brother

BE EMBROIDERY STUDIO

WILCOM

EmbroideryConnect Supplement

Wilcom International Pty Ltd. (a.c.n. 119 508 575)
Level 3, 1-9 Glebe Point Rd, Glebe
Sydney, New South Wales, 2037, Australia
PO Box 1094, Broadway, NSW 2007
Phone: +61 2 9578 5100
Fax: +61 2 9578 5108
Web: http://www.wilcom.com

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Wireless Machine Connection with EmbroideryConnect

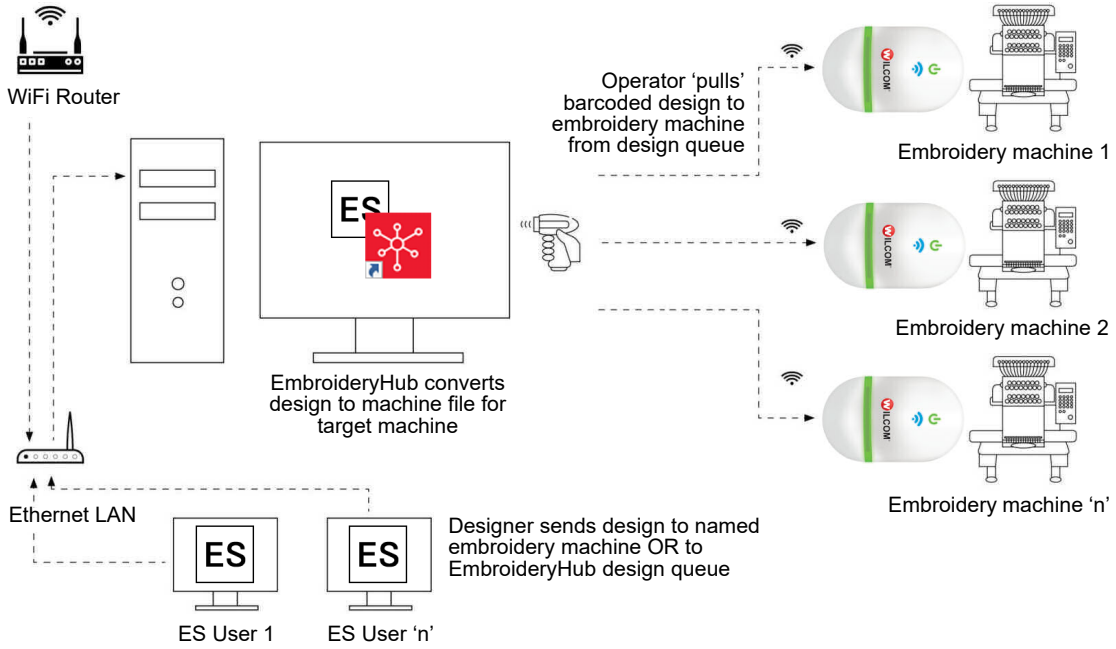
The EmbroideryConnect capability allows you to wirelessly transfer embroidery designs from BE EmbroideryStudio to one or more USB-enabled embroidery machines. Machine files are automatically generated and sent via a standard WiFi network to an EC device plugged into a compatible machine. Design transfers 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.

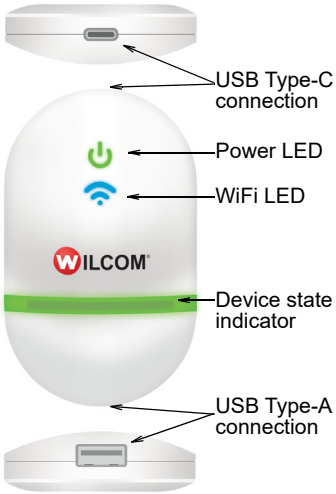


EmbroideryConnect is of great potential benefit to commercial embroiderers who want to network any brand of commercial or 'prosumer' embroidery machines and need a choice of 'push' or 'pull' wireless transfer methods. Benefits can also be found for retail kiosk operators. EmbroideryConnect is designed 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

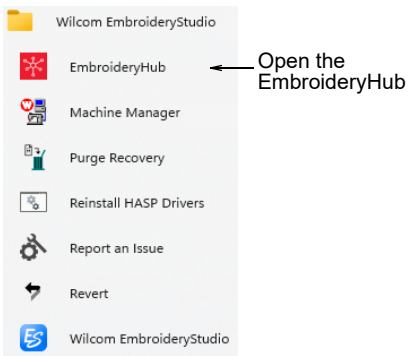
Double-click to start EmbroideryHub.

Setting up an EmbroideryConnect network is easy…

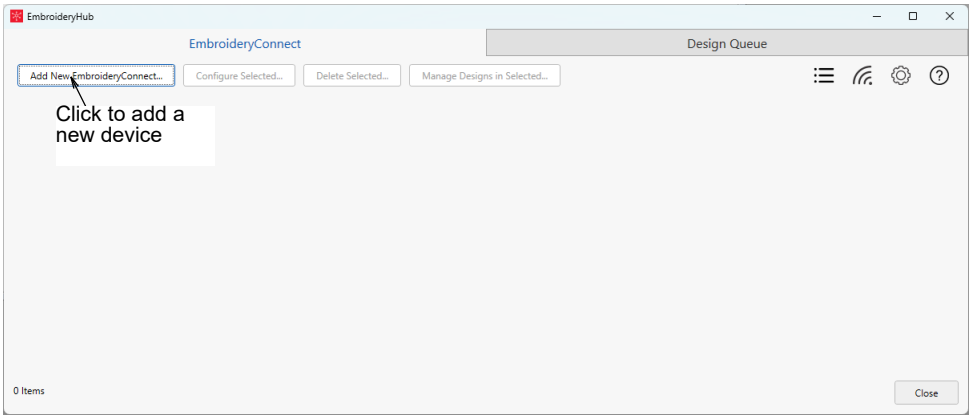
- A single device is required for each embroidery machine.
- A dedicated network PC acts as the 'hub' and runs the EmbroideryHub software.
- All EmbroideryConnect devices are configured on this PC.
- All secondary PCs access the EmbroideryConnect network via the EmbroideryHub.

To configure an EmbroideryConnect device...

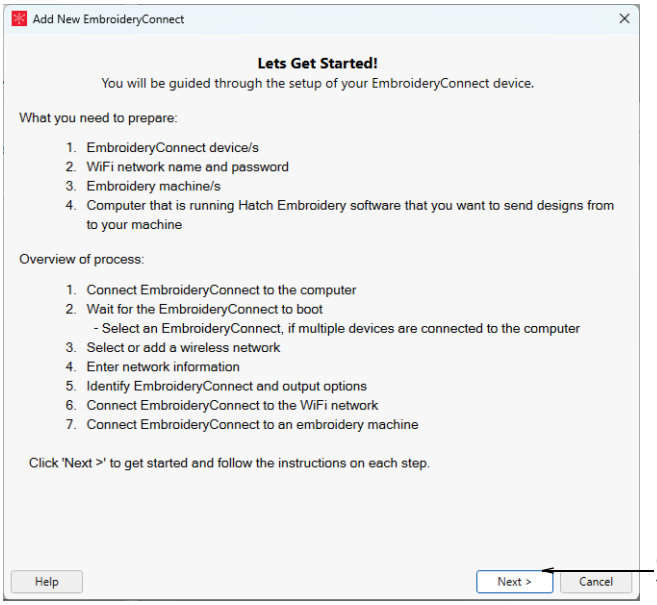
1. Ensure the computer has an active internet connection.
2. Start EmbroideryHub from the desktop icon or the program group.



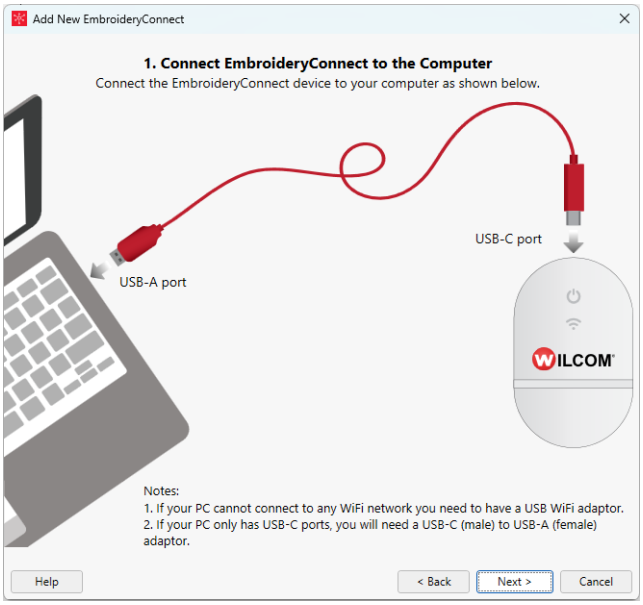
When first run, the device list in the EmbroideryHub main window is empty.



3 Click **Add New EmbroideryConnect**.

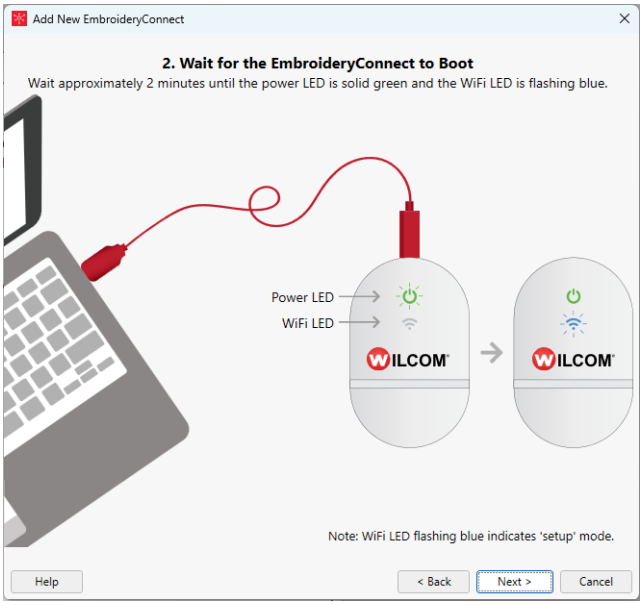


4 Click **Next >**. The below dialog will appear.



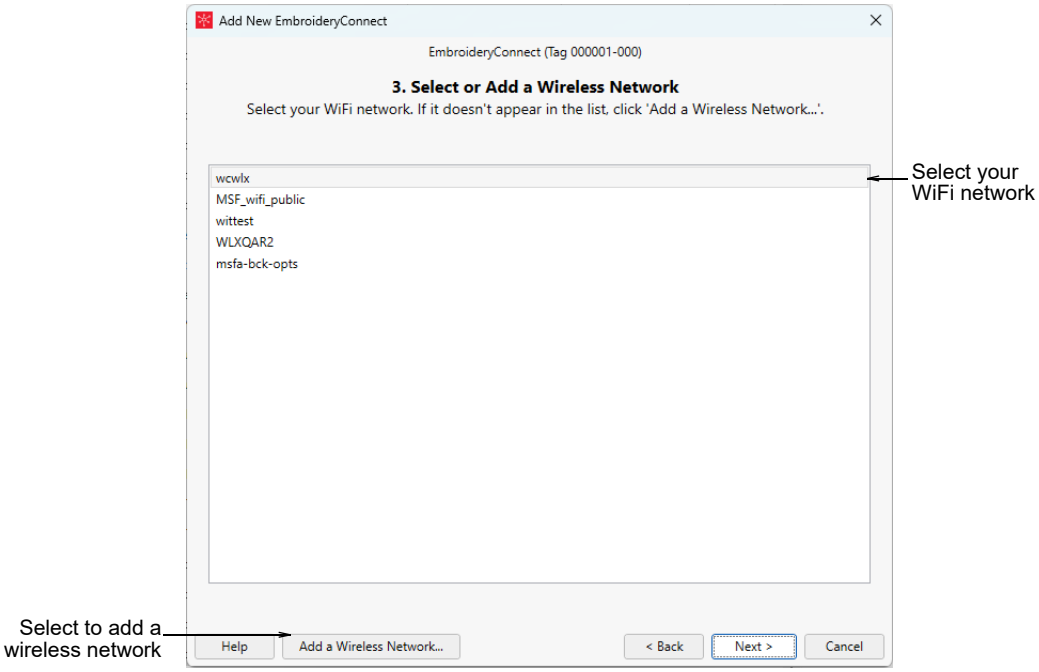
5 Plug your EC device into the computer via the cable connected to the USB-C port of the device.

6 Click **Next >**. The below dialog will appear.



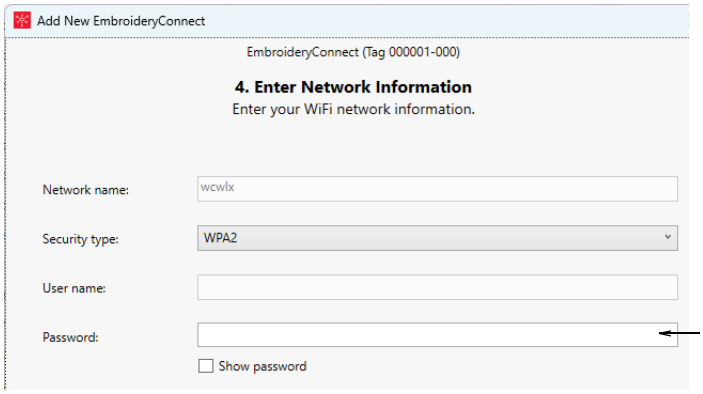
7 Ensure all lights are in 'Setup' mode as prompted. When the power LED is solid green and the WiFi LED is flashing blue, the device has finished booting. This generally takes about two (2) minutes.

8 Click **Next >**. The below dialog will appear.

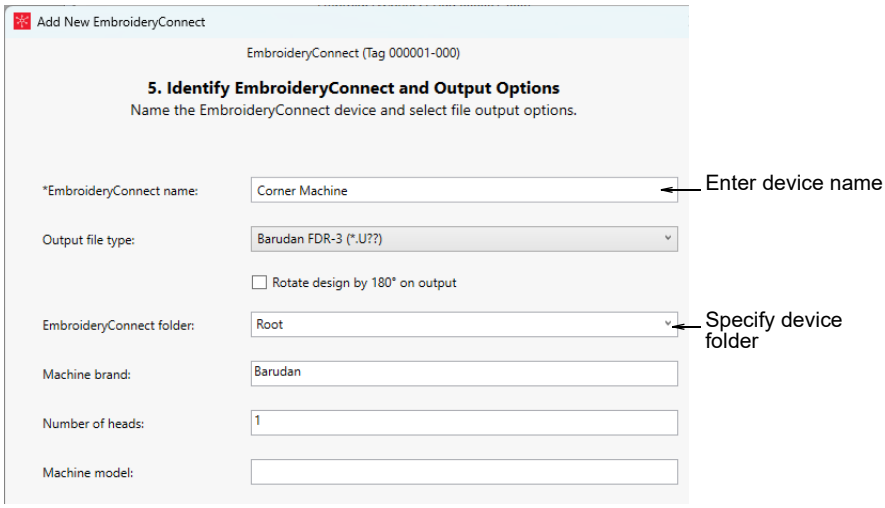


9 Select your WiFi network and click **Next**. If your WiFi network does not appear in list select the **Add a wireless network...** button.

10 Enter the WiFi password and click **Next >**.



11 Identify the EC device and specify output options.

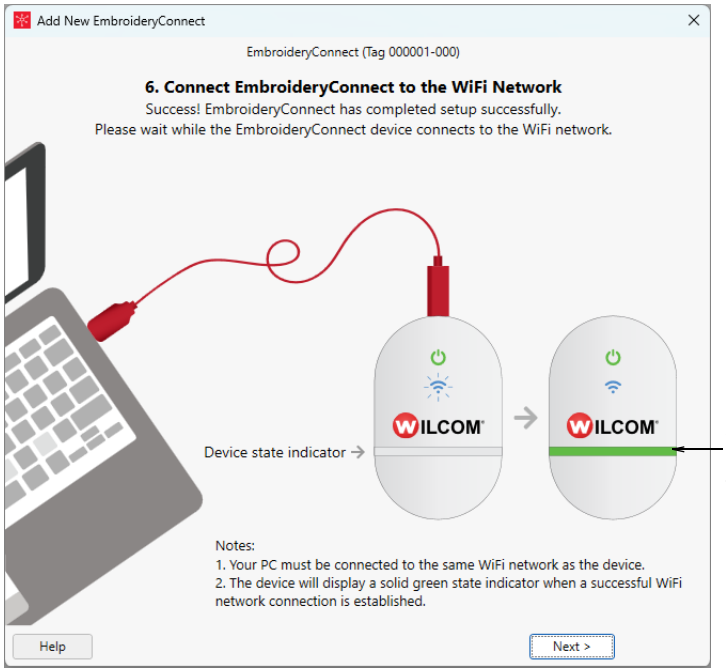


Options include:

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

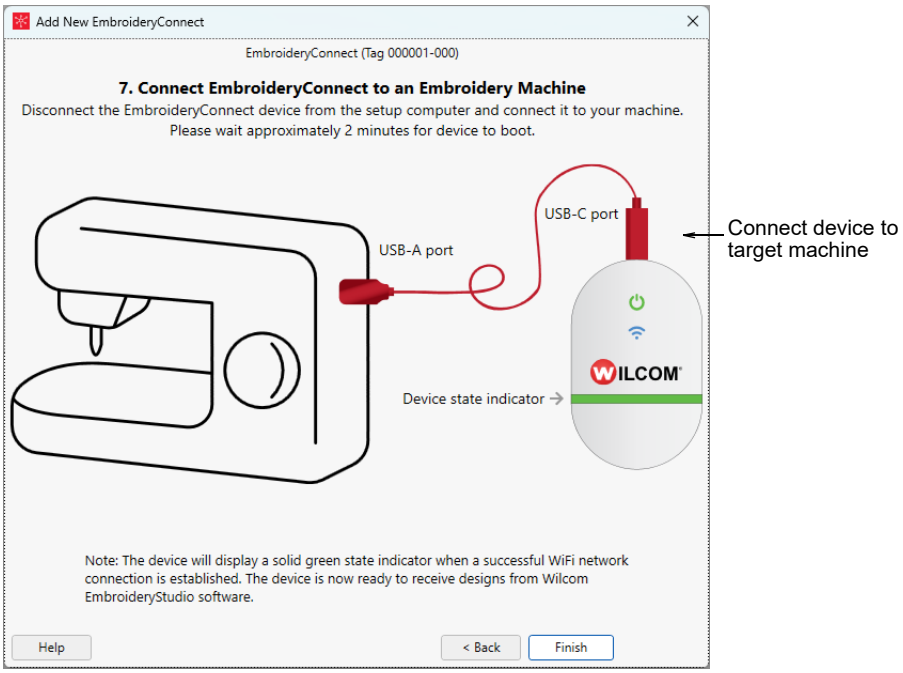
12 Click **Connect** to proceed. The below confirmation dialog appears.



The device displays a solid green state indicator when network connection is established

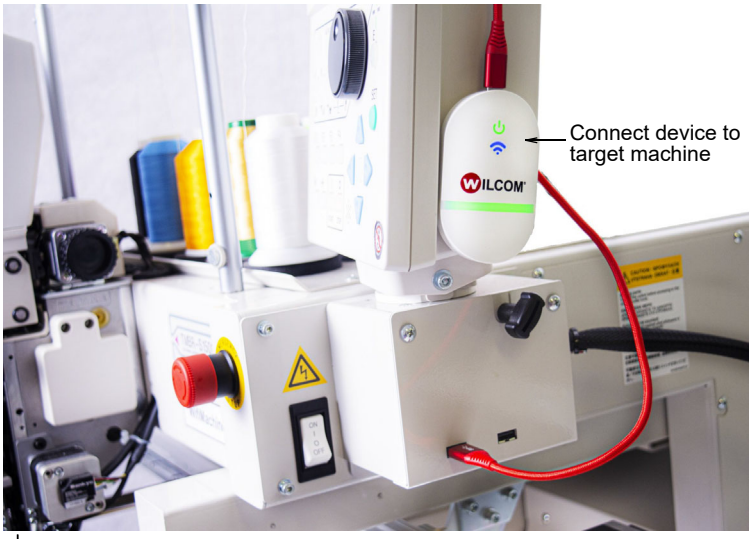
13 Wait for the EC device to connect to the network. Connection takes about 15 seconds depending on network traffic.

14 Click **Next >** to proceed. The below dialog appears.



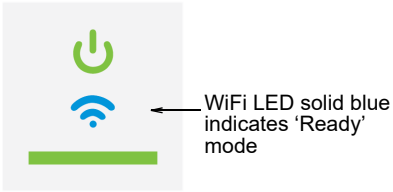
15 Click **Finish** to close the **Add New EmbroideryConnect** dialog.

16 Remove the cable from the EmbroideryHub computer and connect it to the target machine which is within the same WiFi network.

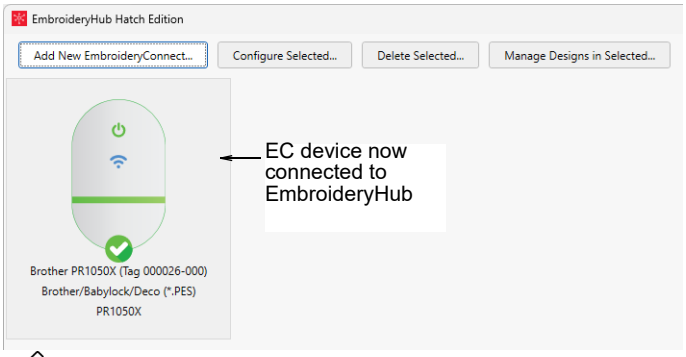


Tip: The EC device comes with 3M mounting strips to attach it to the machine.

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.



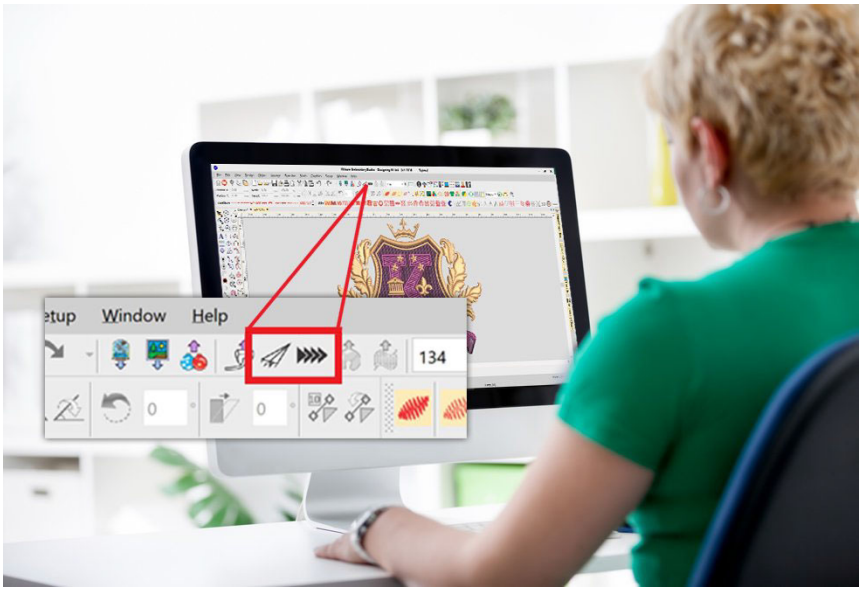
You can now send designs to this device from BE EmbroideryStudio.



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.

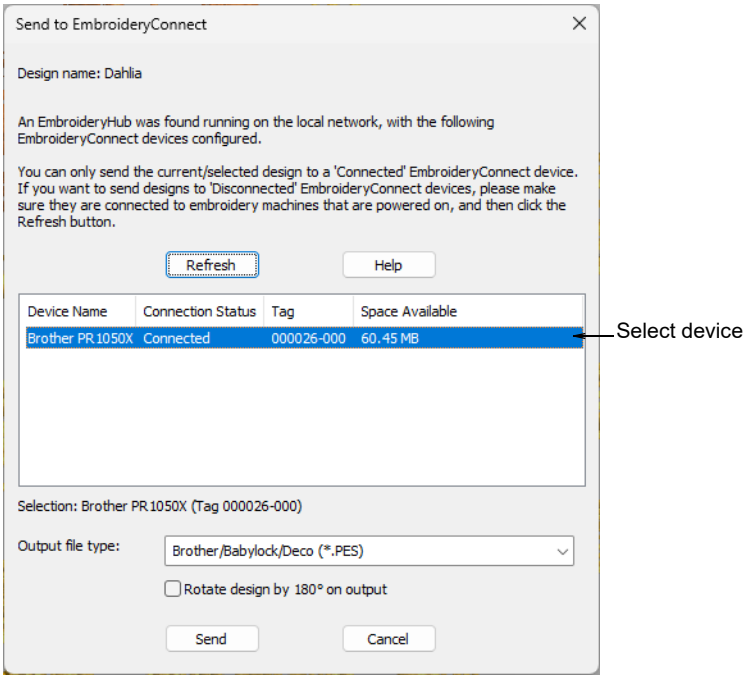
Open BE EmbroideryStudio and load the design or designs you want to send to device.

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.

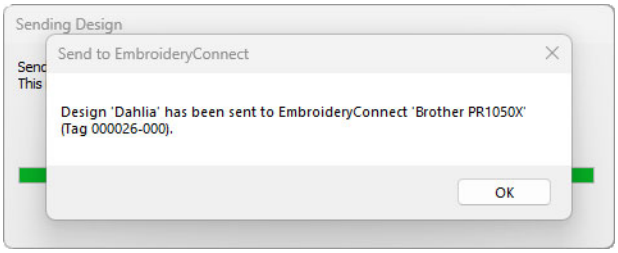
Note: The EmbroideryHub PC must be connected to the same local WiFi network as the EmbroideryConnect devices.

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

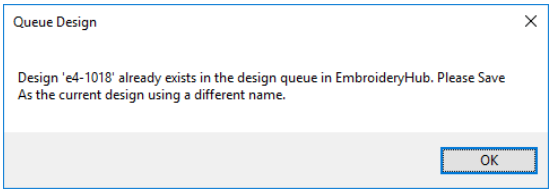
Use Standard > Queue Design to send the current design to the EmbroideryConnect design queue where they can be 'pulled' from the machine.

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

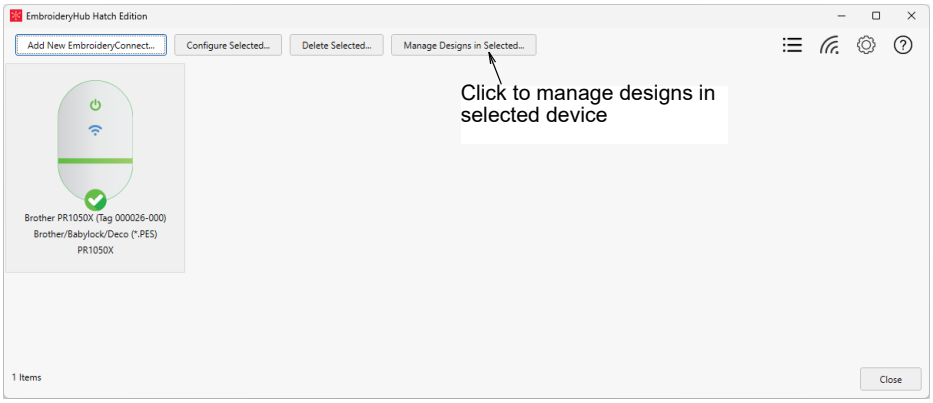
Double-click to start EmbroideryHub.

From EmbroideryHub, you can view designs sent to a particular EC device as well as create folders. You can also rename or delete designs.

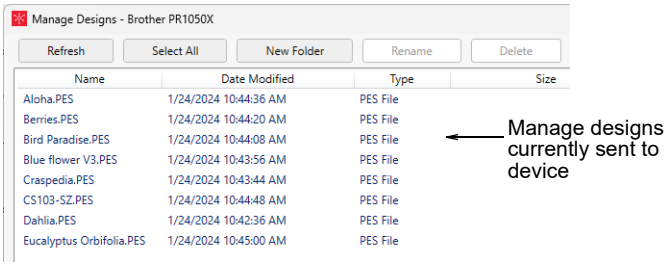
Note: When renaming files, take care not to change the extension – e.g. 'JEF', 'EXP' – as the file may become unusable.

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.

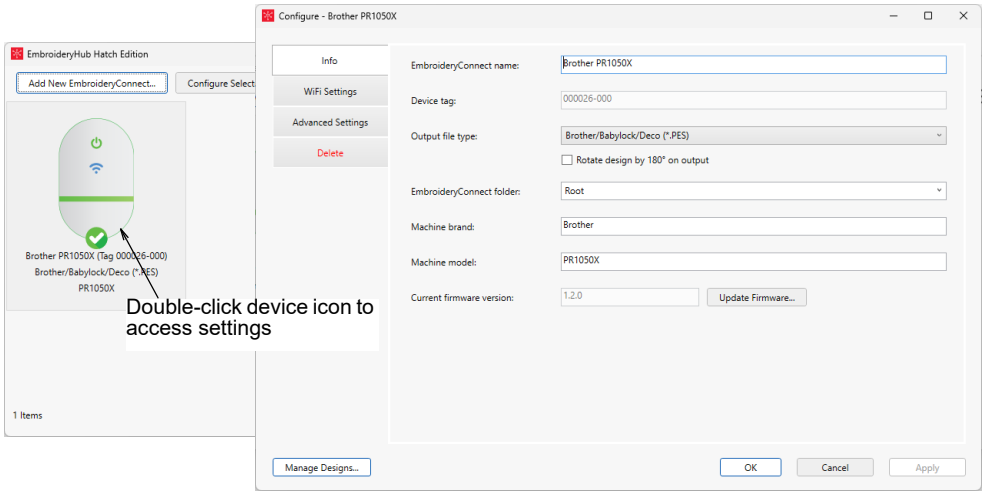


Usage tips...

- 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.

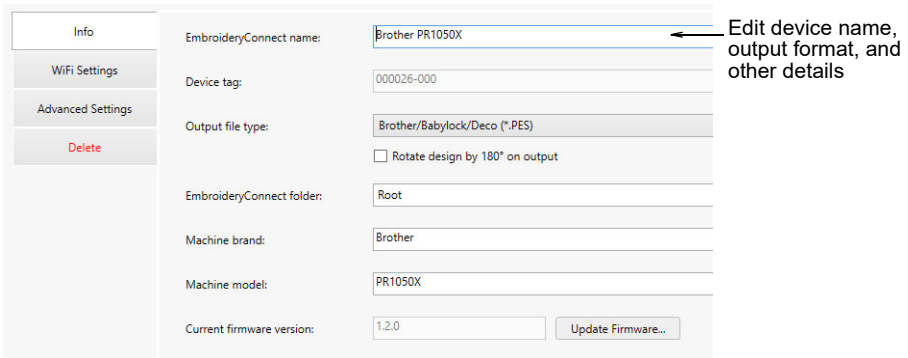
Managing EmbroideryConnect device settings

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

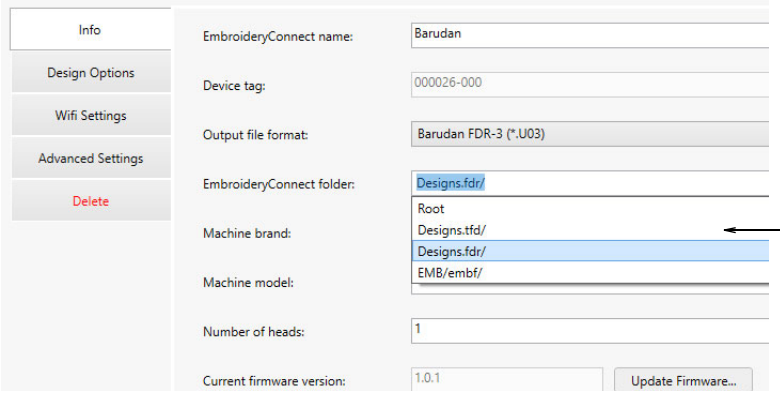
Use the **Info** tab to modify details provided during the setup procedure. Here you can change device name, output file type, and other details...



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.

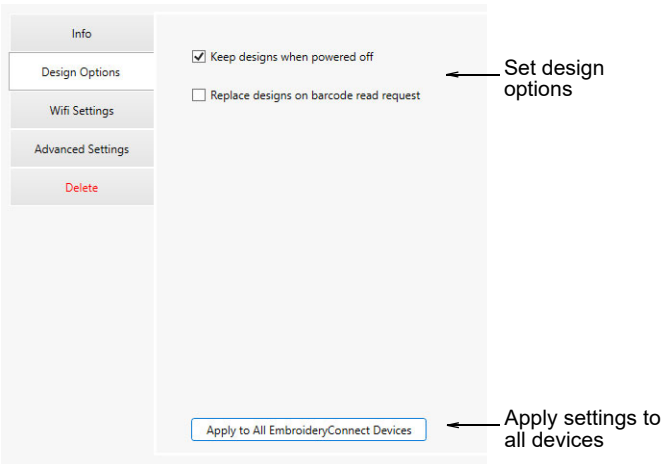
Configure sub-folders

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…



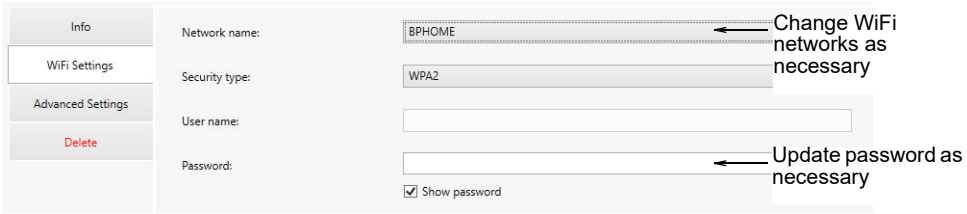
Design options can be modified as preferred for this EC device…

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.

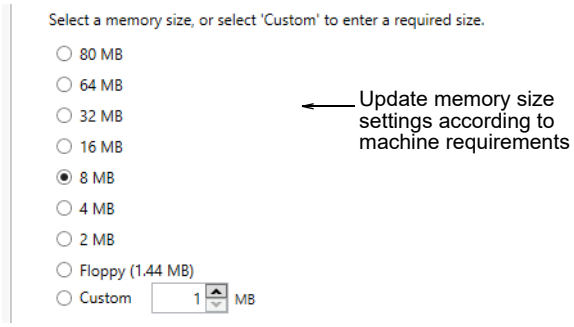


Occasionally you may also want to change WiFi networks. Make sure any new network is correctly configured and the computer running EmbroideryHub is connected.

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.

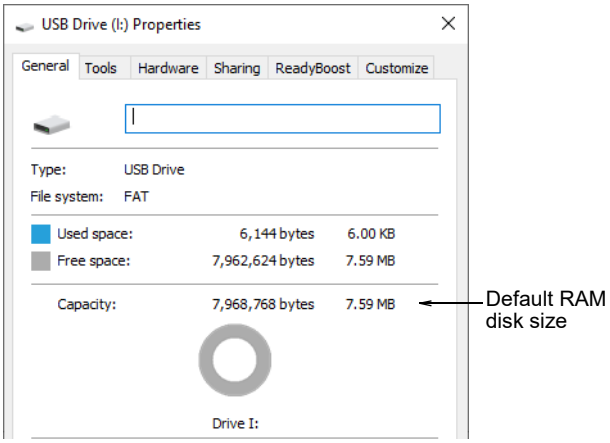
Reconfigure EmbroideryConnect memory size

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.

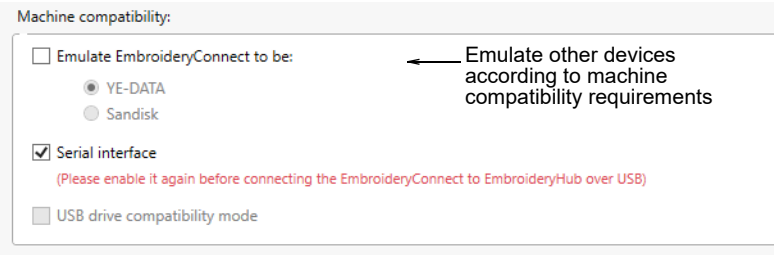


Tweak machine compatibility

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.

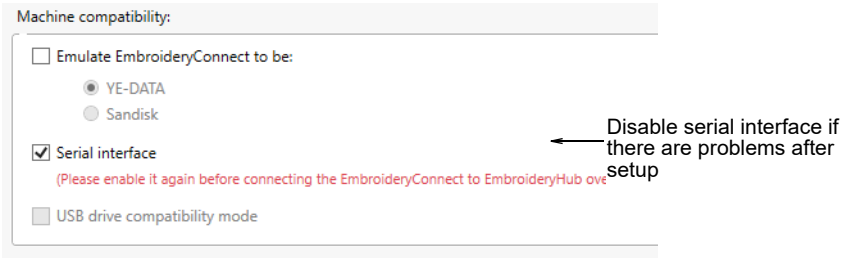
Emulating other devices

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.

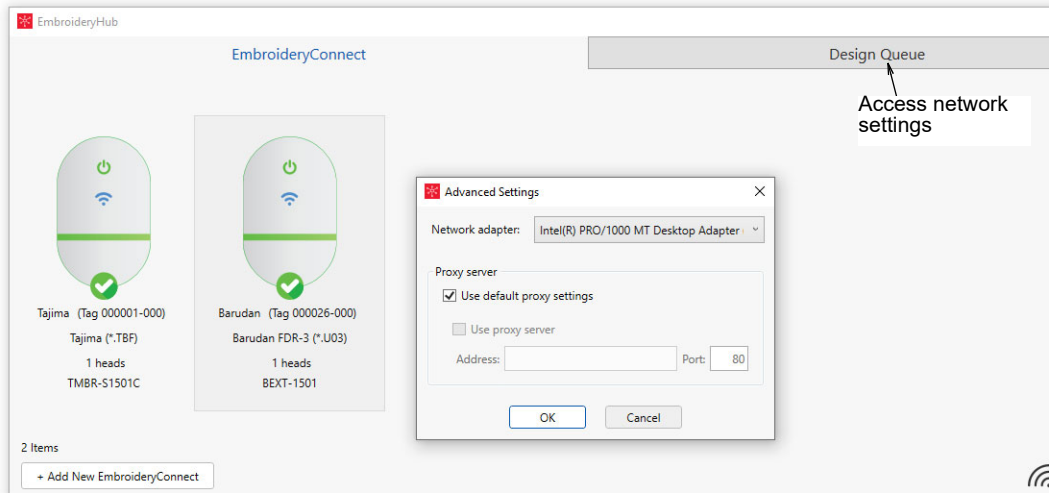
USB drive compatibility mode

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

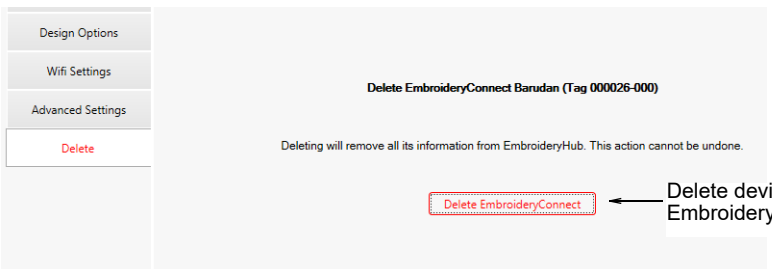
The network adapter should be left on default most of the time. It's only needed when there are multiple adapters connected to two different networks **and** there are device connectivity issues. If you have two adapters and find that the devices consistently switch from 'Connected' to 'Disconnected', 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

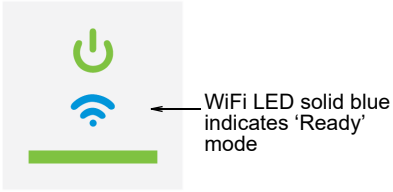
Access the **Delete** tab to remove a selected EC device from EmbroideryHub. This can also be done from the main window.



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.

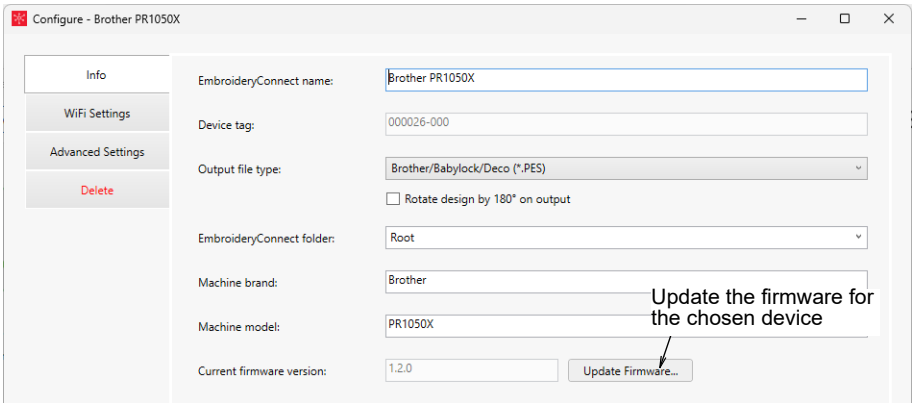
Update the firmware

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.

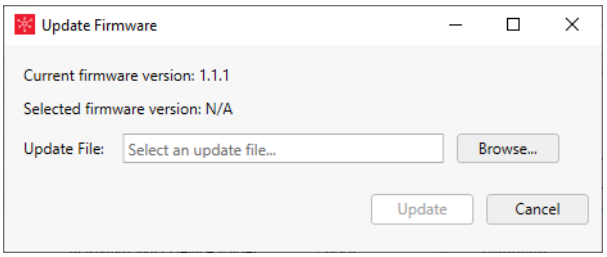
Caution: When updating firmware on your machine, make sure to unplug the EC device. This mainly applies to machines with twin USB ports.

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.

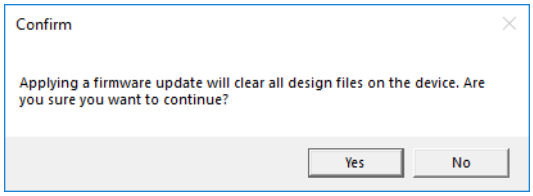


3 On the **Info** tab, click the **Update Firmware** button to access the dialog.

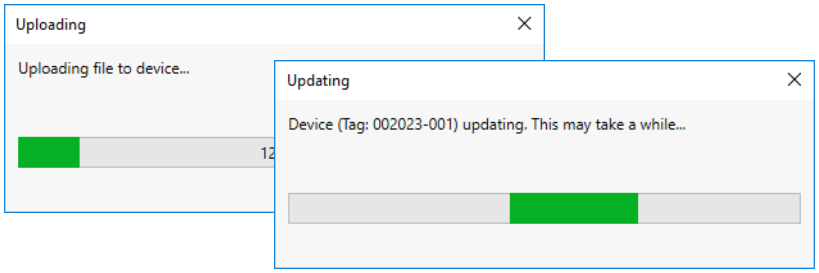


4 Click the **Browse** button and locate the firmware update file in the save location.

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.

Glossary

Connection Manager: A software feature to allow the sending of files to shared folders.

Control panel: The panel on an embroidery machine by which the operator sets up the machine for embroidery production.

Design file: Design files, also known as 'outline' or 'condensed' files, are high-level formats which contain object outlines, object properties and stitch data. Examples include CND, GNC, INP and PCH. When you open an outline file in BE EmbroideryStudio, corresponding stitch types, input methods and effects are applied. Outline files can be scaled, transformed and reshaped without affecting stitch density or quality.

EmbroideryConnect WiFi device: Wilcom-supplied device to enable connection of USB-enabled embroidery machines to an EmbroideryConnect machine network via a WiFi router.

LAN: Local Area Network – a wired network of interconnected PCs and other network enabled devices such as printers.

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.

Network file server: A PC on a network which is used to serve files up for use by other PCs on the network.

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.

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.

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.