.

Max/min stitch length: The minimum and maximum stitch lengths allowable in a design determine the outside limits as measured between needle penetration points. They are governed by the minimum and maximum frame movements that the machine can make.

Maximize button: For windows, the small box in the center of the group of three at the right of the title bar. Click the Maximize button to enlarge a window to its maximum size.

Memory: The place in the computer's system unit that stores information while you are working with it. If you exit without saving information in memory, it will be lost.

Menu bar: The menu bar contains dropdown menus of commands. Some of the same commands are available on the toolbar.

Menu chart: The menu chart provided with the software lets you select commands directly from the digitizing tablet using the puck. You need to 'register' it before use.

Minimize button: For windows, the small box to the left of the group of three at the right of the title bar. Click the Minimize button to reduce a window to its minimum size.

Minimum stitch length: The minimum movement of the hoop. It is measured between needle penetration points. See also Max/Min stitch.

Mirror: Duplication of an object in the Y and/or X axis. The location and orientation of the mirrored stitches are determined by location and angle of the axis of reflection relative to the position of the original stitches.

Mirror-merge: Mirror-Merge Array can create multiple copies of designs, such as badges, spaced in rows and columns for faster stitchouts. Mirror-Merge Reflect can duplicate and mirror designs simultaneously. You can use it to quickly create borders or merge duplicates into a symmetrical object such as a heart. Mirror-Merge Wreath can duplicate objects around a center point. The Kaleidoscope tool works like Wreath but mirrors objects as well.

Mitre corner: A type of Smart Corner. Mitre Corners create a sharp line at the intersection of the two columns. They are designed primarily for corners between 75° and 90°. See also Smart Corners.

Mocca: Spider web stitching over an eyelet.

Modal dialog: A dialog which, while open, prevents the user from selecting any control or object outside it. Changes made to settings inside the dialog are not effective until it is closed.

Modem: Unit to telegraphically send computer information from one computer to another.

Monitor: In computer terms, a device that accepts video signals from a computer and displays information. Monitors generally employ cathode-ray tubes or flat-panel displays to project images. In practice, the terms monitor and display are used interchangably. In digitizing terms, the monitor is where digitizing or stitching progress can be followed, stitch-by-stitch.

Monogram: Embroidered design composed of one or more letters, usually the initials of a name. Can also consist of borders or designs to mark ownership of items such as clothing, caps, handkerchiefs, etc.

Moss stitch: Chenille-type stitch. See Chenille.

Motif: predefined design elements, such as hearts, leaves or border patterns, that can be quickly inserted into a design. Motifs generally consist of one or more simple objects, and are stored in a special motif set.

Motif fill: Motif Fill is a decorative fill stitch with which you can fill larger shapes. Depending on your software's capabilities, you can also create special or three dimensional effects.

Motif run: Motifs which are linked together along a digitized line. You can create decorative outlines using any motif from the list.

Motif set: Motifs are stored in 'motif sets' similar to fonts. There are two predefined motif sets. One contains single motifs for fills which use the same pattern in both forward and backward rows. The other set is intended for use with two-part motifs which use complementary patterns for forward and backward rows. You can also define your own 'motif sets' to organize and classify motifs of your own creation.

Mouse: A device, equipped with control buttons and designed to roll about on the table next to the keyboard. As the mouse moves, its

circuits relay signals that move a pointer on the screen.

MST: MST is a Laesser file type. It includes same stitch data as Laesser DAT. (Not supported in Schiffli BE EmbroideryStudio 2025.)

Multicolored designs: Multicolored designs contain more than one color. Most Schiffli machines do not support automatic color change. That is, there is no mechanism to activate individual or groups of needles. Thus multicolored designs are expensive to produce because operators need to manually trim the threads and re-thread the needles.

Multihead lockstitch machine: Multihead lockstitch machines have a horizontal frame. The needles are vertical, and are grouped in heads. They are mainly used for stitching individual items – e.g. badges, garments, which are stretched in separate hoops attached to the frame under each head. A multihead machine can have up to 24 heads, and each head can have up to 20 or more needles. Thread change and trims can be done automatically. See also Lockstitch machine.

Multi-appliqué: A type of appliqué object composed of more than one piece of fabric and bordered by various types of embroidery objects.

Nap: A fuzzy or downy surface of fabric covering either one side or both, produced by brushing loosely twisted yarns.

Native designs: Native designs refer to designs created in BE EmbroideryStudio software (or equivalent).

Native file format: A design saved in the original format of the application you are working with is said to be the 'native' file format. It can also refer to the machine file format required by a specific embroidery machine. When saved to another format, it is known as a non-native format.

Needle: Small, slender piece of steel with a hole for thread and a point for piercing fabric. A machine needle differs from a handwork needle – the machine needle's eye is found at its pointed end. Machine embroidery needles may come with a) sharp points for piercing heavy, tightly woven fabric, b) ball points which glide between fibers of knit, or c) a variety of specialty points, such as wedge points, which are used for leather.

Needle addressing: Some machines support 'needle addressing'. Needle numbers correspond to slots in the color palette. Each color in the design corresponds to a needle number. Older multi-needle machines simply move to the next needle whenever a color-change function is encountered. In either case, the machine must have the correct thread colors loaded for each needle to stitch out correctly.

Needle bar: Bar which holds the needle and regulates the distance to which the needle is driven into bobbin assembly.

Needle in/needle out functions: The Needle In and Needle Out functions instruct the machine whether or not to use needle penetrations. You can enter these functions automatically using the Penetrations tool.

Needle points: You can view needle points in a design to check density or, for instance, to select stitches for editing.

Needle spacing: Needle spacing is the distance between adjacent needles of a Schiffli embroidery machine. Typical values are 27.07 mm and 27.04mm. The software lets you set up and adjust this value to suit the type of machine which will stitch the design.

Nesting: Nesting lets you create or insert an object at an exact point of the stitching sequence. You can 'nest' an object in the middle of another object's stitching sequence to prevent long connectors being generated.

Network: To link embroidery machines via a central computer and disk-drive system, usually via a modem or network card. A group of machines linked via a central computer.

Network folder location: The logical location of a folder on a network. Contains the PC name together with the folder name – e.g. \\My PC\EmbroideryMachine1.

Noise filtering: Noise filtering means restoring the solid color blocks of original artwork in scanned images. This is achieved by merging different shades into one solid color. Noise filtering is important for automatic digitizing because it makes it easier for the software to identify solid color blocks which become embroidery objects in the resulting design. It also cleans up blurred or mottled areas of color.

NORMAL template: The NORMAL template is the default template supplied with the software. It contains current property settings as well as a selection of preset styles. These styles include variations on the current property settings. For example, <PRESET_SATIN_1> contains different stitch spacing settings for Satin stitches. You can view and modify the settings for these styles at any time. See also Templates.

Objects: In computer science, 'objects' are regarded as any discrete item that can be selected and manipulated, such as an onscreen graphic. In object-oriented programming, objects include data and the procedures necessary to operate on that data. See also Embroidery objects.

Object properties: All embroidery objects in BE EmbroideryStudio contain defining settings or 'values'. The values stored with an object become its 'properties'. All objects have certain properties in common such as size and position. There are other, more specific properties of objects which depend on the object type. The most important property of all embroidery objects is stitch type.

Object recognition: See Outline recognition.

Object type: An object has a type, shape, thread type and color, stitching settings and a position in the stitching order. The object type may or may not determine the intended final appearance of the stitching.

Offset object: Software function used to create new outlines from the outlines of selected objects.

Ornament: A grouped embroidery design which may consist of one or more objects of any type and one or more colors. Ornaments may be placed in up to eight positions around letters, or centered behind letters.

Options: Options provide software with extra functionality that can be purchased by registered owners of the product.

Outline file: See Design file.

Outline recognition: When you convert a machine file to outline format, BE EmbroideryStudio reads the data stitch-by-stitch according to the needle penetration points. The software then 'recognizes' stitch types, spacing and length

values, stitch effects, and can determine object outlines.

Outline stitch: Stitch such as Run or Satin used to outline an embroidery object.

Overall embroidery: Overall embroidery is embroidery which covers the entire fabric. This includes lacework where the backing fabric is actually removed after manufacture. Overall embroidery is typical of Schiffli manufacture, less common with Multihead.

Overshoot: Overshooting is a technique used by Schiffli punchers to reduce distortion of fabric by pulling more thread from the cone and reducing the pulling force of the thread.

Overview window: Use the Overview window to view a thumbnail of the design. The window is updated whenever you make a change, and can be used to zoom in or pan across the design window.

Paint package: Software application that creates or allows you to edit image files. You can create lines and filled areas as well as edit the image pixel-by-pixel using paintbrushes, erasers and spraypaint tools. Examples of image editing programs are Adobe Photoshop, Jasc PaintShop Pro and Corel PHOTO-PAINT®. See also Graphics application.

Pan: Use Pan to view parts of a design which are not currently visible in the design window.

Paper tape: Traditional recording media used in the embroidery industry is the paper tape. The tape coding process produces the final design in stitch format – a stitch-by-stitch interpretation of the design – exactly as the embroidery machine will read it. Now largely replaced by floppy disk, tapes are still used by older machines. More specifically, stitch data paper tapes are eight-channel paper tapes which, in effect, are hard copies of 8 bit binary code.

Parallel port: A connection on a computer, usually LPT1, where you plug in the cable for a parallel printer and/or a dongle. Parallel ports are used to connect some embroidery machines. They are named LPT1, LPT2, etc. When you set up a parallel machine connection, select the parallel port and the required protocol, and complete the machine setup procedure.

Partial appliqué: Technique to create appliqué objects with partial cover stitching to create an overlapping effect without doubling-up borders.

Partition lines: Partition Lines is a method for offsetting needle penetrations in Tatami fills, used, like Tatami Offset Fractions, to create needle penetration patterns or textures in stitched embroidery.

Paste: To insert an object, which has previously been placed on the clipboard by cutting or copying selected objects, into a design. You can paste from the clipboard as many times as you like.

PAT: PAT is a Saurer SHC file type.

Patch: The fabric piece use in appliqué.

Pattern: The design, card, punching, tape, disc, or enlargement.

PCH: Gunold design or 'outline' file format.

PCX: PC Paintbrush bitmap image format.

PDF: Portable Document Format. Used to view the Online Manual in Acrobat Reader.

Patchwork: The composite of pieces sewn together to form a large piece, such as a quilt.

Patchwork block: A collection of patches sewn together, usually forming a regular shape such as a rectangle. These are then sewn together to make a quilt.

Pattern Arrangement (ABC):

Some Schiffli embroidery machines can read designs in which repeated parts are stored only once in the design file and only the repeat instructions are given to the machine. BE EmbroideryStudio provides tools to define pattern arrangements and output to specific formats which support the feature.

Pattern outline: See Motif Run.

Pause function: The Pause function is a conditional Stop, always on an empty stitch. It is interpreted by the machine according to the machine operator preferences.

PEN: PEN is a Saurer Pentamat Station file type. (Not supported in Schiffli e3.0.)

Pencil rub: Low-cost way of producing an embroidery design sample. Consists literally of a piece of tracing paper placed over a stitchout and rubbed lightly with a pencil to produce an impression of the embroidery.

Penetrations: The Needle In and Needle Out functions instruct the machine whether or not to use needle penetrations. You can enter these functions automatically using the Penetrations tool.

Pentamat: An advanced Schiffli individual needle and borer switching system available on Saurer and Laesser Machines.

Peripheral: Any device connected to a computer which is to some degree controlled by the computer – e.g. an embroidery machine or printer.

Physical machine functions: When outputting designs, Schiffli translates design data into stitches and machine functions that the target machine will understand. The functions that the machine understands are called 'physical' machine functions.

Piecing: The business of sewing patches together into patchwork blocks.

Pixel: A dot. For example, dots of light that make up the image on a computer screen. The more pixels in a given area – that is, the smaller and closer together they are – the higher the resolution.

Pixelation: An effect which occurs when a bitmap image is enlarged so that the individual pixels are obvious to the eye.

Placement lines: See Guide runs.

Plauen: Plauen is the area in Germany where Schiffli machines originated. It now identifies a type of Schiffli machine and Jacquard punched card encoding. It is also known by the names of other manufacturers such as Hiraoka, Comerio, Zangs, etc, who copied and modified the original design. The Plauen machine requires the hook to be held in the right hand for threading.

PLS: PLS is a Saurer SLC file type.

PMU: PMU is a Proel stitch or 'expanded' file format.

PNG: Portable Network Graphics vector graphic format.

PNN: PNN is a Plot file used in SPES. (Not supported in Schiffli e3.0.)

Pointer: A part of the screen display, the pointer can take various shapes. It is moved by moving the mouse and can be used to point to anything on the screen to make selections and indicate points for input. It also indicates when the

computer is working and no input is possible.

Point: Unit of measurement, with 10 points equal to 1 mm.

Port: A connection on a computer where you plug in the cable that carries data to another device. Ports which are used to attach peripherals have names like COM1 or LPT1 so that you can specify where the peripherals are attached.

Position: The Position indicator shows position of the design (X, Y) in the design window.

Print preview: Use to preview design and design information before printing a Production Worksheet. The design is displayed as it will be printed.

Process: The Process feature lets you adjust the density of one or more stitch types across the whole or selected parts of a design. Change stitch density in order to stitch on a different fabric or with a different thread. Alternatively, you may want to make production cheaper by reducing the overall stitch count. Processing a machine file is similar to converting it to a design file when opening except that you can process only selected objects or stitches.

Processed stitches: Designs read from machine or 'stitch' files where stitches have been regenerated by processing.

Production worksheet: The production worksheet is the link between the designer and the embroidery machine operator. It contains a design preview as well as essential production information, including the design size, the color sequence and any special instructions.

Program: A computer program or 'application' is generally used for a particular kind of work, such as word processing or database management.

Program split: A decorative fill stitch which can be applied to various object types where needle penetrations form a tiled pattern. Different preset patterns are available for use.

Properties: See Object properties.

Protocol: The communications protocol depends on the connection type between the computer and the embroidery machine. This will be one of: standard serial, parallel, serial to parallel converted (DCi), or interface card.

PS: Postscript vector format.

Puck: See Digitizing puck.

Puckering: Result of the fabric being gathered by the stitches. Many possible causes include incorrect density, loose hooping, lack of backing, incorrect tension or dull needle.

Pull compensation: Digitizing technique that takes into account the distortion of a design that will occur because of the interaction of thread with fabric. 'Push and pull' will cause a circle digitized perfectly round to sew with the sides pushed out, resulting in an egg shape. Generally, it is necessary to extend horizontal elements and reduce vertical elements. See also Automatic pull compensation.

Punching: Conversion of artwork into a series of commands to be read by an embroidery machine's computer or controller. The term refers to an earlier method of machine embroidery whereby designs are 'punched' to paper tape. A part of the machine, called an automat, reads the paper tape or Jacquards punched with holes representing stitches, pantograph movements and other commands. While still capable of producing paper tape, many digitizing systems now store this information on disk formats. See also Digitizing.

Push-pull: When any stitch is sewn into fabric, the tension in the thread between needle penetrations can build up and result in a 'push-pull' effect. This can cause distortions in your sewn designs, poor stitch registration and even the bunching of the fabric. The degree of distortion can be affected by the following factors: stitch density, fabric type, underlay, backing type, thread type and garment orientation. See also Stitch-Pull.

Quilting: In general, the process of making a quilt. Specifically, the stitching of patterns into the quilt layers to add strength and decoration to a quilt. Stitching includes top, batting, and backing, to form decorative patterns on the quilt surface and hold the layers together.

RAM: Random Access Memory, computer chip maintaining memory.

Random factor: You can eliminate unwanted patterns and distribute stitches evenly within a shape using a random factor. Apply random factors to Tatami Partition lines or Program Splits. You can use this effect to imitate different textures such as fur, grass, leaves, etc.

Raster image: See Bitmap.

Read: To open a design which has been written on a design card or to an embroidery machine.

Reader/writer: A device that allows you to download/upload designs to and from a design card. Cards can be purchased from your dealer or from designers on the net. Cards can have designs on them or are blank for you to read/write from/to. The cards are inserted into the embroidery module attached to a sewing machine. The R/W will allow you to have the PC and sewing machine quite separate from one another.

Recognition: See Outline recognition.

Redraw: The screen display is refreshed. This is useful when parts of the display have become obscured in the course of editing. See also Slow Redraw.

Reduce colors: See Image preparation.

Reference point: A point that can be aligned with the grid. For example, you can set the grid reference point to the design center. This is easier and faster than moving the whole design.

Refresh: See Redraw.

Registration: Correct registration is achieved when all stitches and design elements line up correctly.

Relative pointer setting: This setting shows the pointer position as an absolute value from the first needle point of the design. Useful for checking that the design fits a given area.

Relative: The distance the pointer is from a previously marked point, or from the previous stitch point.

Repeat: Layout used for making emblems or designs on a fabric span that are repeated at regular intervals. The design repeat is defined by the distance between needles – the point at which the design repeats itself.

Repeat color change (RCC): A Repeat Color Change (RCC) is a mechanism on some Schiffli machines to change the pattern of active needles in order to modify the repeat pattern and/or thread color.

Repeat sequence: If you select fewer colors than the design requires, the selected colors are repeated. For example, if your

design requires four colors and you've only selected two in the Building Stop Sequence list, colors 3 and 4 will be the same as original colors 1 and 2.

Resequence: You can change the position of a selected object by cutting it, then pasting it somewhere else in the stitching sequence, or by using the Resequence command. You can also resequence objects by color or using the Color-Object List.

Resizing: See Scaling.

Resolution: Resolution determines the number of dots per inch (dpi) used to create an image. The higher the value, the clearer the image, but the more storage space required. A resolution of 75 dpi generally produces good results.

RGB: RGB stands for red, green, and blue. It is the system used by computer monitors to create color.

Rhinestones: See Bling.

Rhinestone template: This is the design layout on which rhinestones are initially placed for creation of a 'rhinestone transfer'. This is what is created from the cutters or engravers.

Rhinestone transfer: This is the rhinestone design ready for heat transfer to the final product – e.g. a T-shirt.

RPM functions: RPM +/- functions instruct the machine to increase or decrease machine speed in increments from current or normal.

Right-click: To press and release the right mouse button. See also Click.

Rollover: The point at which the fabric is shifted – loosened and reset – vertically to continue stitching. Common on long fabric Schiffli machines.

Rotation handles: When you select an object, selection handles display at its extremities. If you click the object again, rotation and skew handles appear around the object. Rotation handles appear at the corners of the object and an anchor point displays at the object's center. Skew handles are diamond-shaped and appear at the center-top and bottom of the object. See also Selection handles.

Run stitch: Run stitch, also known as 'Walk stitch', places a single row of stitches along a digitized line. The needle penetrations are placed in consecutive order. Run is generally used for stitching outlines and connector stitches. Run stitch length can be set to automatically vary in order to follow tight curves.

SAS: SAS is a Saurer SLC, Saurer SLC RCC, Saurer SLC Standard or Saurer Pentamat file format.

Sash: A fabric strip that separates blocks in a setting, framing them and making the quilt larger.

Satin stitch: Type of fill stitch. Formed by closely arranged zigzag stitches, it can be stitched at any angle and with varying lengths. The thread is laid across a shape with a zigzag sewing action where two stitches form a column. Hence it is only suitable for small or narrow shapes. As the stitches are almost parallel, Satin provides good coverage. It is often used for lettering, outlining, and details. Because there are generally no needle penetrations breaking up the fill, Satin stitch creates a glossy effect.

Saurer: Saurer is a Schiffli machine brand and type as well as a Jacquard card encoding format. The format has three variants with support added for more modern RCC and Pentamat machines. Sometimes it is referred to as the 'left hand machine' because the threading requires the hook to be held in the left hand.

Saurer SHC: SHC is a high level code format which is designed to be machine independent in order to control both Saurer and Plauen type mechanisms. The format supports thread trimming.

Saurer SLC: SLC is a Saurer low level code format for Schiffli designs.

Save: To store (design) information in a file. Each time you save a design, you replace the previous version using the filename. You should save your design frequently.

Scalability: Ability to enlarge or reduce a design. In machine file format, most scaling is limited to 10 to 20%, because the stitch count remains constant despite final design size. In design file formats, on the other hand, scale changes may be more dramatic, because stitch count and density may be varied.

Scale factor: This option allows you to automatically scale CND designs as you load them. For example, to scale the imported design to 120% of the original, you would enter a scale factor of 1.2.

Scaling: Ability to enlarge or reduce a design in size. In stitch or 'expanded' format, most scaling is limited to ±5% because the stitch count remains constant despite final design size. In design or 'outline' formats, scale changes may be more dramatic because stitch count and density are recalculated.

Scanner: A device that converts physical images into digital form so that they can be stored and manipulated by computer. Scanning allows you to take scanned images as a basis for embroidery design.

Scanning resolution: Most scanners require you to enter scanning resolution information. Resolution determines the number of dots per inch (dpi) used to create a drawing. The higher the value, the clearer the image but larger the file. For digitizing purposes, use a maximum resolution of 300 dpi (dots per inch). A resolution of 72 dpi (screen resolution) will usually be sufficient. Generally speaking, the smaller the source image and/or more detail it contains, the higher the resolution needs to be.

Schiffli card: Plauen or Saurer type Jacquard card.

Schiffli card image: Jacquard card electronic encoding produces a 'tape file' which is essentially an electronic 'image' of the card. Schiffli outputs two tape file formats – T10 (for Plauen) and T15 (for Saurer). See also Tape code.

Schiffli disk: Schiffli disks include Saurer SLC/SHC, Heinzle, Hiraoka, and Laesser.

Schiffli machine: Commercial embroidery machine that utilizes the combination of needle and shuttle to form a stitch. Massive in size. Some schiffli machines – also known as looms – weigh 10 tons and have up to 1024 needles. Most Schiffli machines do not have automatic thread trim or automatic color change. Excellent for emblem production, the creation of lace, embroidery production on oversized items and production orders of very large quantities.

Screen calibration: You need to calibrate your monitor so that designs at 1:1 scale appear at real size. Do this when you first install BE EmbroideryStudio, whenever you change your monitor, or adjust your monitor's horizontal or vertical controls.

Screen printing: Screen printing is a more complex process than direct-to-garment, requiring the creation of a screen for each of the spot colors (Pantone) that make up the design. There may be multiple screens for each spot color,

depending on how the design is layered. See also Direct-to-garment printing.

Screen resolution: See Pixels.

Scroll bar: The bar at the bottom and right edge of a window whose contents are not entirely visible. Each scroll bar contains a small box, called a scroll box, and two scroll arrows to allow different types of scrolling.

Security code: Options in BE EmbroideryStudio are controlled by a security device installed on the computer. Security access codes entered into the software are sent to this security device. Each security device has a unique serial number and identity code.

Security device: See Dongle.

Segments: Filled embroidery objects are generally built as several discrete 'segments'. Travel runs are typically used to connect them. All segments, however, form part of the same object. Where they meet, the push-pull effect on the fabric during stitchout may cause gaps to appear.

Select: To highlight an object or group of objects for the purpose of editing. Only selected items can be edited.

Selection handles: Eight small squares that appear symmetrically at the corners and edges of a selected object. Use them to position and resize objects. See also Rotation handles.

Selection marquee: The dotted rectangle that appears when you select a range of items. See also Bounding box.

Sequence: See Stitching Sequence.

Sequins: Sequins are small plastic disks with a hole usually in the center. They are stored on reels joined one-to-another by a weak link. They are stitched onto fabric by mechanical placement in the path of the sewing needle.

Sequin attachment: Sequin attachments are computerized or manual machine devices which apply sequins by stitching, glue or heat.

Sequin mode: Sequin mode enables quick digitizing of Drop Sequin functions. See also Drop Sequin functions.

Serial port: A connection point on a computer where you plug a serial communications device such as a modem. PC serial COM ports are male connectors, and can be either 9-pin or 25-pin. They are named COM1, COM2, COM3, etc. The number of available ports limits the number of devices you can connect. If additional ports are required, you can add them. Multi-port serial cards can also be used.

Serial port setup: Here you can adjust Baud, Data Bits, Stop Bits, Parity values. These settings must be identical to those of the embroidery machine. The type of handshaking must match the type of cable you are using.

Serif: In typography, serifs are semi-structural elements on the ends of strokes that make up letters and symbols. A typeface that has serifs is called a serif typeface. A typeface without serifs is called sans-serif.

Sharpen edges: Tool used to prepare outlined images for automatic digitizing. Sharpen Edges automatically sharpens outlines and reduces noise. Areas enclosed by a black outline are reduced to a single color. Outline sharpening makes it easier for the software to recognize distinct areas in the artwork. These areas then become the embroidery objects of the finished design. Use it particularly if the outlines are blurry, fuzzy or indistinct.

Short stitch: Digitizing technique that places shorter stitches in curves and corners to avoid an unnecessarily bulky build-up of stitches.

Shortcut key: A key stroke or a series of keystrokes you can use to perform a task instead of using the mouse. For example, Ctrl+C actions the Copy command.

Side movement: The distance the frame can move horizontally on a Schiffli machine, measured in quarters.

Side stick: Adjustable bars with pins on each end of the Schiffli frame to hang or pin the ends of the goods being spanned.

Sizing handles: See Selection handles.

Skew handles: See Rotation handles.

Slow Redraw: Use to redraw your design slowly. Slow Redraw lets you view the stitching and color sequence of a design in slow motion.

Small stitches: Use the Small Stitch Filter to remove unwanted small stitches from a design automatically.

Smart corners: Sharp points in a shape may cause a bunching of stitches and needle penetrations which can create a hard spot in the embroidery and may damage the fabric or needle. Smart Corners helps you control sharp corners in Column A and Column C objects. See also Mitre Corner and Cap Corner.

Smart design: Toolset used to create embroidery designs by automatically digitizing electronic images. Smart Design automatically converts bitmap images to fully digitized embroidery with little or no intervention. See also Auto-Digitizing.

Software: Programs, such as MS Windows® and BE EmbroideryStudio, which run your computer.

Span: The prepared goods ready to load the Schiffli machine. It may contain many yards of goods.

Span cloth: Fabric attached permanently to the roller of the Schiffli machine with pins onto which the fabrics are attached.

Spangles: See Sequins.

Spanning: The loading of the goods on the frame, placing it under tension preparatory for embroidery.

Specialty fill: A fill stitch capability that produces a fill with a 'relief' or motif design within the fill-stitch area, e.g. Pattern Fill.

Specialty threads: Threads designed for effects such as shine, glitter, iridescence or thickness. The threads often are made from synthetic materials including rayon, mercerized cotton, metallics and textured nylon.

Spiral contour: Spiral Contour creates a single, continuous line of stitching that spirals around to fill the shape. Typically, it is used for rings and borders, but it is also suitable for other closed shapes. See also Contour stitch.

Split alternate: Split Alternate is a variation of Tatami split. See also User Defined Split.

Split object: You can split embroidery objects that were created with the Column A, Column B, and Column C tools, if Satin or Tatami, or Program Split is the selected stitch type.

SPI: Stitches per inch – system for measuring density or the number of Satin stitches in an inch of embroidery.

SPM: Stitches per minute – system for measuring the running speed of an embroidery machine.

Spray adhesive: The most common use for spray adhesive is for appliqué. If you have a paper, cardboard or even a plastic pattern for your applique, you can use spray adhesive to keep your pattern secure to the fabric during cutting and placing. This allows you to spray the adhesive on the back of the pattern and place it on the right side of your fabric. You can also use a double sided fusing such as Vliesofix. Spray adhesive can also be used to position garments or items that cannot be hooped. These can include caps, purses, bags, small items that are smaller than your smallest hoop.

SR/SD: Melco Star format. 'Star' and 'Superstar' are types of Melco machine (quite old now).

Stabilizer: See Backing.

Standard backstitch: The rows are approximately parallel, with every backstitch row slightly shorter than the forward row. Because the rows are different lengths, there are fewer small stitches at the edge of the shape, reducing possible damage to the fabric. Standard backstitch is suitable for high density fills. See also Backstitch.

Standard contour: Standard Contour creates rows of stitches across the shape, perpendicular to the digitized stitch angle. The number of stitch lines is constant, so the stitching is denser where the shape is narrower, and more open where the shape is wider. See also Contour stitch.

Start/End Boring Tension functions: See Boring Tension functions.

Station: See Repeat Color Change (RCC).

Status bar: Provides information about the whole design: number of stitches, position of the design (X, Y), number of colors (C), number of stops (S), etc.

STC: Gunold stitch or 'expanded' file format.

Stemstitch: A detail stitch that can be used to outline items or fill in areas. It is used for stems and vines with other decorative stitches, or as an outline for Satin or Motif fills.

Step stitch: Series of parallel stitches commonly used to cover large areas. Different step patterns can be created by altering the angle, the length and repeat sequence of the stitches.

Stippling: A method of creating a fill made of run stitches which meander around within a border. Often used in quilting.

Stitch: A stitch is one needle penetration. May also refer to the thread spanning one needle penetration and the next.

Stitch angle: The stitch angle is the angle the overall stitching follows within a shape. The shape may have a fixed stitch angle – e.g. 45° to the horizontal – or multiple stitch angles.

Stitch bunching: Standard stitch spacing is calculated at the outside edge of a shape. With sharp curves, spacing which provides adequate coverage on the outside edge may cause bunching along the inside edge. This may cause thread breakage when stitching out.

Stitch count: Stitch count refers to the number of stitches in a design. In BE EmbroideryStudio one stitch is considered one machine revolution. See also Design information.

Stitch density: The number of stitches per given area (or stitch lines per distance in a fill).

Stitch editing: Digitizing feature that allows one or more stitches in a pattern to be deleted or altered.

Stitch file: See Machine file.

Stitch length: The distance between two needle penetration points. For maximum stitch length, the length is measured according to the X and Y co-ordinates, whichever is greater. Run stitch length can be set to automatically vary in order to follow tight curves. See also Max/Min stitch length.

Stitch list: The Stitch List displays stitch number, stitch coordinates, stitch length, stitch function, stitch color. When you select a stitch in the list, it is simultaneously selected in your design.

Stitch processing: The calculation of stitch information by means of specialized software, allowing scaling of expanded format designs with density compensation.

Stitch processor: A patented software feature developed by Wilcom International P/L. Stitch Processor is a function of the software which interprets 'raw' stitch data and converts it into objects that the software can recognize.

Stitch-pull: See Push-Pull.

Stitch type: Three basic stitch types are available with lockstitch machines – Run, Satin and Tatami (Weave). BE EmbroideryStudio provides many variants of these.

Stitch rate: Price paid for 1000 stitches.

Stitch shortening: When a shape takes a sharp turn, the spacing of stitches on the inside of the shape decreases rapidly. This results in bunching on the inside and gaps on the outside of the shape. The longer the stitch, the worse the problem. Automatic Stitch Shortening solves this problem by eliminating thread bunching. The embroidery has smooth, even stitch spacing throughout. It also reduces thread breakages during production.

Stitch spacing: Spacing between two consecutive needle penetrations on the same side of a column. The smaller the value, the greater the stitch density. For more open stitching, use larger values.

Stitching defects: Stitching defects may appear in the form of gaps between filled areas, fabric show-through and thread breaks. These are often caused by incorrect stitching settings – e.g. setting pull compensation too small for the fabric stretchiness.

Stitch-to-machine: The software lets you send a design directly to the embroidery machine for stitching if it is connected to your computer.

Stitching direction: Stitching direction can affect embroidery quality because of the Push-Pull effect. Only closed embroidery objects can be reversed.

Stitching sequence: The embroidery objects in a design form a stitching sequence. Initially, objects are stitched in the order in which they were created or the design assembled. You can change the position of a selected object by cutting it, then pasting it somewhere else in the sequence, or by using the Resequence command. You can also resequence objects by color or with the Color-Object List.

Stock designs: Embroidery designs readily available on disk or proprietary embroidery card. Digitized embroidery designs that are commercially available for general use by embroiderers.

Stop code: Stop codes are interpreted as 'explicit stops'. The machine stops stitching.

Stop function: If you want the embroidery machine to stop for any special reason while stitching a design, you need to insert a Stop function in the stitching sequence. If there are Stops in a design, these can be read into BE EmbroideryStudio as either a Color-change function or a Stop function.

Straight stitch machine: Machine, which features needles that move up and down in one spot. The pantograph pushes the design along. The majority of commercial embroidery machines use this type of needle movement.

STX: Datastitch stitch or 'expanded' file format.

Stump Work: Embroidery filled with cotton etc. full three-dimensional work with added wood, mirrors, semi-precious stoned, usually hand-made. An extension of Trapunto.

Stuepfel: Stuepfel is a Schiffli machine attachment for cleaning out holes after boring. Stuepfel In/Out functions instruct the machine when to switch to the Stuepfel device from the borer. Borer In engages both the borer and the Stuepfel.

Styles: A style is a group of property settings stored under a unique name. You can save any combination of settings to a style. This makes it easy to apply these settings to selected embroidery and lettering objects. When you apply a style to an object, the style settings replace its current properties. Any properties not specified in the style, retain their current settings.

Sublimation: Sublimation printing is similar to DTG printing but the process uses solid inks which give a more even gradation of color rather than the liquid inks in DTG printing. With sublimation printing, inks are printed onto a release paper and then transferred onto a fabric or other surface. The transfer is effected using high heat (205°C) and pressure, thus guaranteeing that the image penetrates and becomes an integral part of the substrate.

Supported machine type: A machine is 'supported' by the software either via a direct implementation in the software for a specific machine or via the MS Windows® operating system – e.g. a MS Windows® supported printer or MS Windows® supported cutter.

Swiss embroidery: Satin stitch embroidery. Also recalls the origins of automated embroidery in Switzerland, where the Schiffli embroidery machine was developed in the 1800s by Isaak Groebli. Embroidery remains a government-supported industry in Switzerland today.

System administrator: The System Administrator is responsible for the entire Enterprise Network and security. In smaller enterprises, the System Administrator is also usually responsible for database administrations.

System requirements: What your computer's hardware and software, operating together, can support. System requirements are printed on software packages, design disk cards and packs, CDs and other computer accessories. You need to know what your system can and cannot support, as sometimes a system is not capable of handling new software without adding memory or disk space.

T03: T03 is an old paper tape version of Barudan file.

T10: T10 is a Wilcom Plauen Schiffli format used to punch cards or as input to Electrocard or converted to floppy disk formats.

T11: T11 is a Wilcom Plauen RCC Zangs Schiffli format.

T12: T12 is a Wilcom Plauen - RCC Hiraoka Schiffli format.

T13: T13 is a Wilcom Plauen - RCC Comerio Schiffli format.

T15: T15 is a Wilcom Saurer Schiffli format used to punch cards or as input to Electrocard or converted to floppy disk formats.

T16: T16 is a Saurer B Schiffli format.

T18: T18 is a Wilcom Saurer RCC Schiffli format.

T19: T19 is a Wilcom Saurer B - RCC Schiffli format.

T20: T20 is a Wilcom Saurer Pentamat Schiffli format.

T21: T21 is a Wilcom Saurer B Pentamat Schiffli format.

T22: T22 is a Wilcom Plauen Pentamat Schiffli format.

Tablet: See Digitizing tablet.

Tackdown: Zigzag stitch, placed after placement and cutting lines, and used to fix appliqué patches to the background fabric before cover stitching is applied.

Tape: See Paper tape.

Tape code: Traditional recording media used in the embroidery industry has been the paper tape. Jacquard card electronic encoding produces a 'tape file' which is essentially an electronic 'image' of the card. Schiffli outputs two tape file formats – T10 (for Plauen) and T15 (for Saurer). As newer Schiffli machines can read floppy disks, there are various Schiffli machine floppy disk formats. You therefore need to convert the basic tape file to the required disk format.

Tatami stitch: Series of run stitches, commonly used to cover large, irregular shapes. Stitches are laid in rows traversing back and forth across the shape. These can be parallel or slightly turning. Different fill patterns can be created by varying the stitch length, angle or sequence. Also known as Weave stitch.

Tatami offset fractions: With Tatami fills you can specify how each row is offset in order to create patterns formed by needle penetrations. You do this by adjusting either offset fractions or partition lines. By adjusting offset fractions, you can create textured fills where the stitch penetrations are more clearly visible.

Tatami partition lines: With Tatami fills you can specify how each row is offset in order to create patterns formed by needle penetrations. Partition lines, with up to eight offsets, can create more patterns.

Tatami underlay: Tatami underlay is used to stabilize large, filled shapes. It resembles an extremely open Tatami fill stitch, where rows of stitches are placed across the object to create the underlay.

Team Names: The Team Names feature lets you create designs with multiple names. For example, you can use the same logo with different names for sports teams or corporate uniforms without having to create multiple copies of the same design.

Templates: Templates are special files used for storing styles and default property settings. The NORMAL template packaged with the software provides a selection of preset styles. You can modify these as required and save them back to the NORMAL template or to your own custom templates. Use these when digitizing frequently-used design types to save time re-adjusting the current property settings. For example, a custom template may include standard

objects and sample lettering. It may simply have preferred stitch settings, lettering font and size, and colors set as current settings. Or it may have special density, pull compensation or underlay settings to suit different fabrics.

Tension: Tautness of thread when forming stitches. Top thread tension, as well as bobbin thread tension, need to be correctly set. Proper thread tension is achieved when about one third of the thread showing on the underside of the fabric on a column stitch is bobbin thread.

Tensioner: Device used to adjust the tautness of thread when forming stitches.

Textured edge: Use Textured Edge to create rough edges, to create shading effects, or to imitate fur or other fluffy textures in your design.

Thread: Fine cord or natural or synthetic material made from two or more filaments twisted together and used for stitching. Machine embroidery threads come in rayon (high sheen), cotton (duller finish), polyester (strong and colorfast), metallics (synthetic core wrapped with metal foil or thin slivers of metal foil) and acrylic (sheen similar to rayon).

Thread Brake functions: Thread Brake +/- functions instruct the machine when to increase or decrease tension one increment by Thread Brake.

Thread chart: Thread charts are lists of predefined thread colors. They may be based on commercially available thread charts, or charts you define yourself. You can copy colors between different thread charts to create your own charts from existing colors. See also Color palette.

Thread code: Code is the identification number of a thread color in a brand.

Thread roller functions: Thread Roller +/- functions instruct the machine when to increase or decrease tension one increment by Thread Roller Feed (2S-55 RCC).

Thread cutting: The removal of 'floats', by hand or by machine.

Thread density: Different thread density systems are used by different thread manufacturers. Density A is normal embroidery thread (density 120/2, or 40). Density B is thicker, Density C is finer, and Density D is very fine.

Thread thickness: See Thread density.

Thread type: Embroidery thread varies in thickness. Types are A, B, C and D. Stitch density should be set according to the thread type. See also Thread thickness.

Tie-ins: Tie-in stitches are inserted at the start of objects to prevent stitches from unraveling. They are inserted inside the shape on the second stitch. You generally use them when the previous connector is trimmed.

Tie-offs: Tie-offs are generally placed before trims to prevent stitches from unraveling. You can adjust connector settings to automatically add tie-offs under certain conditions, or add them manually. You can also include trim functions so machines with trimmers cut the thread automatically.

Title bar: The horizontal bar located at the top of a window and containing the title of the window. On many windows, the title bar also contains the Control menu box and Maximize and Minimize buttons.

Toolbar: Toolbars provide quick and easy access to BE EmbroideryStudio commands. Click a toolbar button to activate a command or, where applicable, right-click to view and adjust its settings.

Topping: Material hooped or placed on top of fabrics that have definable nap or surface texture, such as corduroy and terry cloth, prior to embroidery. The topping compacts the wale or nap and holds the stitches above it. It includes a variety of substances, such as plastic wrap, water-soluble plastic 'foil' and open-weave fabric that has been chemically treated to disintegrate with the application of heat. Also known as 'facing'. See also Stabilizer.

Trapunto: Trapunto is a general term for open fill stitching, often used as a background or for filling large shapes. In BE EmbroideryStudio, Trapunto effect forces travel runs to the edges of objects so they do not show through open or loose stitching.

Travel runs: Travel runs are typically used to connect segments of complex shapes. They can also connect adjacent objects. Because runs are not trimmed, they may be visible in the final embroidery. For this reason, they are less commonly used as connectors between objects than jumps. If objects are adjacent and connectors will be hidden, they can be used.

Traveling: You generally check a design's stitching sequence by 'traveling' through it by stitches, segments, functions or objects.

Trim function: If you are using a machine with an automatic trimmer, the trim code causes the thread to be cut after a tie-off. In the software, trims are represented by a triangle with a small circle at the point where stitching starts again. The trimmed connector appears as a dotted line. You can adjust connector settings to automatically add trims, or add them yourself.

Trimmers: Devices built into an embroidery machine to automatically trim or cut remaining thread when the design jumps from one area to another or performs a color change.

Trimming: Action of cutting loose thread, removing backing, etc, from the final embroidered product.

Triple Run stitch: Triple Run repeats each Run stitch three (or more) times for a thick line. Typically used to add borders and pickout runs to designs.

Triple Satin: Triple Satin is often used for folk designs to mimic handmade embroidery that uses thicker thread. If you require thicker stitches, set the Satin stitch to repeat itself multiple times.

TrueType font: Digital font technology designed by Apple Computer and now used by both Apple and Microsoft in their operating systems.

TrueView™: TrueView™ provides you with a preview of how your embroidery will look when stitched out. It gives the screen image a three dimensional look.

Tulle: Thin, fine net of acetate, nylon, or silk, for millinery, dress goods, or the embroidery of imitation laces.

Turning stitches: Embroidery objects can be filled with parallel or turning stitching. Turning stitches are columns of stitches which turn to follow the path defined by the object outline. By contrast, parallel stitching traverses the shape in one direction only – e.g. at 90° to the horizontal, 45°, or whatever is set. Objects can be created with turning stitching already applying, or multiple stitch angles can be added later. Turning stitches are best used with designs containing

complicated, turning shapes such as trees, animals, or large filled areas. Turns generally occur at points where a shape changes significantly in direction or width.

TWAIN: Industry standard which allows devices (such as scanners) to communicate directly with design and layout programs. Both device and program must be TWAIN-compliant. This lets you use any TWAIN-compliant scanner with your software.

U?? Machine file format native to Barudan machines.

UDL file: DesignWorkflow uses the Microsoft Data Link (UDL) format to link to its databases. UDL files are similar to MS Windows® shortcuts, but they contain more information about where the actual database and all of its attendant files are located. Copies of UDL files can be shared, renamed and relocated so that many people can use the information. In effect, every user with DesignWorkflow can have their own UDL link to the same database.

Underlay: Stitches sewn before other design elements to help stabilize fabrics. The stitching action that will attach the backing to the fabric being embroidered. It also supports the top embroidery for a more lofty, dimensional look. Underlay stitches are made up of a series of single run stitches, usually with a very short stitch length, and are digitized manually or placed automatically under the column (satin) or fill stitch areas of your embroidery design.

Underlay margin: The distance between an object outline and the edge of the underlay. Increase this margin to prevent underlay stitches from extending outside the cover stitches.

USB-capable embroidery machine: An embroidery machine which has a standard USB port built into the machine or machine control panel.

USB converter: A device which converts a standard serial connection port to a USB type A connection.

USB memory stick: Standard USB memory stick or simply 'USB stick' used for storing and transporting files.

USB port: Universal Serial Bus Connector – a connection on a computer where you plug in the dongle.

User-defined split: User-defined splits add details to filled objects via digitized lines of needle penetrations called 'split lines'. Split lines are stored as object properties. They are preserved when stitches are regenerated even if you apply a different stitch type.

Values: The actual settings – letters and numbers – that you enter into dialogs. See also Object Properties.

Variable sizing: Ability to scale a design to different sizes.

Variable stitch length: The software can automatically calculate the best length for each stitch with the Variable Run Length option. A chord gap value controls how closely the stitches follow the digitized lines.

Variegated: The dying of yarns with three or more colors in one spool.

VDT: VDT is a Hiraoka Schiffli format.

Vector graphic: Unlike raster images, vector graphics contain vector data. This is a collection of geometric shapes and lines that combine to make an image. Rather than pixels, such data is recorded as a set of mathematical formulas defining shapes such as rectangles, ellipses, curves, polygon stars, etc. These are created using vector graphics programs such as CorelDRAW® Graphics Suite. Vector graphics are scalable without distortion, and are usually much smaller than bitmap images. See also Bitmap.

Vector object: Vector objects are derived from vector graphics and can be created in BE EmbroideryStudio or imported. In BE EmbroideryStudio they can be converted to and from embroidery objects. You can set general properties such as size and position, and arrange and transform them in the same way as other objects. See also Vector graphics.

Vector text: A text object created using the CorelDRAW® Graphics Suite Text tool.

VEP: Hiraoka VEP file format is used extensively for Pattern Arrangements (ABC) on existing machines. VEP uses a small arrangement file which splits the different design parts – A is one file, B is a second file, C is a third file.

Watcher: The operator of the Schiffli machine who sets the pattern, twists the yarns, maintains the shuttles, loads and unloads the machines, performs the rollovers and watches for thread and needle breakage. The machine operator.

Wave Effect: With Wave Effect you can curve Closed Fill stitches along a digitized line to create flowing stitch effects. The stitches follow the digitized line but maintain uniform density and needle penetration patterns.

Weave stitch: See Tatami stitch.

WECS: WECS (Wilcom ElectroCard System) eliminates the need for Jacquard cards. WECS reads Wilcom machine files T10 and T15 and runs the Schiffli Automat directly. You therefore only need to save the design as a machine file to floppy disk.

Weight: When referring to T-shirts, the three standard weight divisions are mid-weight/value, heavyweight/premium, and super heavyweight.

WESS: WESS (Wilcom Electronic Servo System) replaces the Schiffli Automat and controls the frame movements directly by servo motors. It requires Wilcom ESS, Hiraoka DAT, Saurer SAS, T10 or T15 files on floppy disk as input and its method of operation is similar to WECS.

WIA: Windows Image Acquisition (WIA) is the still image acquisition platform in the Windows family of operating systems starting with Windows Millennium Edition (Windows Me) and Windows XP.

WiFi device: Device capable of connecting to a WiFi Router or wireless access point.

WiFi network name (SSID): Service Set Identifier (SSID) – the unique identifier attached to the information which is sent over a wireless local area network.

WiFi password (key): Password, passphrase or key (depending on the WiFi security type) that allows connection to the WiFi router or access point.

WiFi router: Device that provides basic network infrastructure for a home or small office network. Provides a wireless access point for many wireless devices to connect to each other for access to the Internet as well as for file sharing and printing. Sometimes referred to simply as a Wireless Router.

WiFi USB machine network: A network of wirelessly connected, USB enabled embroidery machines and PCs.

Windows domain: A network of Windows PCs, also known as 'network domain', in which computers rely on a centralized authentication database. Users log into the domain and the access privileges are served from the central database which is controlled by a network administrator.

Windows workgroup: 'Workgroup' is Microsoft's term for a peer-to-peer local area network. Computers running Microsoft operating systems in the same workgroup may share files, printers, or Internet connection.

Wireless Access Point (WAP): A wireless access point or 'WAP' is a hardware device on a local area network (LAN) that allows wireless capable devices and wired networks to connect.

WLAN: Wireless Local Area Network or WiFi network.

WMF: MS Windows® Metafile vector format.

Write: To send design information to an embroidery disk, design card or embroidery machine for immediate stitchout or storage.

X/Y coordinates: The horizontal (X) and vertical (Y) distances on a graph or computer screen. Use X values to measure width, and Y values to measure height.

XXX: Compucon stitch or 'expanded' file format in the professional market.

Zigzag stitch: Zigzag stitch is similar to Satin but is generally used where fewer stitches are required. The needle penetrates each side of the column, laying the thread across in an open zigzag pattern. The density is determined by the stitch spacing setting. The settings for Zigzag fill stitches are stored separately from Zigzag and Double Zigzag underlay settings.

Zigzag underlay: Zigzag and Double Zigzag underlay stitching is used to support wide columns.

Zoom factor: The scale at which the design is currently displayed.

ZSK: ZSK1 format is for older ZSK machines, generally those older than 1991. ZSK2 is for newer ZSK machines, those characterized by a single top thread trimmer. The trim is the most significant differentiating factor between the two types.

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