



ZEBRA PRINTER CONFIGURATION

Faction Four Systems Inc.

Applies to Smart Squad 2.8 and 2.9 · Zebra ZQ510 and ZQ520 · Revised October 2026

Setting up a Zebra ZQ series mobile printer for Smart Squad — configuring the printer itself, loading the fonts our templates need, and connecting it from iOS, Android or Windows. The vehicle cradle is covered at the end.

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Screenshots in this guide were captured on an earlier version. The steps are current for 2.8 and 2.9; the screens will look different.

BEFORE YOU START

- A **Zebra printer with Bluetooth**, a USB cable, and a charged battery.
- **Zebra Setup Utilities (ZSU)** with the ZebraDesigner driver, installed from Zebra's support and downloads site. Run ZSU as an administrator — several steps fail quietly without it.
- Administrator rights on the computer, and the COM port number your agency standardises on (see setting the COM port).

Keep the ZPL driver selected throughout. Every step assumes **ZDesigner ZQ520 (ZPL)** or the equivalent for your model. Changing driver part way through leaves a printer that configures cleanly and then prints nothing usable.

1 • CONFIGURE THE PRINTER

1 Connect the printer and open ZSU

Connect the printer by USB. Right-click Zebra Setup Utilities and choose **Run as Administrator**.

Select the correct driver for your printer — for a ZQ520, **ZDesigner ZQ520 (ZPL) USB001** — then **Configure Printer Settings**.

2 Confirm the computer can talk to the printer

Check the firmware version is shown. If it is, the two are communicating and you can cancel out of the screen.

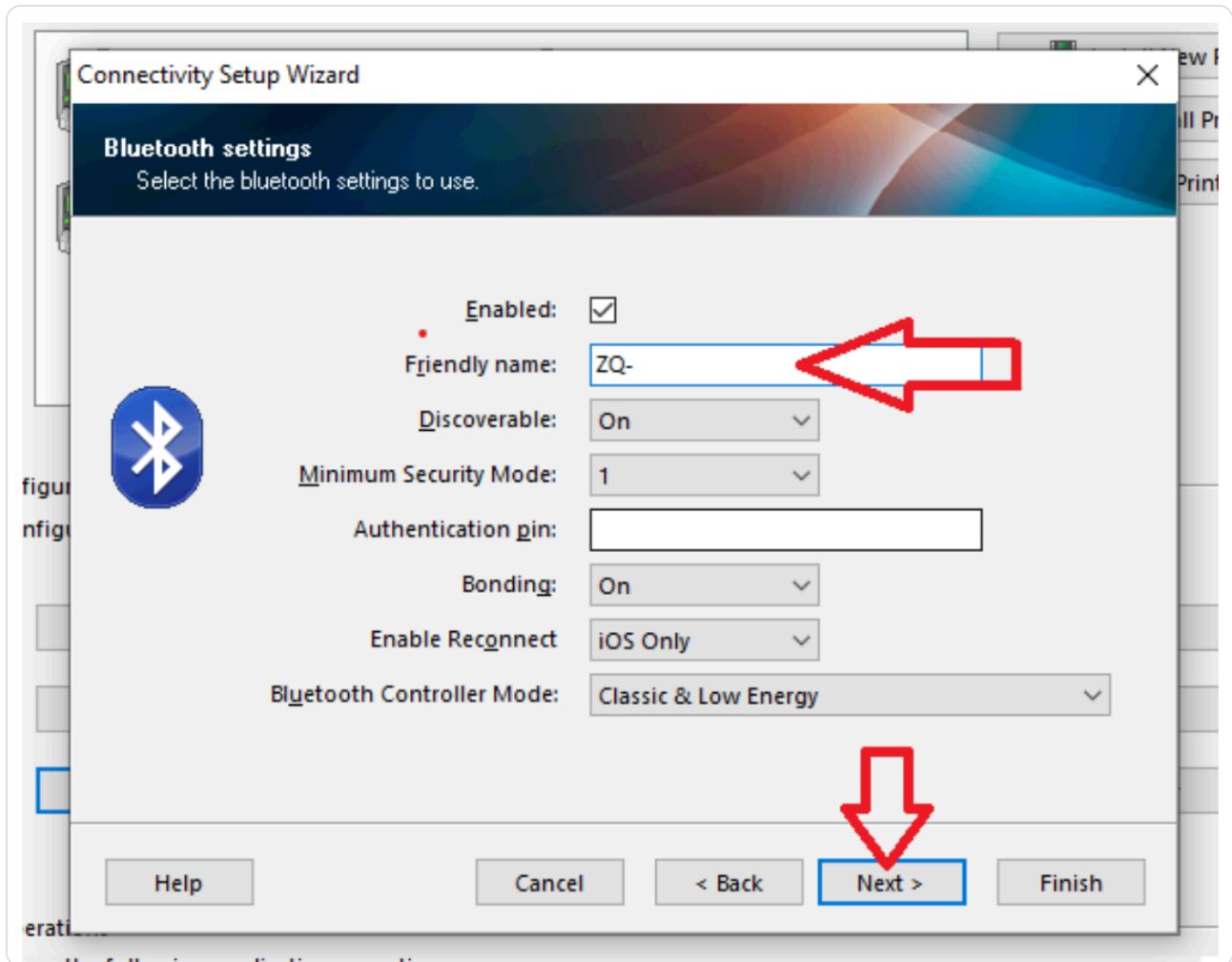
If it is blank, the driver is not installed correctly — go to installing the printer driver, then come back here.

3

Set up Bluetooth

Choose **Configure Printer Connectivity**, select **Bluetooth**, then **Next**.

Give the printer a **Friendly name** that **starts with** **ZQ-**. The rest is yours to choose. Put the same name on a physical label — a shelf of identical printers is almost impossible to tell apart in a connect list.



Select **Finish**. The printer restarts — wait for it to come back on before continuing.

4

Put the printer into ZPL mode

From the ZSU main screen choose **Open Communication with Printer**, paste in both commands and select **Send to Printer**:

```
! U1 setvar "device.languages" "zpl"
```

```
~jc^xa^jus^xz
```

Close the window. You do not need to save the command file.

5 Set the reconnect and power timeouts

Open a new communication window and send:

```
! U1 setvar "bluetooth.enable_reconnect" "iOS_only"
```

```
! U1 setvar "power.sleep.timeout" "XX"
```

```
! U1 setvar "power.inactivity_timeout" "XX"
```

```
! U1 setvar "display.backlight_on_time" "XX"
```

Replace **XX** with a number of seconds. These are a direct trade against battery life — the longer the printer stays awake, the shorter the shift it will last. Pick values that suit how your officers actually work and keep them consistent across the fleet.

2 • LOAD THE FONTS

Our print templates reference four Arial fonts by name. A printer without them will connect and print, but the ticket will come out wrong — so do not skip this.

1 Open the font download tool

From the ZSU main screen choose **Download Fonts and Graphics**, then **New**. Name the file and save it anywhere convenient on the computer.

2 Set the card size

Open the **Card Size** dropdown, choose **32768**, and select **OK**.

3 Add each font in turn

Select **Fonts**, then **Add**. Choose **Download all characters** and **OK**. Pick the font, select it, then work through **OK**, **I Agree** and **Yes**.

Repeat for all four:

- Arial
- Arial Bold
- Arial Bold Italic
- Arial Italic

Using a mobile device only? You are finished here. Connect to the printer from the device as below — there is no need for the Windows sections.

3 • CONNECT FROM A MOBILE DEVICE

iOS

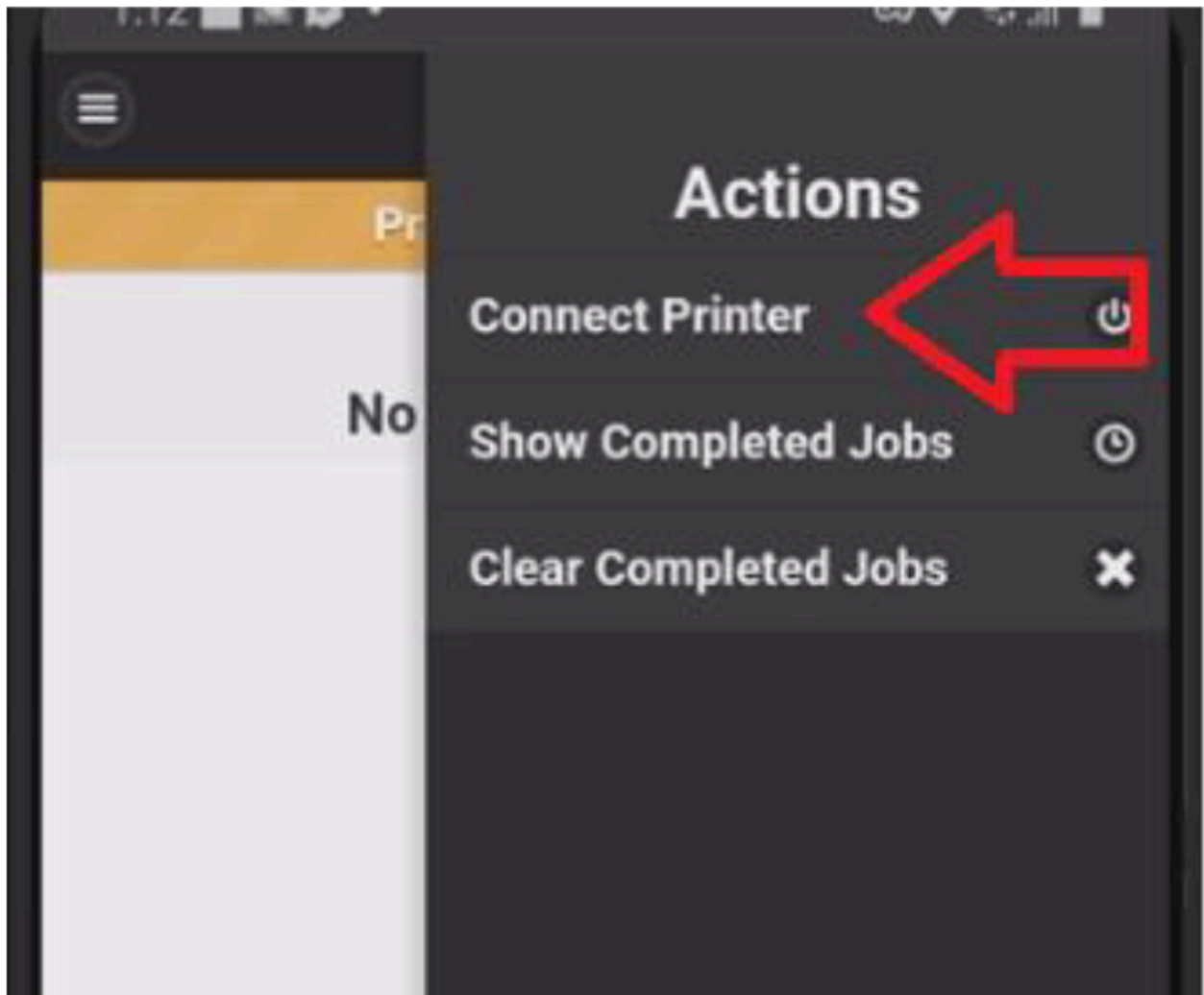
Open **Settings** > **Bluetooth**, find the printer and select it. When it connects, the Bluetooth symbol appears on the left of the printer's LCD screen. Smart Squad picks it up from there.

If printing stops later, use **Reconnect iOS Printer** on the Print Jobs action menu before re-pairing anything.

Android

1 Open Print Jobs and choose Connect

In Smart Squad, select the printer icon from the main menu, open the action menu in the top right, and choose **Connect Printer**.

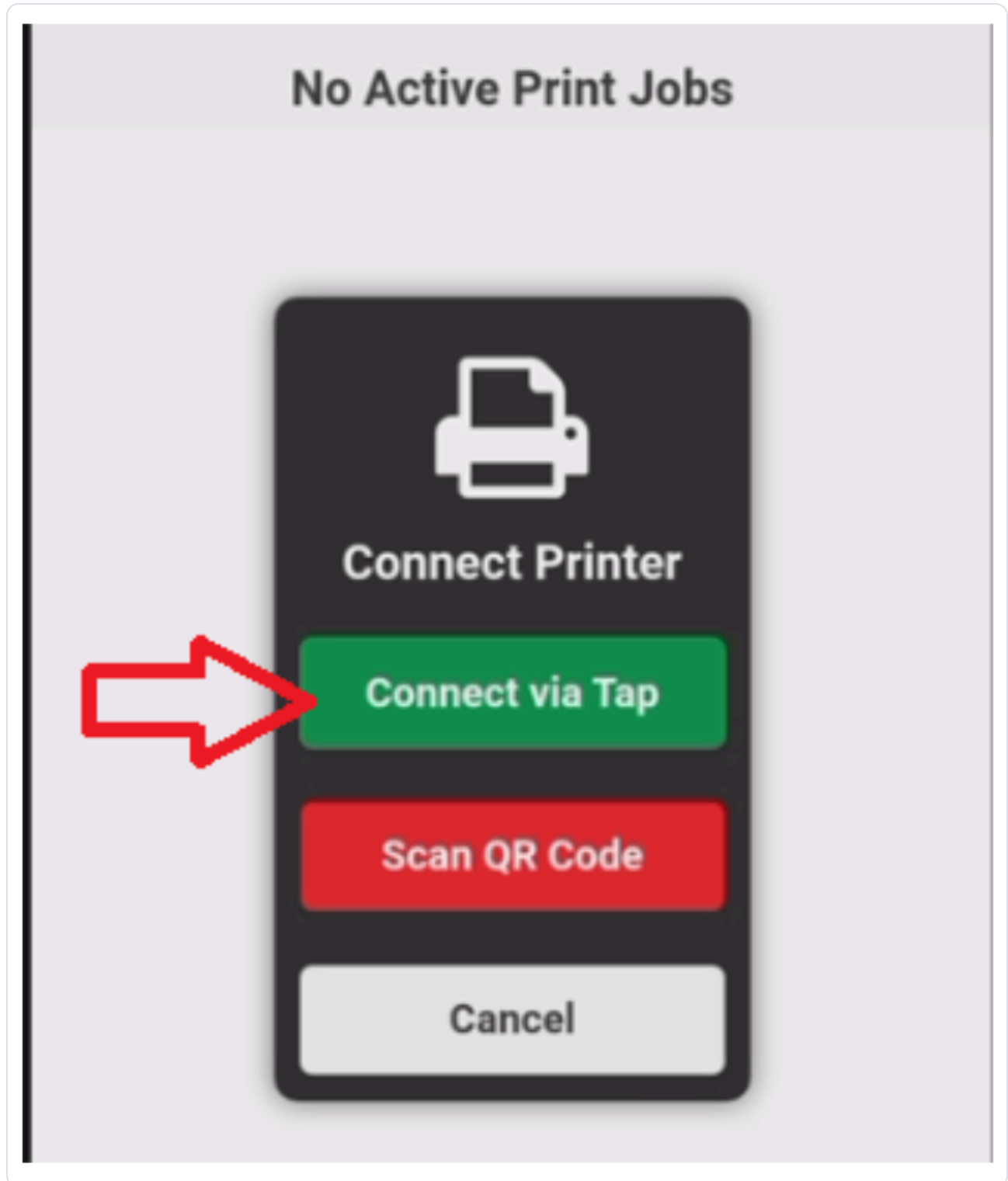


The current menu carries more than it did when this was captured — Select Size, Pause, Resume and Reconnect iOS Printer sit alongside the items shown.

2

Tap, or scan

Two options appear.



Connect via Tap is the quicker one: hold the back of the phone against the left side of the printer. Nothing to prepare, nothing to label.

Scan QR Code reads a code attached to the printer, carrying the Bluetooth address printed on the printer's base. If your printers have no QR labels yet, see making a QR

code label below.

Making a QR code label

One label per printer, made once. Worth doing even where officers normally tap — it is the fallback when a device's NFC is switched off or unavailable.

1 Read the Bluetooth address off the printer

On a Zebra ZQ printer it is printed on the label on the base of the unit. It is six pairs of hexadecimal characters separated by colons, like `AC:3F:A4:12:9B:7E`.

2 Generate a QR code containing exactly that address

Any QR code generator will do — what matters is the content, not the tool. Enter the address **exactly as printed, with the colons**, in upper case. Nothing else: no printer name, no label text, no web address.

The address is printed on the outside of the hardware, so it is not a secret. If your agency restricts the use of external web tools, an offline generator produces an identical result.

3 Print it and fix it to the printer

Put the printer's `ZQ-` friendly name on the same label while you are there, so the physical printer and the entry in the connect list can be matched up.

4 Test it

Scan the new label with `Scan QR Code` before the printer goes out. A mistyped label looks exactly like a working one until someone needs it on the street.

If a scan does nothing, check the code's content first. Smart Squad reads the scanned value as the Bluetooth address, splitting at a `|` character if there is one and ignoring anything after it. A code containing a URL, a device name or extra text will scan successfully and then fail to connect, which looks like a printer fault rather than a label fault.

The device stays bonded to that printer until you choose "forget device" in its Bluetooth settings. If an officer needs to move to a different printer, that is the step people miss.

4 · CONNECT FROM A WINDOWS DEVICE OVER BLUETOOTH

1 Pair the printer and find its COM port

With the printer connected by USB, open **Bluetooth and other device settings**, choose **Add Bluetooth or other devices** and select the Zebra printer.

Scroll to the bottom and choose **More Bluetooth options**, then the **COM Ports** tab. Note the port marked **Outgoing** against your printer.

2 Standardise the COM port

Open **Device Manager**, expand **Ports**, right-click the port you noted and choose **Properties**. If you are not signed in as an administrator, choose **Change settings** and authenticate.

Go to **Port Settings** > **Advanced** and set the **COM Port Number**.

Pick one port number and use it on every computer in the agency. Printers are shared between vehicles and shifts, and a per-machine port number means a printer that works on one laptop and not the next, for no visible reason.

3 Install the printer driver

From the ZSU main screen choose **Install New Printer**, **Next**, then **Install Printer**.

Type **ZQ520**, select **ZDesigner ZQ520 (ZPL)**, choose **Add new printer** and continue.

When asked for a port, select the COM port from the previous step. If you came here because the firmware version was blank, select **USB001** instead, then go back and finish configuring the printer.

Select **Finish**.

5 · THE VEHICLE CRADLE

For a ZQ500 series cradle wired into a vehicle, rather than a Bluetooth connection.

1 Download the FTDI virtual COM port driver

Get the FTDI VCP driver for your version of Windows and extract it to a folder on the computer.

2

Set the printer's cradle communication

Connect the printer by USB, open ZSU as administrator and choose **Open Communication with Printer** . Send:

```
! U1 setvar "cradle.comm.baud" "115200"
```

```
! U1 setvar "cradle.comm.handshake" "rts/cts"
```

```
! U1 getvar "cradle"
```

The results appear in the lower window. Close the window, exit ZSU and unplug the USB cable. In **Devices and Printers** , right-click the ZDesigner driver for the printer and choose **Remove device** .

3

Install the cradle's driver

With the cradle powered, plug the USB cable into its micro-USB port. In **Devices and Printers** , find the ZQ500 Cradle under **Unspecified** , open its properties, and install or update the driver for both the **USB Serial Converter** and the **USB Serial Port** from the folder you extracted. Note the new COM port number.

4

Install a printer against the cradle port

With the printer on, run ZSU. If the System Prepare Wizard appears, choose **other computer ports** , **Next** , then **Install Printer** ; otherwise choose **Install Printer** from the main window. Install the **CPCL** ZDesigner driver for your model.

Select the virtual COM port the FTDI driver created, and rename the printer so it is obvious this entry is the cradle. Uncheck any extra install options and select **Finish** .

5

Set the cradle printer's properties

In **Devices and Printers** , right-click the new entry and choose **Printer properties** :

- **Preferences** → Width: **4.00** inches for a ZQ520, **3.00** for a ZQ510.
- **Advanced** → Paper type: **Journal** .
- **Ports** → Bits per second **115200** , Flow control **Hardware** .
- **Advanced** → **Printing Defaults** → set Width again to **4.00** or **3.00** , and Paper type to **Journal** .

The width and paper type have to be set in *both* Preferences and Printing Defaults. Setting only one is the usual reason a cradle prints at the wrong width afterwards.

6

Test it

Open WordPad, type five spaces followed by **TESTING 12345 ZQ500 Cradle Test** , and print. The printer should print the line and feed a little over two inches.

This works with continuous (journal), bar (mark) or gap (web) media loaded.

UPDATING THE PRINTER FIRMWARE

Do not interrupt a firmware update. If the transfer is interrupted part way through it will destroy the printer's motherboard. Before you start: confirm there is paper in the printer, the battery is charged, and nothing is going to unplug the cable.

1 Download the firmware

Find your model on Zebra's support and downloads site and download the current firmware. A free Zebra account is required. Unzip the file — you are looking for a `.zpl` file.

2 Send it to the printer

In ZSU select the printer, choose **Open Printer Tools**, then the **Action** tab and **Send File**. Browse to the `.zpl` file.

3 Send, and wait

Select **Send**. **It will appear that nothing is happening.** Do not disconnect the printer. Leave it alone until it prints out the firmware update confirmation — that printout is how you know it has finished.

DAY TO DAY

Restart the printer at the start of each shift. Power it off, take the battery out, put it back and turn it on. Left on for long periods these printers are known to stall mid-job.

If one stalls on the street, do the same thing — power off, battery out, battery in, power on — then select the citation or form in Smart Squad and print it again.

STILL STUCK

Raise it with Faction Four support. Tell us the model, the platform, and whether the printer shows a Bluetooth symbol on its LCD — that separates a pairing problem from an application one straight away.