


**6400 and InfoPrint 6500  
Series Line Matrix Printer**

**4400 and InfoPrint 6700  
Series Thermal Printer**

Printer Management Utility User's Manual

G550-0972-03

InfoPrint Solutions Company






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**Note!**

Before using this information and the product it supports, read the information in “Notices” on page 211.

### **Fourth Edition (January 2010)**

This edition applies to the 6400/6500 Series Line Matrix Printers and 4400/6700 Series Thermal Printers, and replaces the following publication: *Printer Management Utility User's Manual, G550-0972-02*.

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# 1

## Overview

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### The Printer Management Utility

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The Printer Management Utility (PMU) allows you to organize all of the printers in your office remotely in a single database, download software and printer settings from a host computer with a single mouse click, and use a virtual operator panel to configure printers in the same room or on the other side of the world.

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### Requirements

---

- A 6500/6400 Series line matrix or 4400/6700 Series Thermal
- The printer must be attached to the host system via a 10/100Base-T Ethernet Interface or a wireless Ethernet Interface; if you do not have an Ethernet Interface, see your dealer for an upgrade
- A host computer running the Windows® (98, NT, 2000, XP, Server 2003, or Vista) or UNIX® (such as AIX®, Linux®, or Solaris™) operating system
- A host computer running a Java™ 2 Platform, Standard Edition (J2SE™) Java Runtime Environment (JRE) that is fully JRE 5 compliant or higher

**NOTE:** Vista requires JRE 6.

- For Windows, a minimum hardware configuration of a 450MHz Pentium® with 128 MB of RAM

To install and edit the database, it is not necessary to have the printers connected. When starting a session with a printer, the printer must be connected and turned on.

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### Installing the Software

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The Windows, Linux, and Solaris versions of JRE 5 and the Java-based PMU are available on CD. Follow the on-screen instructions to first install JRE 5 for your platform, then the PMU.

**NOTE:** If you are using Vista, download JRE 6 at <http://java.sun.com/javase>. Install JRE 6 first, then the PMU.

If you have another UNIX operating system, see your system administrator.

## Printer Groups

Table 1 shows the printer groups listed in this manual.

**Table 1. Printer Groups**

Family	Model	Machine Type
6400	6400-xxx 6400-Cxx 6400-Dxx 6400-ixx	6400-xxx 6400-Cxx 6400-Dxx 6400-ixx
6500	6500-Vxx 6500-Dxx	6500-Vxx 6500-Dxx
4400	4400-xxx	4400-xxx
6700	6700-Rxx 6700-M40	5504-Rxx 5403-M40

## Printer Setup

Your printer uses the diagnostic port to communicate with the PMU. The diagnostic port must be configured to interact with the Ethernet Interface. Follow the PMU, Telnet, or Operator Panel Method below for your printer model to configure the diagnostic port.

### PMU Method

#### All Supported Printers

You can configure the diagnostic port to interact with the Ethernet Interface using the PMU. See “Enable Remote Printer Management” on page 141.

### Telnet Method

#### All Supported Printers

1. Install the Ethernet Interface (refer to the installation instructions).
2. Make sure the IP Address is set up on the Ethernet Interface:
  - Use the operator panel (refer to the *User's Manual*).
  - OR –
  - Use the PMU: select **Utilities** ▶ **Assign IP Address**. See “Assign IP Address” on page 140.
3. Open a command prompt session and type:
 

```
telnet ipaddress
```

4. At the telnet login: prompt, type:  
`root<Enter>`
5. At the Password: prompt, enter the password and press <Enter>  
(there is no password by default)
6. At the `ipaddress:root>` prompt, type:  
`enable printermgr<Enter>`
7. Close the telnet session. The Ethernet Interface is now activated.

## Operator Panel Method

---

### 6400 Series Line Matrix Printers

1. On the operator panel, press the **STOP** key to take the printer offline.
2. Press **SCROLL** ↑ and **SCROLL** ↓ at the same time to unlock the ENTER key.
3. Press **SCROLL** ↑, **SCROLL** ↓, **ENTER**, and **RETURN** keys at the same time to enter the Service menu.
4. Press **SCROLL** ↓ until PRINTER MGMT displays.
5. Press **ENTER** until DIAGNOSTIC PORT displays.
6. Press **ENTER** again to see the current selection.
7. Press **SCROLL** ↓ until Debug Ethernet or Debug Adapter displays.
8. Press **ENTER** to select it.
9. Press **SCROLL** ↑ and **SCROLL** ↓ at the same time to lock the ENTER key.
10. Press **START** to put the printer back online.

### 6500 Series Line Matrix Printers

1. On the operator panel, press the **STOP** key to take the printer offline.
2. Press **RETURN** and **ENTER** at the same time to unlock the ENTER key.
3. Press **MENU**. QUICK SETUP displays.
4. Press ↑ **SCROLL** until PRINTER CONTROL displays.
5. Press **ENTER**. INTERFACE SELECTION displays.
6. Press ↓ **SCROLL** until PRINTER MANAGEMENT PORT displays.
7. Press **ENTER**. DISABLE displays. If ETHERNET displays, go to step 10.
8. Press ↓ **SCROLL** until ETHERNET displays.
9. Press **ENTER**. As asterisk (\*) appears next to ETHERNET.
10. Press **RETURN** and **ENTER** at the same time to lock the ENTER key.
11. Press **START** to put the printer back online.

### 4400 Series Thermal Printers

1. On the operator panel, press the **PAUSE** key to take the printer offline.
2. Press ↓ and ↵ at the same time to unlock the ↵ key.
3. Press +, -, ↓, and ↑ at the same time to enter the Factory menu.
4. Press ↓ until Diagnostic Port displays.
5. Press + until Debug Ethernet displays.
6. Press ↵ to select it.
7. Press ↓ and ↵ at the same time to lock the ↵ key.
8. Press **PAUSE** twice to put the printer back online.

### 6700-Rxx Series Thermal Printers

1. On the operator panel, press the **PAUSE** key to take the printer offline.
2. Press ☰ to place the printer in Menu mode. QUICK SETUP displays on the operator panel.
3. Press ↓ and ↵ at the same time to unlock the ↵ key.
4. Press - until PRINTER MGMT displays.
5. Press ↓ until PNE Port displays.

**NOTE:** If PNE Port does not display, see “Factory Menu” below.

6. If you have the internal PCI Ethernet Interface, press + until Ethernet displays. If you have the external Ethernet Interface, press + until Adapter displays.
7. Press ↵ to select it.
8. Press ↓ and ↵ at the same time to lock the ↵ key.
9. Press **PAUSE** twice to put the printer back online.

### Factory Menu

1. On the operator panel, press the **PAUSE** key to take the printer offline.
2. Press ↓ and ↵ at the same time to unlock the ↵ key.
3. Press +, -, ↓, and ↑ at the same time to enter the Factory menu.
4. Press ↓ until PNE Port (or Diagnostic Port) displays.
5. If you have the internal PCI Ethernet Interface, press + until Ethernet (or Debug Ethernet) displays. If you have the external Ethernet Interface, press + until Adapter (or Debug Adapter) displays.
6. Press ↵ to select it.
7. Press ↓ and ↵ at the same time to lock the ↵ key.
8. Press **PAUSE** twice to put the printer back online.

## 6700-M40 Series Thermal Printers

1. Press **⋮** to enter Menu mode.
2. Press the Down and **↵** keys at the same time to unlock the **↵** key.
3. Press the Right key until **PRINTER SETUP** displays.
4. Press **↵** to enter the **PRINTER SETUP** menu.
5. Press the Up key until Admin User displays.
6. Press the Right key until Enable displays.
7. Press **↵** to select it. An asterisk (\*) displays after Enable.
8. Press **⋮** to enter Menu mode. **MEDIA SETUP** displays.
9. Press the Down key until **INTERFACES** displays.
10. Press **↵** to enter the **INTERFACES** menu.
11. Press the Down key until Printer Mgmt displays.
12. Press **↵** to enter the Printer Mgmt menu.
13. Press the Down key until PNE Port displays.
14. Press the Right key until Ethernet displays.
15. Press **↵** to select it. An asterisk (\*) displays after Ethernet.
16. Press the Down and **↵** keys at the same time to lock the **↵** key.
17. Press **||** twice to put the printer back online.

## Set Password

---

See “Set Printer Password” on page 125 to learn how to set passwords.

If the password is unknown you must clear it first.

### 6400 Series

Go into the SERVICE menu (press **Scroll** ↑, **Scroll** ↓, **Enter**, and **Return** at the same time), then into the PRINTER MGMT menu. Press **Scroll** ↓ until CLEAR PASSWORD displays. Unlock the Enter key, then press **Enter** to clear the User and Supervisor passwords.

Under the Security tab in Printer Properties, delete any passwords that already exist. Now you may set new passwords as described on page 125.

### 6500 Series

Go into the SERVICE menu (press ↑ **SCROLL**, ↓ **SCROLL**, **MENU**, and **CONFIG** at the same time), then into the PRINTER MGMT menu. Press ↓ **SCROLL** until CLEAR PASSWORD displays. Unlock the ENTER key, then press **ENTER** to clear the User and Supervisor passwords.

Under the Security tab in Printer Properties, delete any passwords that already exist. Now you may set new passwords as described on page 125.

### 4400/6700-Rxx Series

Go into the Factory menu (press +, -, ↓, and ↑ at the same time). Press ↑ or ↓ until Clear Password displays. Unlock the ↵ key, then press ↵ to clear the User and Supervisor passwords.

Under the Security tab in Printer Properties, delete any passwords that already exist. Now you may set new passwords as described on page 125.

### 6700-M40 Series

Go into the Factory menu (press the Up, Down, Left, and Right keys at the same time). Press ↑ or ↓ until Clear Password displays. Unlock the ↵ key, then press ↵ to clear the User and Supervisor passwords.

Under the Security tab in Printer Properties, delete any passwords that already exist. Now you may set new passwords as described on page 125.

### Set Telemetry Path (4400/6700 Series Only)

---

The following procedure enables you to collect data using the Data Validation application.

1. On the operator panel, press the **PAUSE** key to take the printer offline.
2. Press ☰ to place the printer in Menu mode. QUICK SETUP displays on the operator panel.
3. Press ↓ and ↵ at the same time to unlock the ↵ key.
4. Press + until VALIDATOR displays.
5. Press ↓ until Telemetry Path displays.
6. Press + or - until Network Port displays.
7. Press ↵ to activate it.

**NOTE:** Since only one port can be used at a time, DEACTIVATING HOST SERIAL displays.

If you later change the setting to Serial Port or Disabled, REACTIVATING HOST SERIAL will display.

8. Press ↓ and ↵ at the same time to lock the ↵ key.
9. Press **PAUSE** twice to put the printer back online.

For more information, refer to the *Online Data Validator User's Manual*.

## Check Port Number

Make sure your printer port number has the same setting as the Ethernet Interface.

To check the port number using the PMU, see page 20.

To check the port number on the printer, see Table 2 to determine the port number menu location for your printer model. The default port number is 3001.

**IMPORTANT** Do not set the Port Number to the same value as the Status Port Number (the default is 3002) or the Mgmt Port Number (the default is 3007).

**Table 2. Port Number Menu Location**

Printer Model	Menu
6400 Series	SERVICE ▶ PRINTER MGMT ▶ PRINTER MANAGER PORT NO.
6500 Series	PRINTER MGMT ▶ PRINTER MANAGER PORT NO.
4400 Series	Factory ▶ PMU Port Number
6700-Rxx Series	PRINTER MGMT or Factory ▶ PNE Port Number
6700-M40 Series	INTERFACES ▶ Printer Mgmt ▶ PNE Port Number

## Loading and Using Foreign Language Fonts

PMU supports Asian languages such as Korean, Simplified Chinese, and Traditional Chinese. UTF-8 encoding is utilized since it has the ability to support all known languages and is backwards compatible with ASCII (specifically 0 - 7F).

Microsoft operating systems provide most of fonts for the world languages which can be obtained from Microsoft's web site. UNIX operating systems such as Linux and Solaris requires more setup since the operating systems provide less fonts than Microsoft. Java uses five logical fonts (Dialog, Dialoginput, Serif, Sanserif and Monospaced) to map to the fonts on the system. Mapping is done in the Java font.properties file. Dialog, size 12 is the default font for all language dependent applications. Through mapping of the font.properties file, the Dialog font supports all of the printer supported languages. Mapping of operating system fonts should be performed by a System Administrator.

## Limitations

---

Not all of the items in the PMU Suite will display UTF-8. All PMU menus, dialogs, tooltips and printer names will be displayed in ASCII.

Only the following applications, utilities, and displays support UTF-8 encoding:

- Printer Database status messages
- Printer configuration languages in the Configuration Editor
- Information Capture's viewable configuration data
- Virtual Operator Panel text
- Factory Settings Differences table data
- Web page support (Printer List Page Message area only)
- SNMP Browser data

Older versions of PMU Suite (including previous products such as Advanced Tool Kit, ODV Data Manager and EPC Data Manager) will not support new printers with UTF-8 encoded byte streams.

All versions of PMU Suite that support UTF-8 encoding will support older printer firmware versions.

## Windows Setup

---

Java for Windows platforms includes a font.properties file that is used to map foreign languages to Microsoft Window fonts. This includes all languages supported on the printer.

## Unix Setup

---

Java for Linux platforms also includes a font.properties file. This file needs to be modified to support the fonts on the user's Linux or Solaris platforms.

Find or purchase the printer supported fonts for the languages needed. The additional printer languages supported include Korean, Simplified Chinese, and Traditional Chinese. Use a package manager such as Red-Hat Package Manager (RPM) to load the font files onto the UNIX system. Once the fonts are loaded, modify the component font mappings in the font.properties file for Allfonts, Serif, Sansserif, Monospaced, Dialog and Dialoginput Logical fonts. Use absolute path names, path names starting with \$JRE\_LIB\_FONTS or X Logical Font Description (xld) names for the fonts.

Add the following:

- new font names to the search sequences
- any exclusion character ranges for the languages
- the paths to the locations of the actual font files.

Finally, add the valid X11 font directories to the X11 server font path.

For a detailed description of the font.properties file see Sun's Java Internationalization Guide at

<http://java.sun.com/j2se/1.5.0/docs/guide/intl/fontconfig.html>.



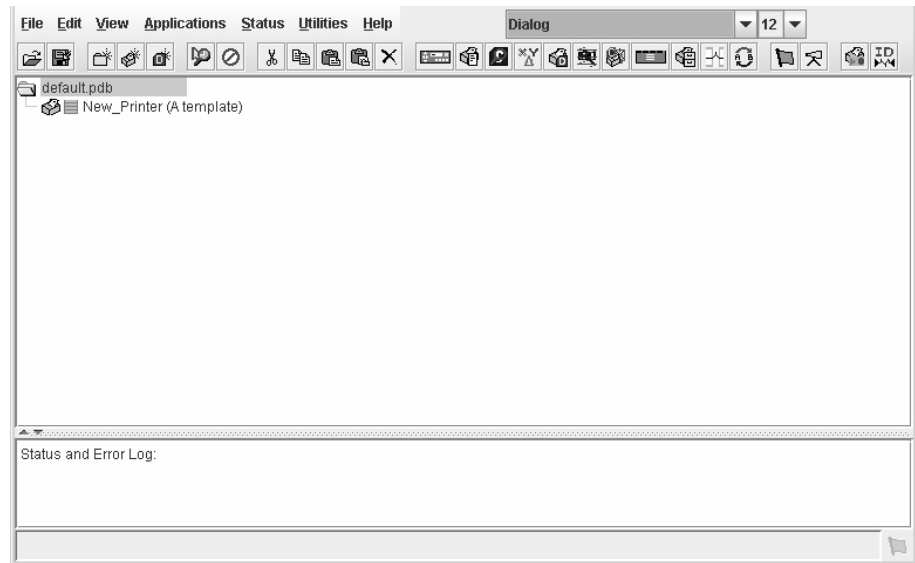
---

## Getting Started

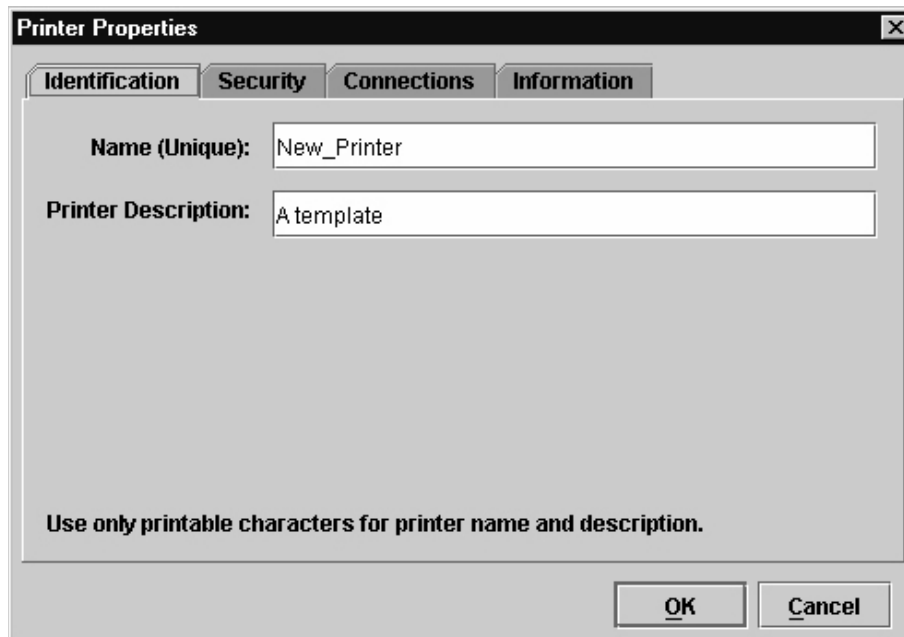
---

This section provides a short tutorial on how to set up and access a printer using the PMU.

1. This tutorial assumes the host computer running the PMU and the printer you want to access are connected by a network. You must know the printer's IP Address and Port Number.
2. From your operating system, launch the PMU. Click the splash screen to see the main window of the printer database more clearly. See Figure 1.

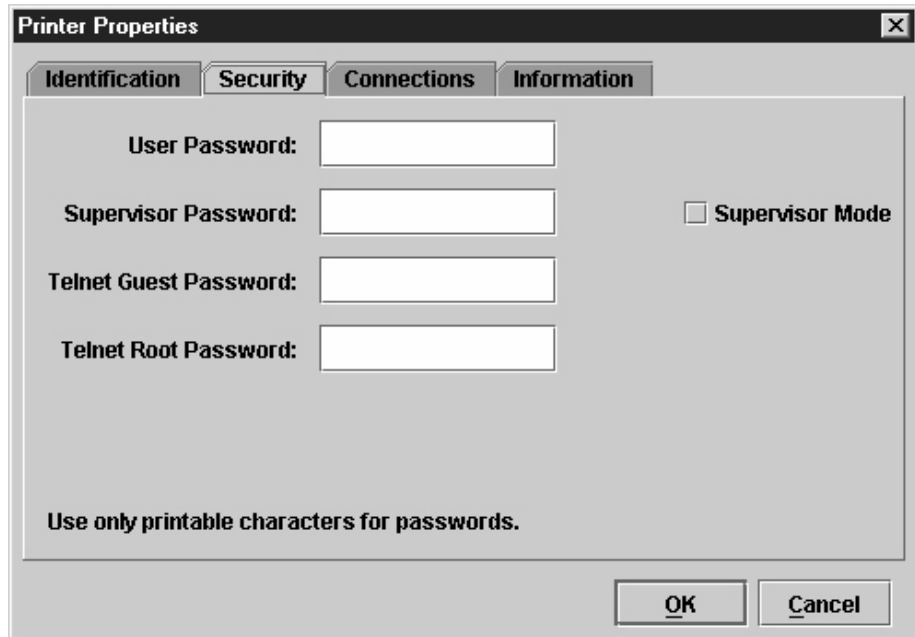


**Figure 1. Printer Database Main Window**



**Figure 2. Printer Properties: Identification Tab**

3. Double-click **New\_Printer (A template)**. The Printer Properties dialog box opens. See Figure 2.
4. Assign a name to your printer. Delete the words **New\_Printer** in the Name (Unique) field, and then type **Tutorial**.
5. Assign a description to this printer. Delete the words **A template** in the Printer Description field, and then type **My First Connection**.

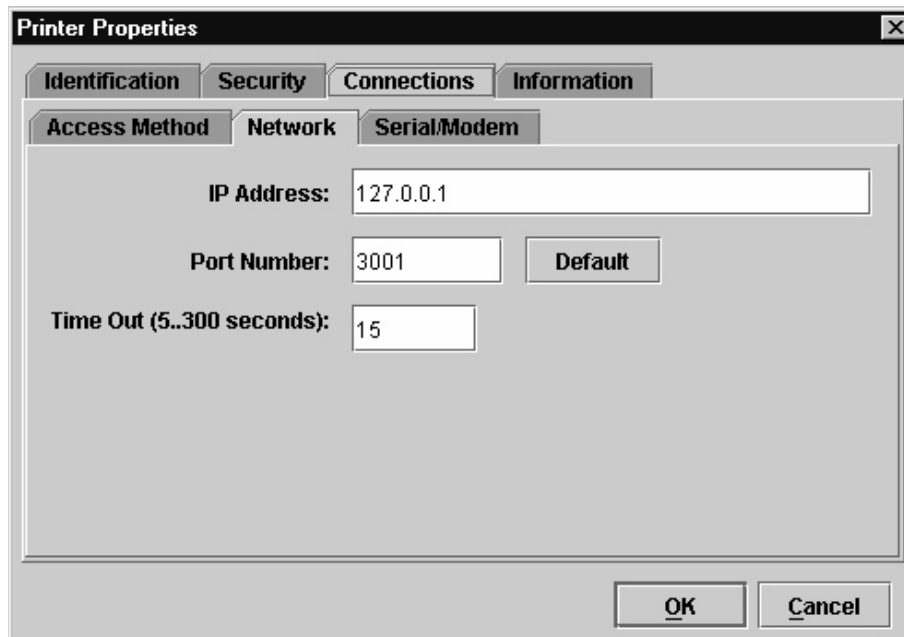


**Figure 3. Printer Properties: Security Tab**

6. Click the **Security** tab. See Figure 3.
7. If you are using the PMU for the first time, it is likely that no passwords are assigned to this printer. If you are unsure, contact your system administrator.
  - If no passwords are assigned, leave the password boxes empty.
  - If a User password is necessary to access this printer, type the password in the User Password field.
  - If a Supervisor password is necessary to access this printer, type the password in the Supervisor Password field, and check the Supervisor Mode check box.
  - If a Telnet guest password is necessary to poll the status of the printer, type the password in the Telnet Guest Password field. See “Security Tab” on page 57.
  - If a Telnet root password is necessary to update wireless printer settings, type the password in the Telnet Root Password field. See “Security Tab” on page 57.

In any case, an asterisk (\*) character appears in the field after each letter you type to preserve password secrecy.

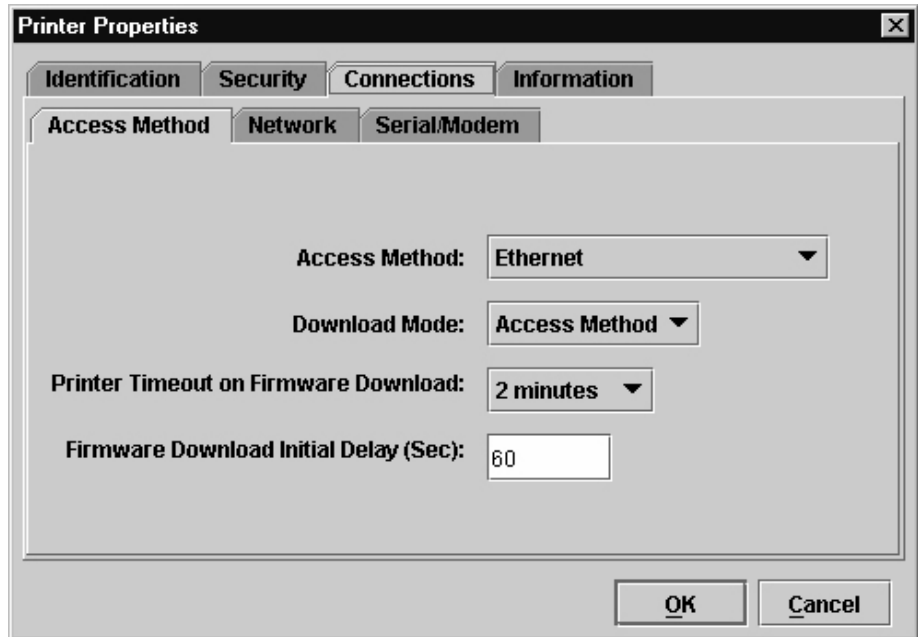
For more details on setting up and changing passwords, see page 50.



**Figure 4. Printer Properties: Connections Tab – Network Sub-Tab**

8. Click the **Connections** tab. By default, the Network sub-tab displays.
9. Click the **IP Address** field and then type the IP Address of the printer you want to access. Follow the format shown in Figure 4.

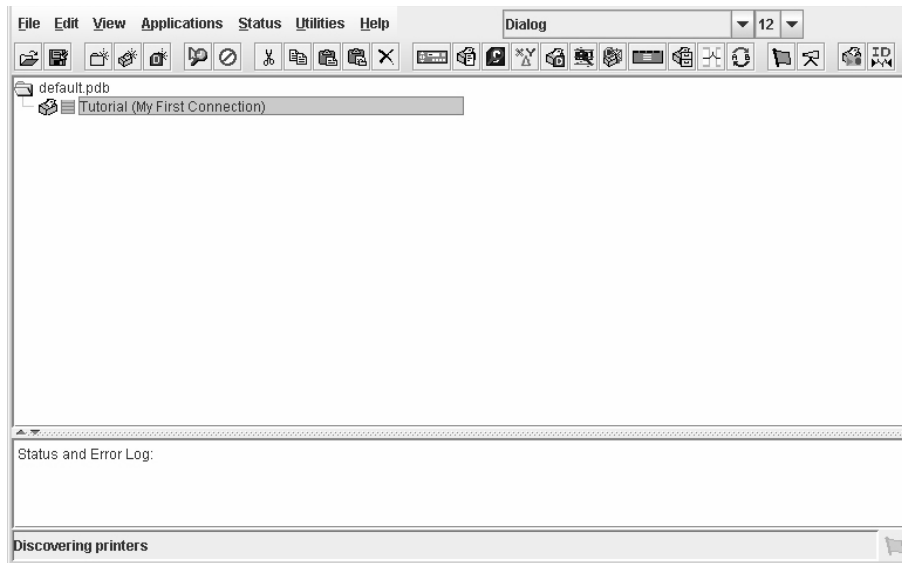
The Port Number field must be set to the same port as the printer. Leave it set at 3001. Leave the Time Out (5..300 seconds) field set at 15 seconds.



**Figure 5. Connections: Connections Tab – Access Method Sub-Tab**

10. Click the **Access Method** sub-tab. See Figure 5.

The Access Method tells the PMU how the host computer communicates with the printer. Make sure it is set to Ethernet. Ignore Download Mode and Download Timeout for now. These options are described in "Access Method Sub-Tab" on page 60.



**Figure 6. Printer Database Main Window**

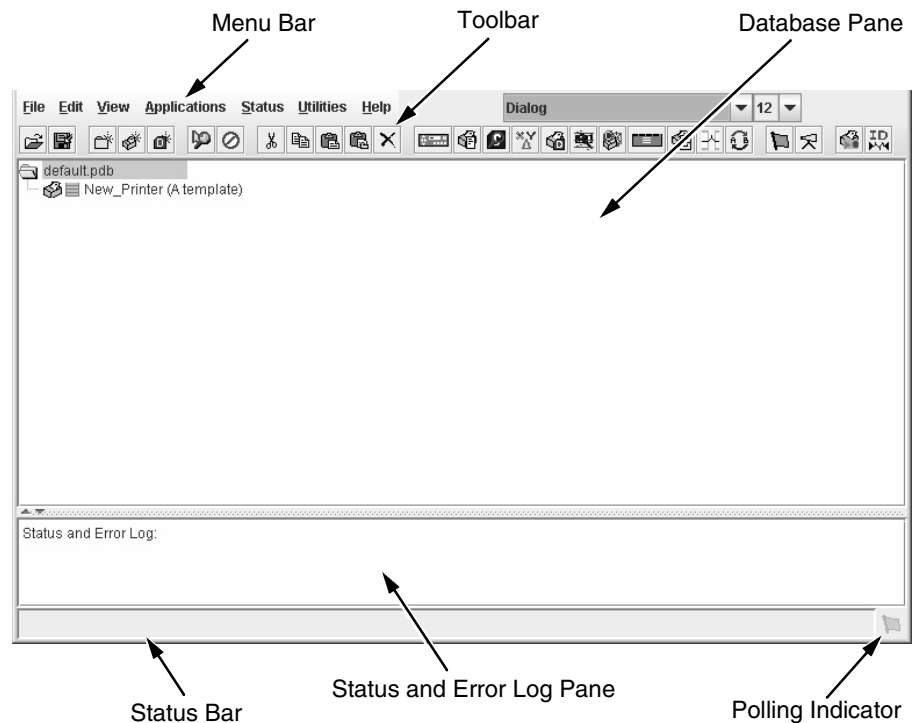
11. Click **OK**. The Printer Properties dialog box closes and you return to the printer database main window. See Figure 6. Your printer is now set up in the PMU database.
12. Try to access the virtual operator panel as a test to see if the information you input is accurate. Follow this procedure:
  - a. **Tutorial (My First Connection)** should be highlighted in blue, as shown in Figure 6. If it is not highlighted, click it to select it.
  - b. Select **Applications ▶ Operator Panel**. The virtual operator panel appears (see “Operator Panel” on page 106). If not, an error message appears in the Status and Error Log pane. Check your password to make sure it is correct. If the error continues, contact your system administrator.

# 2

## Printer Database

### Overview

When you start the PMU, the printer database window appears first. The printer database tool organizes and controls printers and Download files. Figure 7 shows how the database looks when the PMU launches for the first time.



**Figure 7. Printer Database Main Window**

The menu bar contains all the menus used to control the functions of the program. The menus are described later in this chapter.

The toolbar contains buttons for the most commonly used menu functions. See page 52 for descriptions of the toolbar buttons.

Use the Database pane to access and control your printers in a tree format. The first line of the database tree displays the database file name. In Figure 7, the default file name for this database is **default.pdb**. From there, your database tree branches out to include printers, folders, and Download files, which you can organize into groups. With a single mouse click, you can

download a file to several printers at once. In addition, you can use as many databases with the PMU as you want. Databases save as **.pdb** files on your local hard drive.

**NOTE:** You can open only one printer database at a time.

The Status and Error Log scrolls status and error messages as you work through the program. If the PMU does not function properly, look at this pane for error messages. Use the scroll bar on the side of the pane to reference previous status and error messages. The status and error messages relate to the current PMU session, not to the specific database. When you exit the PMU, these messages will be deleted.

The Status Bar displays brief status messages of the PMU, some of which appear in the Status and Error Log.

The Polling Indicator turns green whenever printers are being polled.



## The Menu Bar

The printer database menu bar is located at the top of the window (see Figure 7). Use the menu bar to access all the functions of the PMU. The following are descriptions of the options located on the menu bar.

### The File Menu

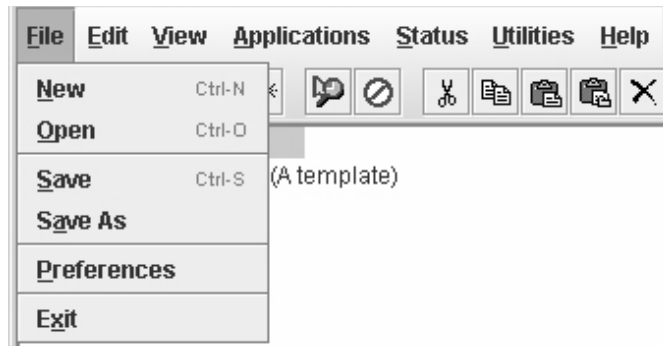


Figure 8. File Menu

#### New

Creates a new database file. Since the PMU allows only one database file to be open at a time, it asks if you want to save your changes to the current database before it creates a new one.

#### Open

Opens a database file. Since the PMU allows only one database file to be open at a time, it asks if you want to save your changes to the current database before it opens a different one.

#### Save

Saves the active database file using its current name.

#### Save As

Prompts you to enter a name for the current database file before the PMU saves it. Use Save As if you do not want to overwrite the current database file.

#### Preferences

Opens the Preferences dialog box. See page 26.

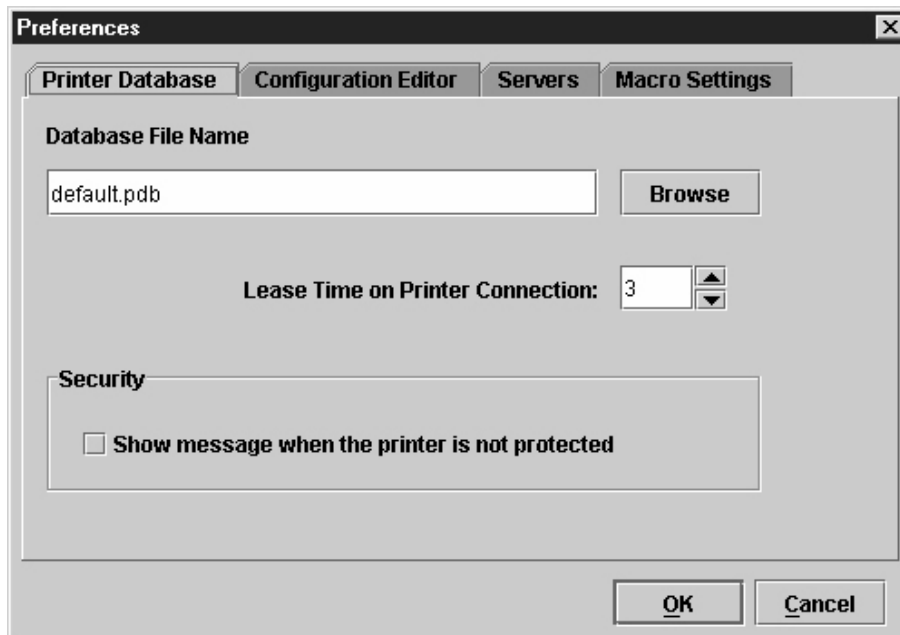
#### Exit

Exits the PMU.

## Preferences

The Preferences dialog box has three tabs: Printer Database, Configuration Editor, and Servers. See Figure 9.

### Printer Database Tab



**Figure 9. Preferences: Printer Database Tab**

The Printer Database tab controls database features.

**Database File Name:** Enter the name of the default database file. The PMU opens this database file when the program starts. To select a new default database file, type it into the Database File Name field, or click **Browse** to locate a file on your network.

**Lease Time on Printer Connection:** Enter an amount (in seconds) to set the maximum amount of time a printer connection can remain open without any communication. The default is three seconds.

**Security:** Check the **Show message when the printer is not protected** check box to enable a warning message that informs you when a selected printer does not have an assigned password.

## Configuration Editor Tab



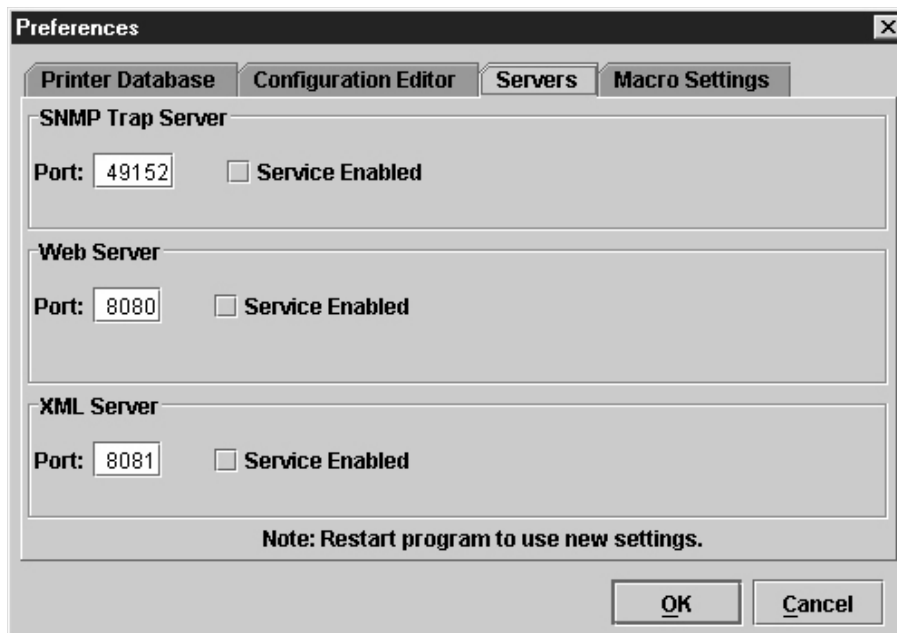
**Figure 10. Preferences: Configuration Editor Tab**

The Configuration Editor tab controls features of the Configuration Editor utility.

**Hide Key/Unhide Key:** Assigns which keys hide and unhide menu items in the Configuration Editor menu tree (see page 65). The default for Hide is H h. The default for Unhide is U u.

**Dec./Inc. Key:** Assigns which keys will decrement and increment menu items in the Configuration Editor menu tree (see page 65). The default for decrement is < ,. The default for increment is > ..

## Servers Tab



**Figure 11. Preferences: Servers Tab**

The Servers tab allows you to assign port values for the SNMP (Simple Network Management Protocol) Trap Server, the Web Server, and the XML Server. Click **Service Enabled** next to the corresponding server to turn it on.

**NOTE:** You must restart the PMU to use the new settings and enable the servers.

**SNMP Trap Server:** The service that enables the PMU to receive alerts from the printer when its status changes. Once the PMU receives the alert, the PMU creates an instant status poll to reflect the change in the database pane. For instance, if you turn the printer offline, the printer sends an alert to the PMU causing it to change the printer status instantly. In the database pane, the printer status changes to offline.

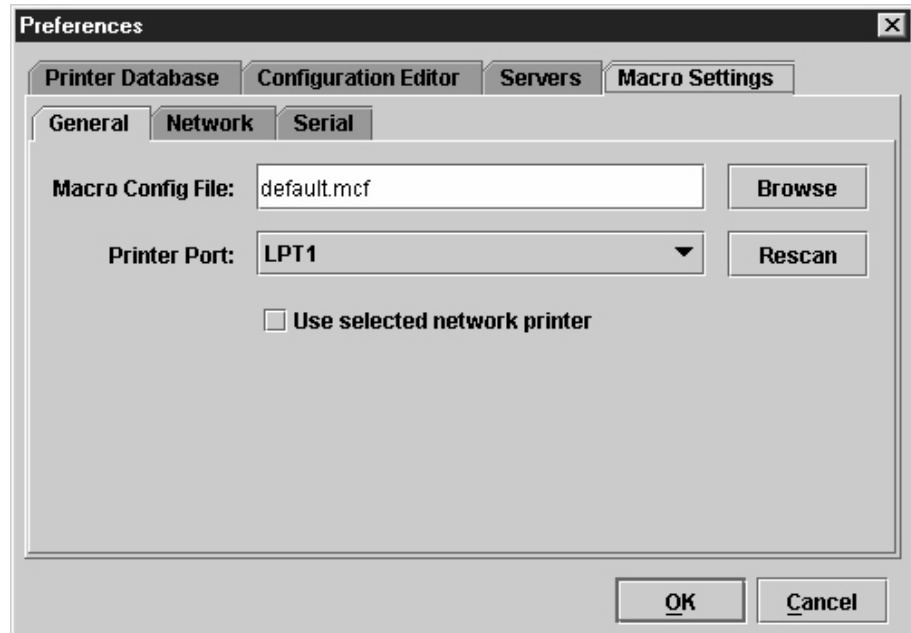
**NOTE:** The SNMP Trap Server works only if the printer's Ethernet Interface is configured correctly using the Configure Print Servers utility. See "Configure Print Servers" on page 143.

**Web Server:** Allows you to view the active PMU using a web browser. See "Web Access" on page 119.

**NOTE:** If you want to use the Web Server service, you must also enable the XML Server service.

**XML Server:** The PMU uses XML to communicate with its web server.

## Macro Settings Tab



**Figure 12. Preferences: Macro Settings Tab – General Sub-Tab**

The Macro Settings tab has three sub-tabs: General, Network, and Serial. See Figure 12.

### General Sub-Tab

**Macro Config File:** Displays the macro file that will load automatically when you start the macro utility. To select a new default macro config file, type it into the Macro Config File field, or click **Browse** to locate a file on your network.

**Printer Port:** Allows you to select the port that data is sent through. The choices vary according to the host computer. Possible choices include LPT1, LPT2, COM1, COM2, and Network.

If you select COM1 or COM2, click the **Serial** tab to further define printer parameters. If you select Network, click the **Network** tab to further define the network parameters.

- **Use selected network printer:** Check this box to send data directly to the network printer selected in the printer database. You do not need to further define network parameters.
- **Rescan:** Checks to see which ports are currently available on the host computer.

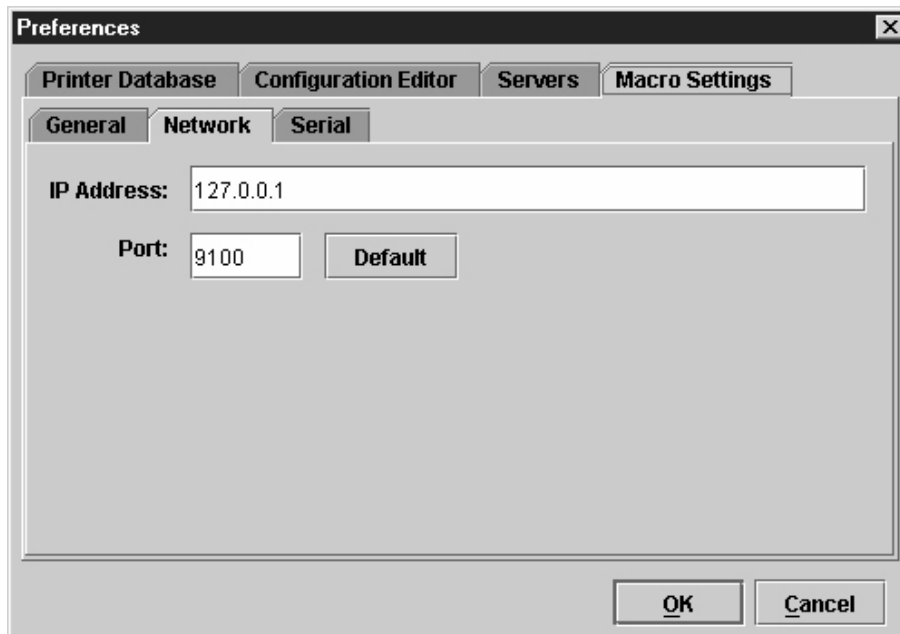


Figure 13. Preferences: Macro Settings Tab – Network Sub-Tab

### Network Sub-Tab

Use the Network tab only when the Printer Port on the General tab is set to Network.

**IP Address:** The address of the printer where the PMU will send the data.

**Port:** The port number that the PMU will use to send the data. This must match the Ethernet Interface of the printer where the PMU will send the data. In most cases this is 9100, the default. If not, contact your system administrator.

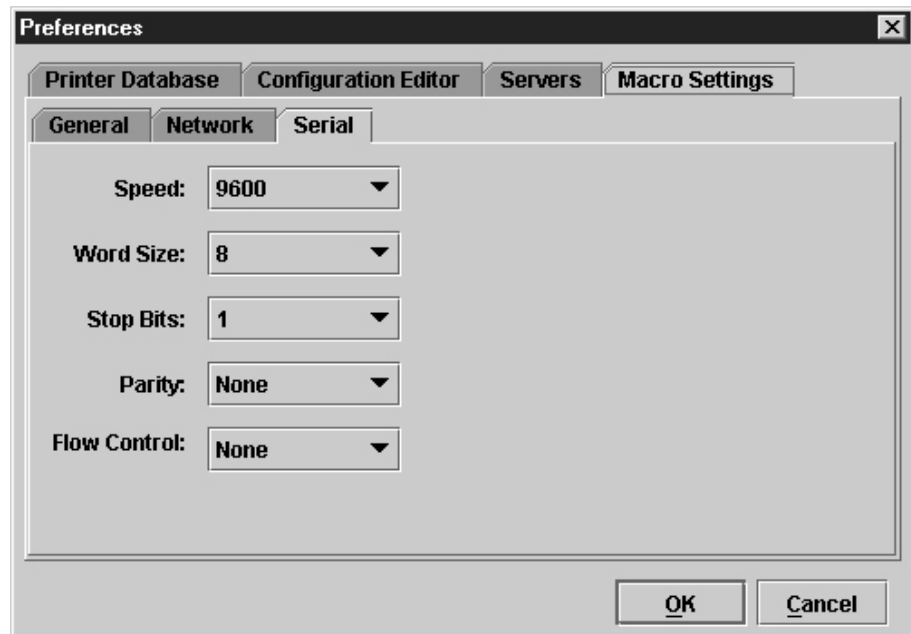


Figure 14. Preferences: Macro Settings Tab – Serial Sub-Tab

### Serial Sub-Tab

**Speed:** The baud rate at which data transfers. This setting must match the speed of the printer host serial port under the SERIAL PORT menu (thermal printers) or the SERIAL submenu in the HOST INTERFACE menu (all other printer models). See “Serial Port” (thermal) or “Host Interface” (all others) in your *User’s Manual*.

**Word Size:** The number of data bits per character. In most cases this should be set to 8.

**Stop Bits:** Inter-character gap. Can be set to 1 or 2. The normal setting is 1.

**Parity:** Adds an error checking bit if set to Odd or Even. The default is None. Other settings include Mark and Space.

**Flow Control:** Prevents data overrun by adjusting the sending side according to the needs of the receiving side.

- **None:** No adjustment occurs.
- **Rts/Cts in:** Hardware flow control on serial-input.
- **Rts/Cts out:** Hardware flow control on serial-output.
- **Xon/Xoff in:** Software flow control on serial-input using the X-on and X-off control characters.
- **Xon/Xoff out:** Software flow control on serial-output using the X-on and X-off control characters.

## The Edit Menu

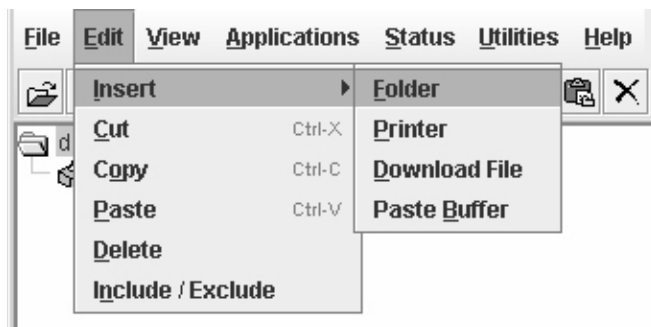





Figure 15. Edit Menu

Use the Edit option on the menu bar to build your database. The options in the Edit menu are described below.

### Insert

Adds a folder, printer, or Download file into your database. You must select an existing database item to create a folder, printer, or file. You can also paste the contents of the paste buffer (the last item that was copied or cut) into the database. The new icon appears one level below the selected database item. If there are items below the selected database item, the new item appears at the end.

Inserting an item involves three steps:

1. Select a database item. (The new icon will appear below the item you select.)
2. Define which type of icon you want to add. Select **Edit ▶ Insert ▶** and then select the item you want to add. Or click the  (insert new folder),  (insert new printer), or  (insert new Download file) icon.  
A new icon appears in the database.
3. Define what printer, folder, or file this icon represents.
  - a. To define a printer, see “Defining Printer Properties” on page 55.
  - b. To define a folder, double-click **New Folder**. The Folder Name dialog box opens. Type the name of the folder and click **OK**.
  - c. To define a Download file, see “File Download” on page 84.

### Cut

Removes selected folders, printers, or files from the database and places it in the paste buffer.

### Copy

Copies selected folders, printers, or files from the database to the paste buffer, leaving the original intact.

**NOTE:** You can select multiple database items by using the **Ctrl** or **Shift** key.



## Paste

Places the item in the paste buffer on the database tree. To paste, you must select a database item. The pasted item appears on the same level as the selected database item.

**NOTE:** If you select **Edit ▶ Paste**, the pasted item appears on the same level as the selected database item. However, if you select **Edit ▶ Insert ▶ Paste Buffer**, the pasted item appears one level below the selected database item.

## Delete

Permanently removes a selected folder, printer, or file from the database.

## Include/Exclude

Deactivates a selected folder, printer, or file. Inactive database items display a red circle with a slash through it on top of the item's icon.

You cannot send information to or receive information from excluded database items using the following Applications, Status, and Utilities menu options: Flash File Manager, File Download, Update Status, and Configure Print Servers.

To activate a database item, select the inactive item and then select **Edit ▶ Include/Exclude**.

## The View Menu

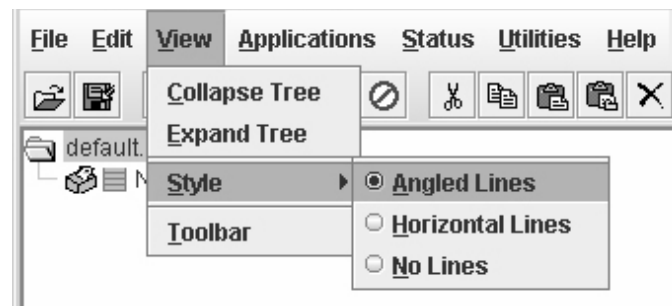


Figure 16. View Menu

## Collapse Tree

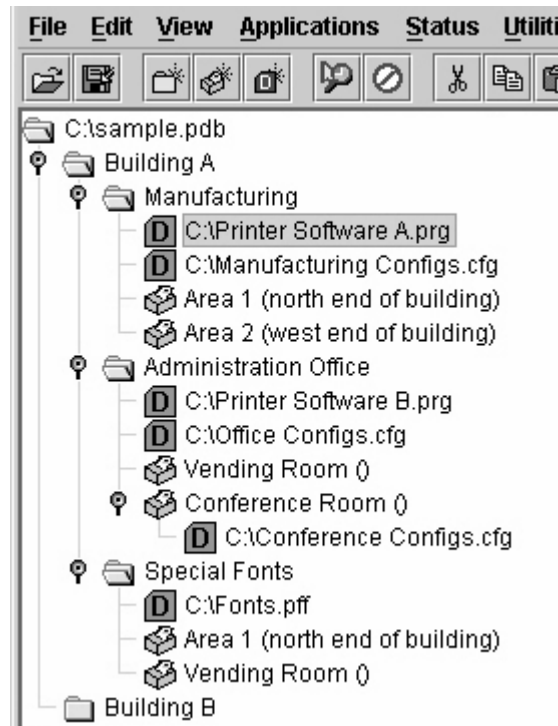
Collapses all folders on the database menu tree. Only the top level menu items display.

## Expand Tree

Expands all folders and printers on the database menu tree. All folders, printers, and Download files display.

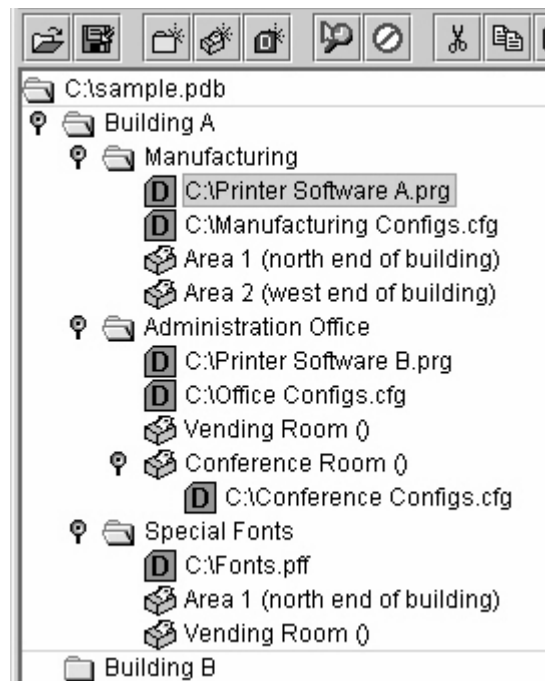
## Style

**Angled Lines:** Shows the links between database items using angled lines.



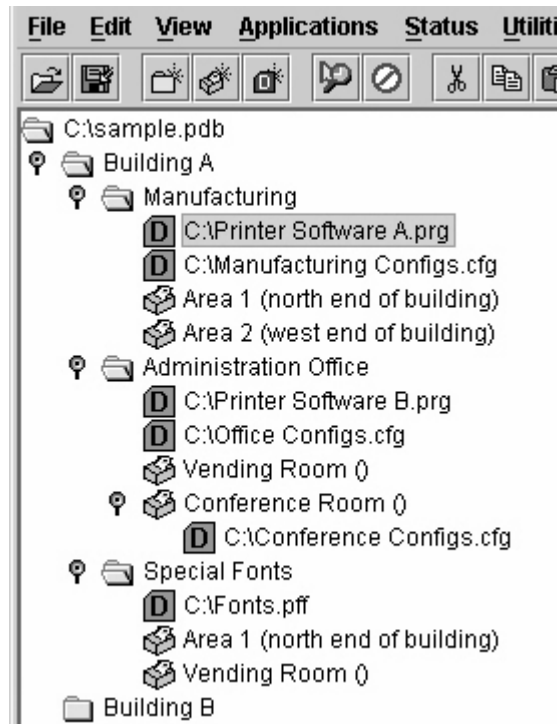
**Figure 17. Angled Lines**

**Horizontal Lines:** Shows the links between folders using horizontal lines.



**Figure 18. Horizontal Lines**

**No Lines:** Shows no lines between database items.



**Figure 19. No Lines**

## Toolbar

Allows you to select which buttons display on the toolbar.

**NOTE:** By default, some icons do not appear in the toolbar.

For a description of the toolbar icons, see “The Toolbar” on page 52.

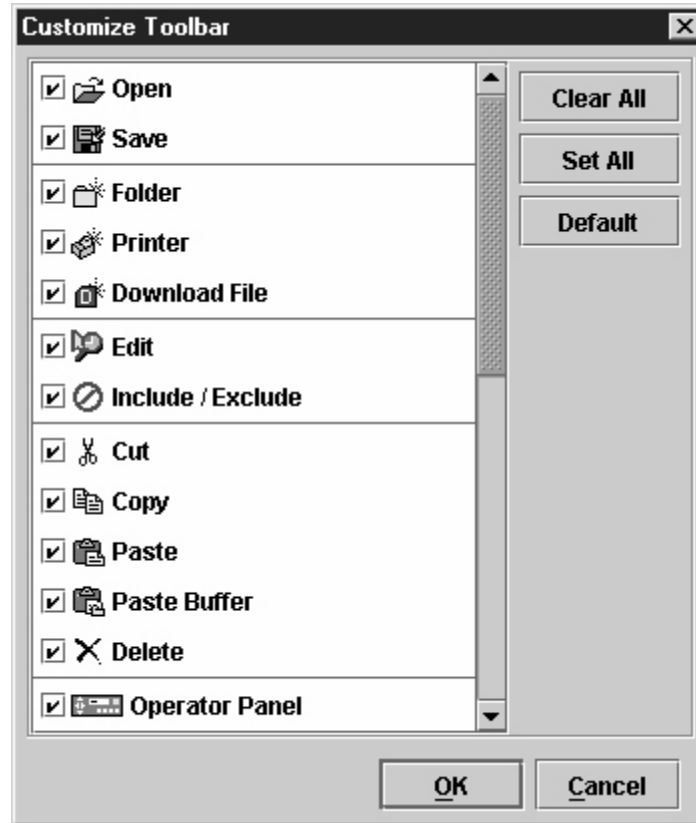
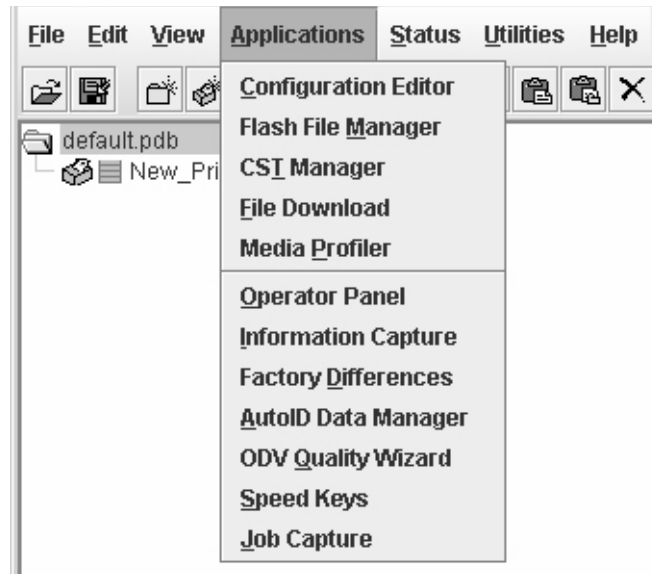


Figure 20. Customize Toolbar

## The Applications Menu



**Figure 21. Applications Menu**

For an explanation of the Applications menu options, find the menu option in Table 3 and go to the corresponding page.

**Table 3. Applications Menu Options**

Menu Option	Page
Configuration Editor	page 65
Flash File Manager	page 80
CST Manager	page 145
File Download	page 84
Media Profiler	page 98
Operator Panel	page 106
Information Capture	page 110
Factory Differences	page 75
ODV Quality Wizard	page 113
Speed Keys	page 114
Job Capture	page 115

## The Status Menu

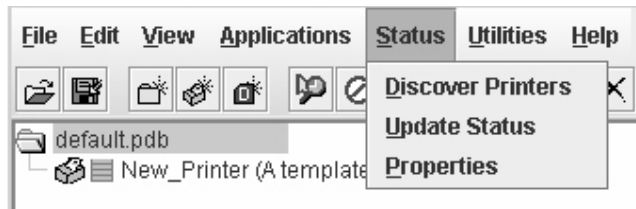



Figure 22. Status Menu

### Discover Printers

To search for printers on a network, select **Status ▶ Discover Printers**, or click the  **Discover Printers** button at the far right of the toolbar. The results of the search display in the database pane.

Discover Printers searches for printers on a network based on the settings specified in the Discovery tab of the Status Monitoring Properties dialog box. The next section explains how to configure your search.

### Properties

Select **Status ▶ Properties** to open the Status Monitoring Properties dialog box. The dialog box contains three tabs: Discovery, Polling, and Alert Delivery.

**NOTE:** To enable printer discovery, check the **Enable Printer Discovery** check box.

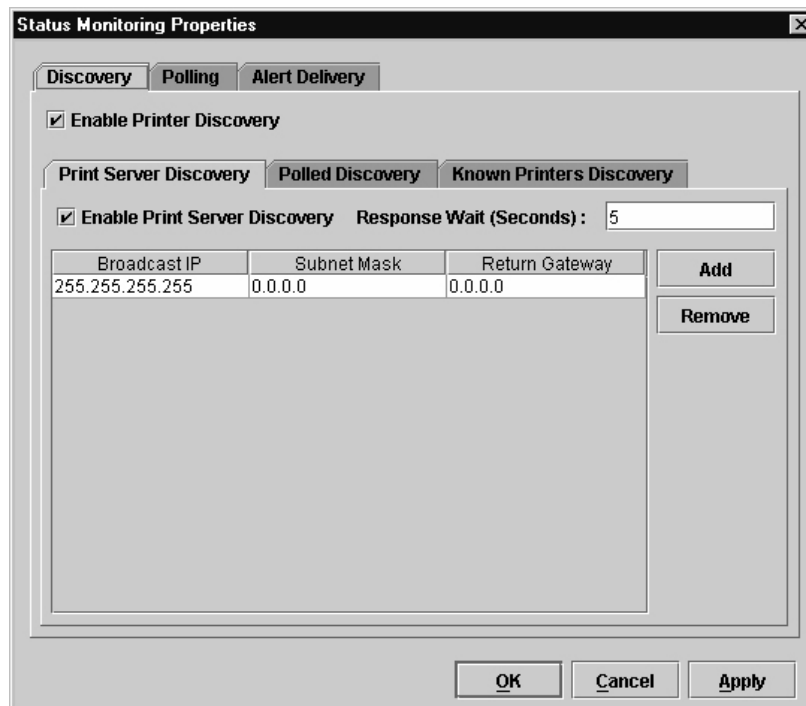


Figure 23. Status Monitoring Properties: Discovery Tab – Print Server Discovery Sub-Tab

## Discovery Tab

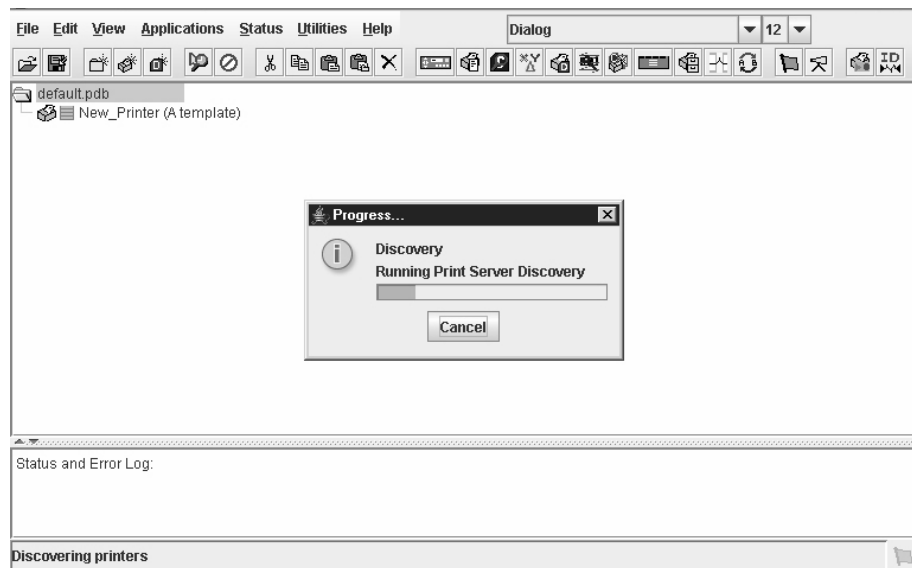
You can discover printers on a network in three ways:

1. **Print Server Discovery:** This option allows you to discover all 6400, InfoPrint 6500, 4400, and InfoPrint 6700 Series Ethernet Interface-equipped printers on a subnet. To enable the option, check the **Enable Print Server Discovery** check box in the Status Monitoring Properties dialog box (see Figure 23), then click **Apply** or **OK**.

**Response Wait (Seconds):** To specify the time delay (in seconds) the PMU waits for a printer response. By default, the value is set at 5 seconds.

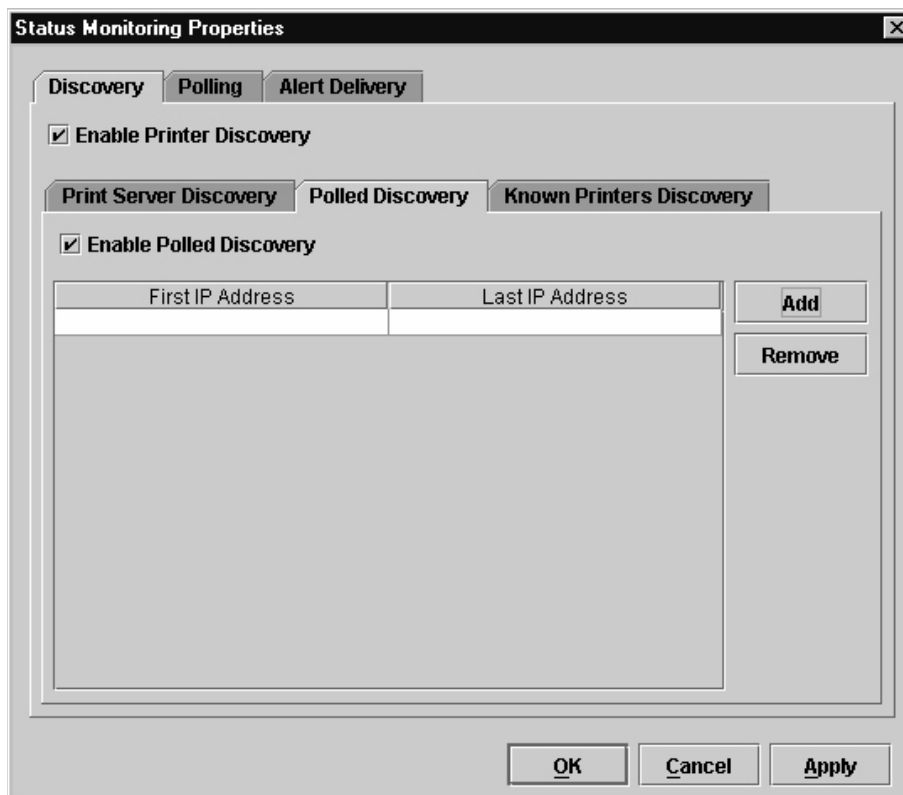
**Broadcast IP, Subnet Mask, and Return Gateway:** These settings must match your network configuration. See your system administrator.

**NOTE:** To discover unconfigured Ethernet Interfaces, you must enter the Gateway Address and Subnet Mask in the Return Gateway field.



**Figure 24. Print Server Discovery in Progress**

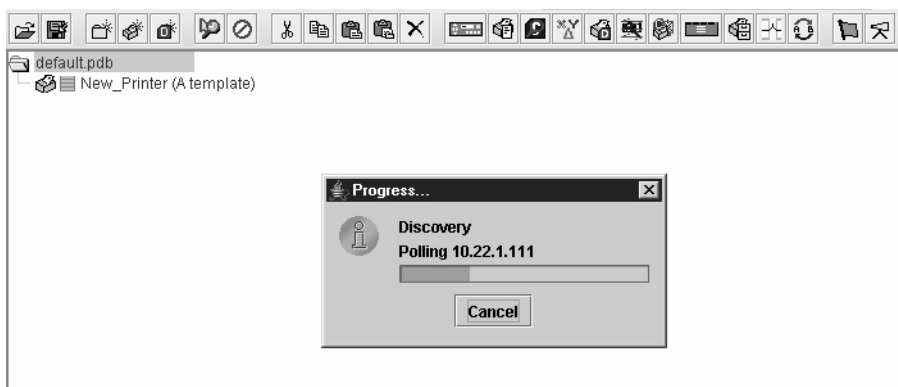
If Enable Print Server Discovery is enabled, a progress indicator displays while the PMU discovers printers. See Figure 24.



**Figure 25. Status Monitoring Properties:  
Discovery Tab – Polled Discovery Sub-Tab**

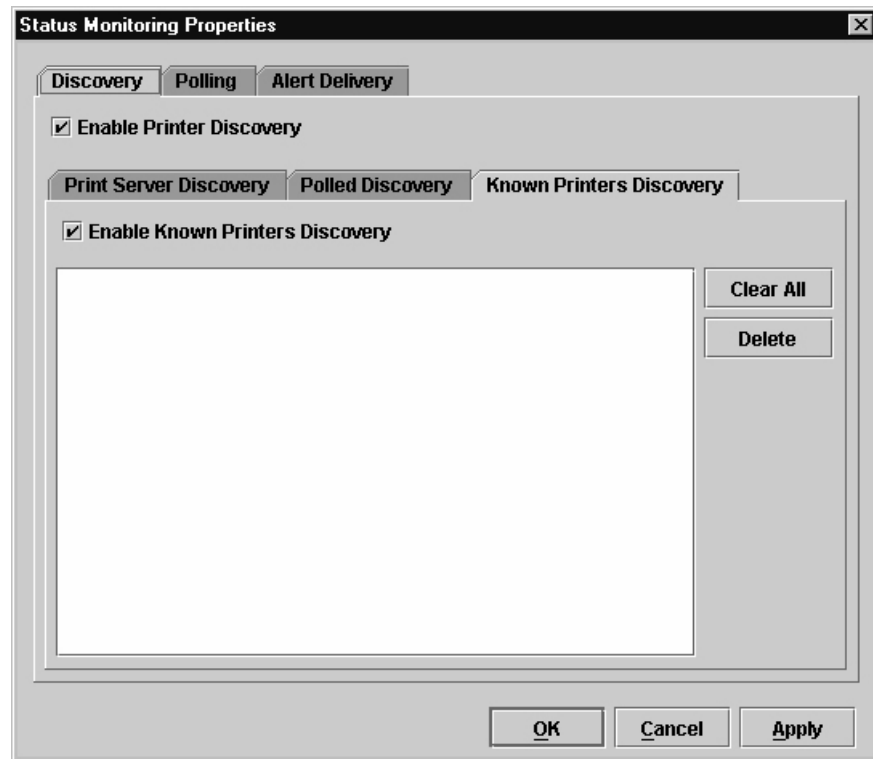
2. **Polled Discovery:** This option allows you to select a range of IP addresses to poll. To enable the option, click the **Polled Discovery** tab and check the **Enable Polled Discovery** check box, then click **Add** (see Figure 25). In the First IP Address field, enter the first IP address of your desired range. In the Last IP Address field, enter the last IP address. Click **Apply** or **OK**. The PMU polls the printers within your specified range and displays the results in the database pane.

If Polled Discovery is enabled, a progress indicator displays while the PMU discovers printers. See Figure 26.



**Figure 26. Polled Discovery in Progress**





**Figure 27. Status Monitoring Properties:  
Discovery Tab – Known Printers Discovery Sub-Tab**

3. **Known Printers Discovery:** This option logs previously discovered printer IP addresses. From this log, you can select and delete previously polled discoveries to create a new polling list to target your printer search. To enable the option, click the **Known Printers Discovery** tab and check the **Enable Known Printers Discovery** check box (see Figure 27). From the polled list of IP addresses, refine your search by keeping or deleting found IP addresses. Click **Apply** or **OK** to start a new poll based on your specification.

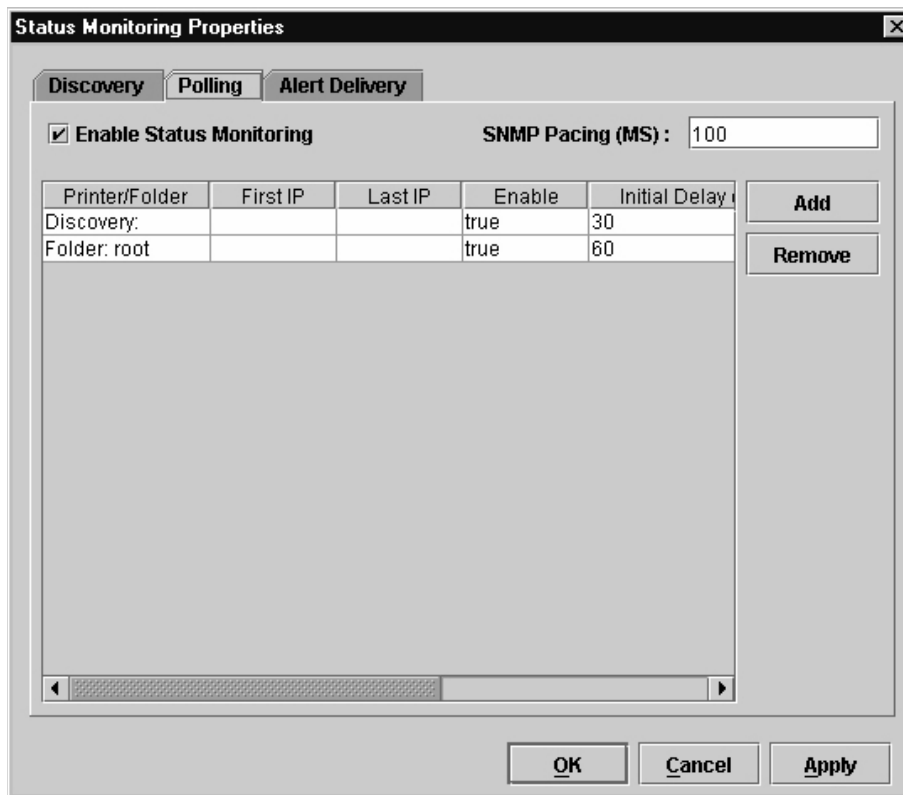
**NOTE:** You cannot manually add an IP address to this list. If you delete an IP address, it is lost until it is rediscovered.

If Known Printers Discovery is enabled, a progress indicator displays while the PMU discovers printers. See Figure 28.



**Figure 28. Known Printers Discovery in Progress**

## Polling Tab



**Figure 29. Status Monitoring Properties: Polling Tab**

The Polling option allows you to control the way the PMU polls printers on the network. For instance, you can create a timed interval for the PMU to poll every 30 seconds or every two minutes. You can also specify a range of IP addresses.

To enable the option, check the **Enable Status Monitoring** check box in the Polling tab (see Figure 29). The SNMP Pacing (MS) value places a delay between each SNMP request. This feature minimizes the network load. By default, the value is set at 100 milliseconds (.1 second).

**NOTE:** If Discovery is enabled, then a discovery also occurs, based upon the settings in the Discovery tab (see “Discovery Tab” on page 39).

Now you can set parameters to a new task. The parameters include:

**Printer/Folder:** To select which printer or folder you want the PMU to poll. Click the field to select options from a drop-down menu.

**First IP:** To set the beginning IP address in a polling range. Use this option if you select **Range:** as the Printer/Folder option.

**Last IP:** To set the last IP address in a polling range. Use this option if you select **Range:** as the Printer/Folder option.

**Enable:** To select whether or not you want to enable polling of a specific task. If you want the PMU to poll the printers according to the specifications of your first task, select **true**. Otherwise, select **false**.

**Initial Delay (S):** To specify the time delay from when the PMU starts to when the PMU polls printers. The time delay is calculated in seconds.

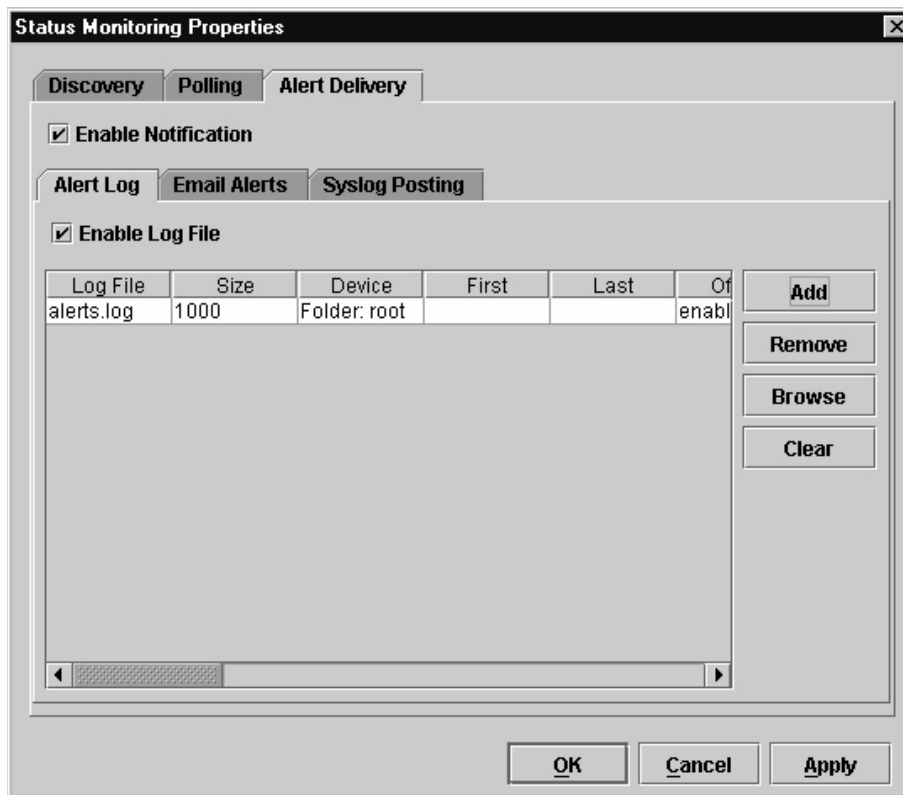
**Polled Interval (S):** To poll printers automatically with timed intervals calculated in seconds. Use this option to periodically poll for new printers every few seconds.

**Response Wait (MS):** To specify the time delay the PMU waits between SNMP responses. By default, the value is set at 300 milliseconds (.3 seconds).

**NOTE:** If your network is overloaded and the responses are slow, you may not receive a response with the default setting. In this case, increase your Response Wait (MS) value.

**NOTE:** If you enter a low value for slow networks, you may receive no response. In this case, increase the Response Wait (MS) value.

## Alert Delivery Tab



**Figure 30. Status Monitoring Properties:  
Alert Delivery Tab – Alert Log Sub-Tab**

Select **Status ► Properties** to open the Status Monitoring Properties dialog box. Click the **Alert Delivery** tab. Check the **Enable Notification** check box to enable the option. The Alert Delivery properties allow you to customize the way the PMU notifies you of potential printer errors. Descriptions of the three alert types follows:

1. **Alert Log:** Allows the PMU to log alerts to a file located in the PMU installation directory. To log alerts, check the **Enable Log File** check box, then click **Add** (see Figure 30). A task item adds to the log list. In the task item, specify the following as applicable, then click **Apply** or **OK**.

**Log File:** To name the log file. The default file name is **alerts.log**.

**Size:** To set the maximum file size, in bytes. The default (and minimum required) size is 1000 bytes.

**Device:** To choose a device item you want the PMU to monitor, such as a folder, specific printer, or a range of IP addresses.

**First:** To set the beginning IP address in a polling range. Use this option if you select **Range:** as the Device option.

**Last:** To set the last IP address in a polling range. Use this option if you select **Range:** as the Device option.

**NOTE:** In the remaining alert option fields, select **enable** or **disable** as desired.

**Offline, Warning, Media Input, Media Output, Media Path, Marker, Cutter, Barcode, RFID, Scanner, Label, Intervention Needed, Consumables, and Power Cart:** For a description of the alert groups and printer events, refer to “Alert Groups” in the SNMP Configuration section of chapter three in the *Ethernet Interface User’s Manual*. All options are enabled by default.

To set up alert groups on the Ethernet Interface, see “Configure Print Servers” on page 143.

**Comment:** Enter comments as needed.

The screenshot shows the 'Status Monitoring Properties' dialog box with the 'Alert Delivery' tab selected. The 'Email Alerts' sub-tab is active. The 'Enable Notification' and 'Enable Email' checkboxes are checked. The 'Email Alerts' sub-tab contains the following fields:

- Outgoing Mail (SMTP) Server: [Empty text box]
- Email Subject: Printer Status
- Email Sender: printermanager@yourcompany.com
- SMTP Email Server Port: 25

Below these fields is a table with the following columns: Email Address, Device, First, Last, and Offline. The table contains one row with the following data:

Email Address	Device	First	Last	Offline
	Folder: root			enable

Buttons for 'Add' and 'Remove' are located to the right of the table. At the bottom of the dialog are 'OK', 'Cancel', and 'Apply' buttons.

**Figure 31. Status Monitoring Properties:  
Alert Delivery Tab – Email Alerts Sub-Tab**

2. **Email Alerts:** The PMU sends you an alert e-mail if a printer error occurs. To set up Email Alerts, check the **Enable Email** check box. Enter information in the following fields:

**Outgoing Mail (SMTP) Server:** See your system administrator.

**Email Subject:** Enter the subject of e-mail.

**Email Sender:** Enter your e-mail address.

**SMTP Email Server Port:** See your system administrator.

Next, click **Add** to define a new task (see Figure 31). In the new task item, specify the following information, then click **Apply** or **OK**.

**Email Address:** Enter the e-mail address where you want the PMU to send the alert messages.

**Device:** To choose a device item you want the PMU to monitor, such as a folder, specific printer, or a range of IP addresses.

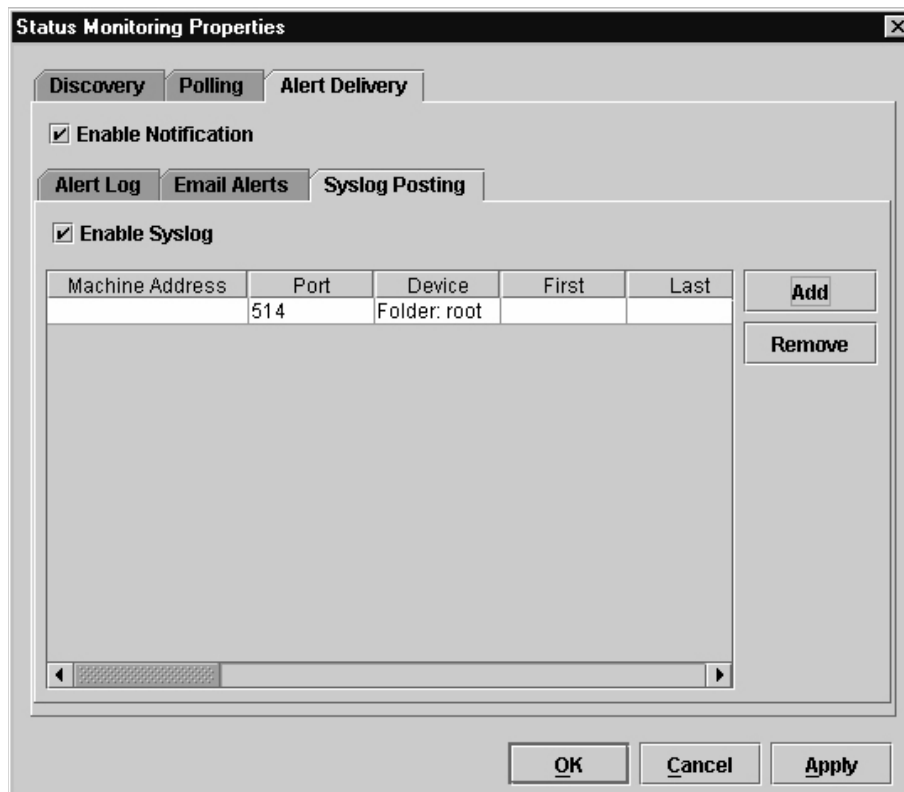
**First:** To set the beginning IP address in a polling range. Use this option if you select **Range:** as the Device option.

**Last:** To set the last IP address in a polling range. Use this option if you select **Range:** as the Device option.

**NOTE:** In the remaining alert option fields, select **enable** or **disable** as desired.

**Offline, Warning, Media Input, Media Output, Media Path, Marker, Cutter, Barcode, RFID, Scanner, Label, Intervention Needed, Consumables, and Power Cart:** For a description of the alert groups and printer events, refer to “Alert Groups” in the SNMP Configuration section of chapter three in the *Ethernet Interface User’s Manual*. All options are enabled by default.

**Comment:** Enter comments as needed.



**Figure 32. Status Monitoring Properties:  
Alert Delivery Tab – Syslog Posting Sub-Tab**

3. **Syslog Posting:** Used in a UNIX operating system, it allows the PMU to log alerts to a file located in the PMU installation directory. To log alerts, check the **Enable Syslog** check box, then click **Add** (see Figure 32). A task item adds to the log list. In the task item, specify the following as applicable, then click **Apply** or **OK**.

**Machine Address:** The UNIX IP Address.

**Port:** See your system administrator.

**Device:** To choose a device item that you want the PMU to monitor, such as a folder, specific printer, or a range of IP addresses.

**First:** To set the beginning IP address in a polling range. Use this option if you select **Range:** as the Device option.

**Last:** To set the last IP address in a polling range. Use this option if you select **Range:** as the Device option.

**NOTE:** In the remaining alert option fields, select **enable** or **disable** as desired.

**Offline, Warning, Media Input, Media Output, Media Path, Marker, Cutter, Barcode, RFID, Scanner, Label, Intervention Needed, Consumables, and Power Cart:** For a description of the alert groups and printer events, refer to “Alert Groups” in the SNMP Configuration section of chapter three in the *Ethernet Interface User’s Manual*. All options are enabled by default.

**Comment:** Enter comments as needed.

## Update Status




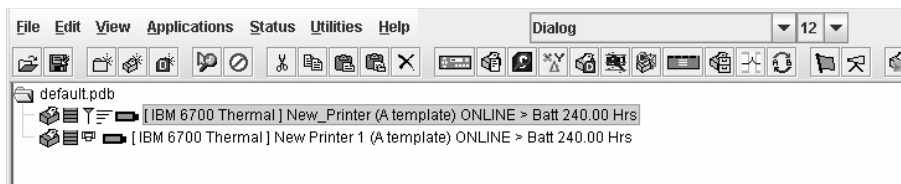
Update Status shows the condition of the printer at the time the status is checked. To update the status of a printer, select **Status ▶ Update Status**, or click the  (green flag) button at the right of the toolbar.

Figure 33 shows a printer with a wireless Ethernet Interface that uses two ports. The  (signal strength) icon represents the wireless port, while the  (ethernet port) icon represents the ethernet port.

The printer's model number, if available, displays in brackets following the printer icons. The printer name is a user defined field that is used to distinguish a printer in the database. This field can be modified in the Printer Properties dialog box under the Identification tab. The name chosen must be unique from all the other printer names in the database and must use printable ASCII characters.




**Figure 33. Update Status**

When the printer status updates, the  (printer) icon may change color:

- Green indicates the printer is online, functioning properly, and can print
- Yellow indicates a warning, but the printer can print
- Red indicates the printer is offline or not functioning properly and cannot print
- Grey indicates that the printer is not recognized

The message to the right of the printer description is identical to the message on the operator panel.

If you enable status polling, the printer status updates automatically.

The  (ribbon supply) icon indicates the amount of ribbon available on the printer.

- Green indicates a full or nearly full ribbon supply
- Yellow indicates a moderate ribbon supply
- Red indicates a small or no ribbon supply
- Grey indicates one of the following:
  - The ribbon supply feature is not supported on the printer
  - For thermal printers, the printer is not using ribbon but rather direct thermal
  - For thermal printers, the printer has not printed since it was powered on, so the PMU cannot determine the amount of ribbon remaining
  - For line matrix printers, the printer was powered on with a fault condition (not allowing the ribbon to be activated), so the PMU cannot determine the amount of ribbon remaining





- For line matrix printers, the amount of ribbon remaining has reached 0% (you can still print depending on the operator panel settings)
- Dark grey (line matrix printers only) indicates that the amount of ribbon remaining has reached 25%

**NOTE:** The following three icons appear only if the features are installed.




The  (signal strength) icon indicates the strength of the radio signal.


- Green with three or four bars indicates a strong signal
- Yellow with two bars indicates a moderate signal
- Red with one bar indicates a weak or non-existent signal

The  (ethernet port) icon always remains blue, since it represents an ethernet connection.

The  (battery power) icon indicates the percentage of available battery power.

- Green indicates the battery has 61% to 100% available power
- Yellow indicates the battery has 20% to 60% available power
- Red indicates the battery has less than 20% available power

Place the pointer over the , , or  icon to obtain status information about the feature. See Figure 34, Figure 35, and Figure 36.

**NOTE:** No information displays if you place the pointer over the  icon.

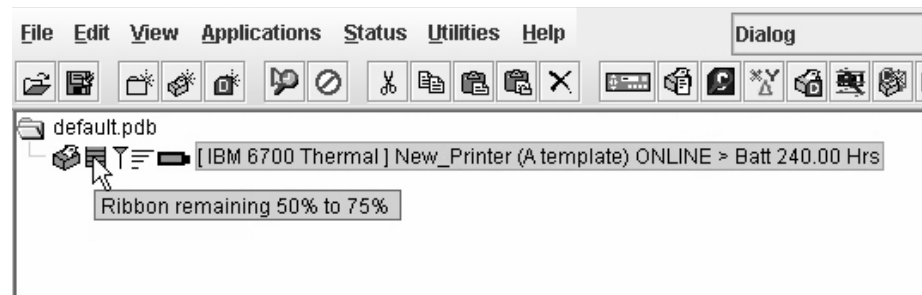


Figure 34. The Ribbon Supply Icon

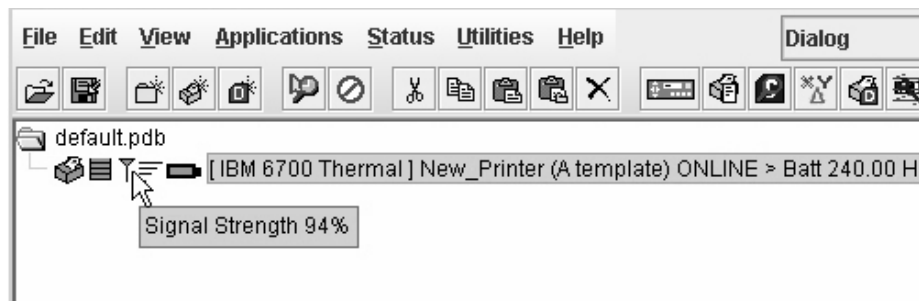


Figure 35. The Signal Strength Icon

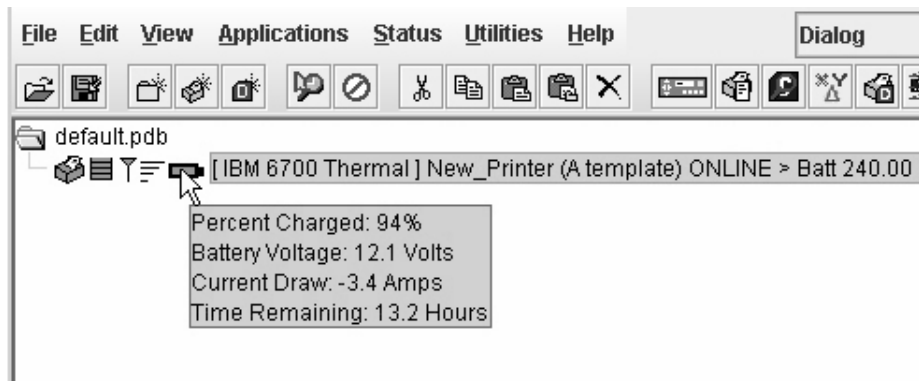


Figure 36. The Battery Power Icon

## The Utilities Menu

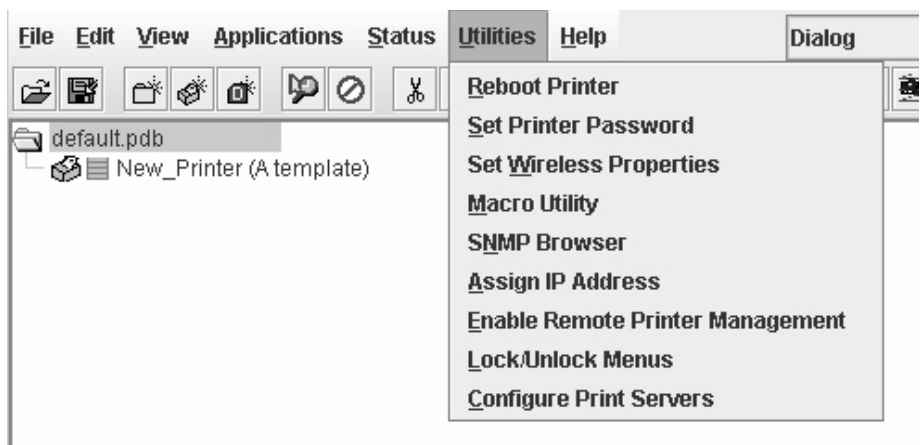


Figure 37. Utilities Menu

For an explanation of the Utilities menu options, find the menu option in Table 3 and go to the corresponding page.

Table 4. Utilities Menu Options

Menu Option	Page
Reboot Printer	page 125
Set Printer Password	page 125
Set Wireless Properties	page 127
Macro Utility	page 136
SNMP Browser	page 139
Assign IP Address	page 140
Enable Remote Printer Management	page 141
Lock/Unlock Menus	page 142
Configure Print Servers	page 143

## The Help Menu

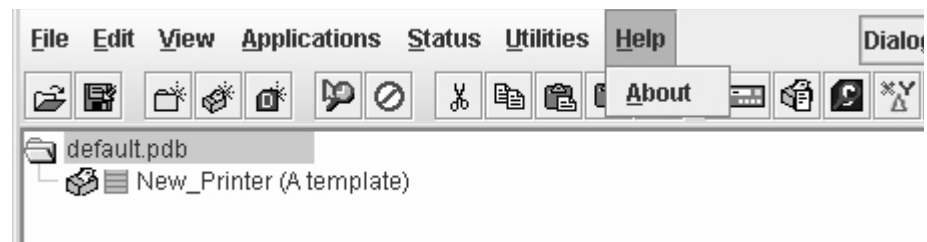


Figure 38. Help Menu
















### About














Displays the About dialog box. The About dialog box shows the PMU program's version information and part number, and the Java version number.

## The Toolbar

The PMU toolbar contains buttons that perform functions. See below for a description of each button. Refer to the specified page for a more detailed description.

You can select which buttons display on the toolbar. See page 36.

Button	Description
	<b>Open:</b> Opens a different printer database.
	<b>Save:</b> Saves the current printer database.
	<b>Folder:</b> Inserts a new folder into the printer database (page 32).
	<b>Printer:</b> Inserts a new printer into the database (page 32).
	<b>Download File:</b> Inserts a new Download file into the database (page 32).
	<b>Edit:</b> Defines the properties of the selected item (page 55).
	<b>Include/Exclude:</b> Deactivates a selected folder, printer, or file (page 33).
	<b>Cut:</b> Removes a selected folder, printer, or file from the database and places it in the paste buffer (page 32).
	<b>Copy:</b> Copies a selected folder, printer, or file to the paste buffer (page 32).
	<b>Paste After:</b> Pastes the item in the paste buffer after the selected item (page 33).
	<b>Paste Into:</b> Pastes the item in the paste buffer into the selected item (page 33).
	<b>Delete:</b> Removes the selected item (page 33).
	<b>Operator Panel:</b> Virtual operator panel that allows you to make selections via the PMU as if you are using the physical operator panel (page 106).
	<b>Information Capture:</b> Allows the PMU to capture information sent between the computer and the printer (page 110).
	<b>Configuration Editor:</b> Allows you to edit the data sent from the computer to the printer before the printer receives it (page 65).

Button	Description
	<b>Find Differences:</b> Allows you to find the differences from the factory settings for all configurations (page 75).
	<b>File Download:</b> Allows you to download a configuration, firmware, or flash file to the printer (page 84).
	<b>ODV Quality Wizard:</b> Opens the ODV Quality Wizard window (page 113).
	<b>Configure Print Servers:</b> Opens the Configure Print Servers window (page 143).
	<b>Speed Keys:</b> Opens the Speed Keys window (page 114).
	<b>Flash File Manager:</b> Opens the Flash File Manager window (page 80).
	<b>Media Profiler:</b> Opens the Media Profiler window (page 98).
	<b>CST Manager:</b> Opens the CST Manager window (page 145).
	<b>Job Capture:</b> Opens the Job Capture window (page 115).
	<b>Macro Utility:</b> Opens the Macro Utility window (page 136).
	<b>Update Status:</b> Marks a printer or printers for status updates (page 48).
	<b>Discover Printers:</b> Searches for new printers (page 38).
	<b>Collect Barcode and RFID Data:</b> Opens the AutoID Data Telemetry Viewer window (page 199).


## Managing the Database

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To organize your databases easily and effectively, use the Edit option on the printer database menu bar. You can add, delete, and assign printers, configuration files, and download files to your database tree. You can also organize them using folders. All Edit menu functions have buttons on the toolbar (see page 52).

### Database Items

---

 **Folder:** Use folders to group the elements of your database.

 **Printer:** See “Defining Printer Properties” on page 55.

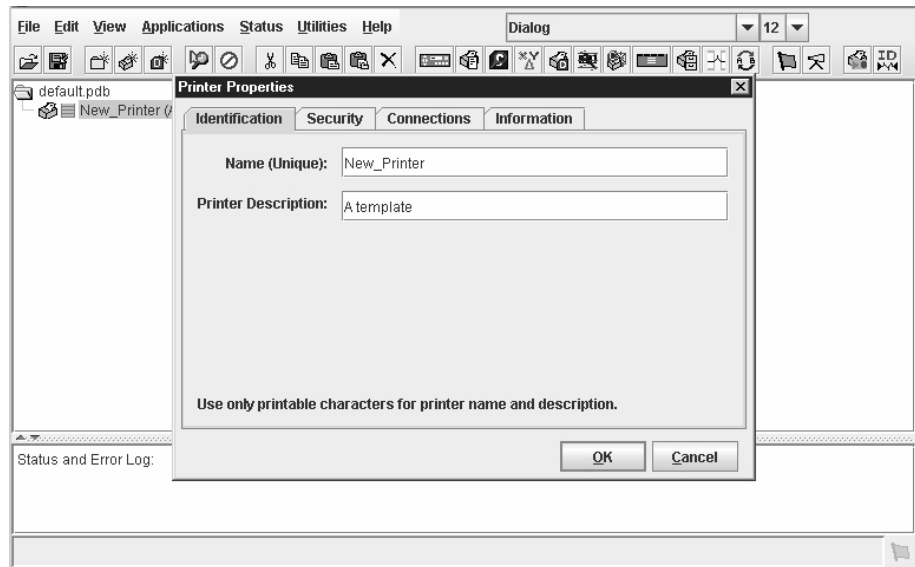
 **Download file:** A flash file or a configuration file (created in the Configuration Editor which is described on page 65) stored on your host computer.

A flash file contains information (e.g., the printer’s firmware file or a font file) that you can download to the flash SIMM memory of a printer or group of printers.


A configuration file contains user-defined printer configurations that you can download to your printer using either the printer database or the Configuration Editor.

For information about Download files, see “File Download” on page 84.

## Defining Printer Properties

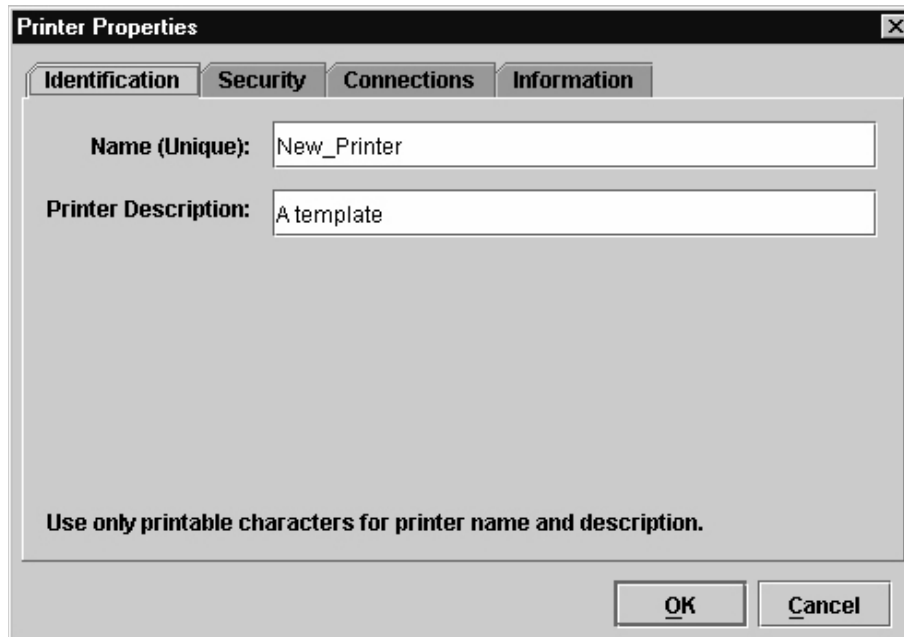


**Figure 39. Defining Printer Properties**

Before you can use any of the PMU applications, you must define the printer's properties. You must identify the printer and configure how the printer communicates with the PMU. To define a printer, double-click the printer's name or click the  (edit database entry) button. The first time you run the PMU, double-click **New\_Printer (A template)**. The Printer Properties dialog box opens. See Figure 39.

The Printer Properties dialog box contains four tabs: Identification, Security, Connections, and Information, described in the next sections.

## Identification Tab

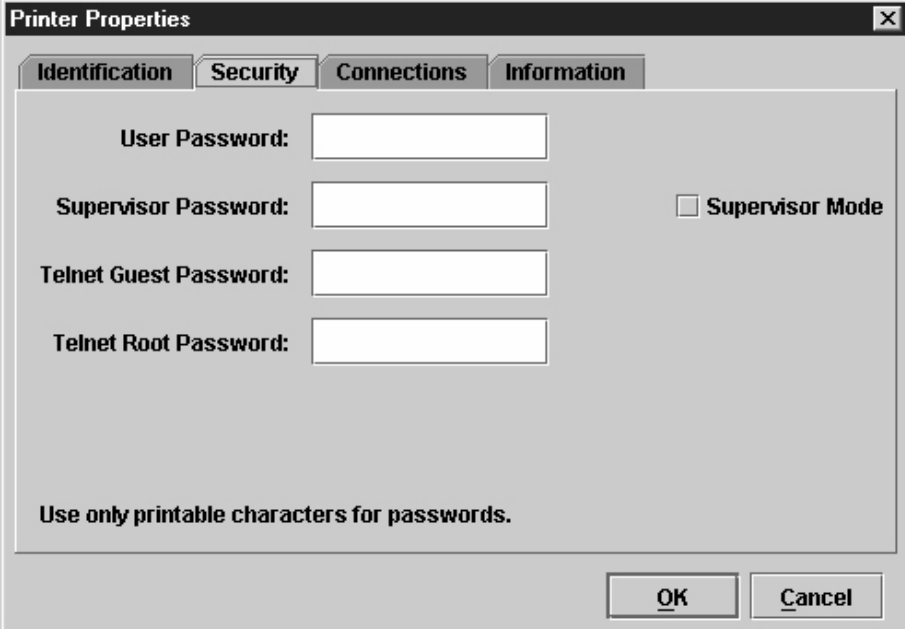


**Figure 40. Printer Properties: Identification Tab**

**Name (Unique)/Printer Description:** Assigns a name to your printer to identify it in the printer database. You can also assign a printer description, which appears in parentheses to the right of the printer name in the database. When you assign a printer name and description, use only printable characters. Spaces may be used to separate words.



## Security Tab



Printer Properties

Identification Security Connections Information

User Password:

Supervisor Password:   Supervisor Mode

Telnet Guest Password:

Telnet Root Password:

Use only printable characters for passwords.


OK Cancel

**Figure 41. Printer Properties: Security Tab**

**User/Supervisor Password:** Enter the printer's password, if appropriate. The password feature restricts access to certain functions of the PMU. In User mode, the PMU does not allow the following functions: downloading files, configurations, or configuration names to the printer; clearing the error log; and setting passwords. Supervisor mode allows unrestricted access to all functions of the PMU.

User and Supervisor passwords are only recognized up to 9 characters, and are displayed as \*\*\*\*\*, one \* for each character typed. Use only printable characters for passwords. Spaces may be used to separate words. To set up a password, see "Set Printer Password" on page 125.

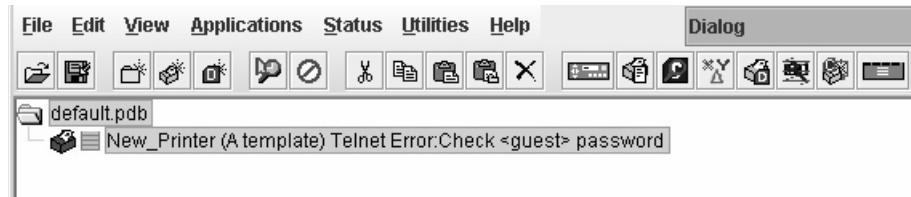
**Telnet Guest Password:** The PMU uses Telnet to read various printer settings.

**IMPORTANT** If you change the Telnet guest password, click OK and then the  (green flag) button (or select Status ▶ Update Status).

**Telnet Root Password:** The PMU uses Telnet to update various printer settings.

**IMPORTANT** If you change the Telnet root password, click OK and then the  (green flag) button (or select Status ▶ Update Status).

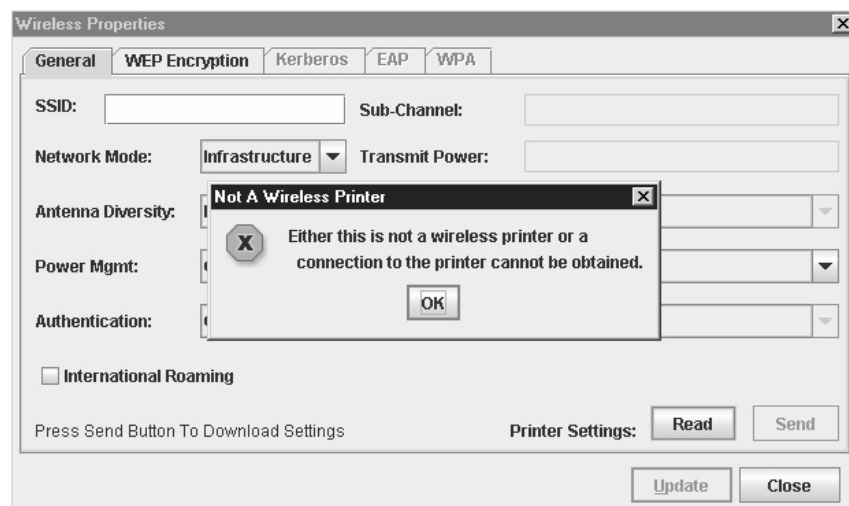
## Telnet Guest Password Errors



**Figure 42. Telnet Guest Password Error: Polling the Printer Status**

The PMU uses Telnet to poll the printer status. If your printer reports a Telnet error (see Figure 42), enter the password for the user **guest** (page 57).

See your system administrator.

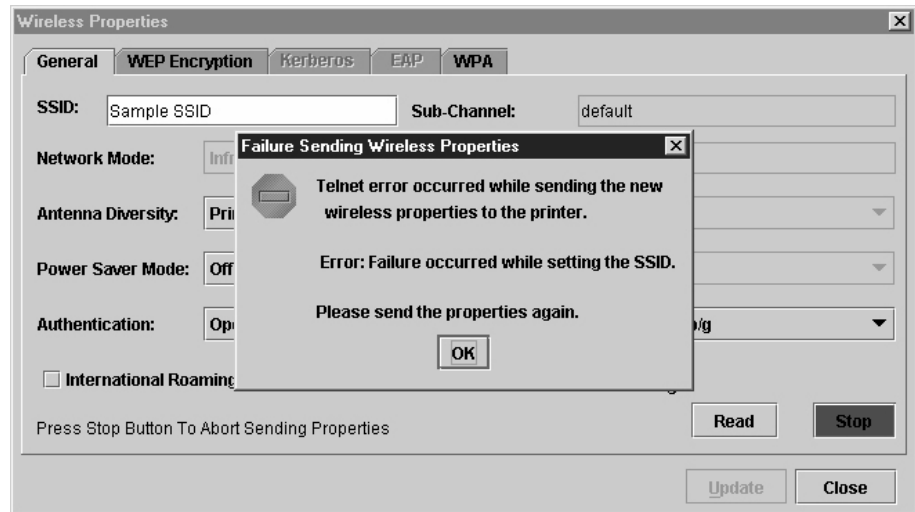


**Figure 43. Telnet Guest Password Error: Reading Wireless Settings**

The PMU also uses Telnet to read wireless printer settings (page 127). If the PMU reports a Telnet error when attempting to read wireless printer settings (see Figure 43), enter the password for the user **guest** (page 57).

See your system administrator.

## Telnet Root Password Errors



**Figure 44. Telnet Root Password Error**

If the PMU reports a Telnet error when attempting to update wireless printer settings (see Figure 44), enter the password for the user **root** (page 57).

See your system administrator.



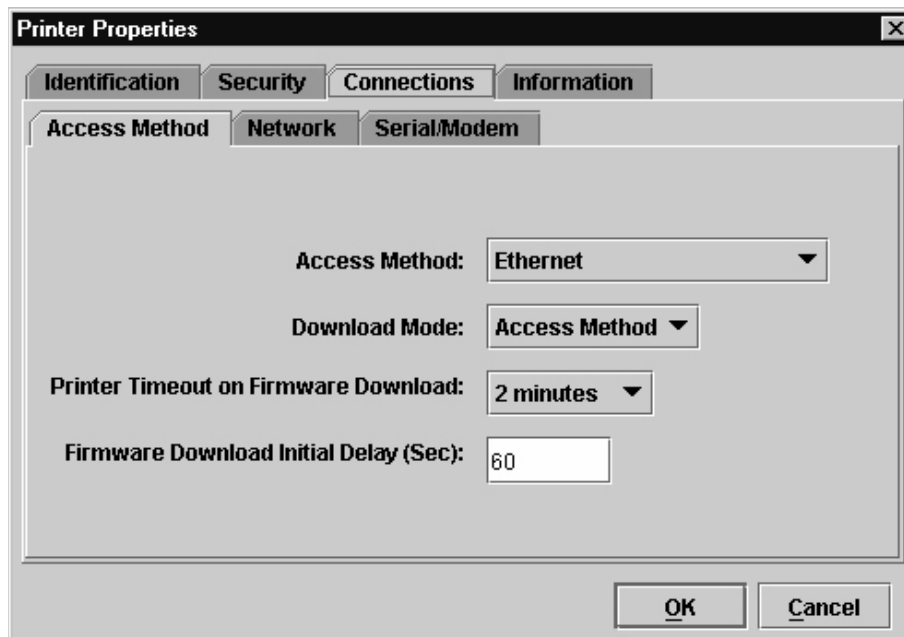
**Figure 45. Enable Command Failed**

The PMU also uses Telnet to enable remote printer management (see "Enable Remote Printer Management" on page 141).

If the PMU reports an error when attempting to enable remote printer management (see Figure 45), enter the password for the user **root** (page 57).

See your system administrator.

## Connections Tab



**Figure 46. Printer Properties:  
Connections Tab – Access Method Sub-Tab**

The Connections tab contains three sub-tabs: Access Method, Network, and Serial/Modem.

### Access Method Sub-Tab

**Access Method:** Identifies how the PMU accesses the printer. Refer to the *Ethernet Interface User's Manual* to set up the Ethernet Interface for your printer.

- **Ethernet:** To connect the host computer to the printer via the Ethernet Interface.
- **Network (TCP):** To connect the host computer to the printer via a network interface.
- **Printer Serial Port (Direct):** To connect the host computer to the printer directly via the serial port.
- **Printer Debug Port (Direct):** To connect the host computer to the printer directly via the debug port.
- **Printer Serial Port (Modem):** To connect the host computer to the printer via a modem and the serial port.
- **Printer Debug Port (Modem):** To connect the host computer to the printer via a modem and the debug port.

**Download Mode:** Identifies how the PMU downloads files and configurations to the printer. Access Method is the only option available.

**Printer Timeout on Firmware Download:** Specifies the number of minutes the printer waits for data while downloading a file from the host computer. If a

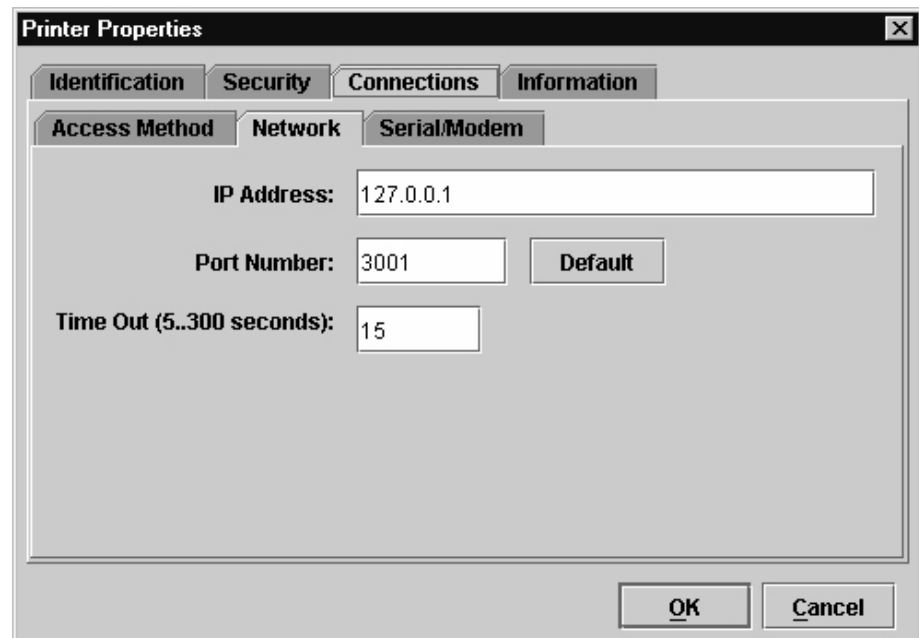
stall lasts for more than the specified time, the printer times out and the download terminates. If you have a slow connection between the PMU and the printer, you may need to define a longer Download Timeout period.

The Download Timeout range is between 1 and 60 minutes. The default is 2 minutes.

**Firmware Download Initial Delay (Sec):** Specifies the number of seconds the PMU waits before sending files to the printer. If the printer is not ready within the specified time, the download will terminate, and the Status and Error Log will report Connection Refused.

If you receive this error message, increase the initial delay time. The default is 60 (seconds).

### Network Sub-Tab



**Figure 47. Printer Properties: Connections – Network Sub-Tab**

Enter the printer's IP Address and Port Number. (Click **Default** to reset the Port Number to 3001.) The Time Out option sets the amount of time, in seconds, the PMU waits for a response from the printer after sending a command. If there is no response in the specified amount of time, an error message appears in the Status and Error Log pane. If you have a slow connection between the PMU and the printer, you may need to define a longer Time Out period. Define the Time Out between 5 and 300 seconds (the default is 15 seconds).

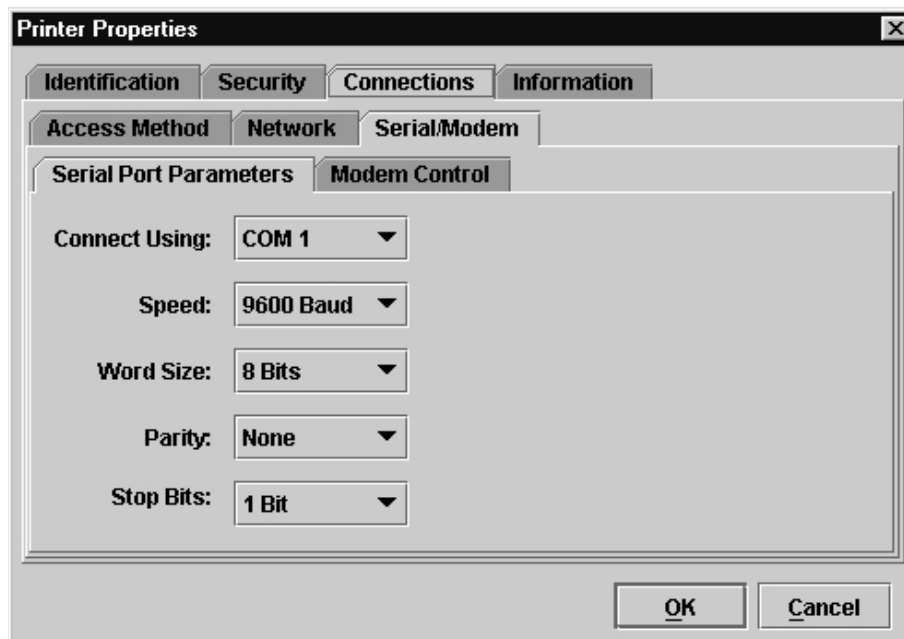
**NOTE:** The Network settings must match the settings in the operator panel menu. See "ETHERNET PARAMS", "ETHERNET ADDRESS", or "WIRELESS ADDRESS" in the printer's *User's Manual* to check the IP address.

To check the port number on the printer, see "Check Port Number" on page 15.

## Serial/Modem Sub-Tab

The Serial/Modem tab contains two tabs: Serial Port Parameters and Modem Control.

### Serial Port Parameters



**Figure 48. Printer Properties: Connections – Serial/Modem Sub-Tab  
Serial Port Parameters**

**Connect Using:** The serial port to use for connection. The default is COM1. The range is COM1 to COM20.

**Speed:** The baud rate at which data transfers. This setting must match the speed of the printer serial debug port. See Table 5 to determine the serial debug port baud rate menu location for your printer model

**Table 5. Serial Debug Port Baud Rate Menu Location**

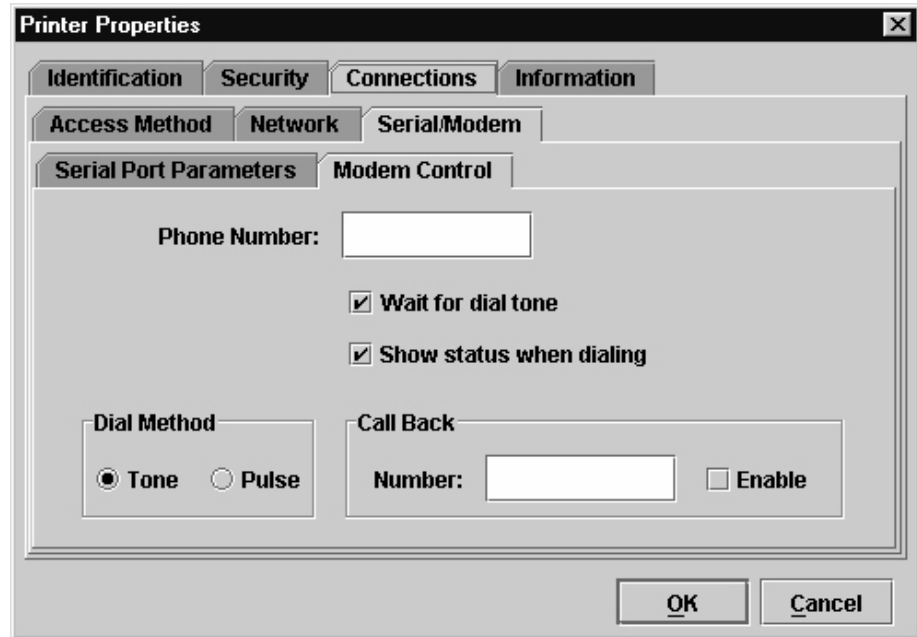
Printer Model	Menu
6400 Series	SERVICE ▶ PRINTER MGMT ▶ BAUD RATE
6500 Series	PRINTER MGMT ▶ BAUD RATE
4400 Series	Factory ▶ Baud Rate
6700-Rxx Series	PRINTER MGMT or Factory ▶ Baud Rate
6700-M40 Series	INTERFACES ▶ Printer Mgmt ▶ Baud Rate

**Word Size:** The number of data bits per character. Must be set to 8 bits.

**Parity:** Adds an error checking bit if set to Odd or Even. Since the word size must be set to 8 for correct operation, parity should normally be set to None.

**Stop Bits:** Inter-character gap. Can be set to 1 or 2. The normal setting is 1.

## Modem Control



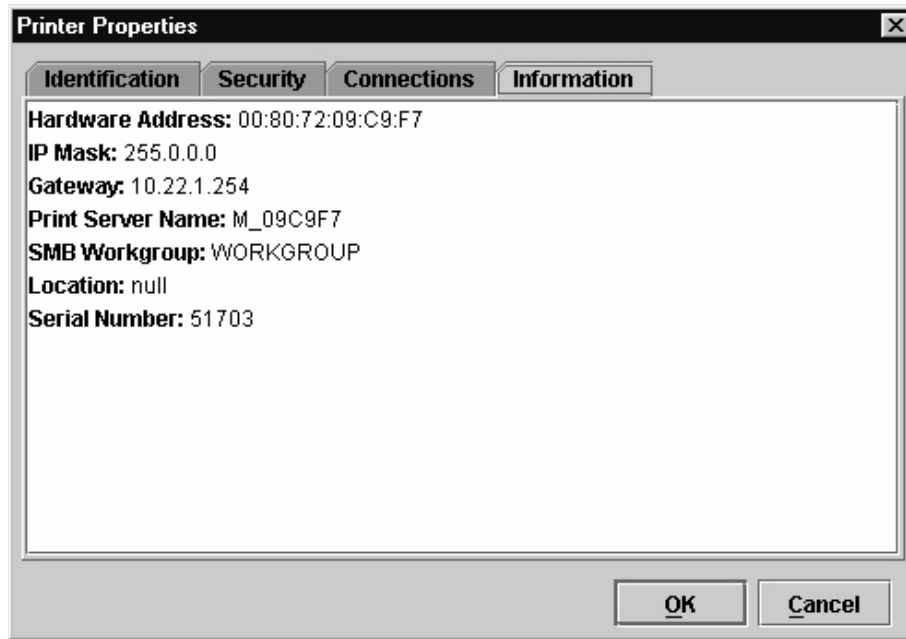
**Figure 49. Printer Properties: Connections – Serial/Modem Sub-Tab  
Modem Control**

**Phone Number:** Enter the phone number you wish to call.

**Dial Method:** Choose Tone or Pulse.

**Call Back:** Enter your phone number, and check Enable if you want to use it as a call back number.

## Information Tab



**Figure 50. Printer Properties: Information Tab**

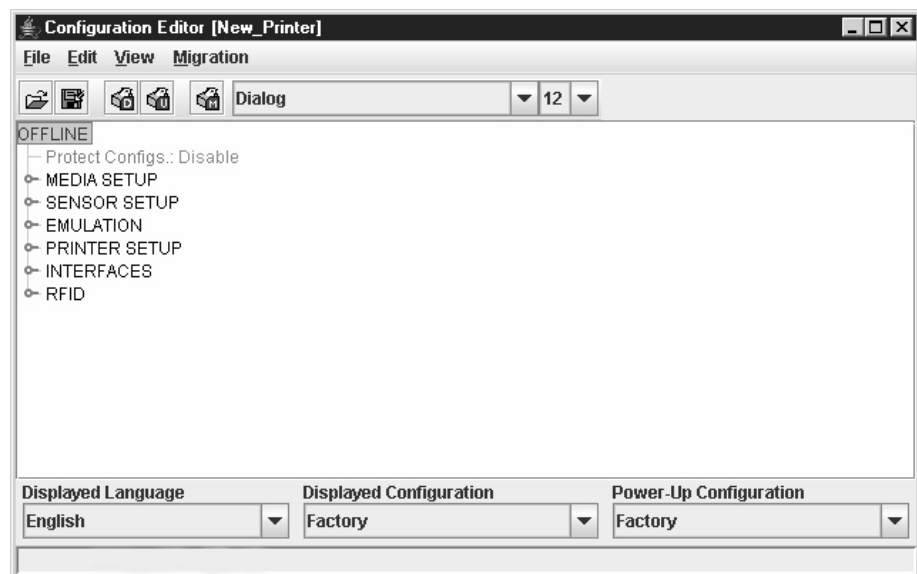
Contains information about your printer. Refer to the *Ethernet Interface User's Manual* for more information.




# 3

## Applications and Web Access

### Configuration Editor



**Figure 51. Configuration Editor Window**

To access the Configuration Editor application, select a printer from the printer database and select **Applications** ▶ **Configuration Editor** or click the  (configuration editor) button. Select **File** ▶ **Upload From Printer** to upload configurations from the printer. The configurations upload from the printer and the active configuration displays in the Configuration Editor window. See Figure 51.



The Configuration Editor supports offline editing, allowing the editing of stored configurations. If you start the Configuration Editor without connecting to a printer, the screen will be blank (indicating no configuration loaded). A configuration will not display until you load a configuration file from a disk or computer.

The Configuration Editor allows you to upload, modify, and download eight user-defined configurations and the factory default configuration (only if modification of the factory configuration has been enabled; see the NOTE on page 67). You may also save sets of configurations to your local hard drive so that they can be easily downloaded to the printer at any time.

The Configuration Editor does not change the current configuration or the active printer status until the configurations are downloaded to the printer.

## Menu Tree

---

The Configuration Editor displays the printer configurations in a tree format (see Figure 51). The top level of the tree is the OFFLINE menu. From this level, the tree branches into the printer's submenus. Menu items that have a  or  (handle) next to them have further submenus below them. Click the handle to expand or collapse the submenus below. (You may also use the Expand Tree/Collapse Tree options in the View menu, but these options will expand or collapse all submenus.)

The Configuration Editor has three drop-down menus at the bottom. The Displayed Language option allows you to select from five or more different languages to display the configuration information. The Displayed Configuration option lets you choose between the available configurations to display. The Power-Up Configuration allows you to assign which configuration loads whenever the printer turns on.

## Creating Configurations

---

Along with the factory configuration, your printer allows up to 8 user-defined configurations that can be downloaded to your printer's memory. You may create configurations using the operator panel or by using the Configuration Editor.

To create a configuration using the Configuration Editor:

1. Select **Edit ▶ Copy From:**. A list of configurations appears. Undefined configurations appear gray. Choose one of the configurations.
2. Click **Edit**. (Notice that the configuration you chose in step 1 now appears next to the Copy From: menu item.) Move your mouse down to **Copy To**. A list of configurations appears. Choose the number of the configuration you want to create. This new configuration is created with the settings from the configuration you chose in step 1.

**NOTE:** If you choose to **Copy To** a configuration which already exists, that configuration will be overwritten.

3. You may now edit the configuration settings. See "Changing Configurations" on page 67.

## Changing Configurations

Configuration settings in the Configuration Editor can be changed two ways:

- make the changes directly on the menu tree
- use the Menu Editor

**NOTE:** Normally, the factory default configuration cannot be changed. However, you can enable modification of the factory configuration. Select **Edit ▶ Enable Factory Edit**. It is strongly recommended that you do *not* modify the factory default configuration. If you choose to modify the factory configuration, you should first upload it from the printer, and then save it. This way, you will have a backup copy of the factory configuration. To disable modification of the factory configuration, select **Edit ▶ Disable Factory Edit**.

### Making Changes on Menu Tree

1. Using the Displayed Configuration menu at the bottom of the window, click the drop-down arrow to choose the configuration to change.
2. Expand the submenus until the configuration setting you want to change displays.
3. Select the menu item you want to change. A selection box surrounds your choice. See Figure 52.

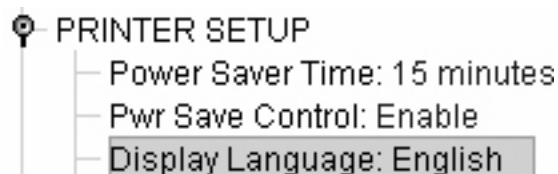


Figure 52. Selecting a Menu Item

4. Double-click an item to open the Menu Editor (page 68) for that item, or use the < and > keys to toggle through the available options. See Figure 53. (You may change these keys in the printer database window: select **File ▶ Preferences**, then click the **Configuration Editor** tab. See page 27.)

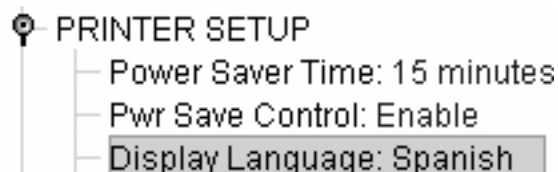
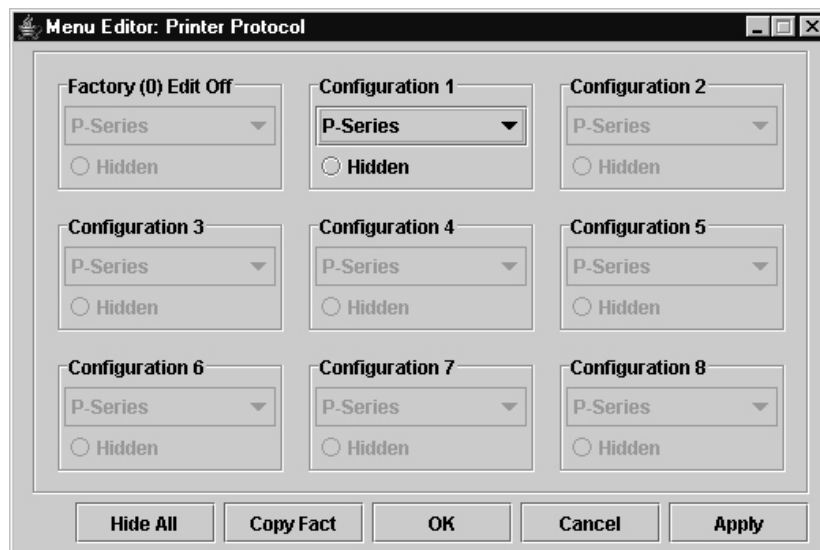


Figure 53. Toggling Through The Available Options

## Menu Editor



**Figure 54. Menu Editor**

Double-click any menu item to open the Menu Editor window. Figure 54 shows the screen you see when you double-click the Printer Protocol option. By using the Menu Editor, you may view and adjust the settings of all nine of the printer configurations at once. To change a setting, click the drop-down arrow underneath the corresponding configuration and choose an option. Grayed out configuration names and settings do not exist; you must create the configuration before you can edit it (see page 66).

To hide a menu item in the operator panel, select Hidden under a configuration. Click **Hide All** to hide this menu item in all configurations. (For more information on hiding, see page 69.)

Select **Copy Fact (1-8)** to set all configurations to the same value as the factory or user-defined configuration currently selected under the Edit ▶ Copy From: menu in the Configuration Editor (see page 66).

Click **Cancel** to exit the Menu Editor without saving your changes.

Click **Apply** to save your changes without exiting the Menu Editor.

Click **OK** to save your changes and exit the Menu Editor.

### Deleting Configurations

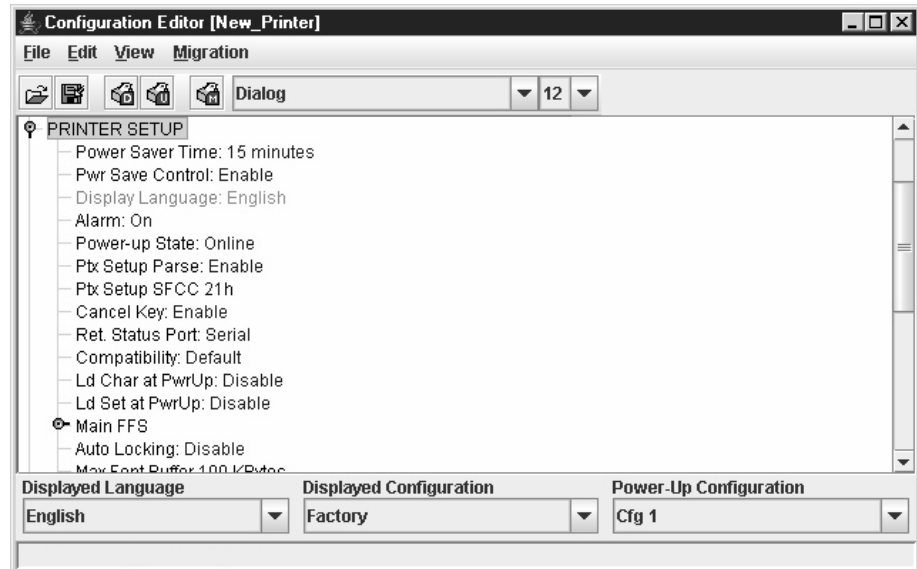
To delete any of the configurations (except the factory configuration), select **Edit ▶ Delete ▶** and choose the number of the configuration to be deleted.

### Naming Configurations

You may name any of the eight user-defined configurations using an alphanumeric string of 1 to 15 characters. Select **Edit ▶ Names** to open the Edit Configuration Names window.

Choose the configuration you want to name, then click **OK** to assign the name change, **Cancel** to exit this window without saving your changes, or **Reset** to restore the original configuration numbers.

## Hiding/Unhiding Menu Items



**Figure 55. Hiding a Menu Item**

The Configuration Editor allows you to hide menus to make the operator panel menus easier to use, or to restrict printer operators from accessing certain printer configuration menu items. If you choose to hide a menu item in the Configuration Editor, the hidden menu item still loads into the printer when the configuration downloads to it. However, the hidden menu item does not appear on the operator panel.

The Configuration Editor displays hidden menus in gray on the menu tree. When a menu item is hidden, all of its sub-menus are hidden as well. In Figure 55, the Display Language menu item is hidden. The Display Language menu item cannot be changed from the operator panel.

**IMPORTANT** Depending upon the active emulation, active interface, or hardware attached to the printer, some menu items cannot be hidden on the operator panel, even though they may be defined as “hidden” in the PMU.

You can still change hidden menu items using the Menu Editor.

You can hide or unhide menu items in three ways:

1. In the menu bar, select **View ► Hide/Unhide Menus**. With this menu option, you may hide or unhide individual items, sub-menus or the entire configuration.
2. Using the Menu Editor. See page 68.
3. Using the keyboard. From the menu tree, select a menu item. A selection box appears around the selected menu item. Press **H** to hide the menu item or **U** to unhide the menu item. (To change these keys, select **File ► Preferences** in the printer database window. See page 27.)

## Saving Configuration Files

---

Normally, your printer can save only nine configurations in its memory. You change these configurations through the operator panel. However, using the PMU, you can store a nearly unlimited number of configurations on your host computer.

Once you have made your changes, you can save your configurations as a **.cfg** file on your local hard drive. This way, you can open any set of configurations from your host computer and download them into your printer quickly and easily.

To save configurations to your local hard drive, select **File ▶ Save As**. Be sure to save your configuration as a **.cfg** file.

It may be necessary to save a configuration file in the format used by previous versions of PMU. In this case, select “Legacy Configuration File” from the Files of Type: list and select the file to be saved.

## Opening Configuration Files

---

To open a configuration file, select **File ▶ Open**. The Configuration Editor loads the settings from the file you choose.

### IMPORTANT

**These settings do not affect the current configuration or the active printer status until the configurations are downloaded to the printer.**

**NOTE:** The Configuration Editor displays only one configuration file at a time. Be sure to save any changes before opening another configuration file.

If you load a configuration file that was created with the PMU version 3.03H or earlier, you may need to link the affiliated CST file. In this case, select **File ▶ Open** again, and check the **Link CST File** check box. See Figure 56. Navigate to the affiliated **.cst** file and double-click it (or single-click it and click the **Select** button). Save the configuration file, and the CST information will save to the new configuration file. (You will not need to link the CST file in the future.)

**NOTE:** If you hover the pointer over the **Link CST File** check box, a screen tip appears that describes this functionality.

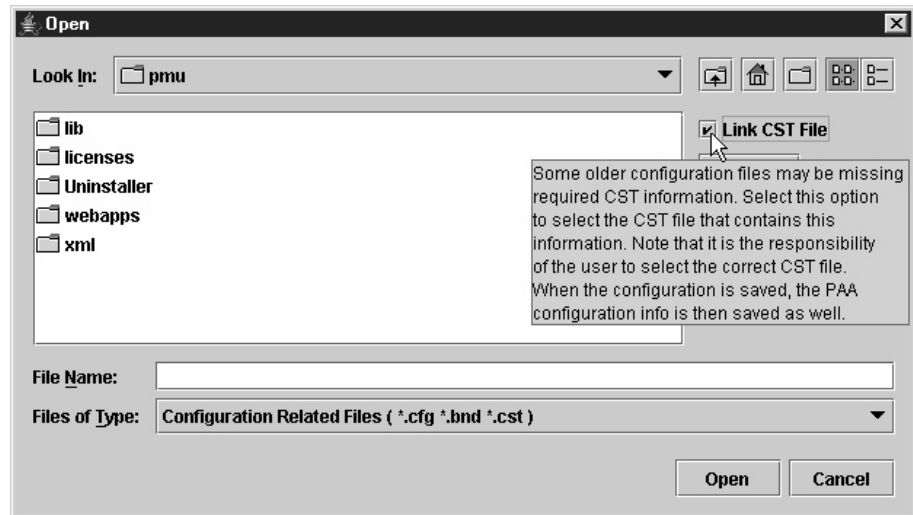


Figure 56. Linking a CST File

## Downloading Configurations

You may use the Configuration Editor to download into your printer any configurations you have created. Open the configuration file you want to use, then select **File ▶ Download To Printer** to send individual configurations, all configurations, or just the configuration names.

Downloading a configuration overwrites the corresponding configuration currently stored in the printer. If you want to save the configurations currently stored in the printer before overwriting them, upload them into the Configuration Editor first, and then save them as a **.cfg** file on your local hard drive.

**NOTE:** Be sure to calibrate your thermal printer after you download a configuration to it. See “Running Auto Calibrate” in the printer’s *User’s Manual*.

**NOTE:** Downloading a configuration file does not immediately update the printer’s active configuration. You must activate a downloaded configuration using the Load Config. setting in the operator panel. Refer to the printer’s *User’s Manual* for details.

## Uploading Configurations

The Configuration Editor can upload configurations from a printer. Select **File ▶ Upload From Printer**. Once the configurations upload, you can save them to a file. Now you can select another printer from the database and upload its configurations. The PMU prompts you to save the previously uploaded configuration before the new configuration uploads.

## Migration

---

Over time, menus and functions changed to reflect the new features of the printers. Some printer features have been removed to provide better or more complete printer features. Older saved configurations may have used these removed features or contain settings that no longer exist or have been modified in new printer firmware. This can cause potential problems when downloading new printer firmware while preserving previously saved configurations if the saved settings are not analyzed and adjusted to work with the new firmware. This analysis and adjustment has been summarized into one word: migration.

### Transferring Saved Settings

#### Original Method

To ensure that your settings from the saved configuration are set correctly in the printer: print out the old configurations, download the configurations to the printer, print out the new configurations, and compare the old settings with the new settings.

If you need to make changes: upload the configurations to the Configuration Editor, make changes, and re-download to the printer.

#### Enhanced Method

Using the migration utility in the Configuration Editor, all these things can be done without having to download the configurations to the printer until you know they are correct. No migrated settings will be downloaded to your printer until you download them. This way you can run the migration, view the results, view the report, and make any necessary changes without affecting your saved configurations or the configurations in the printer.

### How To Use The Migration Utility

#### STEP 1:

**Load the configurations settings that need to be migrated into the Configuration Editor before using the migration utility.**

#### Migration Limitations

Only attempt to migrate saved configuration settings from printers of the same model type and the same emulations. An example of a different printer model type is a thermal printer configuration to a line matrix printer.

The printer that you are going to migrate the settings to should be a superset of or contain the same emulations as the saved configurations. For example, migrate saved settings that contain an ANSI emulation on a line matrix printer to another line matrix printer that contains ANSI and PGL. Do not migrate these same saved settings to a line matrix printer that does not contain ANSI. The migration utility does not prevent you from doing this, but the results would be useless and could cause problems if the migrated configurations were downloaded and then loaded on a different printer type.




**IMPORTANT** Make sure the printer model type and emulations of the saved configurations match the printer model type and emulations of the printer you want to migrate the settings to before attempting to migrate the saved settings.


### Loading Configuration Settings

The configuration settings to migrate can be opened using the Configuration Editor in the following ways:

#### Loading From a File

Click the  (open configuration file) button or select **File ▶ Open**. Choose your configuration file and then click **OK**.

#### Loading From a Printer

Select a printer in the printer database. Click the  (upload configuration) button or select the **File ▶ Upload From Printer** to upload the settings.


### STEP 2:

**Select a printer and begin the migration of the saved configuration settings.**

#### Select a Printer to Use for Migration

Select a printer in the printer database. The printer you select must have new printer firmware. If it does not, exit the Configuration Editor and download new firmware to the selected printer (see “File Download” on page 84), then select the printer in the printer database.

#### Start the Migration

Click the  (migrate) button or select **Migration ▶ Run Migration**. Several messages will appear in the bottom left corner of the Configuration Editor that indicate the progress of the migration.

### STEP 3:

**View the results using the Configuration Editor.**

The results will display graphically in the Configuration Editor.

Several different icons will display depending on the migration. Hover the pointer over an icon to display a short description. A icon can represent several types of changes. The migration report details these changes (page 74).

Select **Migration ▶ View Results** to see the migration results.

This menu has the following submenus:

#### Original Configurations

**All Menus:** Displays the original configuration settings with the menus that were removed from the original configurations.

**Removed Menus:** Displays only the menus that were removed from the original configurations.









## Migrated Configurations

**All Menus:** Displays the migrated configuration settings including all of the menus that were modified.

**Modified Menus:** Displays only the menus that were modified by the migration of the saved settings.


If you select **Modified Menus** and then select **View ▶ Expand Tree**, all of the menus that were affected by the migration will display in a simplified view.

## Migration Icon Definitions

-  Indicates a new menu or a new set of menus.
-  Indicates that the menu previously existed in the saved configurations and was added to another menu.
-  Indicates that the menu previously existed in the saved configurations and was moved to another menu, or removed from the current menu but still exists in the saved configurations.
-  Indicates that the menu was completely removed.
-  Indicates that this menu or a submenu has changed. The change can be various things such as range or increment.
-  Indicates that additional selections have been added to this menu.
-  Indicates that selections have been removed from this menu.
-  Indicates that this menu has been replaced with another menu or the menu definition has changed.

## STEP 4:

### View the results using the Migration Report Viewer.

Select **Migration ▶ View Report** or double-click the  **Migration Report** icon (located at the top of the migrated configurations display) to open the Migration Report Viewer.

The Migration Report Viewer displays a detailed textual report of the information that displays graphically in the Configuration Editor. Use the Migration Report Viewer to view, save, or print the report.

**NOTE:** It is recommended to use landscape mode when printing the migration report.

The report contains the following types of messages:

**Informational Messages:** Menu settings that migrated without problems. They display to inform you that there was a change during the migration.

**Warning Messages:** Menu settings that attempted to migrate to the new configurations and were changed. Analyze these settings to determine if they are desirable.

**Intervention Messages:** Menu settings that could not migrate to the new configurations. This could occur when a menu item was completely removed and the user utilized a setting other than the default. In this case the Migration Utility cannot decide what action to take.

**IMPORTANT** You must resolve intervention messages, or the printer may not operate properly.


**STEP 5:**  
**Post-migration.**

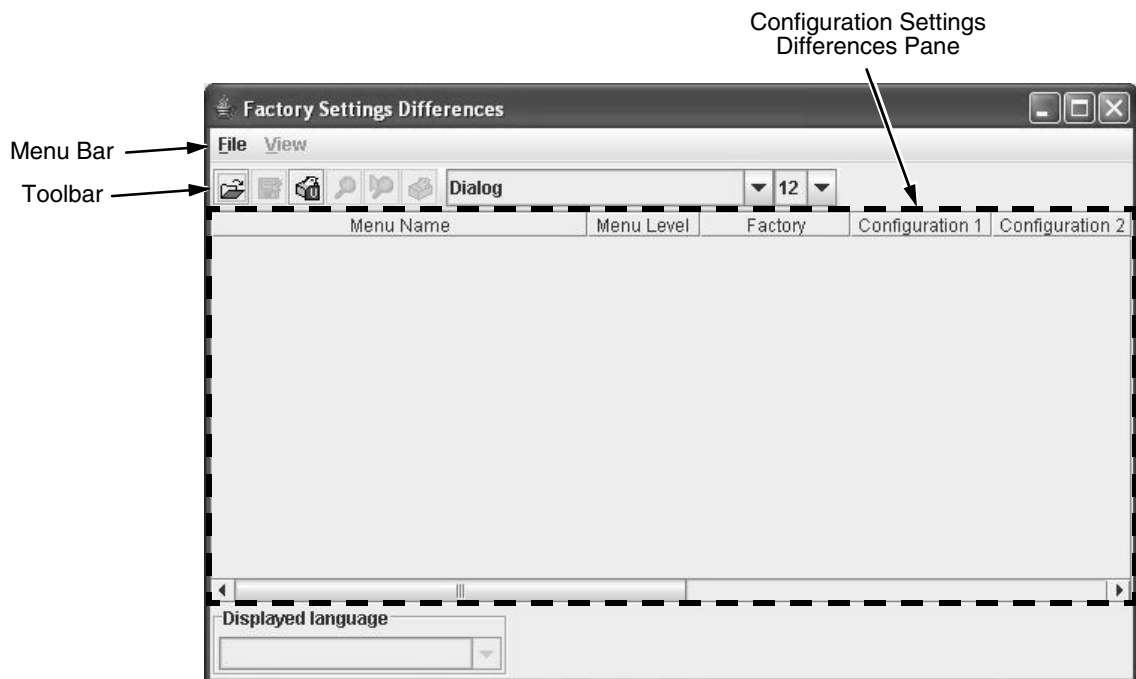
After you review the migrated configuration, save, delete, or download the migrated configuration file to one or more printers using the PMU.

## Factory Settings Differences

The Factory Settings Differences application allows you to keep track of migration from old to new printers. It displays the differences between the Factory configuration settings and all other saved configuration settings. The differences are highlighted to show value differences between configurations.

Two views displaying the data are available. The All Settings view shows all of the menus, highlighting the value differences. The Differences Only view shows the menus and its corresponding values that differ from the Factory settings.

To access the Factory Settings Differences application, select **Applications** ▶ **Factory Differences** or click the  (find differences) button. The application opens with no configuration data loaded. The Factory Settings Differences window contains three sections: the menu bar, toolbar, and the configuration settings differences pane. See Figure 57.



**Figure 57. Factory Setting Differences Window**

## Menu Bar

The menu bar consists of a File menu and a View menu.

### File Menu

<u>F</u> ile	<u>V</u> iew
<u>O</u> pen	Ctrl-O
<u>U</u> pload Differences	Ctrl-U
<u>S</u> ave	Ctrl-S
<u>S</u> ave As	Ctrl-A
<u>P</u> rint	Ctrl-P
<u>E</u> xit	Ctrl-E

Figure 58. Factory Settings Differences – File Menu

#### Open

The Open submenu allows you to select and open a previously saved Factory Settings Differences file. The file must be one that was created with this application.

**NOTE:** No error checking is available for an invalid file type, including Comma Separated Variable (CSV) formatted files that were not created by this application.

#### Upload Differences

The Upload Differences submenu uploads the configurations and determines the Factory settings differences. The results display in a table in the All Settings view.

#### Save and Save As

The Save and Save As submenu allows you to select and save the Factory setting differences file to a file. The results table can only be saved in the Differences Only view. You will be informed if you try saving the file in the All Settings view. The saved file will be in CSV format.

#### Print

The Print submenu allows you to set up printing preferences and print the differences table. You can print the differences table in both views.

## View Menu

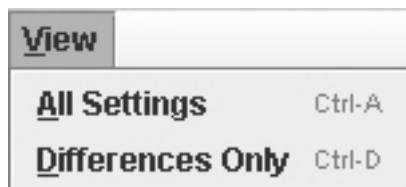


Figure 59. Factory Settings Differences – View Menu

### All Settings View

The All Settings view displays all of the menus in the configuration, highlighting the menus that are different from the Factory settings and their values. The menu name and its associated values are highlighted in different colors for easy distinction. See page 78.

### Differences Only View

The Differences Only view shows the top level menus and the menus that have configuration values that are different than the Factory settings. Since this view only shows the differences, the menu names are not highlighted. The menu values are highlighted for easier distinction. See page 79.

## Toolbar



Figure 60. Factory Settings Differences – Toolbar

The toolbar contains buttons for Open, Save, Upload Differences, All Settings View, Differences Only View and Print. These buttons perform the same actions as their menu counterparts. The toolbar also has font selection and size boxes to allow user selectable preferences.

## Configuration Settings Differences Views

This view consists of a non-editable table that displays the menu name, the menu level, the Factory default settings, and the values of other saved configurations.

The menu level column shows a menu option's hierarchy level from the top menu. Number 1 indicates the top menu, and the largest number is the menu that is the furthest down the menu tree.

### All Settings View

In the All Settings View mode, all menus and its corresponding values display in a table. The menus with values different from the Factory configuration is highlighted in purple and the value itself is highlighted in yellow. See Figure 61.

Menu Name	Menu Level	Factory	Manufacturing	Floor 1	Floor 2
Currency Sign	5	RMB Select	RMB Select	RMB Select	RMB Select
AR3240 Compat.	5	Disable	Disable	Disable	Disable
CPI/LPI Select	3				
Select CPI	4	10.0 CPI	12.0 CPI	13.3 CPI	20.0 CPI
Select LPI	4	6.0 LPI	6.0 LPI	6.0 LPI	8.0 LPI
DBCS CPI	4	6.7 CPI	6.7 CPI	5.0 CPI	6.7 CPI
Host Command	3	Ignore Unidir.	Ignore Unidir.	Ignore Unidir.	Ignore Unidir.
Font Attributes	3				
Typeface	4	Near LQ	Near LQ	Near LQ	Near LQ
Styling Type	4	SONG	SONG	SONG	SONG
High Density	4	Disable	Disable	Disable	Disable
Prop. Spacing	4	Disable	Disable	Disable	Disable
Bold Print	4	Disable	Disable	Disable	Disable
Italic Print	4	Disable	Disable	Disable	Disable

Displayed language: English

Figure 61. All Settings View

## Differences Only View

In the Differences Only View mode, only the differences between the Factory configuration and other menu configurations are listed. The differing values are highlighted in yellow. The menus are not highlighted.

Menu Name	Menu Level	Factory	Manufacturing	Floor 1	Floor 2
Protect Configs.	1				
HOST INTERFACE	1	Auto Switching	Centronics	Serial	IEEE 1284
EMULATION	1				
Select CPI	4	10.0 CPI	12.0 CPI	13.3 CPI	20.0 CPI
Select LPI	4	6.0 LPI	6.0 LPI	6.0 LPI	8.0 LPI
DBCS CPI	4	6.7 CPI	6.7 CPI	5.0 CPI	6.7 CPI
Funct. of Lines n lines	5	66	66	66	88
Function of CPI n characters	5	136	163	181	272
PRINTER CONTROL	1				
ADVANCED USER	1				

Displayed language  
English

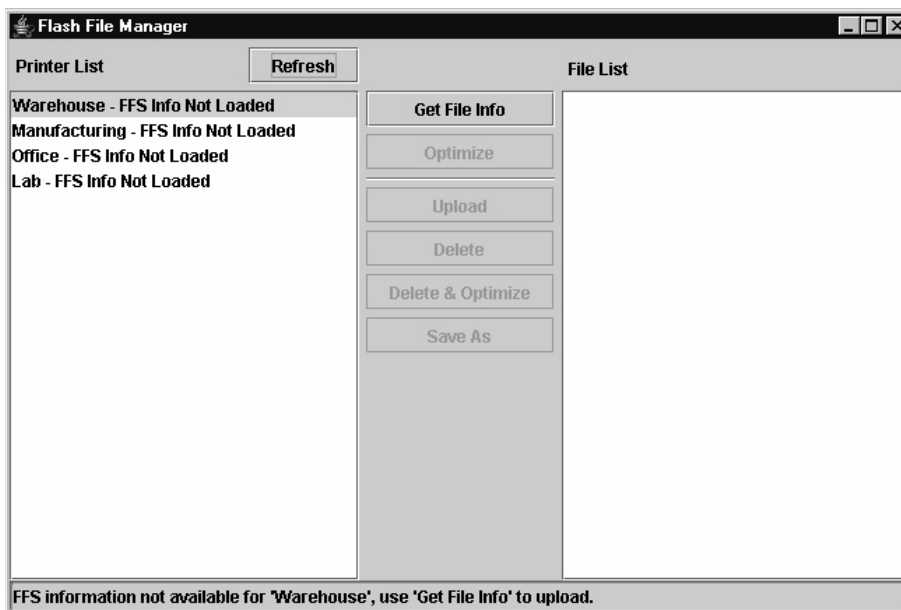
Figure 62. Differences Only View

## Displayed Language

The Displayed Language drop-down menu shows all available foreign languages that the attached printer supports. Since this depends on the printer, the drop-down menu will be disabled when the Factory Settings Differences application is first launched. After the Upload Differences program is executed, the available language names supported by the printer will display.

After you select a language, the program determines if it has already been uploaded, and changes the table settings to this language. If it is not loaded, the program uploads the selected language and redisplay the table settings in the new language.

## Flash File Manager



**Figure 63. Flash File Manager Window**

With the Flash File Manager, you can view a list of the unprotected files loaded in the printer's flash memory and optional EMC (Expanded Memory Cartridge).

**NOTE:** The EMC is available only for 6700-M40 printers.

You can upload the files to the host computer, save them for backup, delete them, and download them to another printer.

Select **Applications** ▶ **Flash File Manager** or click the  (flash file manager) button. See Figure 63.

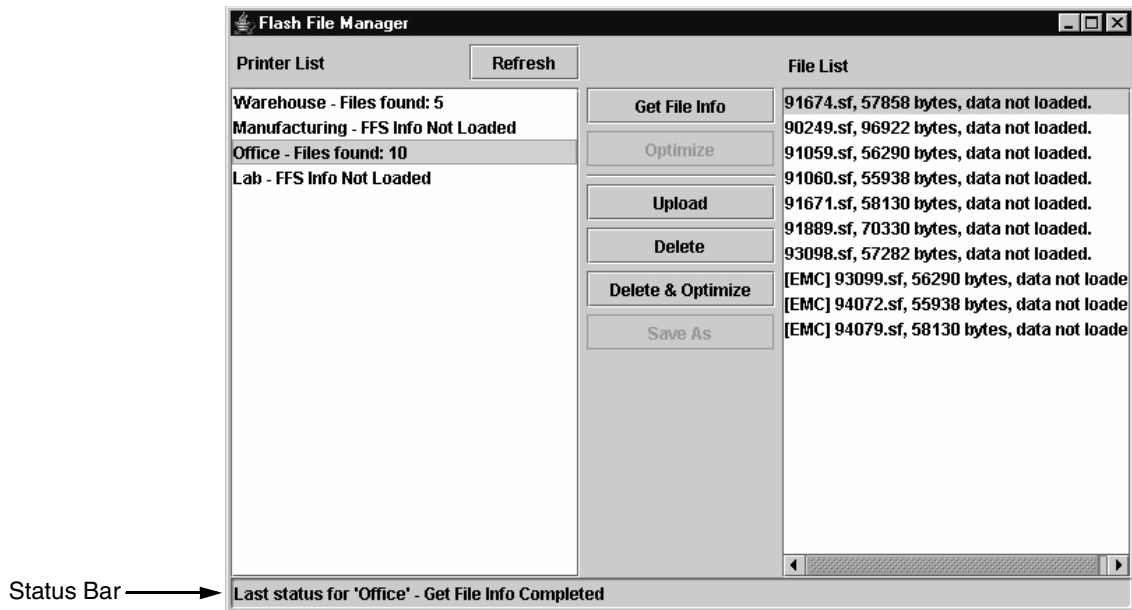
The Printer List pane displays a list of printers that are selected in the printer database. If you select one printer, it appears alone in the list. If you select a folder, all active printers in the folder appear.

If you return to the printer database and select another printer or folder, click **Refresh** to update the Flash File Manager and display the newly selected printer(s).

**NOTE:** Cloned printers or different folders that link to the same printer do not display. Only the original printer displays.



## Get File Info



**Figure 64. Get File Info**

Select a printer, and then click **Get File Info** to see a list of the unprotected files loaded in the printer's flash memory. Progress displays in the status bar at the bottom of the window. After you retrieve the flash memory information, the files appear in the File List pane. See Figure 64.

**NOTE:** The files are located on the printer's internal flash memory. If [EMC] precedes the file name, then the file is located on the optional EMC.

When complete, select another printer and click **Get File Info** to view its flash memory information.

You can only view the flash memory information from one printer at a time, but the Flash File Manager remembers what information has been retrieved.

**NOTE:** For printers that have not had flash memory information loaded, the message FFS (Flash File System) Info Not Loaded displays in the Printer List. See Figure 64.

Displays only if the printer has an EMC installed

**NOTE:** Although you have retrieved the flash memory information, the files have not been uploaded. Notice the message "data not loaded" in the File List. To upload the files, see "Upload" on page 82.

The status bar will toggle from the status of the last operation performed to the status of the printer flash: memory available (free), memory used (in use), and memory deleted but not optimized (trashed):

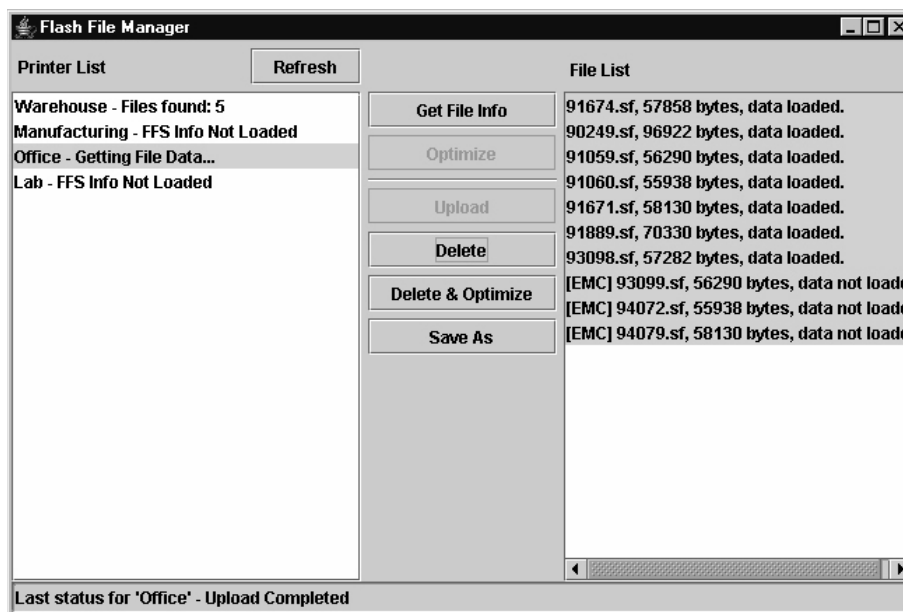
Last status for 'Office' - Get File Info Completed

Printer Flash info for 'Office' - free 1469kb, in use 2346kb, trashed 0b

If you have an EMC installed, the status bar will also toggle the status of the EMC:

EMC info for 'Office' - free 32223kb, in use 304kb, trashed 0b

## Upload



**Figure 65. Uploaded Flash Files**

To upload unprotected files, select a printer, and then select the files you want to upload from the File List. Click **Upload** to upload the unprotected files from the flash memory. Progress displays on the status bar at the bottom of the window.

After the files upload, they appear selected in the File List pane. See Figure 65. Click **Save As** to save all the files together as one downloadable file (bundle file). Save the file with a **.pff** file extension.

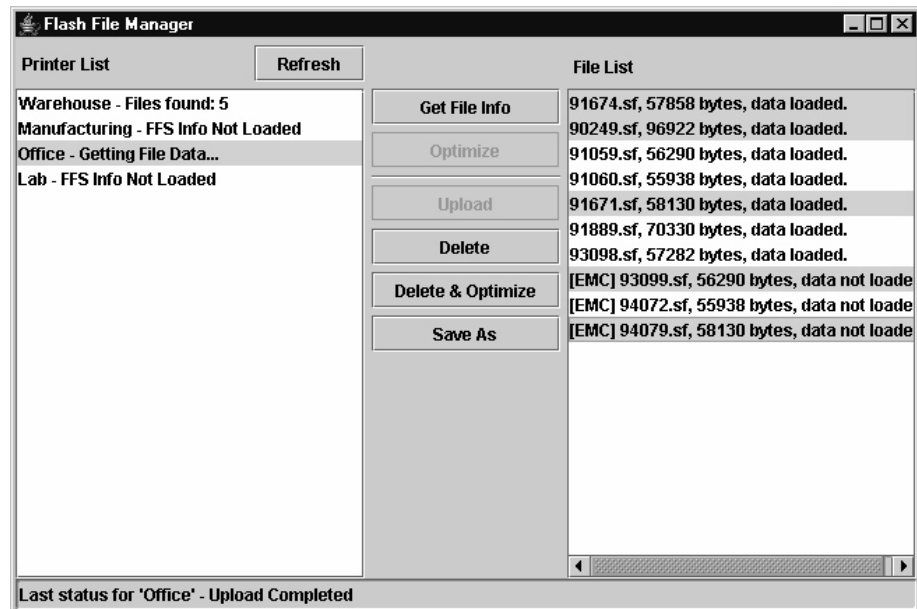


Figure 66. Selecting Multiple Files

Or, you may use the **Shift** or **Ctrl** key to select single or multiple files. See Figure 66. This way, only the selected files will save to the **.pff** file when you click **Save As**.

**NOTE:** You can save only uploaded files to a downloadable file.

## Delete And Optimize

**IMPORTANT** You can not undo a flash file deletion.

You can erase files from the printer's flash memory. Select the files you want to delete from the File List, then click **Delete**. To download files back to the flash memory, see "File Download" on page 84.

Once you have deleted files, the flash memory is not optimized until you click **Optimize**. Optimizing reclaims flash space from deleted flash files.

**NOTE:** The printer reboots after you Optimize.

To delete and optimize in one step, select the files you want to delete from the File List, then click **Delete & Optimize**.

## CST Manager

See "Datastream Adapter" on page 145.


## File Download






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**NOTE:** The terms **download** and **upload** as used here and in the software indicate the printer's point of view. Therefore, when you download a file, you are sending information to the printer (the printer downloads). When you upload a file, you are receiving information from the printer (the printer uploads).

**IMPORTANT** To utilize the File Download application, make sure **Enable Status Monitoring** is checked in the **Polling** tab (see page 42). Then select your printer in the printer database and click the  update status button to make sure your printer has been polled at least once (see page 48).

The File Download application allows you to download any of the following file types (program files, configuration files, recovery files, and flash files) to either a single printer or to a group of printers in one step. Recovery files are an exception and should only be downloaded back to the printer that had problems during a download.

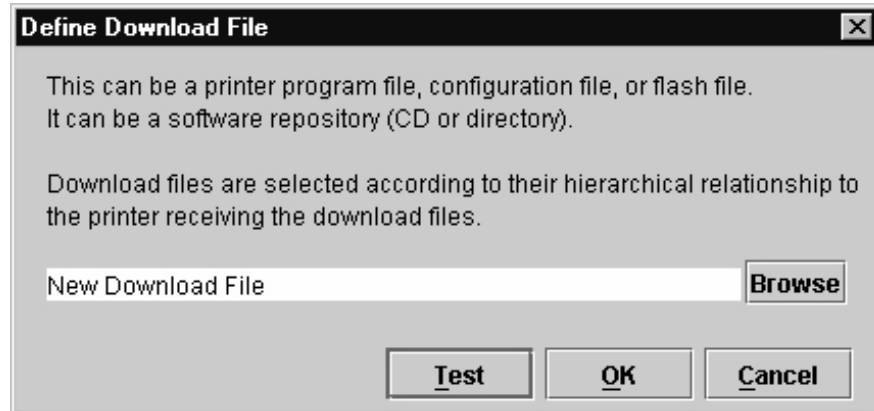
To download a file to a single printer, insert a  (Download file) icon below the printer (one level lower than the printer). To download a file to a group of printers, insert the Download file icon on the same level as the printers (in the same folder containing the printers). Use the printer database and insert additional Download file icons to download as many files to as many printers as you want.

**NOTE:** Previous versions of the PMU required different file types to be downloaded to the printer in separate steps, which is why the various file types were identified by  or  icons. With this version of the software, a distinction between the various file types is not needed, and a  icon identifies all file types. Therefore, if you open a printer database that was saved using a previous version of the software, all  icons will change to  icons.

## Define The Download Files

After you insert Download files, you must define them:

1. Double-click **D** **New Download File**. The Define Download File dialog box opens. See Figure 67.
2. Click **Browse**. The Open dialog box opens.




**Figure 67. Define Download File**

3. Navigate to a program (firmware), configuration, recovery file, or flash file, select it, then click **Open**.
4. Since multiple file types can now be downloaded in one operation, a **Test** button is provided to allow you to verify if the file type specified is supported by the printer. Clicking the **Test** button causes the PMU to evaluate the specified file and display the file type – this will help you verify that you selected the correct file. Click **OK** if the file type returned is correct, click **Cancel** to terminate, or click **Browse** to select another file.
5. When you are finished, click **OK**. The database displays the path and name of the program, configuration, recovery, or flash file.

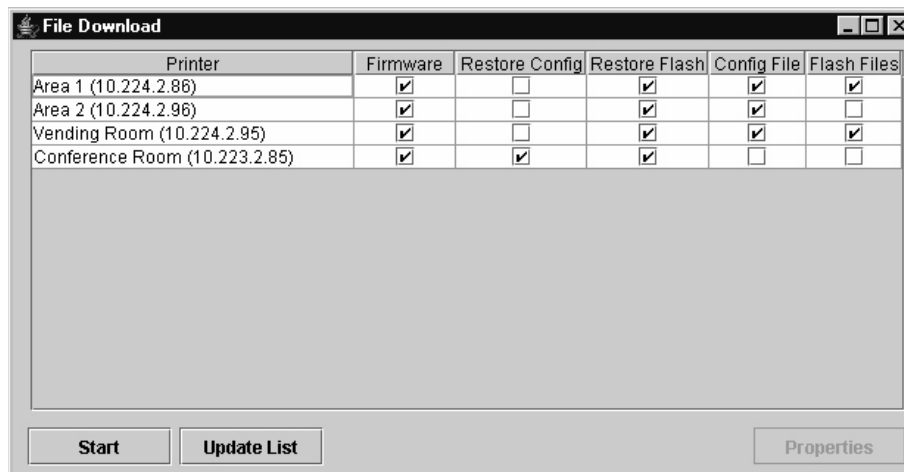
## Download The Files

After you define Download files in your database, you must download them to your printer for them to affect the active print state.

**NOTE:** Each emulation used by the printer has its own list of valid flash files it can use. Refer to the appropriate *Programmer's Reference Manual* for details about valid flash files.

To begin the download process, select a printer or a folder containing printers and select **Applications ▶ File Download**, or click the  (file download) icon. The File Download dialog box opens and displays a list of all the printers that you selected in the printer database. See Figure 68.

**NOTE:** If you later select a different printer or folder in the printer database and the File Download dialog box is still open, click **Update List** to update the list of printers.



**Figure 68. File Download**

The following are the download options for each printer:

**Firmware:** Check this box to download the printer firmware (program file).

**Restore Config:** Check this box to restore the configurations that were in the printer once the Program File download has been completed.

**Restore Flash:** Check this box to restore the flash files that were in the printer before the Program File was downloaded.

**Config File:** Check this box to download a new configuration file.

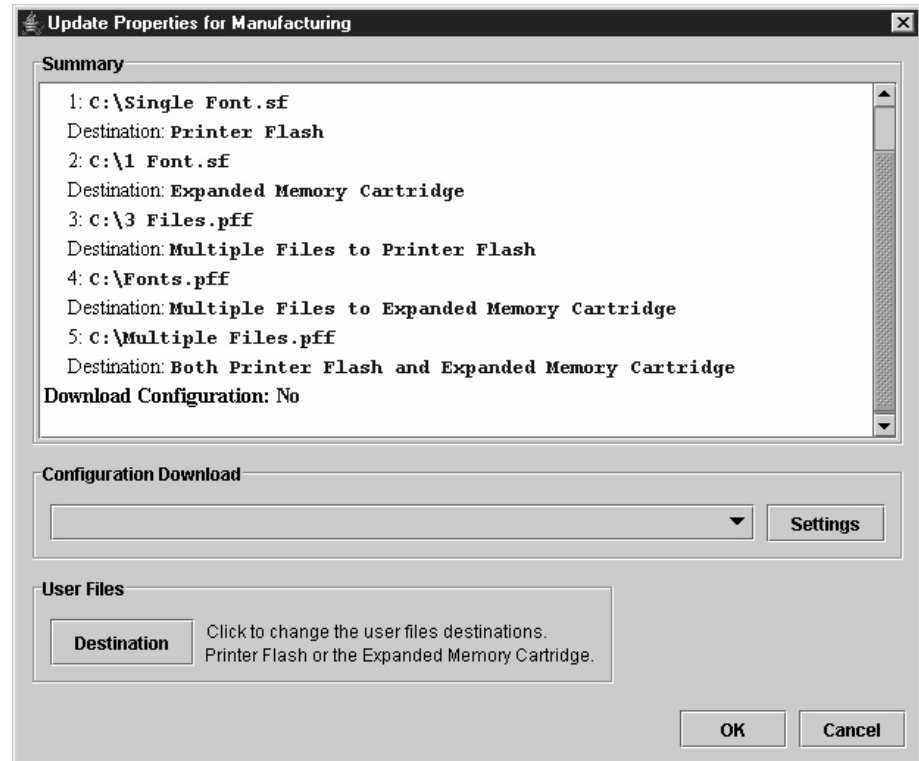
**Flash Files:** Check this box to download additional flash files.

For each printer listed, various combinations of these operations can be executed. Some combinations are mutually exclusive. For example, the PMU does not allow you to simultaneously preserve the printer's configurations and download a new configuration file to the same printer (you cannot check both Restore Config and Config File for the same printer). Similarly, you cannot restore configurations or flash files unless you are downloading new program files.

**NOTE:** You can double-click a field name (e.g., Firmware, Config File, etc.) to check or uncheck the check boxes for all displayed printers at once.

## Viewing the File Destination

Select a printer in the File Download dialog box and click **Properties**. The Update Properties dialog box opens. See Figure 69.



**Figure 69. Update Properties**

The Update Properties dialog box lists all the files that will be downloaded to the selected printer, the source of the files, and their destinations: Printer Flash (a single file to the printer's flash memory) or Multiple Files to Printer Flash. Also, if the printer supports the EMC: Expanded Memory Cartridge (a single file to the EMC), Multiple Files to Expanded Memory Cartridge, or Both Printer Flash and Expanded Memory Cartridge.

### IMPORTANT

**The PMU can only download files to the EMC through the Ethernet Interface.**

## Changing the File Destination

If you have the optional EMC and you wish to change the destination of a single file, click **Destination**. The User Files dialog box opens. See Figure 70.

Select **Printer Flash** or **EMC** to specify the new destination.

**NOTE:** Bundle files (archives that contain multiple files, usually with a **.pff** extension) cannot have their destinations changed. Files within bundle files will download to the printer's flash memory, the EMC, or both, depending on their original location.

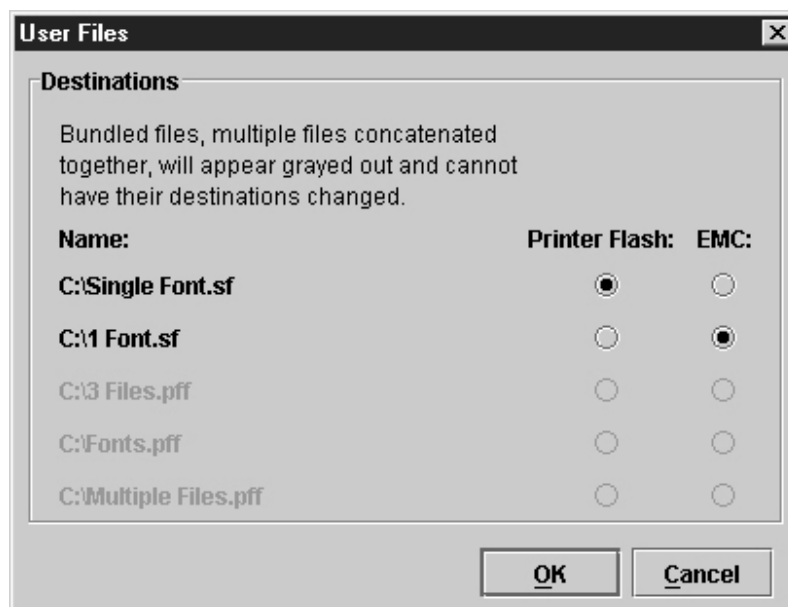


Figure 70. User Files

### Restoring Configurations and Flash Files

Whenever a printer downloads a program (firmware) file, the configurations and flash memory are erased. You can choose whether or not to restore the configurations and/or flash memory to what was previously loaded. Check or uncheck the Restore Config check box for configurations and/or the Restore Flash check box for flash files. By default, the configurations and flash memory will restore.

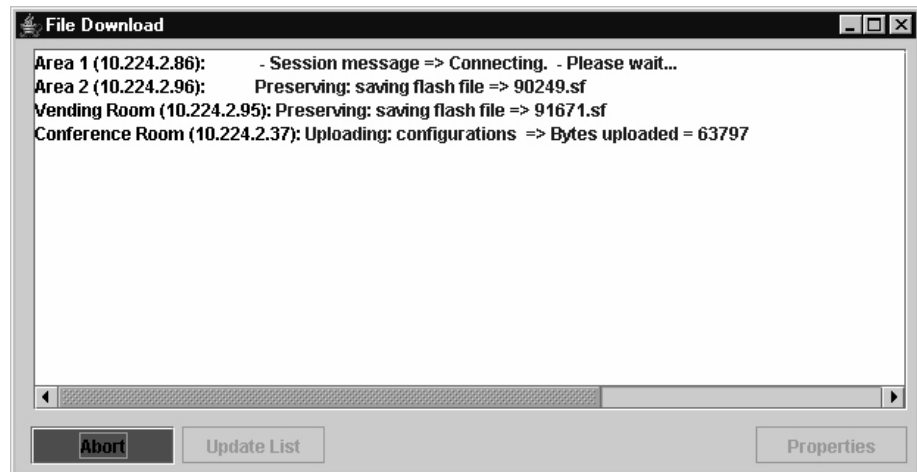
#### IMPORTANT

**If you uncheck Restore Config or Restore Flash, the configurations or flash memory will erase when you initiate a program file download.**

**NOTE:** If a download fails due to a power interrupt or a severed connection, the configurations and flash files will be lost and will not restore. You can still restore the printer using the recovery file, but only if Restore Config and/or Restore Flash was checked. See “Recovery File” on page 97.

If you are downloading a program file and flash files, the Flash Files and Restore Flash check boxes will be checked. The flash files will restore, but they will be overwritten if the new flash files you are downloading have the same name.





**Figure 71. Download in Progress**

Confirm that the correct files will be sent to the appropriate printers. Close the dialog box to cancel the download and start over.

Click **Start** to begin the download. Once the download is in progress, click **Abort** or close the dialog box to abort the download. See Figure 71.

## **IMPORTANT**

**Aborting a download may leave the printer in an unstable state.**

Before any operations begin, PMU obtains the printer type from the printer and compares it with the printer type in the firmware file. If the types do not match, PMU aborts the operation and shows an error message in the File Download status window.

During the download, the printer's flash memory will be erased, and CLEARING FLASH will display on the operator panel. At this time, the PMU may appear to stop operating. This is normal, and the entire download process should take no more than fifteen minutes.

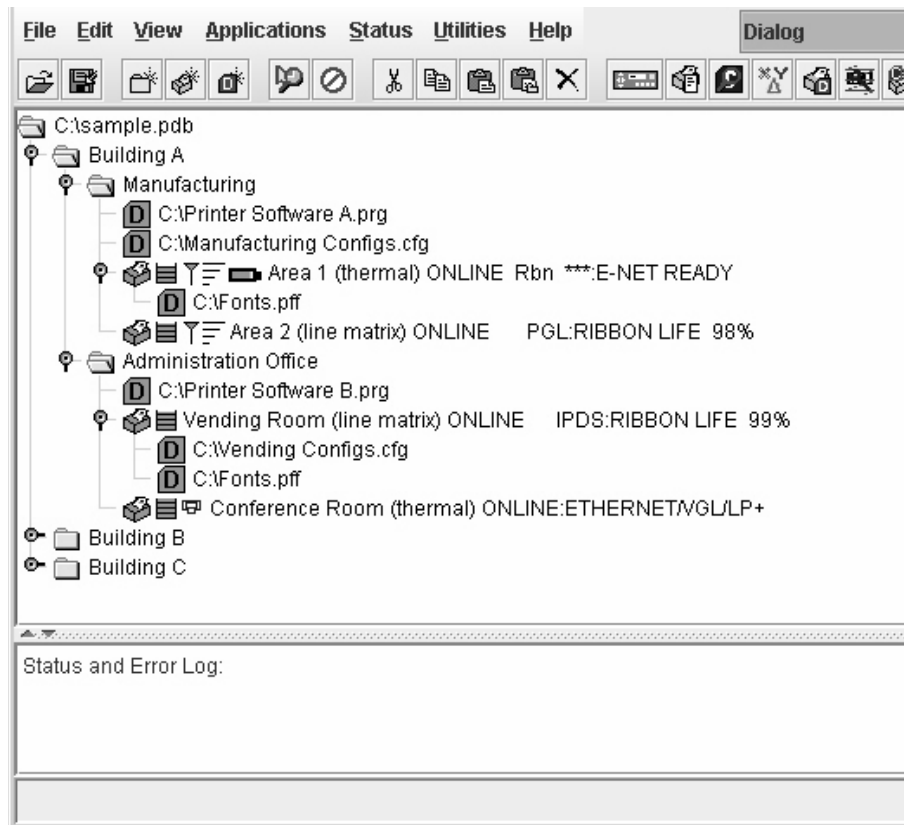
**NOTE:** Be sure to calibrate your thermal printer after you download a configuration to it. See "Running Auto Calibrate" in the printer's *User's Manual*.

You can also download a series of files to several printers at once using folders. Select a folder and select **Applications** ▶ **File Download**. All of the appropriate files inside the selected folder download to all of the printers inside that folder.

**NOTE:** Downloading a configuration file does not immediately update the printer's active configuration. You must activate a downloaded configuration using the Load Config. setting in the operator panel. Refer to the printer's *User's Manual* for details.

See page 90 for examples of using the printer database and the File Download application to download files.

## Downloading Examples



**Figure 72. Sample Database**

In this sample printer database (Figure 72), the printers are organized according to different parts of the building. Each area contains its own printers and Download files.

In the Manufacturing folder, two printers share the same program and configuration Download files, the Area 1 printer has a flash Download file (in this example, a fonts file), and the Area 2 printer has no flash Download file.

In the Administration Office folder, two printers share a program Download file, the Vending Room printer has a configuration and a flash Download file, and the Conference Room printer has no configuration or flash Download file.

The Building B and Building C folders are collapsed.

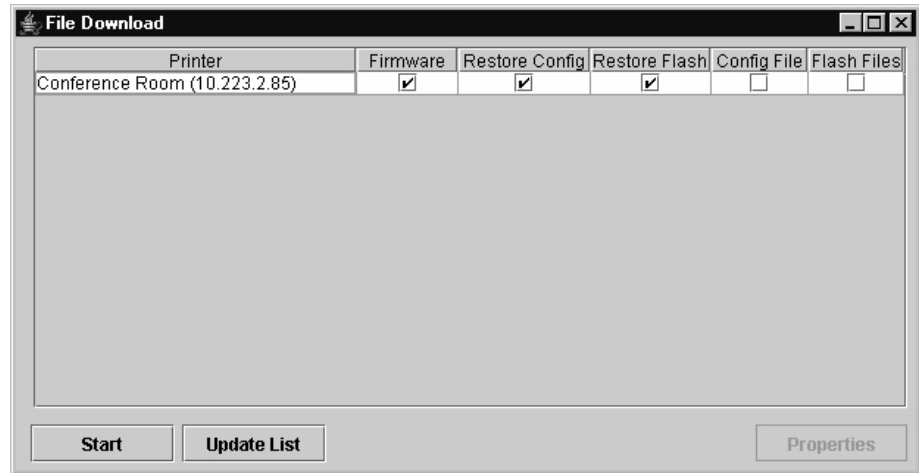



Figure 73. File Download: Conference Room Printer

### Example 1

In this example, the user selected the Conference Room printer, then selected **Applications** ▶ **File Download** or clicked the  (file download) button. The File Download dialog box opens. See Figure 73.

The Conference Room printer will download a program (firmware) file, and the configurations and flash memory will restore

### IMPORTANT

**If you uncheck Restore Config or Restore Flash, the configurations or flash memory will erase when you initiate a program file download.**

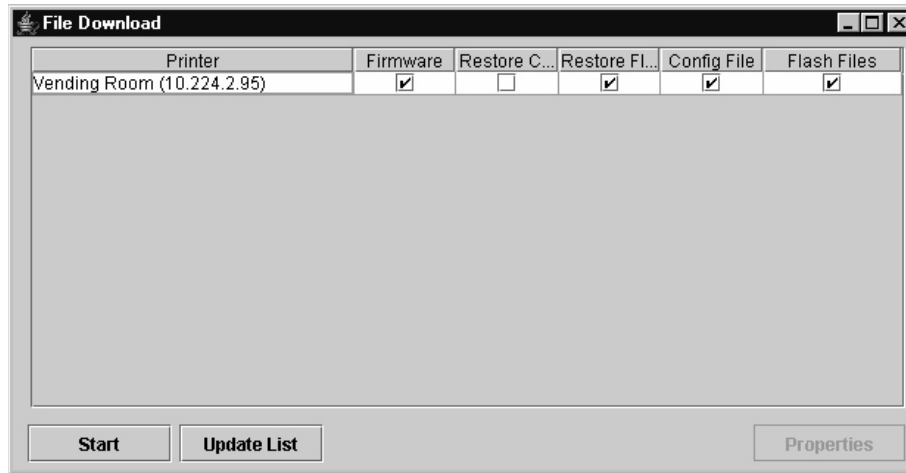



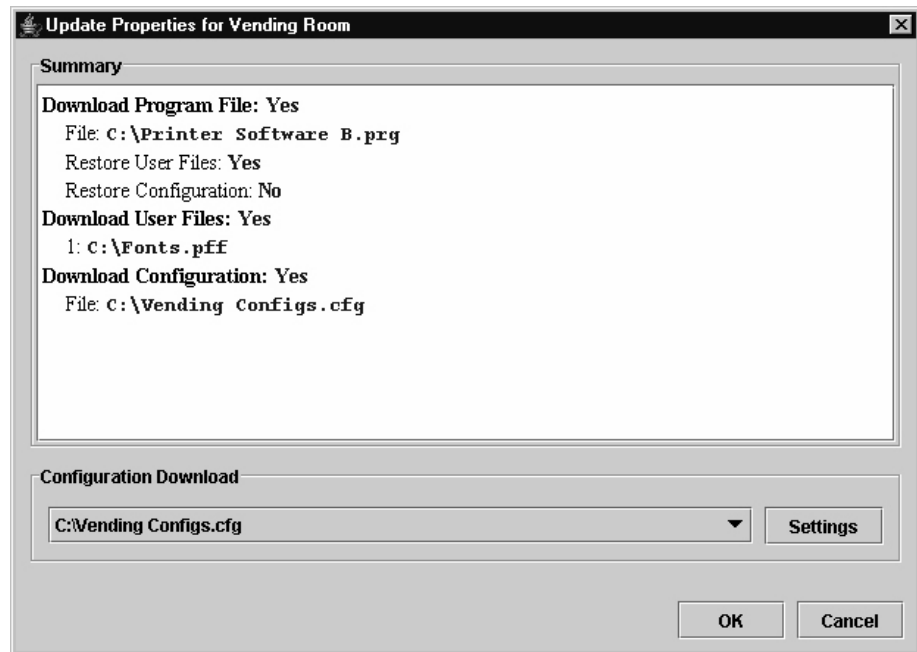
Figure 74. File Download: Vending Room Printer

### Example 2

In this example, the user selected the Vending Room printer, then selected **Applications** ▶ **File Download** or clicked the  (file download) button. The File Download dialog box opens. See Figure 74.

The Vending Room printer will download a program (firmware), configuration, and flash file, and the flash memory will be restored.

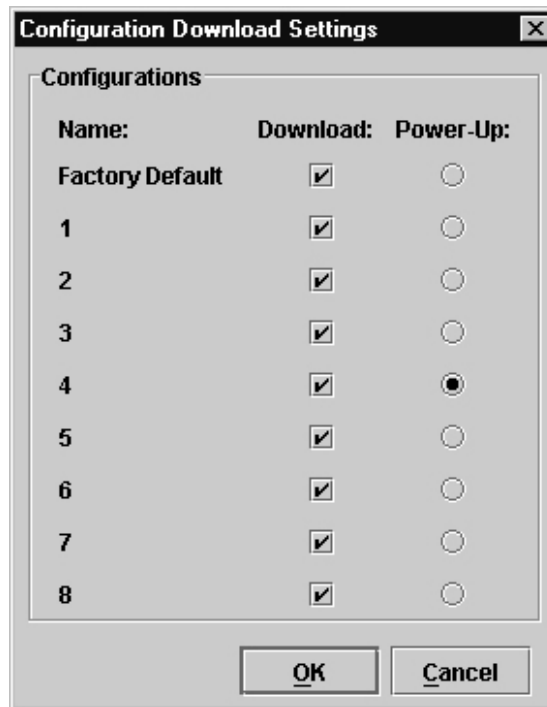
To see a summary of the files the printer will download, double-click the printer or select the printer and click **Properties**.



**Figure 75. Update Properties for the Vending Room Printer**

The Update Properties dialog box opens. See Figure 75.

In this example, the Vending Room printer will download the Printer Software B.prg program file, the Vending Configs.cfg configuration file, and the Fonts.pff flash file.



**Figure 76. Configuration Download Settings**

Since the printer will download a configuration file, you can click **Settings** to open the Configuration Download Settings dialog box. See Figure 76.

You can select or deselect specific configurations within the configuration file you want to download. Only the selected configurations will download. You can also select which of the configurations will be set as the Power-Up configuration.

In this example, the printer will download all configurations, and the Power-Up configuration will be set to configuration 4.

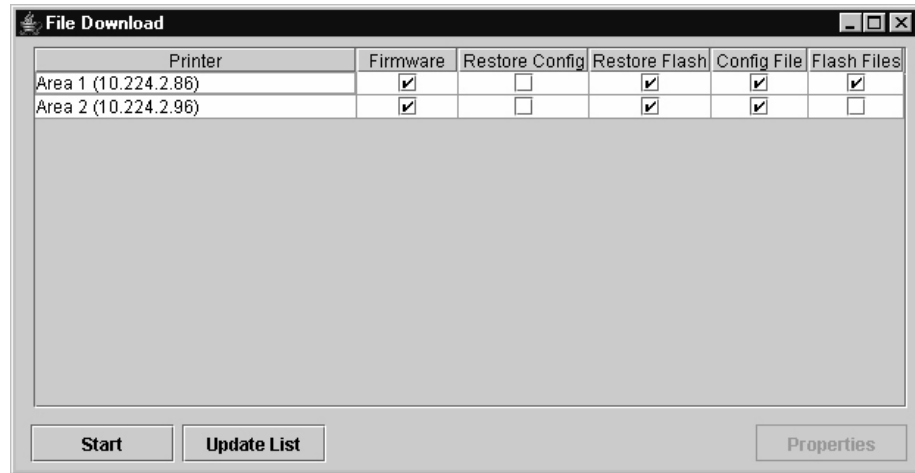



Figure 77. File Download: Manufacturing

### Example 3

In this example, the user selected the Manufacturing folder, then selected **Applications** ▶ **File Download** or clicked the  (file download) button. The File Download dialog box opens. See Figure 77.

In this example, the Area 1 and Area 2 printers will download the same program (firmware) file and a configuration file, since both files are in the same folder as the two printers (see Figure 72). In addition, the Area 1 printer will download a flash file.

Both printers will have their flash memories restored.

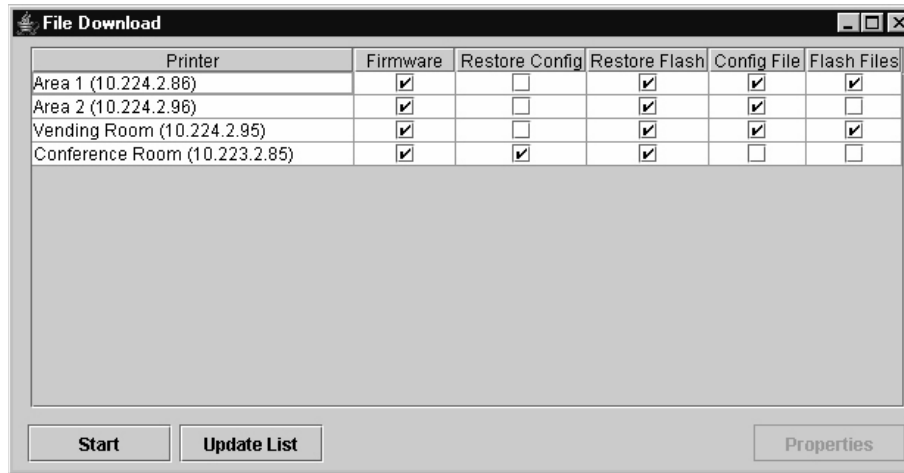



Figure 78. File Download: Building A

#### Example 4

In this example, the user selected the Building A folder, then selected **Applications** ▶ **File Download** or clicked the  (file download) button. The File Download dialog box opens. See Figure 78.

In this example (refer to Figure 72):

- The Area 1 and Area 2 printers will download the same program (firmware) and configuration files, and their flash memories will be restored.
- The Area 1 printer will download a flash file.
- The Vending Room and Conference Room printers will download the same program file.
- The Vending Room printer will download a configuration and a flash file, and its flash memory will be restored.
- The Conference Room printer will not download a flash or configuration file, but its configurations and flash memory will be restored.

**IMPORTANT** Make sure the same printer is not listed more than once in the File Download dialog box.



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## Recovery File

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Whenever a printer downloads a program (firmware) file, the configurations and flash memory are erased. You can choose to restore the configurations and/or flash memory, but if during the download the power interrupts or the connection severs, the files will be lost and will not restore.

The PMU makes a recovery file of the configurations and flash memory before they are erased. The recovery file is located in the PMU installation directory.

If a download fails, the Status and Error Log will display the location of the recovery file. The file is named after the printer name in the printer database, followed by a **.par** extension (printer archive).

Add a download file under the printer that failed during the download process. Open the Define Download File dialog. Click the browse button and navigate to the location of the recovery file. The recovery file is displayed in the Status and Error Log. Click OK to define the download file.

### **IMPORTANT**

**It is necessary that a program file be used with your recovery file. Make sure that you add a program file under the printer in the database or enable it if it is disabled.**

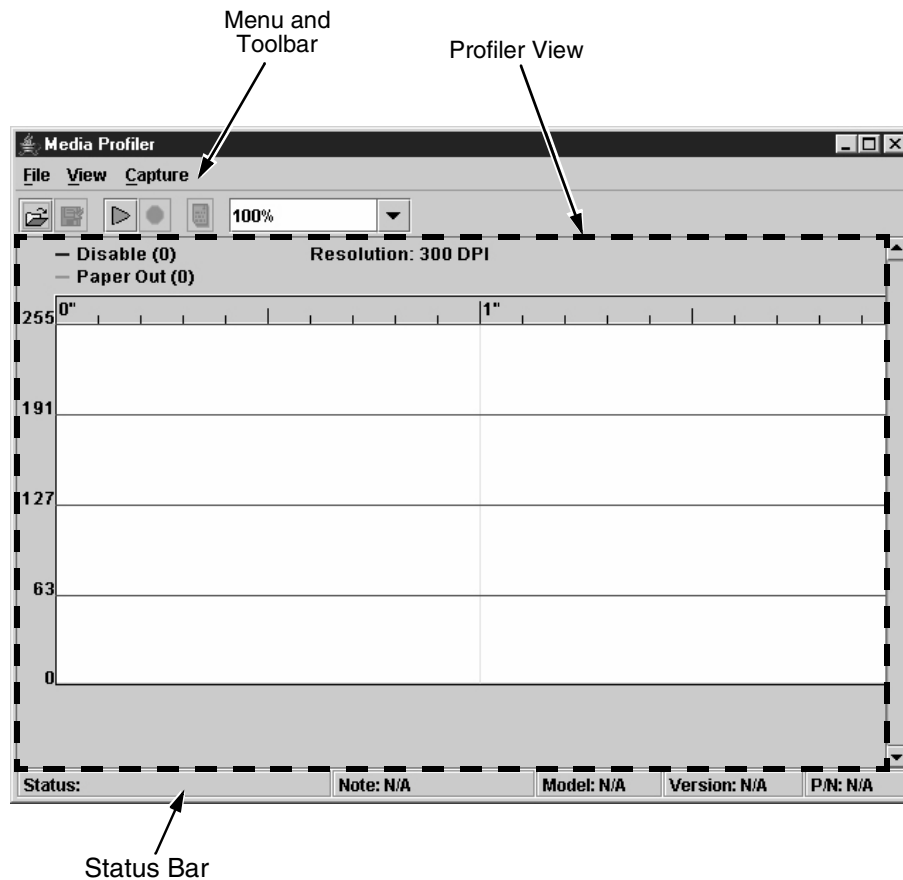
Click the printer to download and open the File Download application. Click Start to download the recovered files and settings to the printer.

**NOTE:** The properties and the download settings cannot be changed when you are using a recovery file. Recovery files are not deleted by the File Download application once an error occurs. This file should be deleted once the printer has the recovered configuration settings and flash files.


The **.par** archive contains the configuration file, which is named after the name of the printer in the printer database. The archive also contains the flash files, which are named exactly as they appeared in the flash memory.

## Media Profiler

The Media Profiler application is only available for thermal printers. It provides a means to analyze media sensing problems. You can use it on labels that are difficult to profile using the standard printer profiling method. If necessary, you can capture, document, and send this information to professional service centers for further analysis.



**Figure 79. Media Profiler Window**

To access the Media Profiler application, select **Applications > Media Profiler** or click the  (media profiler) button. The Media Profiler will open with no profiler data loaded or captured. It is divided into four sections, the menu bar, toolbar, profiler view (which contains the profiler graphic), and status bar. See Figure 79.

## The Menu And Toolbar

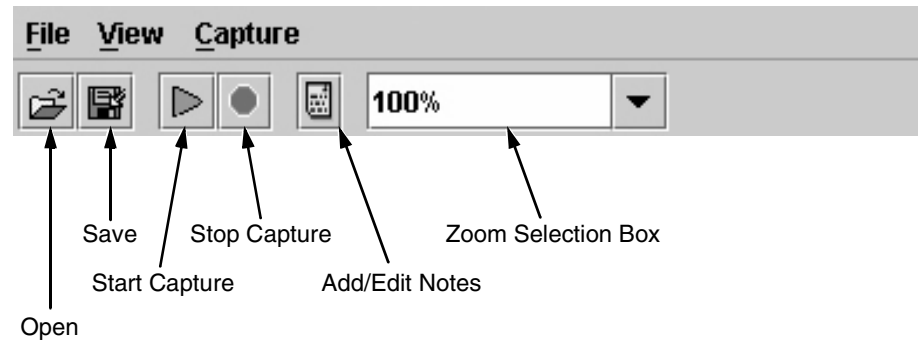


Figure 80. Media Profiler Menu and Toolbar

### File

**Open:** Opens a dialog wherein the user can select a previously saved file that contains profiler data. Media profiler files use the **.mpd** extension (Media Profiler Data).

**Save/Save As:** Saves captured data to disk for later reference or for use in another program. The file will save with the **.mpd** extension by default.

**Notes:** To add notes to captured data. Since the first line of the notes will display in the status bar (see “The Status Bar” on page 105), use short and distinct information that will be included in screen captures.

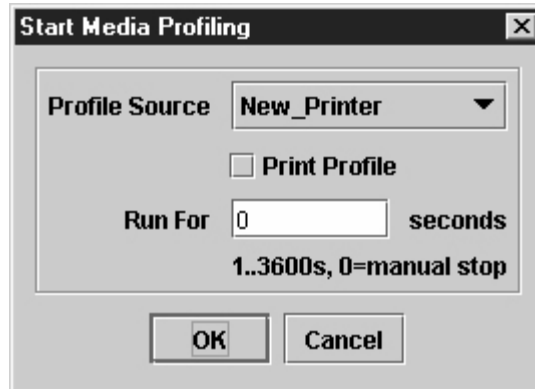
**Exit:** Exits the Media Profiler application. You will be warned if any data needs to be saved.

### View

**Show Crosshair:** When this menu item is checked (the default), a crosshair will display when the mouse pointer is hovering above the profiler graphic (see Figure 82 on page 101).

**Clear:** This will clear the profile view. The user will be informed if the captured data has not been saved.

## Capture



**Figure 81. The Start Media Profiling Dialog Box**

**Start:** Opens the Start Media Profile dialog box. See Figure 81.

From the Profile Source drop-down menu, you can choose an available printer from the printer database. This is the source for the media profile test.

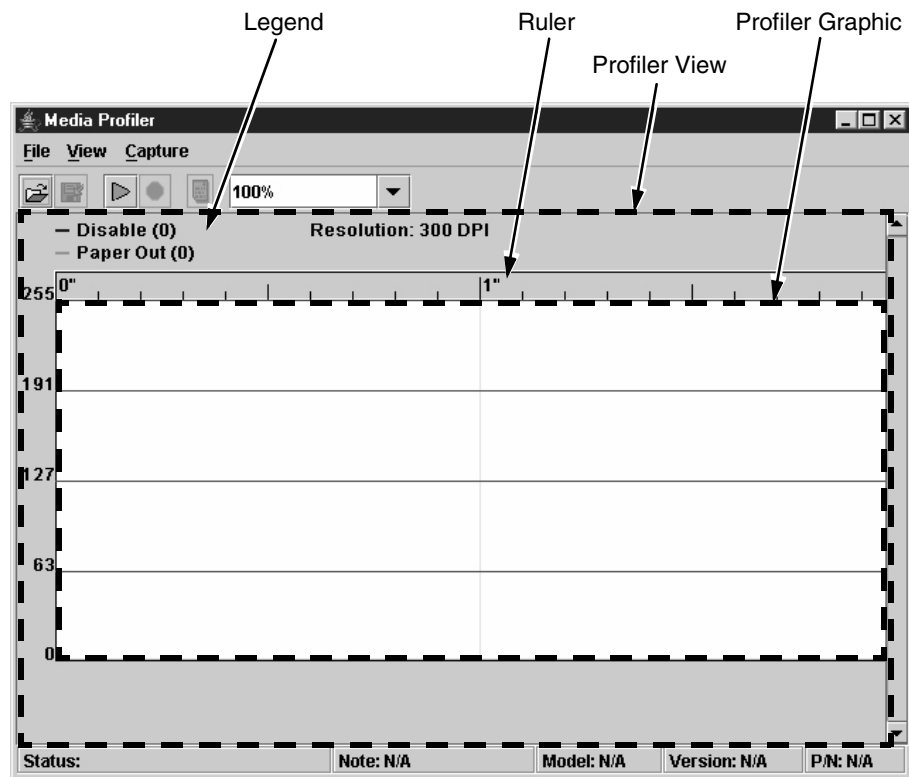
If you check the Print Profile checkbox, the profiler data will also print on the installed media. The Run For value determines how long the profiler test will run. If you select **0** seconds (the default), the test will run until you stop the capture (click the stop capture button, press F6, or select **Capture ▶ Stop**).

**NOTE:** You can always stop a capture before a specified time elapses.

After you click **OK**, the Media Profiler will attempt to establish a connection with the selected printer. If a connection is established, it will check if the printer supports capturing the media profiler data. If it does, the profiler test will start. The profiler test will run until the specified time has elapsed or until you stop the capture.

**Stop:** This action is enabled while a profiler test is running. If selected, it will stop the currently running profiler test.

## Profiler View



**Figure 82. Profiler View**

The center part of the Media Profiler window is the profiler view. The profiler view is divided into three sections: the legend, ruler, and profile graphic. See Figure 82.

### Legend

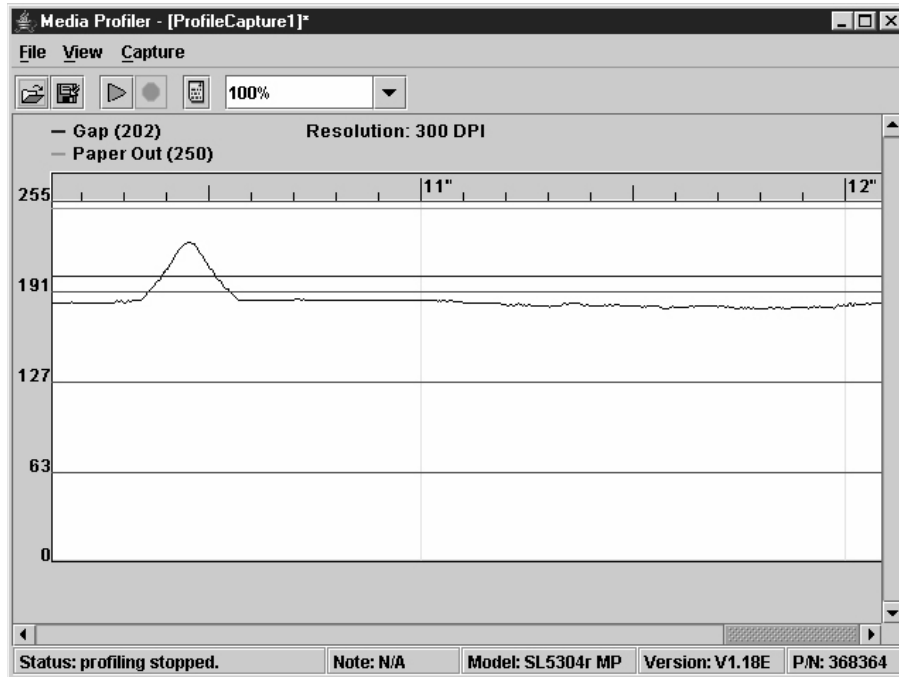
The legend displays the current values for two thresholds: Sensor Type and Paper Out. These values are set to zero by default since no threshold values have been received. These values are updated when the capture starts.

Sensor Type can be one of the following: Disabled, Mark, Gap, Advanced Gap, or Advanced Notch. By default it is set to Disabled. When dynamic sensing is enabled on the printer, the value of Sensor Type is Dynamic.

### The Ruler

The ruler displays the length of the captured profile in inches. The ruler has small ticks every tenth of an inch, and a larger tick every half inch. A resolution of 300 DPI is used by default to determine the length. When the profile capture starts the actual DPI will be retrieved from the printer and the ruler will update to reflect the correct DPI.

## Profile Graphic



**Figure 83. Profiler Graphic**

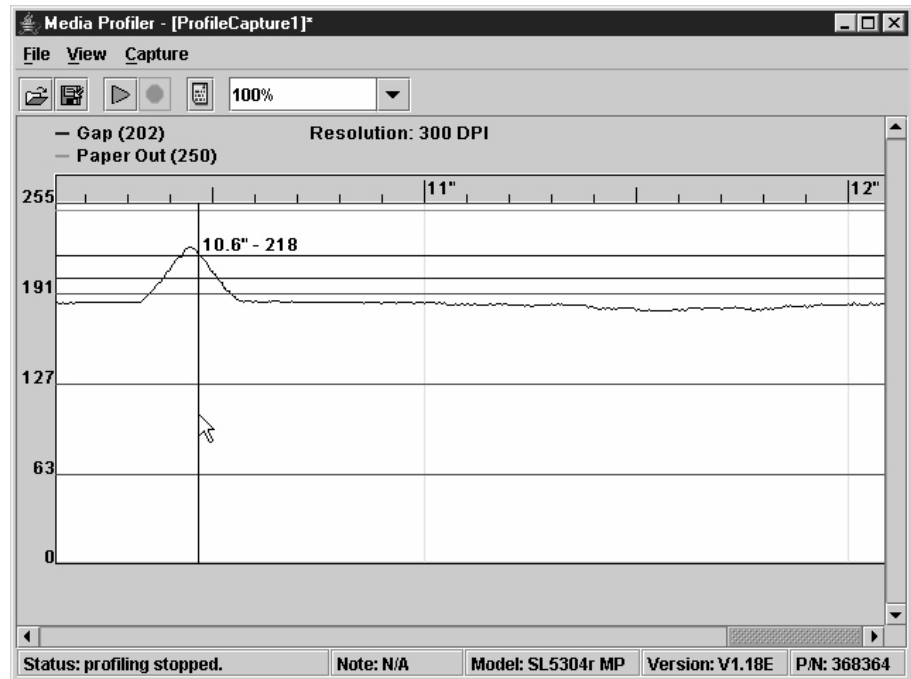
The profile graphic has four horizontal divider lines to indicate the quarter values of the sample data. When the capture starts, the samples of the profiler data will display on the graph.

The printer will send out the profiler sample data on regular intervals and the profiler view will be updated automatically. If the profiler graph is too wide to be shown in one window, a scroll bar will appear to be able to scroll the graph.

The printer sends out one sample for each dot, so 300 samples per inch will be received for a 300 DPI printer. During the capture, the view will auto scroll to show the last captured profiler data until the specified time has elapsed or you stop the capture. See Figure 83.

When the profiler test starts, the printer will send out the current threshold values. The thresholds are indicated by colored horizontal lines on the profiler graphic: blue for the Sensor Type threshold and green for the Paper Out threshold. If dynamic sensing is enabled on the printer, the Sensor Type threshold will be shown dynamically similar to the sample data.

## The Crosshair



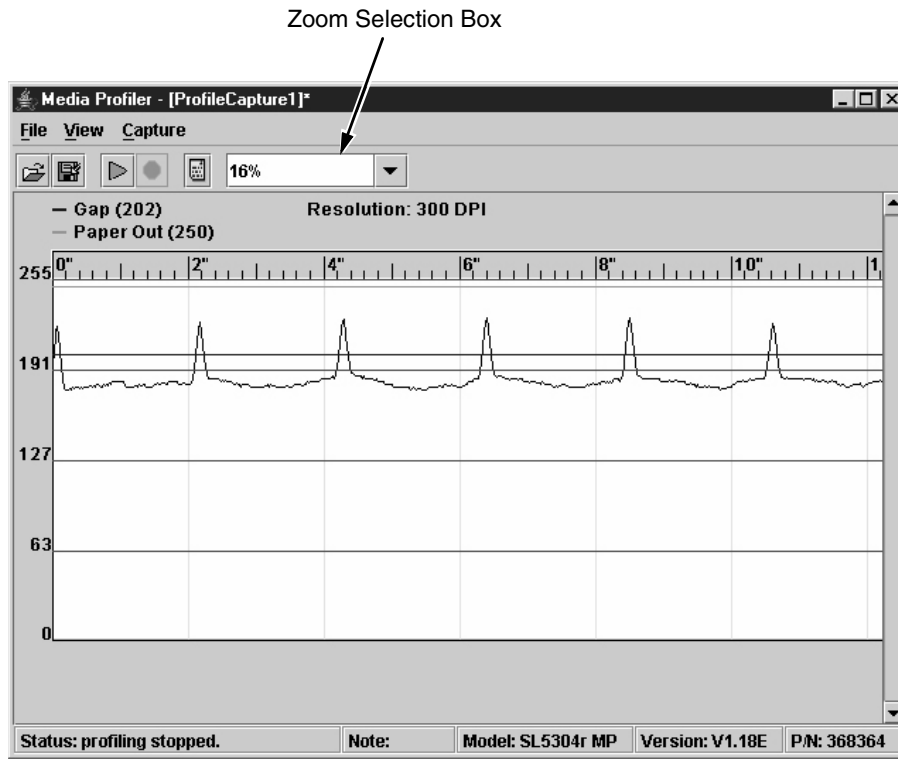
**Figure 84. The Crosshair**

The crosshair appears when the Show Crosshair menu item is checked (the default). When the pointer hovers above the profiler graphic, a crosshair is shown to indicate the sample value at that location and the distance to the origin. See Figure 84.

Press the **Ctrl** key to change the crosshair into a horizontal line that follows the mouse vertical position. You can use this to determine the optimal sensor values.

**NOTE:** Set the zoom factor to display the entire graph for this feature. See "Zoom" on page 104.

## Zoom



**Figure 85. Zooming**

You can use the zoom selection box to set the zoom factor. See Figure 85. You can enter a zoom factor or select a predefined zoom factor. The valid range is 5% to 400%.

If you have a mouse with a scroll wheel, the wheel can be used to zoom in and out. The zoom factor in the zoom selection box will update to reflect the current zoom factor.

You can zoom to display the entire graph in on window and determine the maximum and minimum sample values using the crosshair.



## Adjust the Origin



**Figure 86. Adjusting the Origin**

By default the origin of the graph is located at the first sample of the captured data (leftmost position). You can adjust the origin by clicking on the ruler and dragging the origin to the desired location. See Figure 86.

You can use this to determine the length/slippage of scanned labels in conjunction with the crosshair.

## The Status Bar

The status bar is at the bottom of the Media Profiler window (see Figure 79 on page 98) and is divided into five sections. The first section displays status messages. The second section displays the first line of the notes, if notes were added (see Notes on page 99). The last three sections display the model, version, and part number from the printer being profiled. By default these are set to N/A.

## For More Information

Refer to "Running Media Profile" in the *User's Manual*.

## Operator Panel


The PMU includes a virtual operator panel that simulates all the functions of the physical operator panel on your printer. See Table 6 below which lists the different virtual operator panels.

**Table 6. Virtual Operator Panels**

Figure	Page	Printer
Figure 87	page 107	6400 Series line matrix
Figure 88	page 107	6500 Series line matrix
Figure 89	page 108	4400/6700 Series thermal
Figure 90	page 108	6700-M40 Series thermal

The layout of the operator panel changes to visually simulate the printer being used (line matrix or thermal), but the keys and indicators function as described on page 109, regardless of the type of printer used.

The virtual operator panel uploads special font tables from the printer and uses them to match the printer's actual front panel display. If viewing Asian language symbols, the virtual operator panel determines and displays the proper number of lines.

To access the operator panel, select the appropriate printer from the printer database and then select **Applications ▶ Operator Panel** or click the  (operator panel) button.

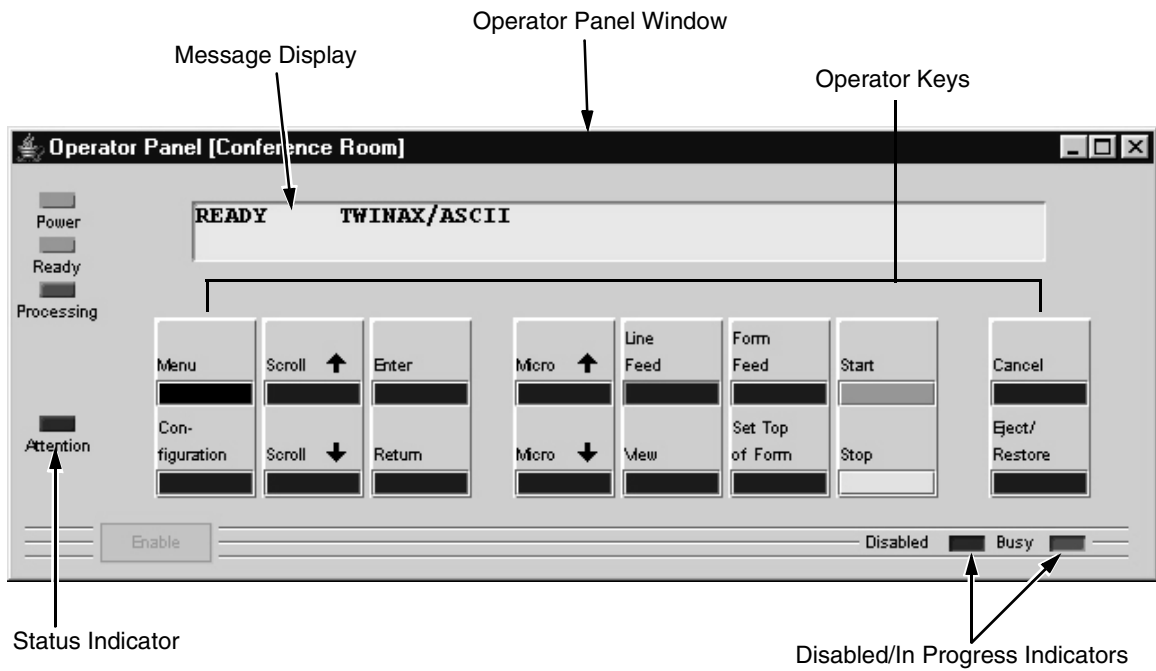


Figure 87. 6400 Series Line Matrix Printer Virtual Operator Panel

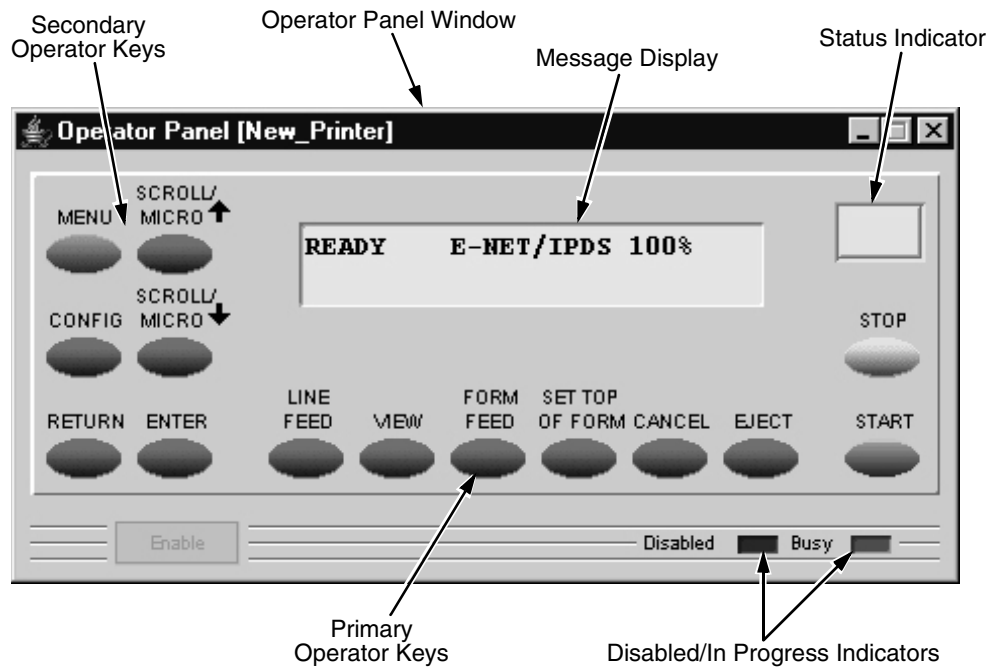


Figure 88. 6500 Series Line Matrix Printer Virtual Operator Panel

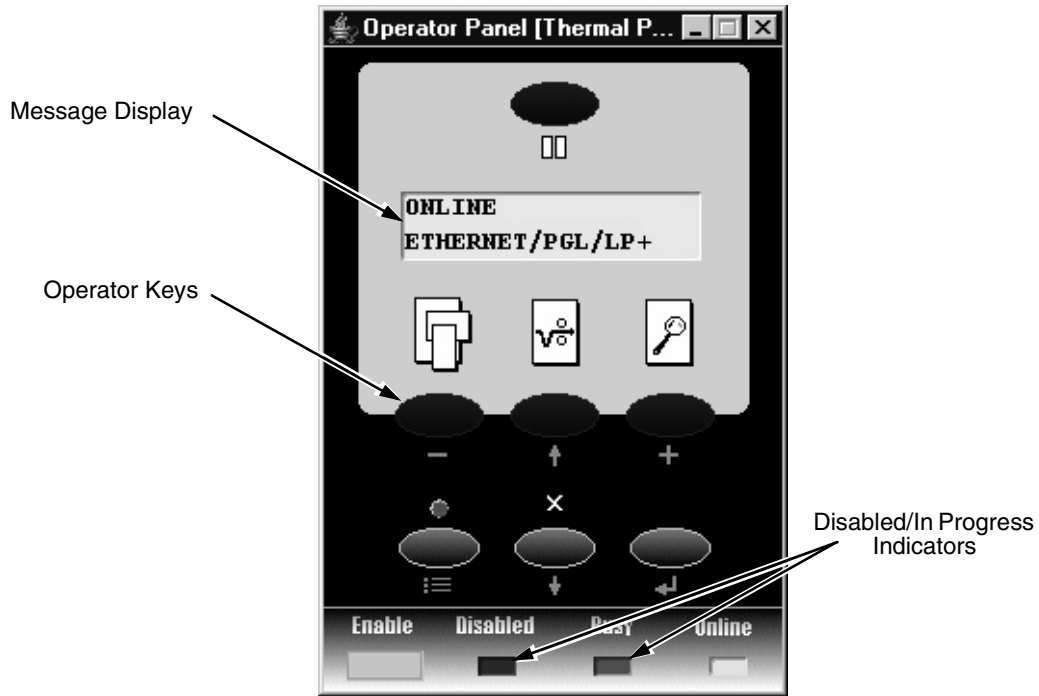


Figure 89. 4400/6700 Series Thermal Printer Virtual Operator Panel

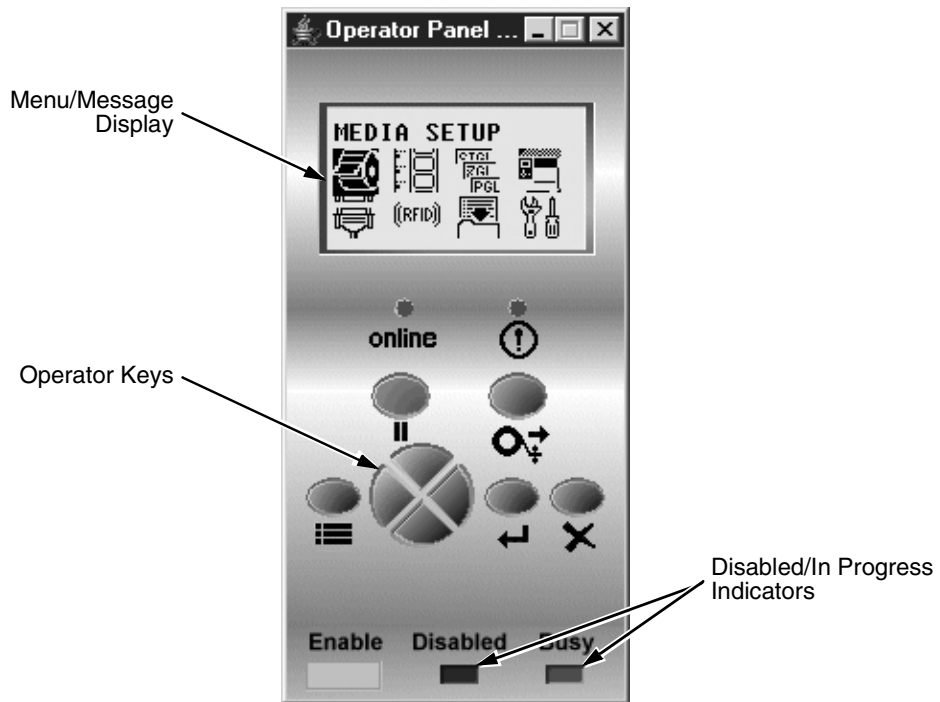


Figure 90. 6700-M40 Series Thermal Printer Virtual Operator Panel

## Primary/Secondary Operator Keys

---

Clicking the primary and secondary operator keys in the operator panel causes the printer to perform the same actions as if you were pressing the keys on the printer's operator panel. For example, when the printer is online, click the **STOP** key (6400/6500 Series) or the **II (PAUSE)** key (4400/6700 Series) to take the printer offline. Click the **START** (or **PAUSE**) key to place the printer back online.

Some functions require pressing multiple keys at the same time. To simulate this, hold down the **Shift** key on your host keyboard as you select each key. The selected keys change color to indicate that they are part of the multiple key press. Release the **Shift** key, and the selected keys on the operator panel activate as if they were pressed simultaneously.

For example, to unlock the ENTER (↵) key, hold down the **Shift** key on your keyboard, then click **RETURN** and **ENTER** (6500 Series), ↑ and ↓ (6400 Series), ↓ and ↵ (4400/6700 Series), or the Down and ↵ keys (6700-M40 Series). Release the **Shift** key, and the ENTER (↵) key unlocks.

**NOTE:** For an explanation of the functions of each primary and secondary operator key, refer to the printer's *User's Manual*.

## Message Display

---

The message display shows what is displayed on the physical operator panel. Use the message display to configure menu options and read error messages.

## Status Indicator

---

The status indicator displays the current operating mode:

**Online mode:** The indicator displays bright green.

**Offline mode:** The indicator displays black.

**Fault mode:** The indicator flashes.

## Disabled Indicator

---

Normally, when you control the printer via the operator panel, the Disabled light is off, and the Enable button underneath the status indicator is grayed out. While the PMU has control of the physical operator panel, the message **PRINTER UNDER REMOTE CONTROL** appears on the physical operator panel to alert others that the printer is being controlled remotely.

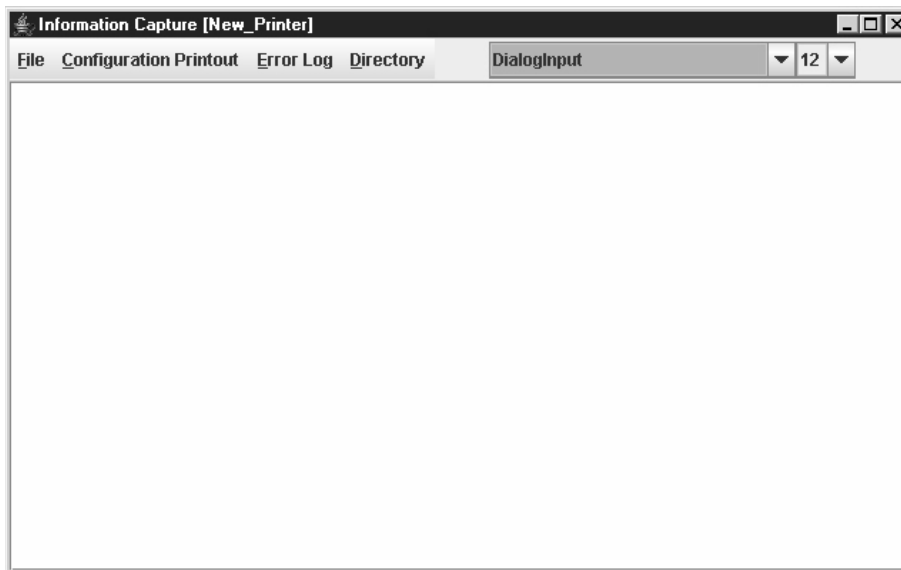
However, if someone presses a key on the printer, the virtual operator panel disables. The Disabled indicator lights up, and the Enable button activates. Click the **Enable** button to give control of the printer back to the virtual operator panel.

## In Progress Indicator


---

This light flashes when the printer is working on a job or moving paper.

## Information Capture



**Figure 91. Information Capture Window**

To access the Information Capture application, select a printer from the printer database and select **Applications ▶ Information Capture** or click the  (information capture) button. See Figure 91.

The Information Capture application allows you to view the configurations or error logs saved in the printer's memory and save them as a text file to your local hard drive.

Loading a configuration into the Information Capture does NOT change the active configuration — this is a *view only* application. If you want to change the active configuration, use the Configuration Editor (see page 65) or the operator panel.

The following are descriptions of the Information Capture menus.

## File

**Save As:** Saves the configuration or error log displayed in the Information Capture window as a **.txt** text file on your local hard drive. This **.txt** file can be opened in any word processing program.

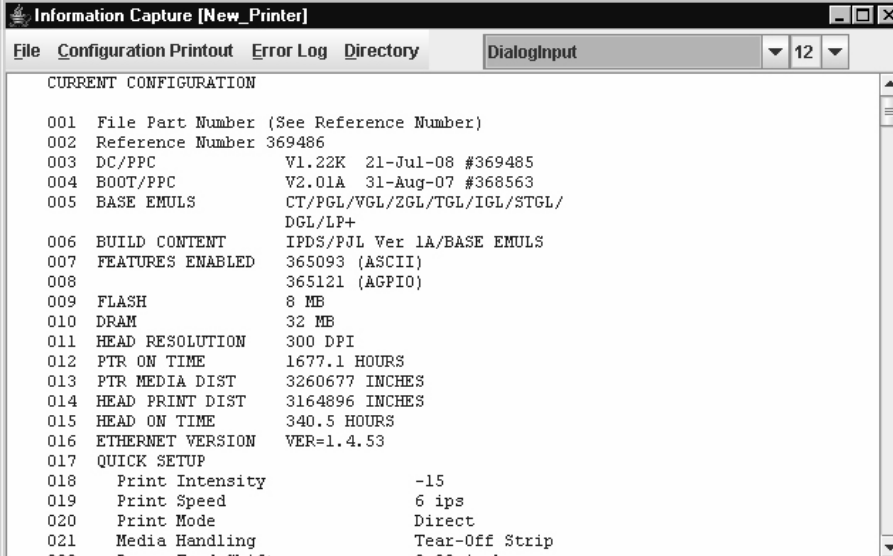
**Print:** Prints the text of the information captured to the host computer's default printer.

**Clear Window:** Clears the Information Capture window of any displayed configurations or error logs.

**Close:** Closes the Information Capture window.

## Configuration Printout

**Current/Factory/Power-Up/All/1-8:** Choose which configuration you want to view. If you choose more than one configuration without clearing the window, each additional configuration adds to the end of the display. See Figure 92.



The screenshot shows a window titled "Information Capture [New Printer]" with a menu bar containing "File", "Configuration Printout", "Error Log", and "Directory". The "DialogInput" field shows "12". The main area displays the following configuration data:

```

CURRENT CONFIGURATION

001 File Part Number (See Reference Number)
002 Reference Number 369486
003 DC/PPC          V1.22K  21-Jul-08 #369485
004 BOOT/PPC       V2.01A  31-Aug-07 #368563
005 BASE EMULS     CT/PGL/VGL/ZGL/TGL/IGL/STGL/
                   DGL/LP+
006 BUILD CONTENT  IPDS/PJL Ver 1A/BASE EMULS
007 FEATURES ENABLED 365093 (ASCII)
008                365121 (AGPIO)
009 FLASH          8 MB
010 DRAM            32 MB
011 HEAD RESOLUTION 300 DPI
012 PTR ON TIME     1677.1 HOURS
013 PTR MEDIA DIST  3260677 INCHES
014 HEAD PRINT DIST 3164896 INCHES
015 HEAD ON TIME    340.5 HOURS
016 ETHERNET VERSION VER=1.4.53
017 QUICK SETUP
018   Print Intensity      -15
019   Print Speed          6 ips
020   Print Mode           Direct
021   Media Handling       Tear-Off Strip
  
```

Figure 92. Configuration Printout

## Error Log

**All Errors:** Displays the printer's error log.

**Clear:** Clears all errors from the printer's memory.

**NOTE:** The printer's error log and the Status and Error Log at the bottom of the main printer database window of the PMU are separate. Clearing the printer's error log does not clear the Status and Error Log.

## Directory

**Flash File System:** Displays the file system information for your printer.

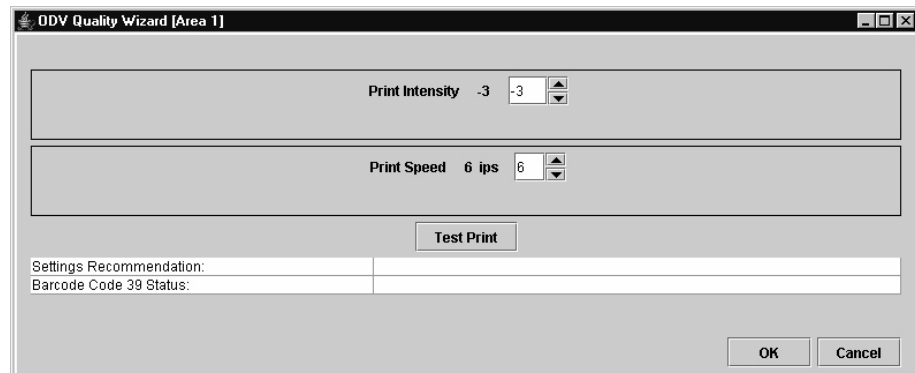
**NOTE:** If your printer is equipped with an EMC (6700-M40 printers only), the files will be displayed in two areas: one for the printer's internal flash memory, and one for the EMC. See Figure 93.

File	Size (Bytes)
<b>Printer's Internal Flash Memory</b>	
View Main Files	
93779.sf	177228 Bytes
93952.sf	210124 Bytes
91409.sf	47218 Bytes
90993.sf	47856 Bytes
92250.sf	59792 Bytes
92244.sf	63134 Bytes
92248.sf	59790 Bytes
92500.sf	190512 Bytes
plugin.cdm	122066 Bytes
hq3updt.cdm	53480 Bytes
pluginfp.cdm	206161 Bytes
if.fnt	368 Bytes
hq3.fnt	481 Bytes
uif.ss	21647 Bytes
plugin.ttf	26928 Bytes
utt.ss	15181 Bytes
ptnx4.dvl	174 Bytes
ptnx6.dvl	174 Bytes
ptnx8.dvl	174 Bytes
SMTFILES.ALL	40824 Bytes
EPC203.TIF	1590 Bytes
EPC300.TIF	3226 Bytes
version	47 Bytes
netemb.dat	151 Bytes
ptxLogo.gif	9230 Bytes
Total Bytes In Use By Active Files	1605063
Total Bytes In Use By Deleted Files	0
Total Bytes Available	2302516
<b>EMC</b>	
View EMC Files	
91059.sf	56290 Bytes
91060.sf	55938 Bytes
91671.sf	58130 Bytes
Total Bytes In Use By Active Files	170358
Total Bytes In Use By Deleted Files	0
Total Bytes Available	16484010

Figure 93. Directory: Printer's Internal Flash Memory and EMC



## ODV Quality Wizard



**Figure 94. ODV Quality Wizard Window**

**NOTE:** You must set the following in the VALIDATOR menu to use the ODV (Online Data Validator) Quality Wizard:

- Set Telemetry Path to Network Port.
- Set Telemetry Data to Full Report or Validation Mode.

The ODV Quality Wizard is a function that helps you select the best combination of print speed and print intensity that will produce optimal bar code output. It displays controls that allow you to select a print speed and a print intensity.

Click the **Test Print** button to print and validate a test bar code pattern. Based on the validation results, the ODV Quality Wizard provides setting suggestions to optimize the bar code quality.

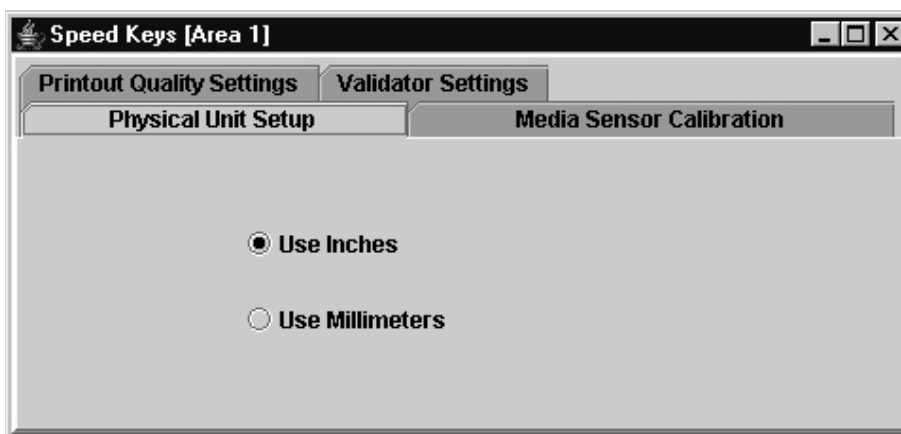
**IMPORTANT** **Do not follow any suggestions if “Barcode Code 39 Status” does not display “Pass.”**

Click **OK** to save these changes in Configuration 1. Configuration 1 then becomes the Power-Up configuration (see page 65). Click **Cancel** to not save the changes.

**IMPORTANT** **Clicking the  Close button in the upper-right corner functions the same as clicking OK.**

**NOTE:** The ODV Quality Wizard is printer specific, and not all printer models have ODV Quality Wizard support. Printers without ODV Quality Wizard support display the error message:  
Operation not allowed on this type of printer.

## Speed Keys



**Figure 95. The Speed Keys Window**

The Speed Keys are single buttons that allow you to perform a specific operation without having to traverse the operator panel menu structure. The Speed Keys assist you in performing repetitive functions associated with printer configuration or maintenance.

To access Speed Keys, select a printer then select **Applications ▶ Speed Keys** or click the  **Speed Keys** button. See Figure 95.

Changes made using Speed Keys are changed in the printer and saved in Configuration 1. Configuration 1 then becomes the Power-Up configuration (see page 65).

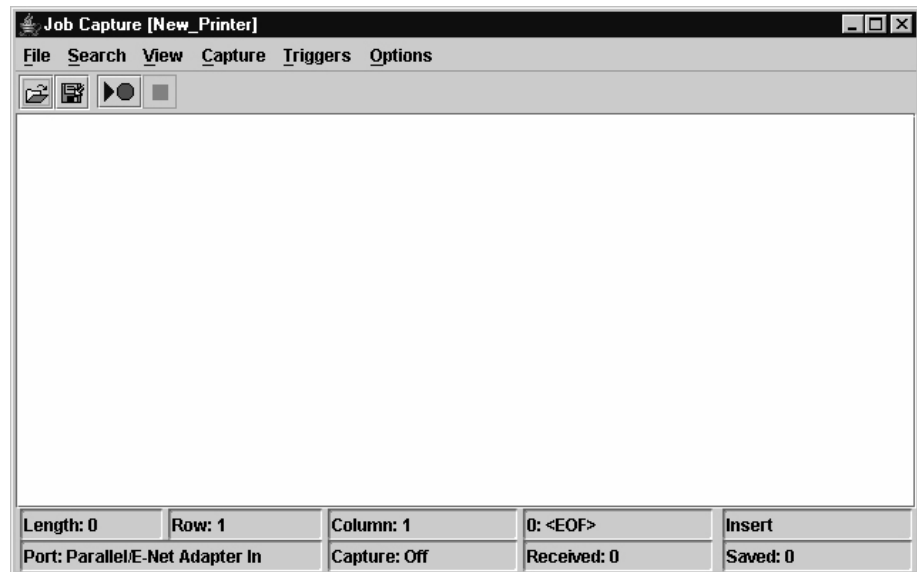
**NOTE:** Speed Keys are printer specific, and not all printer models have Speed Key support. Printers without Speed Key support display the error message:  
Operation not allowed on this type of printer.

The Speed Keys are grouped according to their use:

- Physical Unit Setup
- Media Sensor Calibration
- Printout Quality Settings
- Validator Settings


**NOTE:** For an explanation of the functions the Speed Keys perform, refer to the printer's *User's Manual*.

## Job Capture



**Figure 96. Job Capture Window**

Job Capture is an application that captures host datastreams through a specified host interface. This aids in debugging and diagnosing printer errors when working with technical specialists.

To access the Job Capture application, select a printer from the printer database and select **Applications ▶ Job Capture** or click the  (job capture) button.

Job Capture allows you to capture, modify, analyze, and save information to a file.

To use Job Capture:

1. Be sure the computer running the PMU is connected to the printer using the diagnostic port. See “Printer Setup” on page 10.
2. Select **Capture ▶ Data From** and then select the interface the printer will use to receive the file you want to capture.
3. Select **Capture ▶ Start** to place the PMU in capture mode. The interface sends the information to the terminal window until you turn off capture mode.
4. Select **Capture ▶ Stop** to stop the capture.

The capture window displays the capture information in three formats: Text, Hex, and Capstone. Select **View ▶ Display Format** to choose the information format. Select **View ▶ Display Control Codes** to view the control codes embedded in the file.

Once you capture the file and choose the display options, you can save the information to your local hard drive. Select **File ▶ Save As** and enter a file name. The PMU saves the captured information as a **.cap** text file. You can open a **.cap** file in any word processing program.

Select **File** ▶ **Clear Window** to clear all capture information from the terminal window. Select **File** ▶ **Quit** to close the Job Capture application.

## Job Capture Features

### File

#### Open

Opens a Job Capture file.

#### Save/Save As

You can save captured data to disk for later reference or for use in another program. To save the captured data, select **File** ▶ **Save** or **File** ▶ **Save As**. Data from Twinax sources can be saved in either Hex or Capstone format.

#### Clear Window

To erase captured data, select **File** ▶ **Clear Window**. If you have not already saved the data, a prompt appears and asks if the data should be erased without saving.

#### Quit

Exits the Job Capture program.

### Search

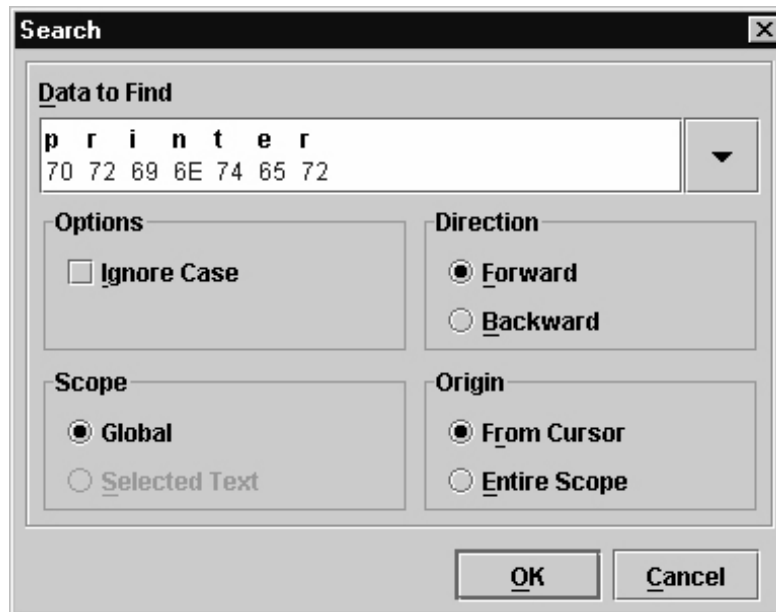


Figure 97. Search Captured Data

## Search Captured Data

You can search captured data for specific sequences. Select **Search ▶ Search Captured Data**. Enter the data as a hex or text string. Click **OK**, and the matching data highlights.

To further refine your search, you can choose whether or not to ignore the case, and specify the direction and origin of the search. If you have text selected, you can also choose whether to search the selected text or all text (Global). Use the down arrow in the upper-right corner to see a history of your searches. See Figure 97.

## Search Again

To continue searching, click **Search Again**. A message appears if the search is unsuccessful.

## View

### Display Format

Data displays in three ways:

- Text
- Hex
- Capstone


Capstone is for Coax/Twinax applications. You can edit Capstone data in Hex mode only.

### Display Command Codes


- **Normal:** Codes do not display.
- **Dots:** Dots represent the code.
- **Mnemonics:** Codes display within brackets. For example, Line Feed is <LF>, Carriage Return is <CR>, etc.

## Capture

### Start

Starts the capture. You can also use the  (start capture) button.

### Stop

Stops the capture. You can also use the  (stop capture) button.

### Data From

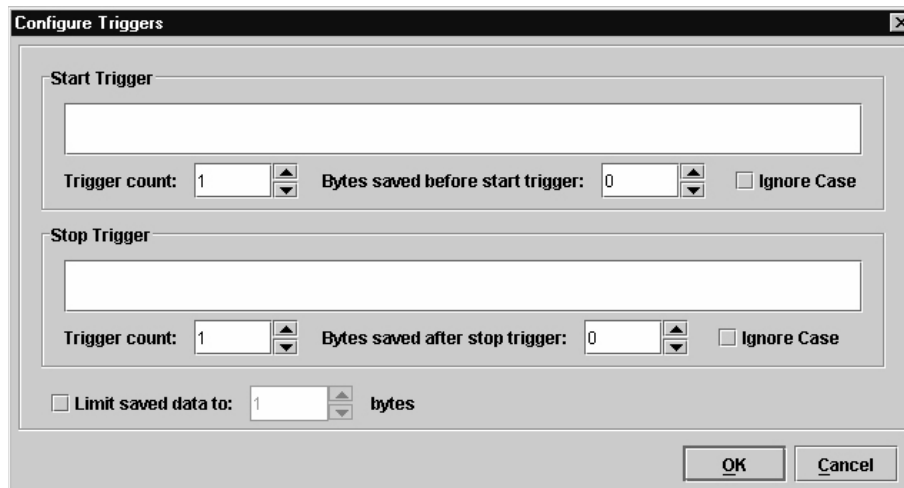
Selects the capture source of data. Options include:

- Parallel/E-Net Adapter In
- Serial In
- Serial Out

- Twinax Host Data
- Coax Host Data
- C/T Base Emulation
- PCI Ethernet In
- USB In

**NOTE:** The USB port is available only on 6700 Series thermal printers.

## Triggers



**Figure 98. Configure Triggers Window**

A Trigger allows a selective capture of host data. You need to specify two triggers, a start trigger and an end trigger. Select **Triggers** ▶ **Configure**. See Figure 98.

Enter triggers as text or hex strings with a maximum length of 256 characters. Job Capture scans received data for the start trigger sequence. Once found, data capture begins and continues until Job Capture finds the end trigger. If you do not set a start trigger, all data is captured when the Job Capture starts. If you do not set an end trigger, the data will continue to capture until you stop it.

A second trigger option is a trigger count. You can set Job Capture to start or stop once it finds a set number of start and/or stop triggers. The window that displays captured data shows any lines containing start triggers and highlights the start trigger strings. You can also use the Search feature to search through captured data.

The Ignore Case check box allows character case to be ignored. Check the box to search for a string regardless of character case, and the data will capture once the string is found.

**NOTE:** You cannot apply triggers to Coax/Twinax and TCP/IPDS jobs.

## Options

### Disable Printing

Select **Options** ▶ **Disable Printing** to capture data without printing.

## Web Access

You can access your printers using a web browser. You can monitor the status, open an operator panel, check the configurations, and access the printer web page.

**NOTE:** To access your printer using a web browser, you must enable the Web Server and XML Server services (see page 28). Remember to exit and restart the PMU to enable the service.

### The PMU Web Site URL Address

Open a web browser. In the URL address field, type `http://`, followed by the host IP address of the workstation running the PMU or the host name (computer name, not case-sensitive), followed by a colon (:), and then the Web Server port number (see page 28).

For example:

`http://10.224.5.121:8080`

or:

`http://lab21042:8080`

**NOTE:** Make sure the port number does not conflict with another port number designated for a different purpose.

Press **Enter**, and the web page for your designated printer appears. See Figure 100 on page 120.

To find the host name using Windows, right-click **My Computer** on the desktop and select **Properties**. Click the **Computer Name** (or **Network Identification**) tab, then click **Change** (or **Properties**). The computer name appears in the Computer name field. See Figure 99.

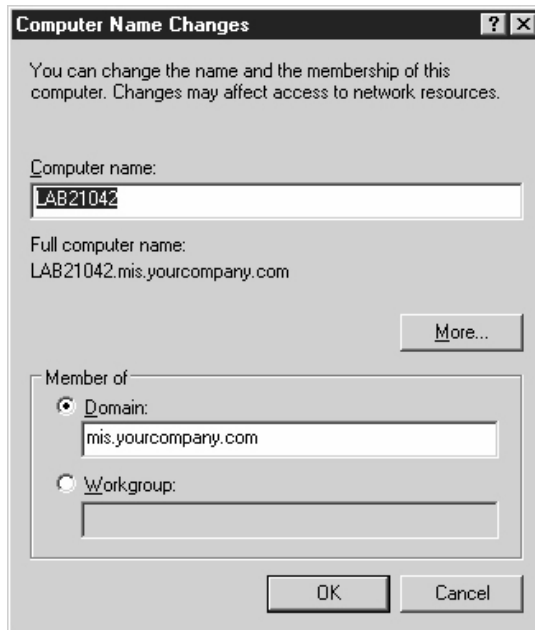


Figure 99. Finding Your Host Name In Windows

## Login To The PMU Web Site




Figure 100. The PMU Web Site

By default, three categories of login privileges are available. See Table 7 for a list of categories and their corresponding user names and passwords.

Table 7. User Login Options

Login Category	User name	Password
Standard	standard	standard
Supervisor	super	super
Administrator	admin	admin

Type `admin` for the user name and password, then click **Login**. The Select Desired Page web page appears. See Figure 101.



Figure 101. The Select Desired Page Web Page

## Changing The User Password



Figure 102. The Change Password Web Page

You can change the default password. Click **Change Password Page**, and the Change Password web page appears. See Figure 102.

Enter a new password in the New Password and Retype Password fields, then Click **Change Password**. Your password changes and you return to the Select Desired Page web page.



## The Printer List Page

**This page will refresh once a minute. Time: 14:33**

Sort Printers by

Printer ID	Address	Status	Message	Configuration	Operator Panel	Printer Web Page
Thermal	10.224.1.141	ERROR	Thermal (Building A) PRINT HEAD UP > Close Print Head	Current	Open	Open
Line Matrix	10.22.1.136	OK	Line Matrix (Building B) ONLINE > POWER SAVER MODE	Current	Open	Open

**Figure 103. The Printer List Web Page**

Click **Printer List Page**. The Printer List web page appears and lists the same printers found in the database pane. See Figure 103.

By default, printers are sorted by Status (Errors). You can also sort printers by Status (Warnings), Status (Online), Address (Ascending), and Address (Descending).

In the above example, the thermal printer displays an error because it is offline. Any printer not ready to print displays an error status.

For an explanation of the Printer List Page options, find the option in Table 8 and follow the corresponding reference.

**Table 8. Printer List Page Options**

Web Page Option	Reference
Configuration	displays the printer's current configuration
Operator Panel	see page 106
Printer Web Page	opens the Ethernet Interface Home Page; refer to chapter three of the <i>Ethernet Interface User's Manual</i>

**NOTE:** Administrators and Supervisors can access all five options. Standard users can access only Configuration and Printer Web Page.

## Changing User Settings, IP Addresses, and IP Address Ranges

```

<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE ppmXML (View Source for full doctype...)>
- <ppmXML>
- <LoginDatabase>
  <!-- For some user to access the printer information, they need to be
  added by userid. -->
  <!-- The IP address of their machine also needs to be authorized. -->
- <UserDatabase>
  <!-- All the user names, their privilege type (standard, super, admin)
  needs to be added here -->
  <userid password="standard" privilege="standard">standard</userid>
  <userid password="super" privilege="super">super</userid>
  <userid password="admin" privilege="admin">admin</userid>
</UserDatabase>
- <MachineDatabase>
  <!-- Individual address can be included or excluded from accessing the
  printer information. -->
  <!-- ipAddressIncluded and ipAddressExcluded are used for individual
  addresses. -->
  <ipAddressIncluded>10.22.1.121</ipAddressIncluded>
  <ipAddressExcluded>100.100.100.100</ipAddressExcluded>
  <!-- Use ipAddressIncludeRange and its start and end attributes to
  define the access range. -->
  <ipAddressIncludeRange start="00.00.00.00" end="255.255.255.255" />
  <!-- Use ipAddressExcludeRange and its start and end attributes to
  define the invalid access range. -->
  <ipAddressExcludeRange start="00.00.00.00" end="00.00.00.1" />
</MachineDatabase>
</LoginDatabase>
</ppmXML>

```

**Figure 104. The PpmLogin.xml File**

The PpmLogin.xml file, located in the PMU installation directory, contains user settings and the included/excluded IP addresses and IP address ranges. See Figure 104.

To modify this file, open it using a text editor.

**IMPORTANT** The PpmLogin.xml file should only be modified by expert users. Incorrect entries in this file could render the Web Server service unusable.

## User Settings

The diagram shows the following XML code with three labels and arrows pointing to specific values:

- Password**: Points to the value "standard" in the first user entry.
- Privilege category**: Points to the value "standard" in the first user entry.
- User name**: Points to the value "standard" in the first user entry.

```

- <UserDatabase>
  <!-- All the user names, their privilege type (standard, super, admin)
  needs to be added here -->
  <userid password="standard" privilege="standard">standard</userid>
  <userid password="super" privilege="super">super</userid>
  <userid password="admin" privilege="admin">admin</userid>
</UserDatabase>
  
```

**Figure 105. User Login Parameters**

The user name, password, and privilege category are defined in the <UserDatabase> section of the file. See Figure 105.

**Password:** Defines the password for the designated user name. When you change the password using the Change Password web page, this information updates.

**Privilege Category:** Defines the privilege for the designated user name. The available options are: standard, super, and admin.

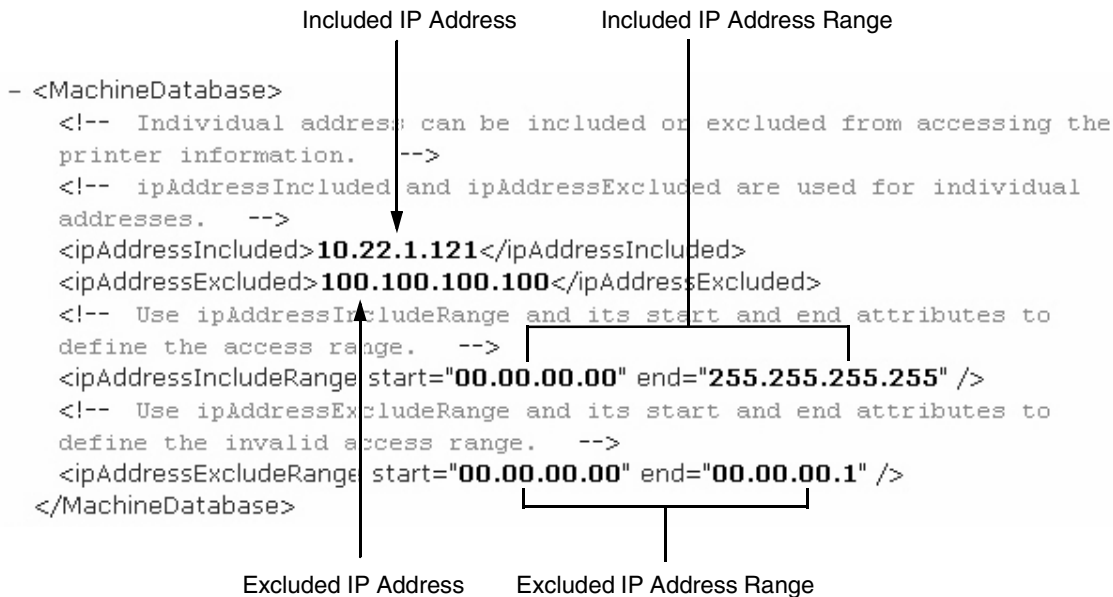
**User name:** Defines the user name. You can only change the user name by modifying this attribute.

You can add additional users by duplicating the following line in the <UserDatabase> section:

```

<userid password="standard" privilege="standard">
standard</userid>
  
```

## IP Addresses and IP Address Ranges



**Figure 106. Include/Exclude IP Address Options**

You can define which IP addresses are available to the PMU for access. Any IP address not included or defined in the included range will be unavailable to the PMU. In addition, any IP address excluded or defined in the excluded range will also be unavailable. The included and excluded IP addresses are defined in the <MachineDatabase> section of the file. See Figure 106.

**Address Included:** Defines which IP address to include.

**Address Excluded:** Defines which IP address to exclude.

**Address Include Range:** Defines the range of IP addresses to include.

**Address Exclude Range:** Defines the range of IP addresses to exclude.

You can add additional included/excluded IP addresses or IP address ranges by duplicating the corresponding lines in the <MachineDatabase> section:

```

<ipAddressIncluded>10.22.1.121</ipAddressIncluded>

<ipAddressExcluded>100.100.100.100</ipAddressExcluded>

<ipAddressIncludeRange start="00.00.00.00"
end="255.255.255.255"></ipAddressIncludeRange>

<ipAddressExcludeRange start="00.00.00.00"
end="00.00.00.1"></ipAddressExcludeRange>

```

---

# 4

## *Utilities*

---

### **Reboot Printer**

Reboots the selected printer.

---

### **Set Printer Password**

The PMU does not allow passwords to change unless the Supervisor password matches the password in the Printer Properties. See “Security Tab” on page 57.

**NOTE:** If a password exists but is unknown, you must clear it first.  
See “Set Password” on page 13.

To set the printer password in the database:

1. Double-click the printer name. The Printer Properties dialog box opens.
2. Click the **Security** tab.
3. Type the User and Supervisor passwords.
4. Check the **Supervisor Mode** check box.
5. Click **OK**.

To change the printer password:

1. Click the printer name to select it.
2. Select **Utilities** ▶ **Set Printer Password**. The Change Password dialog box opens.



**Figure 107. Change Password Dialog Box**

3. Type the new password.
4. For a new Supervisor password, check the **Supervisor Password** check box. For a new User password, leave this box unchecked.
5. Click **Set**.
6. If you entered a new Supervisor password, double-click the printer name. The Printer Properties dialog box opens.
7. Click the **Security** tab.
8. Type the same password you entered in step 3 in the Supervisor Password field.
9. Click **OK**.

## Set Wireless Properties

**NOTE:** For a more thorough description of these settings, refer to the *Ethernet Interface User's Manual*.

To set wireless properties, select a wireless printer from the printer database then select **Utilities** ▶ **Set Wireless Properties**.

The Wireless Properties dialog box contains four tabs: General, WEP Encryption, Kerberos, EAP, and WPA.

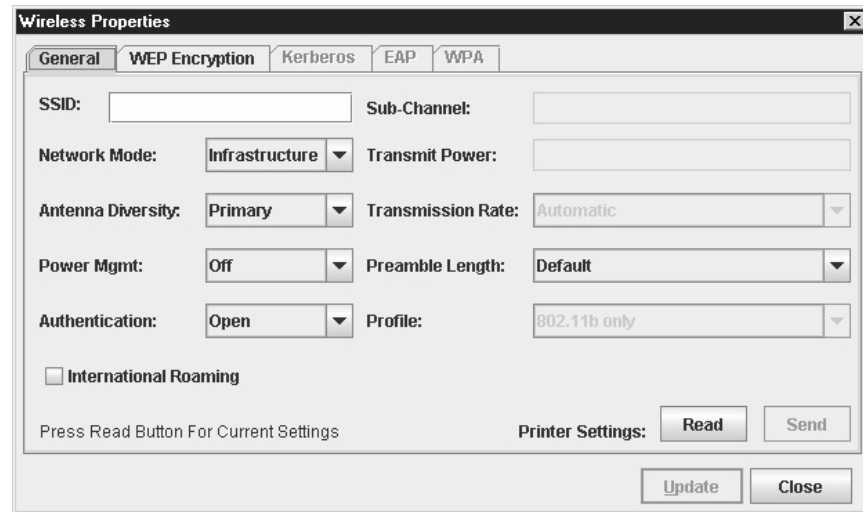


Figure 108. Wireless Properties: General Tab

### General Tab

You must click **Read** to obtain the printer's settings before you can modify them.

**NOTE:** If the Ethernet Interface has a password assigned to the user **guest**, then a Telnet guest password is required. See "Security Tab" on page 57.

**SSID (Service Set Identifier):** A 1 to 32 case sensitive character string that identifies the SS network that the printer with a wireless Ethernet Interface is a part of.

**Network Mode:** Determines if the client communicates using an access point (Infrastructure) or other clients peer to peer (Ad Hoc).

**Antenna Diversity:** The Ethernet Interface supports a single (Primary and Auxiliary) and dual (Diverse) antenna mode.

**Power Saver Mode:** Determines if the Ethernet Interface will go into a power saving mode (Modes 1 through 5) or stay powered up (CAM: Continuous Access Mode).

**Authentication:** Determines the authentication scheme: Open, Shared, Kerberos, or LEAP.

Open system authentication allows all devices that have the authentication algorithm number for open system to authenticate.

Shared key authentication involves a four step process using secure or encrypted text by means of WEP.

LEAP is to enable LEAP operation.

Kerberos is to enable Kerberos operation.

**Sub-Channel:** Determines the channel for the radio frequency card: 1 through 15 and Default.

**Transmit Power:** Determines the wattage of the transmission power: Max (100 mW - Default), 50% (30 mW), 25% (15 mW), 10% (5 mW), and 1% (1 mW).

**Transmission Rate:** Currently unavailable. Determines the rate of data transmission from the radio frequency card to the access point: 1 MHz, 2MHz, 5 MHz, 11 MHz, and Automatic.

**Preamble Length:** Determines the size of the packet header generated by the access point: Long, Short, or Default (set by the access point).

**Profile:** Determines the 802.11g Wireless (Wi-Fi) mode in which to operate.

**International Roaming:** Check this check box to enable roaming outside the home country.

When you are finished, click **Send** to transmit the values to the printer.

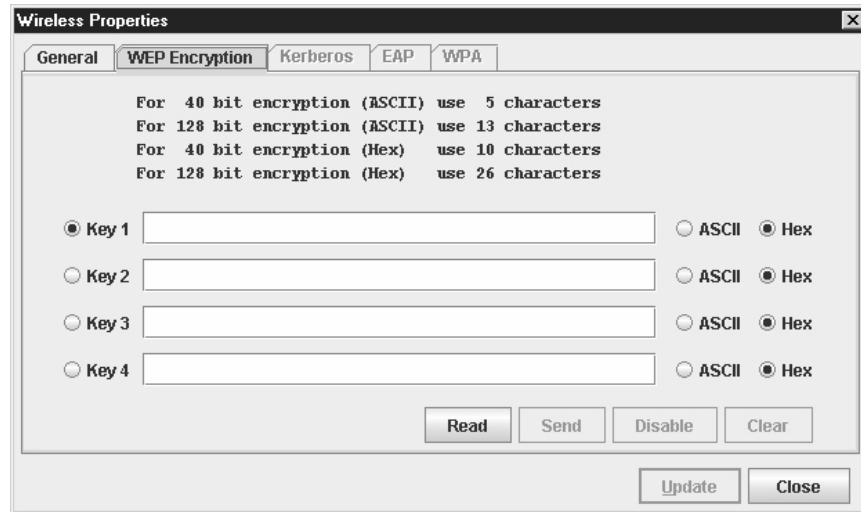
**NOTE:** If the Ethernet Interface has a password assigned to the user **root**, then a Telnet root password is required. See “Security Tab” on page 57.

If you are not going to modify settings on any other tabs, you must update the printer for the settings to take effect. Click **Update** to update the printer.

**IMPORTANT** Make sure the settings match those configured in the Access Point.



## WEP Encryption Tab



**Figure 109. Wireless Properties: WEP Encryption Tab**

You must click **Read** to obtain the printer's settings before you can modify them.

**NOTE:** If the Ethernet Interface has a password assigned to the user **guest**, then a Telnet guest password is required. See "Security Tab" on page 57.

Select which key you want to use for Wireless Equivalency Privacy (WEP) encryption. Use the correct number and type of digits for your preferred encryption strength (40 or 128 bit), then select **ASCII** or **Hex**.

Click **Disable** to disable WEP encryption for the selected printer.

Click **Clear** to clear all keys displayed on the WEP Encryption tab simultaneously. (The keys stored in the Ethernet Interface are not affected.)

When you are finished, click **Send** to transmit the values to the printer. You can transmit up to four keys at once, but only the selected key will become the active key in the printer.

**NOTE:** If the Ethernet Interface has a password assigned to the user **root**, then a Telnet root password is required. See "Security Tab" on page 57.

**NOTE:** If the values are not in the selected format, or if the exact number of characters required is not entered, an error message will appear. Correct the problem, then click **Send** again.

If you are not going to modify settings on any other tabs, you must update the printer for the settings to take effect. Click **Update** to update the printer.

**IMPORTANT** Make sure the settings match those configured in the Access Point.

## Kerberos Tab

The Kerberos tab contains four sub-tabs: Print Server, KDC, Set Password, and Credentials.



**Figure 110. Wireless Properties:  
Kerberos Tab – Print Server Sub-Tab**

### Print Server Sub-Tab

You must click **Read** to obtain the printer's settings before you can modify them.

**NOTE:** If the Ethernet Interface has a password assigned to the user **guest**, then a Telnet guest password is required. See "Security Tab" on page 57.

**Status:** Displays Authenticated or Not Authenticated once an attempt to send Kerberos information has been sent.

**Activate Kerberos:** Check this check box to have the printer use Kerberos when the printer is using a wireless connection.

**Renewable Lifetime/Units:** The maximum allowable renewable lifetime in seconds, hours, or days. The range is 300 seconds to 3 days, or 0 (i.e., no limit). The default is 0.

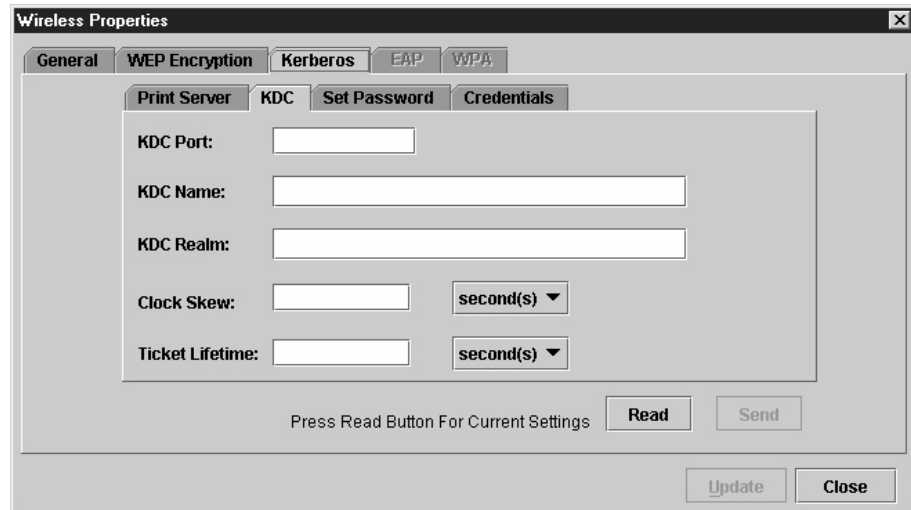
**Print Server Name:** The name of the print server.

When you are finished, click **Send** to transmit the values to the printer.

**NOTE:** If the Ethernet Interface has a password assigned to the user **root**, then a Telnet root password is required. See "Security Tab" on page 57.

If you are not going to modify settings on any other tabs, you must update the printer for the settings to take effect. Click **Update** to update the printer.

**IMPORTANT** Make sure the settings match those configured in the Access Point.



**Figure 111. Wireless Properties:  
Kerberos Tab – KDC Sub-Tab**

## KDC Sub-Tab

You must click **Read** to obtain the printer's settings before you can modify them.

**NOTE:** If the Ethernet Interface has a password assigned to the user **guest**, then a Telnet guest password is required. See "Security Tab" on page 57.

**KDC Port:** The TCP/UDP port number used by the KDC. The default is 88.

**KDC Name:** The name of the KDC which the Access Point is registered. The default is krbtgt.

**KDC Realm:** The realm of the KDC which the Access Point is registered. The default is **LOCALREALM**.

**Clock Skew/Units:** The maximum allowable time difference between the Print Server clock and the KDC clock, in seconds, hours, or days. The default is 300 seconds.

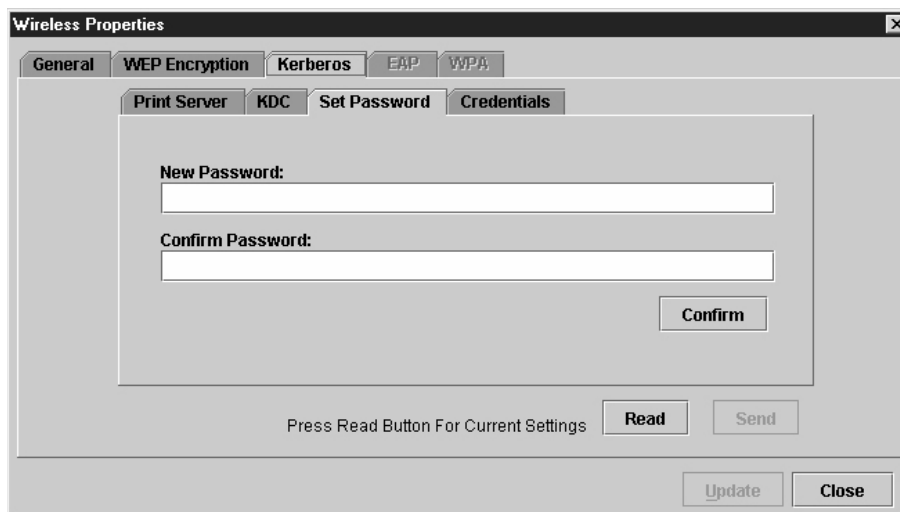
**Ticket Lifetime/Units:** The maximum allowable ticket lifetime in seconds, hours, or days. The range is 300 seconds to 3 days. The default is 10 hours.

When you are finished, click **Send** to transmit the values to the printer.

**NOTE:** If the Ethernet Interface has a password assigned to the user **root**, then a Telnet root password is required. See "Security Tab" on page 57.

If you are not going to modify settings on any other tabs, you must update the printer for the settings to take effect. Click **Update** to update the printer.

**IMPORTANT** Make sure the settings match those configured in the Access Point.



**Figure 112. Wireless Properties:  
Kerberos Tab – Set Password Sub-Tab**

### Set Password Sub-Tab

You must click **Read** to obtain the printer's settings before you can modify them.

**NOTE:** If the Ethernet Interface has a password assigned to the user **guest**, then a Telnet guest password is required. See "Security Tab" on page 57.

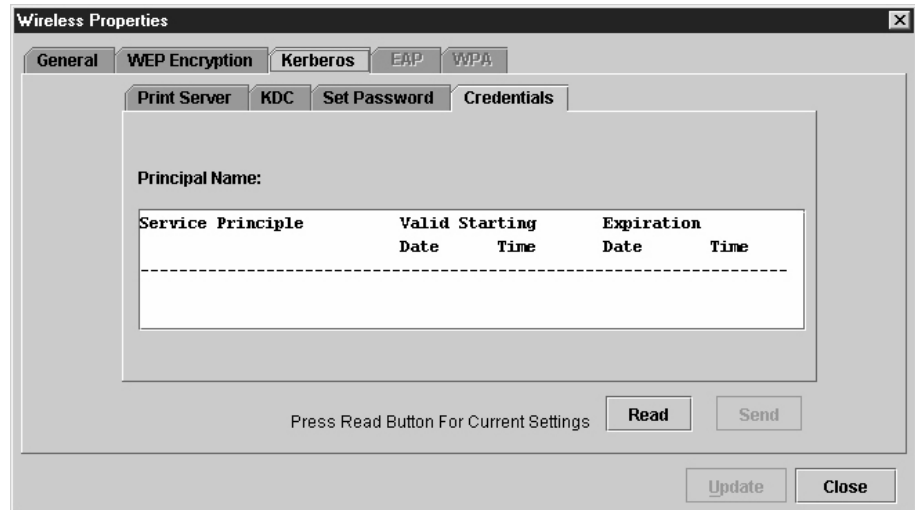
**New Password/Confirm Password:** Use these fields to set the Kerberos password. Click **Confirm** to confirm that both the passwords match.

When you are finished, click **Send** to transmit the value to the printer.

**NOTE:** If the Ethernet Interface has a password assigned to the user **root**, then a Telnet root password is required. See "Security Tab" on page 57.

If you are not going to modify settings on any other tabs, you must update the printer for the settings to take effect. Click **Update** to update the printer.

**IMPORTANT** Make sure the settings match those configured in the Access Point.

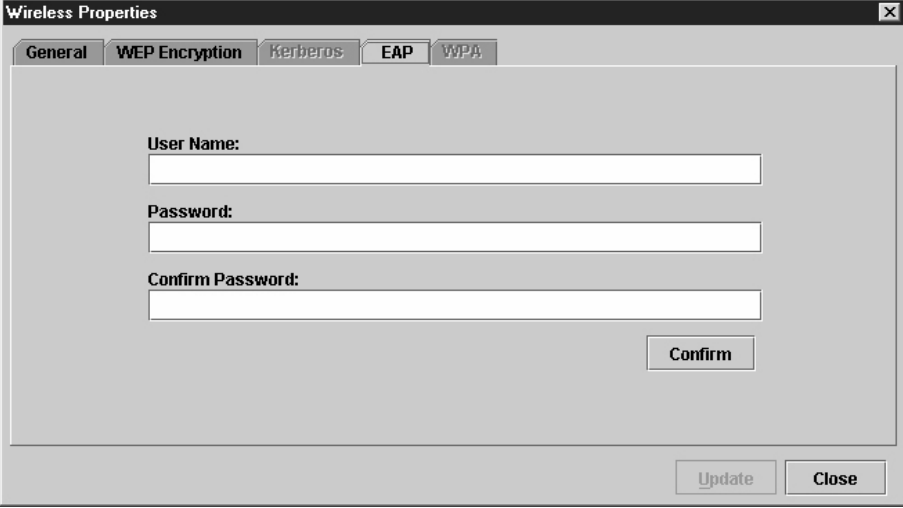


**Figure 113. Wireless Properties:  
Kerberos Tab – Credentials Sub-Tab**

### **Credentials Sub-Tab**

This tab displays the Service Principle, the date and time the settings are valid, and the date and time the settings expire.

## EAP Tab

The image shows a screenshot of the 'Wireless Properties' dialog box with the 'EAP' tab selected. The dialog box has a title bar with a close button (X) on the right. Below the title bar are five tabs: 'General', 'WEP Encryption', 'Kerberos', 'EAP', and 'WPA'. The 'EAP' tab is currently active. The main area of the dialog contains three text input fields: 'User Name:', 'Password:', and 'Confirm Password:'. Each field is followed by a horizontal text box. To the right of the 'Confirm Password:' field is a 'Confirm' button. At the bottom right of the dialog box are two buttons: 'Update' and 'Close'.

**Figure 114. Wireless Properties: LEAP Tab**

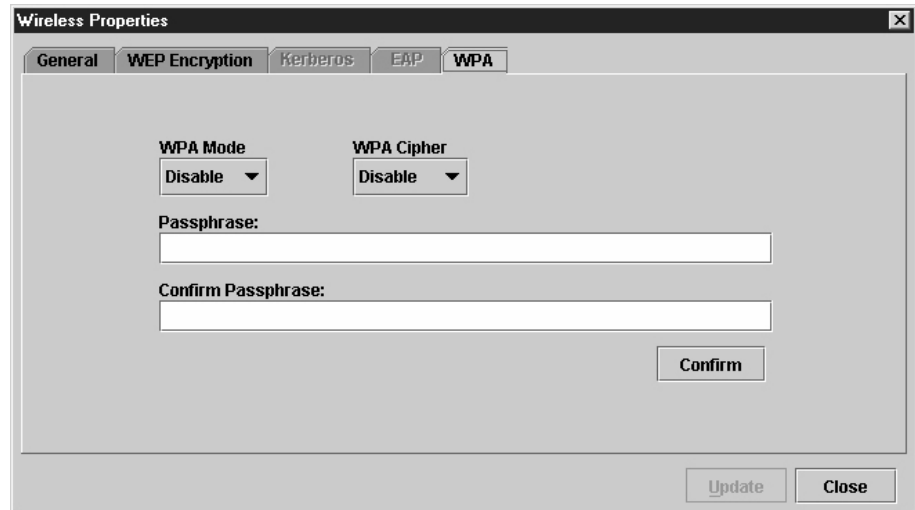
You may choose one of three commonly used authentication methods that are supported on the NIC. The methods are PEAP, LEAP, and TTLS.

### User Credentials

Enter the User Name, Password, and Confirm Password corresponding to the RADIUS (Remote Authentication Dial-In User Service) server, then click **Confirm** to confirm the Password.

To enable EAP in the ethernet, select the **General** tab. Click **Send** to transmit the EAP settings and the wireless properties defined in the General tab.

## WPA Tab



**Figure 115. Wireless Properties: WPA Tab**

This tab displays the information necessary for the WPA (Wi-Fi Protected Access) wireless security scheme.

**WPA Mode:** Selects the WPA wireless security mode. By default the mode is set to Disable thus disabling WPA security. If set to Personal, this selects a personal or pre-shared key mode for WPA security.

**WPA Cipher:** Selects the WPA Cipher wireless security setting.

**Passphrase:** Sets the individual bytes of the WPA Passphrase.

Refer to the printer's *User's Manual* and the *Ethernet Interface User's Manual* for more information.

## Macro Utility

The Macro Utility allows you to create a series of ten buttons that will do a range of things such as sending a string of text to the printer to performing functions such as form feeds.

To access the Macro Utility, click the  (macro utility) button at the far right of the toolbar, or select **Utilities ▶ Macro Utility**. The Macro Utility window opens. See Figure 116.

You can use the File menu options to save and open a set of macros.

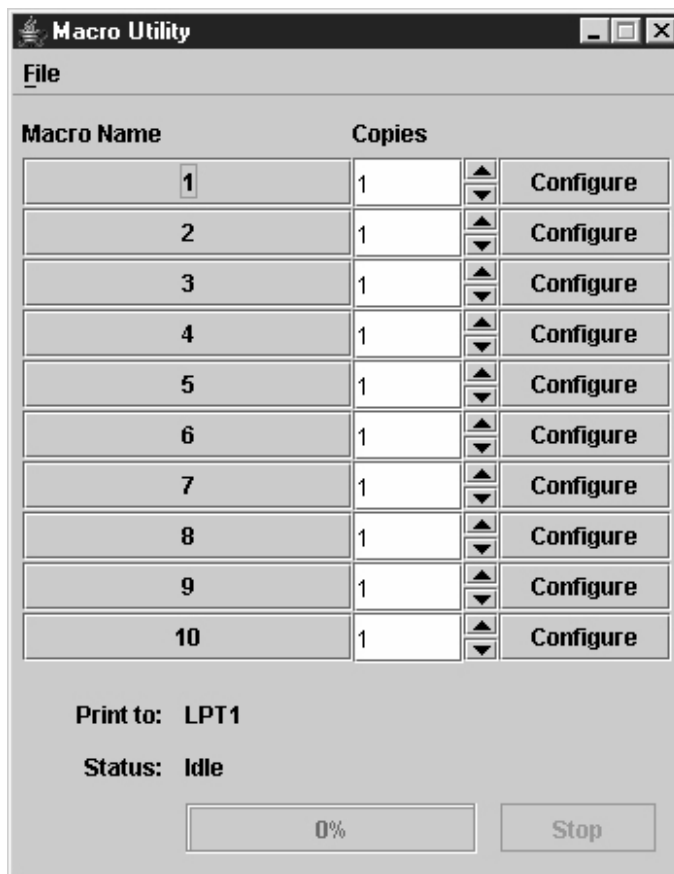


Figure 116. The Macro Utility Window



## Configure Macro



**Figure 117. The Configure Macro Dialog Box**

To create or edit a macro, click **Configure** to the right of the macro name (initially 1 through 10). The Configure Macro dialog box opens. See Figure 117.



**Figure 118. The Print from file Check Box**

To use a file as a macro, check the **Print from file** check box. Then click **Browse** to locate your file (such as a .txt file). By default, the file name becomes the macro name. Rename it in the Macro Name field. See Figure 118.

Click **OK** to finish configuring the macro.

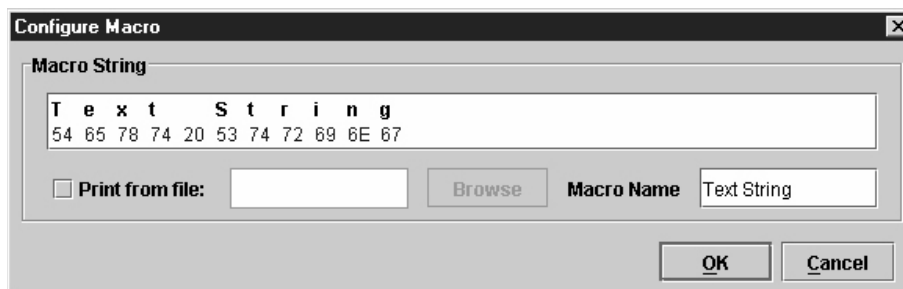


Figure 119. The Macro String Field

You can create a second kind of macro by typing in the Macro String field. The ASCII text appears above, and the hex code below. Use the up and down arrow keys to switch between ASCII text and hex code. Rename the macro in the Macro Name field. See Figure 119.

Click **OK** to finish configuring the macro.

The configured macros now appear in the list. See Figure 120.

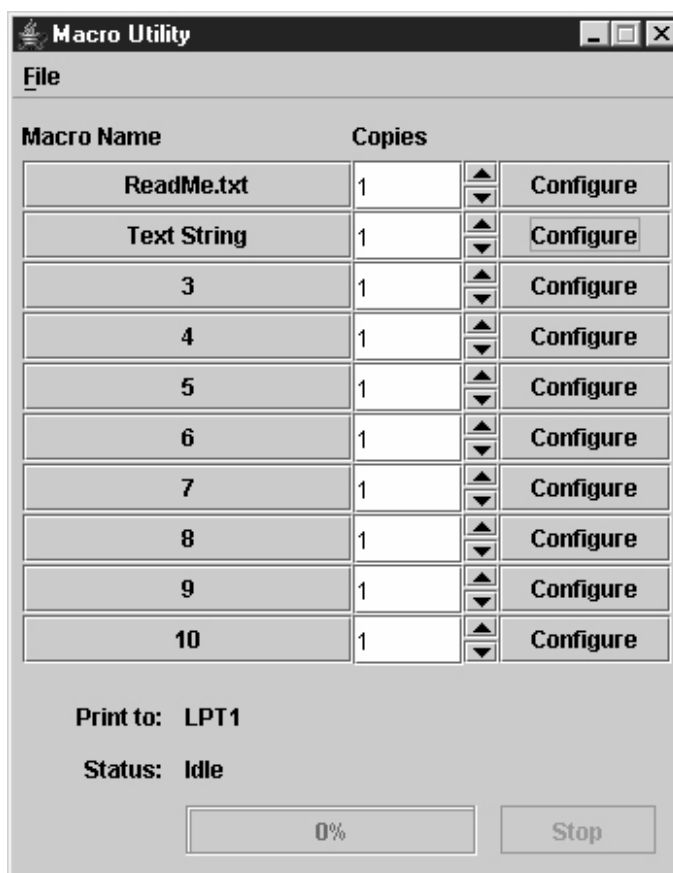
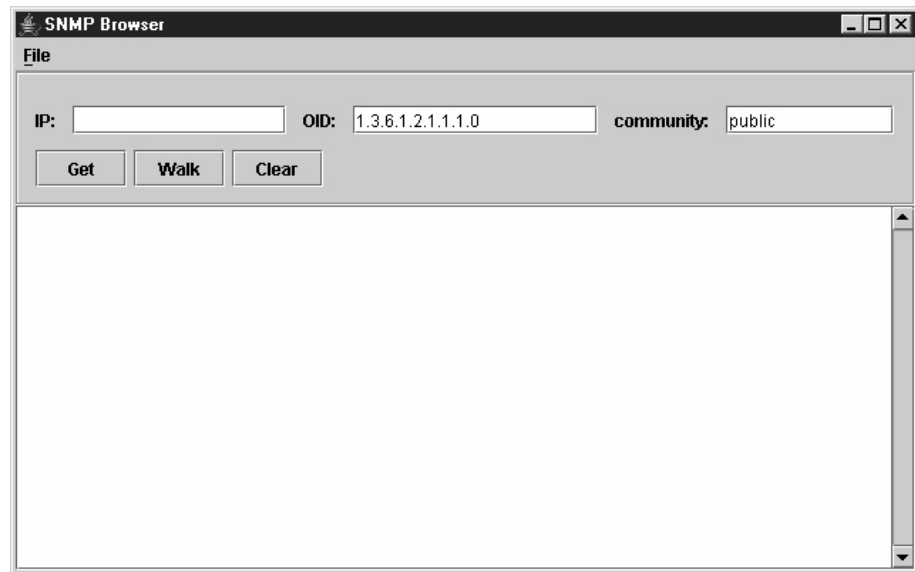


Figure 120. Configured Macros

Click the corresponding **Macro Name** button to send it to the printer. Adjust the number of copies in the **Copies** field.

## SNMP Browser



**Figure 121. SNMP Browser**

The SNMP Browser enables you to view attribute values in the Printer MIB managed by the Ethernet Interface. You can retrieve an attribute value of a specific MIB Object ID (OID), or you can walk or traverse the MIB.

Three inputs are required before you can use the SNMP Browser:

1. **IP:** defines the IP address of the target printer.
2. **OID:** defines either the specific MIB object ID you want to view, or the starting location for the MIB walk.
3. **community:** defines the access community defined in the Ethernet Interface. The default is public.

The **Get** button retrieves the attribute and attribute value for the specific OID entered. If the OID entered is invalid, you will receive the Error: SNMP error message.

The **Walk** button traverses the MIB starting with the OID entered. The display is in the format: `OID=Attribute_Value`.

The **Clear** button clears the current display.

The **File** menu allows you to open a previously saved SNMP Browser session, save the current session to file, or send the current session to a printer.

## Assign IP Address



Figure 122. Assign IP Address

Allows you to assign IP addresses remotely to Ethernet Interfaces that have not been previously configured, or to reconfigure the Ethernet Interface settings. See Figure 122.

### IMPORTANT

**This utility requires expert network knowledge. If you assign incorrect network parameters to the printer, then other devices on the network may operate improperly, possibly causing the whole network to be unusable.**

The Assign IP Address utility has five fields:

- **Broadcast Address:** To enter a subnet broadcast number or a direct IP address to find the printer.
- **Hardware Address:** To enter the Machine Access Code (MAC) on the Ethernet Interface.
- **New IP Address:** To assign the printer its new IP address. Make sure this address is correct and do not enter an already existing IP address.
- **New Mask:** To enter the new mask address, if necessary. If you need the same mask, type the mask number.
- **New Gateway:** To enter the gateway number the new printer uses.

Once you click **Assign**, the Ethernet Interface settings change immediately.

**NOTE:** To view the new settings on the operator panel, reset the Ethernet Interface (refer to the *Ethernet Interface User's Manual*) or reboot the printer: set the power switch to O (Off), wait 15 seconds, then set the power switch to I (On).

## Enable Remote Printer Management

This sets the printer's diagnostic port to Ethernet, without having to navigate through the printer's operator panel.

It performs the following in the background:

1. Opens a command prompt session.
2. Executes a `telnet` command to the printer's IP address.
3. Logs in as `root`.
4. Executes the `enable printermgr` telnet command.
5. Closes the command prompt session.

**NOTE:** You must have Telnet root privileges to use this utility. See "Telnet Root Password" on page 57.

Select **Utilities** ▶ **Enable Remote Printer Management**, and the following dialog box opens:

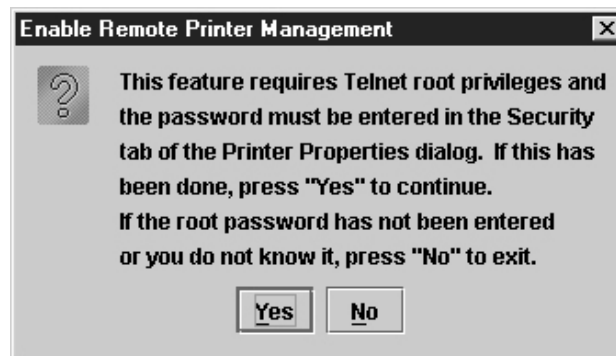


Figure 123. Enable Remote Printer Management Dialog Box

Click **Yes** to continue.

When remote printer management has been enabled, the following dialog box opens:

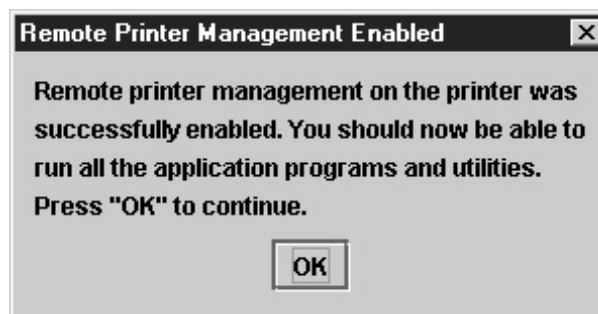


Figure 124. Remote Printer Management Enabled

If the following error message appears, then remote printer management has not been enabled.

**IMPORTANT** You may need to set the correct root password. See “Security Tab” on page 57.



Figure 125. Remote Printer Management Not Enabled

## Lock/Unlock Menus



Figure 126. Lock/Unlock Menu Dialog Box

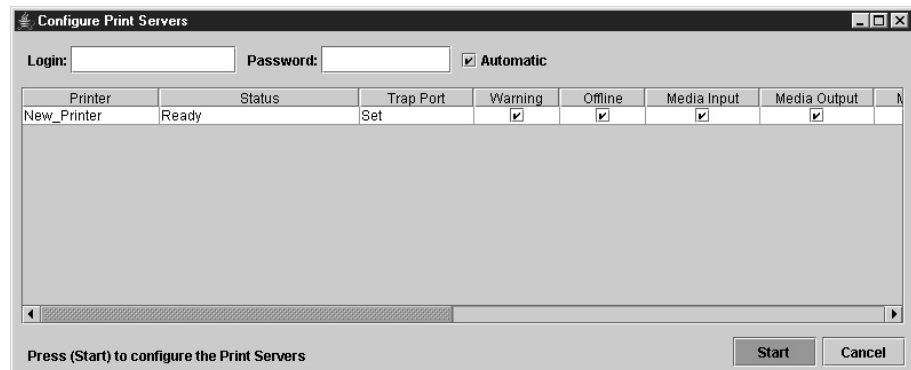
The Lock/Unlock Menu dialog box allows you to lock or unlock menus on a selected printer.

When you lock menus on a printer, the menu tree is disabled in the operator panel (physical and virtual). Any key that affects the menu tree such as +, -, ↑, ↓, ←, UP, DOWN, NEXT, and PREV will not function. Also, any key that goes to a menu, e.g., the JOB SELECT or TEST PRINT key, will not function.


**NOTE:** When some of the above listed keys are used in combination with another to perform functions not related to the menu, they are not disabled.

Other keys not disabled are those that perform a function, e.g., PAUSE, FEED, ONLINE, PAPER ADVANCE, VIEW, SET TOF, PRT CONFIG, and PAGE EJECT.

## Configure Print Servers



**Figure 127. Configure Print Servers Window**

To access the Configure Print Servers application, select one or several printers from the printer database then select **Utilities** ▶ **Configure Print Servers** or click the  **Configure Print Servers** button. The Configure Print Servers window appears (see Figure 127).

The Configure Print Servers application allows you to set the trap port according to the SNMP Trap Server setting (see page 28).

The Configure Print Servers application also allows you to select or deselect alert groups. To deselect an alert group, uncheck the check box(es) of the corresponding option(s). (By default all check boxes are checked.) The alert group options include:

- Warning
- Offline
- Media Input
- Media Output
- Media Path
- Marker
- Cutter
- Barcode
- RFID
- Scanner
- Intervention
- Consumable
- Label
- Power Cart

Click **Start** to configure the print servers.

**NOTE:** Check the **Automatic** check box to have the PMU connect directly with the printer.

Uncheck the check box to have the PMU make a Telnet connection with the printer. Enter **root** in the Login field and the password for the user **root** in the Password field.

When your printer encounters a problem that falls within the parameters of the selected alert options, the corresponding alert message appears. Refer to the Alert Groups Table in chapter three of the *Ethernet Interface User's Manual* for descriptions of the alert message options.

**NOTE:** To check the print servers configuration, go to the Ethernet Interface web page as discussed in chapter three of the *Ethernet Interface User's Manual*.





# 5

## *Datastream Adapter*

### Overview

The datastream adapter is a software filter tool that allows you to take data from an incoming datastream and replace the data with different data, insert new data at any location in the datastream, or flush out portions of the datastream. This is accomplished through Character Substitution Tables (CSTs) created by the CST Manager (page 146). See Figure 128.

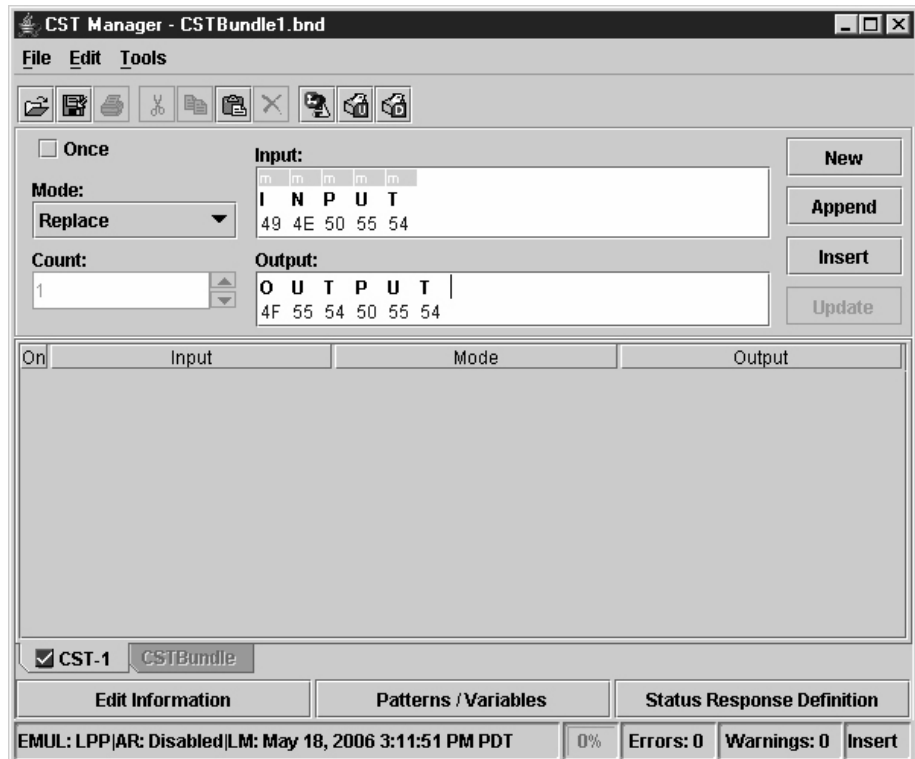

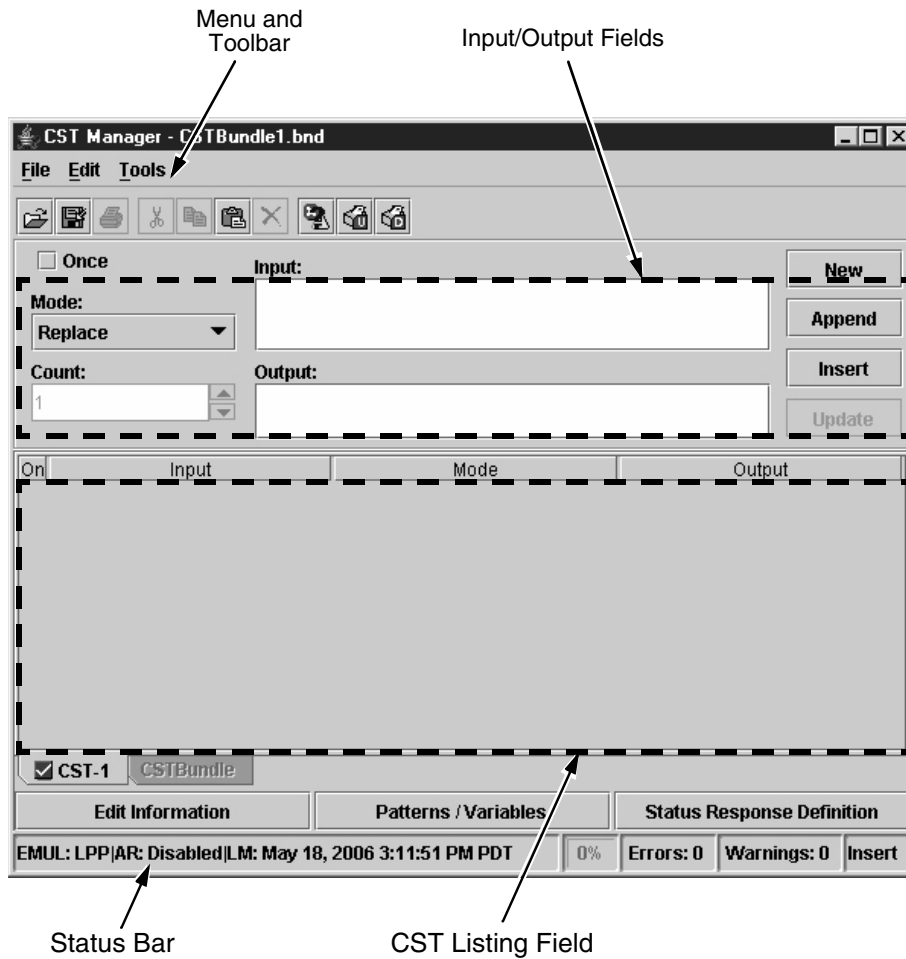


Figure 128. Creating a CST to Download Into a Printer

## CST Manager

Using the CST Manager, you decide which data, as sent by the host, gets modified by the printer.

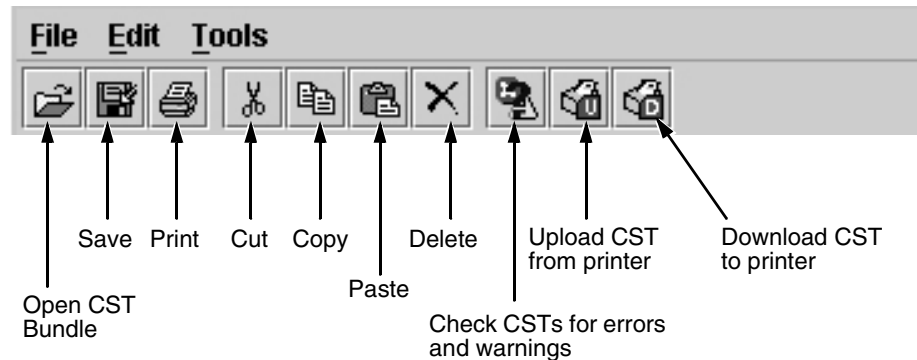
Open the PMU and select **Applications ▶ CST Manager** or click the  (CST Manager) button to open the CST Manager window. See Figure 129.



**Figure 129. CST Manager Window**

The CST Manager has a Toolbar, Input/Output fields, and a CST Listing Field.

## The Menu And Toolbar



### File

**New:** Closes the current bundle and creates a new one. See “CSTs and CST Bundles” on page 152.

**Open:** Opens a file dialog where you can select a CST bundle from a local disk. If the bundle has more than one CST, the first CST displays in the table.

**Reopen:** Displays the last eight opened CST bundles.

**Save:** Saves the current CST.

**Save As:** Similar to Save, except allows you to save the CST using a different location and name.

**Backup History:** Displays the backup history of a file. The system maintains the last 20 versions of a file.

**Properties:** Displays version information of a file.

**Set Password:** Sets the password for the current bundle.

**Print:** Prints selected CST entries.

**Quit:** Closes the CST.

### Edit

**Cut:** Moves the selected item to the paste buffer. The paste buffer holds only one item at a time. When you cut another item, the paste buffer updates. Ctrl + X is the shortcut.

**Copy:** Copies the selected item to the paste buffer. Ctrl + C is the shortcut.

**Paste:** Copies the contents of the paste buffer to the selected area. Ctrl + V is the shortcut.

**Delete:** Deletes the current selection.

**Select All:** Selects all entries in the active CST.

**New CST:** Adds a new CST to the bundle. CSTs have default names, but you can change them. Names can have only 8 characters.

**Rename CST:** Renames the CST.

**Delete CST:** Deletes the current CST from the bundle.

**Import CST(s):** Imports CST(s) from a bundle file.

## Tools

### Test

Tests the functionality of the active CST.

**NOTE:** The active CST is the CST currently selected/shown in the CST Manager window.

In the left (Input) pane of the Test dialog box, you can open and edit input files or create your own test files.

Click **Run**, and the active CST processes the input file and displays the results in the right (Output) pane.

Right-click in the Input or Output pane, and a View/Search pop-up menu appears. See Figure 130.

Available views are Normal (no control codes display), Dots (control codes display as dots), Mnemonics (control codes display as mnemonics, e.g., <LF>), and Hex (all characters display as a hex value).

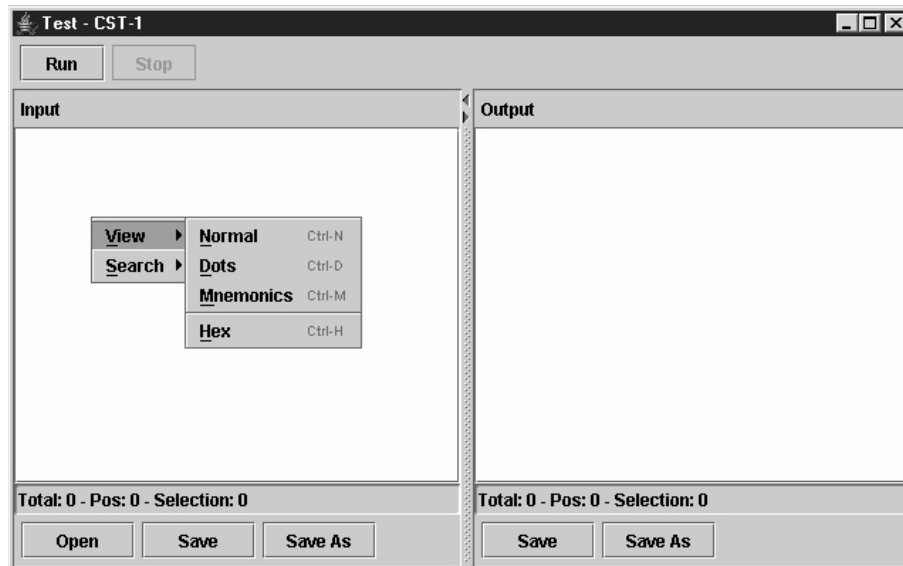
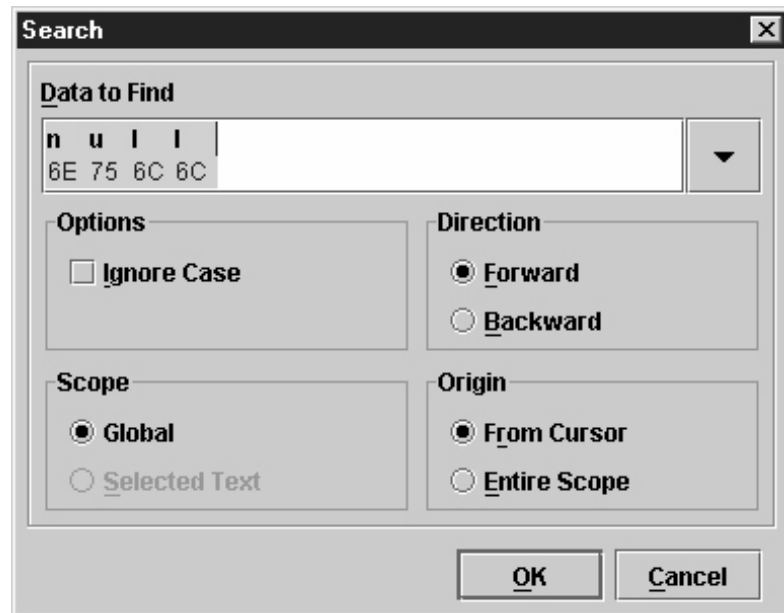


Figure 130. The View/Search Pop-up Menu



**Figure 131. Search Dialog Box**

Available searches are Find, Find Next, and Find Previous. If you select Find, a Search dialog box opens. See Figure 131.

## Upload

Makes a connection to a printer from the printer database, then determines if the printer has a CST file. If so, it uploads the CST file into the CST manager. If the file is password protected, you will need to provide the password or else the upload will cancel.

## Download

Downloads the open CST file from the CST Manager to a printer. It makes a connection to a printer from the printer database, then determines if the printer has a CST file. If so, it warns you that the file will be overwritten if you proceed.

You must enable the CST option in the printer before you can use it. To enable the CST:

1. Open the PMU.
2. Select **Applications ▶ CST Manager**.
3. In the Input field, type **INPUT**.
4. In the Output field, type **OUTPUT**. See Figure 128.
5. Select **File ▶ Save As**.
6. Name the CST something simple like **CST-1**, **CST-2**, etc.
7. In the PMU, select a printer.
8. In the CST Manager, select **Tools ▶ Download** to download your saved CST to the printer.

9. In the PMU, select **Applications ▶ Operator Panel**.
10. Take the printer offline.
11. Select **PRINTER CONTROL ▶ Applic. Adapter** if you have a thermal printer, or select **MAINT / MISC ▶ Applic. Adapter** if you have a line matrix printer.
12. Change the setting from **Disable** to the name of the CST you downloaded (such as **CST-1**, **CST-2**, etc.). Your CST is now enabled.

**NOTE:** To maximize the performance of a CST, you need to save it in a Configuration file. See “Configuration Editor” on page 65.

### **Validate Bundle**

Checks CSTs for syntax errors and missing information such as “Start Flush” commands that have no corresponding “End Flush” command. Errors display in red. Warnings display in yellow.

You cannot execute CSTs with errors, but you can execute CSTs with warnings.

### **Options**

Specifies options that apply to the CST. Includes the following check boxes:

- Use Last Selected Upload Printer
- Use Last Selected Download Printer

## Input/Output Fields

**Figure 132. CST Input/Output Fields**

These fields allow you to select the appropriate Input/Output sequence. Use Shift + Alt + i and Shift + Alt + o to switch between the Input and Output fields.

See “Modes And Attributes” on page 153 for the different Mode selections.

Use the four buttons on the right with the Input/Output fields.

**New:** Clears the Input and Output fields.

**Append:** Enters the Input and Output fields at the end of the current CST.

**Insert:** Enters the Input and Output fields before the selected entry in the CST.

**Update:** Re-enters the Input and Output fields into the current CST after editing.

### Input Field

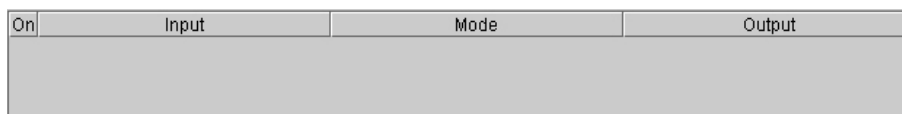
The Input Field displays the Input string the datastream adapter looks for. Enter Input strings in one of two ways: as an ASCII character or as a hex value. You can switch between the two entry modes by using the up and down arrow keys. To select attributes, place the mouse over a character and right-click. Available attributes display (see “Modes And Attributes” on page 153).

### Output Field

Use the Output Field to specify what the datastream adapter does when the incoming data matches the data and conditions specified in the Input Field. Specify data if performing a Replace, or specify the name of a CST if performing a CST Select.

**NOTE:** Attributes are not available in the Output field.

## The CST Listing Field



**Figure 133. CST Listing Field**

The field below the input and output fields shows the CST. To copy an entry, click it and press Ctrl + C or use the copy button on the toolbar. To move an entry up or down, click it and press Ctrl + up arrow or Ctrl + down arrow.

You can also click and drag an entry to a new position. Double-click an entry to place its data in the Input/Output fields. The area at the bottom of the dialog box lists statistical data about the use of CSTs, the available space, and the selected edit mode.

## CSTs and CST Bundles

A CST contains all information necessary to perform an application adaptation. The CST size is limited to avoid complex adaptations that may affect printer performance, and to reduce printer memory usage. If a CST exceeds the size limit, an error message displays. The working space for a CST is approximately eight kilobytes.

CSTs are stored in a CST bundle. Each CST bundle can hold up to 64 CSTs. You can name and store as many CST bundles as the storage device allows.

You can define up to 8 different configurations, and each configuration can have a CST connected to it. Each configuration can have one CST, or one CST can apply to multiple or all configurations. When you download a CST bundle to the printer, the CSTs are available to the datastream adapter. You can then configure the printer to select the correct CST for your applications.

**NOTE:** Only one configuration and CST bundle can be active at a time.

## Status Bar

The status bar, located at the bottom of the CST Manager window, displays the following items (in order):

- Status info:
  - EMUL: the emulation for which the CST is active.
  - AR: indicates if Enable Auto Reset is checked in the Edit Information dialog box. See “Enable Auto Reset” on page 159.
  - LM: date and time this CST was last modified.
- A percentage bar which shows the total space used in the active CST.
- Error count of the CST bundle.
- Warning count of the CST bundle.
- Edit mode: Insert over overwrite.



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## Modes And Attributes

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### Modes

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Fourteen modes handle data: Replace, Remove, Insert, Flush, Transparent, Skip GFX Data, Select CST, CST ON, CST OFF, Reset, Response, PAA Event, Store, and Reset All Variables. Each mode allows certain attributes to apply to the characters of the datastream.

### Common Attributes

All modes have four attributes in common: Match, Don't Care, Don't Care Except, and Ignore Case. Also, if at least one Pattern is defined, all modes have the Insert Pattern attribute. And, if at least one Variable is defined, all modes (except Store) have the Insert Variable attribute.

You can use these in combination (Or) with other attributes available in the selected mode. Some modes can use extra attributes. See page 156 for attribute information.

### Replace Mode

The Replace mode replaces part of one datastream with another.

The extra attribute for Replace is Parameter.

### Remove Mode

The Remove mode removes data from the datastream. For example, the CST can remove all occurrences of " (quotation mark) from the text that is sent to an Epson FX-1050 emulating printer.

No extra attributes exist for Remove.

**NOTE:** When using the Don't Care Except attribute, the Input string is removed from the datastream except when the Don't Care Except condition matches.

### Insert Mode

The Insert mode inserts data in the datastream.

The extra attributes for Insert are Before and After (to specify the insertion point).

### Flush Mode

The Flush mode is a combination of the Remove and Replace mode. It removes longer parts of datastreams without you needing to type in every character of that datastream, and replaces the removed data with new data.

The extra attributes for Flush are Start, End, and Count.

## Transparent Mode

The Transparent mode allows you to control which data is removed, replaced, or modified. Sometimes the datastream of a graphics file contains a character sequence that is specified in the active CST for removal. If you mishandle this graphics file, important data could be removed.

The extra attributes for Transparent are Start, End, and Count.

## Skip GFX Mode

The Skip GFX mode allows the Bit Image Graphics command to be recognized and the following data to become transparent which prevents the datastream adapter from removing selected strings from graphics. This allows graphic code to print properly.

The extra attributes for Skip GFX are 8-pin graphic data, 16-pin graphic data, 24-pin graphic data, and Graphic plot data.

## Select CST Mode

The Select CST mode allows you to switch CSTs immediately. Use it if different conversions are required (one per job). You do not need to select the matching CST through the printer front panel.

This mode needs a unique header for each of the jobs requiring a CST to activate. Once a switch occurs, the datastream adapter resets, selects the indicated CST, and restarts.

**NOTE:** Buffered data (the portion of the incoming datastream that invokes the Select CST mode) is not deleted; it is rescanned using the new CST.

No extra attributes exist for Select CST.

## CST On, CST Off Mode

These modes prevent data handling by CSTs until enabled by part of the incoming datastream.

No extra attributes exist for CST On and CST Off.

## Reset Mode

The Reset mode is used to reset the CST such that, if the Use Once flag has been set for one or more entries in the table, these entries become available again for the next datastream. See “The Use Once Flag” on page 158.

No extra attributes exist for Reset.

## Response Mode

This feature was added to the datastream adapter to allow the definition of a protocol: an interaction between the host computer and the printer that allows the host computer to determine status details of the printer. This allows you to be certain that a job (or label, or form) is completely printed before the next job is sent.

The Status Response definition feature allows the user to specify what input string will be used by the host computer to request a status report from the printer. It also allows the actual response to be defined, and the connection of a certain printer status as a condition to this response.

The extra attribute for Response is Flush.

## PAA Event Mode

In the PAA Event mode, when the defined character sequence in the Input field is found, an event is generated that can be handled by the GPIO. The event generated is determined by the Event ID value. Up to 65,535 different events can be identified using the Event ID parameter.

The extra attribute for PAA Event is Flush.

## Store Mode

The Store mode is used to store information from the host data so it can be used by other modes that allow variables in the Output field. It requires exactly one variable to be set in the OCS field. As a result this mode can only be selected if one or more variables are defined.

Right-click the Output field and a pop-up menu appears with the available variables. See Figure 134. All characters in the Input field that have the Include attribute selected (see “Attributes” on page 156) are copied into the selected variable. By default, all characters typed or copied into the Input field have the Include attribute selected. The entry can only be added to the active table if a variable has been set. If you select the wrong variable, the variable in the Output field needs to be removed first before another variable can be selected.

The extra attributes for Store are Flush and Include.

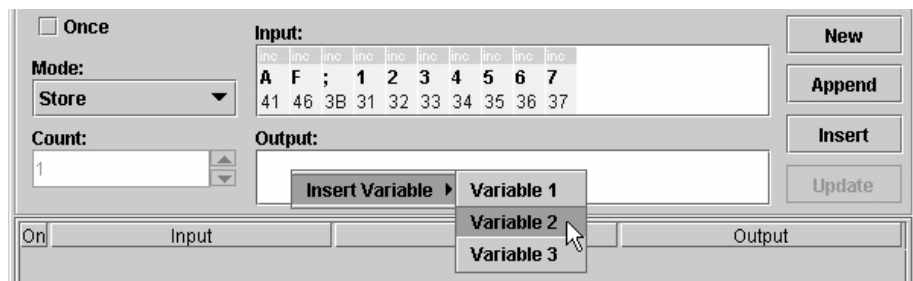


Figure 134. Available Output Variables for Store Mode

## Reset All Variables Mode

The Reset All Variables mode resets and clears all defined variables.

No extra attributes exist for Reset All Variables.

## Attributes

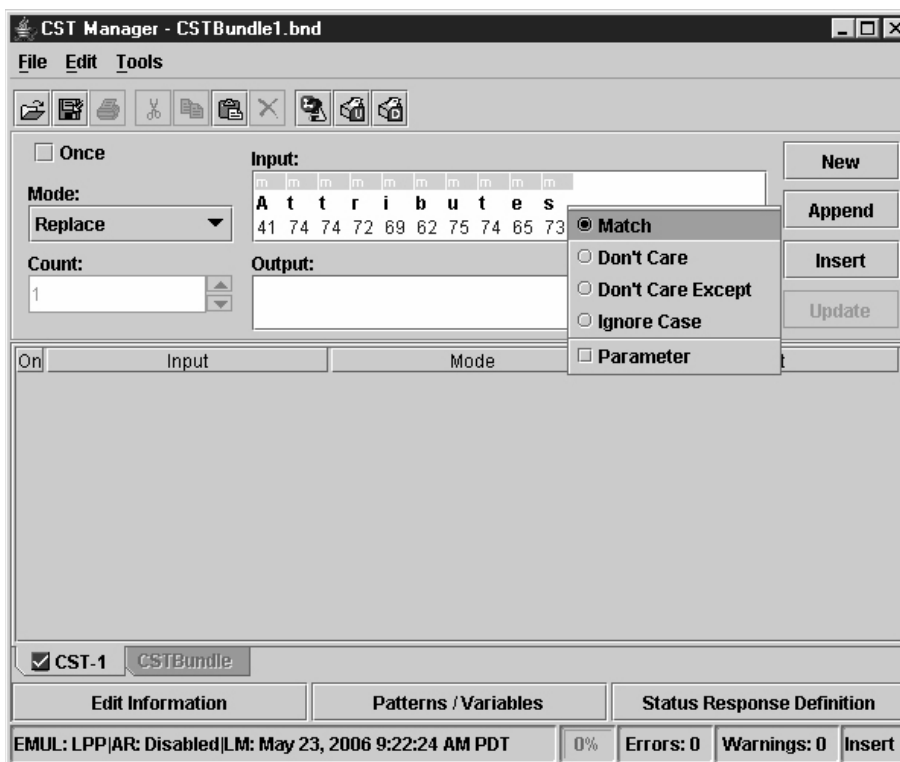


Figure 135. CST: Accessing Attributes

To access attributes, right-click any item in the Input field (or select multiple items and right-click). Different attributes are available depending on what mode is selected (see “Modes” on page 153). In the above example, the “s” in “Attributes” was right-clicked while in Replace mode. See Figure 135.

These are the different attributes used by the various modes and their descriptions:

### Match

The most common and simplest Attribute. If the specified character(s) match the datastream, then a replacement occurs if in Replace mode. It is the default setting.

### Don't Care

Allows certain characters in the datastream to be wild cards; that is, it does not matter what character it is. If the others match, then the replacement occurs if in Replace mode.

### Don't Care Except

Allows characters in the datastream to be wild cards, but only if they do not match the character specified.

**Ignore Case**

Allows the matching of characters to be case independent. Whether the character is “X” or “x” a match occurs.

**Parameter**

Allows characters in the incoming datastream to have a “label.” You can use this label in the outgoing datastream to move characters to other locations without changing them. If the outgoing datastream has no label specified, then the character is removed from the incoming datastream.

**Before/After**

Specifies where the data is inserted.

**Start/End**

Starts and stops data flushing (activates and deactivates the datastream adapter). Any data in the Output field passes to the printer instead of being flushed.

**Count**

Specifies a fixed number of characters that are flushed following the Count attribute (deactivates the datastream adapter). The fixed number is specified in the Count field.

**Flush**

Removes the input string from the datastream, preventing it from being printed.

**Include**

Specifies that the character that has the attribute will be included in the Store mode operation.

**Insert Pattern**

Allows a defined pattern to be inserted in the CST. See “Patterns / Variables” on page 160.

**Insert Variable**

Allows a defined variable to be inserted in the CST. See “Patterns / Variables” on page 160.

## Additional Features

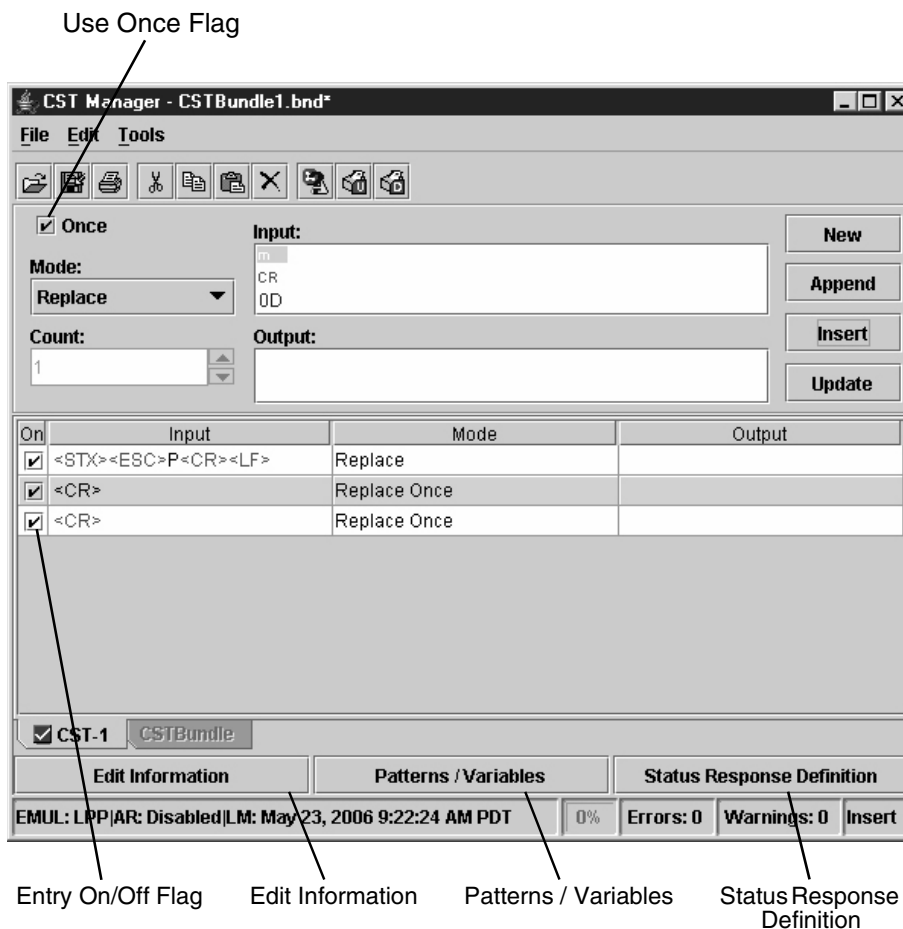


Figure 136. Additional Features

### The Use Once Flag

This flag, which is set during the entry of a CST, is used when it is impossible to create entries in the table that are unique enough to allow for different outputs according to each of the entries. This might be the case when data extraction is done and the printable data is always preceded or followed by the same character (or sequences).

**NOTE:** A positive note in using this flag is that as more CST entries get marked as “used,” the less entries need to be checked by the datastream adapter and the faster the conversion takes place. Even if you do not need the flag to compensate for a lack of uniqueness in the incoming data, setting the flag for entries that will occur only once improves the throughput of the datastream adapter.

When the end of the CST has been reached, the used flags will need to be reset so that this CST can be applied to the next datastream.

To reset the used flags:

- Append the Reset mode to the CST.
- Check the Enable Auto Reset check box in the Edit Information dialog box. See “Edit Information” on page 159.

**NOTE:** The only difference between the two methods is that the Reset mode can be placed anywhere in the CST. The Enable Auto Reset flag takes effect only when the end of the CST has been reached.

## The Entry On/Off Flag

This flag is used to temporarily enable/disable entries in the CST. It can be used for testing purposes and for diagnosing large CSTs. The default for this flag is On.

## Edit Information

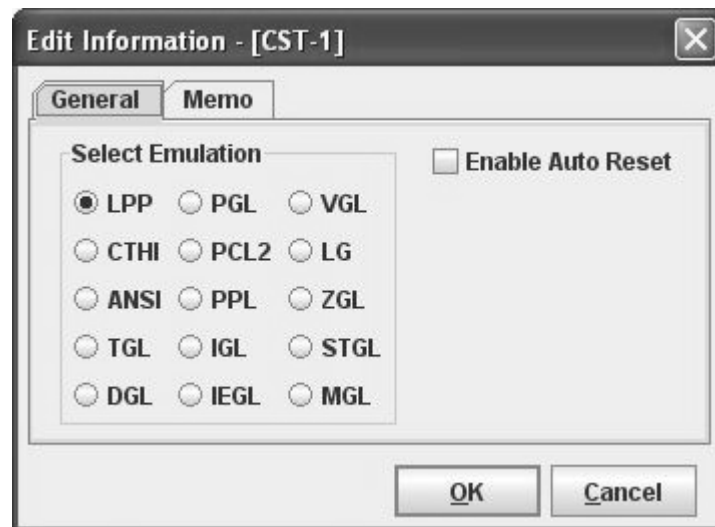


Figure 137. Edit Information Dialog Box

Click **Edit Information**, and the Edit Information dialog box opens.

### General Tab

**Select Emulation:** Allows you to select the emulation that is active for the CST. Even though the printer can store many emulations, only one can be active for the CST. LPP is the default emulation.

**Enable Auto Reset:** When checked, all entries that have the Once option checked are automatically reset in the CST so that this CST can be applied to the next datastream. The entries are reset only when the end of the CST has been reached.

## Memo Tab

Use the Memo tab to save comments with the CST (e.g., comments that describe the CST function and purpose).

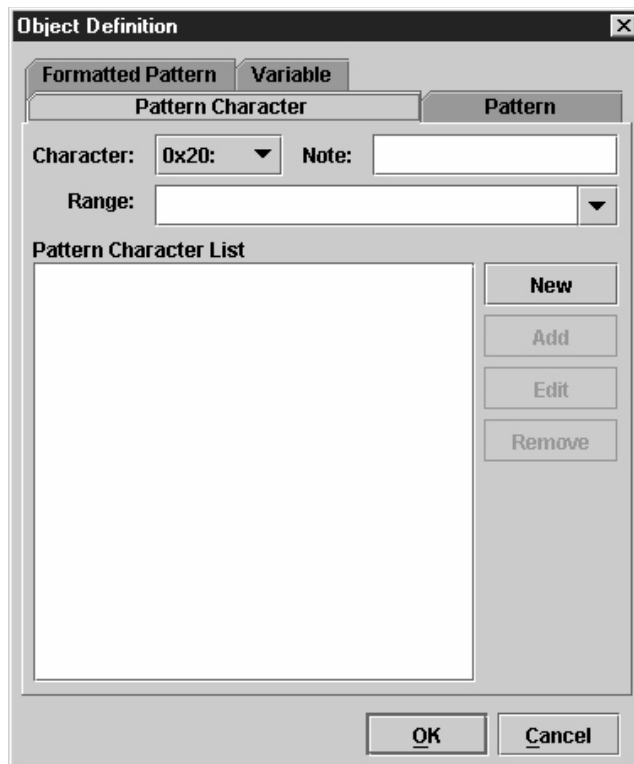
## Patterns / Variables

Click **Patterns / Variables**, and the Object Definition dialog box opens.

This dialog box is divided into the following tabs: Pattern Character, Pattern, Formatted Pattern, and Variable. When you click OK, the defined set of patterns, pattern characters, formatted patterns, and variables will be available for use by the current bundle.

**IMPORTANT** You must add defined objects to their associated lists, or else they will be lost when you close the Object Definition dialog box.

## Pattern Character Tab



**Figure 138. Patterns Character Tab**

Use the Pattern Character tab to add, remove, and edit new and existing pattern characters. A pattern character can be used by the datastream adapter to check host data against a range of values.

**Character:** Selects the character that identifies the pattern character. The available values range from 0x20 to 0xFF. The values 0x00 to 0x1F are reserved. The values are listed with their hex value and printable character. If



you select a character already defined in the drop-down list, the properties for the character will display in the Note and Range fields. You can change the data and click **Update** to update the definition in the Pattern Character List.

**Note:** A short note, description, or name of the pattern character. This will appear in pop-up menus where you insert and use pattern characters.

**Range:** The range of values datastream adapter checks against.

**NOTE:** A continuous interval is separated by two dots, e.g., **a..z**.

Enter hex values with the prefix **0x**. To define a continues hex interval, enter **0xNN..0xNN** (where NN is a value ranging from 00 to FF).

You can define multiple intervals per pattern character by separating the intervals with a , (comma) or a space character.

**NOTE:** To include an interval separator, enter them either as hex, e.g., **0x20** and **0x2C**, or make it part of a continues interval, e.g., **0x10..0x30**.

### Default Pattern Characters

You can select a set of default pattern characters by using the Range drop-down list. The Character and Note fields of the default pattern characters are set to the values listed in Table 9. If you choose a default pattern and the identifier (character) is already in use, the first unused identifier from the Character drop-down list is used.

**Table 9. Default Pattern Characters**

Range	Identifier (Character)	Note
0..9	#	Numerals
A..Z	U	Uppercase
a..z	L	Lowercase
A..Z, a..z	A	Alpha
0..9, A..Z, a..z	@	Alpha Numeric
0..9, A..F, a..f	H	Hex Values
0x00..0x1F	C	Ctrl-Codes
0x20..0x7F	P	Printables
0x80..0xFF	S	Upper Set

### Pattern Character List

Lists all the patterns characters that you have defined and added to the list.

**New:** Click **New** to reset the Range and Note fields. The first unused identifier from the Character drop-down list is chosen.

**Add:** If the displayed text on the second button is Add, the pattern character (with chosen identifier) has not been added to the Pattern Character List. Click **Add** to add the defined pattern character to the end of the Pattern Character List.

**Update:** If the displayed text on the second button is Update, the pattern character (with chosen identifier) is already in the Pattern Character List. Click **Update** to update the pattern character properties with the new properties.

**Edit:** Select an item in the Pattern Character List, and click **Edit** to edit it.

**NOTE:** If you select more than one item, you can only to edit the first item.

**Remove:** Select one or more items in the Pattern Character List, and click **Remove** to remove them from the list.

**IMPORTANT** Removing pattern characters invalidates entries that use the pattern characters.

## Pattern Tab

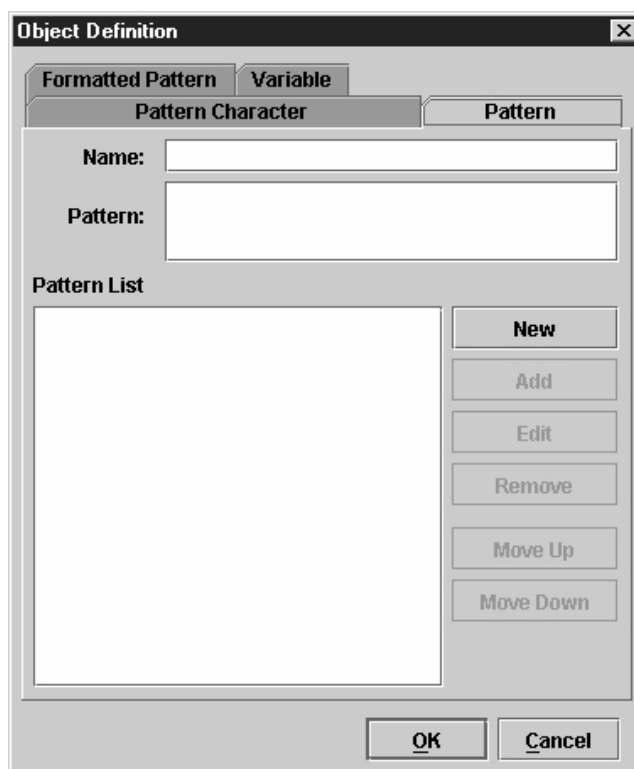


Figure 139. Pattern Tab

Use the Pattern tab to add, remove, and edit new and existing patterns.

**Name:** The name of the pattern. The name must be unique for this type of datastream adapter object. This name appears in pop-up menus when you insert and use patterns.

**Pattern:** To enter the pattern in a way similar to defining the input of a CST entry (see “Input Field” on page 151). If you type a character that is defined as a pattern character (see “Pattern Character Tab” on page 160), the default attribute will be Pattern Character: it will display over a light green background with the mnemonic **pch**. To use the character as a literal, right-click the character and select the **Match** attribute.

## Pattern List

Lists all the patterns you have defined and added to the list.

**New:** Click **New** to clear the Name and Pattern fields and create a new pattern. Use a unique and descriptive name. This name appears in pop-up menus when you insert a pattern.

**Add:** If the displayed text on the second button is Add, the defined pattern has not been added to the Pattern List. Click **Add** to add the pattern definition to the end of the Pattern List. The pattern appears in the list with its name followed by a separator and the pattern.

**NOTE:** If the pattern contains control codes, they will display in red. Other non-printable characters will display as red dots.

**Update:** If the displayed text on the second button is Update, the defined pattern is already in the Pattern List. Click **Update** to update the pattern properties with the new properties.

**Edit:** Select an item in the Pattern List, and click **Edit** to edit it.

**NOTE:** If you select more than one item, you can only to edit the first item.

**Remove:** Select one or more items in the Pattern List, and click **Remove** to remove them from the list.

**IMPORTANT** **Removing patterns invalidates entries that use the patterns.**

**Move Up/Move Down:** Patterns appear in pop-up menus in the order that they appear in the Pattern List. Select an item in the Pattern List, and click **Move Up** or **Move Down** to move the pattern up or down on the list.

## Formatted Pattern Tab

Use the Formatted Pattern tab to add, remove, and edit new and existing formatted patterns. You can use a formatted pattern to identify host data patterns that do not have a fixed length.

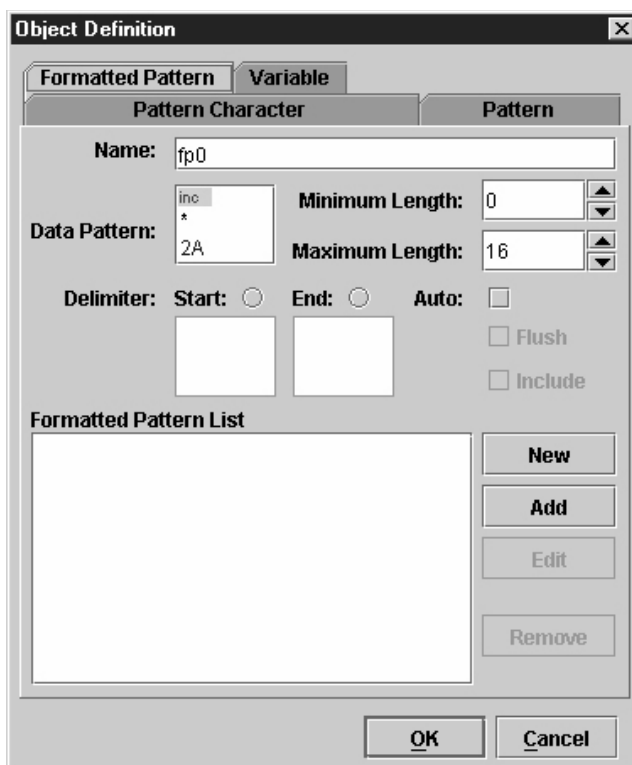


Figure 140. Formatted Pattern Tab

**Name:** The name of the formatted pattern. The name must be unique for this type of datastream adapter object. This name appears in pop-up menus when you insert and use formatted patterns.

**Data Pattern:** To insert a single character that is used as the data pattern. This may either be a pattern character or any other character with the default Don't Care attribute. The default for this field is \* (asterisk) with the Don't Care and Include attributes.

Right-click the character and the following pop-up menu appears:

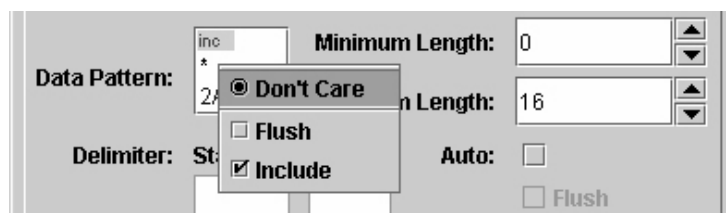
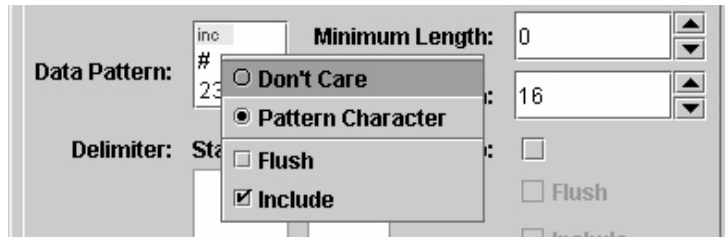


Figure 141. Data Pattern Pop-up Menu

If you use a data pattern character that is not defined as a pattern character, the Don't Care attribute is always selected. Use the Flush attribute to flush the found data from the host data. Use the Include attribute include the found data in Store operations. The Include attribute is selected by default.

If you use a data pattern character that is defined as a pattern character, the Pattern Character attribute will be selected by default, and the background of the **inc** mnemonic will be light green. To change it to a wild card character, right-click the character. The attribute pop-up menu appears. See Figure 142.



**Figure 142. Pattern Character Pop-up**

The Pattern Character attribute is selected by default. To use the data pattern character as a wildcard, select the **Don't Care** attribute.

**Minimum Length:** Defines the minimum length the pattern must have. If the data pattern is set to scan for numerals using a pattern character, it must find at least *n* numerals (the value set by this property) before a match is considered.

**Maximum Length:** Defines the maximum length the pattern may have. If the data pattern is set to scan for numerals using a pattern character, it only scans for a maximum of *n* numerals (the value set by this property) before a match is made.

### Delimiter

Use delimiters to find data easier. You can look only for a start delimiter, end delimiter, start and end delimiters, or auto delimiter.

**Start:** When you enable Start, a pattern match occurs only when the Start character is found. The Start character may be a single character or a pattern character, and it has the Flush and Include attributes.

**End:** When you enable End, a pattern match occurs only if the End character is found at the end of the data pattern and the maximum length is not exceeded. The End character may either be a single character or a pattern character, and it has the Flush and Include attributes.

**Auto:** When you check the Auto check box, the pattern considers the first character found to be the start and end delimiter. See the following example.

**NOTE:** In the following example, items enclosed in <> indicate datastream adapter objects like Pattern, Pattern Character, etc. Random host data is indicated by "..." preceding and/or following the sample data.

**Auto Example:**

Pattern Character

Identifier: #

Range: 0..9

Note: Numerals

Formatted Pattern

Name: fpFieldData

Data Pattern: &lt;#&gt;

Min: 0

Max: 5

Delimiter: Auto

Entry 1

Input: AF;&lt; fpFieldData &gt;

Mode: Remove

Output: N/A

Test Case 1

Host data: ....AF;"12345"....

Result: Match for Entry 1

Reason: As delimiter is set to auto the first quote is seen as the start and end delimiter.

Test Case 2

Host data: ....AF;"123456"....

Result: No Match

Reason: Max length exceeded.

Test Case 3

Host data: ....AF;"01234"....

Result: No Match

Reason: No Matching end delimiter.

**Formatted Pattern List**

Lists all the formatted patterns that you have defined and added to the list.

**New:** Click **New** to reset all data fields.

**Add:** If the displayed text on the second button is Add, the formatted pattern has not been added to the Formatted Pattern List. Click **Add** to add the defined formatted pattern to the end of the Formatted Pattern List.

**Update:** If the displayed text on the second button is Update, the formatted pattern is already in the Formatted Pattern List. Click **Update** to update the formatted pattern properties with the new properties.

**Edit:** Select an item in the Formatted Pattern List, and click **Edit** to edit it.

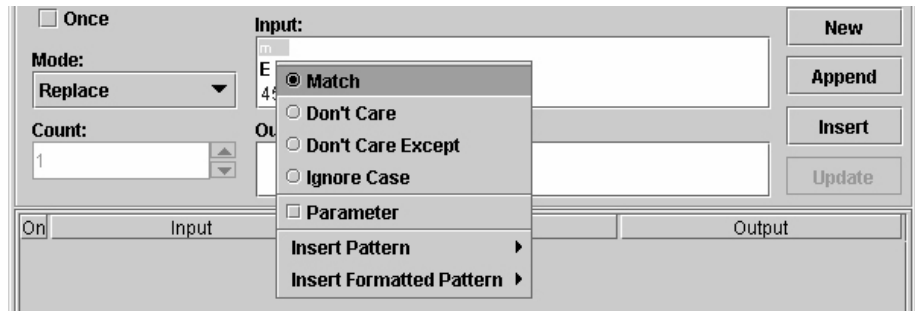
**NOTE:** If you select more than one item, you can only to edit the first item.

**Remove:** Select one or more items in the Formatted Pattern List, and click **Remove** to remove them from the list.

**IMPORTANT**

**Removing formatted patterns invalidates entries that use the formatted patterns.**

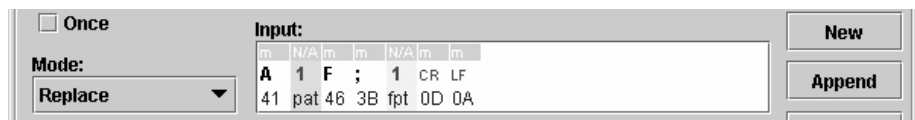
## How to Use Patterns



**Figure 143. Inserting Patterns in the Input Field**

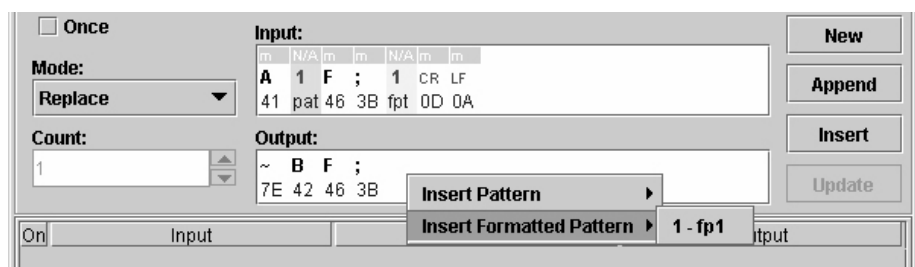
Once you define the patterns you can use them in CST entries. To insert a pattern, right-click a character from the input string. Insert Pattern and/or Insert Formatted Pattern displays at the bottom of the pop-up menu. See Figure 143.

Use these menus to insert your pattern or formatted pattern. The pattern will be inserted before the character. To append a pattern, right-click past the end of the Input string.



**Figure 144. Inserted Patterns**

A pattern has an index number in red on a light green background with the mnemonic **pat** below the index number. A formatted pattern uses the mnemonic **fpt**. See Figure 144.



**Figure 145. Inserting Patterns in the Output Field**

The same formatted pattern may be used more than once in the Input field. When you want data found by the pattern to be copied to the Output field, use the index number (in red) to identify the data. To add a pattern to the Output field, use the same procedure as for the Input field. The Insert Pattern and Insert Formatted Pattern menus list all patterns used in the Input field with the index number in front of the pattern name. See Figure 145.

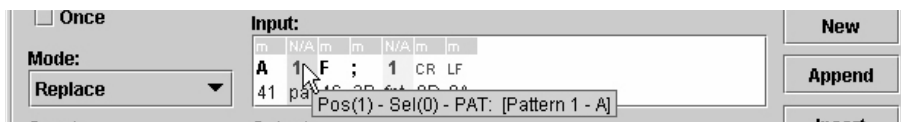


Figure 146. Pattern Screen Tip

To see pattern details, i.e., name and definition, hover the pointer over the character in the Input field to display a screen tip. See Figure 146.

**NOTE:** For some Modes, you cannot insert patterns into the Output field.

## Pattern Recognition Example

Normally, the CST only allows you to do an absolute match on a character. It has not been possible to check if a character is within a given range of characters (unless you write a very complicated CST).

Pattern recognition allows the user to specify either a range of characters or a specific pattern with a unique name that can be used to test the input data against.

### Example

The following command sets the label size for thermal printer 1:

```
<ESC>Daaaa,bbbb,cccc<LF><NULL>
```

where *aaaa* is the length of the label, *bbbb* is the effective print width and *cccc* is the effective print length.

**NOTE:** *aaaa*, *bbbb*, and *cccc* are always fixed at 4 digits with a value range of 0000 to 9999.

Convert this command (assuming the units are the same) into the PGL PAPER command for thermal printer 2.

Start with a CST that will translate the <ESC>D into PAPER. Skip the value of *aaaa* since thermal printer 2 can detect the forms length using the CALIBRATE function. The value of *bbbb* will be used in combination with the WIDTH function, and the value of *cccc* in combination with the LENGTH function. This results in the following translation:

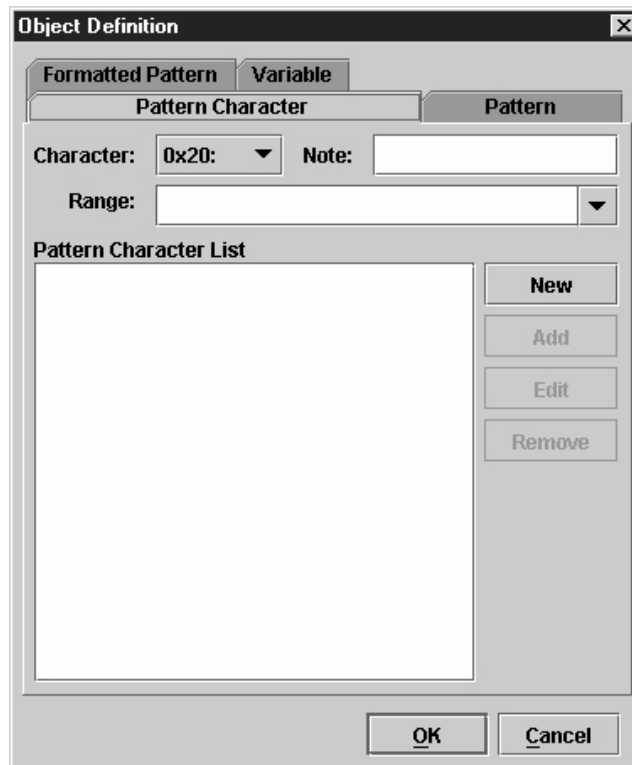
```
Thermal printer 1: <ESC>Daaaa,bbbb,cccc<LF><NULL>
```

```
Thermal printer 2: PAPER;CALIBRATE;LENGTH cccc;WIDTH
bbbb<CR><LF>
```

To be able to copy the value of *bbbb* into the WIDTH function and the value of *cccc* into the LENGTH function, label these values and specify their ranges to be from 0000 to 9999.

To do this, use the Object Definition capability of the datastream adapter.



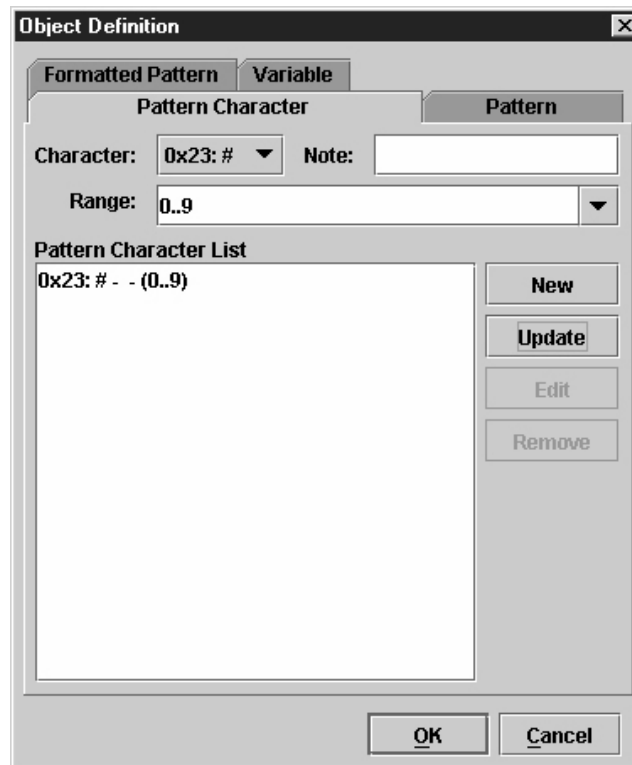


**Figure 147. Object Definition: Pattern Character**

1. In the CST Manager, click **Patterns / Variables**. See Figure 147. Next, define the required pattern character by selecting it from the list of available characters.
  2. Click the **Character** down arrow and select **0x23: #**. The # character will be used as a label.
- NOTE:** The total number of different pattern characters that can be selected is 224.
3. If necessary, enter a note to go with this label in the Note field. For example, use Length if the Pattern Character is going to be used for the Length value of the command to translate.
  4. Type 0..9 in the **Range** field. This is the range of values this label can have.

**NOTE:** A range is specified using two periods in sequence, i.e., 0..9 or A..Z. A comma should be used as a delimiter if more than a single range or value is specified for a pattern character, i.e., A..Z,0..9 if the range should cover both uppercase alpha and numeric values.

Use the Range down arrow to select pre-defined ranges.



**Figure 148. Defining a Pattern Character**

5. Click **Add** to add the pattern character to the list. See Figure 148. Next, set up a full pattern using the pattern character just defined.
6. Click the **Pattern** tab.
7. Type `Length` in the Name field. This is the name of the first pattern.
8. In the Pattern field, type `####` for the pattern character to be used.  
**NOTE:** The number of pattern characters that can be entered to form a pattern is unlimited.
9. Click **Add** to add the pattern to the list.
10. Click **New** to clear the Name and Pattern fields.
11. Type `width` in the Name field. This is the name of the second pattern.
12. In the Pattern field, type `####` for the pattern character to be used.

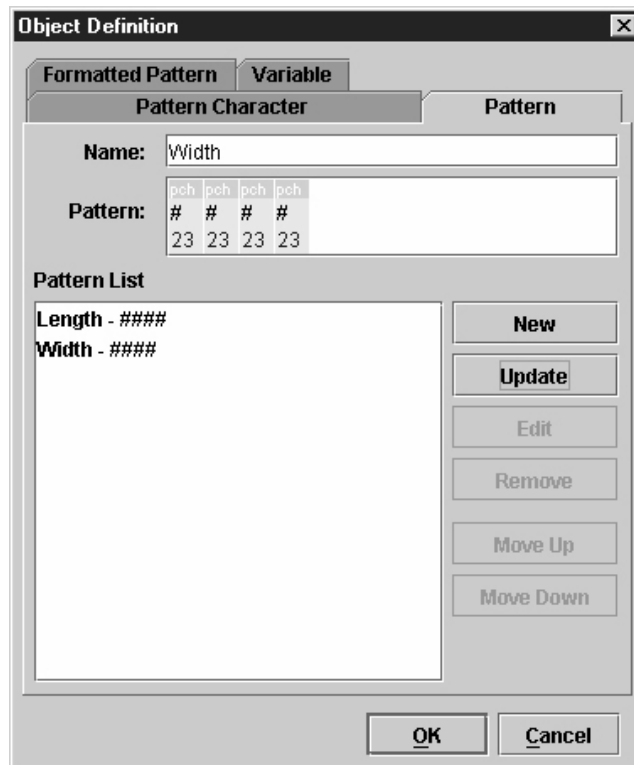


Figure 149. Defining Patterns

13. Click **Add** to add the pattern to the list. See Figure 149.
14. Click **OK** to return to the CST Manager.

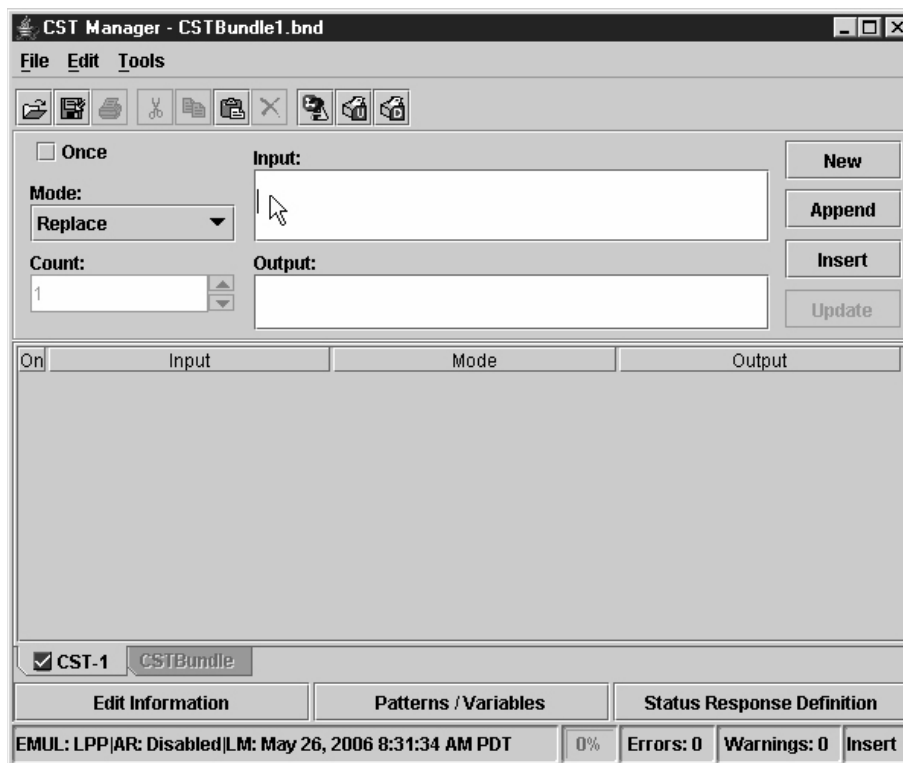


Figure 150. Selecting the Input Field

Now you can use the just defined pattern in the CST. Create an entry in the CST where the input field specifies the thermal printer 1 command sequence *bbbb* be replaced by the Width pattern and *cccc* be replaced by the Length pattern.

15. Click the **Input** field to place the cursor. See Figure 150.
16. Press the down arrow key to enter Hex entry mode.
17. Type **1B** (for ESC).
18. Press the up arrow key to enter ASCII entry mode.
19. Type **Daaaa,**.
20. Right-click to the right of the last character position.
21. Hover the pointer over **Insert Pattern**. A list of available patterns displays.
22. Select **Width**.
23. Press the right arrow key to reposition the cursor and type **,** (comma).
24. Right-click to the right of the comma and select **Insert Pattern ▶ Length**.

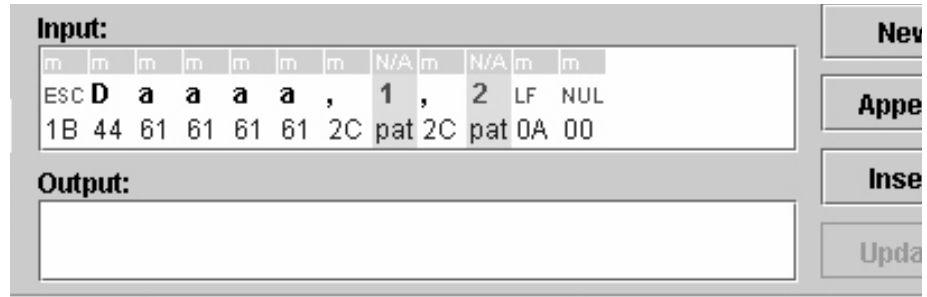


Figure 151. Entering the Input String

25. Press the right arrow key, then the down arrow key and type 0A00 (for LF and NUL). See Figure 151.

**NOTE:** The entry in the CST will show “pat” (Pattern) in the attribute field and a pattern number in the character field. The hex value shown below the pattern number has no specific meaning.

Since the *aaaa* value is not going to be used, we need to give these characters the Don’t Care attribute.

26. Select **aaaa**.

27. Right-click the selected **aaaa** and select **Don’t Care**. The attribute field changes from “m” (Match) to “dc” (Don’t Care).

28. In the Output field, type **~PAPER;CALIBRATE**. This PGL command replaces the “<ESC>Daaaa” part of the thermal printer 1 command.

29. Continue by typing **;LENGTH[space]**.

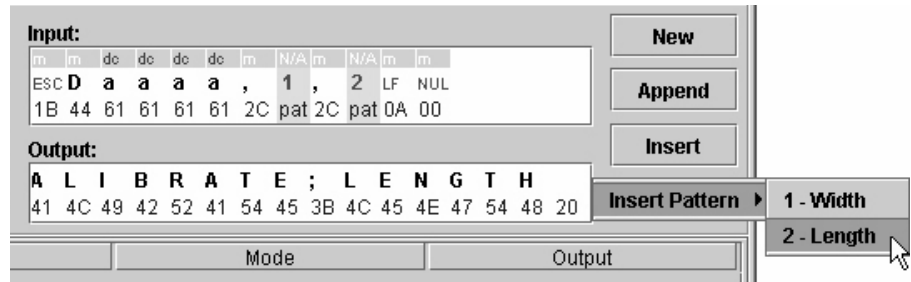


Figure 152. Entering the Output String

30. Right-click at the insertion point and select **Insert Pattern ▶ 2 - Length**. See Figure 152.

**NOTE:** Make sure you right-click to the right of the space.

31. Press the right arrow key and type **;WIDTH[space]**.

32. Right-click at the insertion point and select **Insert Pattern ▶ 1 - Width**.

33. Press the right arrow key, then the down arrow key and type 0D0A (for CR and LF).

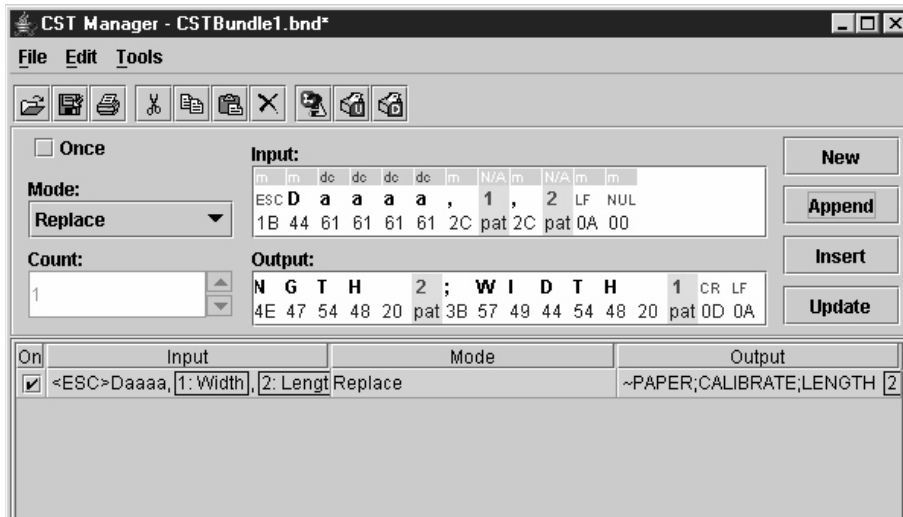


Figure 153. The Appended CST

34. Click **Append**. See Figure 153.

Now you will test the newly created CST.

35. Select **Tools ▶ Test**. The Test window opens. See Figure 154.

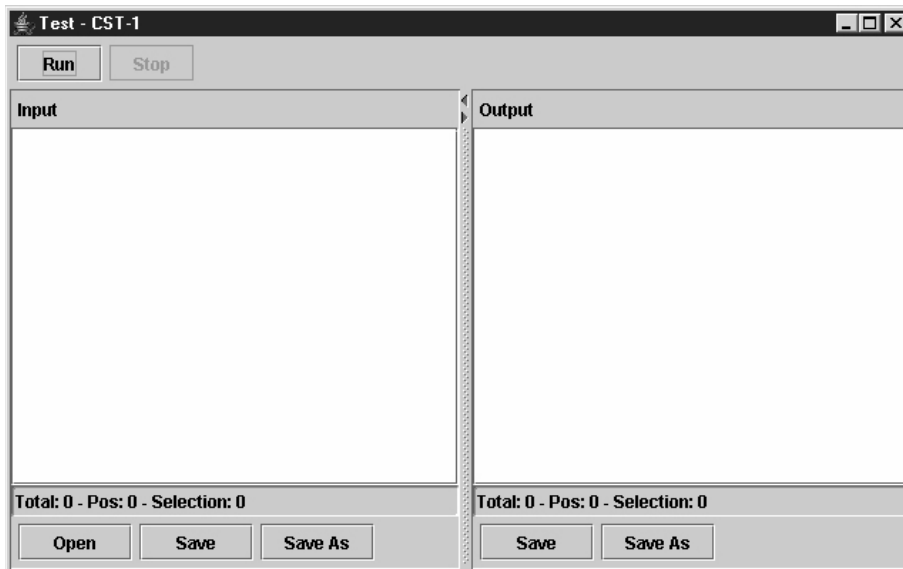
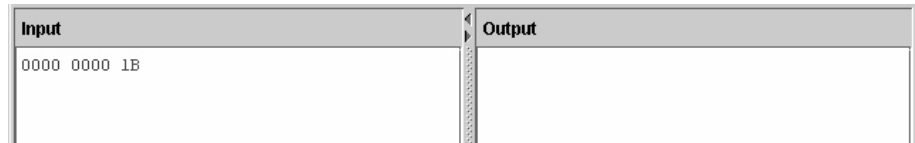


Figure 154. The Test Window

36. Right-click the Input window.

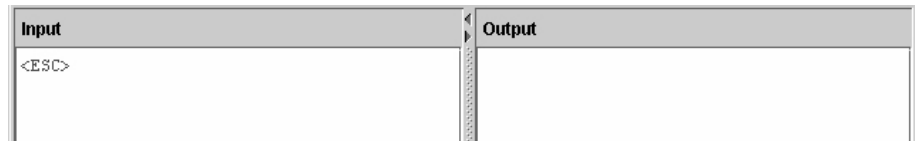
37. Select **View ▶ Hex**. To enter the Hex entry mode.

38. Click just to the right of the eight zeros to position the cursor.



**Figure 155. Hex Entry Mode**

39. Type **1B**. To enter the hex equivalent of <ESC>. See Figure 155.



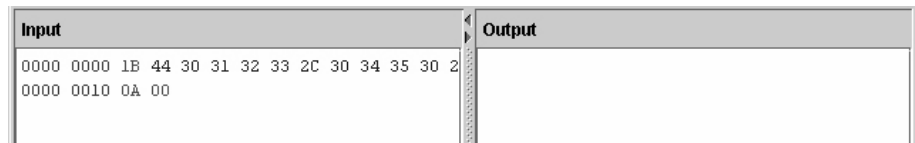
**Figure 156. Mnemonics Entry Mode**

40. Right-click the Input window and select **View ▶ Mnemonics**. To enter the Mnemonics entry mode. Notice the 1B changed to <ESC>. See Figure 156.

41. Type **D0123,0450,0600**.

42. Right-click the Input window and select **View ▶ Hex**.

43. Click just to the right of **0010** on the second line.

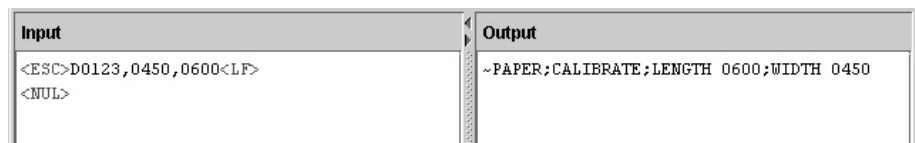


**Figure 157. Hex Equivalents of LF and NUL**

44. Type **0A00**. To enter the hex equivalent of LF and NUL. See Figure 157.

45. Right-click the Input window and select **View ▶ Mnemonics**.

46. Click **Run** to test the CST against your input.



**Figure 158. Successful CST Test Results**

The length and width information have successfully been placed in the correct position in the PGL command. See Figure 158.

**NOTE:** If a value outside the specified range (in this case, outside the range 0..9) is entered, no conversion takes place and the input string is passed on to the printer unmodified.

## Variable Tab

Use Variable tab to define variables. Use a variable to store data from the host so that it can be used at a later time. To define a variable, enter the name of the variable and add it to the Variable List. To store data into the variable use the Store mode (page 155). To clear the content of all defined variables use the Reset All Variables mode (page 155).

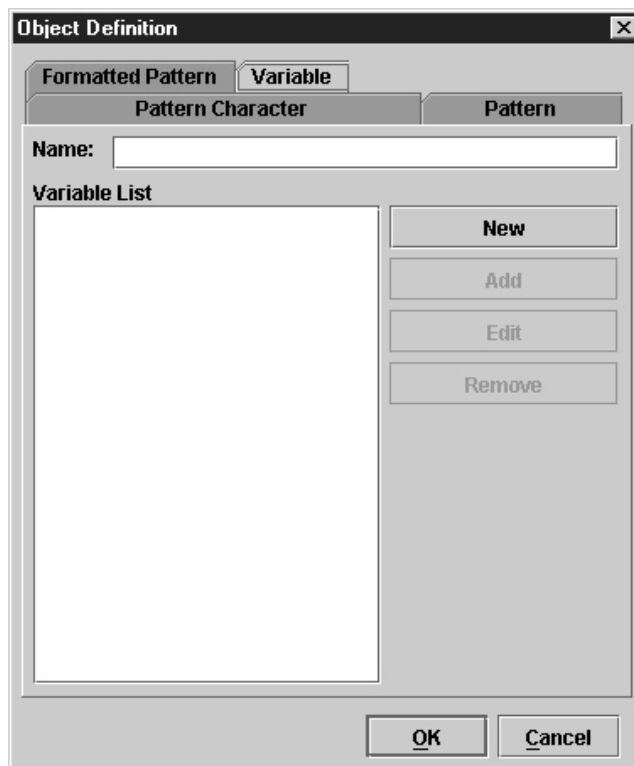


Figure 159. Variable Tab

**Name:** The name of the variable. This name appears in pop-up menus where you insert and use variables.

### Variable List

Lists all the variables that you have defined and added to the list.

**New:** Click **New** to clear the Name field.

**Add:** Click **Add** to add the named variable to the end of the Variable List.

**NOTE:** The name of the variable must be unique.

**Edit:** Select an item in the Variable List, and click **Edit** to copy its name into the Name field.

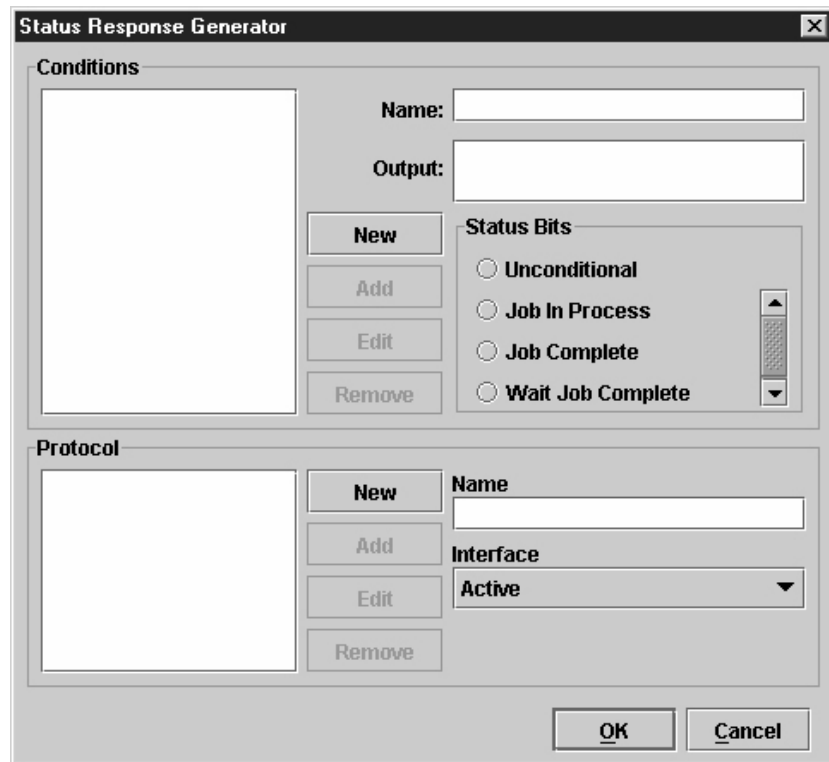
**NOTE:** If you select more than one item, only the name of the first item will copy into the Name field.

**Remove:** Select one or more items in the Variable List, and click **Remove** to remove them from the list.

**IMPORTANT** Removing variables invalidates entries that use the variables.



## Status Response Definition



The screenshot shows the 'Status Response Generator' dialog box. It is divided into two main sections: 'Conditions' and 'Protocol'.  
The 'Conditions' section includes a large empty list box on the left. To its right are input fields for 'Name:' and 'Output:'. Below these are four buttons: 'New', 'Add', 'Edit', and 'Remove'. To the right of these buttons is a 'Status Bits' section with four radio button options: 'Unconditional', 'Job In Process', 'Job Complete', and 'Wait Job Complete'. A vertical scrollbar is visible to the right of these options.  
The 'Protocol' section also features a large empty list box on the left. To its right are four buttons: 'New', 'Add', 'Edit', and 'Remove'. To the right of these buttons are three input fields: 'Name', 'Interface', and 'Active'.  
At the bottom right of the dialog box are 'OK' and 'Cancel' buttons.

Figure 160. Status Response Generator

Click **Status Response Definition**, and the Status Response Generator dialog box opens. See Figure 160.

Use the Status Response Generator to define status responses. You can define printer status bits that make up the condition on which a response should be generated, as well as the details of each response.

## Conditions

---

Use the upper section of the Status Report Generator to add new conditions or select existing conditions to edit or remove.

**Name:** The name of the condition.

**Output:** The response for when the condition is met.

### Status Bits

**Unconditional:** To create an unconditional protocol. When you select Unconditional, all other status bits are disabled.

**NOTE:** If you have already added other conditions, and then you later add a condition with the Unconditional Stop Bits property, all other conditions will be removed from the list.

**Job Complete:** To create a Job Complete condition.

**Job In Process:** To create a Job In Process condition.

**NOTE:** You cannot have more than one condition in the Conditions list with the same Status Bits setting.

### Conditions List

Lists all the conditions that you have defined and added to the list. A condition is listed by its name followed by a separator and the output sequence. In the output sequence, control codes display as mnemonics and other non-printable characters display as red dots.

**New:** Click **New** to reset all data fields.

**Add:** If the displayed text on the second button is Add, the condition has not been added to the Conditions list. Click **Add** to add the defined condition to the end of the Conditions list.

**Update:** If the displayed text on the second button is Update, the condition is already in the Conditions list. Click **Update** to update the condition properties with the new properties.

**Edit:** Select an item in the Conditions list, and click **Edit** to edit it.

**NOTE:** If you select more than one item, you can only to edit the first item.

**Remove:** Select one or more items in the Conditions list, and click **Remove** to remove them from the list.

#### IMPORTANT

**Removing conditions invalidates entries that use the conditions.**

## Protocols

---

Use the lower section of the Status Report Generator to add new protocols or select existing protocols to edit or remove.

A protocol is a single condition or set of conditions.

**Name:** The name of the protocol. This name appears in pop-up menus where you insert and use protocols.

**Interface:** Use this drop-down list to select which (host) interface the response should go to. Active is the interface on which the CST operates.

### Protocol List

**New:** Click **New** to reset the Name and Interface fields.

**Add:** If the text displayed on the second button is Add, the protocol has not been added to the Protocol list. Click **Add** to add the protocol to the Protocol list.

**NOTE:** The protocol appears in the list with its name followed by a separator and the name of the interface used.

**Update:** If the text displayed on the second button is Update, the protocol is already in the Protocol list. Click **Update** to update the protocol properties with the new properties.

**Edit:** Select an item in the Protocol list, and click **Edit** to edit it.

**NOTE:** If you select more than one item, you can only to edit the first item.

**Remove:** Select one or more items in the Protocol list, and click **Remove** to remove them from the list.

**IMPORTANT**

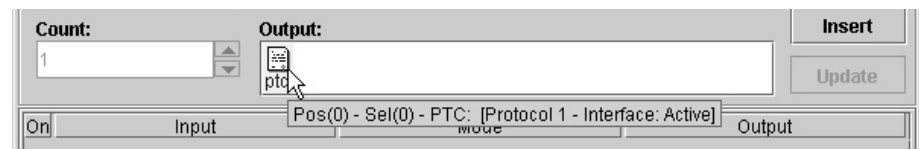
**Removing protocols invalidates entries that use the protocols.**

## How To Use Conditions And Protocols

After you define one or more protocols, return to the CST Manager to create a new entry available for editing. Select **Response** from the Mode drop-down list. In the Input field, enter the data on which the response should be triggered. Right-click the Output field, and select the desired protocol from the pop-up menu.

You can enter prefixes and suffixes, and these will be sent with the defined output of the protocol. For example, if the output is defined as **pre <Series-1> suf**, and the On\_Empty condition is met, then **pre 1<CR> suf** will be the response.

A protocol displays with the protocol icon over a light red background with the mnemonic **ptc**. To see protocol details, i.e. name and interface, hover the pointer over the protocol icon in the Output field to display a screen tip. See Figure 161.



**Figure 161. Protocol Screen Tip**

## Status Response Generator Example

A host computer sends out an ENQ character to request the printer's status. The host computer expects to receive an ACK character when the job has finished, or a NAK character if the printer is printing.

In the CST Manager, click **Status Response Definition**. The Status Response Generator dialog box opens. See Figure 162.

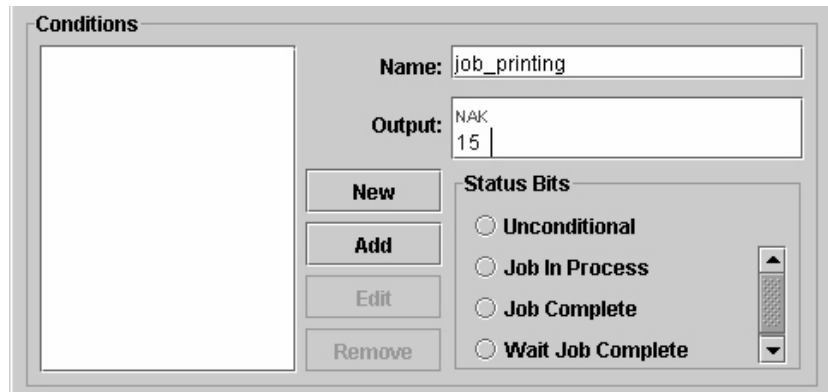
**Figure 162. Status Response Generator**

You can define the protocol conditions in the upper half of this window. This protocol, along with other available protocols, will be listed in the lower half. From this list, the correct protocol is selected during the creation of a CST.

**NOTE:** You must add protocol conditions before you can add a protocol.

For now you will only define a single protocol.

1. Use a descriptive name for the first condition that should be tested. In the Name field, type `job_printing`.



**Figure 163. Switching Between ASCII and Hex Entry Modes**

2. Define the output that should be transmitted to the host.  
In the Output field, press the down arrow key and type 15 (NAK).  
See Figure 163.

**NOTE:** Use the up and down arrow keys to switch between the ASCII and Hex entry modes.

3. Under Status Bits, click **Job In Process** to select the correct condition to test.

Here is a description of the Status Bits conditions:

- **Unconditional:** This condition is always TRUE. The response is sent to the host immediately.
- **Job Complete:** This condition is TRUE if the printer is not processing or printing any data. The response is sent to the host immediately but **ONLY IF** this condition is TRUE.
- **Job In Process:** This condition is TRUE if the printer is processing or printing data. The response is sent to the host immediately but **ONLY IF** this condition is TRUE.
- **Wait For Job Complete:** This condition is TRUE if the printer is not processing or printing any data. The response is sent to the host **AS SOON AS** this condition is TRUE.

4. Click **Add** to add the entry to the list of protocol conditions.

Now you will add a second condition.

5. In the Name field, type `job_done`.
6. In the Output field, press the down arrow key and type 06 (ACK).
7. Under Status Bits, click **Job Complete**.

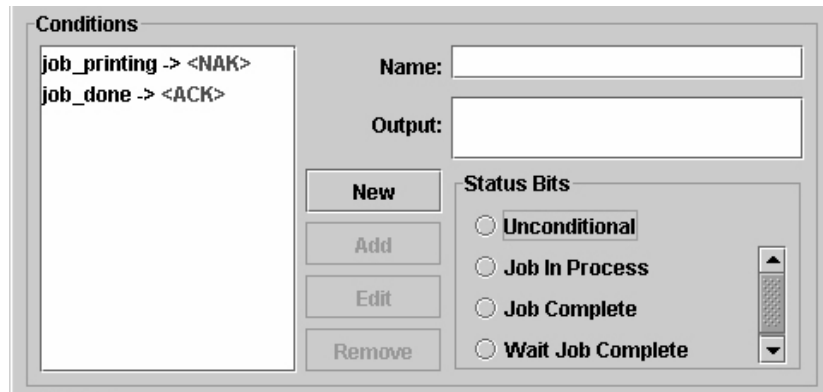


Figure 164. Adding Conditions

8. Click **Add** to add the entry to the list of protocol conditions. See Figure 164.
9. Name this protocol that is comprised of the two conditions.  
In the Name field (bottom half of window), type `print_complete`.
10. Select the interface to use for the status response.  
Click the Interface down arrow, and select **Active**.

**NOTE:** The interface selected does not have to be the same interface the host is using for a status request. The available interfaces are Active, Serial, Parallel, and Network.

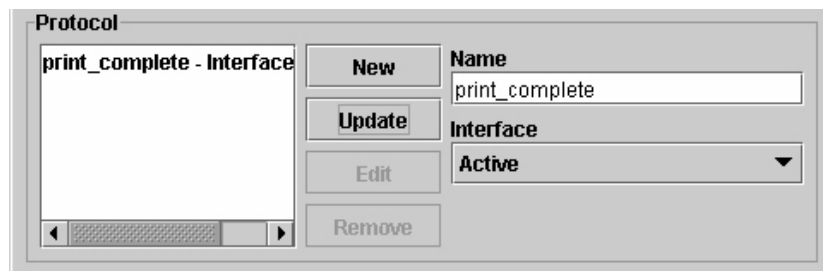


Figure 165. Adding Protocols

11. Click **Add** to add it to the list of protocols. See Figure 165.
12. Click **OK** to return to the CST manager.

**NOTE:** For the status reporting to work, the printer will have to be online. Offline conditions, like all error situations, cannot be transmitted to the host.

Now you will enter the input string that will trigger the protocol you just created.

13. Click the **Mode** down arrow, and select **Response**.
14. In the Input field, press the down arrow key and type `05 (ENQ)`.

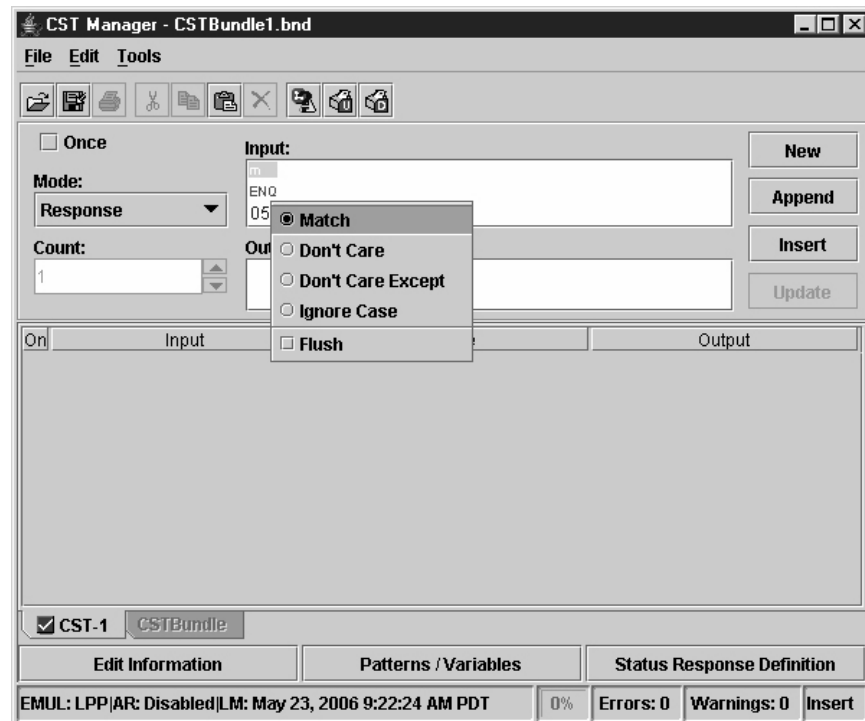


Figure 166. Response Mode Attributes

- Right-click your input string. A list of possible attributes displays. See Figure 166.

**NOTE:** In addition to the four common attributes, Response mode has the Flush attribute. This attribute removes the input string from the datastream, preventing it from being printed.

- Click away from the attributes to close the list.
- Right-click the Output field to specify which protocol should be used when a status is requested. A list of protocols (in this case just one) displays.
- Select **print\_complete**.
- Click **Append** to append it to the CST.
- Select **File** ▶ **Save** or **File** ▶ **Save As** to save the bundle.
- Download the bundle file to the printer.
- Enable the CST in the printer.

The printer now has a status reporting protocol.

**NOTE:** The input string used to request the printer status does not have to be a single control code like the ENQ character. Likewise, the output does not have to be NAK or ACK. It can be anything that the host can transmit and handle.

It is possible to create a status reporting protocol that uses sentences. For example, replace the ENQ in the example with "Printer, how are you doing on this print job?" Replace the Job In Progress condition output with "I am almost done." Finally, replace the Job Complete condition output with "I have just finished this job."

## CST Manager And EBCDIC

In addition to the standard ASCII character set commonly used for printing, many applications use the EBCDIC character set. The CST Manager is specifically designed to work with ASCII. To work with EBCDIC coded files, characters in the Input and Output strings need to be entered in their EBCDIC representation. Since the CST Manager does not have an EBCDIC view mode, these entries must be entered in hex.

### EBCDIC/ASCII Table

To help in creating EBCDIC CSTs, refer to the following table for Twinax, Coax LU-1, Coax LU-3, and ASCII.

**NOTE:** For LU-3 in the following table: EM = End of Message, FF = Form Feed, NL = New Line, and CR = Carriage Return.

Hex	Mnemonic	EBCDIC		Hex	Mnemonic	ASCII
		Twinax/LU-1	LU-3			
00	NUL	Null	Null	00	NUL	Null
01	SOH	Start of Header	EM	01	SOH	Start of Header
02	STX	Start of Text	FF	02	STX	Start of Text
03	ETX	End of TEXT	NL	03	ETX	End of Text
04	PF	Punch Off		04	EOT	End of Transmission
05	HT	Horizontal Tab	CR	05	ENQ	Enquiry
06	LC	Lower Case		06	ACK	Acknowledge
07	BEL	Delete		07	BEL	Bell
08			>	08	BS	Backspace
09			<	09	HT	Horizontal Tab
0A	SMM	Start of Man. Message	¢	0A	LF	Line Feed
0B	VT	Vertical Tab	!	0B	VT	Vertical Tab
0C	FF	Form Feed	)	0C	FF	Form Feed
0D	CR	Carriage Return	(	0D	CR	Carriage Return
0E	SO	Shift Out	}	0E	SO	Shift Out
0F	SI	Shift In	{	0F	SI	Shift In
10	DLE	Data Link Escape	SP	10	DLE	Data Link Escape
11	DC1	Device Control 1	=	11	DC1	Device Control 1
12	DC2	Device Control 2	'	12	DC2	Device Control 2



Hex	Mnemonic	EBCDIC		Hex	Mnemonic	ASCII
		Twinax/LU-1	LU-3			
13	TM	Tape mark	"	13	DC3	Device Control 3
14	RES	Restore	/	14	DC4	Device Control 4
15	NL	New Line	\	15	NAK	Neg. Acknowledge
16	BS	Back space		16	SYN	Synchronous Idle
17	IL	Idle		17	ETB	End of Transm. Block
18	CAN	Cancel	?	18	CAN	Cancel
19	EM	End of Medium	!	19	EM	End of Medium
1A	CC	Cursor Control	\$	1A	SUB	Substitute
1B	CU1	Customer Use 1	¢	1B	ESC	Escape
1C	IFS	Interch. File Separator		1C	FS	File Separator
1D	IGS	Interch. Grp Separator		1D	GS	Group Separator
1E	IRS	Interch. Rec. Separator	\$	1E	RS	Record Separator
1F	IUS	Interch. Unit Separator		1F	US	Unit Separator
20	DS	Digit Select	0	20	SP	Space
21	SOS	Start of Significance	1	21	!	Exclamation point
22	FS	Field Separator	2	22	"	Quotation Mark
23			3	23	#	Number Sign
24	BYP	Bypass	4	24	\$	Dollar sign
25	LF	Line Feed	5	25	%	Percent
26	ETB	End of Transm. Block	6	26	&	Ampersand
27	ESC	Escape	7	27	'	Apostrophe
28			8	28	(	Left Parenthesis
29			9	29	)	Right Parenthesis
2A	SM	Set Mode		2A	*	Asterisk
2B	CU2	Customer Use 2	-	2B	+	Plus Sign
2C			#	2C	,	Comma
2D	ENQ	Enquiry	@	2D	-	Minus Sign
2E	ACK	Acknowledge	%	2E	.	Period
2F	BEL	Bell	_	2F	/	Slash
30			&	30	0	Zero

Hex	Mnemonic	EBCDIC		Hex	Mnemonic	ASCII
		Twinax/LU-1	LU-3			
31				31	1	One
32	SYN	Synchronous Idle	.	32	2	Two
33			,	33	3	Three
34	PN	Punch On	:	34	4	Four
35	RS	Reader Stop	+	35	5	Five
36	UC	Upper Case	¬	36	6	Six
37				37	7	Seven
38				38	8	Eight
39				39	9	Nine
3A				3A	:	Colon
3B	CU3	Customer Use 3	~	3B	;	Semicolon
3C	DC4	Device Control 4	~	3C	<	Less-than Sign
3D	NAK	Negative Acknowledge	`	3D	=	Equal Sign
3E				3E	>	Greater-than Sign
3F	SUB	Substitute		3F	?	Question Mark
40	SP	Space		40	@	At Sign
41				41	A	A
42				42	B	B
43				43	C	C
44				44	D	D
45				45	E	E
46				46	F	F
47				47	G	G
48				48	H	H
49				49	I	I
4A	¢	Cent Sign		4A	J	J
4B	.	Period		4B	K	K
4C	<	Less-than Sign		4C	L	L
4D	(	Left Parenthesis		4D	M	M
4E	+	Plus sign		4E	N	N

Hex	Mnemonic	EBCDIC		Hex	Mnemonic	ASCII
		Twinax/LU-1	LU-3			
4F		Logical Or		4F	O	O
50	&	Ampersand	"	50	P	P
51				51	Q	Q
52				52	R	R
53			¢	53	S	S
54			!	54	T	T
55				55	U	U
56				56	V	V
57				57	W	W
58				58	X	X
59				59	Y	Y
5A	!	Exclamation Point		5A	Z	Z
5B	\$	Dollar Sign		5B	[	Opening Bracket
5C	*	Asterisk		5C	\	Back Slash
5D	)	Right Parenthesis		5D	]	Closing Bracket
5E	;	Semicolon		5E	^	Caret
5F	¬	Logical NOT		5F	_	Underline
60	-	Minus Sign		60	`	Grave Accent
61	/	Slash		61	a	a
62				62	b	b
63				63	c	c
64				64	d	d
65				65	e	e
66				66	f	f
67				67	g	g
68				68	h	h
69				69	i	i
6A				6A	j	j
6B	,	Comma		6B	k	k
6C	%	Percent		6C	k	k

Hex	Mnemonic	EBCDIC		Hex	Mnemonic	ASCII
		Twinax/LU-1	LU-3			
6D	_	Underline		6D	m	m
6E	>	Greater-than Sign		6E	n	n
6F	?	Question Mark		6F	o	o
70			#	70	p	p
71				71	q	q
72				72	r	r
73			@	73	s	s
74			\$	74	t	t
75				75	u	u
76				76	v	v
77				77	w	w
78				78	x	x
79				79	y	y
7A	:	Colon		7A	z	z
7B	#	Number Sign		7B	{	Opening Brace
7C	@	At Sign		7C		Vertical Line
7D	'	Apostrophe		7D	}	Closing Brace
7E	=	Equal Sign		7E	~	Tilde
7F	"	Quotation Mark	#	7F	DEL	Delete
80			a	80		
81	a	a	b	81		
82	b	b	c	82		
83	c	c	d	83		
84	d	d	e	84	IND	Index
85	e	e	f	85	NEL	Next Line
86	f	f	g	86	SSA	Start of Selected Area
87	g	g	h	87	ESA	End of Selected Area
88	h	h	i	88	HTS	Horz. Tabulation Set
89	i	i	j	89	HTJ	Horz. Tab w. Justif.
8A			k	8A	VTS	Vertical Tabulation Set

Hex	Mnemonic	EBCDIC		Hex	Mnemonic	ASCII
		Twinax/LU-1	LU-3			
8B			l	8B	PLD	Partial Line Down
8C			m	8C	PLU	Partial Line Up
8D			n	8D	RI	Reverse Index
8E			o	8E	SS2	Single Shift 2
8F			p	8F	SS3	Single Shift 3
90			q	90	DCS	Device Control String
91	j	j	r	91	PU1	Private Use 1
92	k	k	s	92	PU2	Private Use 2
93	k	k	t	93	STS	Set Transmit State
94	m	m	u	94	CCH	Cancel character
95	n	n	v	95	MW	Message Waiting
96	o	o	w	96	SPA	Start of Protected Area
97	p	p	x	97	EPA	End of Protected Area
98	q	q	y	98		
99	r	r	z	99		
9A			“	9A		
9B			¢	9B	CSI	Control Seq. Introducer
9C			!	9C	ST	String Terminator
9D				9D	OSC	Operating System Cmd.
9E			;	9E	PM	Privacy Message
9F			*	9F	APC	Applic. Program Cmd.
A0			A	A0		
A1			B	A1		
A2	s	s	C	A2		
A3	t	t	D	A3		
A4	u	u	E	A4		
A5	v	v	F	A5		
A6	w	w	G	A6		
A7	x	x	H	A7		

Hex	Mnemonic	EBCDIC		Hex	Mnemonic	ASCII
		Twinax/LU-1	LU-3			
A8	y	y	I	A8		
A9	z	z	J	A9		
AA			K	AA		
AB			L	AB		
AC			M	AC		
AD			N	AD		
AE			O	AE		
AF			P	AF		
B0			Q	B0		
B1			R	B1		
B2			S	B2		
B3			T	B3		
B4			U	B4		
B5			V	B5		
B6			W	B6		
B7			X	B7		
B8			Y	B8		
B9		Grave Accent	Z	B9		
BA			#	BA		
BB			@	BB		
BC			\$	BC		
BD				BD		
BE			;	BE		
BF			*	BF		
C0				C0		
C1	A	A		C1		
C2	B	B		C2		
C3	C	C		C3		
C4	D	D		C4		
C5	E	E		C5		

Hex	Mnemonic	EBCDIC		Hex	Mnemonic	ASCII
		Twinax/LU-1	LU-3			
C6	F	F		C6		
C7	G	G		C7		
C8	H	H		C8		
C9	I	I		C9		
CA				CA		
CB				CB		
CC				CC		
CD				CD		
CE				CE		
CF				CF		
D0				D0		
D1	J	J		D1		
D2	K	K		D2		
D3	L	L		D3		
D4	M	M		D4		
D5	N	N		D5		
D6	O	O		D6		
D7	P	P		D7		
D8	Q	Q		D8		
D9	R	R		D9		
DA				DA		
DB				DB		
DC				DC		
DD				DD		
DE				DE		
DF				DF		
E0				E0		
E1				E1		
E2	S			E2		
E3	T			E3		

Hex	Mnemonic	EBCDIC		Hex	Mnemonic	ASCII
		Twinax/LU-1	LU-3			
E4	U			E4		
E5	V			E5		
E6	W			E6		
E7	X			E7		
E8	Y			E8		
E9	Z			E9		
EA				EA		
EB				EB		
EC				EC		
ED				ED		
EE				EE		
EF				EF		
F0	0	Zero		F0		
F1	1	One		F1		
F2	2	Two		F2		
F3	3	Three		F3		
F4	4	Four		F4		
F5	5	Five		F5		
F6	6	Six		F6		
F7	7	Seven		F7		
F8	8	Eight		F8		
F9	9	Nine		F9		
FA				FA		
FB				FB		
FC				FC		
FD				FD		
FE				FE		
FF				FF		



## CST Manager Version Control System

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The Version Control System (VCS) allows you to assign an application name and add version information to the files. This information helps you easily identify the purpose of the files created and in which application. The VCS prints the application name and version information in the printer's configuration printout.

### Application Name and Version Information

---

The application name is a logical user-defined name for the CST application and is stored inside the CST Configuration file. The maximum length is 16 characters.

The version information contains the following:

- **Version Number** – V<version>.<revision><release level>

where:

<version> = decimal number ( 1 ... n )

<revision> = decimal number ( two digits: 00 ... 99 )

<release level> = upper-case alphabetic character ( A ... ZZ )

**Examples:** V1.00A (initial version), V2.06C, V3.21AA, V3.21BX.

- **Last Modification Date** - <month> - <day> - <year>

Indicates when the PAA CST File was last modified.

- **File ID** – Unique 32-bit hexadecimal number (checksum).

**NOTE:** The VCS system cannot prevent the creation of two files that contain the same application name and version information but different content. To help identify such similar files, the Manager will include a checksum in the file.

Both the version number and last modification date are stored in the respective configuration file.

## Creating a New File

When creating and saving a file for the first time, the Set Application Name dialog box opens prompting you to enter a logical name to identify the application.

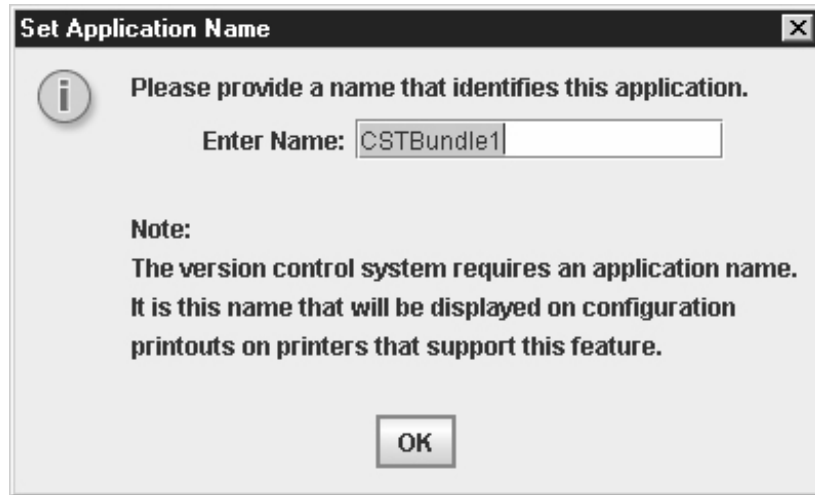


Figure 167. Setting the CST Application Name

## Opening an Existing File

When you select File -> Open, or upload a file from the printer, the VCS checks if the file contains version information. If not, a dialog box opens and prompts you to enter a logical application name. The version number is set to 1.00A. You can then start modifying the application.

## Modifying an Existing File

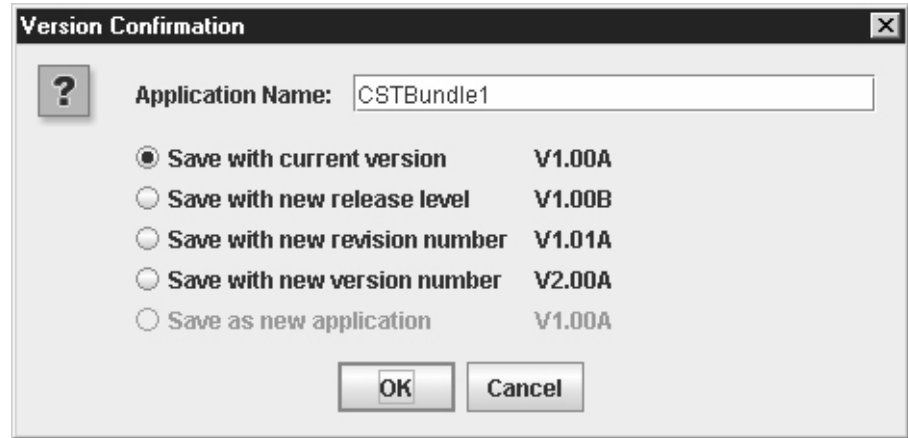
After opening an existing file, the process of building and modifying the application starts. To save your work as a new file or subsequent modifications of an existing file, do the following:

- **Save As New File**

Select File -> Save As. The application name is already assigned and the version number is 1.00A. Select a folder name, enter a file name, and click Save. The file is then stored on disk.

- **Subsequent Saves**

Select File -> Save. The Version Confirmation dialog box opens with save options. See Figure 168.



**Figure 168. Confirming the File Version**

**NOTE:** If you do not change the application name, the 'Save as new application' option is disabled. In this case, you must select one of the first four options. 'Save with current version' is the default selection.

If you change the application name, 'Save as new application' is enabled, allowing you to reset the version number to 1.00A.

The version numbers displayed with the options are the version numbers the CST Manager will store in the file.

**NOTE:** Version number increment rules.

When a file reaches release level Z and you select 'Save with new release level', the release level increments to AA.

For example, 1.01Z becomes 1.01AA.

When the release level reaches ZZ and the you select 'Save with new release level', the release level resets to A and the revision number increments. For example, 1.01ZZ becomes 1.02A.

When the revision number reaches 99 and you select 'Save with new revision number', the revision number resets to 00, the release level resets to A, and the version number increments.

For example, 1.99C becomes 2.00A.

## Viewing File Version Information

To view version information of a file, select File -> Properties.

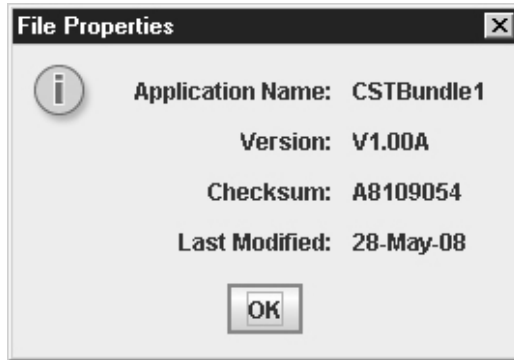


Figure 169. Viewing File Properties

## Automatic File Backup System

The CST Manager automatically creates backups of the last 20 saved versions of a file. This backup system uses the file name (as specified in the File Save As ... dialog) to create the following file and folder structure:

< jav.user.dir\backup > - the java user directory is the PMU install directory.

< File Name > - folder that will store the backups.

< ~ddmmyyy\_hhmmss>.bck - backup of the latest previous version of a file.

< ~ddmmyyy\_hhmmss>.bck - backup of the second latest previous version of a file

...

< ~ddmmyyy\_hhmmss>.bck - backup of the oldest previous version of the file.

### Example:

File name = 'INFOPRINT\_SecurePrinting.gcf

< jav.user.dir\backup >

INFOPRINT\_SecurePrinting

~11042008\_123145.bck

~11042008\_124432.bck

...

~11042008\_145022.bck

## Backup History

The CST Manager has a Backup History option that allows you to view the backup history of a file. The system maintains the last 20 versions of the file. This dialog has options to clear the history, open an older version, and save under a different file name.

Name	Version	Checksum	Date	Time	
_TestApp	V1.00A	1A7DC35A	22 Apr 2008	11:36:33	Created on save by GPI
_TestApp	V1.00A	CDE72AB9	22 Apr 2008	11:36:16	Created on save by GPI
_TestApp	V1.00A	E959FB8D	22 Apr 2008	11:36:01	Created on save by GPI
_TestApp	V1.00A	321C4A6B	22 Apr 2008	11:35:46	Created on save by GPI
_TestApp	V1.00A	143DAC4D	22 Apr 2008	11:35:37	Created on save by GPI
_TestApp	V1.00A	963EBFF7	22 Apr 2008	11:27:20	Created on save by GPI
_TestApp	V1.00A	1A7DC35A	22 Apr 2008	11:11:09	Created on save by GPI
_TestApp	V1.00A	E959FB8D	22 Apr 2008	11:10:12	Created on save by GPI
_TestApp	V1.00A	26F50315	22 Apr 2008	11:09:59	Created on save by GPI
_TestApp	V1.00A	1A7DC35A	22 Apr 2008	10:52:13	Created on save by GPI
_TestApp	V1.00A	1EDF0811	22 Apr 2008	10:38:24	Created on save by GPI
_TestApp	V1.00A	66F82EDF	22 Apr 2008	09:46:11	Created on save by GPI
Events-01	V1.00A	8C3AB8CB	16 Apr 2008	11:03:26	Created on save by GPI

**Figure 170. Backup History Information**

- Name - displays the application name assigned to the file at the time the backup was created.
- Version - displays the version assigned to the file at the time the backup was created.
- Checksum - displays the checksum calculated over the data of the file at the time the backup was created.
- Data and Time - shows when the backup file was created.
- Notes - displays which version of the CST manager the backup file was created.
- Clear button - clears the history.
- Open button - opens the backup file for editing.
- Save As button - saves a backup file under a different name to a local storage medium.
- Close button - closes the dialog.



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# 6

## *Collect Barcode and RFID Data*

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### Overview

The Collect Barcode and RFID Data application collects EPC (electronic product code) telemetry data (stored on Radio Frequency Identification [RFID] tags) from RFID enabled printers, and can simultaneously collect bar code telemetry data (printed on labels) from ODV (online data validator) enabled printers.


The telemetry data can be viewed as it is collected. This data can be used to troubleshoot data collection problems by analyzing barcode statistics and watching for missing barcode, RFID tag, and label entries.

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### Data Validation

**NOTE:** To collect EPC telemetry data, you must set EPC Mgr Report to Enable (in the RFID CONTROL or RFID menu within the printer). Refer to the *RFID Labeling Reference Manual*.

To collect ODV telemetry data, you must set the printer's Telemetry Path to Network Port. See "Set Telemetry Path (4400/6700 Series Only)" on page 14.

To view collected data from a printer, select a printer from the PMU main window and click the  Collect Barcode and RFID Data button. The AutoID Data Telemetry Viewer window opens (see Figure 171 on page 200) and collected telemetry data displays (see Figure 172 on page 201).

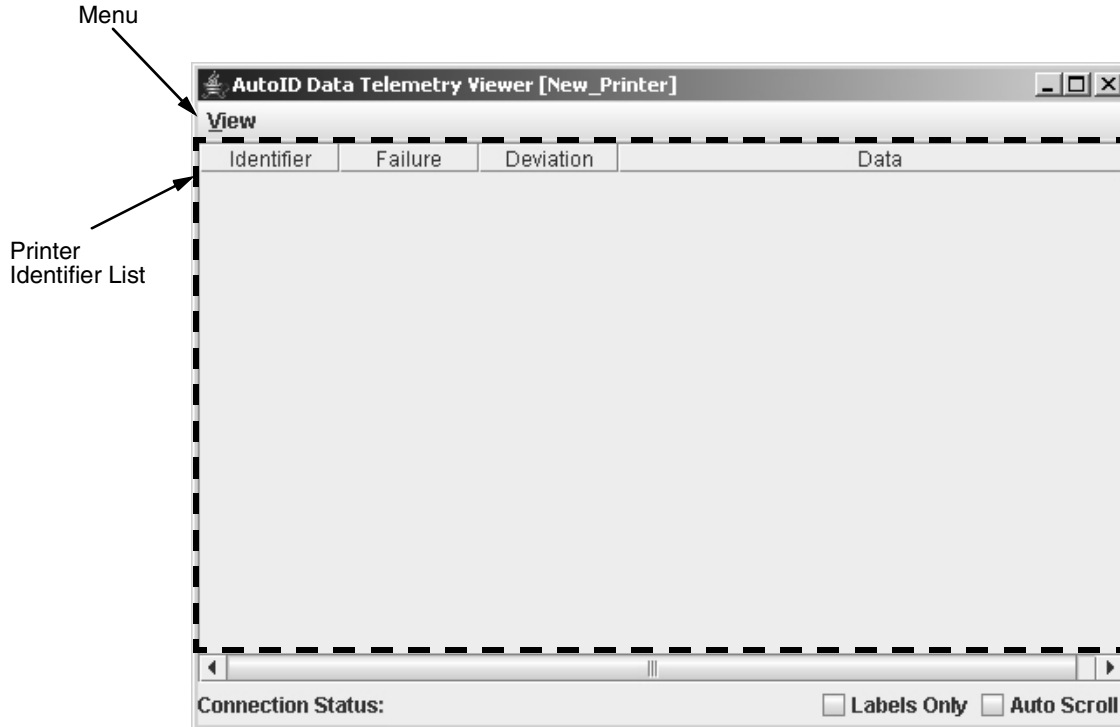


Figure 171. AutoID Data Telemetry Viewer

## View Menu

**Details of Selected Item:** View telemetry data from the selected printer. See "Viewing Telemetry Data" on page 200.

## Viewing Telemetry Data

### Identifier

When viewing telemetry data, there is an identifier consisting of a letter followed by two numbers and separated by a decimal point. The letter **B** represents a bar code, **R** an RFID tag, and **L** a label.

For bar code and RFID tag identifiers (B and R), the first number represents the label number, and the second represents the bar code or RFID tag sequence number within the label. For label identifiers (L), the first number represents the label number, and the second specifies how many bar codes are on the label.

**NOTE:** Since a label typically has one RFID tag, this count is not included in the label identifier (L).



When viewing telemetry data, **B3.2** denotes the second bar code in the third label. **R5.1** denotes the first RFID tag in the fifth label. **L5.4** denotes the end of the fifth label, and the label has four bar codes. See Figure 172.

**NOTE:** The printer verifies the RFID tag before printing any bar codes. If the RFID tag fails, then the label automatically fails without any printed bar codes. See **R4.1** and **L4.0** in Figure 172.

AutoID Data Telemetry Viewer [New_Printer]			
View			
Identifier	Failure	Deviation	Data
R2.1	Pass		48656C6C6F44565400000000
R2.1	Pass		48656C6C6F44565400000000
B2.1	Defects		[ST]CODE39[ST]
L2.1	Fail (Label)		
R3.1	Pass		48656C6C6F44565400000000
R3.1	Pass		48656C6C6F44565400000000
B3.1	Pass		[ST]CODE39[ST]
B3.2	Pass		[ST]C39[ST]
B3.3	Pass		[ST]C39[ST]
B3.4	Pass		[ST]CODE39[ST]
L3.4	Pass (Label)		
R4.1	Tag Failure		48656C6C6F44565400000000
L4.0	Fail (Label)		
R5.1	Pass		48656C6C6F44565400000000
R5.1	Pass		48656C6C6F44565400000000
B5.1	Pass		[ST]CODE39[ST]
B5.2	Pass		[ST]C39[ST]
B5.3	Pass		[ST]C39[ST]
B5.4	Pass		[ST]CODE39[ST]
L5.4	Pass (Label)		

File = New\_Printer.dm  Labels Only  Au

Figure 172. Sample Telemetry Data

## Viewing Detailed Data

To view more detailed information about a label, bar code, or RFID tag, double-click the desired item under Identifier in the AutoID Data Viewer window. See Figure 173, Figure 174, Figure 175, and Figure 176.

Parameter	Value
Format	Label
Identifier	L5.4
CaptureDate	Thu May 04 13:23:19 PDT 2006
Printer Name	New_Printer
Printer Address	10.224.2.64
Failure Code	0
Failure Message	Pass (Label)

Figure 173. Detailed Label Data

Parameter	Value
Format	Extended Label
Identifier	L5.4
CaptureDate	Thu May 04 13:23:19 PDT 2006
Printer Name	New_Printer
Printer Address	10.224.2.64
Failure Code	0
Failure Message	Pass (Label)
Job ID	65535
Pages Completed	0

Figure 174. Detailed Extended Label Data

Parameter	Value
Format	Barcode Long
Identifier	B5.2
CaptureDate	Thu May 04 13:23:18 PDT 2006
Printer Name	New_Printer
Printer Address	10.224.2.64
Failure Code	0
Failure Message	Pass
Decoded Data	[ST]C39[ST]
Deviation	-10
Symbology	Code 39
Letter Grade	B
Ref Decode	true
Decodeability Avg	77
Modulation Avg	87
Defects Avg	9

Figure 175. Detailed Barcode Long Data

Parameter	Value
Format	RFID Version 2
Identifier	R3.1
CaptureDate	Thu May 04 13:22:41 PDT 2006
Printer Name	New_Printer
Printer Address	10.224.2.64
Failure Code	0
Failure Message	Pass
RFID Tag Failure	false
Pre-Checked	false
Sequence Number	94
Retry Number	0
Error Count	0
Tag Type	Alien Squiggle 96
Failed Tag Count	30
Total Tag Count	3054
Data Length	12
Raw Data	48656C6C6F44565400000000
Total Data Length	12
Operation Type	Read
Field Type	EPC

Figure 176. Detailed RFID Version 2 Tag Data

## Data Fields

Over 70 data fields are available that describe bar code or RFID tag telemetry data. The first nine are defined as follows:

### 1. Format

This defines the type of record using an integer value.

Value	Description
Label	label status, older firmware (no longer supported)
Extended Label	label status, newer firmware
Barcode Short	bar code data, short format
Barcode Validation	bar code data, validation format
Barcode Long	bar code data, long format
RFID Version 1	RFID version 1 tag
RFID Version 2	RFID version 2 tag

### 2. Identifier

This identifies the RFID tag, bar code, and label number. See “Identifier” on page 200.

### 3. CaptureDate

This indicates the date and time the record was captured, using local time, in the format: Day, Month, Date, Time (00:00:00), Time Zone, and Year. See Figure 177.

Thu May 04 13:22:41 PDT 2006

**Figure 177. CaptureDate Field Format**

If the data is being sent to an external database, it is represented by a fixed format string defined as

MM-dd-yyyy\_HH:mm:ss where:

MM is the month of the year (01-12)  
 dd is the day of the month (01-31)  
 yyyy is the year  
 HH is the hour of the day (00-23)  
 mm is the minutes of the hour  
 SS is the seconds of the minute

#### 4. Printer Address

This is the IP address of the printer.

#### 5. Failure Code

##### Bar Code

This is the hex value assigned for each type of failure, shown below.

See “6. Failure Message” on page 205.

Failure Code (Hex)	Failure Code (Binary)	Failure Message
0000	0000 0000 0000 0000	No error
0001	xxxx xxxx xxxx xxx1	PDF 417 Gap
0002	xxxx xxxx xxxx xx1x	Decodeability
0004	xxxx xxxx xxxx x1xx	Defect
0008	xxxx xxxx xxxx 1xxx	Percent Decode
0010	xxxx xxxx xxx1 xxxx	Quiet Zone
0020	xxxx xxxx xx1x xxxx	(Symbol) Contrast
0040	xxxx xxxx x1xx xxxx	Encodation
0080	xxxx xxxx 1xxx xxxx	Checksum
0100	xxxx xxx1 xxxx xxxx	Calibration
0200	xxxx xx1x xxxx xxxx	Overall Grade Failure
0400	xxxx x1xx xxxx xxxx	Internal Data Format Error
0800	xxxx 1xxx xxxx xxxx	Modulation
1000	xxx1 xxxx xxxx xxxx	Minimum Reflectance
2000	xx1x xxxx xxxx xxxx	Minimum Edge Contrast
4000	x1xx xxxx xxxx xxxx	Future use
8000	1xxx xxxx xxxx xxxx	Future use

**NOTE:** The hex values listed above reflect single failures. Multiple failures will create additional hex values based on the binary weighting shown.

For example, the hex value **0042** (or binary **0000 0000 0100 0010**) represents both the Encodation and Decodeability failures.

## RFID

This is the hex value assigned for an RFID failure.

0 = no RFID failure

1 = RFID failure

## 6. Failure Message

### Bar Code

Failure data is grouped into different types of failure, each of which defines a bar code problem.

- **Checksum:** This occurs when the bar code is not properly encoded with checksum digits.
- **Decodeability:** This occurs when the difference between wide and narrow elements is too close to reliably discern. This is generally an indication of an improperly set heat, speed, or pressure combination, or the loss of heating element.
- **Defects:** This is a measure of unexpected dark spots in spaces or light spots in bars. It is generally an indication of a poor ribbon or media combination, a burnt pixel, or the printhead needs cleaning.
- **Encodation:** This occurs when the bar code is not properly encoded. For example, a checksum is incorrect, a required number of characters is not met, or required terminator characters are missing. This is usually an indication of poor form or host application design.
- **Internal Data Format Error:** The bar code data format is invalid.
- **PDF 417 Gap:** This occurs when there are large gap damages (such as ribbon wrinkle, voids, spots, etc.) within the PDF 417 data body code.
- **Percent Decode:** This is a measure of consistency throughout the height of the bar code which indicates the number of good scans as a percentage of total scans. This is usually an indication of large blemishes within the code, such as with a wrinkle.

- **Quiet Zone:** This occurs when the minimum blank zone surrounding the bar code has not been met. This can typically occur in poorly designed forms where bar codes are placed too close to other elements, or the bar code is too close to an edge of the media, or the position of the media is shifting.
- **(Symbol) Contrast:** This occurs when the contrast between bars and spaces is not sufficient. This can be due to excessively light printing from too little heat on the printhead. It is also caused by colored media or ribbons.
- **Modulation:** This occurs when the ratio of the Minimum Edge Contrast and Symbol Contrast is below 40%.
- **Minimum Reflectance:** This occurs when the reflectance value for at least one bar in a bar code is not half or less than the highest reflectance value for a space.
- **Minimum Edge Contrast:** This error occurs when the Minimum Edge Contrast value is less than 15%.

In a bar code, each transition from a space to a bar (or a bar to a space) is an edge whose contrast is the difference between the peak values in the space and bar reflectance. Each edge in the bar code is measured, and the edge that has the minimum contrast is the Minimum Edge Contrast.

It is possible that more than one failure message can be reported in a bar code report. However, the printer can display only one error message at a time. Thus, when multiple failures are detected, only one message displays and the rest are ignored, based on the following failure priority hierarchy.

Priority	Failure Message	Operator Panel Message
1 (highest)	Encodation	Bar code improper data format
2	Checksum	Checksum Failure
3	Quiet Zone	Bar code quiet zone too small
4	(Symbol) Contrast	Contrast too low Check media
5	Percent Decode	Poor scanning Check media
6	Defects	Poor scanning Inspect head
7	Decodeability	Unscannable code Check media
8	PDF 417 Gap	Poor scanning Check media

Priority	Failure Message	Operator Panel Message
9	Calibration	Calibration Warning
10	Overall Grade Failure	Overall Grade Failure
11	Internal Data Format Error	Error Data invalid
12	Modulation	Modulation Fail Check head&heat
13	Minimum Reflectance	RMin Fail Check head&heat
14 (lowest)	Minimum Edge Contrast	Edge Ctst Fail Check head&heat

#### Other Error Messages

- **Calibration Warning:** In some cases, the validator can determine if it is out of calibration. When this occurs, the validator will communicate this condition as part of a bar code report. This condition is considered a warning and the printer will not stop.

**NOTE:** If a bar code failure is also reported in the same bar code report, then failure error handling will take precedence.

When the calibration warning condition is encountered, the message “Validator needs calibration” displays. Normal operation will continue during this warning. To clear the message, press the **PAUSE** key.

Once the message has been cleared, perform the calibration procedure (see “Calibration” in the *Online Data Validator User’s Manual*). Whether or not you perform a calibration will be unknown to the printer. Once the warning message has been cleared, the printer will assume that any problem has been resolved and will function as normal.

- **Overall Grade Failure:** This is an overall data validation failure. One or more of the following errors has occurred: Decodeability, Percent Decode, Defects, Modulation, Minimum Edge Contrast (EC Min), Minimum Reflectance (Rmin), and/or (Symbol) Contrast.

The printer’s next action depends on the error action setting. If the Stop mode is selected, printing resumes where the printing stopped. If the Overstrike or Reprint modes are selected, the printer assumes the last label failed and takes the appropriate action. See “Error Action” in the *Online Data Validator User’s Manual*.

**RFID**

This is the message assigned for an RFID failure.

Pass = no RFID failure

Tag Failure = RFID failure

**7. Job ID**

The default is 65535. For future use.

**8. Pages Completed**

The default is 0. For future use.

**Bar Code Data Fields**

These are the available bar code data fields:

Decoded Data	Horizontal Position
Deviation	Vertical Position
Symbology	Good Scans on Code
Letter Grade	Total Scans on Code
Ref Decode	Good Quiet Zones
Decodeability Avg	Lead QZ In X's
Modulation Avg	Trail QZ In X's
Defects Avg	Sync State
Edge Contrast Avg	X Units Times 10
Rmin/Rmax Avg	Percent Good Global Thresholds
Symbol Contrast Avg	PDF 417 Gap Failure
PCS Avg	Decodeability Failure
R(White) Avg	Defects Failure
R(Black) Avg	Percent Decode Failure
Ratio Avg	Quiet Zone Failure
Bar Deviation Avg	Symbol Contrast Failure
Minimum Bar Dev Avg	Encodation Failure
Maximum Bar Dev Avg	Checksum Failure
Quiet Zone	Calibration Warning
Percent Decode Average	Overall Grade Failure
Absolute X Dimension	Internal Data Format Error
Overall Symbol Grade Avg	Modulation Failure
Direction	Minimum Reflectance Failure
Checksum	Minimum Edge Contrast Failure
Self Check	Disregard Quiet Zone Failures
Symbology and Addendum	Disregard Contrast Failures



For an introductory description of the bar code data fields, see the *Layman's Guide to ANSI X3.182*.

For a complete description, see the *ANSI INCITS 182-1990 (R2002) Guideline for Bar Code Print Quality* available from the American National Standards Institute at <http://www.ansi.org/>.

### **RFID Version 1 Data Fields**

These are the available RFID Version 1 data fields:

- RFID Tag Failure
- Pre-Checked
- Sequence Number
- Retry Number
- Error Count
- Tag Type
- Failed Tag Count
- Tag Write Count
- Data Length
- Raw Data

Refer to the *RFID Labeling Reference Manual* for a description of these fields.

### **RFID Version 2 Data Fields**

These are the available RFID Version 2 data fields:

- RFID Tag Failure
- Pre-Checked
- Sequence Number
- Retry Number
- Error Count
- Tag Type
- Failed Tag Count
- Tag Write Count
- Data Length
- Raw Data
- Total Data Length
- Operation Type
- Field Type

Refer to the *RFID Labeling Reference Manual* for a description of these fields.



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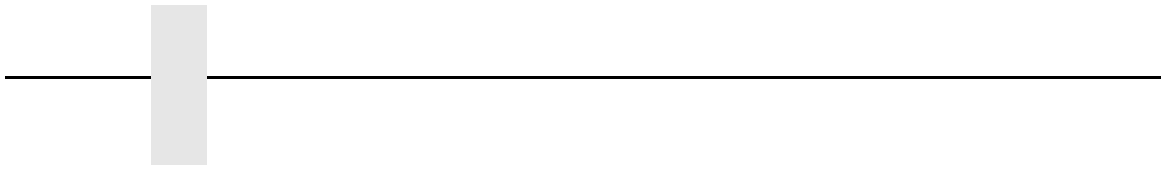
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