



## ***MIL-3000FTX Series of FastPort***

**Print Servers**

**CD-ROM User's Guide**

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You can reach Digi LAN technical support at 408/744-2751 or [sun-tech@dgii.com](mailto:sun-tech@dgii.com)

P/N: 90000105, Rev. B

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# Chapter 1

## Introduction and Installation

Chapter 1 gives a description on the MIL-3000FTX FastPort print servers.

### 1.1 Overview of the MIL-3000FTX Print Servers

The MIL-3000FTX FastPort print servers are 10/100 Mbps, stand-alone print servers. These print servers are to be connected directly to multiple printers on Ethernet and/or Fast Ethernet networks. Versions include:

- **MIL-3100FTX:** One RJ-45 (UTP), 10/100 Mbps port; one parallel port and one serial port
- **MIL-3200FTX:** One RJ-45 (UTP), 10/100 Mbps port; two parallel port and one serial port
- **MIL-3310FTX:** One RJ-45 (UTP), 10/100 Mbps port; three parallel port and one serial port

All FastPorts recognize the speed of a network using auto-negotiation.

### 1.2 Features of the Print Servers

#### 1.2.1 Physical Features

- 10/100BASE-TX, RJ-45 connector
- Centronics compatible parallel port(s)
- RS-232 serial port
- Four position DIP switch

#### 1.2.2 Configuration Features

- FastManage SNMP manager for Windows
- On-board diagnostic utilities can also be accessed on-line
- Apple users can configure FastPort by downloading configuration files

### 1.2.3 Shared Printer Features

FastPort gives you a wide access to shared printers, including:

- Windows 95®, Windows NT, and Windows for Workgroups systems, Windows NT using HP DLC
- PCs networked with Novell® NetWare®
- UNIX® support
- Apple® Macintosh® using EtherTalk®
- OS/2® machines with TCP/IP
- PCs running a TCP/IP protocol stack over Ethernet networks

The MIL-3000FTX print servers are configured by using FastManage, which is an SNMP management tool. The MIL-3000FTX also supports SNMP MIB-II (RFCs 1213) and parallel/serial MIBs (RFCs 1318 and 1317).

### 1.3 Utilities

To make the units easier to manage, Digi supplies the FastManage suite of software and the Advanced Configuration Tool™ (ACT). FastManage is a windows-based menu software application and ACT is a DOS-based menu software application. Configuration of devices can be done by using print utilities on UNIX systems. Firmware upgrades of the flash EEPROMs can be done via network connections.

### 1.4 Firmware Update

The software and firmware used by FastPort print servers support MS Windows, IBM OS/2, NetWare, UNIX, and Apple operating environment. New features of the firmware include:

- Complete Novell NDS support
- Bi-directional Centronics (parallel) printing
- Native SMB/MS Windows printing: Includes support for Windows for Workgroups®, Windows 95®, Windows NT®
- FastManage™ SNMP manager for Windows: This offers management over IP, IPX or NetBIOS/NetBEUI

## 1.5 First Time Users

1. Physically install FastPort to the network.
  - a. Connect the device to the printer(s) it will be servicing.
  - b. Print a test page by putting the DIP switches in “test page” mode.
2. Write down the FastPort twelve digit hardware address (MAC address). The number is located on a label on the underside of the unit, as well as on the test page just printed (for example, **00:40:c8:xx:xx:xx**).
3. Using the information in the hardware manual, set the DIP switches in a normal printing mode and power up the unit.
4. Check FastPort’s LEDs to verify that the unit is functioning on the network.
5. Locate the type of driver on the CD-ROM for your operating systems where the installation will be performed (e.g., MS Windows, UNIX, NetWare, or MAC).
6. Turn to the specific chapter in this document for the specific network operating system and continue installation.
7. Configure FastPort to be managed by FastManage.

## 1.6 Installation Requirements

Before installing FastPort, make sure you have the following:

- A MIL-3000FTX series of FastPort print servers
- Use a switchable power supply. For the USA, set at 120 VAC
- Appropriate Ethernet cabling (CAT 5)
- Serial or parallel printer(s) with the proper cabling. FastPort is shipped with a 3 ft. parallel port cable
- Four rubber feet to keep the print server from sliding. These are also included in the packaging

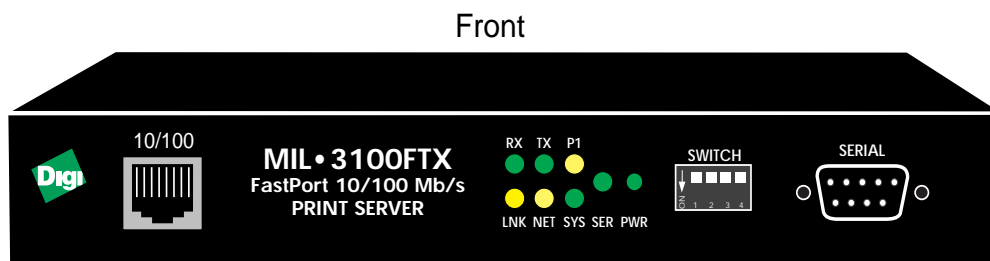
## 1.7 Installing FastPort

Do the following to physically install the MIL-3000FTX series of FastPort printer servers. Contact Digi's LAN technical support if you have problems or questions when installing the print server (see Appendix I).

1. Attach the Rubber feet to the bottom of the print server. Place one on each corner of the device.
2. Record the Ethernet address (located on the bottom of the unit) for future reference.
3. Attach the Ethernet cabling. The MIL-3000FTX supports 10/100BASE-TX and has an RJ-45 connector. Use CAT 5 (UTP).
4. Select an operating mode with the front panel switches. Use Table 1-1.

**Table 1-1: Operating Mode**

D3	D4	Mode	Description
Up	Up	Normal	Does not allow a telnet session. Users can print to the unit. The <b>sys</b> (system) and <b>NET</b> (network) LEDs blinks.
Down	Up	Telnet diagnostic monitor	Allows a telnet session to monitor FastPort or change its parameters. Users can print to the unit. The <b>sys</b> and <b>NET</b> LEDs blink.
Down	Down	Serial diag. monitor	A terminal can be attached to the serial port to run a serial monitor. Print jobs are not accepted. The <b>NET</b> LED blinks.
Up	Down	Test page	A test page prints on a power cycle. Print jobs are not accepted.



**Figure 1-1. MIL-3100FTX Front Panel**

**Note:** The MIL-3200FTX will have one extra LED: "P2." The MIL-3310FTX will have two extra LEDs: "P2" and "P3."

**Table 1-2: Flash/Test Page Settings**

Switch	Position	Mode	Description
D1	Up	Flash Bank	Selects bank 0 (upper) to run the 4 Mb Flash EEPROMs for uploading the new firmware image.
D1	Down		Selects bank 1 to run the 4Mb flash EEPROMs for uploading. If the upgrade process fails, use this setting and power cycle the unit to return FastPort to its default settings.
D2	Up	Test Page	FastPort prints a test page: parallel 2 and serial 1.
D2	Down		FastPort prints a test page: parallel 1 and serial 1.

**Table 1-3: Default Settings**

D1	D2	D3	D4
Up	Down	Down	Up

5. Attach the parallel printer(s) cable(s).

Attach the parallel cable to the female DB25 parallel port on the back of the FastPort. Connect the other end of the cable to a standard, centronics port on the printer.

6. Attach the serial printer cable.

Attach the serial cable to the male DB9 port on the front of the unit. The other end of the cable should be connected to a female DB9 with the standard serial interface pinout.

A null modem cable or adapter is necessary if the printer's serial port is a DTE device. If the cable works for an IBM PC attached to a printer, then it will work for FastPort.

**Note:** See Appendix A for the parallel and serial port pinouts.

7. Set the printer to the defaults for the serial port: **9600 baud, 8 data bits, no parity bits, 1 stop bit, and Xon/Xoff** for flow control.



**Figure 1-2. Rear Panel of MIL-3100FTX**

**Note:** The MIL-3200FTX will have two parallel ports. The MIL-3310FTX will have three parallel ports.

8. Connect the power supply:
  - a. Select the proper voltage for the specific country.
  - b. Place the unit near the printer.
  - c. Plug the power connector into the receptacle marked **Power** on the rear of the unit.



9. Verify normal boot-up. The unit performs POST (power-on self-test) at start-up and tries to resolve its IP addresses:
  - If the IP address is set, the **sys** LED blinks once per second.
  - If the IP address is not set, the **sys** LED blinks five times per second until the address is set either manually or by using *RARP*, *BOOTP*, or *DHCP*.

FastPort should now be functioning on the network

# Chapter 2

## Setting the IP Address

### 2.1 Assigning the IP Address

Devices on a TCP/IP network are identified by two addresses:

- Hardware (mac) address: A 6-byte address assigned to the FastPort device by the manufacturer
- IP address: A 4-byte address assigned by the administrator

FastPort stores its IP address in its NVRAM. The default IP address is set to 0.0.0.0. When FastPort is in normal mode, the LEDs blink to indicate the IP address has been set.

**Warning:** 0.0.0.0 is not a valid IP address. When the address is 0.0.0.0, the device uses RARP, BOOTP and DHCP to acquire a valid address.

Use any of the following methods to assign the IP address:

- Run the install script from the CD-ROM (UNIX)
- Set a static **ARP** entry. Make a telnet connection to port 2002, then set the IP address with UNIX workstation
- Use the **ARP** and telnet commands to set the IP address with MS Windows workstations
- Use **RARP** to set the address when the device powers up
- Use **FastManage** from a Windows system
- Use **BOOTP** or **DHCP** to set the address every time the device is powered up. This is preferred in larger networks
- On a Macintosh, use the Apple Printer utility to download a configuration file containing the new IP address
- For a Novell NetWare server, use **ACT** to set the IP address
- Use **nbmon** and **NetBEUI** to make a Telnet-type connection

**Note:** **ARP** and **RARP** do not work if the **RARP** server or a system using **ARP** is connected through a router on a different subnet from FastPort.



## 2.2 Setting an IP Address with Install Script

1. Use “TAR” to get the files from the CD-ROM.
2. Run the `unpack.sh` command. This launches `install.sh`, which assigns an address from “Installation Options.”
3. Choose “Configure a New FastPort.”

`install.sh` asks for the IP addresses, edits applicable files and assigns an IP address. Refer to: `/examples/install.doc` for a sample session.

## 2.3 Setting the IP Address using Telnet on UNIX

**Note:** Telnet only works if a device is on the same subnet as the host.

1. To set an IP address using telnet, use a text editor to open the `/etc/hosts` file and add the following line:

`192.115.2.1 alpha` (Save this file)

- a. Enter the following at the command prompt. This sets static ARP:

```
arp -s ether alpha 0:40:C8:0:1:2B (no leading zeros: RS-6000)
```

- b. `arp -s alpha 0:40:C8:0:1:2B` (no leading zeros: most UNIX systems)

```
arpbypass set alpha 0X00.0X40.0XC8.0X00.0X01.0X02 (AT&T and NCR)
```

**Note:** The assigned IP address must be on the same local subnet as UNIX.

2. Set the switches to the telnet diagnostic mode and power cycle FastPort.
3. Make a telnet connection to maintenance port 2002. Type `telnet alpha 2002`. If a connection is successful:

```
Connected to 204.23.13.4
Escape character is ^]
Vers. 6.0.18 Datecode 10/23/98
Type "S" to see status
Type "!" to enter monitor
```

4. Press [!] and press [return].

**Note:** A warning message appears: `Entering monitor will lock out other Ethernet access`. Type `yes` to get to the command prompt.

5. At the “menu” option, Press [I] and then press [return].
6. Press [Y] when prompted. This address is stored in NVRAM.
7. Reboot the device by pressing [R].

## 2.4 Setting IP Address with Windows 95, 98, and NT

Using ARP or telnet on a Windows systems only works if there is a TCP/IP stack on the system and if FastPort is on the same subnet as the system. Disable DHCP before installation.

1. Enter the MS-DOS prompt.
2. Ping a known machine on the network (required).
3. Set the static **ARP** entry with the following command:

```
arp -s x.x.x.x 00-40-C8-yy-yy-yy and press [return]
```

Where *x.x.x.x* is the IP address to assign for FastPort, and *yy-yy-yy* is the last 6 digits of the hardware address.

4. Type: `arp -a` and press [return]. Two entries should be listed: one for the host that was pinged and one for the FastPort just entered.
5. Make a telnet connection to maintenance port 2002. Type `telnet alpha 2002`. If a connection is successful:
 

```
Connected to 204.23.13.4
Escape character is ^]
Vers. 6.0.18 Datecode 10/23/98
Type "S" to see status
Type "!" to enter monitor
```
6. At the menu option, Press [I] and then press [return].
7. Press [Y] (for yes) when asked to confirm the modification. This address is now stored in the device's NVRAM.
8. Reboot the device by pressing [R].

## 2.5 Setting the IP Address Using RARP

1. RARP queries a server for their IP addresses at start-up. Find the Ethernet address of FastPort.
2. Add the address to `/etc/ethers`, or add it to NIS/YP master Ethers database. If a device named "alpha" has address: "0040C802ABCD," then put in entry: `00:40:C8:02:ab:cd alpha`.
3. Add the IP address and the hostname to the `/etc/hosts`.
4. After using NIS for the hosts/ethers, rebuild the database:
  - a. Enter the "YP" directory.

- b. Type **make** and press [return].
  - c. Power cycle FastPort.
5. Verify that the RARP daemon is running:
- a. For BSD UNIX, type **ps -ax | grep rarp**
  - b. For System V UNIX, type **ps -ef | grep rarp**
  - c. Type **/usr/etc/rarpd -a** to start the **rarp** daemon.
  - d. The LED flashes 5 times per second until it resolves its IP address. It then flashes once per second.

## 2.6 Setting the IP Address Dynamically with BOOTP

BOOTP allows a client machine to find its own IP address. BOOTP is IP/UDP based and it can pass through routers.

### 2.6.1 Setting the IP address with BOOTP on Sun

1. Use a text editor to open the **/etc/hosts** file.
2. Add a host name and hardware address on a single line (A device named "alpha" with an address "192.115.2.1," enter:

```
192.115.2.1 alpha (Save the file)
```

3. Create a bootptab in the **/etc** directory. To do this, type:

```
<hostname of FastPort>:ht=1:ha=<hardware addr.>:ip=<ip addr.>
```

4. Start the BOOTP daemon by typing.

```
/usr/etc/bootp
```

5. Power cycle FastPort. It will broadcast the BOOTP packets, obtain a response, and then uses the IP address specified in **/etc/bootptab**.

### 2.6.2 Setting the IP address using BOOTP on HP/UX

1. Log in as **root** on the system.
2. Start "SAM" by typing **sam &**. Press [return].
3. Use a text editor to open the **/etc/hosts** file.
4. Add the following line: Type: **192.115.2.1 alpha** and save the file.
5. From the "Networking" menu select **Communication**.

6. From the this menu, select **Device Connectivity**.
7. From the “Boot Protocol” menu, select **Actions**.
8. Select **Add**. And add the following information:

**BOOTP Device Name:** <specify the hostname of the device>  
**Internet address:** <specify the IP address of the device>  
**Subnet address:** <specify the subnet mask>  
**Station Address (hex):** <specify the hardware address>  
**Boot file name:** <specify the full path of this file>

9. When prompted for the “BOOTP Device Adapter Type,” select **Ethernet** and then select **Apply**.
10. Exit out of SAM and restart BOOTP.
11. Power cycle FastPort. It broadcasts the BOOTP packets and obtain a response from the server to use the IP address specified.

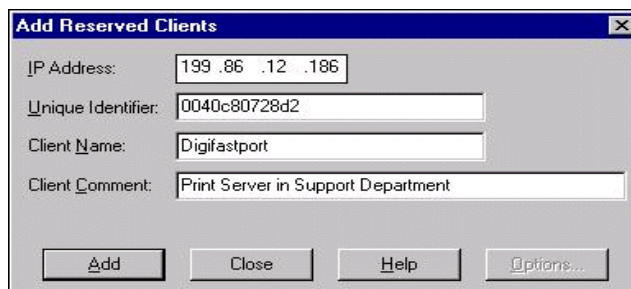
## 2.7 DHCP Support (NT 4.0 server)

FastPort operates as a client with a DHCP server. Setup is not necessary. After POST (power on self-test), it sends out DHCP packages. The server scrolls through a list of addresses allocated for clients and then assigns the first available number. The IP address stays until power-off or its lease expires. The DHCP server must be on the same subnet as the client. If not on the same subnet, a *helper* is needed on the router.

### 2.7.1 Setting an IP Address Using the DHCP Manager

The following step show how to use the DHCP Manager to set an IP address for FastPort.

1. From “Start,” select **Programs-->Administrative Tools-->DHCP Manager**
2. In the DHCP Manager menu, double-click the DHCP server you want to manage.
3. Click the *scope* in which you want to add reservations.
4. From the “Scope” menu, click **Add Reservations**.
5. Enter the IP address and MAC address as shown in Figure 2-1. The MAC address is printed on a label on FastPort.



**Figure 2-1. Add Reserved Clients Menu**

6. Set the DIP switches to the telnet diagnostic monitor position as described in the hardware guide and reboot the print server. The system request an IP address from the DHCP Server. The server returns the reserved IP address.

**Note:** Values added to the “Unique Identifier” (Figure 2-1) must be entered correctly. This entry is the MAC address for FastPort. FastPort sends this MAC address in a request to the DHCP server for an IP address. If it is entered incorrectly, it will not match the value sent by FastPort. The DHCP server then assigns it any available IP address instead of the IP address reserved.

**Note:** If FastPort does not respond to the reserved IP address, print a test page. Verify the MAC address from the test page.

7. Do the following to set the IP address permanently:
  - a. Verify that FastPort is responding with the new IP address by pinging the IP address reserved. From a DOS prompt, type: `ping xx.xx.xx.xx` and press [return] (where xx.xx.xx.xx is the IP address reserved).
  - b. If ping is successful, type: `telnet xx.xx.xx.xx 2002` and press [return] (where 2002 is the telnet diagnostic socket port address for FastPort).
  - c. The following displays (if the connection is successful):
 

```
Vers. 6.1.18, Datecode 10/23/1998 18:50
Type "S" to see current status
Type "D" to see current configuration
Type "!" to enter monitor
Type "A" to abort connection
```
  - d. Select [!] and press [return]
  - e. Select [I] and press [return]. Enter the IP address that was reserved by the DHCP Manager. This stores the IP address permanently in FastPort’s NVRAM.
  - f. Select the [R] command to reboot the FastPort.



## 2.8 Using Digi's ACT to Assign an IP Address

Digi's ACT can be used to configure options on FastPort.

**Note:** If ACT has not been extracted from the utility portion of the CD-ROM to your local drive, do so now.

1. Select **Advanced Configuration** in the “Configure” pull-down menu.
2. In the next menu, select **Print Server Configuration**.
3. From the list of print servers, choose the appropriate print server that is to be configured and press [return].
4. In the next menu, scroll down to select the IP address field and press [return] to enter new IP address.
5. When finished with the configuration, press the [esc] key to close all the open windows.
6. To exit and save the configurations:
  - a. Select **Reset Print Server** in the “Configure” pull-down window.
  - b. Select the print server just configured. This resets FastPort.
7. Exit out of ACT and ping the server to verify the new IP address responds correctly.

FastPort is now ready for use on the IP network.

## 2.9 Using Appletalk to Assign an IP Address

Download the **Setup Defaults** file and the **Apple Printer Utility** from the Appletalk portion of the CD-ROM. See Chapter 6 for more information on the Apple Printer Utility. To assign the IP address using Appletalk:

1. Double click on the **SetUp Defaults** file to edit it.
2. Scroll down and select the **IP address** option under “General Parameters.” Change the values of the IP address in parentheses. Remove the % sign before the IP Address option.

**Warning:** Do not edit the top three lines of the file.

3. Save the changes and quit the editor.

4. Open the **Apple Printer Utility**.
5. Select **Download Postscript File** from the “Utilities.”
6. Select **Setup Defaults** that were just modified.
7. When the file has downloaded, quit the utility.
8. Power cycle FastPort. These settings are stored in NVRAM and remain there until changed.

**Note:** If there is an error, the postscript log returned by the utility contains an error message. To avoid errors, do not add extra spaces in the *setup default* file other than the options shown in the parentheses.

## 2.10 Using Digi's NetBIOS to Assign IP Address

### 2.10.1 About the Digi Utilities

Digi distributes a pair of utilities that are for any DOS system with a NetBEUI stack. Systems include Windows for Workgroups, Windows 95/98, Windows NT, and DOS LAN Manager clients. The two utilities are:

- **SHOWPRN.EXE:** Finds any FastPort(s) on the network
- **NEMON.EXE:** Allows users to configure FastPort

These utilities require a NetBEUI stack to be installed on the client machine. If not already done so, install NetBEUI first before using either utility. Copy the utilities to the “local” system from the CD-ROM or by retrieving them from Digi's ftp sites: **FTP.MILAN.COM**. Files are located in the following directory:

`/pub/fastport/software`

### 2.10.2 Using The Digi Utilities

Run the **showprn.exe** utility first to make sure:

- FastPort is available on the network
  - NetBEUI stack on is properly configured
1. Open a DOS prompt and enter the directory where the utility is located (e.g. `cd \digi_ins\win_95`).
  2. Run the utility by typing **showprn.exe** and pressing [return]. The following output appears:

Group	Server	Service	Status
Workgroups	FP0F0FBA	Parallel1	No active parallel job

**Note:** If an error message “0x23 error with add name” appears, this means the NetBEUI stack is not configured correctly. If **showprn.exe** did not return a list of printers, or if it returned with an error, try executing the utility again. This time with a special option that tells the utility to try a different “logical LAN layer”:

**showprn.exe -d1**

If a Windows-based system has multiple protocols and/or multiple network interfaces, a user needs to specify the LAN layer, by typing:

**-d1 or -d2 or -d3, etc...**

3. Once **showprn.exe** displays FastPort, the **nbmon** utility can be used to connect and modify settings. Using the example above, type in the following line:

**nbmon.exe FP0F0FBA**

**Note:** If the -d1 or -d2 option was used with **showprn.exe**, you will need to type that -d1 or -d2 option on the **nbmon.exe** command line as well.

If the connection is successful, the following is displayed:

```
v.1.0.102
Press <ESC> to exit
Ver 6.1 Build 18, Datecode 10/23/1998 18:50
Type "S" to see current status
Type "D" to see current configuration
Type "!" to enter monitor
Type "A" to abort connection
```

FastPort is now connected. If the above information does not appear, re-check the switches and LEDs. Contact Digi’s LAN technical support if necessary.

4. Type [!] and then press [return].
5. Type in [Y] for yes to enter monitor.
6. A a list of options appear:

**Command [?, C, D, E, F, . . . ., Z]: -->**

Type in the command to set the IP address: [I]

7. A display of current IP address appear. Type [Y] for yes to modify this address.





8. At the next prompt, type in the IP address as such:

```
Enter new IP address: 204.23.13.4
```

9. At the next prompt, press [R] to reset the system.

The `nbmon` session closes, while FastPort reboots itself. When the system comes back up, the LEDs blinks steady (1 second manner). This indicates that FastPort now has an IP address set.

## 2.11 Verifying IP Address is Set Properly

To see if FastPort is up and running on the network, use the ping command, type: `ping <hostname>`. A message that the host is alive appears. If there is a problem, try using ping with the IP address:

```
ping <ip-address>
```

On some systems, the ping command continuously displays:

```
64 bytes from <hostname> (192.115.2.1) icmp_seq=0 time=3ms  
To discontinue ping, press the Del key or Control+C
```

# Chapter 3

## Installing and Printing in a MS Windows and IBM OS/2 Environment

Chapter 3 provides detailed instructions on configuring and printing with MS Windows and IBM OS/2 clients.

### 3.1 Printing From a NetBIOS Workstation

#### 3.1.1 Introduction

FastPort supports native printing from Windows and IBM NetBIOS clients using the NetBEUI protocol. To perform an installation on a NetBIOS workstation:

1. Verify that
  - a. The network settings on the workstation include the NetBEUI protocol.
  - b. The SMB or Windows Print and File client services are “bound” to the NetBEUI protocol. This should have been done by default when the protocol was first installed onto the system.
2. For Windows programs, refer to:

“Printing from Windows for Workgroups” on page 3-2

“Printing from Windows NT (3.5x)” on page 3-2

“Printing from Windows 95/98 or Windows NT 4.x (via SMB)” on page 3-3

This section describes how to install a logical Windows printer that will send print jobs to FastPort.

3. For both DOS and Windows programs, refer to:

“Printing From NetBIOS-supported DOS Workstation” on page 3-4

This section describes how to use the `net use` command, which redirects the LPT ports to FastPort.

4. To configure a system to perform local spooling, refer to:  
[“Spooling Versus Non-Spooling Printing” on page 3-5](#)

Configuration on this section is now complete.

### 3.1.2 Printing from Windows for Workgroups

Perform the following to set up FastPort to work with MS Windows for Workgroups, version 3.11:

1. From “Control Panel,” double-click on the **Printer** icon.
2. Click on the **Connect** button.
3. Click on the **Network** icon. Browse screen displays FastPort and other workstations.
4. Find the **device name** and **path** fields.

These fields show the local port to redirect and the network device to receive the print job, respectively.

5. Fill in the **path** with the FastPort printer name (e.g., `\\FP042384\PARALLEL1`). Or, use the window labeled “**show shared printers on...**” to browse the network.
6. When choosing to “Browse” the network, a list of all the shared windows systems in the workgroup appears. Double-click on **FastPort** (all its printer ports display).
7. Double-click on a printer port, and that FastPort Printer name will be displayed in the **path** field above.

Workgroups is configured to print for FastPort once the fields are filled in and the drivers for the printer are loaded.

### 3.1.3 Printing from Windows NT (3.5x)

1. Open the **Print Manager**.
2. Choose **Printer**.
3. Click **Connect to** from the menu. A window displays a list of all network devices.
4. Double-click on the workgroup where FastPort is located.
5. Double-click on **FastPort** (one only).

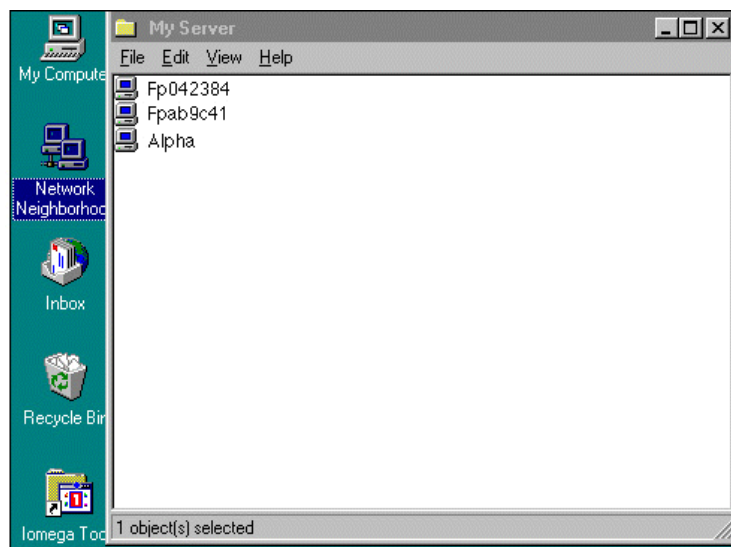
6. Double-click on its displayed port (service) where the printer is connected. A “**Select Driver**” dialog appears.
7. Choose a name for the printer.
8. Choose the driver for the printer that is connected to the FastPort port. The “**Printer Setup**” dialog box displays.
9. Change any of the desired printer-specific settings.
10. Choose **OK**.

Windows NT systems is now configured to print to FastPort.

### 3.1.4 Printing from Windows 95/98 or Windows NT 4.x (via SMB)

**Note:** This installation requires FastPort firmware 6.1 or higher.

1. Open **Network Neighborhood**.
2. Choose the workgroup where FastPort is located.
3. Double-click on **FastPort**. FastPort appears as **FPXXXXXX**; where XXXXXX is the last six digits of the MAC address.



**Figure 3-1. FastPort Menu Select**

4. Double-click the port where the print job will go.
5. The “Do you want to create a printer on your local machine that prints to this device” dialog box appears. Click **Yes** on this dialog box.
6. When prompted, select the driver for the printer connected to the specific printer port.



7. Choose a local name to call this printer.
8. When prompted, choose to print a test page. A test page is printed out on the FastPort-connected printer.

The Windows system is now configured to print to FastPort.

### 3.1.5 Printing From NetBIOS-supported DOS Workstation

NetBIOS workstations support the DOS-level Net commands for locating and redirecting local ports to shared printers. These DOS-level commands include `net view` and `net use`.

#### 3.1.5.1 Net View

- `net view`: This command shows all devices within a workgroup communicating on the network with the same networking protocol as the client workstation.
- `net view /workgroup:<wgname>`: This command shows all devices within the workgroup <wgname> communicating with the same protocol as the workstation.
- `net view \\FP042384`: This command shows all the shared resources on a Digi print server with hardware address 00:40:c8:04:23:84. `Net view` displays the following:

Shared resources at FP042384

<u>Sharename</u>	<u>Type</u>	<u>Comment</u>
PARALLEL1	Print	parallel-port #1 (ON-LINE)
PARALLEL2	Print	parallel-port #2 (OFF-LINE)
SERIAL1	Print	serial-port #1 (ON-LINE)
SERIAL2	Print	serial-port #2 (ON-LINE)

The command was completed successfully. Print Server Name **FP042384** and share names **PARALLEL1**, are user configurable from the FastManage or NBMON tool (both described in the chapter 6).

#### 3.1.5.2 Net Use

- `NET USE LPT1: \\FP042384\SERIAL1`—This redirects printing from the LPT1 port to the serial 1 port on FastPort.
- `NET USE LPT1: /D`—This deletes the redirect (that is, stops the redirection to FastPort).

**Note:** During configuration, a dialog box may appear saying: "The printer that you've connected to doesn't have a driver for that printer." This is normal. FastPort does not know how to format the data for the printer. Formatting is done on the workstation "before" being sent to FastPort.

## 3.1.6 Spooling Versus Non-Spooling Printing

### 3.1.6.1 Introduction

NetBIOS machines normally support either spooling or non-spooling printing to network printers. Spooling is when a print job is sent to the hard drive as a printable file and is printed in the background, while the application returns to a normal state. Non-spooling is when a print job starts and finishes before the application returns to a normal state. The Windows methods described previously are generally non-spooling methods. One way to tell if a workstation is spooling or not, is to print to the same printer twice in a row. Open the print manager, if both jobs are in the list, the system is spooling the print job. But, if the first print command does not return until the job is printed (not printing two jobs in a row) the system is non-spooling print jobs.

### 3.1.6.2 Configuring Windows 95/NT to "Mimic" Spooling

1. From "Start," select **S**ettings and then **P**rinters to create a printer.
2. Click once on the specific printer.
3. From the "**F**ile" pull-down menu, select **P**roperties.
4. From the "**P**roperties" menu, select **D**etails
- 5a. Windows 95: From "Details," select **S**pool **S**ettings...
- 5b. Windows NT: From "Scheduling," click once on **S**pool **S**ettings...
6. Click on **S**pool **p**rint **j**obs **s**o **p**rogram **f**inishes **f**aster to make the printer "spooling". Click on the **P**rint **d**irectly **t**o **t**he **p**rinter to make the printer "non-spooling."

### 3.1.7 DOS and OS/2

To force a printer to spool for DOS or OS/2 (LAN Manager - LAN Server):

1. Open a command prompt box.
2. Use the **NET USE LPT1 \\<FASTPORT>\<PORT>** command to redirect an LPT port.

Print jobs are now spooled. When configuring a printer, choose the LPT1 port as the printer destination.

## 3.2 Printing from a TCP/IP Workstation

### 3.2.1 Introduction

Windows-based systems support a variety of protocols, such as TCP/IP, IPX/SPX, or DLC. This section describes installing a FastPort printer on Windows workstations or servers with LPD support over TCP/IP protocol. Before starting, make sure of the following:

- An IP address has been added to FastPort, and that you are able to “ping” the device (see Chapter 2 to assign an IP address)
- FastPort has firmware version 3.5 or higher (to support LPD printing)

### 3.2.2 Printing from Windows NT 3.5x

Windows 3.5 supports printing to LPD printers. To install:

**Note:** Print a test page to find out the firmware version of FastPort.

1. Load the “TCP/IP Protocol and Related Components” software. Do this only once for each system that uses LPD.
2. Add the LPD printer to Windows NT 3.5.

#### 3.2.2.1 Installing LPD Support on Windows NT 3.5

1. Open the “Control Panel” and select the **Network** icon.
2. Click the **Add Software** button.
3. Select **TCP/IP Protocol and Related Components** from the Network Software pull-down list.
4. Click **Continue** and check **TCP/IP Network Printing Support**.
5. Click **Continue**.
6. Insert the CD-ROM to load drivers.
7. Select **TCP/IP** and click **Configure**.
8. Select an IP address and a subnet mask. Do not choose **DHCP** unless it is used.
9. Click **Ok**.
10. When they are loaded, reboot the system.

### 3.2.2.2 Adding an LPD Printer to Windows NT 3.5

1. From the "Control Panel," select the **Printers** icon.
2. From the menu bar, click on **Printers**.
3. Select **Create Printers**.
4. Enter a name for the printer in the "**Name**" field.
5. Select the driver from the list next to **Printer Driver**.
6. In the "**Print To:**" box, scroll down and select **Other**.
7. Select **LPR Port**. If the **LPR Port** does not appear, restart from 1.
8. Click **OK**.
9. Enter the host name or IP address of the FastPort in the "**Name or address of host providing LPD**" field.
10. Enter the queue name in the "**Name of printer on that machine**" field. Type name in all lower case letters.
11. Click **OK**.

### 3.2.3 Printing from Windows NT 4.0

#### 3.2.3.1 Installing Microsoft TCP/IP Printing Services

TCP/IP printing is not default service on NT and is required to print to FastPort via TCP/IP. Do the following to add TCP/IP printing services:

1. From "Start," select-->**Settings**-->**Control Panel**.
2. Select the **Network** icon.
3. Select **Services** and click **Add**.
4. Select **Microsoft TCP/IP Printing** and click **Ok**.
5. Reboot the PC.

#### 3.2.3.2 Installing a Printer on Windows NT 4.0

1. From "Start," select-->**Settings**--> **Printers**.
2. Click on **Add Printer**.
3. Click on **My Computer**.
4. Click **Next**.



5. Click on **Add Port-->LPR Port-->New Port**.
6. In the “Name or address of server providing lpd:” field, enter the FastPort’s IP address.
7. In the “Name of printer or print queue on that server:” field, enter in the pre-defined queue name from Table 5-1 (page 5-5 in Chapter 5). If a remote queue was added, enter the queue name.
8. Click **Close** and click **Next**.
9. Select a printer from the list and click **Next**.
10. Enter in a new printer name and click **Next**.
11. Select whether or not the printer will be shared. Skip to Step 19 if the printer is not shared.
12. Click **Next** and enter a share name.
13. Select the appropriate operating system and click **Next**.
14. Select whether or not a test page will be printed.
15. Select **Finish**.

### 3.2.4 Printing using a Third Party TCP LPR/LPD Stack

If the systems has a third party TCP/IP stack, use an LPR client. LPR clients allow users to send print jobs to an LPR host (an “LPR/LPD host”). FastPort acts as an LPR host. Check your TCP/IP documents to verify that LPR/LPD can be used to print. Most LPR clients require two values:

- IP address of the FastPort
- Name of the remote printer.

If the IP address field has FastPort’s IP address, then the remote printer name will be one of the list of names that FastPort supports. See Table 5-1 (page 5-5 in Chapter 5) for pre-defined queue names.

### 3.2.5 Printing from Windows 95/98 Using DigiLpr

#### 3.2.5.1 Installing the DigiLpr Program

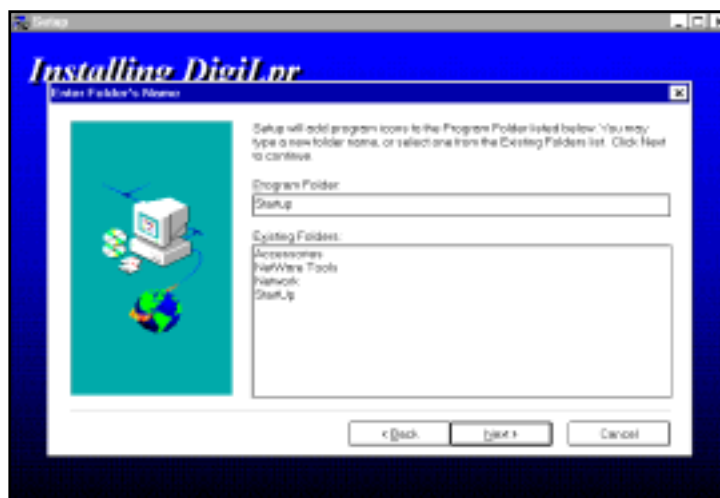
1. Configure the TCP/IP protocol. Refer to the Windows 95 documents.
2. Assign an IP address to the FastPort (Using: telnet, RARP, DHCP, etc.).
3. Run the **digilpr.exe** file to extract DigiLpr.

4. Run the **setup** program for DigiLpr.
5. Choose a directory to install the software package (Default is **C:\digilpr**. Click **Browse** to select another directory).



**Figure 3-2. Choose a Destination Directory**

6. Enter a name of a directory to spool the jobs. Default is **C:\spool**. Click **Browse** to select another directory (Digi recommends that the default directory, **C:\spool** be selected).
7. Type in a name and a host name of the PC.
8. Select a folder for the program items.



**Figure 3-3. Select a Folder**

9. The DigiLpr files are now copied to the system. Reboot to start DigiLpr.

### 3.2.5.2 Adding Queues in DigiLpr

To create a print queue:

1. Double-click on the **LPR Utility** icon. In the “Queues” pull-down window, click **Add New Queue**.



Figure 3-4. Add New Queue Menu

2. In the “Add a new queue” menu, fill in FastPort’s host name or its TCP/IP address. Choose from the list of **Print Queues** on the FastPort.

**Note:** Digi recommends that you use the default queue **raw\_p1**. The **\_p1** designates parallel port #1. If you are using a serial port on the print server, the ending would be **\_s1** as in “raw\_s1.”

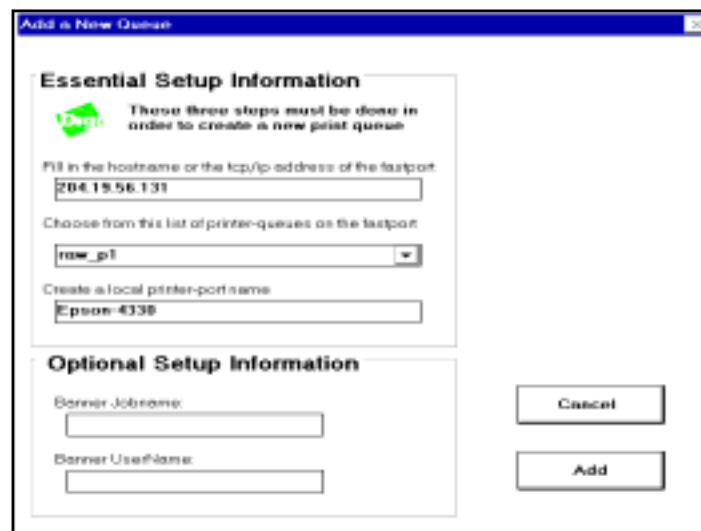


Figure 3-5. Essential Setup Information Menu

3. In the next field, select the name for the printer port. Digi recommends using a port name of six characters or less.
4. Click once on the **Add** button to add the queue created.
5. The DigiLpr window appears displaying the queue created.

### 3.2.5.3 Adding a New Printer

To add a new printer using “Add Printer Wizard”:

1. From **Start**-->**Settings**-->(open) **Printers**.
2. In the “**Printers**” menu, double-click **Add Printer**.
3. In the “Add Printer Wizard” menu, click **Next** to begin.
4. In the next menu, check **Local Printer** and click **Next**.
5. In the next menu, scroll down and select the appropriate printer. If the designated printer came with an installation disk, click **Have Disk**. If the designated printer did not come with an installation disk, see that printer’s documentation for a compatible printer.



Figure 3-6. Select Printer Screen

6. Click the appropriate port for the printer and then click **Next** (e.g., Figure 3-8 shows “c:\spool\Epson-4300” as the designated port).

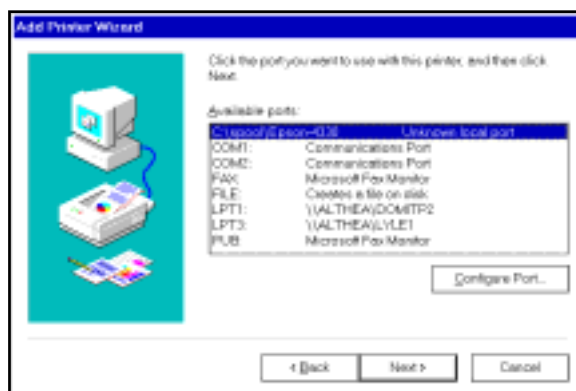


Figure 3-7. Select Port Screen

7. Type in a name for the printer and select this printer as the default printer for Windows-based programs. Adding a name is optional. Click **Next**.

8. A new printer has now been added. Print a test page to make sure the FastPort is correctly configured.
9. Click **Finish** when done.

### 3.3 Printing from NT using the HP DLC Protocol

With Windows NT, if the HP DLC protocol was installed through the **Control Panel, Networks**, choose **HP DLC printer** from the "other network device" dialog box.

A list of hardware (Ethernet or Token Ring) addresses for DLC compliant devices appear. FastPort will show up in this list.

### 3.4 Printing from Windows using TFTP Client

As a final TCP/IP option, FastPort supports the TFTP protocol for printing data or flash jobs. If the workstation has a TFTP client, open a session with FastPort's IP address, and **PUT** a file from the station to FastPort. FastPort will print jobs on its first parallel port (example for NT: `tftp -i x.x.x.x PUT flash.hex`).

### 3.5 Management Tools Used with NetBIOS and TCP/IP

This section focuses on network management utilities that are based on the NetBIOS/NetBEUI and TCP/IP protocol.

#### 3.5.1 FastManage

The FastPort print server supports configuration from the Digi's FastManage suite of software. With this software, FastPorts on a network can be located and managed. See the Chapters 9 thru 11 for information on how to use FastManage.

#### 3.5.2 NetBIOS-DOS Tools: NBMON and showprn

FastPort devices also support configuration from DOS. Digi supplies two DOS tools: **NBMON** and **showprn**. They are included on the CD-ROM or can be downloaded from our FTP site. To install these tools, copy them from the CD-ROM to a local drive and run them (see Appendix I).

# Chapter 4

## Installing and Printing on NetWare

Chapter 4 describes how to use ACT (Advanced Configuration Tool) and PCONSOLE for installing, configuring, and managing FastPort on NetWare networks.

**Note:** For users of the MIL-3300 series of FastPort, use the `ACT3300.EXE` utility to configure FastPort.

### 4.1 Introduction

**Note:** When using Novell NetWare's client utilities refer to NetWare's docs.

1. Identify whether FastPort will be installed in:
  - a. NetWare 2.x, 3.x bindery environments, or
  - b. NetWare 4.x NDS environment.
2. Either way, copy ACT from the CD-ROM to your system (refer to Appendix C for installing and configuring ACT).
3. Install FastPort in a 2.x or 3.x bindery mode, steps includes:
  - a. Creating a print server and print queue object on the NetWare server, then attaching the two together.
  - b. Creating a config. file that describes the file server and print queue to service. Store this file on the preferred server: `sys:/login/milan` directory as `FPXXXXXX`.
  - c. Storing the name of the server in NVRAM, so it knows where to search for its configuration file. Do this with ACT or FastManage.
4. Install in a NetWare 4.x NDS, steps include:
  - a. Creating a print server, printer, and print queue in the NDS database using either NWADMIN or PCONSOLE.
  - b. Storing context/tree where the print server object was created in NVRAM. This can be done with ACT, FastManage, or most other Digi configuration utilities.

5. Once configuration is done, power cycle FastPort. Wait a few minutes to allow it to login.
6. Use PCONSOLE to verify that FastPort has logged in:
  - a. Run PCONSOLE and choose one of the queues created.
  - b. Choose **Currently Attached Print Servers**.  
The FastPort name appears.
7. Use NetWare's "capture" or "nprint" to send data to a NetWare queue. For Windows, use the "Print Manager" to redirect output to one of the NetWare print queues.

## 4.2 Configuring in a Bindery Environment

FastPort can be configured to service up to 16 print queues on 16 bindery style NetWare servers (NetWare 2.x, 3.x). If configuring FastPort for queues on NetWare 4.x servers, use an alternate method (see section 4-4).

### 4.2.1 Using Act to Install the Print Server

Quick Configuration provides options when creating FastPort. Information is stored in a configuration file called **FPXXXXXX** (where **XXXXXX** are the last six digits of its address). The file is stored in the **\LOGIN\MILAN** on the file server.

1. Highlight **Quick Configuration** and press [Enter]. The program displays the available FastPort systems.
2. Use the arrow keys to select FastPort and press [Enter].
3. Highlight **FastPort** and press [Enter]. Select a file server.
4. Select a queue to be serviced: [ins] key to add a queue.
5. Repeat Steps 2-4 for all queues that use this FastPort.
6. Specify the printer type (serial or parallel).
7. Select a file server location to store the configuration file.
8. In the next screen, select from the available printer ports.
9. The "Print Server Configuration Summary" screen appears. Review and write the configuration file to disk.
10. Use the [esc] key to return to the main menu. Power cycle FastPort to implement the changes.

#### 4.2.2 Using PCONSOLE to Install a Print Server

FastPort can be configured for printing without a config. file. This eliminates the need for the directory `SYS:LOGIN\MILAN`, its configuration files, and the ACT software.

1. Create a print server called `FPXXXXXX` with `PCONSOLE` (where `XXXXXX` is the unit's six digits Ethernet address).
2. Create a queue for FastPort using `PCONSOLE`.
3. Assign the queue created to the print server `FPXXXXXX`. and power cycle FastPort.
4. To send data to the serial port instead of parallel (default), create a queue name ending with `-S` using `PCONSOLE`. To send data to parallel port 2/3 or serial port 2, create a queue name ending with `-P2`, `-P3`, or `-S2`, respectively.

#### 4.2.3 Adding Users to the Notify List with PCONSOLE

1. In `PCONSOLE`, select the following sequence of options:
  - a. Select `Print Server Information` and choose a print server.
  - b. Select `Print Server Configuration`.
  - c. Select `Printer Configuration`.
2. From the configured printers list, select `Printer0 Configuration`. The "Define Printer Type" box appears.
3. Select the printer description `Defined elsewhere`.
4. Press [esc] until the `Print Server Configuration` menu appears.
5. Select `Notify List for Printer`.
6. Select `Printer0` from the Defined Printers list.
7. Press [ins] and select a user from the pull-down menus.

### 4.3 Installing a Print Server in an NDS Environment

1. Create the print server, printer, and print queue (use `PCONSOLE` or `NWADMIN`).
2. Configure a `DS Tree Name` and `DS Context Name` in FastPort.

**Note:** ACT can be used to configure parameters on FastPort. FastManage can also be used to configure those two parameters on FastPort.



### 4.3.1 Installing a Print Server on NDS using PCONSOLE

1. Run PCONSOLE using the following command (from the `/public` directory on the server):

```
pconsole
```

2. Using the keys, select **Quick Setup** and press [Enter].
3. In the "Print Services Quick Setup" menu, select **Print Server** and press [Enter].
4. Press [ins] to create the **Print Server Object**. Name created must be eight characters long. Begin with "FP," and end with the last six digits of the hardware address (on the bottom). For example, FastPort with "0040C8DEAD00" address, creates device: **FPDEAD00**.

**Note:** The print server name is not case sensitive.

5. Select **New Printer** and press [Enter].
6. Enter a name for the new printer object. The name should be less than 256 characters, including the context. The print server will service only one printer per NDS Server.
7. Select **New Print Queue** and press [Enter].
8. Type in the name of a **Queue**. The queue name is less than 256 characters, including the context. Default: queues are serviced by the printer attached to FastPort's parallel port. To force FastPort to service queues with the serial port, the name must end with an "-s." For a four-port print server, force it to service the queue with the second parallel or serial port, append the queues with "-P2" or "-S2."
9. Select **Printer Type** and press [Enter].
10. Select **Other/Unknown**.
11. When finished, press [esc] to **save** changes.

The volume field is filled in by PCONSOLE with the name of the nearest volume. This field contains the name of the server volume that will hold the queued jobs for the print server.

#### 4.3.1.1 Additional Queues

FastPort has the name of a printer to service. The printer contains a list of print queues belonging to it. To add queues to the print server service:

1. From the "Available Options" menu, select **Printers**.

2. Select the printer created and press [Enter].
3. Select **Print Queues Assigned**. Pressing [ins] allows a user to choose from a list of created queues.
4. Create new print queues by pressing [ins], again. Once an object is created, it must remain in that context until deleted. By default, quick setup creates these objects in the same context, but users have full control of the object context. Note the context name at the top of the screen.
5. Press [esc] to Exit. Once done, run ACT to set up a **DS Context Name** and **DS Tree Name** (see Appendix C).

### 4.3.2 Installing Print Server in NDS Using NWadmin

The following procedures describe how to create a print server, a new print queue using **NWadmin**:

#### 4.3.2.1 Creating a New Print Server

1. From the “NetWare Tools” menu, select **NWadmin**.



Figure 4-8. Running NWadmin

2. Highlight the **Organizational Unit** where the Print Server, Printer, and Print Queue will be created.
3. From the “Object” pull-down window, click **Create**. The New Object window appears.
4. Select **print server** and click **OK**. The Create Print Server window appears.
5. Type in the FastPort name. The name must be eight characters long, beginning with *FP* and ending with the last six digits of the hardware address.
6. After typing in the name, click **Create**.

#### 4.3.2.2 Creating a New Printer

1. Under the “Object” pull-down window, click **Create**. The New Object window appears.
2. Select **Printer** and click **OK**.
3. Type in the **Printer Name** and click **Create**.

#### 4.3.2.3 Creating a Print Queue

1. Under the “Object” pull-down menu, click **Create**. The New Object menu appears.
2. Select **Print Queue** and click **OK**.
3. The Create Print Queue menu appears. Select the **Select Object** icon.
4. In the “Select Object” window, highlight the **Directory Context** where the print queue will be held and click **OK**. The Create Print Queue window appears with the selected object filled in the “Print Queue Volume” box.
5. Type in the **Print Queue Name** and click **Create**.
  - Queue name (and context) is less than 256 characters
  - All queues are serviced by the printer attached to FastPort’s parallel port
  - To force FastPort to service the queue with the serial port, the queue name must end with an **-S**.
  - For a 4-port FastPort, force it to service the queue with the second parallel or second serial port, append the queues with **-P2** or **-S2**, respectively.

A new print server, printer, and print queue has been created. Continue to the next procedure to connect these objects.

#### 4.3.2.4 Connecting the print server to a Printer

1. In the “Context Tree” menu, select the print server created.
2. Click **Assignments** in the following window (Figure 4-2).
3. In the next window, click **Add**.
4. Highlight the printer created and click **OK**.



Figure 4-9. Print Server

The printer is now connected to FastPort. Continue to the next section to assign a print queue to the print server.

#### 4.3.2.5 Assigning a Print Queue to FastPort

1. Double-click the recently assigned printer (Figure 4-3).

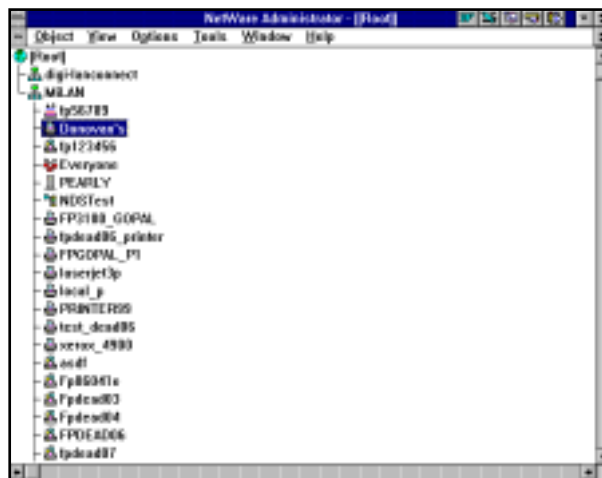


Figure 4-10. Context Tree

2. In the next window, click **Assignments**.
3. In the “Assignments” menu, click **Add**.
4. When the Select Object menu appears, select the print queue created and click **OK**.
5. Click **OK** (if this is correct).

The print queue to a printer is now assigned. Now use ACT to set up a **DS Tree Name** and **DS Context Name**.

## 4.4 Configuring in a Bindery and NDS Environment

FastPort can operate in a mixed Bindery/NDS environment. Use one of the previous methods to install it. Adhere to the following restrictions:

- FastPort can service up to 16 queues on a total of 16 servers.
- FastPort cannot service bindery queues and NDS queues on the same server (i.e., two connections—one bindery, one NDS—on the same server). If using NDS on a server and there is a *fpxxxxxx* configuration for this FastPort in the `login/milan` directory, then remove it.
- FastPort can service NDS queues in only one tree.
- When logged into NDS as an NDS print server, configure FastPort with only one NDS printer object. Specifies such things as which port to send data (LPT or COM) by creating special queue name suffixes.

The difference between configuring bindery or NDS queues:

- When servicing Bindery queues, FastPort will read a configuration file stored in the `sys:\login\milan` directory. In addition, users may modify the setting in FastPort called "Preferred server." This refers to the Bindery File Server that holds the configuration file.
- When servicing NDS queues, FastPort must be configured with a context name, and may be configured with a tree name. This can be done with FastManage or ACT.
- When configured for NDS, FastPort does not use a config. file. It logs into the context where it was configured, locates the printer and queues that it should service.
- Regarding manual configuration of print server, queues, and printers for FastPort (within `PCONSOLE` or `NWadmin`): Bindery print servers are directly attached to bindery print queues. NDS servers are attached to a single printer, which is attached to (possibly) many print queues.

When configured to service both Bindery and NDS queues, FastPort does the following:

1. At boot-up, FastPort tries to locate an NDS server.
2. It now looks at the context it has been configured with and tries to login as print server *FPXXXXXX*.
3. It now gets the printer attribute from the print server, and gets a list of print queues that the printer should service.

4. It attaches to those print queues and goes to the next phase.

**Note:** If a context was not specified in the NVRAM, it will not logon to NDS.

5. FastPort then tries to locate normal Bindery file servers.
6. Once it locates one, it looks in its "**preferred server**" NVRAM value, and if it exists, gets a route to that server.
7. It then looks on the preferred server in the `sys:\login\milan` directory for its configuration file (`FPXXXXXX` - last six digits of hardware address).
8. It then reads its configuration file and logs in and attaches to the queues and servers listed in that configuration file.
9. If a preferred server was not specified in its NVRAM, it will search up to 24 file servers on the network for a config. file.
10. If a config. file is not found, FastPort will go through a list of servers and try to log in as print server `FPXXXXXX`. If successful, it gets the list of queues and attaches to them.

## 4.5 Printing to FastPort

Print to FastPort as if it were a Novell print server. For example, use Novell's **CAPTURE** command to capture a local PC port to the FastPort print queue. For example (assuming a host name of `raisa` on LPT 1):

```
CAPTURE /S=raisa /Q=lp1
```

Or, use **NPRINT** to print to FastPort:

```
NPRINT myfile /S=raisa /Q=lp1
```

## 4.6 Printing Specific File Formats

If you are having difficulty printing postscript files using binary emulation, review section 3.2.2.1. *Example 1*. Add **b=ps** (from Table 4-1) in the `FPXXXXXX` configuration file. Or when printing "HP/GL" files, turn the banner off by adding **b=off** after the two colons on the `FPXXXXXX` configuration file.

For printing through NPS, use **NWADMIN**. Add two colons before the entries in Table C-1 (in Appendix C) to the description field.

# Chapter 5

## Installing and Printing on a UNIX Environment

### 5.1 Introduction

To perform installation on a UNIX TCP/IP client workstation:

1. Decide whether to use:
  - a. LPR/LPD support, which is native to UNIX systems, or
  - b. Digi's host software.
2. Also, decide whether to print directly to FastPort from each client workstation, or to spool through a single server.
3. Load the UNIX contents onto the local system. The CD-ROM contains an install script and compiled host software for UNIX systems. It also has example config. files, system files, and additional utilities.
4. Configure FastPort with a proper IP address (refer to Chapter 2 for information on assigning an IP address).
5. Refer to the section in this chapter for the specific type of installation: LPR/LPD or host software.

### 5.2 Host Software Versus LPD

There are two ways to install FastPort print server onto UNIX (Both methods can print with UNIX print commands):

- Direct LPD support
- Host software

Direct LPD is used on UNIX systems that support remote printing to BSD UNIX spoolers. On System V systems, system administration utilities built into the OS provide quick set-up menus for printing to remote systems. Host software allows for customize print jobs. It can be integrated into environments to do tasks such as ASCII-to-PS conversion, banner generation, and status reporting.

## 5.3 Digi Installation Software

1. Log in as **root** onto the system.
2. Create a directory to load the software (e.g., type **mkdir Digi** and press [Enter]) and enter that new directory.
3. Load the software from the disk and type:

```
tar -xvf /dev/<device>
```

where **<device>** is the name of the drive (usually **FD0**).

4. Type **ls** to list the files. The following information appears:

```
README.FIRST
unpack.sh
dist.tar.Z
licence.txt
```

5. Type **./unpack.sh** to launch the install script.

### 5.3.1 Installing Logical Printers

Logical printers can be created with characteristics that print to the same printer. To install a second printer:

1. Run the **install.sh**.
2. At the “Installation Options” menu, choose **Option #2**.
3. Specify a second printer and answer the prompts as before.

### 5.3.2 Installing on System V UNIX

The **install.sh** creates a dummy device, adds a printer, and starts the “lpsched” process. To install System V:

1. Run the **install.sh**.
2. Choose FastPort by its model number.
3. Choose **Option #3, lpsched-based systems**.
4. Select **Option #1, Configure New FastPort** to assign an IP address. If an IP address was assigned, go to step 5. The script prompts:
  - Host naming method (usually the **/etc/hosts** file)
  - Exact type of system



- Whether or not the IP information about FastPort has been entered into the host naming method
  - Ethernet address (on the bottom of the device)
  - IP address given FastPort
  - The method for assigning FastPort its IP address
5. The main menu appears, select **Option #2, Install a printer or plotter**. The software prompts for:
- Method of installation. Either LPD or host software
  - Hostname or IP address for FastPort
  - Printer name of the device (may be same as hostname)
  - Type of printer (**PCL, PostScript, or ASCII**)
  - Printer is connected to the **serial** or **parallel** port
  - Type of banner page

### 5.3.3 Install Script on IBM RS/6000

Use the `install.sh` to install FastPort on an IBM AIX system. This modifies the `/etc/gconfig` file to add a printer entry and specifies using `rembak` for remote spooling, To install:

1. If not already done so, load the `install.sh` software.
2. Type: `./install.sh` to run the install script.
3. Select a FastPort by its model number.
4. Choose **Option #2. qdaemon-based systems**.
5. If not already done so, assign an IP address to FastPort by selecting **Option 1, Configure a Fastport**.
6. Choose **Option #3, install a Printer or Plotter**. Enter:
  - Hostname of FastPort
  - Queue name to create
  - Directory for the back end script
  - Directory to load the host software
  - Host naming method
  - Type of data sent to the printer (ASCII, Graphics, PS or PCL)

### 5.3.4 Installation on BSD UNIX Systems

`install.sh` creates a spool directory and makes a config. file `/usr/spool/<printer name>/.fpconfig`. To install:

1. Load the `install.sh` software.
2. Type `./install.sh` to run the install script.
3. Choose FastPort by its model number.
4. Choose **Option #1, LPD-based systems**.
5. If an IP address has not been assigned, select **Option #1, Configure a FastPort**. If one has been, go to step 7.
6. Choose the following:
  - a. Host naming method (`/etc/hosts/file`).
  - b. Host name and IP address for FastPort.
  - c. Hardware (Ethernet) address of FastPort.
  - d. UNIX system type.
  - e. Enter monitor mode and press [i] to assign an IP address.
  - f. Press [r] to issue a command to reset FastPort.
  - g. Continue to step 7 to install the printer.
7. At the main menu, select **Option #2, Install a printer or plotter**. The software prompts for:
  - a. Whether to install host software or use direct LPD.
  - b. Type of data sent to the printer (`pcl`, `ps`, or `ascii`).
  - c. Where the printer port is connected to: serial or parallel.
  - d. Type of banner page.

Select **Option x** to Exit. BSD installation is complete.

## 5.4 Manual Installation on LPD Systems

Printing to LPD allows users to print as if they were directly attached to a remote UNIX system. Configuration requires assigning an IP address and setting up a remote BSD UNIX-like printer.

Digi provides an install script to configure UNIX for FastPort. UNIX systems that support LPD include:

- BSD UNIX systems
- System V Release 4 machines
- IBM, HP, or DEC mainframe machines that run TCP/IP

#### 5.4.1 Getting Started on an LPD System

1. Install FastPort on the network and assign it an IP address.
2. Verify that **LPD** and **fpfilter** socket is enabled.

Two items are required to configure an LPD printer:

- Remote system name (device's host name) or IP address
- Remote printer/queue name (a queue listed in Table 5-1)

#### 5.4.2 Pre-defined Queue Names

Table 5-1: Printer/Queue Types

Printer Types	Description
raw	Sends data with no header and no translation.
ascii	Writes data as ASCII, substitutes carriage-return, line-feed pairs for the line feeds sent by UNIX, and sends a text banner and a final form feed.
ascii_landscape	Like ASCII, but sets the printer in the landscape mode before printing.
pcl_landscape	Like PCL, but sets the printer in the landscape mode before printing.
pcl	Assumes the data is PCL and sends a text banner. Carriage returns are not added. Form feed is sent at the end of the job.
psb_tek	Prints PostScript binary files on a Adobe PostScript Level 2 printers.
ps	Writes PostScript and sends a Control+D at the end of the print job. Sends a PostScript banner page at the end of the print job.
psb_hp	Prints PS binary files on newer HP printers that support PostScript level 2. Use this queue-type only if PostScript binary data is being printed.
autosense	Data is checked. For ASCII, line feeds are translated into carriage return feeds. Final form feed is sent. For PS, a Control+D is sent at the end. Either way, a PS banner is sent at the end.

To use a printer attached to the serial or parallel port, add an **\_s1**, **\_s2**, **\_p1**, **\_p2**, and **\_p3**. Default: **Parallel 1**. FastPort supports multiple queues by printing via LPD from a maximum of 8 LPD connections (no limits for host software). The device listens for LPD connections simultaneously; if they are being used, the 9th LPD connection will not connect

### 5.4.3 User Defined Queue Names

The remote printer name is used by UNIX to tell FastPort which port to send a print job. Some UNIX systems only support eight character names. If so, user's can create a remote printer name called **user1**. To enable this:

1. Telnet into FastPort's diagnostic port (2002).
2. At the main command prompt, press [N] for network.
3. Press [T] for TCP/IP or press [L] for LPD.
4. Follow the instructions to add a user defined queue name.
5. Configure the remote printer name on the workstation to be the user-defined queue name just created on FastPort.

### 5.4.4 LPR Options

The number of copy options with LPR is not supported. To suppress banner pages for individual print jobs, use LPR with the **-h** option or turn off the banner printing via telnet. In BSD UNIX systems, the suppress header (**sh**) option in **/etc/printcap** file does not work.

### 5.4.5 Manual Installation With LPD on a BSD UNIX System

**Note:** The following installs a printer named "beta" that is attached to a FastPort named "alpha." When installing LPD, replace "beta" and "alpha" with your printer's name and host names, respectively.

1. Copy the following entry into your **/etc/printcap** file.

```
beta|FastPort LPD printer:\
:lp=\
:mx#0:\
:lf=/usr/adm/beta-errs:\
:af=/usr/adm/beta-acct:\
:sd=/usr/spool/beta:\
:rm=alpha:\
:rp=ascii:
```

**Note:** The **rp=** entry refers to the "remote printer" name. This tells FastPort to do special formatting for the printer. If there is an ascii printer attached, use **ascii**. If the printer is postscript, use **ps**. If it is a plotter or you are configuring a PC-NFS printer, use **raw**.

2. Create the spool directory. Change ownership to daemon:

```
mkdir /usr/spool/beta
chown daemon /usr/spool/beta
chmod 755 /usr/spool/beta
```

3. Create log/accounting files. Change ownership to daemon:

```
touch /usr/adm/beta-errs
touch /usr/adm/beta-acct
chown daemon /usr/adm/beta-errs
chown daemon /usr/adm/beta-acct
chmod 644 /usr/adm/beta-errs
chmod 644 /usr/adm/beta-acct
```

4. Start the printer and queue by typing the following:

```
lpc start beta
```

5. You can now print files with the lpr or lp command:

```
lpr -Pbeta <filename>, or
lpr -dbeta <filename>
```

#### 5.4.6 Manual Installation with LPD on System V Machines

Access printers in System V systems through LP scheduler. System V administration commands allow users to create a printer description file called an “interface” filter. This filter is designed to customize the data for a printer. Enable LPD on System V systems by using **SAM** on HP/UX, **admintool** on Solaris, or any other system admin. tool. For SCO UNIX, refer to the **readme.lpd** file in the **/SCO** directory.

1. Use **lpshut** command to shut down the printer.

```
/usr/lib/lpshut
```

2. Add a line in this format to the **/etc/lp/systems** file.

```
alpha:x:--bsd:--:1:10:--:--:
```

where **alpha** is the host name of the FastPort.

3. Use the **lpadmin** command to add a new printer.

```
/usr/lib/lpadmin -p <printer> -s <host name>! <remote queue>
```

where **printer** is the printer’s name, **host name** is the host name, and **remote queue** is a predefined queues (Table 5-1).

4. Start the print scheduler by entering:

```
/usr/lib/lpsched
```

5. Enable the printer.

```
enable <printer name>
```

```
accept <printer name>
```

### 5.4.7 Manual Installation with LPD on RS/6000

1. Determine the remote system/queue. Use **Rembak** for remote spooling.
2. Add FastPort to the network and assign an IP address to it.
3. Edit the `/etc/qconfig` file, for example:

```
test_q:
    device = sample
    host = alpha
    rq = ps
sample:
    backend = /usr/lib/lpd/remback
```

#### Legend:

- Queue is “test\_q”
- Host file is “alpha”
- Printing to “ps” (From Table 5-1)

4. Stop queue services with the following command:

```
stopsrc -s qdaemon
```

5. Restart the remote queue using the command.

```
startsrc -s qdaemon
```

LPR and LP are now set to print to the device.

**Note:** The `qconfig` file, valid queue names (`rq=`) may have the same names as used for printer types (`rp=`).

## 5.5 Manual Installation Using Host Software (fpfilter)

Digi’s host software is called **fpfilter**. This program sends print jobs to printers connected to FastPort in two ways:

- Command line options
- Printer options file (`.fpconfig`)

### 5.5.1 Fpfilter Command Line Options

**Table 5-2: fpfilter Command Line Options**

Option	Function
<code>-P &lt;hostname&gt;</code>	Send file to the <i>hostname</i>
<code>-s1, -s2, -p1, -p2, -p3</code>	Send data to serial ports: 1 or 2. Default: Sends to parallel port 1

**Table 5-2: fppfilter Command Line Options**

-b	Send a banner file (BSD only)
-f	Send a final form feed
-m	Send CR/LFs for UNIX LFs
-D <dir name>	Look in the <dir. name> directory for the <b>.fpconfig</b> file
-A <a2ps filter>	Use the “a2ps” filter for ASCII to PostScript conversion
-d	Send a Control+D at the beginning/end of a job (PS printers only)
-startfile <file>	Send file before print job
-endfile <file>	Send file after print job
-startstring “<str>”	Send “str” (string in quotes) before print job
-endstring “<str>”	Send “str” (string in quotes) after the print job
-syslog	Print the error messages into the “syslog” file
-mail <user>	Send E-mail to <i>user</i> at the end of print job if there is an error
-prog <prog-name>	Executes at the end of a job; sends the returned error code to it
-errorfile <file>	Use <i>file</i> to log errors
CLASS <hostname:port, List>	If the current printer is unavailable, tries printing to the device listed in the <i>List</i> (e.g., CLASS alpha:p1 CLASS alpha:p2)
-closewait	Closes all sent data before the socket closes
-pba	Adobe PostScript conversion for non-binary printers
-pbh	HP PostScript binary conversion for non-binary printers

The **fppfilter** software supports Adobe TranScript command line arguments. To use these options, rename **fppfilter** as:

- **fppcomm:** Print to parallel port 1
- **fppcomm\_s:** Print to serial port 1
- **fppcomm\_p2:** Print to parallel port 2
- **fppcomm\_s2:** Print to serial port 2
- **fppcomm\_p3:** Print to parallel port 3

When no **-P** is given, **fppfilter** uses the directory for its name. If the directory for alpha is **/usr/spool/fastport**, it tries FastPort as the host name and prints with LPR or LP:

```
./fppfilter -P alpha -m -f /etc/hosts
```

### 5.5.2 Printer Options File (.fpconfig)

**fpconfig** can be used instead of command line option. This simple text file can be modified using an ASCII text editor. **fppfilter** checks the directory specified by the **-D** command; if it is not present, it checks the current directory for the **.fpconfig** file. If present, it changes the **fppfilter** behavior.

**fppfilter** is executed by the spooling when using LPR. **fppfilter's** directory is not that of the users. **fppfilter** is the spool directory. Syntax is shown in Table 5-3. Entries appear and in any order.

**Table 5-3: .fpconfig Options**

<i>fpfilter</i> Option	Function
hostname <name>	Specify the IP name for FastPort
serial1 or serial 2	Send to the serial port
ctrlD	Send a Control+D before and after the job (PostScript only)
formfeed	Send a form feed after the job
parallel 1, parallel 2, or parallel 3	Send to the parallel port
mapcrLf	Map line feeds to carriage return/line feeds
asciifilter <program>	Call <i>program</i> to convert PostScript from ASCII
bannerfirst	Look for file <b>.banner</b> in current directory. Submit it before the job
bannerlast	Look for file <b>.banner</b> in current directory. Submit it after the job
startfile <file>	Send <i>file</i> before the job
endfile <file>	Send <i>file</i> after the job
startstring <string>	Send <i>string</i> before the job
endstring <string>	Send <i>string</i> after the job
CLASS <hostname: port list>	If printer is unavailable, program tries to print to the FastPort port as listed left to right (CLASS alpha:p1 alpha:p2 beta:p beta:s)
mail <user name>	Sends E-mail after the job is printed or in case of error
errorfile <filename>	Stores errors that occurred in <i>filename</i> .
program <program>	Execute <i>program</i> after the job prints or in case of error. Passes the error code.
syslog	Records error messages in the syslog file.
checkserial	Sends a Control+T to check the serial printer's status before sending a print job. Only for PostScript printers. If no printer is attached, data is not sent.
checkparallel	Checks for the parallel printer before sending a print job. Some parallel printers do not make the parallel status "Busy" when turned off. If this option is not used while FastPort is in standard mode, then print jobs will be lost.
acctg	Performs accounting on printers. For serial printers, it reports the number of pages printed. For parallel printers, it reports the name of user, machine, file, and date and time the job was sent.
closewait	Ensures that all data is sent before the socket is closed. It is required in some System V machines.
dobanner	Look for file <b>.banner</b> in the current directory and submit it before the job (.banner is normally generated by an output filter program).
pba	Adobe PostScript binary conversion for non-binary printers.
pbh	HP PostScript binary conversion for non-binary printers.

### 5.5.2.1 About Option Classes

**Class** (Table 5-3) supports printing to the first available printer from a list of printers according to the following:

- The first printer is the one specified on the command line.
- Next one is *hostname: port* in the **.fpconfig** file.
- Subsequent printer names are taken from the **Class** list.

**fpfilter** connects to the first printer. If not, it tries to connect to the next printer. If still unsuccessful, **fpfilter** goes back to the first printer.



### 5.5.2.2 About Options Startstring and Endstring

If “startstring” and “startfile” are specified, then startstring is sent before the startfile. “Endfile” is sent before the endstring.

- To indicate “Escape,” use **M-**. To indicate “Control,” use **C^**.
- To set an HP LaserJet IIIsi to landscape mode, type:

```
startstring "M-&l10"
```

### 5.5.3 Manual Installation for System V Machines

1. Log in as **root** and create a dummy device in **/dev**:

```
touch /dev/alpha
```

2. Change its ownership, group and access rights:

```
chown lp /dev/alpha
chgrp lp /dev/alpha
chmod 660 /dev/alpha
```

3. Shut down the **lp** scheduler .

```
/usr/lib/lpshut
```

4. Use **/usr/lib/lpadmin** command to create a printer. Use the local system admin. tools to type the following:

```
/usr/lib/lpadmin -p<printer name> -v<device name> -m<model>
```

where *printer name* is alpha, *device name* is **/dev/alpha** and *model* is either standard or dumb in our example.

5. Issue the following when adding postscript for Solaris:

```
lpadmin -p<printer name> -I any
```

Interface directory usually has these paths:

- SCO, Solaris, DG/UX, UNIXWare 2.X and Interactive: **/usr/spool/lp/admins/lp/interfaces**
- HP/UX and Silicon Graphics systems: **/usr/spool/lp/interface**
- SGI Irix system: **/varspool/lp/interface**
- AT&T and Sequent: **/usr/spool/lp/admins/lp**



Edit the interface file so its contents function as a sub-shell. Output is then piped to the `fpfilter` program. To do so:

- a. First line of the interface file usually is `#!/bin/sh`. Add a single open parenthesis in the second line of the file.

```
#!/bin/sh
(  
# your existing interface script
```

- b. Add a line to the second-to-last line (see example). This line closes the parenthesis to make it a sub-shell.

```
) | /usr/local/milan/fpfilter -P alpha <options>  
exit 0
```

Host software is in `/usr/local/milan`. The host name is "alpha" in `/etc/hosts`.

For System V Release 4, place the following on the line after the comments lines ("`#`")

```
FILTER="/usr/local/milan/fpfilter -P fastport <options>"
```

Options field contains any option listed in Table 5-3. To use a printer config. file; use the `-D` option with `fpfilter`, followed by directory name containing the `.fpconfig` file. For example:

```
-D /usr/local/milan
```

6. Enable the printer and accept these print job commands:

```
enable <printer name>  
accept <printer name>
```

#### 5.5.4 Manual Installation on IBM RS/6000

1. Edit file `/usr/lpd/qconfig` that specifies options for virtual printers.
2. Add the following lines:

```
milan:  
    device = lp0  
lp0:  
    file = FALSE  
    header = never  
    trailer = never  
    access = both  
    backend = /usr/local/milan/commfilter.sh
```

where queue name is "milan"; host is in `/usr/local/milan`.

3. Create a script `commfilter.sh` in the `/usr/local/milan`.

```
#!/bin/sh
/usr/local/milan/fpfilter -P alpha <options> $*
exit 0
```

To use a printer config. file (i.e., `.fpconfig` file) located in the `/usr/local/milan` directory (see Table 5-3)

```
-D /usr/local/milan
```

4. Make the script executable:

```
chmod 755 commfilter.sh
```

5. Stop and restart the `qdaemon` (`s_stat filter` and `l_stat filter` options are not supported).

```
stopsrc -s qdaemon
startsrc -s qdaemon
```

### 5.5.5 Manual Installation on BSD UNIX Systems

Host software is installed as an “input” filter. Host sends a print job to FastPort and provides a transparent printing environment. Install host on every host that prints to FastPort. `install.sh` can be used to install a FastPort printer/plotter using either host software or LPD support. A sample install session is available in `/examples/install.doc` directory. Using Digi's host software, `fpfilter`:

**Note:** The following installs a printer named “beta” that is attached to a FastPort named “alpha.” When installing LPD, replace “beta” and “alpha” with your printer's name and host names, respectively.

1. Copy the following entry into your `/etc/printcap` file.

```
beta|FastPort host software printer:\
:lp=/dev/beta:\
:mx#0:rw:sb:\
:lf=/usr/adm/beta-errs:\
:af=/usr/adm/beta-acct:\
:sd=/usr/spool/beta:\
:if=/usr/local/Digi/fpfilter:
```

2. Create a new dummy device, with these commands:

```
touch /dev/beta
chmod 755 /dev/beta
chown daemon beta
chgrp daemon beta
```

3. Create the spool directory. Change it ownership to daemon

```
mkdir /usr/spool/beta
chown daemon /usr/spool/beta
chgrp daemon /usr/spool/beta
chmod 755 /usr/spool/beta
```

4. Create log/accounting files: Change ownership to daemon:

```
touch /usr/adm/beta-errs
touch /usr/adm/beta-acct
chown daemon /usr/adm/beta-errs
chmod 644 /usr/adm/beta-errs
chown daemon /usr/adm/beta-acct
chmod 644 /usr/adm/beta-acct
```

5. Create a directory called `/usr/local/Digi` and place the `fpfilter` program there. (Or change the path of the input filter “:if=” to point to any directory containing `fpfilter`.) Make sure that the directory containing `fpfilter` and `fpfilter` itself have at least access rights of 755.

```
mkdir /usr/local/Digi
chmod 755 /usr/local
cp fp* /usr/local/Digi
chmod 755 /usr/local/Digi/fp*
```

6. Create an options file called `.fpconfig` in the spool directory (specified by “:sd=”). This file should be at least 644 and owned by daemon.

For a parallel ascii text printer, a sample `.fpconfig` file would contain:

```
parallel
hostname alpha
mapcrlf
formfeed
```

For a postscript printer on the serial port:

```
serial
hostname alpha
ctrld
```

For a serial plotter:

```
serial
hostname alpha
```

For a parallel printer which will be used by PC-NFS:

```
parallel
hostname alpha
```

7. Start the printer and queue by typing the following:

```
lpc start beta
```

8. You can now print files with the lpr, or lp command.

```
lpr -Pbeta <filename>, or
lp -dbeta <filename>
```

### 5.5.5.1 Printing to FastPort

After installing both hardware and software, FastPort is ready to print. Commonly used BSD print commands include:

Table 5-4: BSD Print Commands

Command	Function
lpr -p <printer> <file>	Prints the <i>file</i> to the <i>printer</i>
lpq -P <printer>	Displays any active queues for the <i>printer</i>
lpc stat <printer>	Interactive program for printer management
lpc clean <printer>	*Remove all print jobs for the printer
lpc restart <printer>	*Restart this <printer> queue
lprm -p <printer> <job#>	*Removes the <job#> from the print queue

**Note:** \* These parameters require root access.

### 5.5.5.2 Customizing BSD Installation

Create the `.fpconfig` file in the spool directory (i.e., `:sd=` entry in `printcap`), since this is where daemon executes `fpfilter`. The `.fpconfig` file should be owned by the daemon.

#### 5.5.5.2.1 Banner Pages and Accounting Information

To print a banner page, the install script must be told to print a banner. It adds the command `bannerfirst` to the `.fpconfig` file. To configure an existing printer to send a banner, remove the existing printer and run the installation script again.

**Note:** The banner-generating programs are supplied “as is.”

To print accounting info., add the line `acctg` to the `.fpconfig` file. This causes accounting information to be written to the file specified by `:af=<filename>` in the `printcap` entry.

## 5.6 Installing and Printing from Data General's DG/UX

FastPort supports DG/UX™ 5.4 Release 2.01 and above. Current versions of DG/UX fully support FastPort; meaning that an interface script or filter command do not need to be loaded. These files are:

- `/usr/lib/lp/bin/fpfilter`
- `/usr/lib/lp/model/fastport`

### 5.6.1 Assigning Host Name and IP Address

Use the `sysadm` to add FastPort's IP/Ethernet address, via:

```
Networking -> TCP/IP -> hosts -> Add
```

1. Add FastPort to the local hosts database (`/etc/hosts`) or the Network Information Services (NIS).

```
e.g., Host name: fastport2-pr
```

2. Add the Internet address that the system admin. assigned.

```
e.g., Internet Address: 128.222.55.55
```

3. Add an alias (optional). Or press [Enter] to continue.

```
e.g., Alias List: <press Enter>
```

4. Confirm the choices.

```
OK to perform operation? [yes]. Press [Enter].  
fastport2-pr has been added
```

5. Add an Ethernet address by modifying the local ethers database (`/etc/ethers`) or the NIS ethers database. Follow the ensuing path:

```
Networking -> TCP/IP -> Ethers -> Add
```

6. Enter the name of the host that was specified in Step 1.

```
Host Name: fastport2-pr
```

7. Enter the FastPort's Ethernet address:

```
Ethernet Address: 00:40:c8:55:55:55
```

8. Confirm the choices.

```
OK to perform operation? [yes]. Press [Enter].  
fastport2-pr has been added.
```



## 5.6.2 Installing and Printing with DG/UX

After adding the IP/Ethernet addresses, define a printer. Before doing so, configure FastPort (if not already done so). Use the “Use-ACK” setting for the parallel port when printing to impact printers. Define the printer by using sysadm:

```
Device -> Printer -> Devices -> Add
```

1. Enter the printer name (for example, “laser”).

```
Printer name: laser
```

2. Add a connection: “remote to networked printer device.”

```
Connection type: [Local /dev/tty or /dev/lp] Remote  
to networked printer device
```

3. Accept the Quick Add feature by pressing Enter.

```
Quick Add using default values? [yes].
```

4. Supply a printer type (e.g., DG model 6773 PS printer). To view a list of valid printer types, type [?] and press [Enter].

```
Printer type: [printer-80] PS-b
```

5. Enter an input type. For PostScript printers, type “PS.”

```
Input types: [simple] PS
```

6. Enter the interface script name.

```
Interface script: [termprinter] fastport
```

7. Enter the name of the printer device.

For a list of attached devices, check the file `/etc/hosts` or use `sysadm` to list the host names that NIS provides.

```
Networked printer device name: fastport2-pr
```

8. Enter the port number of the printer on the network printer server. Port numbering for FastPort includes:

- 3100FTX: 2000 for the parallel port and 2001 for the serial port
- 3200FTX: 2010 (2000) and 2011 for parallel ports 1 & 2; 2020 (2001) for the serial port
- 3310FTX: 2010 (2000) and 2011 for parallel ports 1 & 2, 2012 for parallel port 3; 2020 (2021) for the serial port



9. Supply a printer description, which can include the phone number of the system admin. or location of the printer.

```
Printer Description: Laser Printer on doc hallway
```

10. Confirm your choices by pressing [Enter].

```
OK to perform operation? [yes]. Press [Enter].  
laser has been added.  
Printer laser has been enabled.
```

## 5.7 Additional UNIX Utilities: Using pstext and NeWSprint

ASCII files must be converted to PS format before being printed. NeWSprint and Digi's pstext perform ASCII-to-PostScript conversion. Pstext is located in the software disk in binary source code forms. For NeWSprint information, contact the Digi LAN technical support via our FTP site or by phone.

## 5.8 Deleting Printers

Run the "install.sh" and select **Option #4** to delete a printer.

**Note:** Log in as root to use this option.



# Chapter 6

## Installing and Printing on an Apple Network

Chapter 6 describes installation and configuration of FastPort to print from Apple environments using the AppleTalk printing protocol.

### 6.1 Introduction to the Apple Workstation

#### 6.1.1 EtherTalk Features

- Support for both EtherTalk Phase 1 and Phase 2
- Operation in multi-zone networks
- Indirect printing support for LocalTalk networks connected via routers to Ethernet networks
- Simultaneous printing to all ports
- Support for Apple LaserWriter drivers versions 6.0 and up (including the setup function of the LaserWriter Printer 8.0)
- Support for Apple Namer and Apple Printer Utility
- Supports Aldus drivers and Plug and Play installation
- Support for a serial or centronics parallel port style printer
- Utilities for changing FastPort's default settings, such as IP address, font list, serial and parallel port parameters
- Supports Adobe/HP postscript binary encoding schemes
- AppleTalk configuration via ACT from NetWare system

#### 6.1.1.1 Newly Supported Apple Printer Utility Functionality

- “Utility: Restart printer”: Performs a soft reset on FastPort
- “Utility: Get page count”: Gives page count since last reset
- “Utility: Print configuration page”: Prints a page showing all the current non-volatile parameters on FastPort
- “Utility: Name printer”: Changes the printer's name
- “File: Display available fonts”: Shows a list of offered fonts

FastPort stores all options in NVRAM, including font lists, and LaserWriter 8 values (PostScript version, etc.). Therefore, these variables will not need to be downloaded at each power cycle.

### 6.1.2 Apple Applications: How FastPort Operates

FastPort performs POST and then advertises its ports to AppleTalk. FastPort operates as an AppleTalk node. Any PS printer connected to FastPort emulates a laserwriter printer. Select the FastPort-connected printer from **Chooser**, and print to it as if it were a LaserWriter printer.

### 6.1.3 Printer Communications Handling

Apples require a response from the printer. When printing to a LaserWriter 6.x or 7.x driver for the first time, its application resets the printer and sends a laser prep file. This file contains the PS initialization for the printer.

On the serial port, the printer and the Apple system maintain two-way communication. Any printer queries from the Apple system go directly to the printer, as they do with a PS printer connected via AppleTalk. However, the parallel port is uni-directional and FastPort has one-way communication with the printer. To correct this, FastPort answers any queries from the Apple system on behalf of the printer. (see *“Bi-directional Printing from Macintosh Systems” on page 6-8*). FastPort must have the appropriate info. about the printer to answer the queries correctly. Use the Apple Printer utility described in this chapter to modify the parameters.

## 6.2 Plug & Play Operation: Printing to FastPort

Before printing, select the FastPort-connected printer from **Chooser**.

1. From the “Apple” menu, select **Chooser**.
2. If there is a router on the network, select the correct zone for FastPort.
3. Select the **LaserWriter** icon or any other LaserWriter driver, such as LaserWriter 8.0. FastPort appears in the LaserWriter selection as **FP-xxxxxx**, where xxxxxx is the last six digits of the address. With old firmware 4.0 and up, FastPort appears as either **DIGI-XXXXXX** or **MILAN-XXXXXX**.
4. Select **FastPort** and click on the setup button to configure a printer.
5. Close **Chooser**. FastPort’s connected printer is now available.

**Note:** If the FastPort does not appear in the LaserWriter selection list, then either FastPort or its printers are not connected correctly. By default, if the printer connected to FastPort has faulted, FastPort will not advertise the port to the **Chooser**.

## 6.3 Advanced Utilities

The advanced utilities portion of the CD-ROM includes:

- Readme file
- Apple TeachText editor for reading the configuration files
- Apple Printer Utility version 2.2

The following files can be downloaded using the utility:

- Setup Font List file: Lists new fonts for the parallel printer
- Setup Defaults file: Changes the FastPort configuration
- Setup Printer Info file: Changes the parallel printer info

Copy the contents of these files onto the hard disk.

### 6.3.1 Tips on Using the Configuration File

- Always download the config. file to FastPort's parallel port.
- If mistakes are made, FastPort returns it as an error message. If there is a log-file back after downloading, FastPort detects this as an error.

## 6.4 Using the Apple Printer Utility for Configuration

### 6.4.1 Using the Apple Printer Utility to Download a Config. Files

When an Apple and FastPort try to establish a printing session, FastPort responds with queries on behalf of the printer. Sometimes the values that respond are not correct. Users can modify these values by using the Apple Printer utility to download config. files. FastPort holds other values not associated with printing that can be changed by modifying the config. files. This section describes when to modify these config. files, and how to download them using the laserwriter utility:

1. From the "Apple" menu, select **Chooser**.
2. If there is a router, select the appropriate zone for FastPort.
3. Select **LaserWriter** or any other laserwriter driver.
4. Open **Advanced Utilities** or the **FastPort** utilities folder.
5. Click on the icon for one of the config. files. It opens "TeachText." If not, use an editor that saves in ASCII text.

6. Edit the list of configuration choices.
7. Save the list and quit "TeachText."
8. Open the "Apple Printer Utility" menu.
9. Select **Download PostScript File** from this menu.
10. Select the file to download.
11. When downloading is complete, **quit** the program.

If FastPort finds a syntax error, it sends a file with the error information. The error file is stored as a postscript log.

#### 6.4.1.1 Using Setup Printer Information File

Use **Setup Printer Info** to modify the variables for the parallel port. The info. is stored until the unit is powered off. FastPort does not know the characteristics of the parallel printer unless it is specifically loaded.

**Note:** This information is important when using the LaserWriter 8.0 drivers.

#### 6.4.1.2 Using Setup Defaults File

Downloading Setup Defaults will change the following FastPort configuration options. Table 6-1 lists the configuration options (Default is in parentheses).

**Table 6-5: Option (Default is in Parenthesis)**

Option	Choice	Description
EtherTalk Phase	1 or (2)	AppleTalk revision level.
Wait Times	Wait time before reset (15) Wait time after reset (45) <b>Note:</b> 200 max for both	Amounts of time (measured in multiples of five sec) that FastPort waits after and before a reset is sent to the printer prior to printing the first print job.
(Appear) In the Chooser	Yes (Sense) or No	No: Parallel printer always shows up in the Chooser regardless of whether there is a printer connected. Yes: FastPort senses whether a parallel printer is connected. If one is, it shows up in the Chooser.
Turn off the Serial port	Yes (Sense) or No	Yes: Serial port does not show up in the Chooser. No: Serial port shows up in the Chooser whether or not there is a printer connected to the serial port
Parallel port type	(No Binary) or Binary adobe or Binary hp	Parallel port type is based on the traffic type and whether or not the port is handling Binary PS
Parallel port mode	(1), 2, 3, 4, or 5	1) Standard (Default) makes FastPort rely on Busy to determine if the port can receive a byte. 2) Fast-DMA enables the DMA chip. 3) AutoStrobe enables a hardware timer to generate the strobe pulse on the parallel port. 4) Disabled is reserved. 5) Use-ACK checks both the Busy and ACK signals on the parallel port when sending bytes.

**Table 6-5: Option (Default is in Parenthesis)**

Option	Choice	Description
<b>Serial Port Parameters</b>		
Type	(No Binary) or Binary adobe or Binary hp	Serial type is based on the traffic type and whether or not the port is handling Binary PostScript.
Stop bits	(1) or 2	Number of stop bits required.
Speed	300,600,1200,4800,(9600), 19200, 38400	Transmission speed (in bps).
Parity	Yes or (No)	Use of parity bit checking.
Xon	(Yes) or No	Use of Xon/Xoff for flow control.
<b>Network Protocols Enabled</b>		
Sockets	(Yes) or No	
LPD	(Yes) or No	
NetWare	(Yes) or No	
EtherTalk	(Yes) or No	
<b>Operational Parameters</b>		
Reset the Print Server	Yes or (No)	Forces the print server to reboot when FastPort is power cycled.
Set IP address	Set IP Address (0.0.0.0)	Use to specify an IP address for FastPort using dotted-decimal format.
Reset NVRAM to defaults	Yes or (No)	Forces NVRAM values to be returned to their defaults when FastPort is power cycled.
<b>Parallel Port Parameters</b>		
Enable Bi-direct. Interface	Yes or (No)	Enables bi-directional printing (see chapter 11)

### 6.4.1.3 Using Setup Font List

FastPort can be told the fonts available for printers connected to the parallel port. If the printer fonts do not match the defaults, download a modified Font List file to the FastPort.

1. Locate the **Setup Font List** file in the “Advanced Utilities” or “FastPort Utilities” folder.
2. Double-click on the **Setup Font List** icon.
3. Edit the list of fonts to match your printer’s.
4. Save the list and quit “TeachText.”
5. Open the **LaserWriter Utility**.
6. Select **Download PostScript File** from “Utilities.”
7. Select the file **Setup Font List**. When the file completes downloading, quit the utility.

The font list remains in FastPort’s memory until it restarted.

**Note:** The font list for the serial port of FastPort does not need to be changed.

## 6.5 Using Namer to Rename the FastPort Printer

FastPort stores the names of printers connected to its ports. The printer may have a different name when accessed by a different interface. By default, the MIL-3000FTX syntax is:

For older versions of FastPort:

- **DIGIXXXXXX-par** (for the parallel port)
- **DIGIXXXXXX-ser** (for the serial port)

For newer versions of FastPort (including the MIL-3000FTX):

- **FPXXXXXX-par** (for the parallel port)
- **FPXXXXXX-ser** (for the serial port)

Rename the parallel printer to a different name (up to 32 characters). For the serial port, use the parallel printer's name with an "-ser" extension.

### 6.5.1 Renaming FastPort Using Namer

1. Open **Advanced Utilities**.
2. Run **Namer**. Icons appear for each installed printer type.
3. Click on a **LaserWriter** icon. FastPort appears.
4. Select the printer you want to rename.
5. Type in the new name and click **Rename**. When done, click the **Quit** button.

**Note:** You can also rename printers using the LaserWriter Utility.

FastPort stores printer names in NVRAM, until they are specifically change again (even after restarting the FastPort). If you have problems, return to the Chooser and use a LaserWriter 7.x driver to choose FastPort. Some versions of Namer are "driver version-dependent."

## 6.6 Printing PostScript Binary Files

### 6.6.1 Selecting Binary PostScript Encoding

Some graphics programs generate data that is binary encoded. If so, low graphics may print fine, but high graphics may not. To prevent this, enable the binary capabilities. FastPort does not support binary printing (default).

1. Edit the following two lines to the “Setup Defaults” file. Insert the binary name within the parentheses:

**Parallel Port Type (Binary hp) // can be: No Binary or Binary adobe or Binary hp.**

**Serial Port Type (Binary hp) // can be: No Binary or Binary adobe or Binary hp.**

2. For each port (serial or parallel), choose one of the options:

**No Binary / Binary adobe / Binary tek / Binary hp.**

3. Download the new setup file with the “Apple Printer” utility.
4. Reboot FastPort.
5. Verify the new setting in **Chooser**. Non-binary printers appear as before. Default names are:

**FP XXXXXX-par-PS**

**FP XXXXXX-ser-PS**

All queue names are based on the parallel ports name. If a printer is named “Alpha” and is configured for binary support for serial/parallel, the following printers appears in **Chooser**:

**Alpha**

**Alpha—PS Binary**

**Alpha—S**

**Alpha—S—PS Binary**

**Note:** Only use the **Namer** utility to change regular names. The name of the PS Binary printer does not need to be changed directly.

Before a standard Adobe PostScript Level 2 printer can be used with the binary encoding, the following PostScript fragment may need to be downloaded to the printer as a separate file:

```
^D (%Parallel_NV%)
<</Password (0) /Interpreter/PostScript/Protocol/Binary>>
setdevparams
^D
```

This file is on the Advanced Utilities as **force\_parallel\_binary** and **force\_serial\_binary**. For serial printers, replace **Parallel\_NV** with **Serial\_NV**. This needs to be done once per port during the life of the printer. For HP printers, FastPort automatically encode PS binary if that mode has been configured by setting the parallel port type to binary hp.

Only download this file if the postscript binary FastPort printer has been enabled and is unsuccessful at printing.

## 6.7 Bi-directional Printing from Macintosh Systems

Firmware 6.1 supports bi-directional printing to any printer that supports the IEEE 1284 bi-tronics nibble mode specifications. AppleTalk printing protocols are currently the only mainstream printing protocol that query the printer for parameters, fonts, etc. That is why bi-directional printing is discussed only in the AppleTalk chapter.

FastPort has bi-directional support disabled for each parallel printer (default), but can be enabled by using a management tool. Using a utility establishes a connection to FastPort.

1. Press [N] for networks
2. Press [A] for Apple. There will be an “enable bi-directional port” message for each of the parallel ports.

To enable this support using the “Apple Printer” utility:

1. Copy the “Apple Printer” utility and setup defaults files from the CD-ROM.
2. Edit the setup defaults file by double-clicking on the file.
3. Within this file, there is a section for each parallel port and separate parameters for each parallel port (name, time-outs, bi-tronics enable). In the section for the particular parallel port to be enabled, modify the line that says:

```
Enable BiDirectional Interface = (No)
```

change this line to the following ...

```
Enable BiDirectional Interface = (Yes)
```

4. Save the file and close the editor.

If FastPort is not installed on the network, do so now.

1. Choose one of the FastPort parallel ports as it shows up in the **Chooser**.
2. Double-click on the **Apple Printer Utility**.
3. When it opens, choose **Utility** and then **Download PostScript file**.



4. When the dialog box opens, choose the recently modified setup defaults file. The configuration page downloads.
5. Reset FastPort and print out a test page:
  - a. Put switch D1 down and switch D2 up.
  - b. Power cycle FastPort.
  - c. Put the switches back to their original position (D1 up, D2 up or down) after the test page prints.
6. Re-choose FastPort from the **Chooser**.

A Mac can now communicate directly with the printer connected to FastPort's parallel port.

### 6.7.1 Issues Regarding Bi-Directional Macintosh Printing

- Bi-directional printing may cause slower printing because of the extra queries that go back and forth.
- Some printers don't support bi-directional printing on the parallel port.

Some Macs with parallel ports do not respond to queries on that parallel port. Check the printer's documentation to verify that it supports IEEE 1284 bi-directional specification

- Some printing modes on certain FastPort models cannot support bi-directional printing.

FastPort devices support 3 or more *handshaking* modes on the parallel port. Users can modify these handshaking modes to speed up printing. However, with bi-directional printing, care must be taken to ensure that handshaking supports bi-directional printing. Table 6-2 shows the devices and the modes that support bi-directional printing:

**Table 6-6: Support of Bi-directional on FastPort Print Servers**

FastPort	Standard	FastDMA	Use ACK	FIFO-BUSY	FIFO-ACK
MIL-3100FTX	No	Yes*	Yes*	N/A	N/A
MIL-3200FTX	Yes	N/A	N/A	No	No
MIL-3310FTX	Yes	N/A	N/A	No	No

**Note:** \*May only work with certain printer models.

# Chapter 7

## Print Management Features of FastPort

Chapter 7 contains print management and status monitoring for FastPort. This chapter includes:

### 7.1 Managing Print Server

There are many methods to manage FastPort: remotely across the network or by attaching a serial/parallel device. FastPort also has real-time status tools to resolve errors that may occur with another device. FastPort can be configured to generate messages as they occur and direct them to:

- Parallel port printer
- Serial port printer
- Dumb terminal
- Telnet session, nbmon

Information includes the start/finish of a print job, step-by-step boot procedure, and why a printer failed.

### 7.2 Serial Port Console Monitoring

FastPort serial port can be used to configure the device while in a non-networked mode.

#### 7.2.1 Enabling or Disabling the Console Monitor

1. Put all the front panel switches: down (On).
2. Connect an ASCII terminal to the serial port of the FastPort.
3. Set the terminal: **9600 baud, no parity, 8 data bits, 1 stop bit and Xon/Xoff flow control.**
4. Power cycle FastPort. The “Ready for command” message appears.
5. Establish a serial terminal.



6. At the command prompt, press [C] from the selection.
7. Press [Y] for yes at the query message **Do you want to configure for console status monitoring?**
8. Choose the output port where the console info. is sent.
9. Disable the information forwarding by selecting **off**. The program defaults back to the command prompt.
10. Power cycle FastPort.

For serial/parallel port monitoring, ASCII data is sent to the device describing the actions occurring. If the serial port was chosen in Step 8, do not use that port as normal, since status messages may show up when printing (disabled by default).

## 7.3 Managing FastPort from Networked Workstations

FastPort has many ways to remotely configure itself. Features are mostly redundant, so that FastPort can be managed regardless of the type of system being connected. Users can access FastPort to view/store settings inside the device. Or, users may access it to do real-time monitoring.

### 7.3.1 Multi-Protocol and SNMP Stations

FastPort supports SNMP management over TCP/IP, IPX, NetBIOS/NetBEUI, and AppleTalk network protocols. FastPort supports MIB 2, IEEE parallel and serial MIBs, and Digi's private MIB. The IEEE parallel, serial MIBS, and Digi's MIB can all be downloaded from our FTP site.

### 7.3.2 TCP/IP Stations

#### 7.3.2.1 Using FastManage

For Windows with TCP/IP station, use FastManage to identify and configure FastPort on the network (Chap. 9 through 12).

#### 7.3.2.2 Using Telnet Diagnostic Monitoring

Once a telnet session is established, a new screen appears:

**Press [!] to enter monitor, or press [S] to get status.**

If nothing is pressed, messages will be received as they appear. If [S] is pressed, status for each port is received. Press [!] to exit.

1. Set the front switches on the FastPort: D1 up and D2 down.
2. Run the `telnet` command. Specifying port 2002 as the connection port (usually: `telnet <hostname> 2002`). Options (**!**, **D**, **S**, **A**) appear. At this point, the user is not interfering with FastPort.

1. To start the command mode, press [**!**] and press [**Y**] for yes.
2. The following commands should appear:

Command [**C**, **D**, **E**, **F**, **G**, **H**, **I**, **L**, **N**, **R**, **P**, **S**, **Z**, **\***, **+**]:

3. At the command prompt, press [**C**] from the selection.
4. Press [**Y**] for yes at the query message **Do you want to configure for console status monitoring?**
5. Choose the output port where the console info. is sent.
6. Disable the information forwarding by selecting **off**. The program defaults back to the command prompt.

**Note:** FastPort only responds to the current telnet session.

7. Press [**R**] to exit. The device will perform a soft-reboot.

Users can telnet into the parallel/serial devices by specifying port **2000** and **2010** (par1), **2011** (par2), **2012** (par3), **2020** and **2001** (ser1), or **2021** (ser2) on the command line. Anything typed now appears on the printer.

8. To exit, press [**Control**]+ [**]** (right bracket) and type **quit**.

### 7.3.2.3SYSLOG on FastPort

To monitor and keep status, Digi supports “SYSLOG.” Enabling this, forces FastPort to send messages to a designated **SYSLOG HOST** on the network (See Chapter 6). FastPort now supports SYSLOG protocol, allowing them to alert a SYSLOG host machine to certain events occurring on FastPort. To enable this on FastPort:

1. Establish a serial terminal, a telnet, or a NBMON session.
2. Once established, press [**N**] from the main menu.
3. Press [**T**] for TCP/IP.
4. Press [**E**] for Engine.
5. Once inside, choose **Yes** to modify parameters.
6. Press [**L**] for syslog.



7. Enter the IP address of the **SYSLOG** host and the priority of the message(s). Priority level are between 2 and 7. These numbers correspond to the types of events that are logged.
  - a. 2 or 7: Sends critical messages only, including paper errors and printer faults.
  - b. 4 thru 7: Sends both critical and warning notices, including start/end of a print job or when the IP address is set.

To disable the feature, set the IP address of the **SYSLOG** host to 0.0.0.0. Default for **SYSLOG** on FastPort is 0.0.0.0. The syslog messages that FastPort sends generally get sent to the **usr/adm/LPD-errors** file on systems running BSD UNIX. It is configurable on most System V machines. See the UNIX system documentation for more information.

#### 7.3.2.4Digi's **fpstatus** for TCP/IP UNIX

Digi includes an **FPSTATUS** binary on its UNIX portion of the CD-ROM. This is a UDP-based utility that can get real-time status and is commonly used in shell scripts. **fpstatus** program supports:

- Display of serial and parallel printer status
- Display of all currently printing jobs defined protocols

**fpstatus** uses a UDP connection to communicate with FastPort. For printer information, use the **fpstatus** command:

```
fpstatus <hostname>
```

When reporting, the program uses these terms:

- **Active or Not Active:** Whether FastPort is printing
- **On-line, Not Busy, ACK:** A typical status report

Device states may alter from **Busy** to **Not Busy** or **ACK** to **Not ACK**. The number of bytes is totaled from the last power cycle. A parallel port status of **Off-line, Fault, or Paper\_Fault** suggests that user intervention can resolve the problem. Check the basic cabling when any **Off-line** or **Fault** message appears. For example, a typical response from **fpstatus**:

```
Active parallel data session from india (128.192.8.184)  
PARALLEL STATUS: On-line NOT Busy, ACK  
Total parallel bytes sent: 324444554  
Active serial data session from NetWare  
SERIAL STATUS: flow control FROM Printer by: XOFF  
Total serial bytes sent: 102
```

### 7.3.3 AppleTalk Stations

Digi includes an Apple Printer utility on the CD-ROM. AppleTalk users have a limited status-checking support with the Apple standard printing utilities. To cause a status window to remain up when printing:

1. From the **Apple** pull-down menu, select the **Chooser**.
2. Choose a **LaserWriter 8.x** driver.
3. Disable **background printing**.

This window tells the Mac user if FastPort is being used by some other protocol, or how many bytes of a job has been sent. LaserWriter 8 users can also choose **setup** and **get info** to get information on the printer connected to FastPort.

If the printer is parallel, users can either use the **Apple Printer** utility to change the settings permanently or enable Digi's bi-directional printer port and "talk" directly to the printer. Copy the Apple Printer utility and its set of download-able files. Modify the setup defaults file (FastPort settings) or **setup printer info** file (LaserWriter 8 get info query data), appropriately. After modifying these files:

1. Choose the FastPort.
2. Run the **Apple Printer Utilities**.
3. From the "Utilities" pull-down menu, choose **Utilities—send PostScript File**.
4. Click on the just modified file. This downloads the file to FastPort, which parses, validates, and stores the values.

**Note:** Choosing **utility** and then **Restart Printer** will soft reset FastPort. Reset will take approximately 60 seconds.

### 7.3.4 NetWare Client Stations

NetWare has two utilities to monitor and configure FastPort: Fast Manage suite and ACT version 3.0. FastManage can be installed on any Windows client machine that has the IPX protocol enabled. NetWare users on DOS can also use ACT version 3.X. This utility has two functions:

- It allows users to configure the FastPort settings, like FastManage or any other described utility.
- It mimics PCONSOLE for bindery style networks and allows users to create print queues and print servers.



As it creates print queues and servers on Bindery servers, it creates/stores a configuration file in the [ **SERVER/SYS** ] \login\milan directory of the server. ACT allows users to see the real-time messages on FastPort's status. See Appendix C for monitor menu options in ACT.

### 7.3.5 NetBIOS / NetBEUI Stations

FastManage uses the built-in IPX, IP or NetBIOS/NetBEUI stack of Windows to send packets on the net. Refer to the *FastManage User's Guide* for more detail. Digi also ships two NetBIOS utilities in the distribution package—**NBMon** and **showprn.exe**. These utilities offer DOS-level sessions to be established with FastPort. To run:

1. Open up a DOS shell on a NetBEUI machine
2. Run the **showprn.exe** utility from the prompt. A list of FastPorts on the local network appears.
3. Once there is a device name, run the **nbmon** utility as such:

```
nbmon <fastport_name> -d#
```

Where the # is a number between 0-7 and **NetBEUI** is running. Once done, a telnet-like session is established. This interface is almost identical to a serial/telnet sessions.

Users may have problems running the **showprn.exe** utility, because of the multi-protocol nature of Windows. If the **showprn** does not display FastPort, try issuing the command with a **-d0**, **-d1**, **-d2**, **-d3**,... or **-d7** switch:

```
showprn.exe -d1
```

This makes **showprn** use an alternate stack to send the packet.

If an IPX protocol is loaded on a Windows 95 system, make sure the checkbox marked **Send NetBIOS over IPX** is not checked. This is located in Control Panel-->Network-->IPX. Verify that the NetBEUI protocol is loaded onto the client machine, and if it is Windows, make sure it is **set as the default protocol**. This is done by opening up the **Control Panel, Networks** screen and looking at the **NetBEUI** options.

# Chapter 8

## FastManage Installation

Chapter 8 has information for the FastManage software.

### 8.1 FastManage Applications

- **Discovery Application:** This is used to find devices that have an SNMP agent on the network.
- **Ping Application:** This is a stand-alone program for debugging. Users “ping” to an IP address
- **BOOTP Server:** This allows users to assign IP addresses dynamically to the devices on the network
- **FastPort PrintServer Mgr:** This application is used to find and maintain FastPort print servers
- **On-line Help:** A list of available help option appear
- **Uninstall FastManage:** Removes FastManage
- **Stackable HUB\_MCS Mgr:** This application is used to find and maintain hubs and media converters
- **Readme:** Notes the latest features of FastManage

#### 8.1.1 FastManage MIBs

FastManage utilizes the RFC 1517 MIB for SNMP compliance. FastManage also uses the `repeater.mib` and the `private.mib` for the hub line, as well as the `parallel.mib`, `serial.mib`, and `private.mib` for the print server line.

#### 8.1.2 FastManage Requirements

FastManage runs as a stand-alone tool (i.e., no other TCP/IP packages required). However, if a system has any Winsock™ compatible TCP/IP stacks (i.e., PC/TCP™, Chameleon™, or LAN Workplace™) or Microsoft TCP/IP stack, it can co-exist with these packages. FastManage runs on the top of public domain packet drivers as well as on the top of ODI drivers.



### 8.1.3 IP Configuration

1. Load Packet or ODI drivers for the NIC card
2. Add the following line to the `net.cfg` file for ODI Drivers:

```
Frame Ethernet_II
```

### 8.1.4 IPX Configuration

- Novell 4.1 Drivers for Windows and DOS. Refer to the Novell Netware Documentation for information
- ODI Driver for the network interface card loaded

### 8.1.5 NetBIOS Configuration

NetBIOS over NetBEUI network configuration for Win 3.11 and/or Win 95.

## 8.2 Installing FastManage

There are two different modes of installation:

- Express installation
- Custom installation

### 8.2.1 Express Installation

Express install is the fastest way of setting up the FastManage software and is recommended for first time users. For detailed installation, go to “Custom Installation” on page 8-3. Do the following to install FastManage:

1. From “Start” (or “File”), select **R**un.
2. Type **d:setup.exe** (or the drive where the CD-ROM is located) on the command line and click **O**K.
3. Register FastManage and click **N**ext.
4. Confirm that the registration is correct and click **Y**es.
5. Choose the type of installation. In this case, select **E**xpress **I**nstall (for first-time installation) and click **N**ext.

**Note:** Go to Section 8.2.2 for Custom Installation (or Advanced) instructions.

6. Choose a network protocol: IP, IPX, or NetBIOS

**Note:** IPX requires Novell 4.1 DOS and Windows drivers already installed on the system.

- Specify the system's IP address and its subnet mask. The gateway selection is optional (Figure 8-1).

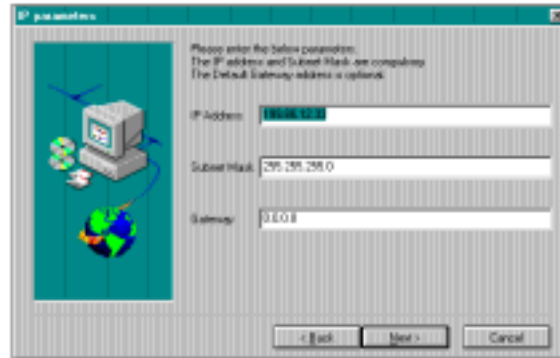


Figure 8-1. IP Parameters

- Choose a location to install the FastManage application and click **N**ext. Default is `c:\fm`.
- A message appears asking if a menu item for FastManage is to be added to the "NWADMIN" utility. Select **Y**es and `snap-fp.dll` file is copied to the Windows directory and the `nwadmin.ini` file is updated.
- Choose to have the system rebooted and click **F**inish.

## 8.2.2 Custom Installation

Custom installation configures the Discovery and/or SNMP parameters. Custom install follows the same procedure as the express, except for a extra steps. To begin custom installation:

- After step 6 in section 8.2.1, choose **C**ustom **I**nstallation and click **N**ext.
- Choose a network protocol: IP, IPX or NetBIOS.
- If **I**P was selected, specify the system's IP address and its subnet mask. The gateway selection is optional.
- In the "Configure Advanced Parameters" menu (Figure 8-2), configure the following:
  - G**eneral **P**arameters and click **N**ext. Refer to section 8.2.2.1 to configure the general parameters.
  - D**iscovery **P**arameters and click **N**ext. Refer to section 8.2.2.2 to configure the discovery parameters.
  - S**NMP **A**gent **P**arameters and click **N**ext. Refer to section 8.2.2.3 to configure the SNMP agent parameters.

- **Maximum Retry Time** and click **Next**. Default is 5.

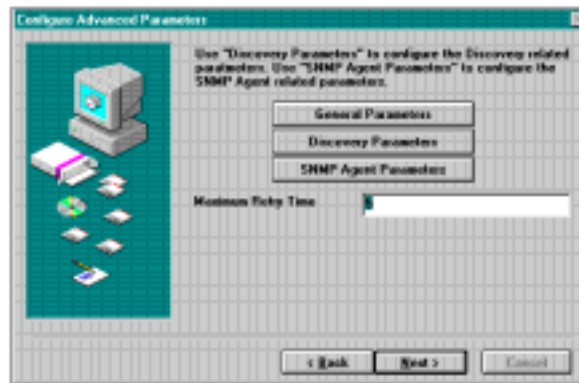


Figure 8-2. Configuring Advanced Parameters

### 8.2.2.1 General Parameters

The “General Parameters” has more options to configure.



Figure 8-3. General Parameters

- **Show Node Name:** If selected, this parameter displays a host name for all the devices discovered. FastManage needs a hosts file in the **C:\ETC** directory for a host name to be displayed. Checked by default.
- **Show Node Address:** If this selection is checked, FastManage displays IP and IPX addresses for all the devices discovered. Not checked by default.
- **Load Saved Maps:** If this parameter is selected, the software loads the saved Map when starting the Discovery Application. Checked by default.

- **Save Maps On Exit:** If this parameter is selected, the software saves the Map when Discovery Application is exited. Checked by default.
- **Save Parameters On Exit:** If selected, this option saves preferences when Discovery is exited. Checked by default.
- **Refresh every:** This selection “refreshes” the Map every <n> seconds. Default: 60 seconds.
- **Discover:** This selection “re-discovers” hosts every <n> seconds. Default: 90 seconds.
- **Dead:** This selection is the number of attempts the software makes before marking the node as “dead.” Default: 2.
- **wait:** This selection signifies the amount of time the software waits for a reply from a node. Default: 1 second.
- **Default Map:** This selection will enter the name of the default Map file: `map.map`.
- **Map File:** This selection will enter the path for the Map files. Default: `c:\fm`.
- **Hosts File:** This selection enters the path for the host file. Default: `C:\ETC`.
- **Bootptab File Path:** This selection enters the path for the bootptab file. Default: `C:\FM`.
- **Allow To Edit “Hosts” File:** If selected, Discovery updates the “hosts” file if a new host file is discovered. Checked by default.
- **Default:** Initialize all the parameters to default values.
- **Save Options:** Saves all changes to the `issnmp.ini` file.
- **Cancel:** Cancels the changes.

### 8.2.2.2 Discovery Parameters

The “Discovery Parameters” menu (Figure 8-4) configures the parameters used for the discovery nodes (Chapter 9). The following section gives information about the discovery.

- **Enable IP:** When selected, this enables IP protocol. If not selected, FastManage will not perform any SNMP over IP operation. Checked by default.

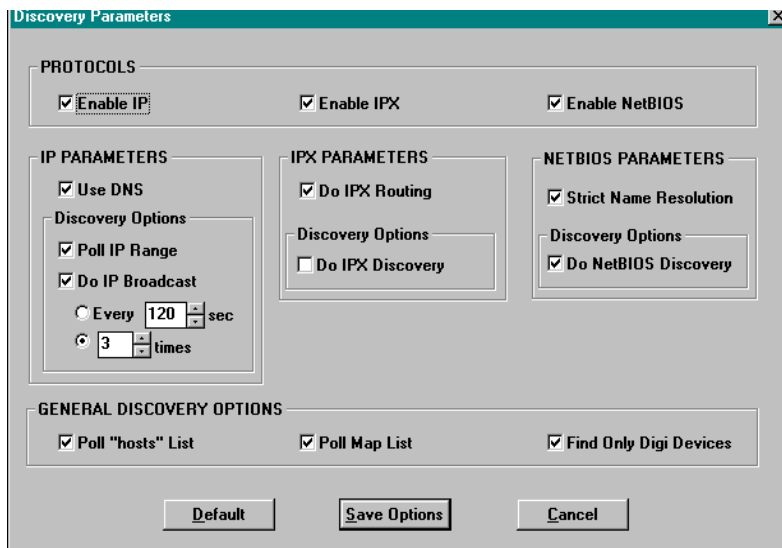


Figure 8-4. Discovery Parameters

- **Use DNS:** When checked and the IP/NetBIOS protocols are all enabled, FastManage may be unable to resolve a NetBIOS name (e.g., **SNMPA0702CA**). Turn this parameter “Off” if this is the case. The “Enable IP” parameter must be selected to enable this option. Not checked by default.
- **Poll IP Range:** When this option is selected, the software “polls” all 254 hosts of the subnet (from **x.y.z.1** to **x.y.z.254**). The “Enable IP” parameter must be selected to enable this option. Checked by default.
- **Do IP Broadcast:** If this parameter is selected, the software will perform discovery through SNMP over IP broadcast. The “Enable IP” parameter must be selected to enable this option. Checked by default.
- **Every:** If this parameter is selected, the software broadcasts every <n> seconds to discover new devices. The “Enable IP” parameter must be selected to enable this option. Not checked and 120 seconds by default.
- **Times:** This option is the number of times the system will “broadcast” before giving up discovery of a node. The “Enable IP” parameter must be selected to enable this option. Checked and 3 times by default.
- **Poll “hosts” List:** If this is selected, the software reads through the list, if a name is in the hosts file, the software then uses SNMP to discover each host. Checked by default.
- **Poll Map List:** If selected, the software “discovers” each host in Map 1 through SNMP. Checked by default.
- **Find Only Digi Devices:** If this checked, Discovery finds/displays only Digi devices. Not checked by default.

- **Enable IPX:** When selected, FastManage enables IPX protocol. If not selected, FastManage will not perform any SNMP over IPX operation. Not checked by default.
- **Do IPX Routing:** When enabled, users can manage IPX devices across the router. If the device name is specified in the host file, then that device will be discovered (**Enable IPX**, **Do IPX routing**, and the poll **“hosts” file** all have to be enabled). The “Enable IPX” parameter must be selected to enable this option. Checked by default.
- **Do IPX Discovery:** Use SNMP over IPX and find all devices that respond. The “Enable IPX” parameter must be selected to enable this option. Not checked by default.
- **Enable NetBIOS:** When this option is chosen, this enables NetBIOS using the NetBeui protocol. If not selected, this will not perform any SNMP over NetBIOS operation.
- **Strict Name Resolution:** When this is enabled, all device names starting with *SNMPA* will be treated as NetBIOS names. The “Enable NetBIOS” parameter must be selected to enable this option. Checked by default.
- **Do NetBIOS Discovery:** Uses SNMP over NetBIOS and finds all devices that respond. The “Enable NetBIOS” parameter must be selected to enable this option.
- **Default:** Initialize all the parameters to default values.
- **Save Options:** Saves all changes to the `issnmp.ini` file.
- **Cancel:** Cancels the changes.

### 8.2.2.3SNMP Agent Parameters

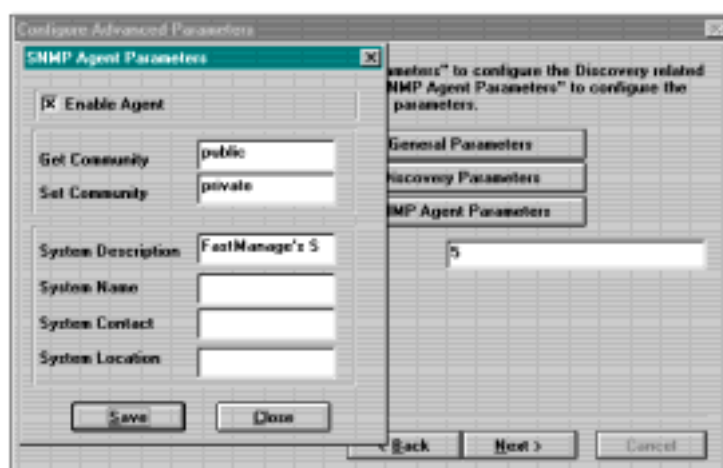


Figure 8-5. SNMP Agent Parameters



- **Get Community:** This is required. Default is **public**.
- **Set Community:** This is required. Default is **private**.
- **System Description:** This is returned by FastManage in response to an SNMP query. Default is **FastManage S**.
- **System Name:** This is returned by FastManage in response to an SNMP query. Field is blank by default.
- **System Contact:** This is returned by FastManage in response to an SNMP query. Field is blank by default.
- **System Location:** This is returned by FastManage software in response to an SNMP query. Blank by default.
- **Save:** Saves all changes to the **issnmp.ini** file.
- **Cancel:** Cancels the changes.

At this point, complete the installation procedure (same as described in the express installation procedures).

# Chapter 9

## Discovery Application

Chapter 9 describes the features of Discovery, including features for the MIL-3000FTX FastPort.

### 9.1 Introduction to Discovery

Discovery detects SNMP manageable devices over IP, IPX, and NetBEUI (NetBIOS) networks. On IP networks, Discovery supports and performs the following:

- Reads entries from a local host table and sends an SNMP query to each one of them
- Pings to a local broadcast address to detect all devices
- Using the subnet mask and the IP address of the device, detects all of the devices in the current subnet
- Through SNMP traps, FastPort sends a “power-on trap” at power-up if they are configured with a manager address

Discovery options are user configurable and are stored in the `issnmp.ini` file. Discovery uses icons to identify an SNMP device on the Map:

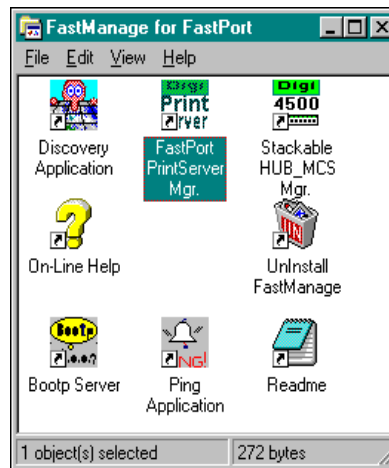
- Click once on the icon to display information for a device
- Double-click on the thumbnail to launch a device

#### 9.1.1 Discovery Features

- Discovery supports a limited amount of placement so that users can position the device on the Map
- Users can make devices invisible
- Store or restore a Map
- Contains a “TFTP” client
- Users can download flash image to upgrade the device to a different firmware level

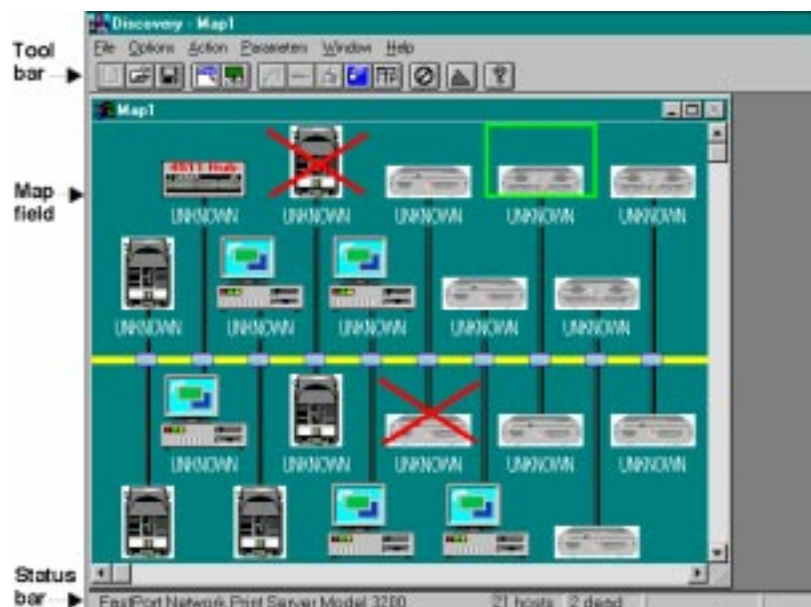


## 9.2 Launching Discovery



**Figure 9-1. FastManage for FastPort menu**

1. Double-click on the **Discovery Application** icon. The software “discovers” all of the SNMP devices on the subnet.
2. Devices will now appear on *Map 1* as “thumbnails,” which represents each SNMP device (Figure 9-2).
3. Double-click on a thumbnail to display a full-screen image of that particular SNMP device (refer to Chapter 10).



**Figure 9-2. Map 1 Discovery Application**

**Note:** Discover uses three protocols to find SNMP devices: IP, IPX, and NetBIOS. This means that if a device uses all three of these protocols, that device will be “discovered” three different times on the Map.

## 9.2.1 Tool bar

The tool bar displays above the Map field. Figure 9-3 displays a close-up view of the Discovery Application tool bar. To remove the tool bar from the field: From the “Option” pull-down menu, deselect **T**ool bar.

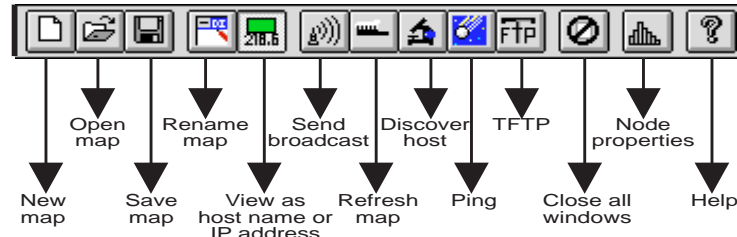


Figure 9-3. Discovery Application Tool bar

## 9.2.2 Status Bar

By default, the “Status Bar” displays below the Map field (Figure 9-2). This displays current information, including:

- **searching...**: Means the software is looking for more SNMP hosts over the subnet.
- **XX Host**: Number of hosts found.
- **XX Dead**: Number of host found that were off-line.
- Type of device found, for example, **FastPort Network Print Server Model 3000FTX**.

To remove the status bar from the field: From the Option pull-down menu, deselect **S**tatus bar.

## 9.2.3 System Information

Click once on a thumbnail. The object selected is highlighted with a box. Click on the same object once again and its system information appears.

## 9.3 FastPort Icon Names

The name or address of a host is displayed below the device in the Map (Figure 9-2). Names are based on certain criteria:

- **FPXXXXXX**: This device was discovered by the SNMP over IPX protocol (where **XXXXXX** are the last six digits of the Ethernet address. Thus, a device with an Ethernet address of “0040C800702CA,” has an IPX SAP name of **FP0702CA**).

- **SNMPAXXXXXX**: This device was discovered by the SNMP over NetBIOS (where XXXXXX are the last six digits of the Ethernet address. Thus, a device with an Ethernet address of “0040C800702CA,” has a NetBIOS name of **SNMPA0702CA**).

**Note:** FastPorts with firmware of 6.1 or higher are required for SNMP over NetBIOS manageability.

- **UNKNOWN**: The device was discovered by the SNMP over IP protocol; however, there was no entry in the host table relating to this device. Add a name in the “Show Node Properties” menu (refer to section 9.4.9).

## 9.4 Discovery Application Tools

### 9.4.1 Renaming a Discovery Map

Maps can be renamed and saved for future use. Do the following to rename a Map.

1. Click the **Rename Map** icon (fourth from the left). The “Map Title Editor” menu appears.
2. Delete the old name and type in a new Map name.
3. Click **OK**.

To perform this task from the pull-down menu, select **Change title** from the **Options** pull-down menu.

### 9.4.2 Host Name/Address

For each thumbnail shown on the Map, there will be a name below device. Each protocol has its own criteria, for example:

- For an IP device, the address is its IP Address.  
The name for an IP device is **Host Name**. This is derived from the host file. If an entry for an IP address is not found, **UNKNOWN** is displayed. See Section 9.4.9 to change a name.
- For an IPX device, the address is its IPX address.  
The name for an IPX device is the **IPX SAP Name**. This name cannot be changed.
- A NetBIOS unit doesn't have an address, so **0:0** is shown.  
The name for a NetBIOS device is the **NetBIOS Name**. This cannot be changed.

### 9.4.2.1 Changing from the Node Name to an Address

1. Click the **Node/Address** icon (fifth from left on the tool bar). The node switches to the address.
2. To change to a name, click the **Node/Address** icon again.

To perform this task from the pull-down menu, select **Show Node Address/Name** from the **Options** pull-down menu.

### 9.4.3 Send Broadcast

To the right of the “View as host name or IP address” icon, is the “Send Broadcast” icon. This will discover new host on the subnet. When clicked on, an IP broadcast over the network. Host that reply are displayed on the current Map. To perform this task from the pull-down menu, select **Send Broadcast** from the **Action** pull-down menu.

### 9.4.4 Refresh Map

Directly to the right of the “Send Broadcast” icon, is the “Refresh Map” icon. This option checks the status of each host discovered on the Map. A packet exchange is done for each host. A red (cross-out) mark displays if a host did not reply. To perform this task from the pull-down menu, select **Refresh map** from the **Action** pull-down menu.

### 9.4.5 Discover Host

To the right of the “Refresh Map” icon, is the “Discover hosts” icon. This will rediscover all host on the subnet. To perform this task from the pull-down menu, select **Discover hosts** from the **Action** pull-down menu.

### 9.4.6 Using the Ping Manager

Ping allows a user to check if a host is accessible on a network or not. A *package exchange* is done to accomplish this task.

1. Click the **Ping** icon (fifth from the right on the tool bar). The “Ping Manager” menu appears.
2. Click once on an IP address to highlight it.
3. Click the **Ping** button. The host that was contacted will respond in the “Report” box.

To perform this task from the pull-down menu, select **Ping hosts** from the **Action** pull-down menu.

### 9.4.7 TFTP Icon: Flash Download

Obtain a flash upgrade from Digi's LAN technical support (see Appendix F). Do the following to update a flash file:

1. Click on the **TFTP** icon (fourth from right). The "Flash Download (TFTP)" menu appears (Figure 9-4).
2. Type the device's file name into the "Download File Name" field, or click **Browse** to search for the files to download.

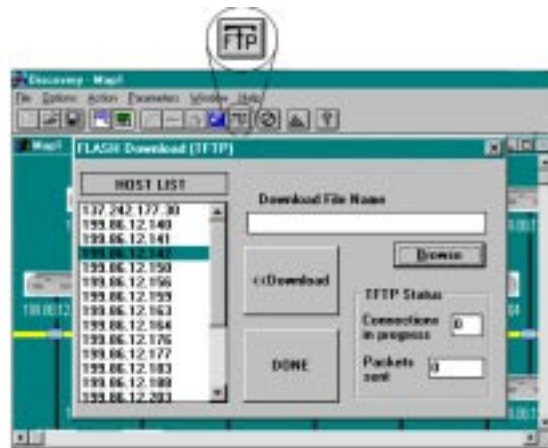


Figure 9-4. Flash Download (TFTP)

3. If the device's IP address does not show up in the **HOST LIST**, cancel out of the TFTP screen and click on the **Show Node Properties** icon (refer to section 9.4.9).
4. When the desired IP address is entered, click **Download** to download a file with **.hex** or **.chx** extension.

To perform this task from the pull-down menu, select **TFTP** from the **Action** pull-down menu.

### 9.4.8 Close All Windows Icon

On the tool bar, to the right of the "Show Node Properties" icon, is the "Close All Windows" icon. When clicked on, this icon simply closes all current windows on the Map.

### 9.4.9 Show Node Properties

The Show Node Properties allow users to change a name of a node, make a device invisible, or display traps for a device. To display the "Node Properties" menu (Figure 9-5), click the **Show Node Properties** icon (second from right)



Figure 9-5. Node Properties

To view this menu from the pull-down menu, select **Show node properties** from the **Window** pull-down menu.

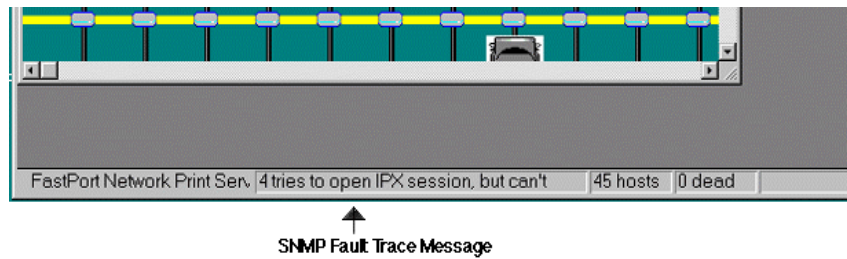
- To change a nodes name:
  - a. Click once on the desired node. The line is highlighted and the current name appears on the right-hand side of the screen. Unless given a name, **UNKNOWN** is displayed.
  - b. Enter a name into the box. The new name now appears in the node property field.
- To make a device invisible, deselect the **visible** box. Again, located on the right-hand side of the menu.
- Click on **Show Traps** to display traps for a device. For this function to work on this parameter, your system must be designated to receive trap. See Chapter 10 for more information on Traps (page 10-4).

Click **OK** when you are finished.

#### 9.4.10SNMP Fault Trace

From the **Window** menu, select **SNMP Fault Trace** to be “On” or “Off” (default). There are times when an SNMP session cannot be opened because of a variety of errors. When this happens, an error message appears. With this option selected, the software counts the times that error occurred “without” displaying the error message. The number of times the error occurred is displayed on the status bar (Figure 9-6).

**Note:** This only works if IPX is enabled in the **General Parameters** (under the **Parameters** pull-down menu).



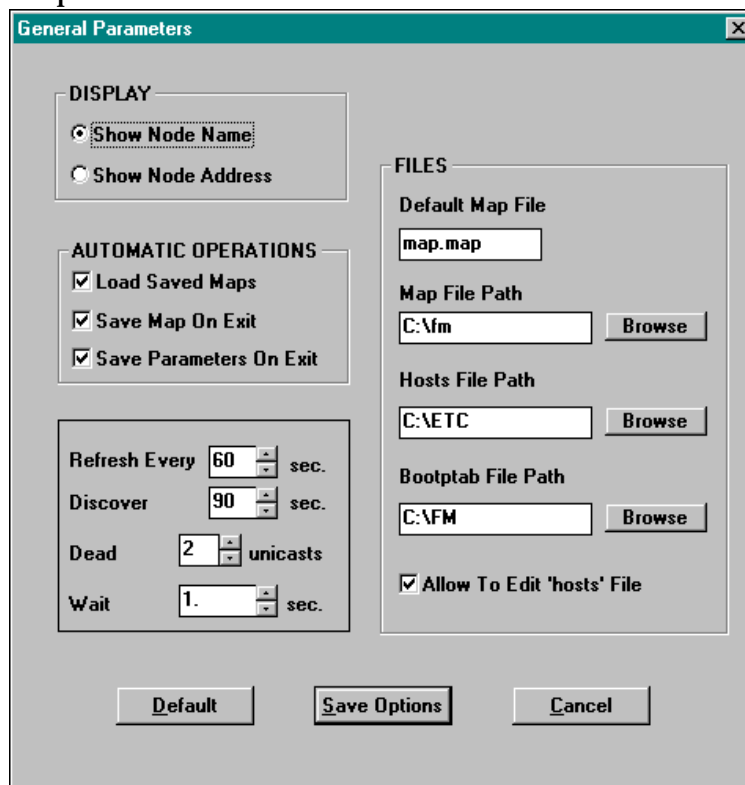
**Figure 9-6. SNMP Fault Trace Message**

## 9.5 Parameters Pull-Down Menu

There are a variety of options that can be configured from the Parameters pull-down menu, including:

### 9.5.1 General Parameters

To configure the General Parameters section: From the “Parameters” pull-down window, select **General Parameters** (Figure 9-7). The following are its options:



**Figure 9-7. General Parameters Menu**



- **Show Node Name:** When this option is selected, the software displays host names for all the devices discovered. Checked by default.
- **Show Node Address:** When this parameter is chosen, FastManage displays IP and IPX addresses for all the devices discovered. Not checked by default.
- **Load Saved Maps:** When this option is selected, FastManage loads a saved Map when starting the Discovery Application. Checked by default.
- **Save Maps On Exit:** When selected, this option saves the Map when Discovery is exited. Checked by default.
- **Save Parameters On Exit:** This selection saves the options when the Discovery is exit. Checked by default.
- **Refresh every:** When chosen, this option refreshes the Map every <n> seconds. Default is 60 seconds.
- **Discover:** When this parameter is selected, the software re-discovers hosts every <n> seconds. Default is 90 secs.
- **Dead:** This parameter signifies the number of attempts FastManage tried before marking the node as “dead” (off-line). Default is 2 unicasts.
- **Wait:** The selection denotes the amount of time the software waits for a reply from a node. Default is 1 second.
- **Default Map:** This parameter selects the name of the default Map file: `map.map`.
- **Map File:** This parameter enters the path for the Map file. Default is `C:/fm`.
- **Hosts File:** This parameter enters the path for the hosts file. Default is `C:/ETC`.
- **Bootptab File:** This selection enters the path for the bootptab file. Default is `C:/FM`.
- **Allow To Edit “Hosts” File:** When this parameter is selected, the software updates the “hosts” file if a new host is discovered. Checked by default.
- **Default:** Initialize all the parameters to default values.
- **Save Options:** Saves all changes to the `issnmp.ini` file.
- **Cancel:** Cancels the changes.



## 9.5.2 Discovery Parameters

From the “Parameters” pull-down window, select **Discovery Parameters** (Figure 9-8). Options include:

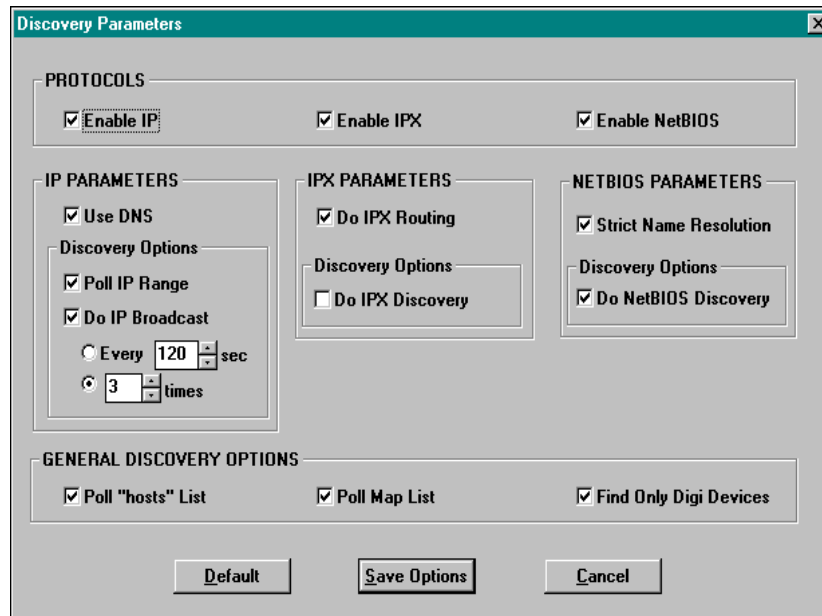


Figure 9-8. Discovery Parameters menu

- **Enable IP:** This option enables the IP protocol. If not, FastManage will not perform any SNMP over IP operation. This protocol is checked if IP was selected during setup.
- **Use DNS:** If the **Use DNS** is checked and the **IP/NetBIOS** protocols are all enabled, FastManage may be unable to resolve a NetBIOS name (for example, *SNMP0702CA*). Turn the **Use DNS** option “Off” if this is the case.

The “Enable IP” parameter must be selected to enable this option. Not checked by default.

- **Poll IP Range:** If this selection is selected, the software “polls” all 254 hosts of the subnet (from *x.y.z.1* to *x.y.z.254*). The “Enable IP” parameter must be selected to enable this option. Checked by default.
- **Do IP Broadcast:** If this parameter is chosen, the software performs discovery through SNMP over IP broadcast. The “Enable IP” parameter must be selected to enable this option. Checked by default.
- **Every:** If this parameter is enabled and a time is set, the software “broadcasts” every *<n>* seconds to discover new devices. The “Enable IP” option must be selected to enable this option. Not checked and 120 seconds are the defaults.

- **Times:** If this is enabled and a time is set, this option sets the number of times FastManage “broadcasts” before giving up finding a node. “Enable IP” must be selected to enable this option. Checked and 3 times are the default.
- **Poll “hosts” List:** If this is checked, FastManage reads through a Map list, if a name is in the hosts file, it will then use SNMP to discover a host. Checked by default.
- **Poll Map List:** If selected, this option “discovers” each host in a Map through SNMP. Checked by default.
- **Find Only Digi Devices:** If checked, this option finds and displays only Digi devices. Not checked by default.
- **Enable IPX:** If this option is selected, FastManage enables IPX protocol. If not selected, FastManage will not perform any SNMP over IPX operation. This protocol is checked if IP was selected during setup.
- **Do IPX Routing:** If this is enabled, user’s can manage IPX devices across the router. If the device name is specified in the host file, then that device will be discovered (the **Enable IPX**, **Do IPX routing**, and the **Poll “hosts” list** all have to be enabled).

The “Enable IPX” parameter must be selected to enable this option. Checked by default.

- **Do IPX Discovery:** Use SNMP over IPX and find all devices that respond. The “Enable IPX” parameter must be selected to enable this option. Not checked by default.
- **Enable NetBIOS:** When selected, this option enables NetBIOS using the NetBEUI protocol. If not, FastManage will not perform any SNMP over NetBIOS operation. This protocol is checked if IP was selected during setup.
- **Strict Name Resolution:** If this is enabled, all device names starting with *SNMPA* will be treated as NetBIOS names. The “Enable NetBIOS” parameter must be selected to enable this option. Checked by default.
- **Do NetBIOS Discovery:** If this parameter is chosen, the software uses SNMP over NetBIOS to find all devices that respond. The “Enable NetBIOS” parameter must be selected to enable this option. Not checked by default.
- **Default:** Initialize all the parameters to default values.
- **Save Options:** Saves all changes to the `issnmp.ini` file.
- **Cancel:** Cancels the changes.

### 9.5.3 Application Launch Parameters

The “Application Launch Parameter” allows users to name and then launch any other SNMP device. To configure the Edit Launch Parameters:

1. Select **Application Launch Parameters**.
2. The “Edit Launch Parameters” menu appears.
3. In the **Object Identifier of the Device** line, enter the SNMP device’s unique SNMP identifier.
4. In the **Launch App and Cmd Line Paras** line, enter the name of the application to be launched. For Digi devices, add an **%s** at the end.
5. Click **Add** when you are finished.

User’s are now able to launch that SNMP device.

### 9.5.4 Mib2 System Parameters

The Mib2 system parameter allows users to identify a workstation.

**Note:** If the FastPort print servers has a telnet password enabled, users cannot manage the device with the FastManage software.

1. From “Parameters,” select **Mib2 System Parameters**. The “Mib2 System Parameters” menu appears.
2. Fill in the required parameters:
  - **Get Community:** This parameter is required to be set. Default: public.
  - **Set Community:** This parameter is required to be set. Default: private.
  - **Description:** This information will be returned by the FastManage software in response to an SNMP query. Default is the FastManage’s SNMP agent.
  - **Name:** This information will also be returned by the FastManage software in response to an SNMP query. Field is blank by default.
  - **Location:** This information will also be returned by the FastManage software in response to an SNMP query. Field is blank by default.
  - **Contact:** This information will also be returned by the FastManage software in response to an SNMP query. Field is blank by default.
  - **Enable Agent:** Checked by default.
  - **Save:** Saves all changes to the **issnmp.ini** file.
  - **Cancel:** Cancels the changes.

# Chapter 10

## FastPort Application

Chapter 10 gives an description of the FastPort Application. The FastPort Application is used to manage SNMP devices.

### 10.1 FastPort Application

FastManage supports most SNMP devices, including the MIL-3000FTX. The software detects devices during Discovery (see Chapter 10). The **FastPort PrintServer MGR.** icon allows users to open a specific FastPort. To do so:

1. From the “FastManage for FastPort” Windows menu, double-click onto the **FastPort PrintServer Mgr.** (Figure 10-1) icon.
2. When prompted for an “IP Address/Alias,” “IPX Address/Name,” or a “NetBIOS Name,” enter the device’s name or address and click Ok. Enter in the name or address exactly as it appears in the network.
3. A graphic displaying the device’s front and rear panel appears (Figure 10-2). This graphic is the same as displayed during Discovery.

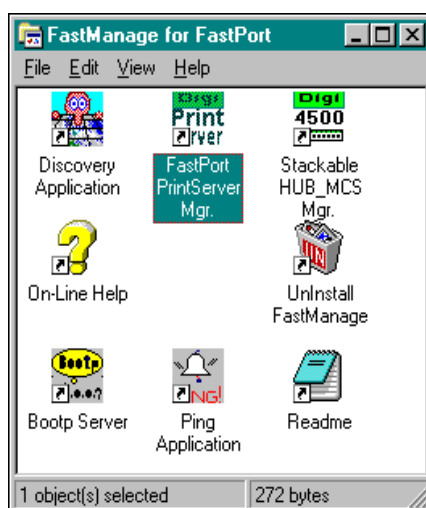


Figure 10-1. FastPort PrintServer Mgr. Icon

## 10.2 Overview of Managing FastPort

Once the application is launched, a graphical illustration representing the front and rear panels of the specific FastPort is displayed (Figure 10-2).

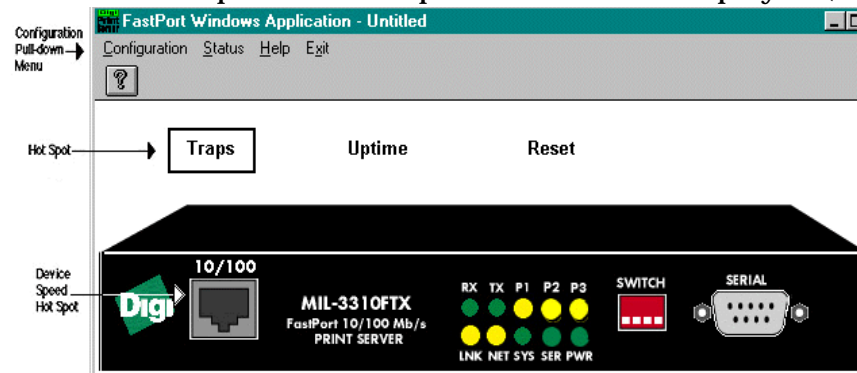


Figure 10-2. MIL-3300FTX FastPort Print Server

## 10.3 FastPort Application

There are “Hot Spots” on the graphical illustration of FastPort (Figure 10-2), that can be clicked on to obtain information. To find a hot spot, move the mouse around the screen. A box outlining the hot spot appears. The following is a description of each hot spot:

### 10.3.1 Traps

Traps list any problem affecting the device. Problems include either hardware or software. Users can also view traps through the “Show Node Properties” menu in the Discovery Application (refer to section 10.4.9). Click once on the hot spot. If there are no problems, the following appears:

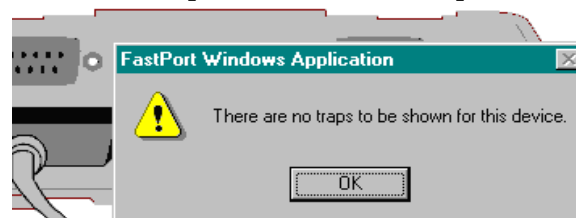


Figure 10-3. Traps Hot Spot

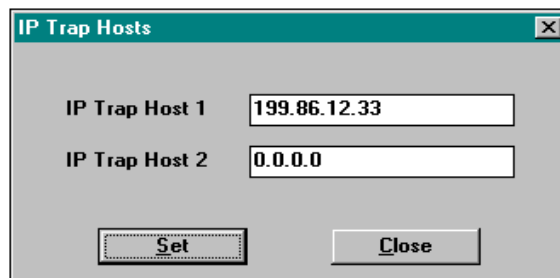
To view a trap, you must tell the system to notify you when a trap occurs. This means, for any specific device that you want to be notified, you must setup trap notification first. To setup trap notification:

1. From the “Configuration” pull-down menu, select:

TCP/IP Config--> IP Configuration-->IP Traps-->IP Traps Hosts

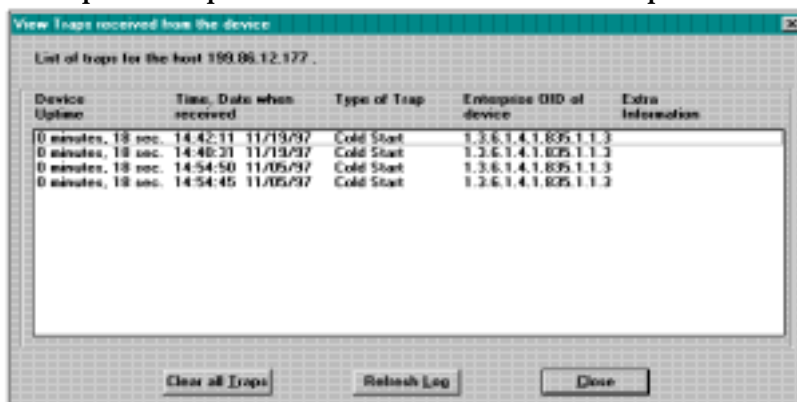
**Note:** Refer to section 10.4.1 for information on the TCP/IP Config. sub-menu's options.

The following screen appears:



**Figure 10-4. IP Traps Manager**

2. Enter your host address into the “IP Trap Host 1” line and click **set**. FastManage now notifies you when a trap occurs. Now click the “Traps” hot spot, the software will list all traps found.



**Figure 10-5. Traps Found Screen**

### 10.3.2 Uptime

Uptime displays how long the device has been running in days, hours, minutes, and seconds. Click once when there is a box around “Uptime” and the “Session Windows Caption” screen appears.

### 10.3.3 Reset

When this is clicked on, a warning message appears asking whether or not the user want to reset FastPort. Select **Yes** to continue, **No** to stop.

### 10.3.4 Digi Logo

A Digi logo appears on the graphic (Figure 10-2). When this logo is clicked on, FastPort specifications appear. Reset **Name**, **Location**, and **Contact**. Press **set** after you make changes.

### 10.3.5 Serial Port

Depending on your model of MIL-3000FTX, there may be up to three serial ports. When a serial port icon is clicked, information for that port is displayed. Left- and right-mouse clicks displays different information (Figure 10-6).

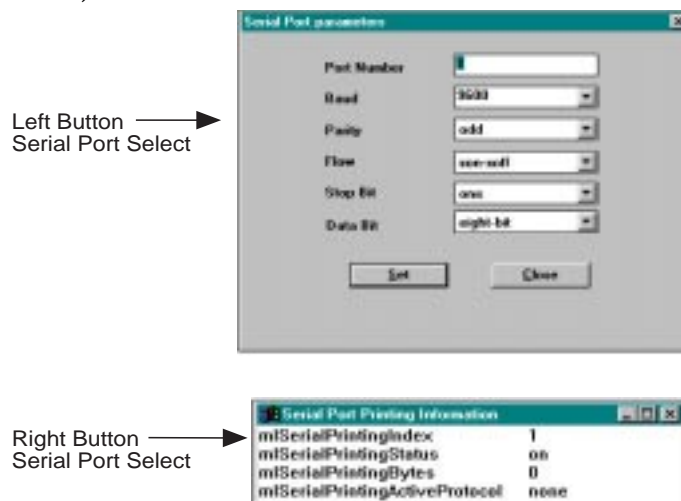


Figure 10-6. Mouse Selections for the Serial Port

### 10.3.6 Parallel Port

Depending on your model of MIL-3000FTX, there may be up to three parallel ports. When a parallel port icon is clicked, information for that port displayed. Left- and right-mouse clicks displays different information (Figure 10-7).

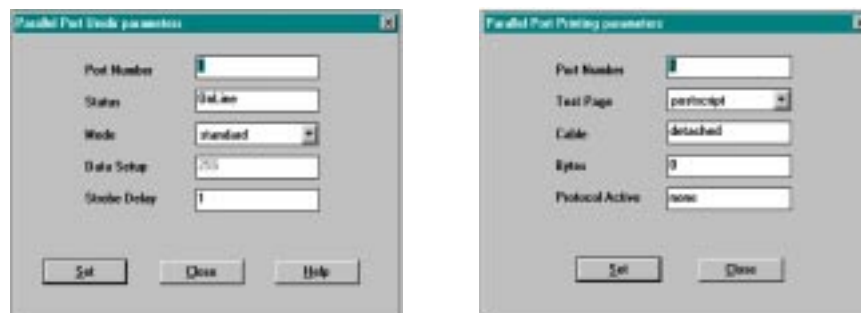


Figure 10-7. Mouse Selections for the Parallel Port

## 10.4 Configuration Sub-menus

Options are available from the “Configuration” sub-menu. This section discusses those options.

## 10.4.1 TCP/IP Config.

There are a series of choices that can be selected to configure FastPort on a TCP/IP networks. The following is a hierarchy of the choices that can be selected. To open each selection, use the mouse and follow the arrows to the sub-menus.

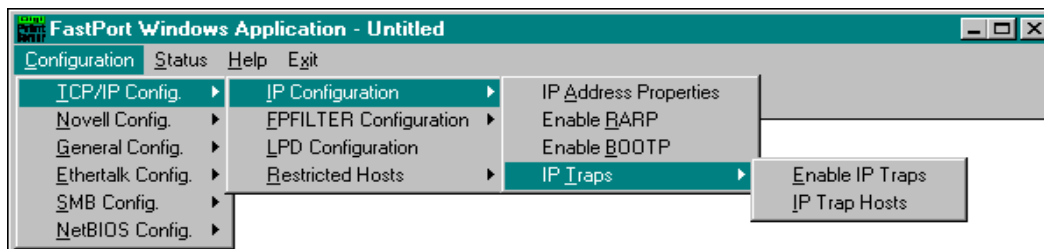


Figure 10-8. TCP/IP Config. Select

**Note:** The latest version of FastManage has an improved **TCP/IP Config.** screen. Contact Digi's LAN technical support for information pertaining to early versions of FastManage and the **TCP/IP Config.** screen.

From **TCP/IP Config.**, selections include:

- **IP Configuration->IP Address Properties:** Enables a user to change a variety of IP options. Changes take effect at system reset. Options for this menu include (Figure 10-9):
  - **DHCP Enable:** Enables the DHCP feature. Default: Enabled.
  - **DHCP Disable:** Disables the DHCP feature.
  - **IP Address:** Changes the IP address of a device (e.g., if a device is moved to a different subnet).
  - **Subnet Mask:** Sets the subnet mask address for the device. If no IP address is set, then default is 0.0.0.0. If an IP address is set, then:
    - For Class A addresses, default is 255.0.0.0
    - For Class B addresses, default is 255.255.0.0.
    - For Class C addresses, default is 255.255.255.0
  - **Gateway Address:** Sets up the address of the router that routes IP packets across subnets. Default is 0.0.0.0.



Figure 10-9. Configure IP Address Properties Screen



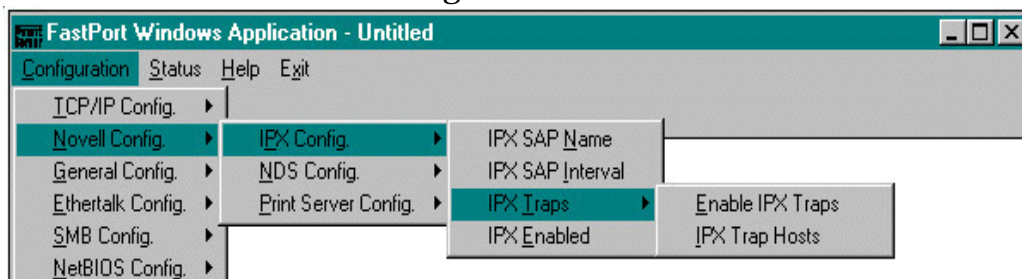
- **FPFILTER Configuration**-->**Enable FPFILTER**: Enables host software services. Default: **Enabled**.  
-->**Auxiliary ports**: Specifies the auxiliary ports for the parallel and serial port printing. Default is 0 for each port.

**Note:** The number of auxiliary ports to configure depends on the number of serial and parallel ports on the FastPort.

- **LPD Configuration**: Enables BSD-type LPD print services and its options. Default: All are **Enabled**.
- **Restricted Hosts**: -->**Subnets**: Limits access to FastPort. Only hosts in the selected subnet can access FastPort. Default for "Subnet" and "Mask" is 0.0.0.0.  
-->**Allowed IP Addresses**: Limits access to FastPort. Only the hosts with the IP addresses can access FastPort. Default for all four fields is 0.0.0.0.

### 10.4.2 Novell Config.

There are a series of choices that can be selected to configure FastPort for a Novell network, including:



**Figure 10-10. Novell Config. Selections (Windows '95)**

From Novell Config., selections include:

- **IPX Config.** -->**IPX SAP Name**: Changes the name used by the device in service messages on the IPX network. This name displays in Map 1 of the Discovery Application node. Default: **FPXXXXXX**, where "XXXXXX" is the last six digits of the MAC address.  
-->**IPX SAP Interval**: Configuring the SAP internal of the device (numbers are between 1-6). Default: 1.  
-->**IPX Traps**-->**Enable IPX Traps**: When enabled, the software sends "traps" to a designated system. Default: **Enabled**. For more information on traps, refer to "Traps" on page 2 and "IPX Trap Hosts" (next selection).  
-->**IPX Trap Hosts**: Designates to the system where traps will be sent. Default for both "IPX Trap Host 1" and "IPX Trap Host 2" are all zeros.  
-->**IPX Enabled**: Enables/disables IPX protocol. Default: **Enabled**.
- **NDS Config.** -->**Enable NDS**: Enables/disables NetWare Directory Services. Default: **Enabled**.  
-->**Preferred DS Tree**: Sets the "tree" where FastPort's server and print queues are defined. The name entered must be a valid "Tree" or "Context." The field is blank by default.

-->**Preferred DS Context**: Sets the “context” where FastPort’s server/queues are defined. The name entered must be a valid “Tree” or “Context. The field is blank by default.

- **Print Server Config.**-->**Queue Scan Rate**: Sets the rate (times per second) that FastPort scans the Novell queue for print jobs (valid numbers are between 1-6). Default: 1.  
 -->**Frame Type**: Selects NetWare’s frame type. Default: **Autosensing**.  
 -->**Configuration server**: Is the server where FastPort’s bindery configuration file resides. The field blank by default.  
 -->**Notification**: Enabling this parameter allows FastPort to send status to users on the Notify list Default: **Disabled**.

### 10.4.3 General Config.

There are a series of choices that can be selected to configure FastPort for a general network, including:

- **Community Strings**: Sets **SNMP community strings**. Default for “Get Community String” is **public**. Default for “Set Community String” is **private**.
- **Flash Config.** -->**Allow download**: Allow/disallow the upgrade of the Firmware. Default: **Allow**.

### 10.4.4 Ethernalk Config.

There are a series of choices that can be select to configure FastPort for a Ethernalk network, including:

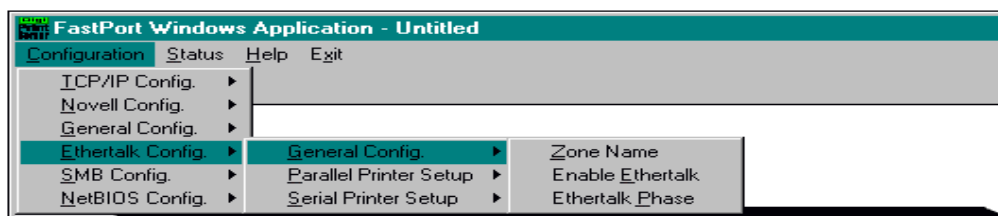


Figure 10-11. Ethernalk Config. Selections

From Ethernalk Config., selections include:

- **General Config.**--> **Zone Name**: Logical group where FastPort exists.  
 -->**Enable Ethernalk**: Enables/disables the Ethernalk protocol. Default: **Disabled**.  
 -->**Ethernalk Phase**: Sets the compatibility level of the Appletalk network system. Default: **Phase 2**.
- **Parallel Printer Setup**-->**Printer 1**: This selection sets printer 1 port’s parameters.  
 -->**Printer 2 (optional)**: Sets printer 2 port’s parameters.  
 -->**Printer 3 (optional)**: Sets printer 3 port’s parameters.

**Note:** The number of printers to configure depends on the number of parallel ports on the FastPort.

Parameters for the parallel port includes:

- **Serial Printer Setup**-->**Printer 1**: Sets serial port 1's parameters.  
 -->**Printer 2** (optional): Sets serial port 2's parameters.

**Note:** The number of printers to configure depends on the number of serial ports on the FastPort.

Parameters for the serial port includes:

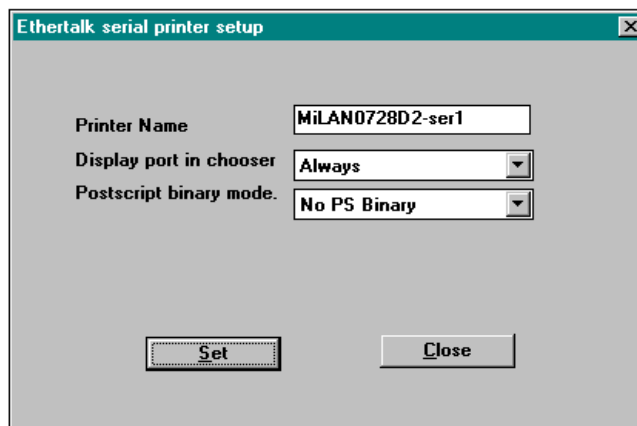


Figure 10-12. Ethernalk Serial Printer Menu

#### 10.4.5SMB Config.

There are a series of choices that can be selected to configure FastPort for a SMB network, including:

- **SMB Config.** --> **HP DLC**: Enables/disables HP's DLC protocol. Default: **Disabled**.  
 --> **SMB Enabled**: Enables/disables SMB protocol. Default: **Enabled**.  
 --> **SMB Names**: Sets the SMB workgroup and unique identification. Default: **Disabled**.  
 --> **SMB Share Names**: Sets the aliases of the printer port. Default: **Disabled** (Refer to Figure 10-13).



Figure 10-13. SMP Share Name Menu

### 10.4.6 NetBIOS Config.

There is one choice that can be selected to configure FastPort for a NetBIOS network:

- **NetBIOS Config.-->NetBIOS Names:** Sets the NetBIOS group and unique name. This parameter cannot be modified.

### 10.5 Status Menu

Currently, these parameters are reserved.

### 10.6 Help Menu

The Help menu has two options: “Using Help” and “About FastPort Manager.”

- **Using Help:** A standard Windows help file appears.
- **About FastPort Manager:** Displays information on the current FastPort being used, including:
  - Firmware revision
  - Name of device being managed
  - Get community string being used
  - Type of device recognized by FastManage

# Chapter 11

## Ping and BOOTP Server

Chapter 11 covers both the Ping and BOOTP applications. Ping is used to see whether or not a device is “alive.” BOOTP allows users to dynamically assign IP addresses to a device.

### 11.1 Launching the Ping Application

Ping sends a packet over the network directed to a specific device to inquire if it is on-line or not. To launch Ping:

1. Double-click on the **Ping Application** icon
2. The “Ping Window Application” window appears. Click the **ping** pull-down menu.
3. The “Perform Ping Operation” menu appears (Figure 11-1). Enter the IP address to be pinged. Click **ping**. The application displays the response in the “Ping Result” box.

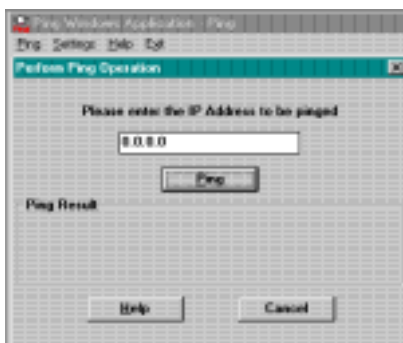


Figure 11-3. Ping Operation Window

#### 11.1.1 Updating the Ping Settings

To update the Ping settings:

1. Click the “Settings” pull-down window. The “Update Settings” window appears (Figure 11-2).

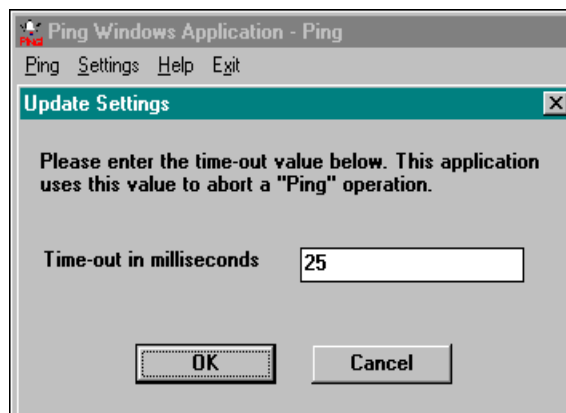


Figure 11-4. Update Settings Menu

2. Change the time-out setting (in milliseconds).

**Note:** A value of up to 32,000 milliseconds can be entered.

3. Click **OK**.

## 11.2 Troubleshooting Ping

If a device does not respond to a ping command:

- Make sure that you entered the correct IP address in the ping command line.
- Make sure the device was assigned the correct IP address.
- Physically make sure the device is setup correctly.

## 11.3 BOOTP Configuration

The BOOTP application implements a BOOTP server, which allow users to assign IP addresses dynamically to devices on the network. Digi's network devices implement BOOTP and can obtain an IP address from BOOTP. BOOTP looks for the right entry containing the IP and hardware address of the device. To launch the BOOTP server in Windows:

1. Double-click on the **BOOTP Server** icon.
2. Figure 11-3 may appear. Select "Browse" to find this file.
3. BOOTP needs a "BOOTPtab" file (usually in the `/etc` directory) to operate. Digi provides an empty BOOTPtab file with FastManage. When this file appears in the field, click **OK** to continue. The "BOOTP Server" menu appears.

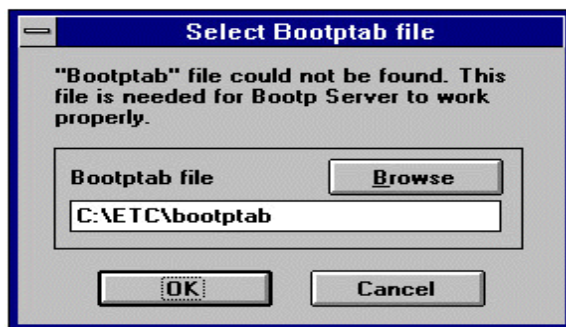


Figure 11-5. Select BOOTPtab File

4. To add a new entry to the “BOOTPtab” file, click **Add Entry to BOOTPtab File** from the “File” pull-down window.

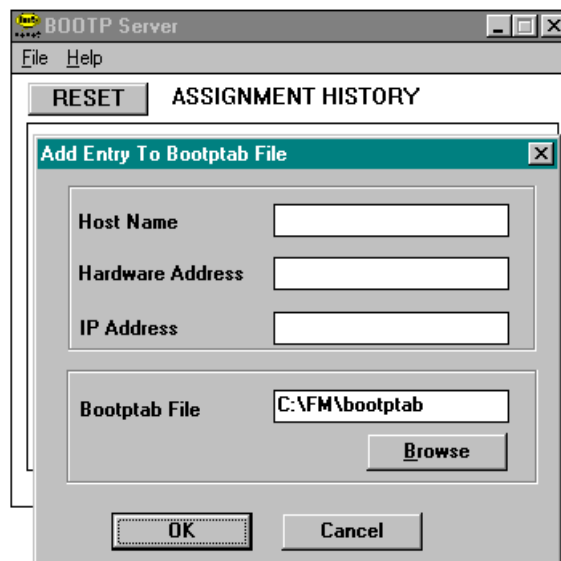


Figure 11-6. Add Entry to BOOTPTab File

To add a node with an Ethernet address of “0040C8XXX02” and an IP address of “199.86.11.1,” enter 00.40.C8.xx.xx.02 in the “Hardware Address” box, and 199.86.11.1 in the “IP Address” box.

**Note:** The host name is user selectable.

5. Click **OK**.

Add entries for each field.

# Appendix A

## Resetting FastPort to Factory Defaults

### A.1 Resetting by Toggling the DIP Switches

**Note:** This will also reset the IP Address back to 0.0.0.0.

1. Place all the front panel switches down.

**Note:** Unplug then plug back in the power supply.

2. Wait at least 4 seconds.
3. Toggle switches D4 up and down quickly at least 10 times.
4. Reset switches back into normal printing mode.
5. Power cycle the unit.

### A.2 Resetting by Console Option

1. Establish a serial, telnet, or NetBIOS console monitor to obtain the Options menu (or Available Command menu)
2. In the Options menu, press [Z] (option Z) to reset the unit.

**Note:** An option to reset the IP address appears. Select to do so.

3. After NVRAM write is done, press [R] to end the console session and reset FastPort.

### A.3 Hardware Features

- The MIL-3000FTX board, with Ethernet controller, serial, and parallel port interfaces
- CPU: An 80186 processor, with a 16 MHz clock
- Memory: 256K RAM
- Flash: Flash device is 29F040. It is a 4 Mbps EEPROM and arranged in 2 × 256k × 8 format.
- MAC chipsets: Ethernet controller is 10/100 Mbps, with its own memory management
- 10/100BASE-TX, RJ-45 (unshielded twisted pair) connector



## A.4 Serial Printer and Terminal

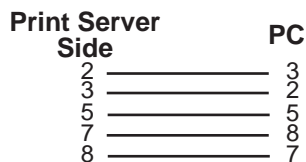


Figure A-1.Common Dumb Terminal Connection

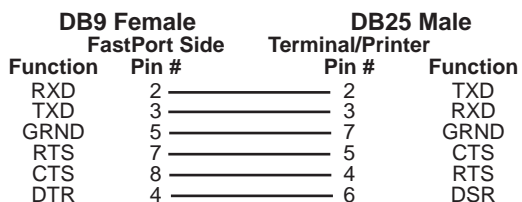


Figure A-2.Cable for Terminal and Serial Printers

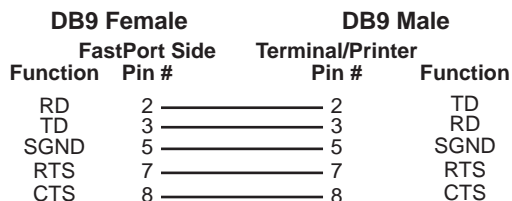


Figure A-3.DCE Device: Dumb Terminal or Serial Port

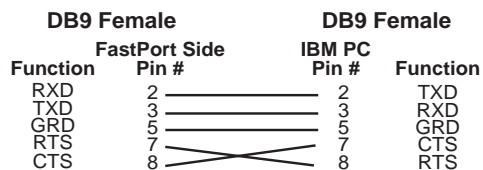


Figure A-4.Wyse 60 Dumb Terminal

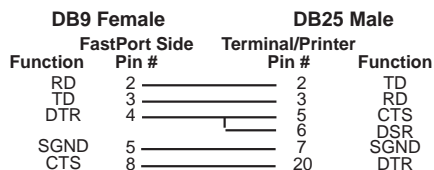


Figure A-5.DTE Printer/Plotter and PC Null: DB25 Male

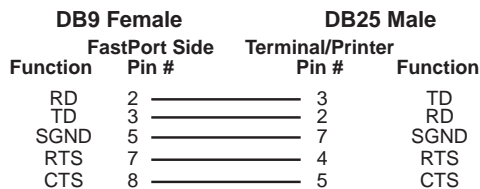


Figure A-6.DCE Printer/Plotter: DB25 Female

## A.5 Connectors

### A.5.1 Serial Port Connector

PIN Number	Signal	PIN Number	Signal
1	NC	6	NC
2	RXD	7	RTS/DTR
3	TXD	8	CTS
4	DTR/RTS	9	NC
5	GND		

### A.5.2 RJ-45 Connector

- Pin 1: Transmit data +                      Pin 3: Receive data +
- Pin 2: Transmit data -                      Pin 6: Receive data -

### A.5.3 Parallel Port Connector

PIN Number	Signal	PIN Number	Signal	PIN Number	Signal
1	PASTB	10	ACK	19	GND
2	PAD0	11	BUSY	20	GND
3	PAD1	12	PE	21	GND
4	PAD2	13	ONLINE	22	GND
5	PAD3	14	AUTO FEED	23	GND
6	PAD4	15	FAULT	24	GND
7	PAD5	16	INIT	25	GND
8	PAD6	17	SLCTIN		
9	PAD7	18	GND		

## A.6 Environmental Operating Conditions

Parameters	Minimum	Maximum
Operating Temperature	+5° C	40° C
Humidity: Non-condensing	10%	95%
Altitude test	NA	40,000 ft. (at 40° C)
Temperature test (Operating)	5° C	50° C
Temperature test (Packaged)	-25° C	70° C

## A.7 System LEDs

LED	Functioned	Color
RX	Transmitting on the network	Green
TX	Receiving from the network	Green
SYS	System is active	Green
SER	Serial port activity	Green
PWR	System power is On	Green
LNK	Link is active	Yellow
NET	Network activity	Yellow
P1	Parallel data activity on parallel port 1	Yellow
P2 (MIL-3200FTX & MIL-3310FTX only)	Parallel data activity on parallel port 2	Yellow
P3 (MIL-3310FTX only)	Parallel data activity on parallel port 3	Yellow

# Appendix B

## Troubleshooting MS Windows

### B.1 MS Windows-Level Browsing and Sharing Abilities

When a client machine comes up on the network, it usually comes up in a pre-configured workgroup. The default workgroup for all NetBIOS machines (including FastPort) is named `Workgroup`. When a user looks for devices on the network, they will normally see only those devices in their specific workgroup. Windows 95 allows a user to browse multiple workgroups, choose a specific workgroup, and then view the devices inside that workgroup. There must be at least one PC workstation in each workgroup to store a list of all the other devices in that workgroup. That PC is the *BrowseMaster*. The *BrowseMaster* is checked by the NetBIOS clients without any user intervention.

FastPort cannot act as a *BrowseMaster*. For example, a NetBIOS workstation is on a workgroup (for example, "MyCompany") and FastPort is now installed onto the network. FastPort will come up and advertise itself in the default workgroup called `workgroup`. When a user browses the network (using **Net View** or **Network Neighborhood** applications), he will not see FastPort or even see a workgroup called `workgroup`, this is because there is not at least one workstation in the `workgroup` with FastPort.

FastPort cannot become a *BrowseMaster* for a NetBIOS Workgroup. To solve this problem:

1. Connect to FastPort.
2. Store a new NetBIOS workgroup name using either FastManage package, `nbmon.exe`, or any other Digi International tool.
3. Once connected to FastPort, go to the "Network Protocol" section, then to the "Microsoft SMB" subsection.
4. Change the property called "NetBIOS Workgroup."
5. Change the workgroup name to the same as in the workgroup (that is, "MyCompany").

Users should now be able to browse FastPort just as they would any normal NetBIOS client. As an alternative:

1. Use the `net use` and/or `net view` command without having FastPort in the same workgroup as the workstation.
2. Fill in the proper NetBIOS name of FastPort.
3. Type `net?` at the DOS prompt to get more info. on the utilities.

## B.2 Troubleshooting DOS Tools

### B.2.1 DOS Tools

If there are problems installing and using the NetBIOS management tools, here are few suggestions:

- When using `showprn.exe`, and FastPort does not appear; issue the command with: `-d0`, `-d1`, `-d2`, `-d3`, `-d4`, `-d5`, `-d6`, or `-d7` switch:

```
showprn.exe -d1
```

This causes `showprn` to use an alternate stack to send the packet. This problem shows up sometimes in systems that have multiple NICs or multiple protocols loaded. If a `-d1` switch was used with the `showprn.exe` tool, use it on the `NBMON` command line:

```
nbmon fpxxxxxx -d1
```

- If the IPX is loaded and running on a system running Windows 95, the check box for `Send NetBIOS over IPX` should not be checked.

`Send NetBIOS over IPX` is located in the Control Panel--> Network--> IPX Compatible Protocol screen.

- Open up the Control Panel-->Networks screen. Choose `NetBEUI` protocol. Check the check-box marked `Set this Protocol to be the Default Protocol`. In Windows 95, it is located in the Advanced Options menu.

## B.3 After Upgrade

An older FastPort that has recently been flash updated to version 6.1 may be configured with the invalid workgroup `WORKGROUPS`. Reset the device to factory defaults. This will give FastPort the valid default workgroup value `WORKGROUP`.

# Appendix C

## Troubleshooting NetWare

### C.1 ACT-- Advance Configuration Tool

#### C.1.1 Benefits of ACT

- Quick configuration menu
- Configuration is independent of the NetWare frame type
- FastPort can be monitored and its messages logged
- Print server parameters can be changed (for example, serial and parallel port parameters, IP address)
- Protocol-specific parameters can be changed (i.e., setting the IP address, setting LPD/fpfilter options, and modifying AppleTalk parameters)

#### C.1.2 Features

ACT runs on DOS 5.x (and above) PCs connected to NetWare 2.x, 3.x, and 4.x file servers. Access privileges are identical to those of PCONSOLE. ACT provides password security for print server control functions and a context-sensitive help line. Options include:

- Resetting the print server
- Setting access passwords for the print server
- Adding /deleting queues, queue operators and users
- Adding/deleting print servers servicing a queue
- Adding/deleting notified users in case of printer errors
- Entering an IP address, restrictions, and subnet masks
- Selecting NetWare frame type
- Serial port parameters (i.e, baud rate, data bits parity, etc.)
- Parallel port parameters (i.e., port type, test page, etc.)

- Resetting FastPort's NVRAM of to factory defaults
- Choosing a primary NetWare server
- Enabling/disabling protocols (e.g., TCP/IP, EtherTalk, etc.)
- Customizing LPD

### C.1.3 Requirements

- A MIL-3XXX FastPort print server with firmware release 4.5.x (and above) installed.
- NetWare file server with the PC logged into the server.
- NetWare enabled (i.e., NetWare drivers are loaded).
- Supervisor access to an object is required for some features.

### C.1.4 Setup

1. Create a directory for the software (e.g., type `md Digi` and press [Enter]. Where Digi is the directory's name).
2. From the utility driver, copy the file `ACT.EXE` onto the recently created directory. From `C:\Digi>`, type `copy a:\` and press [Enter].

### C.1.5 Navigating in ACT

From the appropriate directory (e.g., `c:\Digi`), enter ACT.

1. Type `ACT` and press [Enter].
2. Select a device or a menu option by:
  - a. Using arrow keys, highlight an item and press [Enter].
  - b. Use a hot key, usually the first letter in the menu option.
3. To exit out of a menu or option, press [Esc].
4. Highlight the designated field and press [Enter]. To leave ACT, select the `Exit` menu.

## C.2 Advanced Configuration Menu in ACT

The Advanced Configuration menu has five major submenus:

- **NetWare Configuration:** Controls NetWare-specific print server parameters.

- **Print Server Configuration:** Controls the print server-specific parameters for the selected FastPort.
- **Fpfilter Configuration:** Controls the configuration options for UNIX-based printing using the host software.
- **LPD Configuration:** Controls supported LPD options.
- **EtherTalk Configuration:** Controls EtherTalk options

## C.2.1 NetWare Configuration Menu

The NetWare Configuration menu includes the following:

- Configuring the Print Server (Printer)
- Configure Print Server (File Server)
- Configure Queue

### C.2.1.1 Configuring the Print Server (FastPort Side)

1. Select the "Configure Print Server" menu

A set of menus that modifies to NetWare appears.

2. Select the available printer.

A summary screen is displayed. It includes **IPX network**, **node**, and **FastPort NVRAM** information.

Options that can be modified:

- **Queue Scan Rate:** This sets the rate (times per second) that FastPort scans the Novell queues for print jobs. Rates include, 1, 2, 4, 8, 16, and 32 seconds.
- **NetWare Frame Type:** Options include Ethernet II, IEEE 802.3 and Autosense, 802.2-over-802.3, and 802.2 SNAP.
- **Configuration Server:** This is the preferred server machine on which the configuration file resides.
- **Enabling Notification:** This sends printer error to users in the notify list. Notification messages are sent the first time an error is detected and then every five minutes.

**Note:** Access to all these variables can be password protected. In the Autosense mode, the unit determines the frame type required for communication by repeated broadcasts.

### C.2.1.2 Configuring the Print Server (File Server Side)

When the **Configure Print Server (File Server)** is accessed, a set of menus appear. These menus allow a user to set and modify print server parameters on a specific file server. Select the printer first, and then a file server for the printer. A summary screen appears.

**Note:** This requires system administrator rights.

### C.2.1.3 Configuring a Queue

When **Configure a Queue** is accessed, users can define a queue by selecting a printer, a server, and a queue. Variables that can be modified:

- Queue's name
- List of authorized queue operators
- List of authorized queue users
- Set of queue options for customizing print jobs

Assign the following print options to the print queues:

**Table C-1: Special Print Options on Configure a Queue**

Option	Print Options	Description
cd	Control+D	Some printers (PS) require a Control+D at the start/end of each print job.
ss=" " " " " "	Start and End strings	These are useful for setting printer characteristics (ASCII or PostScript) and page orientation (landscape or portrait).
b=off	Banner pages	This allows a user to print an ASCII or PostScript banner page before each print job. b=ps for PostScript or b=off for hp/gl (ASCII by default).
pb=ab or pb=hp	PostScript binary	PostScript binary supports printing binary encoded PostScript files. Use "pb=ab" for Adobe/Tektronix or standard PostScript binary print jobs. Use "pb=hp" for printing Hewlett-Packard encoded PostScript binary print jobs.

User can modify configuration files after it is created by ACT to perform detailed customizing of print queues.

### C.2.1.4 Example 1

A user wants the configuration file entry for the queue **QUEUEP** on server **SIMBA** to do the following:

1. Put an HP LaserJet III SI into PostScript mode.
2. Send a Control+D at the beginning and end of a print job.
3. Send a PostScript banner page.
4. Return the printer to PCL mode.



5. Use an ASCII editor to prepare the following config. file:

```
SIMBA:QUEUEP:PS1:Parallel1:ss="M-%-12345X@PJL enter
language = PostScript \r\n",es="M-%-12345X@PJL enter
language = pcl \r\n",b=ps,cd
```

Or use the ACT menus:

1. Select the **Advanced Configuration** from the "Configure" menu.
2. Select **Netware Configuration** and **Configure Queue**.
3. Scroll down the list of printers and select one.
4. Scroll down the list of file servers and select one.
5. Scroll down the list of Queues and select one.
6. From the Queue Options menu, select **Startstrings**. The start string:  
<Esc>%-12345X@PJL enter language = PostScript.
7. Add the end string <Esc>%-12345X@PJL enter language = pcl  
to change the mode back to PCL.
8. To complete the configuration, select **Send Control+D** and select  
**PostScript** from the choice **Banner** page.

### C.2.1.5 Example 2

The second queue on server SOAVE has a configuration file that puts an HP LaserJet into PCL mode, sends the file without the banner (b=off), and puts the printer back into PS mode. In plain text form that looks like this:

```
SOAVE:QUEUEP:PS:Parallel1:ss="M-%-12345X@PJL enter
language = pcl\r\n",es="M-%-12345X@PJL enter language
= PostScript \r\n",b=off
```

Configuration has info. about devices connected to FastPort.

### C.2.2 Print Server Configuration

The Print Server Configuration menu allows a user to view print server information, including network name, model number, and ROM version (refer to Table C-1). Parameters that can be changed, including:

- Assign IP addresses for both FastPort and hosts that print to FastPort
- Set serial and parallel port parameters

- Set and modify access passwords
- Enable and disable RARP
- Access passwords

**Note:** Access is password protected. Choose a password from this menu.

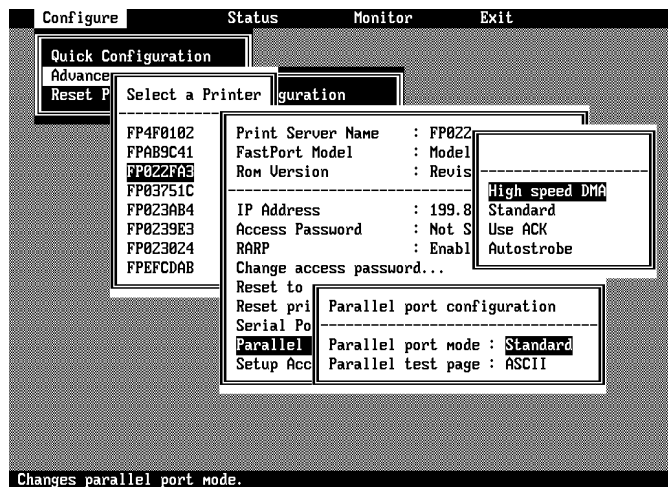


Figure C-1. Print Server Configuration Options

The parallel port supports these printing modes:

- **standard** (for all versions): FastPort relies on the Busy signal to determine when the port can receive a byte. This is the recommended mode when Fast-DMA is not selected.
- **Fast-DMA** (for MIL-3100, MIL-3100CX, and MIL-3500), **Fifo-ACK** (for MIL-3200 and MIL-3400): This enables the DMA chip to drive the parallel port. This works for printers that support ACK signals only. Depending on the printer's speed, this mode can more than double the throughput of FastPort.
- **AutoStrobe**: This enables a hardware timer to generate the strobe pulse on the parallel port. Since Fast-DMA is tied to ACK, this can be used by printers that support the Busy signal. This mode is slower than Fast-DMA, but is faster than Standard mode or Use-ACK mode.
- **Disabled**: This mode is reserved.
- **Use-ACK**: This makes FastPort check both the Busy and ACK signals on the parallel port when sending bytes. This is slower than Standard because of the extra checks.

### C.3 Status Menu in ACT

The **Status Menu** provides two options to display the current status of a print server and its queues. There are two submenus: **Print Server Status** and **Queue Status**.

The **Print Server Status** submenu (Figure C-2) allows a user to view the current print job, check the queues being serviced, and view the status of the attached printer. The number of bytes printed on the parallel/serial port and the protocol currently printing can also be viewed.

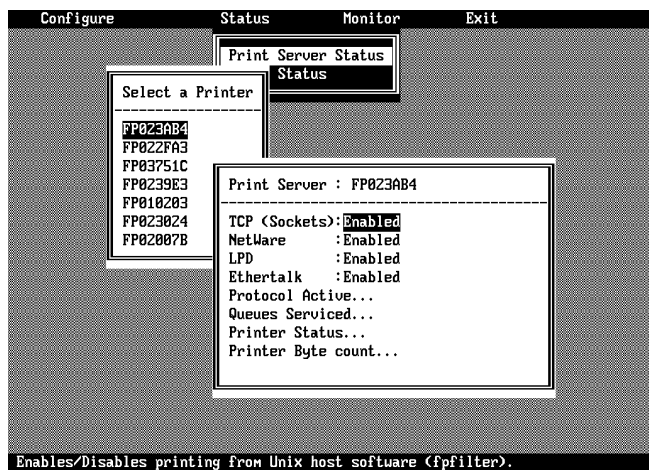


Figure C-2. Print Server Status Options

### C.4 Monitor Menu in ACT

The **Monitor** menu (Figure C-3) monitors the selected FastPort and logs the console messages. There are three submenus: **Select Print Server**, **Begin Monitor**, and **Monitor Log**. The "Begin monitor" selection initiates monitoring. The FastPort console messages display as they occur. The **Monitor Log** controls the size and location of the log file.

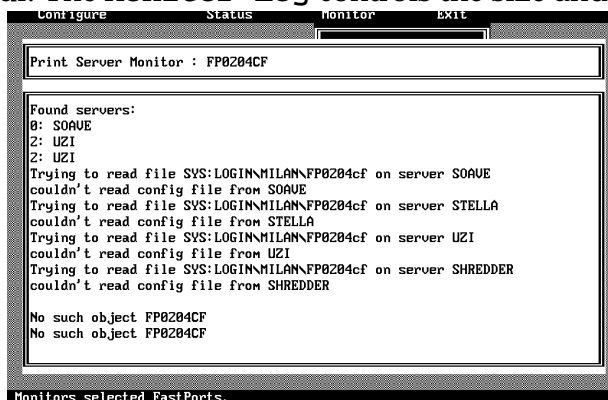


Figure C-3. Begin Monitor Showing Real-time Messages

## C.5 Troubleshooting Tips

This section lists problems and possible solutions for NetWare.

### C.5.1 FastPort does not power up

Check the voltage on the power supply. If it is switchable, set it to the correct voltage (e.g., 120 VAC for continental USA).

### C.5.2 FastPort does not show up in ACT

- Place DIP switch D1 to Off (up) and power cycle the unit.
- Examine the front panel LEDs. The Power and Ethernet LEDs blink in normal operating mode.
- FastPort uses a Novell Object Identification of 534 (hexadecimal) to register a file server. If the router is set to filter these SAPs, FastPort will not appear when using ACT.
- If the Ethernet LED is not blinking, check the transceiver selection on the back of the unit. **Link** illuminates green if there is a 10BASE-T connection; if not, it will be orange.

**Note:** After FastPort is rebooted, it takes a few minutes for it to appear in ACT.

- Force a frame type.
- NetWare may be disabled. Check the diagnostic test page.

### C.5.3 FastPort fails POST after upgrading firmware

This could be due to the relocation of the NVRAM. Reset the unit to factory defaults and try again.

### C.5.4 FastPort does not login to bindery Novell 4.x server

Server may not have the bindery emulation mode enabled. Verify that the bindery emulation is enabled: find the following in the `autoexec.ncf` file in the system directory:

```
Set Bindery Context=<context>
```

where `<context>` is the name of the context to be used by bindery emulation. If not found, bindery emulation is not running. Refer to NetWare's manual for info. on bindery emulation.

### C.5.5 FastPort does not login to the file server

- Use the console monitoring capability of ACT (in the **Monitor** menu) to see the messages sent by FastPort.
- Use the **userlist** command (in NetWare 4.x, this is **nlist user**) to see whether FastPort has logged in with the name: FPXXXXXX.
- In Bindery Emulation (Netware 2.x, 3.x) verify the following command has been set in the file server:

```
SET ALLOW UNENCRYPTED PASSWORD=ON
```

- Use the **Monitor** menu in ACT. If a server is not listed, use the **Advanced Configuration** menu to force a configuration file server to direct FastPort to search for a specific server.
- Force a frame type (refer to NetWare Configuration).

### C.5.6 FastPort does not print via serial port

1. Verify that the serial port of the printer and FastPort match.
2. Check the serial cable.
3. Verify that FastPort is attached to the queue.
4. Check queue name

### C.5.7 No Form Feed is sent after the print job

1. Verify the capture options using the command **capture show**.
2. Check whether the form feed option has been disabled.
3. Run the **Print Manager** of MS Windows (3.x).
4. Check the **Windows Printer Setup** screen for a form feed check box.

### C.5.8 PostScript jobs have trouble printing

Check the banner command settings. Use one of three methods:

- Use ACT to turn off the banner option for the queue.
- From DOS, use the **NPRINT** utility with the **/nobanner** option.
- From DOS, use NetWare's capture with its **/nobanner** option.
- Verify printer supports postscript.

### C.5.9 Autosensing printer has trouble printing

- Check the job time-out value and increase it 45 to 60 seconds.
- Turn off banner option.
- Use ACT to select the send a Control+D queue option (see NetWare Configuration). This resets the printer after a PostScript job.

### C.5.10 MS Windows jobs print with an extra page

Use **Print Manager** or the **Windows Printer Setup** screen to turn off the **send a form feed** option.

### C.5.11 File server displays an Incomplete Packet error message

By default, FastPort finds NetWare servers using repeated broadcasts of different frame types. If a server is bound to a specific frame type, the server issues error messages for frames it does not understand. Use the **Advanced Configuration** menu in ACT to set a specific frame type.

## C.6 Notification not Working if Created by PCONSOLE

Verify that the printer type is **Defined Elsewhere** and not any other type. Select the **Print Servers** menu and change the settings in the **Printers** submenu.

## C.7 FastPort Console Messages

This section lists and describes FastPort console messages.

### C.8 Could not attach QUEUE1

Verify that the queue name is spelled correctly and whether another print server is servicing *QUEUE1*.

#### C.8.1 Attaching queue QUEUE1 on server SERVER1

FastPort has read the configuration file and has attached to the queue that asked to be serviced.

#### C.8.2 Read Configuration File

FastPort has found and read the configuration file. It then displays it as verified.

### C.8.3 Could not Read Configuration file from SERVER1

FastPort could not find the configuration file or did not have the rights to read it.

- Configuration file is in the wrong location or misnamed
- An incorrect access right was given. Check its access rights:
  - a. Log in as **guest**.
  - b. Go to the `/login/milan` directory.
  - c. Type **rights** and press [Enter]. The system responds with the current rights. Use the **Filer** command to change the rights if necessary.

### C.8.4 Trying to read file SYS:login/milan/FPXXXXXX on SERVER1

FastPort is looking for the configuration file on file server *SERVER1*.

### C.8.5 No such object FAKEQ

There is no queue named *FAKEQ*. Verify it and the spelling of its queue name.

### C.8.6 Failed to login to file server SERVER1 for server FAKEPS

FastPort could not log into a nonexistent file server. The print server has not been created in **PCONSOLE**. This error may also occur if the user has modified the printer configuration in **PCONSOLE**. Remove any recent configuration changes made.

## C.9 ACT Error Messages

**Print server not responding**

- Power cycle the unit. Wait a minute and try again.

**Error setting NVRAM value**

- Usually due to a stale connection. Exit out of ACT and restart the utility.

# Appendix D

## Troubleshooting UNIX

### D.1 Introduction

If there are problems printing to FastPort while using UNIX:

1. Verify that FastPort is connected and powered on correctly.
2. Verify that the LEDs are flashing. See Appendix G if the LEDs are flashing incorrectly.

If the unit checks out, continue with the examples below.

### D.2 Troubleshooting Tips

The following examples assume that “alpha” is the hostname for the unit and that the host software is loaded in the directory `/usr/local/digi`.

#### D.2.1 No Lights on the Unit

Check the power supply. Change to 110 VAC for the USA, if necessary.

#### D.2.2 ASCII Text File Prints as a Single Line

UNIX does not send a carriage return and a line feed as line terminators, but does send a line feed. When printing ASCII text files from UNIX using host software on a BSD system:

1. Go to the spool directory:  
`/usr/spool/<name of printer>` on a BSD machine
2. Add `mapcr1f` to the “.fpconfig” file.

If the last page does not get ejected:

- Add `formfeed` to the “.fpconfig” file



If an extra blank page comes out at the end of a print job:

- Remove the **formfeed** option from the “.fpconfig” file. Use **install.sh**

On System V or RS/6000 systems:

- Specify an **-m** argument to **fpfilter**.

When using direct LPD support, send data to the ASCII queue as described in Chapter 6.

### D.2.3 SYS LED Flashes Quickly

If the SYS LED flashes quickly (approximately five times per second), FastPort does not have its IP address.

### D.2.4 Cannot Print to the serial printer

If the printer is ASCII (or can be put in ASCII mode) or PCL:

1. Reset the printer.
2. Check queue name.
3. Put it on-line—ready to accept data.
4. Set the serial printer port to 9600 baud, no parity, 8 data bits, and 1 stop bit.
5. Set both of the front panel switches down (D1 and D2).
6. Power cycle the unit. A test page is printed.

Serial printing problems may be due to wrong cable usage. Make sure that the unit's serial port setting match those in its attached printer.

### D.2.5 NET LED flashes, But User Cannot Print or Ping the Unit

1. Check the **/etc/hosts** file and see whether the IP address is set correctly. The following shows two printers: one serial (**alpha\_ser**) and one parallel (**alpha\_par**) with an IP address of 128.192.1.7:

```
128.192.1.7 alpha_par alpha_ser
```

2. For Yellow Pages or NIS, use the following to see the hosts database:

```
yycat hosts
```

3. Use this to see the correct IP address for the host `alpha`:

```
ypmatch alpha hosts
```

If a message that states `can't bind...`, user is not using NIS.

4. For NIS, with the changes made to the `/etc/hosts` or `/etc/ethers` file, update the files by typing:

```
cd /var/yp; make
```

**Note:** RARP or ARP do not go through routers. To assign an IP address for either, use the serial terminal or put FastPort into the **same** segment. Use ARP followed by telnet to assign the IP address.

5. For Sun OS using domain name servers (not YP or NIS), use `fpfilter.resolver` instead of `fpfilter`. For example:

```
cp fpfilter.resolver fpfilter
```

6. If an IP address is duplicated on the network, disconnect FastPort from the network and ping it. If there continues to be a response, another node has the same IP address as FastPort.

7. Check the `arp` entry for FastPort with the following command:

```
arp <hostname of FastPort>
```

8. Use `fpstatus <printername>` to verify that the printer is ready.

## D.3 UNIX Configuration Files

### D.3.1 Using fpfilter Configuration Files

The `fpfilter` software acts as an input filter specified in the `/etc/printcap` file in BSD systems. Since BSD does not allow command line options as part of an `:if` entry, there are two possible methods for specifying the options needed:

- Create a `.fpconfig` file that lists the options (The installation script will do this when installing a printer.)
- Create a shell script and specify it as the input filter. The shell script then calls the `fpfilter` program with the appropriate options.

For example, modify the `:if` entry in the `printcap` file to read:

**Note:** The `fpfilter .fpconfig` file will only work if using `fpfilter`. It will not work in typical LPR/LPD installation (see Chapter 4 for a description of the difference between host software and LPR/LPD installations).

```
:if=/usr/local/digi/hpfilter:
```

Where `hpfilter` is the name of the shell script. Refer to the command line shell scripts and `.fpconfig` files in the `/examples` subdirectory on the CD-ROM.

## D.4 Sample Entries for Direct and Remote Spooling

The following are sample printer entries for direct spooling to a parallel PostScript printer attached to FastPort.

```
pf2|parallel printer attached to Digi FastPort:\
:lp=/dev/pf2:\
:mx#0:rw:\
:pl#60:\
:lf=/usr/adm/pf2-errs:af=/usr/adm/pf2-acct:\
:rw:sd=/home/spool/pf2:\
:if=/usr/local/digi/fpfilter:
```

Here is a sample printer entry for remote spooling to a PostScript printer called “alpha,” which was accessed through a host named `accounting`. The log file is `/usr/adm/alpha.errs`, and the files are spooled in the directory `/usr/spool/alpha`.

```
Alpha:\
:lf=/usr/adm/alpha.errs:\
:lp=:\
:rm=accounting:\
:mx#0:\
:rp=ps:\
:sd=/usr/spool/alpha:
```

### D.4.1 DHCP Troubleshooting

If there is problems locating FastPort after it has acquired an address through DHCP:

- Check to make sure FastPort is connected correctly and is powered on.
- Check the LEDs on FastPort. On power-up, the green global LED (RX) blinks quickly while sending packets to different servers. When FastPort locates the DHCP server, the green global LED (RX) will blink slowly.
- Check the DHCP server and make sure there are enough IP addresses allocated for clients.

# Appendix E

## Troubleshooting AppleTalk

### E.1 Troubleshooting Tips

The following are troubleshooting tips for AppleTalk.

#### E.1.1 Reset Time

The default for reset time may have to be changed. The reset time is the amount of time FastPort waits before sending the next print job to a printer. Since reset times for the printers vary greatly, FastPort uses values specified by the variables *Wait Time Before Reset* and *Wait Time After Reset* to delay sending print jobs before and after a reset sequence. These are set via the `Setup Defaults` file (see “Using Setup Defaults File” on page 6-4).

#### E.1.2 Configuration to Use the ACK Signal

FastPort relies on the ACK signal from the printer. Sometimes printers require the use of more signals (for example, `Busy`) to send correctly on the interface. If the unit is having parallel flow control problems, modify the flow control method (see “Using Setup Defaults File” on page 6-4).

#### E.1.3 Situation 1: Printing Over Ethertalk Using Driver 7.x

The serial port fails when the user tries to print over EtherTalk using driver 7.x to LaserWriter printers. For bi-directional printing support across the serial interface (for LaserWriter II and II NT printers), use the following procedure. The printer needs to be initialized with correct data and parity values. Do this by either making a telnet connection into the serial port of FastPort or connecting a terminal to the printer’s serial port.

1. Turn the LaserWriter off and set the front panel switches D1 and D2 down. This sets the Laser Writer in PS Batch Mode with these values for RS-232 set for 9600 baud, RS-422 set for 9600 baud with port values of 7 data bits, no parity check, 1 stop bit, and Xon/Xoff.
2. Turn on the LaserWriter. It prints a test page with current settings.

3. The PS code that follows is used to switch the LaserWriter into 8 data bit PostScript batch mode with mark parity.

**Note:** The % characters and following comments are not necessary.

4. Enter the following commands through the serial port.

If using telnet, enter `telnet fastport 2001` (also 2020 or 2021) from a UNIX host. Otherwise, connect a terminal directly to the printer using a serial cable and enter:

```
serverdict begin 0 exitserver %This exits the printer server loop
statusdict begin           %Start modifying settings
25 9600 67 setsccbatch      %set the 25 pin RS-232
                             %9600 Baud port-8 data bits
end                          %This ends the mode switch
                             %routine
```

If using telnet, use Control-] (right bracket) to return to the telnet prompt and then issue the `quit` command to exit.

5. Using the same options for connecting to the printer, use the following PostScript code to test the mode change.

```
/Helvetica findfont 14 scalefont setfont
30 500 moveto
(The Options number for the 25-pin port is) show
statusdict begin 25 sccbatch 10 string cvs show
pop showpage
end
```

6. Exit telnet.

### E.1.4 Situation Two: Setting Serial Port Options

To set the serial port options and display the results, send the printer the following PostScript code:

```
% This text sets the printer mode to 8 bits data mark parity.
serverdict begin 0 exitserver
statusdict begin 0 sethardwareiomode end
statusdict begin 25 9600 67 setsccbatch end
/Helvetica findfont 14 scalefont setfont
30 500 moveto
(The Options number for the 25-pin port is) show
statusdict begin 25 sccbatch 10 string cvs show
pop showpage
end
```

This should return the following response:

`The options number for the 25-pin port is 67`

## E.2 Setup for AppleTalk

Please confirm or verify on test page:

1. DIP switch D1 is up (off).
  - a. The Power LED and the Link LED illuminate solid on.
  - b. The Sys LED and Net LED blink.If not, power cycle the unit.
2. If the Link LED does not light, try another port or another cable.
3. If connecting directly, Peer-to-Peer to a PC/Workstation, then use a swap/cross-over cable with a 1-3, 2-6 pinout.
4. AppleTalk is enabled (Firmware revision must be => 4.x).
5. FastPort defaults, Phase II, is the type of AppleTalk that should be used.
6. Is the FastPort showing up in the AppleTalk Zone wanted—especially if the user is using a Router?
7. If the printer is in Bi-directional mode. (Firmware revision => 6.1) then enable bi-directional printing on the FastPort or disable **Advanced Functionality/Bi-directional printing** on the printer.  
Change in printer's software:
  - a. Hook up to the printer directly.
  - b. Print one job, or change on printer's keypad.
8. The printer is set to parallel/serial mode that the user is using (or it is auto-sensing). Change in printer's software or from the printers keypad.
9. **"Printer in chooser"** option is set to **Sense** or **Always**, or only if connected with printer connected and the FastPort already shows in **Chooser**.

### E.2.1 For a Serial Printer

1. Make sure serial port is enabled in **Chooser**.
2. Use a serial cable with more than three pins.
3. Make sure the communications parameters are the same, FastPort's defaults are: 9600, 8, 1, no parity, xon/xoff.
4. Change setting on printer.

## E.2.2 PostScript Binary print

If the printer driver sends postscript binary print jobs and the printer accepts PS binary, that FastPort has postscript binary enabled and the user is attempting to use that printer port:

- Try printing with the LaserWriter driver. If neither 7.x or 8.x prints, try using the one or the other.

When printing to a plotter:

- Select the HP/GL mode or a special driver supplied by the plotter's technical support department, which allows HP/GL mode and the FastPort ports appear in the **Chooser**.

## E.2.3 Troubleshooting

When printing, the **ser** LED or **Par** LED illuminates lights but nothing prints, then repeat steps 7, 8, and 9 in section E.2. Make sure the modes are compatible.

1. When printing to plotters on the parallel ports, where only the first file prints during batch jobs, increase wait times to 60 seconds for "**Before Reset**" and "**After Reset.**"
2. If printing PS, and the print job enters the printer's memory, but does not get pushed out: make sure the software is adding **Control-D** at the end. This tells the printer when the print job has finished.

## E.2.4 Changing the FastPort Settings

Download the following files to change the FastPort settings:

- Setup Defaults
- Setup Zone Name
- Setup Printer Info
- Setup Font List

Most settings (e.g., binary type, serial, etc.) appear in the **Chooser**. Disable the following parameters:

- EtherTalk Protocol
- EtherTalk Phase

- Before Reset
- After Reset Delay

The IP address can be found in the Setup Defaults file.

**Note:** Apple products were only designed to print to postscript printers. The following suggestions may or may not work on the workstation

## E.2.5 Troubleshooting Setup on AppleTalk

On test page, please verify:

- Front panel switch D1 is up (off)
- The Power and the Link LEDs are solid
- The Sys and the Net LEDs are blinking

**Note:** If the link LED does not light, try different port or another cable. If connecting directly—Peer-to-Peer to a PC/Workstation—then use a swap/cross-over cable with a 1-3, 2-6 pinout.

- AppleTalk is enabled
- FastPort's default Phase II is what the AppleTalk network is running
- FastPort is showing up in the AppleTalk Zone—especially if when using a router
- For bi-directional printer, enable **"bi-directional printing"** on the FastPort or disable **"Advanced Functionality/Bi-directional"** printing on the printer. To do this:
  - a. Change it through the printer's software
  - b. Hook up the printer direct
  - c. Print one job or change on printer's keypad
- The parallel/serial port on the printer is set to the FastPort's active port (or the printer's port is autosensing)
- **"Printer in chooser"** option is set to **Sense** or **Always**
- When using a serial printer:
  - a. Make sure the serial port is enabled in the **Chooser**
  - b. Verify the parallel/serial port is set to the FastPort's active port (or the printer's port is autosensing)



- c. Use a serial cable with more than three pins
- d. Make sure communications parameters are the same, default: 9600, 8, 1, no parity, and xon xoff
- If the printer driver sends PostScript Binary print jobs, verify that FastPort is set to **"Postscript Binary Enabled"** and is using **Binary Printer Name** port to print
- Try printing with the LaserWriter driver. If 7.x does not print, try 8.x. If 8.x does not print, try 7.x
- If printing to a plotter, select a generic HP/GL driver

### E.2.6 More Troubleshooting

If the Serial or Parallel LED illuminate, but nothing prints:

- For bi-directional printers, enable **"bi-directional printing"** on the FastPort or disable **"Advanced Functionality/Bi-directional"** printing on the printer. To do this:
  - a. Change it through the printer's software
  - b. Hook up the printer direct
  - c. Print one job or change on printer's keypad
- When using a serial printer:
  - a. Make sure the serial port is enabled in the **Chooser**
  - b. Verify the parallel/serial port is set to the FastPort's active port (or the printer's port is autosensing)
  - c. Use a serial cable with more than three pins
  - d. Make sure communications parameters are the same, FastPort's defaults are: 9600, 8, 1, no parity, and xon xoff
- If the printer driver sends PostScript Binary print jobs, verify that FastPort is set to **"Postscript Binary Enabled"** and the user is using **Binary Printer Name** port to print.
- Change the parallel handshaking mode to match the printer
- If only the first file prints when batching jobs, increase **"Before Reset"** and **"After Reset Delay"** to 60
- If Postscript print jobs enter the printers memory, but does not get pushed out, make sure the software is adding Control-D



## E.2.7 Downloading the Setup Defaults File to Change FastPort

The Setup Zone Name, Setup Printer Info, and Setup Font List files can also be downloaded to change FastPort settings.

**Note:** Apple products were designed to print to postscript printers. Any of the following suggestions may or may not work on the workstation. There is no implied suggestion that ASCII printing will work.

1. Insert the AppleTalk files from the CD-ROM.
2. Double-click on **Digi Technology AT Files x.x** and on **Folder**.
3. Double-click on **3100, 3100cx, 3200, 3400, 3X00FTX, or 3500** files folder.

Using Apple to print ASCII from a print server:

- a. Double-click on **SetUp Printer Info** file.
- b. Change to **Postscript Printer (no)**.
4. Double-click on **SetUp Defaults** file
5. Change the following in the parallel port 1 or 2 or serial port 1 or 2:
  - a. **"Show in Chooser"** (Yes)
  - b. **"Before Reset Delay"** (60)
  - c. **"After Reset Delay"** (60)

**Note:** Steps b and c may slow down printing

6. Click on **File** and **Save As...**
7. Choose the folder on the hard drive.
8. Save and close.
9. From the **Chooser**, click on **LaserWriter 8 (7)**.
10. Select the **FP, MILAN, or DIGI...-par1**.
11. Click on **Setup, OK, and Close**.

**Note:** Ignore any messages about inability to print to a spooler.

12. Re-insert **Appletalk Utilities** files.
13. Double-click **Digi Technology AT Utilities x.x** folder.
14. Double-click on **Utilities** folder.



15. Double-click on **Apple Printer Utility 2.2** or the older **LaserWriter Utility 7.6.2** for driver 8 (**LaserWriter Utility 7.2** for Driver7).
16. Close the utilities and the **Digi Technology AT Utilities x.x** folder.
17. Click and hold **Finder** (upper right hand corner).
18. Select **Apple Printer Utility**.
19. Click and hold **Utilities**.
20. Select **Download Postscript File....**
21. Click on **SetUp Defaults file**, **Open**, and **Save**.  
  
A message saying "no output to printer" appears, (rewrite...files or printing is bad). If "Cancel" or "Replace" appears, select **Replace**.
22. To conclude, select **Apple --> Chooser --> LaserWriter Driver 7 (8)** and print the appropriate Setup file to a FastPort's -par1 parallel queue.
23. Ignore any message about inability to print to a spooler

The following is used to see if the download was successful:

1. **Apple --> Chooser --> LaserWriter Driver 8** only
2. Select **SetUp Printer Info** and **Update Info**.
3. Exit program

# Appendix F

## Upgrading Flash EEPROMS

Digi LAN division offers the latest firmware release for FastPort to be downloaded free from our web- or FTP-site. This firmware has support for various protocols and updates for printing via the print server. Flash EEPROMs in FastPort allows users to upgrade to the latest release without replacing the EEPROM chip.

**Warning:** Do not flash upgrade the FastPort unless recommended by Digi LAN product technical support department.

### F.1 Network Upload Procedure

Contact Digi's LAN technical support for the latest file and instructions (refer to Chapter I). A FastPort with firmware version that is less than 5.2 needs to be upgraded to version 5.2 "before" it can be upgraded to the latest version. After successful upgrade, the FastPort resets itself and then operates with the latest firmware version.

**Warning:** Should an interruption during upgrade occur, FastPort's firmware bank may become corrupted. FastPort is inoperable and/or the flash job is rejected when the checksum is determined invalid. The user may need to purchase a new EEPROM for corrupted firmware banks if it is deemed in recoverable.

#### F.1.1 Recovering from a Failed Upload

An error might occur that makes the flash update fail. If so, FastPort either remains at its current release or does not boot. If FastPort features the current firmware, retry the upload. If FastPort fails to boot, it stores an alternate bank of code. To recover from a failed upload:

1. Reset FastPort to default: front switches D1 and D2, down.
2. Power cycle the unit.
3. After power-up, toggle the D1 switch up and down quickly five times.
4. Put switches in normal printing mode (D1 up, D2 down).
5. Power cycle FastPort. Go to step 6 if FastPort does not boot.

6. Set FastPort so that it boots on its alternate flash file.
  - a. Toggle front switch D4. If it is in the up position, place it down. If it is in the down position, place it up.
  - b. Power cycle the unit.
  - c. Toggle front switch D1 up and down at least 10 times.
  - d. Reset switches to normal mode.
  - e. Power cycle the unit.

When powered-up, the unit boots-up on its alternate bank. If the device fails to recover, notify Digi's LAN technical support.

### F.1.1.1 Restoring the Alternate Bank Image

1. Access the flash commands by running a serial monitor link, running a telnet monitor, or loading ACT.
2. Use the **Copy This Image to Other Bank** command to update the alternate bank image.

### F.1.2 Completing the Upload

Flash holds two firmware images. A new image is stored in the main bank; the old image is stored in the alternate. To compare the images, use the flash command **Restart in Other Bank**. Once satisfied with the new firmware, copy it to the alternate bank; now both banks have the same image. If the new image does not work, copy the alternate bank image into the main bank. Both banks should be the same. Finalize the upload in this way because:

- Alternate update is automatically used if the main bank is corrupt. This could cause confusion if it is different.
- Some parameter storage operations require both banks to be identical. This may fail if the banks are not identical.

To update the alternate bank image:

Use the **Copy This Image to Other Bank** command to update the alternate bank image. To revert to the old version:

1. Return to the old version: **Restart in Other Bank** command.
2. Use the **Copy This Image to Other Bank** command.

**Note:** Note the sequence number assigned to the images that is listed when using the DF console command or enter the flash monitor. The higher number indicates the more recent upload.

### F.1.3 Flash Upload Commands

Access the flash upload command in one of two ways:

- Make a serial port connection and run the serial monitor
- For DOS machines, use the telnet monitor or use ACT

The flash upload commands are:

- **Disable Network Upload**

Used for security against unauthorized uploads.

- **Enable Network Upload**

This is the default state.

- **Restart in Other Bank**

The only way to cause the older image to execute when the images differ. The effect is temporary. A power cycle always runs the newer image. Use this feature to compare the old version to the new version.

- **Copy This Image to Other Bank**

Use this command to make the images identical. This command updates the alternate bank with the new main bank when the user is satisfied with the new image. To revert to an old firmware version, use the **Restart in Other Bank** command. When the old version comes up, this command will copy the old version over the new.

### F.1.4 Troubleshooting Tips

- The original three LEDs remain blinking. FastPort didn't recognize the beginning of the image. Check: baud rate. Verify: cable is correctly connected. Verify: correct files are loading.
- The rotating LED pattern begins and then freezes. This means that the end of the download image is missing.
- All LEDs flash

**Warning:** If all LEDs flash after reprogramming has begun, then there was a hardware failure!

**Note:** FastPort remains in these three error states until resetted by a power cycling.

# Appendix G

## Telnet, NBMON and Serial Connection Diagnostic Console Options

### G.1 Diagnostic and Configuration Commands: Commands

- C—Configure console (for status monitoring)
- D—Display summary configuration parameters
- E—Display/set ethernet options
- F—Flash firmware load enable/disable
- H—Displays help menu
- I—Display/set IP Address
- L—Limit monitor Network access by password
- N—Network Protocols menu
- P—Display/set parallel port parms and status
- R—Reset the FastPort
- S—Display/set serial port parms
- Z—Reset nvram to factory defaults
- \*—Print ASCII test page
- +—Print Postscript test page

### G.2 C—Configure Console (for status monitoring)

Console options:

1. (Off)
  2. (Serial/Network)
  3. (Network only)
  4. (Last parallel port)
- <enter> (don't change/continue)



### G.3 D—Display Summary Configuration Parameters, Including

```
Command [?,C,D,E,F,H,I,L,N,P,Q,R,S,Z,*,+] --> d
FastPort Model 3200X
Firmware revision 6.1.18, Datecode 10.23.1998 18:50
Ethernet address:00 40 C8 00 0B 0B
IP address:0.0.0.0
AUI Network module installed.
Console status monitoring: Off
Network monitor password security: Off
Sockets (fpfilter) enabled.
LPD enabled.
Netware enabled.
Microsoft Windows print services.
HP DLC enabled.
AppleTalk enabled.
Parallel port 1 mode: Standard
Parallel port 2 mode: Standard
Serial port 1 config: Baud Data Stop Parity Flow
                      9600    8      1     None    Xon/Xoff
Serial port 2 config:Baud Data Stop Parity Flow
                      9600    8      1     None    Xon/Xoff
(type "N" in monitor to view the network protocol parameters)
```

### G.4 E—Display/Set Ethernet Options

**Note:** Aux port is now set in the sockets section of the Network protocols menu)

Link test is currently enabled. Link test:

1.(disabled)

2.(enabled)

<enter> (don't change/continue)

Link test is now enabled

### G.5 F—Flash Firmware Load Enable/Disable

Flash load is enabled.

- This Bank: Vers. 6.1.15, Datecode 12/2/1997 13:25, (in Bank #1, seqNum=10)
- Other Bank: Vers. 6.0.29, Datecode 2/25/1997 12:20, (in Bank #0, seqNum=9)

Flash load currently is enabled. Disable, yes or no (y or n)?:n

Special Options for Flash Code Image Control:

1.(Restart Running Image in Other Bank)

2.(Copy This Image into Other Bank)



3.(Display flash chip information)

<enter> (don't change/continue)

## G.6 I—Display/set IP Address

```
current IP address: 0.0.0.0
Modify?, yes or no (y or n)?:y
Enter new IP address: 199.86.12.165
new IP address: 199.86.12.165
```

## G.7 L—Limit monitor Network Access by Password

- Network monitor password security currently Off

- Monitor Security

1.(Off)

2.(On/New Password)

<enter> (don't change/continue)

## G.8 N—Network Protocols Menu

### G.8.1 Network Protocols Menu:

- A—AppleTalk options
- H—HP DLC options
- M—Microsoft Windows print services options
- N—NetWare options
- S—SNMP options
- T—TCP/IP (sockets, LPD, RARP, BOOTP, TFTP) options
- X—Return to Main Menu

### G.8.1.1A—AppleTalk Options

- AppleTalk enabled
- AppleTalk Phase 2
- Default zone name: \*
- Parallel port 1:
- Printer name: FP000B0B-par1
- Printer always in Chooser

- PostScript binary disabled
- Bi-directional interface disabled
- Delay before reset = 15 sec
- Delay after reset = 45 sec

Parallel port 2:

- Printer name: FP000B0B-par2
- PostScript binary disabled
- Delay before reset = -1 sec
- Delay after reset = 0 sec

Serial port 1:

- Printer name: FP000B0B-ser1
- PostScript binary disabled

Parallel port 2:

- Printer name: FP000B0B-ser2
- PostScript binary disabled
- Modify?, yes or no (y or n)?:n

### G.8.1.2M—Microsoft Windows Print Services Options

Microsoft Windows print services options:

- Microsoft Windows print services enabled
- Workgroup / Domain: WORKGROUP
- Machine Name: FP000B0B
- Services: PARALLEL1      Description: parallel-port #1
- Services: SERIAL1        Description: serial-port #1
- Services: PARALLEL2      Description: parallel-port #2
- Services: SERIAL2        Description: serial-port #2
- Modify?, yes or no (y or n)?:n

### G.8.1.3N—Netware Options

Netware options:

- Netware enabled
- Print Server name used in SAP packets: FP000B0B

- Auto-sense frame type
- No primary server configured
- Notification disabled
- Queue scan rate: 1 sec
- Netware Directory Services (NDS) enabled
- Tree name:
- Context:
- Modify?, yes or no (y or n)?:n

#### G.8.1.4T—TCP/IP (Sockets, LPD, RARP, BOOTP, TFTP) Options

TCP/IP menu options

- (E) Engine options (IP address, RARP, BOOTP, etc.)
- (S) Socket Options
- (L) LPD Options
- (X) Exit

E—TCP/IP engine options:

- IP address: 0.0.0.0
- RARP: Enabled.
- BOOTP: Enabled.
- BOOTP request interval: 2 hours.
- Subnet Mask: 0.0.0.0
- Default Router: 0.0.0.0
- Syslog Host: 0.0.0.0      Syslog Priority: 2
- Modify?, yes or no (y or n)?:n

#### G.8.1.4.1TCP/IP Menu Options: (S) Socket Options

TCP Sockets (fpfilter) options:

- TCP Sockets (fpfilter) enabled
- Auxiliary data ports:
  - Parallel 1                      Parallel 2
  - --
  - Serial 1                        Serial 2
  - --

- Modify?, yes or no (y or n)?:n

#### G.8.1.4.2 TCP/IP Menu Options: (L) LPD Options

LPD options:

- LPD enabled
- Output Control-D at end of job on Postscript queues
- Output FF at end of job on ASCII queues
- Print banner page (after job)
- User defined queues: None
- Modify?, yes or no (y or n)?:n
- TCP/IP menu options
- (X) Exit

### G.9 P—Display/Set Parallel Port Params and Status

#### G.9.1 Display/Set for MIL-3200FTX

Select port

1.(Parallel 1)

2.(Parallel 2)

<enter> (don't change/continue)

Parallel port 1 status: ON LINE, PAPER ERROR

Current Parallel port 1 config:

mode	setup/strobe (us)	console/test page
Standard	2.7	PostScript

Parallel port mode:

1.(Standard)

2.(Fifo-ACK)

3.(Fifo-BUSY)

<enter> (don't change/continue)

Select data-setup/strobe-width (in msec.):

4.(2.7)

5.(5.4)

6.(8.1)

7.(10.8)



<enter> (don't change/continue)

### G.9.1.1 Display/Set for MIL-3110FTX and MIL-3111FTX,

Current Parallel port config.:

```
mode          setup (us)strobe (us)console/test page
Fast-DMA      3      3      PostScript
```

Parallel port mode:

- 1.(Standard)
- 2.(Fast-DMA)
- 3.(AutoStrobe)
- 4.(Use-Ack)

<enter> (don't change/continue)

Number of us data setup (default=3, max = 16)

Number of us strobe delay (default=3, max = 16)

Parallel console/test page

- 1.(PostScript)
- 2.(Ascii text)

<enter> (don't change/continue)

New Parallel port config.:

```
mode          setup (us)strobe (us)console/test page
Fast-DMA      3      3      PostScript
```

Select parallel console/test page type:

- 1.(PostScript)
- 2.(Ascii text)

<enter> (don't change/continue)

New Parallel port 1 config.:

```
mode          setup/strobe (us)console/test page
Standard      2.7      PostScript
```

## G.10 S—Display/set Serial Port Parms

Current

Serial port 1 config:BaudDataStopParityFlow

96008 1 NoneXon/Xoff

Modify?, yes or no (y or n)?:n

```
1.(300)
2.(600)
3.(1200)
4.(2400)
5.(4800)
6.(9600)
7.(19200)
8.(38400)
<enter> (don't change/continue)
Current
Serial port 1 config:BaudDataStopParityFlow
                        9600 8 1 None Xon/Xoff
Modify?, yes or no (y or n)?:n
```

## G.11 Z—Reset NVRAM to Factory Defaults

- Also reset IP address?, yes or no (y or n)?:n
- nvram reset to factory defaults

## G.12 \*—Print ASCII Test Page

```
Select port:
1.(Serial 1)
2.(Serial 2)
3.(Parallel 1)
4.(Parallel 2)
<enter> (don't change/continue)
```

## G.13 +—Print PostScript Test Page

```
Select port:
1.(Parallel 1)
2.(Parallel 2)
<enter> (don't change/continue)
```

# Appendix H

## Troubleshooting FastManage

### H.1 General Messages

Table H-1: General Messages

Message	Cause	Solution
Bad status from target device: <n>. Press CANCEL to exit program	This message appears when the SNMP agent on device returns a NO_SUCH_NAME for a particular "OID"	The firmware on the agent does not match with the software's version. Upgrade the agent's firmware and the FastManage package
Unable to open SNMP Session	This message appears if the IP stack on the manager has died	Restart Windows
Bitmap Init Error	Application is not able to find the bitmap	Installation may be bad. Reinstall
Unable to load NPAPI.DLL	File NPAPI.DLL could not be found	Put the file NPAPI.DLL in the path
Unable to load NPSNMP.DLL	File NPSNMP.DLL could not be found	Put the file NPSNMP.DLL in the path
WINSNMP Error (%ld) sending%s packet	This appears when you are unable to send a WINSNMP packet (possibly due to an SNMP agent that has crashed)	Use Ping to find out if the SNMP agent device is alive. Yes: restart Windows. No: power cycle and try again

### H.2 General Problems

Table H-2: General Problems

Problem	Solution
SNMP community strings are defaulted to public and private	Change the community strings in <code>issnmp.ini</code>
Unable to start FastManage. A message such as "Unable to start protocol stack" displays	Restart Windows
FastManage doesn't display connected ports or SNMP statistics	Restart Windows. Verify firmware is compatible
Cannot start applications and the message "IP_STACK section <code>issnmp.ini</code> file needs IPADDR= set" appears	Reinstall FastManage with IP and IPX protocols
Message "Unable to find and start net driver" appears	Load IPX drivers before starting Windows
During Discovery: Message "No Netware connections found" or "Host not in IPX bindery" appears	Load <code>VLM.EXE</code> before starting Windows

### H.3 IP address Validation Messages

Table H-3: IP Address Validation Messages

Message	Solution
More than 3 dots exist in the address	A valid IP address is in the form of a.b.c.d, where a.b.c.d can vary from 0 to 255. For example: <b>193.25.86.214</b>
No characters present between dots	A valid IP address is in the form of a.b.c.d, where a.b.c.d can vary from 0 to 255. For example: <b>193.25.86.214</b>
Invalid character in IP Address	A valid IP address is in the form of a.b.c.d, where a.b.c.d can vary from 0 to 255. For example: <b>193.25.86.214</b>

The address contains one field with value more than 255. Not all fields are defined	A valid IP address is in the form of a.b.c.d, where a.b.c.d can vary from 0 to 255. For example: 193.25.86.214
Host name appears as blanks	Create hosts file with a vertical list of host names: "hostname space IP" or <host name> <IP address>

## H.4 Discovery Application Messages

**Table H-4: Discovery Application Messages**

Message	Solution
IP, IPX, and NetBIOS Discovery are disabled. For Discovery to work, at least one of them should be enabled. Please update SNMP section, IP/IPX entries of issnmp.ini file. Discovery will exit now	Valid Values are: IP=YES or IP=NO IPX=YES or IPX=NO, NetBIOS=Yes or NetBIOS=No
Unable to open file (bitmap file)	The FastManage installation may be bad. Reinstall
Unable to copy palette for the bitmap	The FastManage installation may be bad. Reinstall
Unable to create bitmap from file DIB	The FastManage installation may be bad. Reinstall
No such pathway or drive is not ready	Restart Windows

## H.5 Ping Application Message

**Table H-5: Ping Application Message**

Message	Solution
IP is disabled in the file issnmp.ini. IP needs to be enabled for this application to run. This application will exit now	Enable IP discovery in the Discovery Application to enabled IP

## H.6 BOOTP Server Application Messages

**Table H-6: BOOTP Server Application Messages**

Problem	Cause	Solution
Please retry when there is a BOOTPtab file	No Bootfile found	Enter BOOTPtab file and retry
IP is disabled in the file <b>issnmp.ini</b> . For this application to run, enabled IP	IP discovery disabled in the Discovery Application	Enable IP Discovery in the Discovery Application to enabled IP
Error to read packet	This message comes when a bad BOOTP packet is received	Retry. If the problem still persists, reset the device
The address should contain only HEX digits. i.e., 0-9, and A-F/(a-f)	Validation for MAC address	Enter a valid MAC address
Hardware address is not specified. So this entry cannot be saved	This message appears during the operation "Add entry to BOOTPtab file"	Enter Host name address in the user entry form
IP address is not specified. So this entry cannot be save	This message appears during the operation "Add entry to BOOTPtab file"	Enter IP Address in the user entry form
This is not a valid hardware address	User input invalid MAC address	A valid hardware address is a 12 digit HEX number. For example: 01.23.45.67.89.AB



# Appendix I

## Technical Support Services

### I.1 WWW and FTP Sites

Digi LAN division provides on-line technical support via WWW and our FTP site. On-line access provides product information, firmware updates, release notes, etc. To access:

- WWW=<http://www.dgii.com>
- FTP=<ftp://ftp.milan.com> (206.40.59.2)

### I.2 Contacting Technical Support

- By Phone: 408/744-2751
- By Fax: 408/744-2771
- By email: [sun-tech@dgii.com](mailto:sun-tech@dgii.com)

### I.3 Expediting Technical Support Service

For faster service when calling technical support:

- Be in a position where the system and FastPort is accessible
- Know the type and versions of software you are using
- Know your hardware specs. (e.g., memory and disk space)
- Note any and all error messages
- Be specific about the problem(s)

### I.4 Returning Procedures

1. Call technical support at 408/744-2751
2. Technical support engineers work with users to find the problem.



If technical support determines that the unit is defective, a return materials authorization (RMA) is issued by our RMA admin. who provides shipping instructions.

**Note:** It is required that any return has an RMA number or it will be rejected and returned to the sender.

## I.5 How to access Digi's FTP Sites

Digi has set up an FTP server. To ensure binary transfer of files, switch to binary mode by entering bin or binary before downloading. To access the ftp client:

- FTP to 206.40.59.2 or ftp.milan.com
- Login as "anonymous"

To access the FTP sites from a web browser:

- FTP to 206.40.59.2. This is also called *muffly* or `ftp://ftp.milan.com`.

Drivers and installation tips are located in:

`/pub/fastport/software` and `/pub/fastport/faq`

## I.6 UNIX Binary Files Available

The following UNIX binaries are available on the FTP site:

- `/pub/fastport/software/unix/`

Always check the FTP site for previous and latest compiles. These files contain the host software (fpfilter) and other printing utilities. The file "disk61X.tar," contains the latest install script and fpfilter binaries.

File Name	Description
<code>/aix</code>	
<code>rs6k_325.tar</code>	RS6000 AIX 3.25
<code>rs6k_414.tar</code>	RS6000 AIX 4.1.4
<code>rs6k_415.tar</code>	RS6000 AIX 4.1.5
<code>rs6k421_fpf332.tar</code>	RS6000 AIX 4.2.1
<code>/amdahl</code>	
<code>amd_uts.tar</code>	Amdahl UTS
<code>amd_uts_fpf332.tar</code>	Amdahl UTS 2.1.5 SysV rel 3.1
<code>/bsd</code>	
<code>multsun4.tar</code>	fpmulti for piping on SUN OS 4.X

sun3.tar	SUN 3.X on 68K processor
sun4_411.tar	Sun OS 4.1.1
sun4_412.tar	Sun OS 4.1.2
sun4_413.tar	Sun OS 4.1.3
sun4_414.tar	Sun OS 4.1.4
sun4_414_fpf331.tar	Sun OS 4.1.4
/dec	
decmips.tar	DEC Ultrix w/ MIPS RISC R2000, R3000
decosf.tar	DEC Alpha OSF
decosfno.tar	DEC Alpha Digital UNIX 3.2c OSF
decult43_fpf332.tar	DEC Ultrix 5000/240 running 4.3
decvax.tar	DEC Ultrix w/ DEC VAX
/dgux	
dg411_fpf332.tar	Data General Aviiion DG/UX 4.1.1
dg542.tar	Data General Aviiion DGUX 5.4.2
dg543.tar	Data General Aviiion DGUX 5.4.3 /dynix
/dynix	
dynix2.tar	Dynix 2
dynix414.tar	PTX/Dynix 4.1.4 using Elf format
dynix42.tar	PTX/Dynix 4.2 Sequent i386
dynix431.tar	PTX/Dynix 4.3.1 using Elf format
/hpux	
hp68k.tar	HP Systems on Motorola 68000 processors
hp68k_fpf332.tar	HP 68000 BSD 4.3, 10.4.1-10.4.0.8
hp9k7c10.tar	HP/UX 10.10 on HP9000 RISC sys. 700
hp9k7c9x.tar	HP/UX 9.05 on HP9000 RISC sys. 715
hp9k8c01.tar	HP/UX 10.10 on HP9000 RISC sys. 800
hp9k8c02.tar	HP/UX 10.20 on HP9000 RISC sys. 800
hp9k8c90_fpf332.tar	HP/UX 9.04 on HP9000 RISC sys. E45 800
hp9k8c9x.tar	HP/UX 9.x on HP9000 RISC sys. 800 H50
hp9k8cpa.tar	HP/UX 10.2 on HP9000 RISC sys. 800 /w PA8000
hp9k_810.tar	HP/UX on HP9000 RISC sys. 810
hp9k_835.tar	HP/UX on HP9000 RISC sys. 835
hp9k_887.tar	HP/UX 10.01 on HP9000 RISC sys. 887 G70
hp9k_g30.tar	HP/UX on HP9000 RISC sys. 887 G30
hp9kk200.tar	HP/UX on HP9000 RISC sys. 200
hp_risc.tar	HP/UX on HP systems with RISC processors
/linux	
linux.tar	Linux 2.0
linx2030_fpf332.t	Linux 2.0.30 CompuDyne 486DX266
/ncr	
ncr4100.tar	NCR 4100 SVR4
ncr_650.tar	NCR Tower series 650
ncr_850.tar	NCR Tower series 650 SVR4
/other_unix	
inte.tar	Integraph systems
interact.tar	SunSoftInteractive SVR3.2rel 4.1
mot_88.tar	Motorola 88 UNIX
next.tar	Next w/ B50
sinix.tar	Siemens Nixdorf Sinix 5.42, System V
unixware.tar	Unixware System V rel 4.2 1
/pyramid	
pyr_4400.tar	Nile100 R4400 SMP ucb compiler
pyr_9k.tar	Pyramid 9000



pyr_r3k.tar	Pyramid R3000 OSX
pyr_rm1k.tar	Pyramid RM1000 Mesh MPP
/sco	
sco3242.tar	SCO Sys 3.2 3.242
sco5.tar	SCO open Server 5
sco502_fpf332.tar	SCO Open Server 5.0.2
sco504_fpf332.tar	SCO Open Server 5.0.4
/sgi	
sgi53_fpf320.tar	SGI Irix 5.3 SVR4
sgi62_64bit_fpf332	SGI Irix 6.2 64 bit processor
sgi63_fpf332.tar	SGI Irix 6.3
sgi64_fpf332.tar	SGI Irix 6.4
sgi_bsd.tar	SGI Irix 5.3 BSD
sgi_sysv.tar	SGI Irix on Sys V
/solaris	
multsun5.tar	fpmulti for piping on Solaris 2.x
sun5_24_fpf332.tar	un Solaris 2.4
sun5_250.tar	Sun Solaris 2.5.0
sun5_250_fpf331.tar	Sun Solaris 2.5.0
sun5_251_ultra_fpf332.tar	Sun Solaris 2.5.1
/svr3	
svr3.tar	AT&T System V Rel. 3
/svr4	
attsvr4.tar	AT&T 4.02 two 60mhz P5 EISA Unisys 1.4
svr4.tar	AT&T SVR4
svr4x86_fpf331.tar	SVR4 x86 Unix
/unisis	
uni6k550_fpf332.tar	Unisys 6000, 550, SVR4
unisis6k.tar	Unisys 6000, 486x2, SVR4

## I.7 Support Documents Available

The following documents are currently available as **readme** files on the <ftp://pub/fastport/docs>. The ftp site is constantly updated.

File Name	Description
/pub/fastport/docs	
/assignip	
act.txt	assigning ip address using the ACT software utility
apple.txt	assigning ip address from macintosh environment
bootp.txt	assigning ip address using bootp
dhcpnt40.txt	assigning ip address using dhcp in NT4.0 server
netbios.txt	assigning ip address using showprn.exe and nbmon.exe
rarp.txt	assigning ip address using rarp in unix systems
serial.txt	assigning ip address using serial connection
unixarp.txt	assigning ip address using static arp method in unix
winarp.txt	assigning ip address using static arp method in windows
/general	
burnin.txt	clearing burnin mode test in fastport
flash.txt	flash upgrade information for the fastport
license.txt	Digi LAN product software license information

<b>printers.txt</b>	printer compatibility list
<b>protocol.txt</b>	protocol support with each firmware revision
<b>serial.txt</b>	information for serial connection to the fastport
<b>warranty.txt</b>	warranty information on Digi LAN print server products
<b>/mac</b>	
<b>config.txt</b>	configuring fastport setup defaults from macintosh
<b>ntapple.txt</b>	printing to the fastport from windows NT using appletalk
<b>/netware</b>	
<b>bindery.txt</b>	install method for the fastport in bindery emulation
<b>nds.txt</b>	install method for the fastport in a NDS environment
<b>/os2</b>	
<b>fastsp.txt</b>	Digi's FastSpool DOS/2 printing installation
<b>lanwork.txt</b>	Printing to FastPorts with Lan Workplace for DOS
<b>onnet.txt</b>	FastPort printing installation on OnNet (pctcp.txt)
<b>os2wlpd.txt</b>	OS/2 WARP lpd printing to fastport
<b>/tcp_other</b>	
<b>lanwork.txt</b>	Printing to FastPorts with Lan Workplace for DOS
<b>multinet.txt</b>	MultiNet software for DEC VMS compatible with FastPort
<b>onnet.txt</b>	FastPort printing installation on OnNet (pctcp.txt)
<b>pcnfs.txt</b>	Printing from Sun's pcnfs software to FastPort
<b>pctcp.txt</b>	Using FTP's PCTCP with Fasport
<b>tcpware.txt</b>	TCPware for DEC VMS printing to FastPort
<b>wintcp.txt</b>	WinTCP from VAX VMS systems printing to FastPort
<b>wollon.txt</b>	Wollongong PC TCP/IP software configuration.
<b>/unix</b>	
<b>acct.txt</b>	General Accounting Information on BSD Systems
<b>banner.txt</b>	Generating banners on BSD UNIX
<b>bsd.txt</b>	How to install FastPort on BSD UNIX
<b>diskunix.txt</b>	Instruct. for extracting install script from disk image
<b>fpconfig.txt</b>	using fpconfig to define fpfilter options on BSD
<b>fpfilter.txt</b>	list of fpfilter Binaries compiled on latest OS
<b>fpm_news.txt</b>	Using fpmulti with Sun NewsPrint
<b>fpm_sun5.txt</b>	Using fpmulti to print on Solaris 2.X
<b>fpmulti.txt</b>	FPMulti binary-description and install instructions
<b>lpadmin.txt</b>	System V installation of FastPort using lpadmin
<b>lpd.txt</b>	BSD UNIX lpd protocol FastPort installation
<b>nwp_sun4.txt</b>	Adobe's NewsPrint installation on Sun4.x
<b>nwp_sun5.txt</b>	Non-Postscript printers using NewsPrint on Solaris 2.x
<b>nwp_sunx.txt</b>	Generic installation procedures for NewsPrint
<b>rs6k.txt</b>	IBM AIX RS6000 installation method for FastPort
<b>sco.txt</b>	SCO UNIX installation for FastPort using fpfilter
<b>scolpd.txt</b>	SCO installation for remote printing using lpd
<b>scomem.txt</b>	SCO memory config settings when -fpfilter uses too much processor time
<b>solaris.txt</b>	Sparc Solaris 2.x manual installation using fpfilter
<b>svr4.txt</b>	SVR4, SCO, AT&T, Solaris 2.x, & Unixware manual install
<b>syslog.txt</b>	TCP/IP syslog support for fastport
<b>sysv_lpd.txt</b>	System V printing method using lpd
<b>stsv_std.txt</b>	System V printing method using lpd
<b>trans.txt</b>	Installation on BSD using Adobe Transcript software
<b>/windows311</b>	
<b>digidll.txt</b>	Digi's DLL support for printing from Windows 3.11
<b>win_smb.txt</b>	Printing to FastPort via Windows Native SMB
<b>/windows95</b>	



**digilpr.txt**  
**digidll.txt**  
**win\_smb.txt**  
**/windowsnt**  
**nt35lpr.txt**  
**nt40lpr.txt**  
**ntapple.txt**  
**nthpdlc.txt**  
**win\_smb.txt**

Installation instructions for Win95/98 lpr/lpd printing  
Digi's DLL support for printing from Windows 95/98  
Printing to FastPort via Windows Native SMB

lpr/lpd printing from Windows NT 3.5  
lpr/lpd printing from Windows NT 4.0  
printing from windows NT using appletalk  
Printing from Windows NT using HP DLC protocol  
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