Configuring your printer

There are two steps to printer configuration:

1. Set the printer's IP address and other addressing information.
2. Set the printer's other TCP/IP parameters:
   - Set host access and control character filtering
   - Receiving printer status (Syslog or SNMP)

Note *After setting the printer's IP address by one of the methods described in this topic, you can perform the rest of the TCP/IP configuration using PhaserLink, if you have a World Wide Web browser.*

Setting your printer's IP address

There are two methods to accomplish these printer configuration steps:

- **Server-based printer configuration.** This method uses RARP (Reverse Address Resolution Protocol) or BOOTP (Boot Parameter Protocol). When turned on or reset, the printer receives its IP addressing information from a boot server.
- Printer-based printer configuration (using a downloaded configuration file). This method can be used on hosts that do not have RARP or BOOTP. You use a Tektronix-provided shell script to prepare a configuration file. When you send the file to the printer, you store the IP addressing information in the printer's internal memory, where the printer reads it when reset.

Setting your printer's IP address using RARP or BOOTP

With this method, configuration information is sent to the printer over the Ethernet or Token Ring connection via RARP or BOOTP, depending on which protocol your host supports.

The advantage of server-based configuration is that it provides centralized administration. You can configure a number of printers from a central location. The disadvantage is that if the server is down, the printer does not appear on the network after a reset or power cycle, because the printer gets its boot information from a boot server and does not retain it in non-volatile memory.

You store the printer's configuration information in a configuration file such as an *ethers* or *bootptab* file on a boot server. On power-up, the printer issues RARP and BOOTP requests and receives the configuration information from the server in the RARP or BOOTP response.

The RARP and BOOTP responses contain only network address information. After the printer has its address information, you can set other TCP/IP parameters by sending PostScript files to the printer using your host spooler. Shell scripts for creating the PostScript files are provided on the UNIX version of the printer's network utilities diskettes. For PC environments, the PostScript files for setting other TCP/IP parameters are on the PC version of the printer's network utilities diskettes.

Note *The printer's BOOTP and RARP implementations do not support booting across a router. The BOOTP or RARP server (host) and client (printer) must be connected to the same Token Ring or Ethernet segment, or to segments interconnected only by repeaters and/or bridges. However, with certain hosts (such as OS/2) on Token Ring networks, the server and the client must be on the same token ring. Furthermore, the printer's BOOTP and RARP implementations do not support booting between Token Ring and Ethernet segments.*

1. Store the printer's configuration information in an *etc/ethers* or */etc/bootptab* file.

2. Make sure that the printer is connected to the network.

3. Turn on the printer. At power up, the printer issues RARP and BOOTP requests and receives the configuration information from the host in the RARP or BOOTP response.

If you need to set more IP addressing parameters than your host's implementation of RARP or BOOTP supports, you can use the *config-IP* script. The *config-IP* script is provided on the UNIX version of your printer's network utilities diskettes. Keep the following points in mind when running the *config-IP* script:

- 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 table "IP parameters".

Setting your printer's IP address using a downloaded configuration file

With this method, you can set the printer's IP address information and other TCP/IP parameters by sending PostScript files to the printer. Shell scripts for creating the PostScript files are provided on the UNIX version of the printer's network utilities diskettes.

The advantage of this method is that each printer has a permanent setup stored in its non-volatile 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, you must install the files from the UNIX version of your printer's network utilities diskettes on to your host computer. If you have not already installed the files, see the web topic "Installing files from the UNIX version of the network utilities diskettes." Your host spooling system must also be configured (see the web topic "Configuring your host").

The printer-based configuration procedure is on the next page. In this procedure, you use a script provided on the UNIX version of the printer's network utilities diskettes to set the IP parameters listed in the following table.

IP parameters

Parameter	Description
Use RARP/BOOTP	Yes/no. Specifies whether the printer should get its IP address from a RARP or BOOTP response at power-up. The default is **yes**. Answer **no** for a printer-based configuration; this prevents RARP or BOOTP packets from appearing on the network when the printer is turned on or reset.
IP address	This is the printer's address on the network. The format is x.x.x.x, where x represents a decimal number from 0 - 255.
Network mask	This is needed in networks that use sub-netting. If you are not using sub-netting, leave this blank; the printer will choose an appropriate mask. The format is *x.x.x.x,* where *x* represents a decimal number from 0 - 255.
Broadcast address	This is the address the printer uses to send broadcast packets. The format is *x.x.x.x,* where *x* represents a decimal number from 0 - 255. If you are unsure, leave this blank; the printer will choose an appropriate address.
Default gateway (router)	The address the printer uses to communicate with devices not on the same network segment. The format is *x.x.x.x,* where *x* represents a decimal number from 0 - 255.
Allow adaptive encapsulation	Yes/no. (Ethernet only; not applicable to Token Ring.) If this parameter is set to **Yes** (**on**) the printer tries both DIX (Ethernet II) and IEEE 802.3 encapsulation (with IEEE 802.2 LLC and SNAP headers). If this parameter is set to **No** (**off**), the printer uses only DIX (Ethernet II). The default is **Yes** (**on**).

1. Make sure that the printer is connected to the 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. 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-IP > *filename*

3. When prompted:

   ```
   Will the printer be using either RARP or
   BOOTP? [No]
   ```

   press **Enter** to accept the default (or **y** for **yes**).

4. When prompted, enter the IP addressing information.

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.*

5. When prompted:

   ```
   Should the printer use adaptive encapsulation?
   ```

   enter your choice; for most systems, you should enter **y**.

Note *For Token Ring, either answer works, since there is only one encapsulation (802.5-2-SNAP).*

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

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

   or

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

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

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

7. Log in as **root**.

8. Turn on the printer.

9. 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 IP addressing information in the printer's internal memory, where it is retained over a reset or power cycle.

10. Reset the printer.

Controlling host access (UNIX systems only)

LPR (BSD systems)

You can control which hosts can access the printer through **lpr**. The printer's factory default is that all hosts have access to the printer.

There are two ways to set host access:

- Send the appropriate PostScript file to the printer.
- With a TCP/IP connection and a World Wide Web browser, you can use PhaserLink.

To create a PostScript file to set host access, use the script *config-LPR* provided on the UNIX version of the printer's network utilities diskettes.

1. Make sure that the printer is connected to the network.
2. Run the script *config-LPR*:
   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:

      config-LPR > *filename*
3. When prompted, enter the IP addresse(s) of the host(s) that will have access to the printer. You can enter addresses for multiple hosts by separating them with spaces. If you do not enter any addresses, all hosts will have access to the printer.

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. Send the file named in Step 2b to the printer; type:

   lpr -P*queue-name filename*

AppSocket (TCP Sockets)

You can control which hosts can access the printer through **AppSocket**. The printer's factory default is that all hosts have access to the printer.

There are two ways to set host access:

- Send the appropriate PostScript file to the printer.
- With a TCP/IP connection and a World Wide Web browser, you can use PhaserLink.

To create a PostScript file to set host access, use the script *config-sockets* provided on the UNIX version of the printer's network utilities diskettes.

1. Make sure that the printer is connected to the network.
2. Run the script *config-sockets*:
   a. Change (**cd**) to the *bin* subdirectory in the directory where you placed your printer's PhaserShare Software.
   b. Type the name of the script, redirecting the output to a file:

      config-sockets > *filename*
3. When prompted, enter the IP addresse(s) of the host(s) that will have access to the printer. You can enter addresses for multiple hosts by separating them with spaces. If you do not enter any addresses, all hosts will have access to the printer.

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. Send the file named in Step 2b to the printer. Type:

   lp **-d***queue-name* *filename*

Receiving printer status (UNIX systems only)

Syslog

The Syslog facility provides a dynamic path for printer status information that allows administrators to collect information from the printer. You can set a threshold indicating which priority level of message from the printer will be sent to the listed log host.

The threshold is a number listed in the following table. The priorities listed in the table conform to BSD and SunOS conventions.

Syslog priorities

Priority	Number	Description
Emergency	0	Printer is no longer available
Alert	1	Printer needs immediate attention
Critical	2	Critical error message
Error	3	Error message
Warning	4	Warning message
Notice (printer's default)	5	Normal but significant message
Information	6	Informational message

Note *If you are using BOOTP to set the printer's network address, the printer sends syslog messages to the hosts listed in the BOOTP* log hosts *field. If you are not using BOOTP or have not specified a log host in the BOOTP configuration, you must use the* config-syslog *script to set the syslog host address.*

There are two ways to set Syslog priorities:

- Send the appropriate PostScript file to the printer.
- With a TCP/IP connection and a World Wide Web browser, you can use PhaserLink.

To create a PostScript file to set Syslog priorities, use the script *config-syslog* provided on the UNIX version of the printer's PhaserShare Software diskettes.

1. Make sure that the printer is connected to the network.

2. Run the script *config-syslog*:

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

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

      config-syslog > *filename*

3. When prompted, enter the log host's IP address and the priority level of the threshold you want to set.

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. Send the file named in Step 2b to the printer. Type:

   lpr -P*queue-name filename*

SNMP

SNMP (Simple Network Management Protocol) allows you to use an SNMP monitoring station to query the printer remotely for its status. You can provide the following information for the printer to send to your SNMP utility:

- Printer's name.
- Name of contact person for printer problems.
- Printer's location.
- Trap host's IP address and community name. Members of this list receive asynchronous SNMP traps (error and status messages) from the printer.
- Private host's IP address. Members of the *private* community are allowed read and write access to all SNMP objects on the printer. All hosts are members of the *public* community, which is allowed read-only access to all SNMP variables.
- Enable Authentication Failure Trap. Enable this if you want to be notified if unauthorized users attempt to set SNMP variables.

There are two ways to set SNMP:

- Send the appropriate PostScript file to the printer.
- With a TCP/IP connection and a World Wide Web browser, you can use PhaserLink.

To create a PostScript file to control these parameters, use the script *config-SNMP* provided on the UNIX version of the printer's PhaserShare Software diskettes.

1. Make sure that the printer is connected to the network.
2. Run the script *config-SNMP*:
   a. Change (**cd**) to the *bin* subdirectory in the directory where you placed your printer's network utilities.
   b. Run the script, redirecting the output to a file. Type:

      config-SNMP > *filename*
3. When prompted, provide the information for the SNMP utility.
4. Send the file named in Step 2b to the printer using **lp** or **lpr**.