Section 5 - Windows Printer Driver
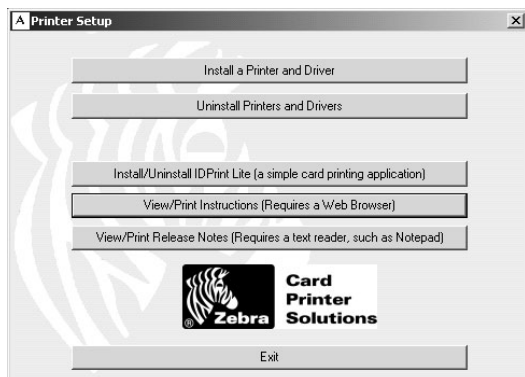
Installing the driver

This section outlines the four ways of installing the P620 driver: 1) Loading from a CD; 2) Loading from the Web; 3) Using the "Add a printer" procedure, and; 4) Using the "New Hardware Found Wizard" procedure.

> ***Note***: *If you have a direct parallel connection between the printer and your computer, you must make sure your computer is set to ECP mode **before** installing the driver. To do this you need to check the computer's BIOS. For help, refer to your computer manual or consult your technician. You do **not** need to select ECP mode if you are connecting to a **network** through an External Ethernet Converter, page 5-9.*

Loading the driver from a CD

1 Place the provided printer driver CD in the CD-ROM drive. The screen below appears.

This is the main Printer Setup page. From here you can install or uninstall the print driver on your computer. Additionally, you can install IDPrint Lite, a simple card printing application for functional testing. The two View/Print buttons provide information for the technician.

2 Click **Install a Printer and Driver**.

3 Unless you are conecting to a network through an External Ethernet Converter, select **Parallel Port**, then click **Next**. For instructions on the Ethernet Converter, see page 5-9. *Note: USB is not available on the P620.*
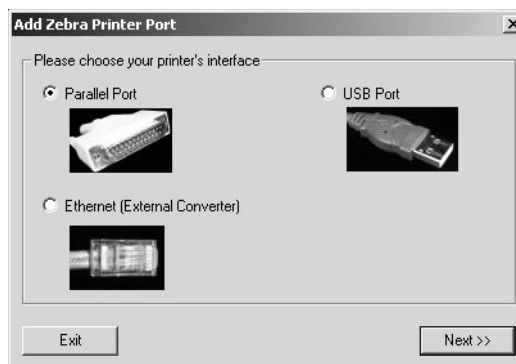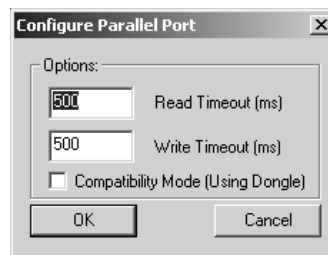

The default port that appears in the next screen, "Zebra Enhanced LPT1" is the recommended port for single printer (non-network) installations.

IMPORTANT   **Zebra Enhanced LPT1** is called **PHID1** in the Add Printer Wizard
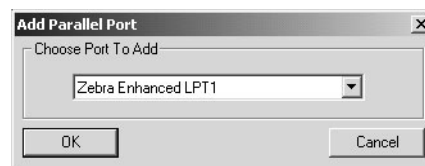
4 Click **OK** to accept this port.

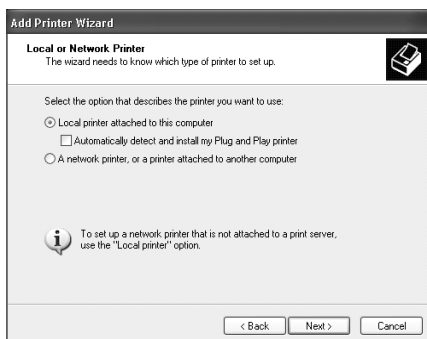**5** Click **OK** to accept. The next screen reminds you have installed PHID1, the alias for "Zebra Enhanced LPT1".

6 Click **OK** to accept.

From this point the Add Printer Wizard will complete the installation semi-automatically.
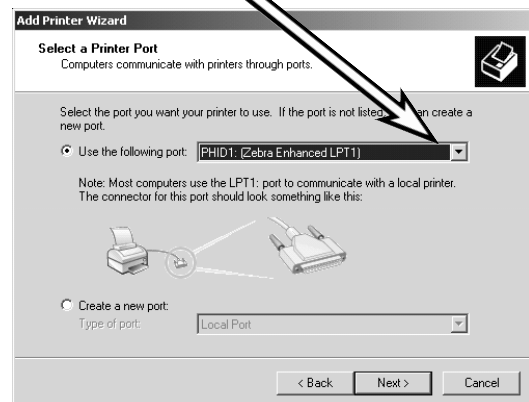
7 Click **Next**.

8 On the next screen select the default, **Local printer**, with the "Auto Plug and Play" box unchecked, then click **Next**.

"Local printer" is the default selection. Click **Next**.

9 On this screen click on the drop down arrow to view the options.

10 Select **PHID1** then click **Next**.

This screen warns that installation of the driver software may destabilize your system. The P620 driver software has been exhaustively tested in many installations, and has caused no problems of which Zebra is aware.

11 Click **Continue Anyway** to complete the printer driver installation.
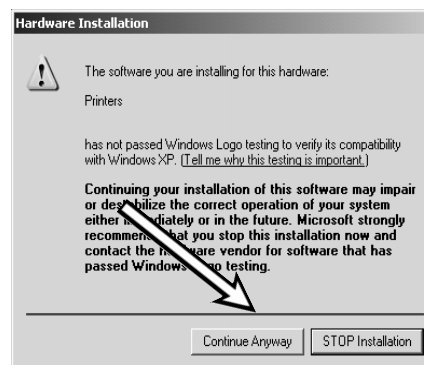
Loading the driver from the Web

To load the P620 printer driver from the Web go to www.atlantek.com.

1 Click on **Support**, then **Downloads**. Choose **Zebra P620**, followed by your computer's **Operating System** (Windows **XP** or **2000** only), and type of connection to the printer (your choices are **Parallel** or **Ethernet** through an external converter).

2 Click **Get Downloads**, then click **Windows 2000/XP ID Printer Parallel Driver**.

3 Click **Download**, then choose somewhere to store the file temporarily (the Desktop is a convenient location).

4 Launch the **Printer Installer** by double clicking the file you just saved.

5 Click **OK** to bring up the WinZip Self-Extractor.

Here you will see where the Self-Extractor plans to store the unzipped (decompressed) driver files. Make a note of this location in case you wish to re-install or uninstall the driver at some future time.

6 Click **Unzip**. The Self-Extractor should then announce that it has successfully unzipped a number of files. Click **OK** to bring up the Printer Setup screen.
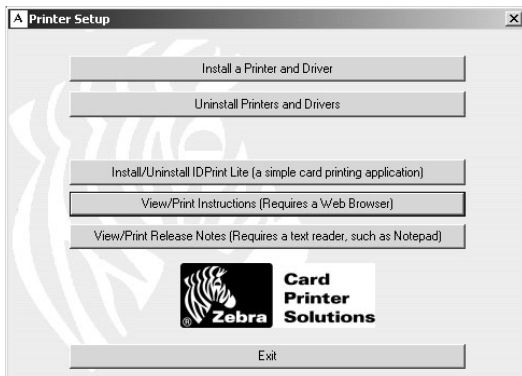
This is the main Printer Setup page. From here you can install or uninstall the print driver on your computer. Additionally, you can install IDPrint Lite, a simple card printing application for functional testing. The two View/Print buttons provide information for the technician.

7 To install the printer driver, click **Install a Printer and Driver**.

8 Unless you are conecting to a network through an External Ethernet Converter, select **Parallel Port**, then click **Next**. For instructions on the Ethernet Converter, see page 5-9. *Note: USB is not available on the P620.*
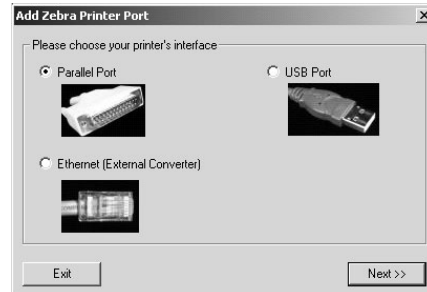
The default port that appears in the next screen, "Zebra Enhanced LPT1" is the recommended port for single printer (non-network) installations.

IMPORTANT **Zebra Enhanced LPT1** is called **PHID1** in the Add Printer Wizard

9 Click **OK** to accept this port.

10 Click **OK** to accept. The next screen reminds you have installed PHID1, the alias for "Zebra Enhanced LPT1".

11 Click **OK** to accept.

From this point the Add Printer Wizard will complete the installation semi-automatically.

12 Click **Next**.

13 On the next screen select the default, **Local printer**, with the "Auto Plug and Play" box unchecked, then click **Next**.
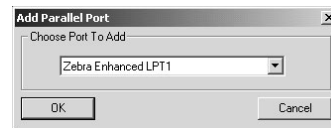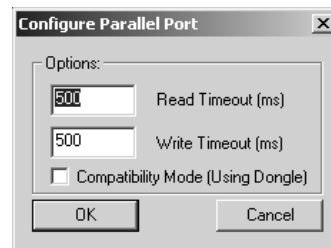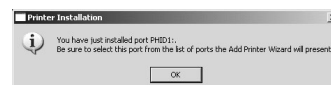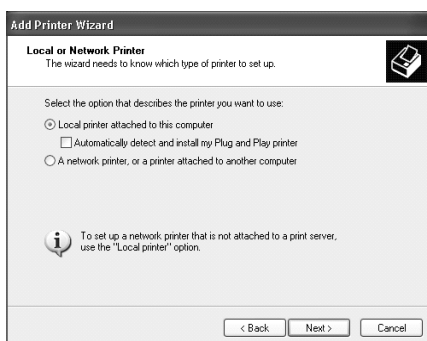

"Local printer" is the default selection.Click **Next**.

14 On this screen click on the drop down arrow to view the options.
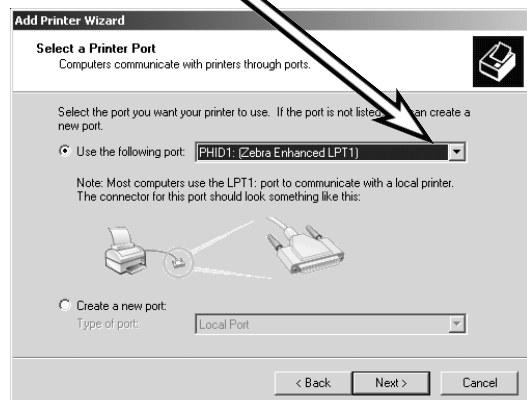
15 Select **PHID1** then click **Next**.

This screen warns that installation of the driver software may destabilize your system. The P620 driver software has been exhaustively tested in many installations, and has caused no problems of which Zebra is aware.

16 Click **Continue Anyway** to complete the printer driver installation.

Loading the driver from "Add a Printer"

1 Go to the Windows **Start** menu and select **Printers** or **Printers and Faxes**, then click **Add a printer**. Click **Next** on the welcome screen.

4 The "Install Printer Software" screen lists all printers for which there are drivers in your Windows operating system.
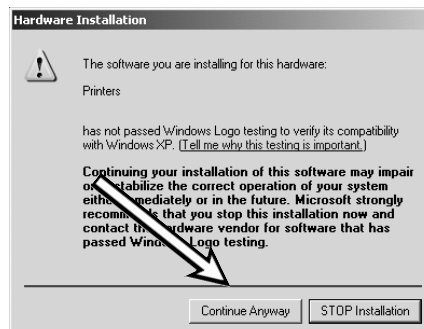
Place the provided Zebra P620 printer driver CD in the CD-ROM drive, Click **Have Disk**, then navigate to the drive and select the file named **AtlPrint.inf**. Open this file to display the following screen in Step 5.

2 Select **Local printer**, then click **Next**.

5 Choose **Zebra Technologies** as the Manufacturer, **Zebra P620** as the printer, then click **Next**.

3 Choose port **LPT1**, then click **Next**.
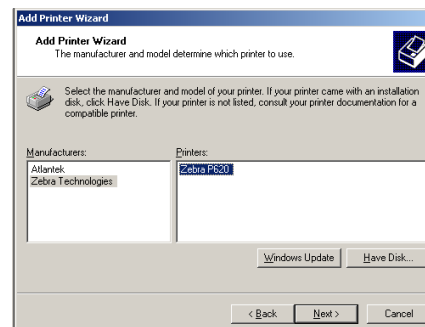
6 Typically, you will not wish to make the Zebra P620 your default printer. Click **Next**.

Name Your Printer
You must assign a name for this printer.

Supply a name for this printer. Some programs do not support server and printer name combinations of more than 31 characters.

Printer name:
Zebra P620

Do you want your Windows-based programs to use this printer as the default printer?
○ Yes
● No

< Back   Next >   Cancel

---

7 Select "Do not share" then click **Next**.

Printer Sharing
You can share this printer with other network users.

Indicate whether you want this printer to be available to other users. If you share this printer, you must provide a share name.

● Do not share this printer
○ Share as:

< Back   Next >   Cancel

---

8 Select **No Test Page**, then click **Next**.

Print Test Page
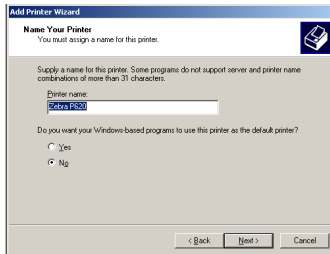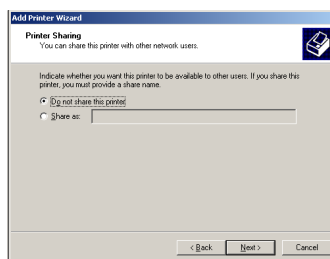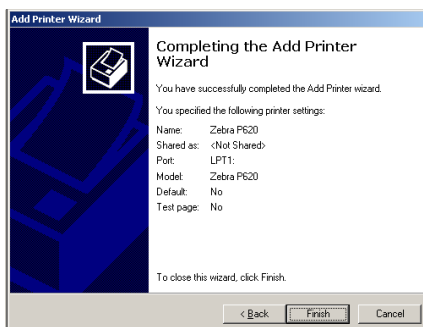To confirm that the printer is installed properly, you can print a test page.

Do you want to print a test page?
○ Yes
● No

< Back   Next >   Cancel
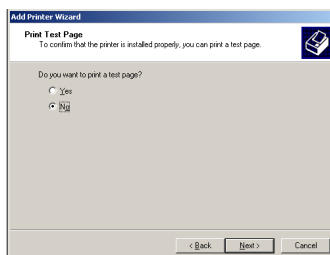
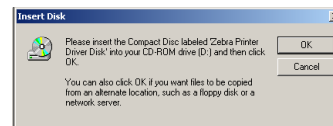
9 The next screen implies that the process is completed, but in fact the driver has not yet been installed. Click **Finish**.
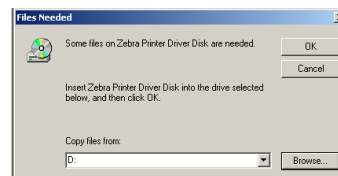
Completing the Add Printer Wizard
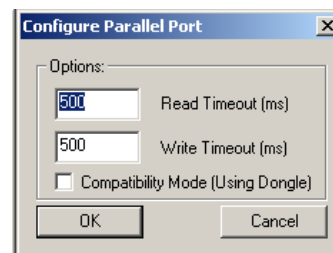You have successfully completed the Add Printer wizard.

You specified the following printer settings:

Name: Zebra P620
Shared as: <Not Shared>
Port: LPT1:
Model: Zebra P620
Default: No
Test page: No

To close this wizard, click Finish.

< Back   Finish   Cancel

---

10 Click **Yes** to continue.

Digital Signature Not Found

The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.

The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.

Printers

If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.

Do you want to continue the installation?

Yes   No   More Info

---

11 Assuming the Zebra P620 printer driver CD is still in the CD-ROM drive, click **OK**.

Insert Disk

Please insert the Compact Disc labeled 'Zebra Printer Driver Disk' into your CD-ROM drive (D:) and then click OK.

You can also click OK if you want files to be copied from an alternate location, such as a floppy disk or a network server.

OK   Cancel

---

12 Click **Browse**, then select the CD-ROM drive in which the printer driver CD is installed, then click **OK**.

Files Needed

Some files on Zebra Printer Driver Disk are needed.

Insert Zebra Printer Driver Disk into the drive selected below, and then click OK.

Copy files from:
D:

OK   Cancel   Browse...

---

13 Click **Accept** in the License Agreement to proceed with the installation, then complete the installation by accepting (click **OK**) the timeout defaults on the screen below.

Configure Parallel Port

Options:
500   Read Timeout (ms)
500   Write Timeout (ms)
☐ Compatibility Mode (Using Dongle)

OK   Cancel

Loading the driver from the "New Hardware Found" Wizard

The "New Hardware Found" message appears only if the P620 printer has <u>never been installed</u> on the computer to which it is now connected.
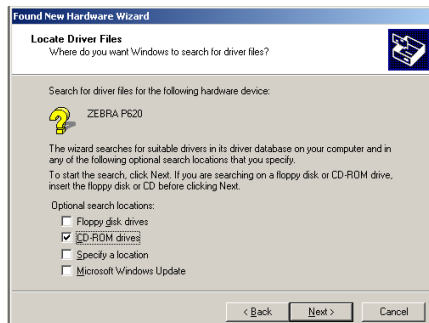
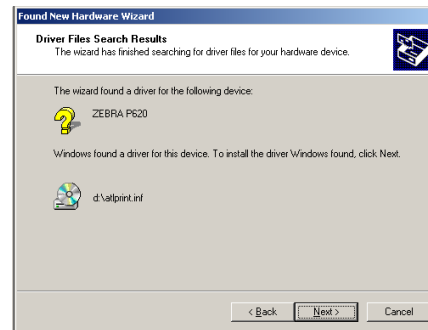**1** Click **Next** on the New Hardware Found Wizard screen.

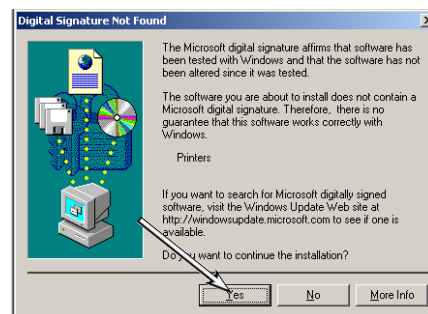**2** Select "Search for a suitable driver", then click **Next**.
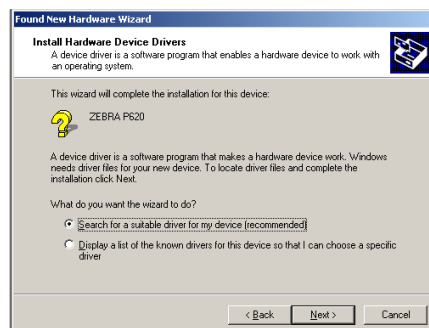
3 Select **CD-ROM** drives. Place the provided Zebra P620 printer driver CD in the CD-ROM drive, then click **Next**.
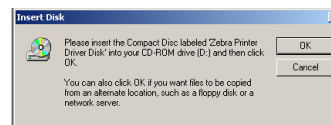
4 Following Step 3 the computer searches the CD for the file named **Atlprint.inf**. Click **Next** when the followng message appears.
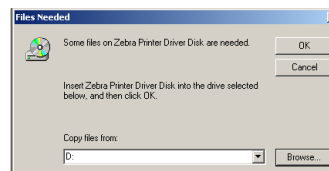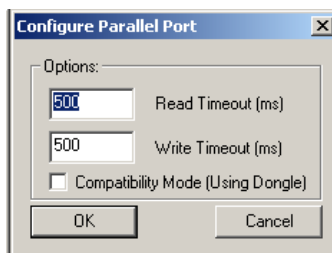
5 Click **Yes** to continue the installation.

6 Assuming the Zebra P620 printer driver CD is still in the CD-ROM drive, click **OK**.

7 Click **Browse**, then select the CD-ROM drive in which the printer driver CD is installed, then click **OK**.

8 Click **Accept** in the License Agreement to proceed with the installation, then complete the installation by accepting (click **OK**) the timeout defaults on the screen below.

Configure Parallel Port

Options:

| 500 | Read Timeout (ms) |
| 500 | Write Timeout (ms) |

☐ Compatibility Mode (Using Dongle)

| OK | Cancel |

9 Click **Finish** to complete the installation.

Found New Hardware Wizard

Completing the Found New Hardware Wizard

Zebra P620

Windows has finished installing the software for this device.

To close this wizard, click Finish.

| < Back | Finish | Cancel |

Configuring the External Ethernet converter and loading the driver from a CD or the Web.

Potential pitfalls

Firewalls restrict data transferred over the network to only those items specifically approved by the network administrator. This can have the effect of making a **print server** such as the Zebra external Ethernet converter unavailable to computers on the network. Contact your network administrator for guidance on the following issues.

If a "personal firewall" is installed on the PC you are using to set up the external Ethernet converter (print server):

1. Probing for the print server will fail if the firewall does not allow broadcast UDP (User Datagram Protocol) requests.

2. Probing for the print server will fail if the firewall does not accept responses from UDP probes (often done because the firewall does not

properly register the outgoing UDP port as valid for response traffic).

3. Probing for the print server will fail if the firewall disallows packets destined for UDP port 8450.

4. Printing and printer communications will fail if the firewall disallows packets destined for TCP (Transmisson Control Protocol) port 9100.

The above caveats apply equally to a firewall installed in a network router, the difference being that such a firewall affects all traffic across it, not just traffic to and from a lone PC.

If probing fails, you could manually enter the IP address for the print server in the appropriate driver setup screen. However, the IP address is not known until the printer server is configured, this being a "Catch-22" situation.

Hardware setup

The following assumes that the computer you are using to set up the external Ethernet converter is already connected to the network.
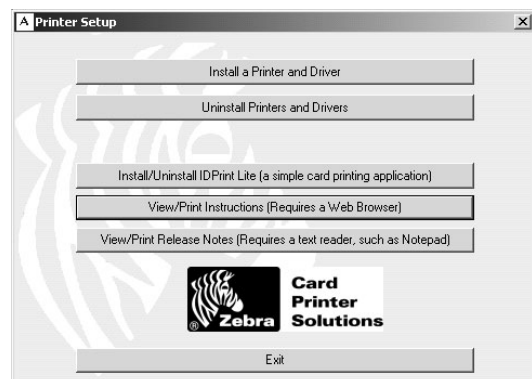
Note*:* Be sure to follow the power-up procedure in steps 3, 4 and 5.

1 Using the supplied parallel cable connect the P620 printer to the external Ethernet converter.

2 Connect the RJ45 jack on the external Ethernet converter to the network through a hub, switch or router. Use only a **pass-through cable** (also known as straight-through).

3 Connect the external Ethernet converter and the P620 printer to the same power strip, with the power **OFF**.

4 With the power strip still **OFF**, turn on the printer's power switch.
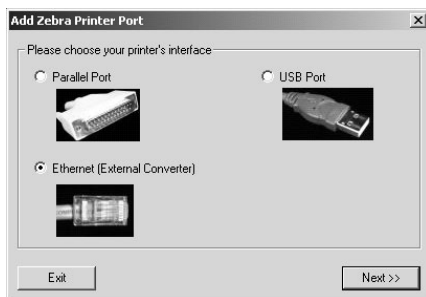
5 Turn ON the power strip's power switch.

Software setup

The following assumes that the computer you are using to set up the external Ethernet converter is already connected to the network.
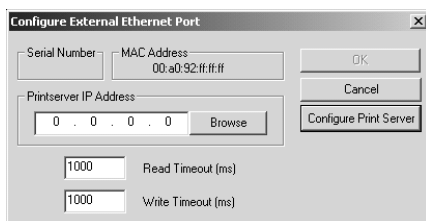
1 Obtain from your network administrator the following three codes: *Static IP address, Netmask (a.k.a. Subnet mask), Gateway* (optional).

2 Load the driver software from the provided CD or the Web, page 5-1 Step 1, or page 5-3 Steps 1 through 7.
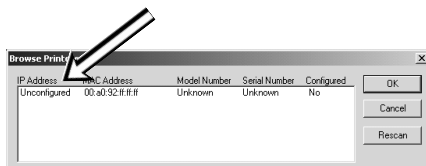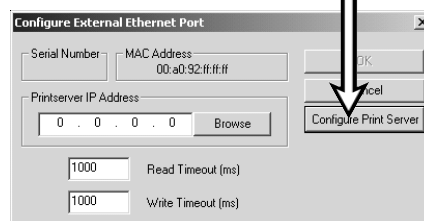
3 Click **Ethernet (External Converter)**.

Add Zebra Printer Port

Please choose your printer's interface

○ Parallel Port   ○ USB Port

● Ethernet (External Converter)

Exit   Next >>

---

6 When the Configure External Ethernet Port screen reappears, click **Configure Print Server**.

Configure External Ethernet Port

Serial Number   MAC Address
                 00:a0:92:ff:ff:ff

Printserver IP Address
0 . 0 . 0 . 0   Browse

OK
Cancel
Configure Print Server

1000   Read Timeout (ms)
1000   Write Timeout (ms)

---

4 Click **Browse**, and allow the computer to search for the unconfigured external Ethernet converter.

Configure External Ethernet Port

Serial Number   MAC Address
                 00:a0:92:ff:ff:ff

Printserver IP Address
0 . 0 . 0 . 0   Browse

OK
Cancel
Configure Print Server

1000   Read Timeout (ms)
1000   Write Timeout (ms)

---

7 Leave **DHCP** set to **Off**. Type in the **IP Address**, **Netmask** and **Gateway** codes provided by your network administrator, then click **OK**.

Configure Printserver

MAC Address   DHCP
00:a0:92:ff:ff:ff   ● Off ○ On
(Cannot be changed)

For manual configuration (static IP), turn off
DHCP and enter desired values below.

Manual Configuration
IP Address
11 . 22 . 33 . 44
(i.e. 192.168.1.54)

Netmask
255 . 255 . 255 . 0
(i.e. 192.168.1.54)

Gateway
0 . 0 . 0 . 0
(i.e. 192.168.1.54)

Apply Changes To Printserver

OK   Cancel

---

5 Highlight the unconfigured item, then click **OK**.

Browse Printe

IP Address   MAC Address   Model Number   Serial Number   Configured
Unconfigured 00:a0:92:ff:ff:ff   Unknown   Unknown   No

OK
Cancel
Rescan

8 Check the Static IP address reported on the Configure External Ethernet Port screen. If correct, click OK. If not, click **Configure Print Server** again and repeat the process.
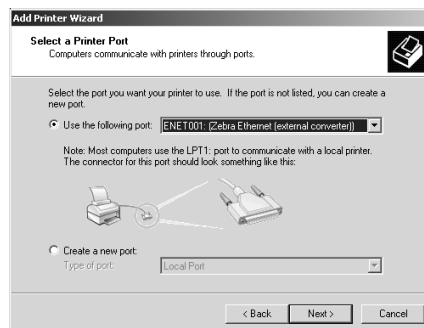
Note: 192.168.0.245 is given here only as an example.
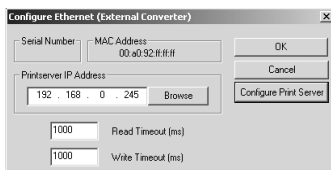
9 This screen reminds you to choose the correct port when it is asked for by the Printer Wizard.
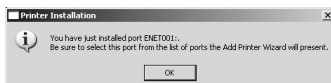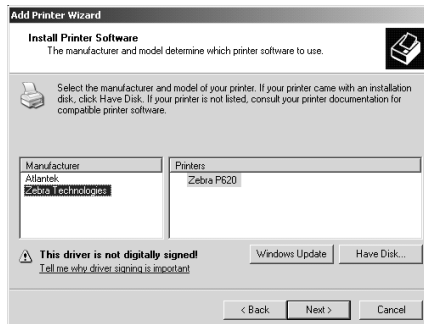

10 From this point the Add Printer Wizard will complete the installation semi-automatically. Check each subsequent screen to be sure the checked items are correct before moving on (clicking **Next**).


11 Verify, then click **Next**.

12 Verify, then click **Next**. "Manufacturer" should be **Zebra Technologies**, and "Printers" should be **Zebra P620**.

This screen warns that installation of the driver software may destabilize your system. The P620 driver software has been exhaustively tested in many installations, and has caused no problems of which Zebra is aware.

13 Click **Continue Anyway** to complete the printer driver installation.
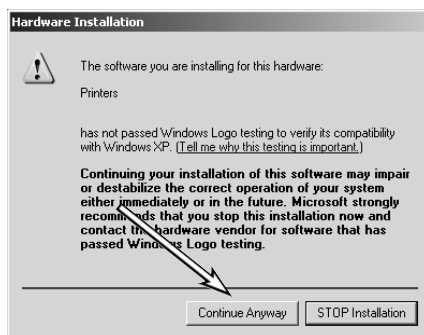
Error messages

There are more than 50 error messages for the P620 stored in the printer driver. On detecting a fault or error condition, the printer firmware triggers a screen display describing the condition and corrective action in plain-language. Because the error messages are self-explanatory, only one example is given here.
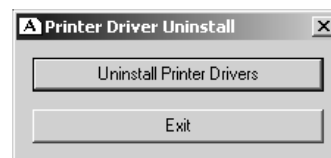

Uninstalling the printer driver

If it is necessary to uninstall the driver, run the provided CD (page 5-2) to display the main Printer Setup page. Alternatively, if you downloaded the driver (page 5-3) go to the folder in which the files were saved after being unzipped, then double click **setup.exe**.
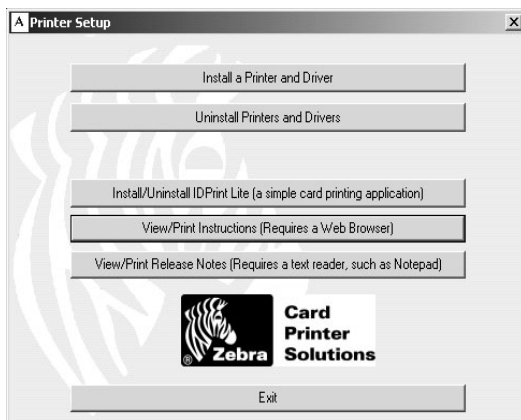
1 Click **Uninstall Printers and Drivers** on the main Printer Setup page.

2 Click **Uninstall Printer Drivers** in the above window. You will be asked to reboot your computer to complete the process. Depending on other computer activity at the time you ran the uninstall program, you may be asked to run uninstall a second time.

IMPORTANT You can not uninstall the printer driver using the "Add/Remove Programs" utility in Windows.

Working with the printer driver

There are two distinct groups of printer control screens in the P620 printer driver. Many of these are intended for use only by the trained technician, and can cause unexpected results if modified without the necessary experience.

Technician-only screens are:
Printer properties - All screens
Printing preferences - Magnetic Encoding
Printing preferences - ID/Log

This section of the manual describes only those screens the operator may be asked to refer to and/or modify, with technician assistance in some cases.

Operator screens are:
Printing preferences - Card Setup
Printing preferences - Image Adjustment
Printing preferences - YMC (Color) Printing
Printing preferences - K (Black) Panel

To display the preferences screens, depending on your Windows operating system go to **Printers** or **Printers and Faxes** in the **Start** menu, then double click on the P620 icon in the list of installed printers. Now go to the Printer menu and click **Printing Preferences**.
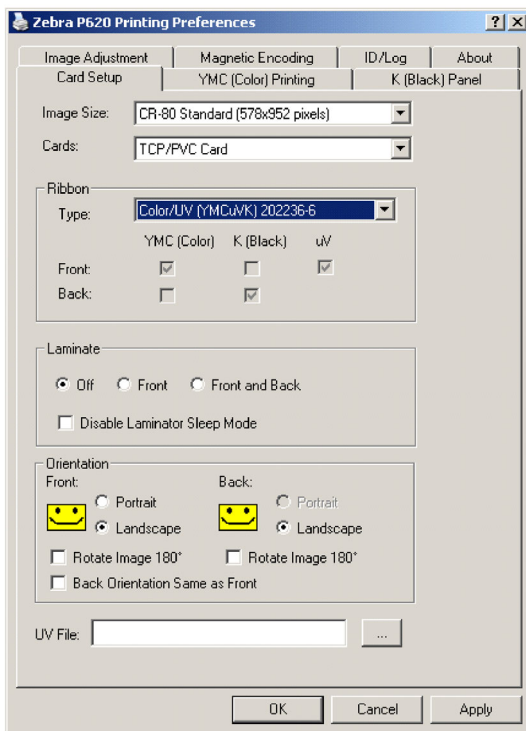
Card Setup

Image Size Sets the image area for both front and back ofthe card, 1 inch = 300 pixels.

Cards Specifies the type of card loaded in the hopper - typically a PVC/polyester/PVC composite card for applications where durability is important.

Ribbon This is the color ribbon installed in the printer. Choice of two for most applications: YMCK = 3 color panels + 1 black panel, and YMCKK = 3 color panels + 2 black panels. For secure applications a third type of ribbon is available: YMCuVK ("uV" is a panel of ultraviolet responsive resin).

Front/Back Allows you to apply color or black, or both, to either side of the card. For example, with a 4-panel YMCK ribbon the usual arrangement is YMC (Color) on the front, K (Black) on the back. If you check **both** YMC and K on one side, this sets up a special condition known as **black extraction**, page 5-14.

Laminate Allows you to choose whether laminate will be applied to the front side, to both sides, or to neither side.

Orientation Allows you to set up the front and back images, independently*, for "driver license" (landscape) or "badge" (portrait) configurations. By checking the "Rotate" box, you can also flip either image upside down.

* *The following combination is not available: Front landscape, Back portrait.*

What is black extraction?

Black extraction has to do with the way the printer driver handles the K (black) panel. It applies *only* to surfaces of the card on which **both** YMC (color) **and** K (black) are to be printed.

Equal amounts of Y, M and C dyes, at maximum intensity, deliver a near-black image, but one which is not machine readable. For example, a bar code printed from YMC (color) will be visible to the eye, but will not be detectable by most bar code readers. The remedy for this is to "extract the black"; in other words to print the same bar code, using the K (black) panel, on top of the YMC bar code. (You can also choose to print only in K, omitting YMC from that region.) The K (black) panel is not a dye. It is more of a paint containing carbon black, which is highly visible to infrared-type readers.

Depending on the program used to create the card layout, elements of the design may be identified in different ways to the printer driver. This printer driver recognizes five types of elements: text, lines and pixels, area fills, monochrome bitmaps, and color bit maps:

> **Text** is text which is sent explicitly as such to the printer driver.

Lines and pixels are lines and dots (pixels) sent as such to the printer driver.
Area fills are color-filled geometric shapes.
**Monochrome bitmaps** are 1-bit bitmaps (every pixel either black or white).
Color bitmaps are full color uncompressed pixel maps.

The above elements may not always be sent to the driver as expected. For example, a bar code may be sent as text, a series of area fills, or a monochrome bitmap. Results will vary by application used to create the card design.

Any of the above five elements may be selected for black extraction when the ribbon is set up to apply YMC (color) and K (black) to the same surface of the card. In this condition, the driver generates an extracted K image by looking for "true-black" features in the selected element types, that is, instances where all three YMC values are at the maximum (full intensity). Each such true-black instance generates a corresponding cluster of black pixels in the extracted image, which will be printed with the K (black) panel either on top of the YMC image, or replacing it entirely – your choice.

K (Black) Panel

When the Card Setup preference screen (page 5-13) is set for YMC (Color) **and** K (Black) on the **same side** of a card, the screen below tells you that Black Extraction is enabled. If Black Extraction is not available, the K (Black) Panel screen at right is grayed out as illustrated.
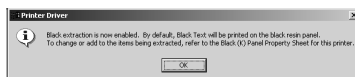
If you decide not to use black extraction, and change Card Setup to deliver color and black on different sides, the following screen tells you that Back Extraction is no longer available.
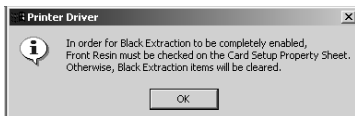
Before you make any modifications to the K (Black) Panel display, take a few minutes to understand what Black Extraction does (inset above). Although quite subtle in concept it can have a dramatic effect on image quality and machine readability.
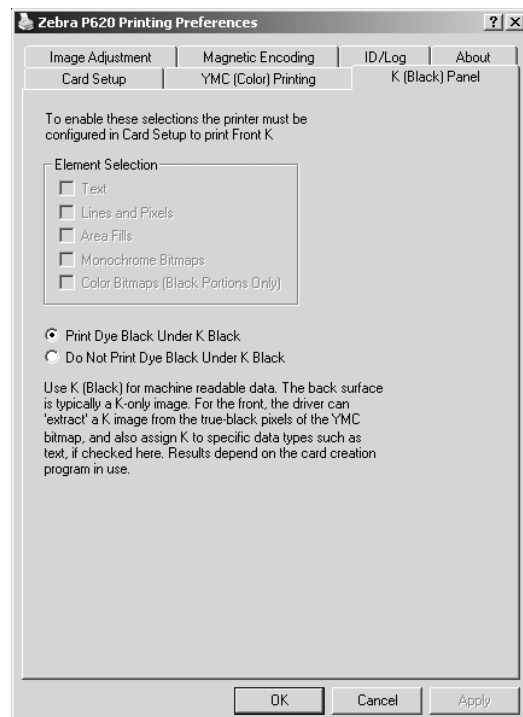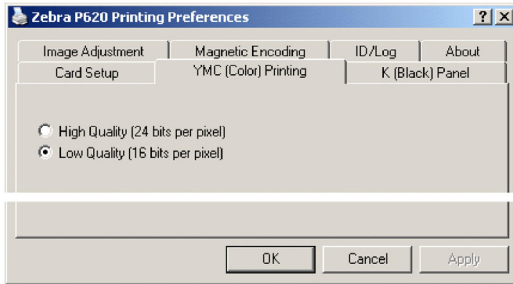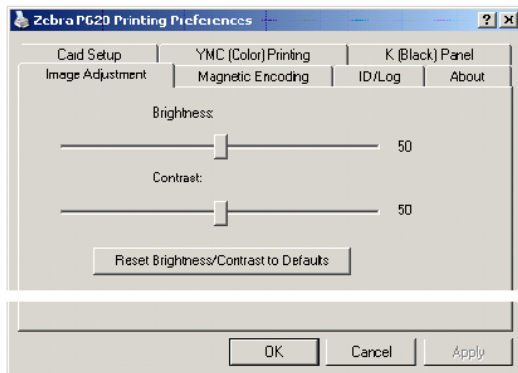
Image quality

The print system in the P620 does not respond to more than 16 bits per pixel, corresponding to 32,768 YMC color values. Selecting High Quality here will have no effect on the image, but will increase the image transmission time between computer and printer.

Image adjustment

The Brightness and Contrast controls here have same effect on the printed image as do similar controls on typical office color printers. Press **Reset** to restore default conditions.

IDPrint Lite

IDPrint Lite is a simple utility designed for functional testing only. It is not intended for ID card production.

IDPrint Lite allows you to send bitmap *(.bmp)* files to the ID card printer driver. Unlike most applications used for page composing, such as Microsoft Word or Adobe PageMaker, IDPrint Lite can send up to *four separate image files* to the printer in a single transaction, two for the front of the card, two for the back.

IDPrint Lite has no page composing capability. It is a means only of delivering to the printer driver previously composed image files, samples of which are on the driver CD, see below (these image files also come with the P620 driver when downloaded from the Web).

If you wish to use your own images instead of the samples, compose them using any application that can save them in .bmp format. The standard image size for the P620 is *952 x 578 pixels*.
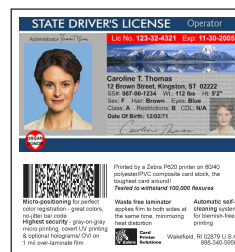
IDPrint Lite can also be used for mag stripe encoding in two formats, **ISO** (International Organization for Standardization) and **AAMVA** (American Association of Motor Vehicle Administrators).

Sample badge #1
(portrait format)

Sample badge #2
(portrait format)
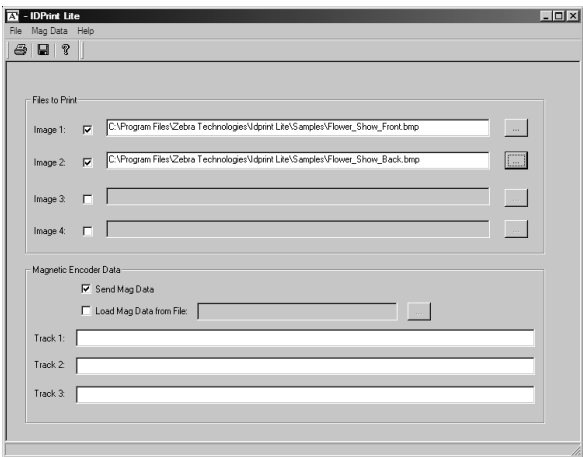
Sample driver license
(landscape format)

**Sample exhibitor badge**
(landscape format)

Using IDPrint Lite

Assuming IDPrint Lite is stored in its default location, launch it by going to the Windows *Start* menu, then *All Programs*, then to *Zebra Technologies* followed by ***ID Print Lite.***

Typically, Image 1 is for the front of the card, and Image 2 the back. Image 3 is used only when a YMCuVK ribbon is installed. Image 4 is not used at this time.

To assign a file to Image 1, click the "dotted" button at right of the Image 1 window. The Select Image File screen displays the sample files included with IDPrint Lite. Highlight the file you want to be Image 1, then click Open. If you wish to use a file of your own instead of the samples, click the down arrow to browse for the location in which you saved the file.
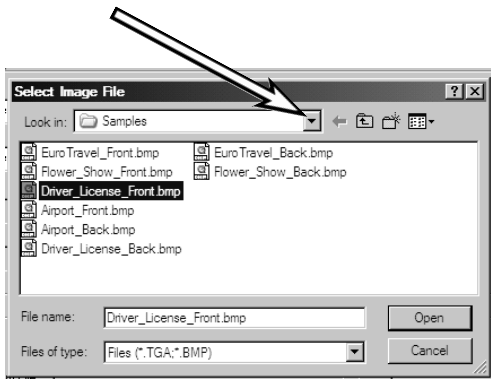
How Images 1, 2 and 3 are applied to the front and/or

back of the card, and the way in which they are processed, is determined by two selections that must be made in the **Printing Preferences Card Setup** screen: 1. The type of color ribbon installed (YMCK, YMCKK, or YMCuVK) and; 2. The assignment of YMC (Color), uV (ultraviolet) and K (Black) to front and back.

To bring up the **Card Setup** screen go to **Printers** or **Printers and Faxes** in the Windows **Start** menu, right click **P620**, then click **Preferences**.)

Card Setup
Ribbons, image numbers and front/back assignments

YMCK RIBBON		YMC (Color)	K (Black)	uV
YMC on front, K on back	**Front**	☑ Image 1	☐	■
	Back	☐	☑ Image 2	■
YMC and K (black extracted) on front	**Front**	☑ Image 1	☑	■
	Back	☐	☐	■
YMC and K (black extracted) on both front and back	**Front**	☑ Image 1	☑	■
	Back	☑ Image 2	☑	■
YMCKK RIBBON				
YMC and K (black extracted) on front, K on back	**Front**	☑ Image 1	☑	■
	Back	☐	☑ Image 2	■
YMCuVK RIBBON				
YMC and uV on front, K on back	**Front**	☑ Image 1	☐	☑ Image 2
	Back	☐	☑ Image 3	■

IDPrint Lite can also be used to write to the magnetic stripe, if applicable. Before entering data in the "Track" windows, you must first select the format, AAMVA or ISO, in the **Magnetic Encoding** screen found in Printing Preferences.

Note: The **Save** function (disk symbol) on the IDPrint Lite tool bar applies only to magnetic stripe data, not to the image assignments. Image assignments are stored automatically when the IDPrint Lite program is closed.