PHASERSHARE® NETWORKING
Manual

Tektronix®

PhaserShare® Networking Manual

Contents

PhaserShare Networking Supplementary Information

This manual contains supplementary information to your printer's networking setup guide. The following is an overview of the contents:

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■ *Setting IP addressing: PostScript utility file (UNIX only)* on page 9. Setting the printer's IP address in a UNIX environment using a PostScript utility file on the printer's CD-ROM.

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Token Ring

Token Ring card

The printer can be connected to a Token Ring network using an optional Tektronix PhaserShare Token Ring Card.

The PhaserShare Token Ring port conforms to the IEEE 802.5 standard. With the PhaserShare Token Ring card, you can connect the printer directly to a Token Ring network using shielded twisted pair (STP; IBM Type 1) or unshielded twisted pair (UTP; IBM Type 3) cables. Contact your dealer to obtain adapters and cables.

Note

> To fully comply with EMI specifications, the use of shielded or screened cables may be required. *Shielded* describes IBM-defined cables used with the DB-9 connector. *Screened* describes cables that are electrically similar to Category 4 UTP, but with an added shield or screen.

When a PhaserShare card is purchased initially with the printer, it is installed at the factory. When a PhaserShare card is purchased later as an upgrade kit, follow the installation instructions that are shipped with the card.

When a PhaserShare Token Ring card is installed in the printer, the printer's built-in Ethernet connector is disabled.

Note

> To avoid damaging the network interface, turn off the printer before making any Token Ring connections.

Token Ring connections and indicators

The PhaserShare Token Ring card has the following connections and indicators on the rear panel:

1. Shielded Twisted Pair (STP; IBM Type 1) connector (DB-9).

   Note

   > The STP port on the PhaserShare Token Ring card supports cable lengths up to 150 meters (492 feet) from the interface to the MAU (Medium Access Unit), including lobe and patch cables.

2. Unshielded Twisted Pair (UTP; IBM Type 3) connector (RJ-45).

3. Ring speed indicator (yellow); *on* indicates 16 Mbps, *off* indicates 4 Mbps.

4. TX indicator (yellow); *blinks* while the interface is transmitting.

5. Connection indicator (green); *on* indicates that the card is asserting its ring insertion control signal.

6. RX indicator (green); *blinks* while the interface is receiving.
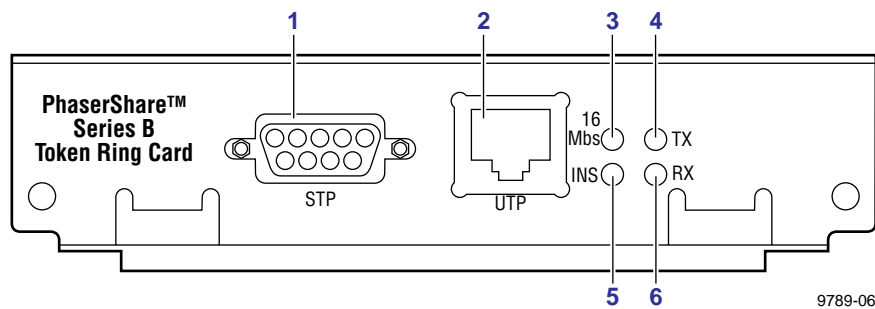
Ring speed jumper

The Token Ring card is equipped with a single three-pin jumper to set the ring speed. There are two settings: 4 Mbps and 16 Mbps.

Note

> If you received your printer with the Token Ring card already installed, you must turn off the printer and remove the card before you change the jumper setting.

The following illustration shows a top view of the card and the location of the jumper.

1. Rear panel

2. Jumper

16 Mbps   4 Mbps

9789-03
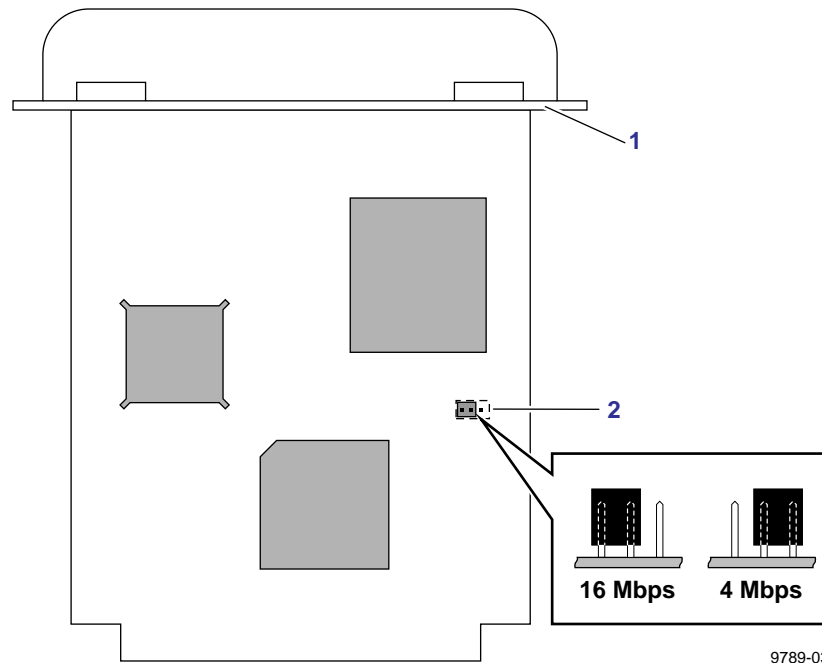
Token Ring parameters

Parameter	Description	Choices
Network Address	Token Ring Address (by default, this is a bit-swapped version of the printer's Printer ID, and it is a unique address on the network). You can supply a Locally Administered Address.	Any valid Token Ring address between 40.*xx.xx.xx.xx.xx* and 7F.*xx.xx.xx.xx.xx*.
Speed	Reports the ring speed set by the jumper on the card.	4 Mbps or 16 Mbps.
Early Token Release	The printer releases the token at the end of the last byte transmitted (not applicable at 4 Mbps).	Enabled (default) or Disabled
Adapter Status	Reports the Token Ring card status. The report is in two parts, separated by a comma: *Adapter status*, *Details* *Adapter status* reports the condition of the Token Ring card. *Details* reports additional information.	**Adapter status:** Adapter Initializing. Card is starting up. Adapter Open. Card is connected to the network. Adapter Closed. Card is not connected to the network. Adapter Fault. Card is defective. **Details:** Ring OK. Ready for network communication. Fault. Internal error; the card is defective. Cable Disconnected. Cable is not connected to the card. Ring Error. Network problem. Removed by network management. The network administrator has disabled the connection.
Route Cache Size	The number of entries in the source route table.	10 to 300.
Route Cache Timeout	The time in seconds that an entry remains in the source route table before being updated.	5 to 65535.
Broadcast	For broadcasting to all network nodes. Changes the default frame type for source route broadcasts. **Broadcast** is ignored if **Frame Routing** is set to **Transparent.** Note: Some protocols (such as IP) always use all routes, so they are not affected by this parameter.	Single Route. The printer uses single-route broadcasts for most source-route broadcasts. All Routes. The printer uses all-routes broadcasts for all broadcasts.
Unknown Route	Used when the printer is searching for a route to a specific network node. Changes the default frame type for source route broadcasts. **Unknown Route** is ignored if **Frame Routing** is set to **Transparent**. Note: Some protocols (such as IP) always use all routes, so they are not affected by this parameter.	Single Route. The printer uses single-route broadcasts for most source-route broadcasts. All Routes. The printer uses all-routes broadcasts for all broadcasts.

Setting Token Ring parameters

■ On UNIX systems, you can use the script *config-TokenRing*, provided with the printer's network utilities software. See *Using the config-TokenRing script* on page 7.

■ On PCs, you can edit the PostScript utility file *TOKNCFG.PS* and send it to the printer. See the *README* file in the *UTILS* directory on the printer's CD-ROM for details.

■ On a Macintosh, you can edit the PostScript utility file *Configure Token Ring* and send it to the printer. See the *ReadMe* file in the *Network Utilities* folder on the printer's CD-ROM for details.

■ Windows users on NetWare networks can use the PhaserShare Administrator. See *Using the PhaserShare Administrator to configure Token Ring* on page 6.

■ With a TCP/IP connection and a World Wide Web browser, you can use PhaserLink Printer Management Software. See *Using PhaserLink Printer Management Software to configure Token Ring* on page 7.

Whichever method you use, you must reset the printer to make the changes take effect. For more information about resetting the printer, see *Resetting the Printer* on page 40.

Using the PhaserShare Administrator to configure Token Ring

1. In the PhaserShare Administrator **Main** window, select the desired printer from the **Printer List.**

2. Click **Configure Printer;** this displays the **Configure Printer** dialog box.

3. In the **Configure Printer** dialog box, click the **Token Ring** tab.

4. In the **Token Ring** tab, set the Token Ring parameters as desired.

5. Click **OK.**

6. You are prompted to reset the printer. You must reset the printer before the changes take effect. For more information about resetting the printer, see *Resetting the Printer* on page 40.

Using PhaserLink Printer Management Software to configure Token Ring

Once a TCP/IP connection to the printer has been established and the printer's IP address is set, you can visit the printer's Status page from your web browser by entering the printer's URL (Uniform Resource Locator), just as you would to visit any web site. The printer's URL is:

http://*printer's-IP-address***/**

where *printer's-IP-address* is the IP address or DNS name you set during TCP/IP configuration.

Example using IP addess: **http://192.1.1.1/**

Example using DNS name: **http://Tektronix_Marketing/**

1. Connect to the printer via PhaserLink (as described in the preceding paragraphs).

2. On the left side of the page, click **Settings.**

3. In the **INTERFACES** group, click **PhaserShare Token Ring Card.**

4. Enter the Token Ring parameters in the fields on the page.

5. Click **Apply** to save your changes.

6. You must reset the printer before the changes take effect. For more information, see *Resetting the Printer* on page 40.

Using the *config-TokenRing* script

The UNIX shell script *config-TokenRing* is provided with the printer's network utilities software. The script creates a PostScript file containing the Token Ring parameters. Set the Token Ring parameters by sending the PostScript file to the printer.

Before performing this procedure, you must install the script on your host computer. If you have not already installed the file, see *Extracting files from unix.tar* on page 24. Your host spooling system must also be configured; see *TCP/IP Host Configuration (UNIX)* on page 24.

1. Connect the printer to the network. ARP (Address Resolution Protocol) requires that the printer be connected on the same physical network segment as the host. You will be using the **arp** command later in this procedure.

2. Log in.

3. Run the script *config-TokenRing:*

   a. Change (**cd**) to the *bin* subdirectory in the directory where you placed your printer's network utilities.

   b. Type the name of the script, redirecting the output to a file. Type:

      config-TokenRing > *filename*

4. When prompted by the script, enter the Token Ring parameters.

5. When the script is finished, log in as **root.**

6. Make an entry into the host's ARP (Address Resolution Protocol) table defining the printer's Printer Name/Token Ring address pair. In general, this requires a command corresponding to one of the following syntax examples:

   arp   -s   *printer-name   Token-Ring-address*   (for BSD systems)

   or

   arp   -s   ether   *printer-nam e   Token-Ring-address*   (for System V)

   See the documentation for your host system for specifics of this command.

7. Turn on the printer.

8. Use the host spooling system (for example, **lpr** or **lp**) to send the file you created in Step 3b to the printer; this stores the Token Ring information in the printer's internal memory, where it is retained over a reset or power cycle.

9. You must reset the printer before the changes take effect. For more information, see *Resetting the Printer* on page 40.

Setting IP addressing: PostScript utility file (UNIX only)

Use the *config-IP* script to create a PostScript file that sets the printer's IP addressing parameters. The *config-IP* script is provided with your printer's network utilities software.

■ The output of the script is PostScript code, which you must send to the printer. When you run the script, redirect the output to a file. Then send the file to the printer.

■ The script prompts you to provide certain information. For information about these prompts, see the next table, *IP addressing parameters.*

The advantage of this method is that each printer has a permanent setup stored in memory and is not dependent on a boot server for boot information. The disadvantage is that you must configure each printer individually.

Before performing this procedure, install the files from your printer's network utilities software on to your host computer. If you have not already installed the files, see *Extracting files from unix.tar* on page 24.

The IP parameters are listed in the following table. For the procedure, see *Running the config-IP script.*

IP addressing parameters

Parameter	Description
Use BOOTP/DHCP	Yes/no. Specifies whether the printer should get its IP address from a BOOTP or DHCP response at power-up (default is **yes**). Answer **no** for a printer-based configuration; this prevents BOOTP or DHCP packets from appearing on the network when the printer is turned on or reset.
IP address	Printer's address on a network. Format is x.x.x.x, where x represents a decimal number from 0 - 255. Must be a valid IP address and not 0.0.0.0, 255.0.0.0, any address starting with 127, or any address ending with 255.
Network mask	Needed in networks that use sub-netting. If you are not using sub-netting, leave this blank; the printer will choose an appropriate mask. Format is *x.x.x.x,* where *x* represents a decimal number from 0 - 255.
Broadcast address	Address the printer uses to send broadcast packets. Format is *x.x.x.x,* where *x* represents a decimal number from 0 - 255. If you are unsure, leave this blank; the printer chooses an appropriate address.
Default gateway (router)	Address the printer uses to communicate with devices not on the same network segment. Format is *x.x.x.x,* where *x* represents a decimal number from 0 - 255.

Running the *config-IP* script

1. Connect the printer to a network. ARP (Address Resolution Protocol) requires that the printer be connected on the same physical network segment as the host.

2. Run the script *config-IP*:

    a. In the directory where you placed your printer's network utilities, change (**cd**) to the *bin* subdirectory.

    b. Type the name of the script, redirecting the output to a file. Type:

    config-IP > *filename*

3. Enter the information when prompted by the script.

    Note

    > The script accepts IP addresses that have empty fields (for example, 123..40.10). The script does not detect this error. Double-check the IP addresses you enter.

4. Log in as **root.**

5. Make an entry into the host's ARP table defining the printer's IP/hardware address pair. In general, this requires a command corresponding to one of the following examples:

    arp -s *printer-IP-address   hardware-address*   (for BSD systems)

    > *or*

    arp -s ether *printer-IP-address   hardware-address*   (for System V)

    See your host system documentation for specifics of this command.

    Note

    > The hardware address in the **arp** command example is the printer's Ethernet Address for PhaserShare Ethernet interfaces or the Token Ring Address for PhaserShare Token Ring cards.

6. Turn on the printer.

7. Execute the **ping** command from the host:

    ping   *printer-IP-address*

8. Use the host spooling system (for example, **lpr** or **lp**) to send to the printer the file you created in Step **2b.** This stores the IP addressing information in the printer's internal memory, where it is retained over a reset or power cycle. (For more information on setting up queues, see *TCP/IP Host Configuration (UNIX)* on page 24.)

9. Reset the printer.

Windows NT (non-Intel computers)

These procedures are valid for Windows NT version 3.x and 4.x. For information about driver installation for later versions of Windows NT, contact Tektronix technical support or visit the Tektronix web site:

www.tek.com/Color_Printers/support/

Setting the printer's IP address

There are three ways to set the printer's IP address:

■ **Use the printer's front panel.** For more information, see your printer's networking setup guide.

■ **Use DHCP.** For more information, see your printer's networking setup guide.

■ **Download a PostScript utility file.** For more information, see the *README* file on the printer's CD-ROM. The *README* file is in the *UTILS* directory.

Adding the Windows NT 4.0 driver on a Windows NT 4.0 server or workstation

The Windows NT 4.0 PostScript driver is a PPD-based driver. Follow these instructions to add or update the Tektronix Phaser PPD for use with Windows NT 4.0. Adding this support gives your printer access to Tektronix page sizes, tray selection, TekColor color corrections, and resident fonts.

This update procedure provides printer page-size information for Windows NT applications. These instructions assume a basic familiarity with Windows NT operation and terminology. For additional information about Windows NT, refer to your Microsoft Windows NT documentation.

Note

You may need the Windows NT 4.0 CD-ROM or your printer's software CD-ROM to complete this procedure.

Add the printer

1. Log in as Administrator or a user with administrator privileges.

2. Click **Start, Settings,** and **Printers.**

3. In the **Printers** dialog box, double-click **Add Printer.**

   ■ If you intend to do your printer management from this computer, click **My Computer.** The rest of this procedure applies when you click **My Computer.**

   ■ If you intend to do your printer management from another computer, click **Network Print Server.** In this case, you need only enter the printer's name in the **Printer** field and click **OK.** The rest of this procedure does not apply.

4. Click **Next.**

5. If the printer is connected directly to the computer, select the port the printer is connected to:

   a. **LPTx** is for a parallel-printer connection.

   b. **COM** is for a serial-connected printer.

6. If the printer is connected to a network, click **Add Port.** Tektronix printers support two types of network ports, LPR and AppleTalk. The next topic covers LPR ports; for information on AppleTalk ports, see *Creating an AppleTalk port* on page 13.

Creating an LPR port

1. To connect via TCP/IP, double-click **LPR Port** in the **Printer Ports** dialog box. If **LPR Port** is not listed in this box, the Microsoft TCP/IP Printing Service must be installed on the NT machine:

   a. Click **Start, Settings, Control Panel,** and **Network.**

   b. Click **Services,** then click **Add.**

   c. Select **Microsoft TCP/IP Printing,** then click **OK** and install this service. The original Windows NT distribution CD-ROM is needed during installation.

   Note

   > The TCP/IP protocol must also be installed on the server. Click the **Protocol** tab to verify if it is installed. See your Windows NT documentation for details. Reboot Windows NT after installing TCP/IP.

2. In the **Add LPR compatible printer** dialog box, enter the printer's IP address or DNS name in the box labeled **Name or address of server providing lpd.** In the box marked **Name of printer or print queue on that server,** enter **PS** or **AUTO** in uppercase. Click **OK.**

3. When returned to the **Printer Ports** box, click **Close.**

4. At the **Add Printer Wizard** dialog box, click the box next to this new port; a check mark is added. Click **Next.**

Creating an AppleTalk port

1. In the **Printer Port** dialog box, double-click **AppleTalk Printing Devices.**

2. In the **Available AppleTalk Printing Devices** dialog box, select the zone where the printer resides. If no zone name appears, double-click the zone icon.

3. Windows NT searches for all AppleTalk devices in that zone and displays a list; double-click your printer.

4. Windows NT prompts you to capture the printer; click **No.** (Capturing the printer causes it to disappear from the **Chooser.**)

5. After adding the printer port, click the box next to the new port to select it; click **Next.**

Install the driver

1. In the **Add Printer Wizard** dialog box, click **Have Disk** to add a new Tektronix driver.

2. Type the path name to the driver files. This can be `A:\` if the files are on a diskette. If these files were downloaded from an on-line service, type the path name where they were saved. Click **OK.**

3. Select the printer model and click **Next.**

4. If prompted that a driver is already installed for this printer, select **Replace existing driver.** Click **Next.**

Name the printer and set up sharing

1. Type the printer's name; this can be any name you want. If the Windows-based applications are to use this printer as the default printer, click the appropriate box. Click **Next.**

2. If this printer is to be shared on the network, click **Shared** and click all applicable platforms that may be printing to this printer. If desired, enter a **Share Name** for the printer. If the printer is a local printer only, click **Not shared.** Click **Next.**

Windows NT creates the printer

1. If you want Windows NT to print a test page after installing the printer driver, click **Yes** (recommended). If you do not want the Windows NT test page, click **No.** When finished, click **Finish.**

2. At this point, Windows NT is ready to create the printer. You may need the original Windows NT distribution CD-ROM or your printer's software CD-ROM to complete this step. Once the CD-ROM is installed, type the drive letter or path name to the files requested. On the Windows NT CD-ROM, the files are usually in the *I386* directory for Intel-based Windows NT servers. Click **OK.**

3. If you chose to have a test page printed in Step **1,** check to see if it printed. If the test page printed, click **OK.**

Adding the Windows NT 4.0 driver on a Windows NT 3.51 server

Note

> For proper installation, use the latest Windows NT 3.51 drivers and Windows NT 4.0 drivers, available from the Tektronix web site
>
> **www.tek.com/Color_Printers/support/**

The following procedure describes how to set up the Windows NT 3.51 server to automatically load a Windows NT 4.0 driver on a Windows NT 4.0 client.

Note

> You must have Administrator access on the Windows NT 3.51 server.

Add the printer

1. From a Windows NT 4.0 client, click the right-mouse button on **Network Neighborhood.** Select **Find Computer.**

2. Type the name of the Windows NT 3.51 server. Press **Enter.**

3. Double-click the Windows NT 3.51 server icon.

4. Double-click the Windows NT 3.51 server's **Printers** folder.

5. In the Windows NT 3.51 server's **Printers** folder, double-click **Add Printer.** (If you do not have an **Add Printer** icon, then you are not logged on with an account that has Administrator access on the Windows NT 3.51 server.) The first **Add Printer Wizard** dialog box should say **Remote print server <3.51 server name>.**

6. Select the port where the printer is connected.

   ### Note

   > You cannot create a port on the Windows 3.51 server from the Windows 4.0 client; create the port on the Windows 3.51 server. After the port is created, you can select that port from the Windows 4.0 client.

Install the driver

1. In the **Add Printer Wizard** dialog box, click **Have Disk** to add a new Tektronix driver.

2. Type the path name to the driver files. This can be **A:** if the files are on a diskette. If these files were downloaded from an on-line service, type the path name where they were saved. Click **OK.**

3. Select the printer model and click **Next.**

Enter the printer's name and set up sharing

1. Type the printer's name; this can be any name you want. Click **Next.**

2. If this printer is to be shared on the network, click **Shared** and highlight all applicable platforms that may be connecting to this server (**Windows NT 4.0 x86** should be one). If desired, enter a **Share Name** for the printer.

Windows NT creates the printer

1. If you want Windows NT to print a test page after installing the printer driver, click **Yes** (recommended). If you do not want the Windows NT test page, click **No.** When finished, click **Finish.**

2. When prompted for the Windows NT 3.51 CD-ROM, insert it into your computer's CD-ROM drive and click **OK.**

3. Type the path name to the driver.

   ### Note

   > For proper installation, you must use the latest Windows NT 3.51 drivers and Windows NT 4.0 drivers, which are available from the Tektronix web site:
   >
   > **www.tek.com/Color_Printers/support/software.html**

The printer should now exist on the Windows NT 3.51 server and have Windows NT 4.0 drivers available. Now any Windows 4.0 client can use that shared printer, and the driver is installed automatically.

Adding a Windows NT 3.x driver

This update procedure provides printer page size information for Windows NT applications. However, TekColor color corrections and other PostScript Level 2 features are not supported by the Windows NT driver. Refer to your printer's user documentation for instructions on other ways of selecting color corrections. Refer to your Microsoft Windows NT documentation for details on features in the Windows NT driver.

These instructions assume a basic familiarity with Windows NT operation and terminology. For additional information about Windows NT, refer to your Microsoft Windows NT documentation.

1. Start your system with **Windows NT.**

2. From the **Main** window, double-click the **Print Manager** icon.

3. Install the Tektronix printer. From the **Printer** menu, select **Create Printer;** the **Create Printer** dialog box appears.

4. Under **Driver,** scroll to the end of the list and select **Other;** the **Install Driver** dialog box appears.

5. When prompted, do one of the following.

   ■ **If you are using the printer's CD-ROM:** Type the CD-ROM drive location. Click **OK;** the **Select Driver** dialog box appears.

   ■ **If you are using the printer's software for Windows diskette:** Type the diskette drive location. Click **OK;** the **Select Driver** dialog box appears.

6. Under **Printer Driver,** choose your printer from the list, then click **OK.**

   Note

   > If you are using older drivers, you get a series of **Noncritical Errors** stating that Windows NT is unable to open the *PSCRIPT.DLL* file and the *PSCRIPT.DRV* files. Click **Ignore** or update your driver.

7. Under **Print to,** scroll to the end of the list and select **Other;** the **Printer port** dialog box appears. Tektronix printers support two types of network ports in Windows NT: LPR and AppleTalk. The next topic covers LPR ports; for information on creating an AppleTalk port, see *Creating an AppleTalk port* on page 17.

Creating an LPR port

1. In the **Printer Port** dialog box, click the **LPR** port. If the LPR port is not listed in the **Printer Port** dialog box, the Microsoft TCP/IP Printing Service needs to be added to the Windows NT machine:

   a. In the **Control Panel,** double-click **Network;** the **Network Settings** dialog box appears.

   b. In **Network Settings,** click **Add Software;** the **Add Network Software** dialog box appears.

   c. In the **Add Network Software** dialog box, click the drop-down menu for **Network Software.** In the list, select **TCP/IP Protocol and Related Components,** then click **Continue;** the **TCP/IP Installation** dialog box appears.

   d. In the **TCP/IP Installation** dialog box, select **TCP/IP Network Printing Support.** (Consult your Windows NT documentation for information on other TCP/IP options.)

   e. Click **Continue** to install this service. The original Windows NT distribution diskettes are needed during installation. To apply these changes, restart Windows NT.

2. In the **Add LPR compatible printer** dialog box, enter your printer's IP address in the field named **Name or address of server providing lpd.** In the field named **Name of printer or print queue on that server,** enter **PS** or **AUTO** in UPPERCASE letters.

Creating an AppleTalk port

1. In the **Printer Port** dialog box, double-click the **AppleTalk Printing Devices** port. If the **AppleTalk Printing Devices** port is not listed in the **Printer Port** dialog box, the Microsoft Services for Macintosh needs to be added to the Windows NT machine:

   a. In **Control Panel,** double-click **Network;** the **Network Settings** dialog box appears.

   b. In the **Network Settings** dialog box, click **Add Software;** the **Add Network Software** dialog box appears.

   c. In the **Add Network Software** dialog box, click the drop down menu for **Network Software.** In the list, select **Services for Macintosh,** then click **OK** to install the service. The original Windows NT distribution diskettes are needed during installation. To apply these changes, restart Windows NT.

2. In the **Available AppleTalk Printing Devices** dialog box, select the zone where the printer resides. If no zone name appears, double-click the zone icon.

3. Windows NT searches for all AppleTalk devices in that zone and displays a list; double-click your printer.

4. Windows NT prompts you to capture the printer; click **No.** (Capturing the printer causes it to disappear from the **Chooser.**)

Set up sharing

If this printer is to be shared on the network, perform the following steps:

1. In the **Create Printer** dialog box, check the option **Share this printer on the network.**

2. Enter any name you want for the **Share Name.**

Windows NT network communication

Basic concepts of TCP/IP printing

In Windows NT, printing via TCP/IP is accomplished using the LPR (Line Printer Request) protocol. Because LPR was developed for UNIX systems, comparing Windows NT and UNIX implementations may be helpful.

The LPR protocol is a host-to-host protocol, rather than a host-to-printer protocol. When printing via LPR, the computer sending the print job assumes that it is sending the job to another computer, or *print server*, which sends the job to the printer. In UNIX terminology, the print server is called a *remote host*. The print server can have several printers connected to it. The way to differentiate between different printers when spooling to the print server is to print to a specific *remote queue*.

The following table summarizes these concepts of TCP/IP printing and the terminology used in UNIX and Windows NT environments.

Concept	Description	UNIX term	NT term
Print server	An IP address or a DNS name that is mapped to this address. This is how your computer knows where to send the print job.	Remote host	**Name or address of host providing LPD**
Print queue	For Tektronix printers, this is **PS** (PostScript) or **AUTO** (AutoSelect).	Remote printer queue name	**Name of printer on that machine**

Your Tektronix printer emulates a print server. Tektronix printers are accessed by giving an NT host a remote host name that will point to the printer. This is true only if the print job is spooled directly to the printer via its internal network interface, and not through an external third-party print server. If the print job is spooled through an external third-party print server, the remote host name is the TCP/IP address of the print server and the remote queue name is the name of the queue for that print server.

Windows NT network troubleshooting

Error messages in Print Manager

When there is a problem printing from Windows NT, often print jobs stay in Print Manager with ambiguous messages like **Printer Error** or **Permission denied.** If the printer is connected via TCP/IP, there is probably a problem with the way LPR was set up.

Begin troubleshooting by opening the **Event Viewer** in the **Administrative Tools** program group. When it opens, click **Log,** scroll down, and select **Application.** Look at any of the error messages that say **LPR Print Monitor.** Double-clicking the error message tells you more information about the error. The following topics deal with specific errors reported in the **Event Viewer.**

Printer PS on host *IP-address* is rejecting your request

At the MS-DOS command prompt in Windows NT, type the ping command in the following format:

ping *IP-address*

For example:

ping   192.1.1.2

■ If the printer does not reply or the request times out, either the printer does not have an IP address, or the NT host cannot find the printer.

  ■ If the printer does not have an address, assign one as described in your printer's networking setup guide.

  ■ If the printer has an IP Address, your printer could have a faulty network connection or a defective network card.

■ If the printer does respond, disconnect the printer from the network and send the ping command again.

  ■ If you get a response this time, there is a duplicate IP address on the network. Make sure that all devices on the network have a unique IP address.

  ■ If you do not get a response this time, the printer's IP address is valid, but LPR may be disabled on the printer. Print a Configuration Page and look under LPR. For instructions on how to print a Configuration Page and enable protocols, see your printer's networking setup guide.

Printer *printer-name* on host *IP-address* is rejecting your request

The remote queue name is not correctly set. Refer to Step **2** in the appropriate procedure:

■ Windows NT 4.0 driver on Windows NT 4.0 server. See *Creating an LPR port* on page 12.

■ Windows NT 3.x driver. See *Creating an LPR port* on page 16.

Printer PS on host *IP-address* is unreachable

or

The LPR print monitor failed to open a temporary file while spooling output for port *IP-address*:PS

With this problem, you can print all PostScript jobs when logged into the NT Server as administrator, but users cannot print. Users cannot print because they lack the permissions to spool to the system file areas.

This problem is frequently encountered after applying Service Pack 2, 3, or 4 to a Windows NT 3.51 print server installed on an Windows NT File System (NTFS) partition. Windows for Workgroups, Windows 95, and other clients will no longer be able to print to shared LPR printers (print queues on Windows NT which are using LPR to reach their destination).

Service Pack updates change the permissions of the *SPOOL* and *PRINTERS* sub-directories to be *read-only* (write-protected). Also, an administrator could easily do this (for security reasons) without a Service Pack Update.

To fix this problem in Windows NT 4.0:

1. Log in as administrator.

2. Double-click **My Computer.**

3. Open the folder **C:\Winnt\system32.**

4. Set permissions on the **spool** folder:

   a. Click the right mouse button on the **spool** folder.

   b. In the pull-down menu, click the left mouse button on **Sharing;** this displays the **Printer Properties** dialog box.

   c. Click **Security.**

   d. Click **Permissions;** this displays the **Directory Permissions** dialog box.

   e. In the **Directory Permissions** dialog box, click **Everyone.** From the **Type of Access** pull-down list, select **Full Control.**

   f. To close the **Directory Permissions** dialog box, click **OK.**

   g. To close the **Printer Properties** dialog box, click **OK.**

5. Set permissions on the **Printers** folder:

    a. In the **C:\Winnt\system32** folder, open the **spool** folder.

    b. Click the right mouse button on the **Printers** folder.

    c. In the pull-down menu, click the left mouse button on **Sharing;** this displays the **spoolProperties** dialog box.

    d. Click **Security.**

    e. Click **Permissions;** this displays the **Directory Permissions** dialog box.

    f. In the **Directory Permissions** dialog box, click **Everyone.** From the **Type of Access** pull-down list, select **Full Control.**

    g. To close the **Directory Permissions** dialog box, click **OK.**

    h. To close the **spoolProperties** dialog box, click **OK.**

To fix this problem in Windows NT 3.1:

1. Log in as administrator.

2. In the **Main** group, double-click **File Manager.**

3. Open the folder **C:\WINNT35\system32.**

4. Set permissions on the **spool** folder:

    a. Click the **spool** folder.

    b. From the **Security** menu, select **Permissions;** this displays the **Directory Permissions** dialog box.

    c. In the **Directory Permissions** dialog box, click Everyone. From the **Type of Access** pull-down list select **Full Control.**

    d. To return to **File Manager,** click **OK.**

5. Set permissions on the **Printers** folder:

    a. In the **C:\WINNT35\system32** folder, open the **spool** folder.

    b. Click the **Printers** folder.

    c. From the **Security** menu, select **Permissions;** this displays the **Directory Permissions** dialog box.

    d. In the **Directory Permissions** dialog box, click **Everyone.** From the **Type of Access** pull-down list, select **Full Control.**

    e. To return to **File Manager,** click **OK.**

Printing from the command line via lpr

To send a PostScript file to the printer using **lpr,** type the following **lpr** command in at the MS-DOS command prompt in Windows NT:

> **lpr -S** *IP-address -P PS filename*

For example:

> **lpr -S 134.62.36.161 -P PS FONTS.PS**

■   If you get the following message, your printer is spooling to the wrong IP address, LPR is disabled on the printing device, or LPR on the printing device is denying access:

> **Error: print server did not accept request.**

> **Job aborted.**

■   If you get the following message, the printer has TCP/IP disabled or your printer is spooling to an invalid IP address:

> **Error: print server unreachable or specified**

> **printer does not exist.**

> Print a Configuration Page and make sure that TCP/IP is still enabled. For instructions on how to print a Configuration Page and enable protocols, see your printer's networking setup guide. Check to see if your printer is spooling to a correct IP address.

> Note
>
> > When using the lpr command at a DOS command prompt when the Name of the print queue is not PS, this message is displayed: **Error: print server did not accept request. Job aborted.**

Checking the IP address of the Windows NT server

If you have tried the techniques described in this troubleshooting topic and communication is still not happening, check the IP address of the Windows NT server. If it is in a different class (possibly even a different network number in the same class), it can prevent communication from taking place.

Novell NetWare (DOS)

The printer's CD-ROM contains a DOS application, NWSET, that can be used for configuration in DOS environments. For information on how to use NWSET, see the *README* file in the *NETWARE* directory on the printer's CD-ROM and network utilities diskettes.

■ **NWSET** (Tektronix). Use this application to configure the printer with NetWare 3.x and 4.x. For more information on NWSET, see the *README* file in the *NETWARE* directory of the printer's or CD-ROM.

■ **NWCONFIG.PS** (Tektronix utility file). In DOS environments and other non-Windows environments, you can use this to configure the printer for NetWare 4.x networks. The PostScript code contained in the file *NWCONFIG.PS* is also available in a Macintosh file called *Configure NetWare*. For more information on *NWCONFIG.PS*, see the *README* file in the *UTILS* directory of the printer's or CD-ROM. For more information on *Configure NetWare*, see the *ReadMe* file in the *Network Utilities* directory of the printer's or CD-ROM.

■ **PCONSOLE** (Novell). Use this utility to manage existing queues with NetWare 3.x and 4.x (both Bindery and NDS modes).

TCP/IP Host Configuration (UNIX)

Extracting files from *unix.tar*

The file *unix.tar* contains all shell scripts and other files needed for network configuration in UNIX environments. The file is in UNIX **tar** format. The file is included with your printer's networking software.

Listing the contents of *unix.tar*

Type this command:

> **tar   tvf**   */directory-name*/**unix.tar**

Where *directory-name* is the mount point or the directory that contains the file. For example:

> **tar   tvf   /mnt/unix.tar**

Extracting the files

1. Change (**cd**) to the directory on your workstation where you want the files to reside.
2. Type this command:

> **tar   xvf**   */directory-name*/**unix.tar**

Where *directory-name* is the mount point or the directory that contains the file. For example:

> **tar xvf /mnt/unix.tar**

Adding the printer to the host table

Add the printer's name to the host table and assign an IP address to the printer's name. Depending on your host system, you may do this one of three ways:

- Use NIS (Name Information Server, formerly Yellow Pages).
- Use DNS (Domain Name Server).
- Edit a file (for example, */etc/hosts*). For an example, see *Example installation for a typical BSD UNIX system* on page 26.

Assigning a print queue to the printer

■ For BSD systems, edit the */etc/printcap* file and add a spool directory (for example, to */usr/spool/lpd*).

■ For System V hosts, configure the queue as a remote BSD print queue (support for TCP/IP LPR is required). Specific instructions for the following System V hosts are provided in this manual:

    ■ *Sun Solaris* on page 29.

    ■ *SGI IRIX 5.3 and 6.x* on page 31.

    ■ *IBM AIX 3.x and 4.x* on page 32.

    ■ *Hewlett-Packard HP-UX 9.x and 10.x* on page 34.

Note

    Some UNIX hosts report an error when you configure a print queue that is not currently on the network; ignore this message.

Assigning print queues with PhaserPrint for UNIX

For UNIX environments, Tektronix offers PhaserPrint for UNIX software, which provides fast raster printing and a graphical user interface with push-button control of printer features. For more information on PhaserPrint software, see your printer's networking setup guide.

If you want to print using PhaserPrint for UNIX software, you must use PhaserPrint software to configure your host. Refer to the PhaserPrint for UNIX user manual or the instructions provided with the PhaserPrint for UNIX CD-ROM for configuration information. PostScript and PDF versions of the manual are available from the Tektronix ftp site:

    ftp.tek.com/cpid/UNIX/phaserprint2.1/demo/MANUALS

Required remote printer queue names

The printer's internal LPR queue uses the BSD protocol; its known queues are listed in the following table. These are the only remote queue names that the printer recognizes. If you use another name, the printer automatically defaults to AUTO.

Queue name	Language
PS	PostScript
PCL	PCL (Printer Control Language)
AUTO	Automatic Language Selection (the printer automatically senses the language of the print job and processes it accordingly)

Using PostScript utility files to control printer features from queues

As you set up a spool queue for the printer, you can use the PostScript utility files provided with your printer's software to control printer features (for example, selecting upper or lower paper trays, or selecting print quality modes). See your printer's user documentation for more information on these utility files.

UNIX model files

The printer's CD-ROM contains UNIX model files. These files allow you to access printer features from the UNIX command line by using the **-o** printing option. On the printer's CD-ROM, the file *model.tar* contains the installer for the model files and model files for Sun Solaris, Hewlett-Packard, and IBM AIX workstations.

Example installation for a typical BSD UNIX system

The following procedure is an example spooler configuration that will work for many BSD systems, including SunOS 4.x and 5.x (Solaris 1.x and 2.x) and Digital UNIX.

Modify the */etc/hosts* file to identify the printer to the workstation and modify the */etc/printcap* file to describe the printer to the workstation:

1. Log on to your system as *root*.

2. Make a backup copy of the */etc/hosts* file.

   ### Note

   You need superuser privileges to edit this file.

3. Edit */etc/hosts* and add a line that defines the printer's IP address and its name. The IP address you enter here for the printer must be the same address you specified as the printer's IP address when it was configured. The name is the name by which your workstation identifies the printer. (You will enter this same remote name in your */etc/printcap* file in the next step.)

   Example

   192.1.1.2 Phaser850

   In this example, **192.1.1.2** is the printer's IP address and **Phaser850** is the printer's remote name.

4. Make a backup copy of the */etc/printcap* file.

5. Edit */etc/printcap* and add an entry for your printer. Refer to the following example and the table *Descriptions of printcap parameters* on page 28 to create your entry.

   Sample printcap file

   ```
   # Printer:  Tektronix Phaser850
   # Print queue name: colorprinter
   # Remote machine name:  Phaser850
   # Remote printer queue name:  PS
   # Spool directory:  /usr/spool/lpd/colorprinter
    colorprinter:\
     :lp=:\
     :rm=Phaser850:\
     :rp=PS:\
     :mx#0:\
     :lf=/usr/spool/lpd/ERRORLOG:\
     :sd=/usr/spool/lpd/colorprinter:
   #
   ```

6. Set up spool directories. After you have edited the */etc/hosts* and */etc/printcap* files, create and set permissions for the spool directory you specified.

   Example

   ```
   cd /usr/spool/lpd
   mkdir colorprinter
   chown daemon colorprinter
   chgrp daemon colorprinter
   chmod 770 colorprinter
   ```

   Refer to your UNIX documentation for the correct command syntax for your workstation.

Descriptions of *printcap* parameters

Parameter	Description
lp	Name of the device to open; this parameter must be left empty or set to */dev/null.*
rm	Remote machine name. This is the name by which the workstation identifies the printer; it must match the name in the */etc/hosts* file.
rp	Remote printer queue name. This is the queue name that the printer recognizes. It must be one of the following: ■ PS for PostScript ■ PCL for Printer Control Language ■ AUTO for Automatic Language Selection (the printer automatically senses the language of the print job and processes it accordingly) If you specify any other remote printer queue name, the printer defaults to AUTO. Your printer model may not support all languages listed here. See your printer's user documentation for information on the supported languages. With some printers, PCL must be authorized with an authorization code before it can be used. If you use PCL for the remote printer queue name, make sure that PCL has been authorized in the printer. See your printer's user documentation for more information on authorization codes and PCL.
mx	Maximum file size. Set this parameter to **0** for unlimited file size; this allows the print command to handle large PostScript or image files.
lf	Name of the log file where print command error messages are collected. Some systems have a log file for each print queue. Refer to your workstation's documentation for more information.
sd	Spool directory on your host. Make a separate spool directory for each queue.

Configuration procedures for common System V UNIX hosts

Sun Solaris

For Solaris version 2.6 and later, go to *Adding an LPD queue in Solaris* on page 30. For Solaris 2.5x and older, use the *sol_apps.tar* provided with your printer's networking software to avoid a Solaris communication problem. The *sol_apps.tar* file is also available from the Tektronix ftp site:

ftp.tek.com/cpid/UNIX/sun/sol_apps.tar

This file redirects the print jobs to the printer's AppSocket port (port 9100) instead of the LPD port (port 515).

Note

> If you do not want to redirect the print jobs to the printer's AppSocket port, see *Adding an LPD queue in Solaris* on page 30.

1. Untar the *sol_apps.tar* file by typing this command:

tar -xvf phaser.sun5

The following files are extracted into the indicated directories:

asprint.sun5 to */usr/bin*

tektcp.sun5 to */usr/spool/lp/model*

2. Edit the file */etc/hosts* to create an entry for the printer.

> **Note**
>
> > The network name and the queue name for your printer must be identical for the model file to work.

3. Execute the following commands:

lpadmin -p *queuename* **-v /dev/null -i /usr/spool/lp/model/tektcp.sun5 -I postscript**
enable *queuename*
accept *queuename*

where *queuename* is the name entered for the printer in the */etc/hosts* file.

The print queue is now enabled.

Adding an LPD queue in Solaris

Add the printer to the host table. This is done by either editing the local host table */etc/hosts* (if not running **yp** or **NIS**), or updating the **NIS** data base on the **NIS** (**yp**) server.

Here is an example of how to add a PostScript queue named **phaser** printing to a printer named **tektronix** while in the Bourne shell.

> **/bin/sh**
>
> **lpsystem -t bsd tektronix**
>
> **lpadmin -p phaser -s tektronix!PS -I postscript**

The queue name can be anything you want. The printer name should be the same name used in the host table.

The **!PS** names the remote printer queue name. There are four valid remote printer names: PS, HPGL, PCL, and AUTO.

 Use the following commands to enable the new queue:

> **lpshut /usr/lib/lpsched**
>
> **enable phaser**
>
> **accept phaser**

If Solaris 2.2/2.3 print jobs get stuck in the queue

1. Change directory (cd) to this location:

   > **/usr/spool/lp/temp/***workstation-name*

2. To remove any jobs, type:

   > **rm**

3. Change directory (cd) to this location:

   > **/usr/spool/lp/requests/***workstation-name*

4. To remove any jobs, type:

   > **rm**

5. Type:

   > **kill** *-pid*
   >
   > where *pid* is the process ID number */usr/lib/lpsched.*

6. To restart *lpsched*, type:

   > **/usr/lib/lpsched**

7. Remove any jobs that have not printed from the **Print Tool**.

SGI IRIX 5.3 and 6.x

Modify the */etc/hosts* file to identify the printer to the workstation:

Note

> You need superuser privileges to edit this file.

1. Log onto your system as root.

2. Make a backup copy of the */etc/hosts* file.

3. Edit */etc/hosts* and add a line that defines the printer's IP address and its name. The IP address you enter here for the printer must be the same address you specified as the printer's IP address when it was configured. The name is the name by which your workstation identifies the printer.

IRIX 5.3 and IRIX 6.x with Impressario Client

The following procedure describes how to use the SGI Printer Manager program to configure a workstation running IRIX 5.3 and IRIX 6.x with Impressario Client to support a color PostScript printer.

1. From the **Toolchest**, click **System/Printer Manager**, or type **printers** at the command line.

2. Click **Printer,** then select **Add** from the pull-down menu.

3. Fill in the fields (refer to the following table). Click **OK.**

Field name	Description
New Printer Name	Name of the print queue (this can be anything).
Connection Type	Select **Network**.
Remote Host Name	The name that you entered in your */etc/hosts* file as the remote machine name.
Remote Printer Queue Name	Queue name that the printer recognizes: ■ **PS** for PostScript ■ **PCL** for text ■ **HPGL** for HP7475A ■ **AUTO** for automatic selection.

IRIX 6.x with Impressario Server

The following procedure describes how to use the SGI Printer Manager program to configure a workstation running IRIX 6.x with Impressario Server to support a color PostScript printer.

1. From the **Toolchest**, click **System/Printer Manager**, or type **printers** at the command line.

2. Click **Printer** and select **Add** from the pull-down menu.

3. Fill in the fields (refer to the following table). Click **OK.**

Field name	Description
New Printer Name	Name of the print queue (this can be anything).
Printer Connected To	Select **Local Host**.
Location Code	Optional; may contain information describing the location of the printer.
Location Description	Optional; may contain information describing the location of the printer.
Printer Type	Select one of the **Generic Color PostScript** entries.
Printer is Attached to	Select **Network**.
Printer's Name (or IP Address)	The name that you entered in your */etc/hosts* file as the remote machine name.
Printer is Attached to Network With	Network card Installed in printer.

IBM AIX 3.x and 4.x

Modify the */etc/hosts* file to identify the printer to the workstation:

1. Log onto your system as root.

2. Make a backup copy of the */etc/hosts* file.

   Note

   You need superuser privileges to edit this file.

3. Edit */etc/hosts* and add a line that defines the printer's IP address and its name. The IP address you enter here for the printer must be the same address you specified as the printer's IP address when it was configured. The name is the name by which your workstation identifies the printer.

AIX 3.x

The following procedure describes how to use the AIX System Management program (SMIT) to configure a workstation running AIX 3.x to support a color PostScript printer.

1. Log in as root on your workstation.

2. From the command line, type **smit**.

3. Select **Devices**.

4. Select **Printer/Plotter**.

5. Select **Manage Remote Printer Subsystem**.

6. Select **Client Services**.

7. Select **Remote Printer Queues**.

8. Select **Add a Remote Queue**.

9. Fill in the fields (refer to the following table). To process the information, press **Enter**. Make sure that SMIT finishes with an **OK** in the upper left corner. To return to the first **Printer/Plotter Devices** menu, press **F3**.

Field name	Description
NAME of queue to add	Name of the print queue (this can be anything).
DESTINATION HOST for remote jobs	The name that you entered in your */etc/hosts* file as the remote machine name.
Name of QUEUE on remote printer	The queue name that the printer recognizes: ■ **PS** for PostScript ■ **PCL** for text ■ **HPGL** for HP7475A ■ **AUTO** for automatic selection.
NAME of device to add	Any name.

AIX 4.x

The following procedure describes how to use the AIX System Management program (SMIT) to configure a workstation running AIX 4.x to support a color PostScript printer.

1. Log in as root on your workstation.

2. From the command line, type: **smit**.

3. Select **Print Spooling**.

4. Select **Add a Print Queue**.

5. Fill in the fields (refer to the following table). To process the information, press **Enter**. Make sure that SMIT finishes with an **OK** in the upper-left corner. To return to the first **Printer/Plotter Devices** menu, press **F3**.

Field name	Description
Attachment Type	Select **remote.**
Type of Remote Printing	Select **Local filtering before sending to print server.**
Remote Printer Type	Select **Other**, then **generic**.
Name of NEW print queues to add	Use the down-arrow key to move down to **PostScript**, then enter the print queue name on the right side. This can be anything.
HOSTNAME of remote server	The name that you entered in your */etc/hosts* file as the remote machine name.
Name of QUEUE on remote server	Queue name that the printer recognizes: ■ **PS** for PostScript ■ **PCL** for text ■ **HPGL** for HP7475A ■ **AUTO** for automatic selection.
TYPE of print spooler on remote server	Press **F4** and select **BSD**.
Send PASS-THROUGH FLAG to queue on remote server?	Select **F4** and select **no**.

Hewlett-Packard HP-UX 9.x and 10.x

1. Log in as root on your workstation.

2. Make a backup copy of the */etc/hosts* file.

   ### Note

   > You need superuser privileges to edit this file.

3. Edit */etc/hosts* and add a line that defines the printer's IP address and its remote machine name.

   The IP address you enter here for the printer must be the same address you specified as the Tektronix printer IP address when you configured the printer. For example:

   192.1.1.2   tekphaser

   In this example, **192.1.1.2** is the printer's IP address and **tekphaser** is the printer's remote system name.

4. Use the HP System Administrator Manager program (SAM) to configure an HP workstation. From the command line, type: **sam**.

5. Perform the appropriate step for your HP-UX version:

   ■ **Version 9.x.** Highlight **Printers and Plotters** from the menu. Press **Return** or click **Open**.

   ■ **Version 10.x.** Double-click the **Printers and Plotters** icon.

6. Perform the appropriate step for your HP-UX version:

   ■ **Version 9.x.** Highlight **Printers/Plotters** from the menu. Press **Return** or click **Open**.

   ■ **Version 10.x.** Again, double-click the **Printers and Plotters** icon.

7. From the **Actions** menu, select **Add Remote Printer/Plotter**.

8. Fill in the fields. For example entries and descriptions, see next table, *Fields.* Access SAM's help utility for additional information about these fields.

9. To save your changes, click **OK** at the bottom of the window.

10. When you are asked about sending a test file to the printer, type **no**. (It is recommended that you do not let SAM send a test file because it may not be compatible with your printer.)

11. Exit SAM:

    a. From the **File** menu, select **Exit**.

    b. Click **Exit SAM**.

Fields

Field name	Example entry	Description
Printer Name	phaser360PS	The name you use to access the printer. You can use any name you want.
Remote System name	tekphaser	The name that you entered in your */etc/hosts* file as the remote machine name.
Remote Printer Queue Name	PS	Queue name that the printer recognizes: ■ **PS** for PostScript ■ **PCL** for text ■ **HPGL** for HP7475A ■ **AUTO** for automatic selection.
Remote cancel model	rcmodel	-
Remote status model	rsmodel	-
Printer class (*version 9.x*)	-	Optional
Remote printer is on a BSD system?	-	Check the box for a BSD system.

Troubleshooting

Testing the network connection

Execute the **ping** command from the host. For example, type:

> **ping**   *printer-name*

If the **ping** test to the *printer-name* fails, try issuing the **ping** command again, specifying the printer's IP address explicitly; type:

> **ping**   *printer-IP-address*

If the **ping** test succeeds using the printer's IP address, but fails using the printer's name, check the NIS database, DNS, or *etc/hosts* file to make sure that you are using the correct name for the printer. If the **ping** test fails using the printer's IP address, check the cabling and any gateways to make sure that the printer has a working connection.

Make sure that the printer's IP address and network mask are consistent with the IP address and network mask of your local subnet.

TCP/IP Configuration (OS/2 Warp/LAN Server)

The PhaserShare TCP/IP interface is compatible with these environments:

■ OS/2 Warp with TCP/IP V2.0 for OS/2

■ LAN Server 3.0 or later with the TCP/IP Application Kit.

Before you begin, connect the printer to the network.

Setting the printer's IP addressing parameters

For information on setting the printer's IP addressing parameters, see your printer's networking setup guide and *Setting IP addressing: PostScript utility file (UNIX only)* on page 9.

IBM TCP/IP Version 2.0 for OS/2 includes BOOTP support. Refer to your TCP/IP documentation for installing and configuring BOOTP on a PC.

Note

> In the OS/2 Warp environment, the OS/2 boot server and the printer must be on the same Token Ring.

Edit the *hosts* file to create an entry that identifies the printer's IP address and the printer object name (to be assigned in the next topic). The *hosts* file is in *C:\TCPIP\ETC.*

Creating an LPR queue in OS/2 Warp Connect (direct LPR connection to the printer)

OS/2 Warp Connect allows you to print directly to Tektronix printers via LPR (no server).

Note

> It is important that *LPRPORTD.EXE* and *LPD.EXE* be running in the background. You can set these to run automatically from the **Autostart** tab of the **TCP/IP Configuration** dialog box.

1. Create a *Printer Object.* To do this, use the right mouse button to drag the **Printer** template from the **Templates** folder to the desktop; this displays the **Create a Printer** dialog box.

2. In the **Create Printer** dialog box, enter the name of the printer.

3. If the driver is already installed, select the appropriate driver; if the driver is not installed, you must install it:

   a. Click **Install new printer driver**; this displays the **Install new printer driver** dialog box.

   b. In the **Printer Driver Selection** section, select **Other OS/2 printer driver,** then specify the path to the driver. For example:

   d:\os2drv

   c. Click **Refresh**, then select the new driver from the list. Click **Install** and follow the on-screen prompts.

4. Click the right mouse button on an available **Pipe** port (**0** through **7**) and select **Settings** from the menu; the **Settings** dialog box is displayed. If ports are not selectable or are unavailable, follow these steps:

   a. Select **Install Ports** from **Settings** and enter **C:\TCPIP\DLL** where appropriate. You will only have to do this if no printers were specified when TCP/IP was installed.

   b. This is where the ports that were not available can be selected: **Lpt1-3**, **Com 1-4**, and **Pipe 0-7**.

   c. Once ports are installed, select a **Pipe**, such as **Pipe 1**, then double-click this port.

5. In the **Print Destination** section, make the following entries:

   ■ **LPD server.** The printer's IP address.

   ■ **LPD printer.** The printer's name. The printer's name should be either **PS** or **AUTO** in uppercase letters. It is recommended that you leave everything else blank.

   To return to the **Create Printer** dialog box, click **OK;** then click **Create**.

6. Set the printer as your default printer:

   a. Click the right mouse button on the printer object.

   b. Click **Set default**, then select the new printer object.

OS/2 client-to-server setup

1. Create a network printer object:use the right mouse button to drag the **Network Printer** template from the **Templates** folder; the **Access another network printer** dialog box is displayed.

2. In the **Access another network printer** dialog box, make the following selections from the list boxes:

   ■ **Network.** Network protocol.

   ■ **Server.** Name of the server for the queue.

   ■ **Resource.** Name of the queue.

3. Click **OK**; this creates a network printer object.

4. Click the right mouse button on the network printer icon and select **Settings** from the menu; this displays the **Settings** dialog box.

5. In the **Settings** dialog box, select the **Printer driver** tab. If the driver is already installed, select the appropriate driver; if the driver is not installed, you must install it:

    a. Click the right mouse button on any driver and select **Install** from the menu.

    b. In the **Printer Driver Selection** section, select **Other OS/2 printer driver**, then specify the path to the driver.

    c. Click **Refresh**, then select the new driver from the list. Click **Install**.

Warp Server 4.0/Warp Connect

Warp Server is replacing OS/2 LanServer and also allows printing to Tektronix printers via LPR.

1. Use the procedure under *Creating an LPR queue in OS/2 Warp Connect (direct LPR connection to the printer)* on page 37.

2. Make the new printer available to network clients; see your OS/2 server documentation for details.

Resetting the Printer

Several of the network configuration procedures require you to reset the printer. There are several ways to reset the printer:

■ Turn the printer off, then back on again.

■ With a TCP/IP connection and a World Wide Web browser, you can use PhaserLink Printer Management Software; see *Resetting the printer: PhaserLink Printer Management Software* on page 40.

■ PC and UNIX users can send the PostScript file *RESET.PS* from the printer's utilities software.

■ Macintosh users can reset the printer using the Apple Printer Utility. See *Resetting the printer using the Apple Printer Utility* on page 41.

Resetting the printer by any of these methods restores the printer to its power-on conditions (*not* its factory default conditions). The power-on conditions include any custom changes made to the printer that are stored in the printer's non-volatile memory and are therefore persistent across printer power cycles. For example, the printer's name is a power-on condition that is not altered by resetting the printer.

Resetting the printer: PhaserLink Printer Management Software

1. Enter the printer's URL into a web browser. The printer's URL is:

    http://*printer's-IP-address***/**

    where *printer's-IP-address* is the IP address or DNS name you set during TCP/IP configuration.

    Example using IP addess: **http://192.1.1.1/**
    Example using DNS name: **http://Tektronix_Marketing/**

2. On the left side of the page, click **Settings.**

3. In the **Setup** group, click **Reset Printer.**

For more information on PhaserLink Printer Management Software, see your printer's networking setup guide.

Resetting the printer using the *Apple Printer Utility*

Macintosh users can reset the printer using the *Apple Printer Utility*.

1. Locate the *Apple Printer Utility*, which is included with your printer's network utilities software.

2. Double-click the **Apple Printer Utility** icon; the **Printer Selector** window is displayed.

3. Select the zone (if applicable) and the printer. Click **Open Printer**; a dialog box is displayed containing **Printer Information** and **Printer Preferences**.

4. From the **Utilities** menu, select **Restart Printer**.

FTP Interface

Your printer's FTP interface is a standard FTP server. Using FTP, you can send a job to the printer, where it is printed (not stored). No password is required. You can save a PostScript file from an application and send the file to a remote printer over a network or the Internet using an FTP program.

The printer's FTP directory is *PRINTER:1*, and any files sent there are automatically passed to the printer.

The printer's FTP parameters can be changed using PhaserLink Printer Management Software. For more information on PhaserLink software, see your printer's networking setup guide.

Supported FTP commands

Request	Description
ABOR	Abort previous command.
GET	Retrieve the Job Accounting Log file (jobacct.dat) from the printer.
HELP	Give help information.
MODE	Specify data transfer mode. Note: With the PhaserShare FTP interface, the only transfer mode is **Stream**.
NOOP	Do nothing.
PASS	Specify password.
PASV	Get the server's IP address and port number.
PORT	Specify data connection port.
PUT	Send a file to the printer.
PWD	Print the current working directory.
QUIT	Terminate session
STAT	Report current status. Note: With the PhaserShare FTP interface, optional arguments to this command are ignored.
STOR	Store a file.
STRU	Specify a data transfer structure. Note: With the PhaserShare FTP interface, only **File** and **Record** structures are allowed; the default is **File**.
SYST	Specify operating system of server.
TYPE	Specify data transfer type. Note: With the PhaserShare FTP interface, only **ASCII Non-printing** and **Image** types are allowed; the default is **ASCII Non-printing**.
USER	Specify user name.

Usage Profile Report fields

Use the tables in this topic to interpret the data in the printer's Usage Profile Reports. For more information on setting up Usage Profile, see your printer's networking setup guide.

■   For information on job reports, see the next topic, *Job Report fields*.

■   For information on full reports, see *Full Report fields* on page 44.

■   For information on the logs contained in the full reports, see *Logs* on page 50.

Job Report fields

Field	Description
Printer Name	The printer's name as it appears on the Configuration Page.
Job ID	Job identification number assigned by the printer starting from the last power-up. If known for a given job, these identifications are also provided: Filename, Job Name, User Name, and Host Name; if not known, -- is reported. Certain jobs never have Filename, Job Name, User Name, and Host Name available; for these jobs, only the Job ID is shown, without the hyphens (--). These jobs include scanner jobs, internal pages, and other jobs that job accounting does not log.
Finished at	Date and time when the job was finished.
Duration (mins)	How many minutes the job took to print; rounded to the nearest 0.1 minute.
Media Class	Type of media used for the job (for example: Paper, Transparency).
Media Size	Size of media used for the job (for example: Letter, Legal).
Unique Pages	The number of pages printed, not including multiple copies of pages.
Copies	The number of copies specified for the job.
Total pages	The number of unique pages times the number of copies.
Coverage (%)	The amount of ink placed on the page(s), expressed as a percentage of a fully-covered page. Values are given for Black, Yellow, Magenta, and Cyan, rounded to the nearest 0.1%.
Consumable Use (%)	The amount of ink used, expressed as a percentage of a full ink stick. Values are given for Black, Yellow, Magenta, and Cyan, calculated to 6 decimal places.
Pixels Printed	The number of pixels of each color used. Values are given for Black, Yellow, Magenta, and Cyan, rounded to the nearest K (1024).

Full Report fields

Full Report fields

Field number	Field name	Description
1	Date of Report	The date and time that the report was generated.
2	Activation Date	The date and time that the printer was first turned on.
3	Printer IDs	Serial Number, Ethernet Address, IP Address, Check Code. The Check Code validates the message. The Check Code is included only in emailed reports without labels. The message ID in the email header identifies the message. With the message ID and the Check Code, you can verify the legitimacy of the message and avoid duplicates.
4	Printer Name	The printer's name as specified via the front panel or PhaserLink.
5	Printer Type	The printer model and the class (laser or solid ink).
6	Adobe Firmware	Adobe PostScript version number.
7	Tektronix Firmware	Tektronix version numbers for the engine, PostScript, network, and OS code regions.
8	Installed RAM (MBs)	Megabytes of RAM installed in the printer.
9	Installed Trays - incl. Manual	Number of paper trays in the printer.
10	Accessories	Installed accessories (such as duplexer, scanner, IDE disk, SCSI disk).
101	Report Intervals	Page and time intervals specified in the PhaserLink Usage Profile Setup page.
111	Total Pages & Sheets	Counts of sheets (pieces of paper) printed and pages (sides of a sheet) printed.
112	Total Pixels Printed (1K)	The total number of pixels printed for each color. Values are given in K (1024) for Black, Yellow, Magenta, and Cyan, rounded to the nearest K.
113	Average Coverage (%)	For all pages, the average coverage per page for each color.
114	Coverage - Last 1000 Pages (%)	For the last 1000 pages (approximately), the average coverage per page for each color. The actual number of pages varies between 800 and 1200 due to memory constraints.
121	Paper vs. Transparency (pages)	Count of pages printed on paper, transparency, and other media types.
122	Pixels Printed-Paper (1K)	The number of pixels printed on paper for each color. Values are given in K (1024) for Black, Yellow, Magenta, and Cyan, rounded to the nearest K.

Full Report fields (cont'd.)

Field number	Field name	Description
123	Coverage-Paper (%)	For all paper pages printed, the average coverage per page for each color.
124	Pixels Printed - Transparency (1K)	The number of pixels printed on transparencies for each color. Values are given in K (1024) for Black, Yellow, Magenta, and Cyan, rounded to the nearest K.
125	Coverage - Transparency (%)	For all transparency pages printed, the average coverage per page for each color.
131	Color vs. Black & White (pages)	Count of pages printed as color, black & white, and blank. (Note that when the Color Correction mode is set to Fast Color, all pages are printed in color, thus this line will record them as such, even ones that appear black & white.)
132	Pixels Printed - Black & White (1K)	The number of pixels printed on black and white pages. Values are given in K (1024) rounded to the nearest K.
133	Coverage - Black & White (%)	For pages printed in black and white, the average coverage per page.
134	Pixels Printed - Color (1K)	The number of pixels printed on color pages (pages which are not black and white). Values are given in K (1024) for Black, Yellow, Magenta, and Cyan, rounded to the nearest K.
135	Coverage - Color (%)	For pages not printed in just black, the average coverage per page for each color.
141	1-Sided vs. 2-Sided (sheets)	A set of value pairs in the format Simplex : number of sheets,Duplex : number of sheets. For example, Simplex:5,Duplex3 indicates that 5 single-sided sheets were printed and 3 double-sided sheets were printed.
143	Manual Feed Media (sheets)	A distribution of sheets for all possible media size and type combinations from the Multi-Purpose Tray/Manual Feed, as much as the user has identified it.
144	Cassette Tray Media (sheets)	A distribution of sheets for all possible media size and type combinations from the cassettes.
151	Print Quality (pages)	A distribution of pages for all print qualities.
152	Color Correction (pages)	A distribution of pages for all color correction modes. The Non-PostScript category increments for any pages from a non-PostScript job (such as a PCL job).
161	Sets Printed (pages)	A count of the pages which were in the first set vs. those which were in subsequent sets. Example: for a 5-page, 3-copy job, there are 15 total pages: 5 are first-set-pages, 10 are subsequent-set-pages.
162	Jobs By Document Length	A distribution of jobs based on the length of the document. A set of number pairs in the format unique-page-count range : number of jobs. For example, 2-4:3 indicates that there were 3 jobs that consisted of 2 , 3, or 4 unique pages.

Full Report fields (cont'd.)

Field number	Field name	Description
163	Jobs By Number of Sets	A distribution of jobs based on how many copies of the document were printed. A set of number pairs in the format copy-count range : number of jobs. For example, 2-4:3 indicates that there were 3 jobs that consisted of 2 , 3, or 4 copies.
164	Pages By Document Length	A distribution of the number of pages in a job. Example: for a 5-page, 3-copy job, there are 15 total pages: since this is a 5-page job, the total pages (15) would be added to the group of jobs of the size 5 through 9 pages (5-9).
165	Pages By Number of Sets	A distribution of how many copies were printed for each job. Example: for a 5-page, 3-copy job, there are 15 total pages: since this is a 3-page job, the total pages (15) would be added to the group of jobs of the size 2 through 4 copies (2-4).
171	Job Source	A set of value pairs in the format job-source : number of jobs. For example, EtherTalk:3 indicates that there were 3 jobs printed over EtherTalk. Notes: * non-printing as well as printing jobs are counted on this line. Thus, the total number of jobs in Job Source will usually be higher than in other lines which tally jobs. * the source internal indicates pages like the startup page, the configuration page, and others stored in the printer.
172	Job Language	A set of value pairs in the format job-language : number of jobs. For example, PostScript:3 indicates that there were 3 PostScript jobs printed.
173	Jobs Collated	A set of value pairs in the format No : number of jobs,Yes : number of jobs. For example, No:5,Yes:3 indicates that 5 non-collated jobs were printed and 3 collated jobs were printed.
174	Time Per Job (mins)	A distribution of how long each job took to print. A set of number pairs in the format minutes-range : number of jobs. For example, 2-4:3 indicates that there were 3 jobs that took 2 , 3, or 4 minutes to print.
175	Total Jobs	The total number of jobs that were printed, grouped into printing and non-printing (control) jobs.
176	Cancelled Jobs	The number of jobs that were cancelled.
181	Days Printed	The number of calendar days that the printer was turned on. For example, if the printer was turned on for any amount of time during a day, that day is counted.
182	Pages Per Day	A distribution of the number of pages printed for each day the printer was on, showing how much activity the printer had. A set of number pairs in the format page-count range : number of days. For example, 2-4:3 indicates that there were 3 days in which 2 , 3, or 4 pages were printed.
183	Power On Count	The number of times the power has been switched on.
184	Time On Distribution (hours)	A distribution of the time the printer has been powered on. For example: 10-23:5 indicates that there were 5 periods of on-time lasting between 10 and 23 hours.

Full Report fields (cont'd.)

Field number	Field name	Description
185	Days Since Activation	The number of calendar days since the Activation Date (report line 2). Days Since Activation remains zero until an Activation Date is established.
186	Hours Since Last Power On	Time the printer has been on since just the last time it was switched on.
187	Total Time On (hours)	Total time the printer has been on, in hours.
191	Total Warmup Time (hours)	Total time the printer has been in the warmup state, in hours.
192	Total Offline Time (hours)	Total time the printer has been unavailable for printing, in hours.
193	Total Energy Star Time (hours)	Total time the printer has been in Energy Star mode, in hours.
194	Energy Star Time Distribution (mins)	A distribution of the time the printer has spent in Energy Star mode. For example: 15-29:5 indicates that there were 5 periods of Energy Star lasting between 15 and 29 minutes.
201	JetStack Standby Time (hours)	Total time the printer has been in JetStack Standby mode, in hours.
202	JetStack Standby Time Distribution (mins)	A distribution of the time the printer has spent in JetStack Standby mode. For example: 15-29:5 indicates that there were 5 periods of JetStack Standby lasting between 15 and 29 minutes.
203	Standby Time (hours)	Total time the printer has been in standby mode.
204	Standby Time Distribution (mins)	A distribution of the time the printer has been in standby mode. For example: 15-29:5 indicates that there were 5 periods of on-time lasting between 15 and 29 minutes.
217	Waste Toner Status (%)	The percentage of life used for the waste toner bin.
221	Maintenance Kit Installation Date	Date the last maintenance kit was installed.
222	Maintenance Kit Remaining (%)	The percentage of life remaining for the maintenance kit.
223	Maintenance Kit Remaining (pages)	The remaining life of the maintenance kit expressed as the number of pages that can still be printed.
231	Doors Open	For each access door, the number of times it has been opened.
232	Supplies Replaced	A distribution of the conditions at which each consumable has been replaced, i.e. whether it was low or empty at the time of replacement.
233	Paper Out	For each tray, the number of times it has been emptied (by the printer using media or by the user pulling out the tray; in either case, the paper is out).

Full Report fields (cont'd.)

Field number	Field name	Description
234	Button Presses	The number of times any of the front panel buttons has been pressed.
235	Feature	A distribution of how many times the user has accessed front panel menu settings or printed internal help pages.
251	System Reset Count	Number of times the system has been reset by some internal condition.
252	System Reset Log	Log of the last 5 system reset addresses. (Zero indicates no event.)
253	System Reset Page#	Corresponding page numbers at which the last 5 system resets occurred.
254	System Reset Date Log	Corresponding dates at which the last 5 system resets occurred. In email reports, dates are expressed as the number of seconds elapsed since January 1, 1970.
261	Engine Error Count	Number of times an engine error has occurred.
262	Engine Error Log	Log of the last 10 engine error codes. See *Logs* on page 50.
263	Engine Error Page#	Corresponding page numbers at which the last 10 engine errors occurred.
264	Engine Error Date Log	Corresponding dates at which the last 10 engine errors occurred. In email reports, dates are expressed as the number of seconds elapsed since January 1, 1970.
271	PostScript Error Count	Number of times a PostScript error has occurred.
272	PostScript Error Log	Log of the last 5 PostScript error codes but only if the error handler is enabled via the front panel. See *Logs* on page 50.
273	PostScript Error Page#	Corresponding page numbers at which the last 5 PostScript errors occurred.
274	PostScript Error Date Log	Corresponding dates at which the last 5 PostScript errors occurred. In email reports, dates are expressed as the number of seconds elapsed since January 1, 1970.
281	PrintHead Clean Count	Number of times a print head clean has occurred.
282	PrintHead Clean Source	Indicates whether each print head cleaning was done by the user (Manual) or at pre-determined intervals by the printer (Automatic). See *Logs* on page 50.
283	PrintHead Clean Page#	Corresponding page numbers at which the last 5 printhead cleanings occurred.
284	PrintHead Clean Date Log	Corresponding dates at which the last 5 printhead cleanings occurred. In email reports, dates are expressed as the number of seconds elapsed since January 1, 1970.
285	PrintHead Installation Page#	Page numbers at which the last 5 printhead installations occurred.

Full Report fields (cont'd.)

Field number	Field name	Description
286	PrintHead Installation Date Log	Corresponding dates at which the last 5 printhead installations occurred. In email reports, dates are expressed as the number of seconds elapsed since January 1, 1970.
291	Last Jam Location	Log of the last 5 jam locations. Zero indicates no jam. In email reports, jam locations are represented by numerical codes (see Logs).
292	Last Jam Media Tray	Log of the last 5 jam trays. Zero indicates no jam. In email reports, jam trays are represented by numerical codes (see Logs).
293	Last Jam Media	Log of the last 5 jam media. Zero indicates no jam. In email reports, jam media are represented by numerical codes (see Logs).
294	Last Jam Page#	Corresponding page numbers at which the last 5 jams occurred.
295	Last Jam Date Log	Corresponding dates at which the last 5 jams occurred. In email reports, dates are expressed as the number of seconds elapsed since January 1, 1970.
296	Last Jam Transfix Speed	Log of the speed of the media for the last 5 jams, in inches per second. See *Logs* on page 50.
301	Jam A (Upper Tray)	A distribution of jams for all media size and type combinations through the upper tray, as much as the user has identified it via the front panel.
302	Jam B (Middle/Lower Trays)	A distribution of jams for all media size and type combinations through the middle and lower trays, as much as the user has identified it via the front panel.
303	Jam C (Exit Cover)	A distribution of jams for all possible media size and type combinations as much as the user has identified it via the front panel.
304	Jam D (Front Cover)	A distribution of jams for all possible media size and type combinations, as much as the user has identified it via the front panel.
305	Jam E (Exit Cover)	A distribution of jams for all possible media size and type combinations, as much as the user has identified it via the front panel.
307	Jam Manual Feed	A distribution of jams for all possible media size and type combinations, as much as the user has identified it via the front panel.

Logs

Several lines in the report are logs rather than counters, for example, the PostScript Error Log. Each time a PostScript error occurs (and the user has enabled PostScript Error Information), the PostScript error is recorded as a numerical code along with the page number on which the error occurred (a value of 0 indicates no error). On each successive error, the log is shifted to the left, with the oldest one being removed from the left end, and the new one being added to the right end.

Some logs are composed of two lines in the full report:

■ Engine Error Log: Line 262 is for the code and Line 263 is for the corresponding page number.

■ PostScript Error Log: Line 272 is for the code and Line 273 is for the corresponding page number.

The Last Jam Log is composed of three lines in the full report: Line 291 for the location, Line 292 for the corresponding tray, and Line 293 for the corresponding media type.

This topic describes the following logs:

Postscript Error Log

Code	Description
1	unregistered
2	invalidaccess
3	typecheck
4	invalidrestore
5	dictfull
6	handleerror
7	invalidexit
8	ioerror
9	limitcheck
10	interrupt
11	configurationerror
12	dictstackoverflow
13	invalidfont
14	invalidfileaccess
15	syntaxerror
16	timeout
17	undefinedfilename
18	execstackoverflow
19	unmatchedmark
20	undefinedresult
21	stackoverflow
22	VMerror
23	phandleerror
24	dictstackunderflow
25	undefined
26	rangecheck
27	nocurrentpoint
28	stackunderflow
29	undefinedresource
30	<No Match>

Engine Error Log

Code	Description
xx,xxx.4x	Device fault
xx,xxx.6x	Software error
22,xxx.xx	Media jam

Print Head Clean Source Log (Full Report Line 282)

Code	Description
1	Automatic
2	Manual

Last Jam Location Log (Full Report Line 291)

Code	Description
1	Jam A (Upper Tray)
2	Jam B (Middle/Lower Trays)
3	Jam C (Exit Cover)
4	Jam D (Front Cover)
5	Jam E (Exit Tray)
6	Jam Manual Feed

Last Jam Media Tray Log (Full Report Line 292)

Location Code	Description
1	Upper Tray
2	Middle Tray
3	Lower Tray
4	Manual Tray
5	Duplex Tray

Last Jam Media Log (Full Report Line 293)

Location	Description
Jam A	1 = Paper Letter
	2 = Paper A4
	3 = Transparency Letter
	4 = Transparency A4
Jam B	1 = Paper Letter
	2 = Paper A4
Jam C, D, E, and Manual Feed	1 = Paper Letter
	2 = Paper A4
	3 = Transparency Letter
	4 = Transparency A4
	5 = Other (Envelopes)

Last Jam Transfix Speed Log (Full Report Line 296)

Code	Description
1	5 IPS
2	10 IPS
3	20 IPS
4	25 IPS

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