Zebra®

Wireless Configuration for 802.11n and Bluetooth Radios for

Link-OS Mobile Printers

Quick Start Guide

ZEBRA
TECHNOLOGIES

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Introduction

Applicable Printers

The following procedures apply only to Link-OS printers, including QLn220, QLn320, QLn420, iMZ220, and iMZ320.

Utilities Needed

Before you start to configure your printer for use on a Local Area Network (LAN), you will need some basic information which will enable you to establish the network configuration for your printer.

Zebra Setup Utilities provides a quick and easy way to configure your printers for a variety of purposes, including setting them up for wireless communications either on a Local Area Network (LAN) or using the international Bluetooth™ communications standard. The necessary steps for setting up and configuring your printer using Zebra Setup Utilities are contained in this guide.

To download Zebra Setup Utilities to your computer, go to www.zebra.com/setup

Equipment Needed
- Printer
- PC or laptop
- USB Cable
- Zebra Setup Utilities installed

Fig. 1: USB Cable Connections

QLn320 Printer
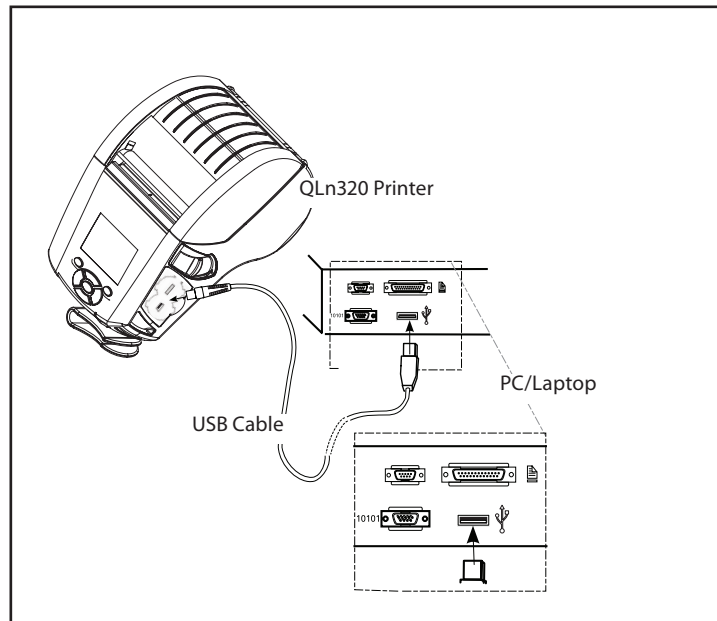
PC/Laptop

USB Cable

Connecting to the Wireless Network

• Double click the Zebra Setup Utilities icon [Zebra Setup Utilities] on your desktop to open.

• Connect a USB cable to both the printer and the PC or laptop (as shown in Fig. 1).

• On the first ZSU screen, highlight the installed printer displayed in the window and click on Configure Printer Connectivity where shown.
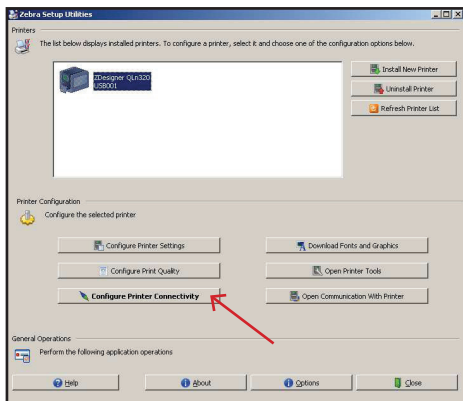
• Select "Wireless" on the Connectivity Type screen and click on the Next button.
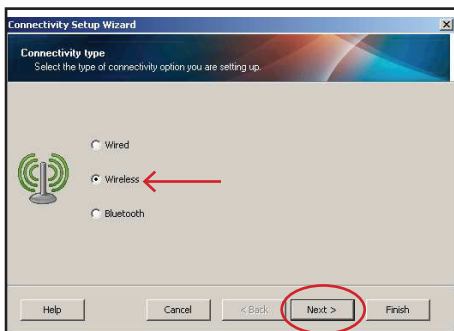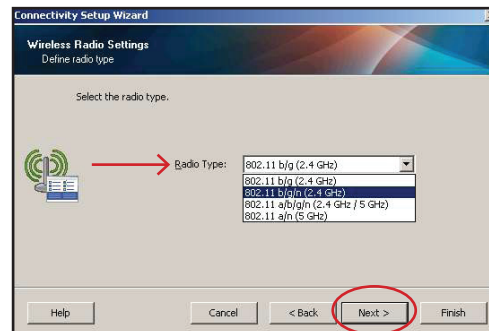

• Select "DHCP" on the IP Address screen and click on the Next button to proceed. (If "Static" is selected, you must enter the IP address manually.)
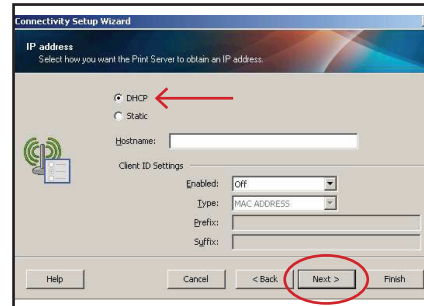
Selecting Wireless Radio Type and Security Settings

• Select Radio Type from dropdown menu, i.e. 802.11 a/b/g/n and click on the Next button.

Note: If you choose 802.11b/g/n or b/g, you will be limited to 2.4GHz band. If you choose 802.11a/n, you will be limited to 5GHz band. If you choose 802.11a/b/g/n, you will have access to both 2.4GHz and 5GHz bands.

- Select the WLAN country in which your device is operating from the dropdown menu. You also have the option to manually enter a channel or range of channels in the Channel List box (shown below.)

Enter the ESSID number in the appropriate field on the Wireless Settings window. (If ESSID is unknown, consult your local network administrator.)

- Enter Security Mode from the choices in the dropdown menu (e.g. WPA-EAP-TLS/WPA2-EAP-TLS). Other available securities include: WEP 40-bit, WEP 128-bit, EAP-TLS, EAP-TTLS, EAP-FAST, PEAP, LEAP, WPA-PSK/WPA2-PSK, WPA-EAP TTLS/WPA2-EAP-TTLS, WPA-EAP-FAST/WPA2-EAP-FAST.


- Click Next button.

- Enter Optional Private Key Password (if applicable) where shown.
- Click on Certificates button (circled) to bring up the Certificates window.

- Click on the folder icons (circled) next to each entry field to upload appropriate certificates, e.g. root, client, private key, etc.
- Click OK to return to the Security Settings window and click Next to get to the Advanced Wireless Settings window.
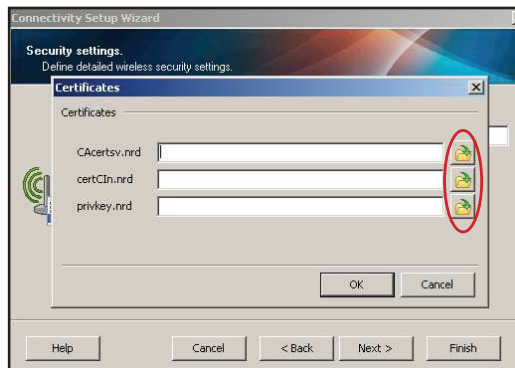
- If your private key is encrypted, you must enter a passphrase to decrypt it as shown below. If your private key is not encrypted, leave this field blank.

## Setting Printer Connectivity without Certificates

Follow the previously described steps until you get to the Wireless Settings screen.

• Enter ESSID as previously instructed.

• When selecting a Security Mode from the dropdown menu that doesn't require certificates (e.g. WPA-PEAP as shown), the Security Username and Security Password fields will become active.

• Obtain a Security Username and Security Password from your network administrator and enter in the appropriate field where shown.


• Click Next to proceed to the Advanced Wireless Settings window and follow the remaining steps outlined above.

• The Final Stream window displays the applicable Set/Get/Do commands based on your previous selections.

• Click Next to proceed to the Send Data screen.
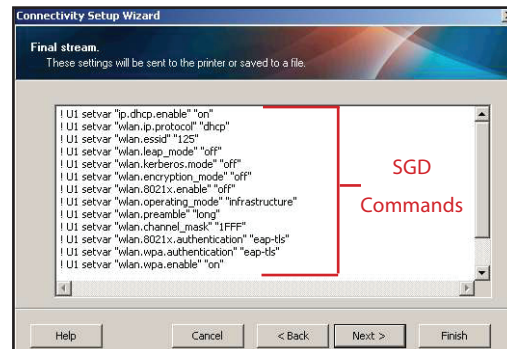
SGD Commands

• Click on Printer to send connectivity configuration commands to the printer. Otherwise, click on File to save the commands on your computer.

• Click Finish and the printer will update and reboot.
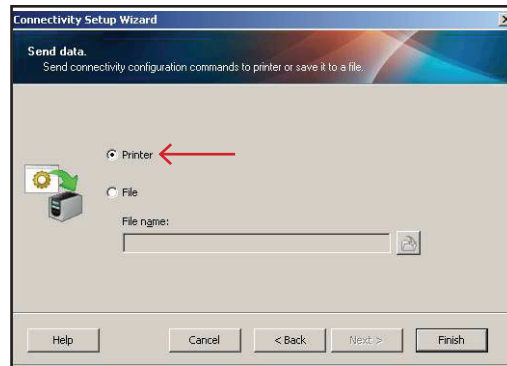
Connectivity Setup via Bluetooth

- Double click the Zebra Setup Utilities icon [icon] on your desktop to open.
- Connect a USB cable to both the printer and the PC or laptop (as shown in Fig. 1).
- On the first ZSU screen, highlight the installed printer displayed in the window and click on Configure Printer Connectivity where shown.
- Select "Bluetooth" on the Connectivity Type screen and click on the Next button.
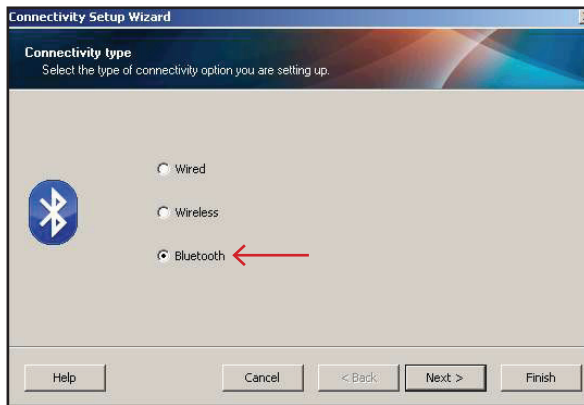
- On the Bluetooth Settings screen, check "Enabled" to enable Bluetooth functionality.
- In the Friendly Name text field, set the Bluetooth name of the device. This appears during inquiry (discovering Bluetooth devices) and the master device will label the device with this name.
- Set Discoverable to "On" or "Off" to set whether the device will appear in Bluetooth discovery run on another device.
- Set Authentication to "On". (This setting does not exist in Link-OS, but you need to turn it on if you want to enter a PIN in ZSU. Acutal authentication setting on the printer is handled in Security Mode in Advanced Settings menu.)

- After setting Authentication to "On", the following should be entered in Authentication PIN text field:

    1) If master device is BT 2.0 or older: This is the PIN that will need to be entered on the master device to security pair with the printer. Security Mode 2 or 3 in Advanced Settings should also be selected for PIN pairing.

    2) If master device is BT 2.1 or newer: This setting has no effect. Secure Simple Pairing does not use a static PIN.
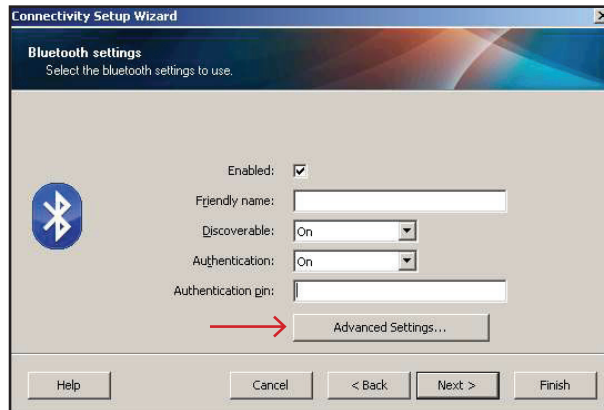
Advanced Bluetooth Settings

- Click on Advanced Settings button on the Bluetooth Settings screen where shown above to navigate to the Advanced Bluetooth Settings window.
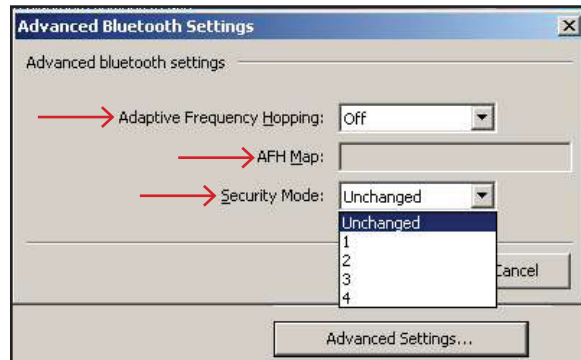
- In the Advanced Bluetooth Settings window, set Adaptive Frequency Hopping to "Off". This is not part of Link-OS since AFH is now done automatically. This also holds true for the AFH Map text field.
- Security Mode sets the minimum security mode at which the printer will connect. The master actually dictates the security mode and the printer will agree to connect at a higher security. Security Mode numbers are as follows:

  A) If master device is BT 2.0 or older:
  - Security Mode 1: Unencrypted (no PIN necessary, although not harmful if set)
  - Security Mode 2: Profile-level encryption (requires PIN, all user data is encrypted, Bluetooth setup/management commands are not)
  - Security Mode 3: Link-level encryption (requires PIN, user data and Bluetooth management commands are encrypted)
  - Security Mode 4: N/A (printer will not connect to BT 2.0 master if this is set)

  B) If master device is BT 2.1 or newer:
  - Secure Simple Pairing (mode 4) will always be used if both devices are BT 2.1 or newer (which is the case with Link-OS printers). Select "Unchanged" in the Security Mode dropdown if both devices are BT 2.1 or newer. If the user wants to connect to both BT 2.0 and 2.1 devices, they should follow the BT 2.0 instructions above.

- Click OK to return to the Bluetooth Settings window and then click Next.
- The SGD's that will be sent to the printer or saved to a file will be presented in the Final Stream window.
- Click Next to proceed to the Send Data screen.
- Click on Printer to send connectivity configuration commands to the printer. Otherwise, click on File to save the commands on your computer.
- Click Finish and the printer will update and reboot.

Once the printer reboots, SGD's that are not available in the Final Stream window (like the following two examples) can be added to the settings list by following the steps in the Enabling/Disabling Power Save Mode section below.

- `! U1 setvar "bluetooth.bonding" "on"/"off"` (default to "On"). This enables or disables Bluetooth bonding which allows the printer to cache the connection link key so users do not have to go through the pairing process (e.g. numeric comparison for BT 2.1) every time a connection is estab-lished. Users will generally want to leave this on.
- `! U1 do "bluetooth.clear_bonding_cache" ""` This clears the Bluetooth bonding cache, equivalent to unpairing/"forget this device" on the master.

Enabling/Disabling Power Save Mode

This parameter refers to the power save modes which affect power consumption of the network radio card in the printer. Power Save in the 802.11n radio can ei-ther be set to "on" or "off" with a default value of "on".

Checking Current Power Save Mode

- Open Zebra Setup Utilities and click on the Open Communica-tion with Printer button (where shown).
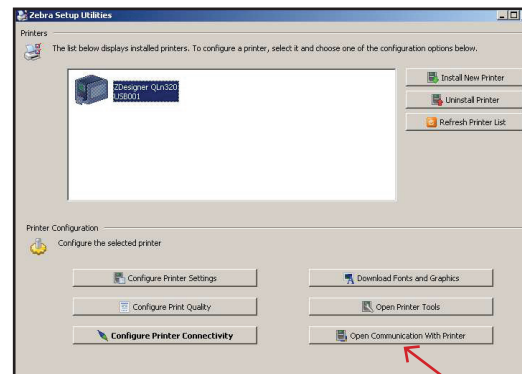
- This will open the Direct Communications dialogue box which allows the user to input setvar and getvar commands to the printer.

- In the top window of the Direct Communications dialogue box, type the below command followed by a space:
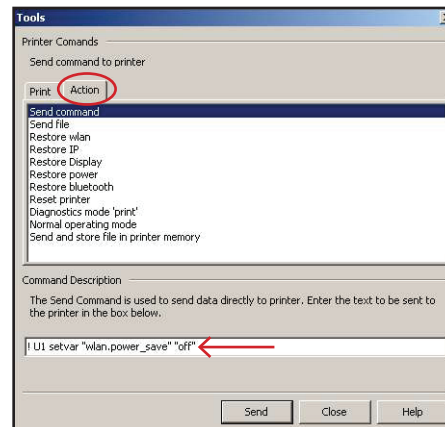
      ! U1 getvar "wlan.power _ save"

- Click on the Send To Printer button (circled) and the resulting data received from the printer (i.e. ON or OFF) will appear in the bottom window (as shown).

Getvar

Result
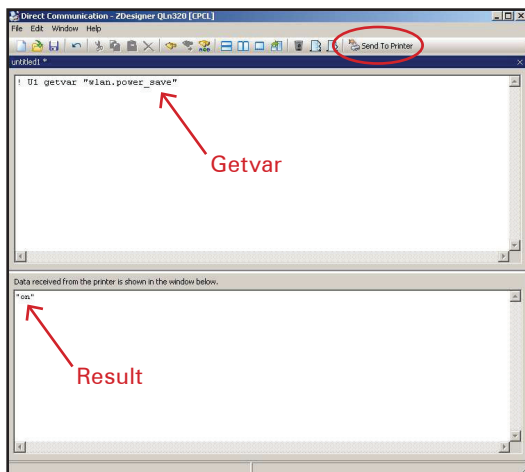
Disabling Power Save Mode (Option 1)

- Click on Open Printer Tools button located on Zebra Setup Utilities home screen.
- Click on the Action tab (circled) in the Tools window and highlight Send Command (as shown).

- In the Command Description box, type the following setvar command followed by a space:

      ! U1 setvar "wlan.power _ save" "off"

- Click on the Send button to transmit the command data to the printer.
- To validate that Power Save was disabled, follow the steps detailed in Checking Current Power Save Mode on Page 6.

Disabling Power Save Mode (Option 2)

- Open the Direct Communications dialogue box as described previously.
- In the top window, type the following setvar command followed by a space:

      ! U1 setvar "wlan.power _ save" "off"

- Click on Send To Printer button and the resulting data (i.e. OFF) will appear in the bottom window.

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