

# Software Product Update for HP JetDirect Interfaces

Novell NetWare Networks

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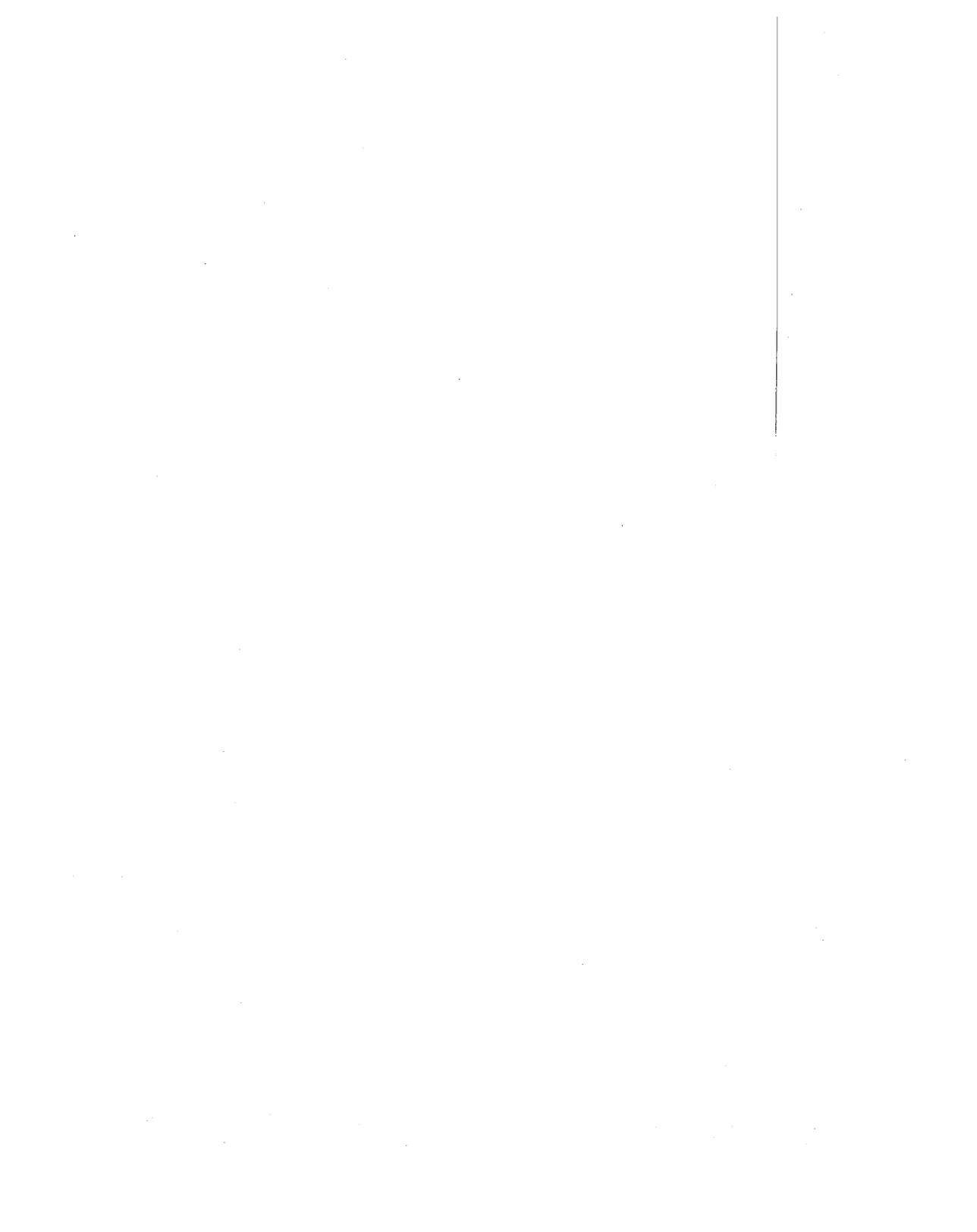
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# Novell NetWare Networks

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Software Product Update for  
HP JetDirect Interfaces



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Overview

## Introduction

This update applies to the following HP JetDirect interface products:

- C2071A, C2071B, and C2071E
- C2059A and C2059C

This document updates your HP JetDirect Network Interface Administrator's Guide. This update describes how to install and configure your network interface on a Novell NetWare network using the HP JetDirect administration and printing utilities, JETADMIN and JETPRINT.

The JETADMIN administration tool can be used in place of the HP utility PCONFIG for Novell NetWare versions 2.15c, 2.2, 3.11 and 4.0. Using JETADMIN you can perform the following functions remotely:

- configure all HP JetDirect connected peripherals anywhere on the network.
- view printer network statistics, and diagnostic information.
- detect, diagnose, and troubleshoot problems
- load Windows printer drivers for automatic client distribution and installation

JETADMIN operates as a Windows application or as a DOS application in text or graphics mode. JETADMIN automatically selects an operational mode, but any mode can be used if both Windows 3.1 and DOS are installed. Help screens within the utility describe the functions it performs.

The JETPRINT utility supports Novell NetWare versions 2.15c, 2.2, 3.11 and 4.0. JETPRINT is a Windows 3.1 application designed to simplify printing for end users on the network. This utility lets your end users do the following:

- install Windows drivers automatically on their workstations
- print using the “drag-and-drop” technique
- view printer and interface status
- set up a default printing queue for all of their Windows applications
- correlate sounds to different printer functions

## System Requirements for Novell NetWare Users

The requirements for using JETADMIN and JETPRINT utilities with Novell NetWare software are detailed in the chart below.

<b>System Requirements</b>	<b>Novell NetWare Versions 2.15C, 2.2, 3.11, and 4.0</b>
<b>Running under DOS (JETADMIN only)</b>	
Versions	MS-DOS versions 3.3 through 6.0 or DR-DOS versions 5.0 and later  or OS/2 version 2.1 and later (JETADMIN is supported only in DOS compatibility box)
Memory Requirements	500 Kbytes minimum (conventional memory)
Display Requirements	Text or VGA
Processor	Intel 80286 or later client processor
<b>Running Under MS Windows</b>	
Versions	MS Windows 3.1
Memory Requirements	2 Mbytes minimum
Display Requirements	VGA or higher resolution
NetWare Drivers	IPX 3.10 and later, NETX 3.26 and later  Windows Standard mode requires that TBM12 be loaded prior to loading MS Windows.
<b>Additional Requirements for Queue Server Mode</b>	None
<b>Additional Requirements for Remote Printer Mode</b>	NetWare Printer Server version 1.22 or later

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**NOTE**

For maximum performance HP recommends running JETADMIN under MS Windows 3.1 rather than under MS-DOS.

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## New Features

The following new features have been added to the functionality of your HP JetDirect interface. New features require JETADMIN for configuration.

- Multiple File Server Support

The HP JetDirect interface supports up to 8 file servers and up to 32 queues in Queue Server mode

- SAP Broadcasts

You can use a field on the JETADMIN **Advanced...** screen to set the rate for JetDirect SAP (Service Advertising Protocol) broadcasts. You can set the rate from 1 to 3600 seconds or disable broadcasting by setting it at zero.

- Adjustable Poll Rate

You can set the amount of time the interface waits before checking for new print jobs in Queue Server mode. The poll rate can be set from 1-255 seconds.

- Encrypted passwords are now supported. Disregard the section "Enabling Unencrypted Passwords" in your JetDirect manual.

## **NetWare 4.0 Features**

New features that are supported on Novell NetWare 4.0 include the following:

- **1000-User Support**

The HP JetDirect network interface supports 1000-user versions of NetWare 4.0.

- **Support for NCP Packet Signatures**

The HP JetDirect interface supports signature levels 0-3 at the file server.

When the signature level has been set to 0 or 1 at the server, the printer does not sign packets. At levels 2 or 3, the printer does sign packets.

Note that NCP Packet Signatures can affect performance for both clients and servers.

- **Support for IPX Checksum**

The HP JetDirect interface now supports IPX checksums.

When the checksum level is set to 0 or 1 at the server, the printer does not checksum IPX packets. At level 2, the printer will checksum IPX packets.

Note that using IPX checksums can affect performance for both clients and servers.

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**NOTE**

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Novell NetWare 4.0 does not support IPX checksums for frame type value EN\_8023.

## Using JETADMIN and JETPRINT with Novell NetWare 4.0

The following information describes some features of the Novell NetWare 4.0 environment that affect the HP JetDirect administration and printing utilities.

### Differences Between NetWare 3.11 and 4.0 Environments

Novell NetWare 2.X and 3.11 use a flat database called a bindery. NetWare 4.0, on the other hand, uses a hierarchical “tree structure” database called NetWare Directory Services (NDS). To provide compatibility with bindery-based applications, Novell uses “bindery emulation”. Bindery emulation creates a flat structure called a bindery context within the NDS structure. The HP JetDirect administration and printing utilities use the bindery context in Novell NetWare 4.0.

### Creating Names in 4.0

You should follow the bindery naming conventions (which are more restrictive than the NDS naming conventions) when naming users, queues, print servers, and file servers in NetWare 4.0. This will ensure that the name is visible in both the bindery and NDS contexts.

The bindery naming guidelines allow you to use:

- letters A through Z, uppercase only
- numbers 0 through 9
- limited special characters, such as the underline, \_; parentheses ( ); or hyphen, -
- no more than 47 characters total

A name created in the NDS structure can cause two problems when you are trying to view it in bindery context. The name may not appear or it may be changed when translated to bindery context.

Overview

## **Introduction**

### **Everyone Group**

In NetWare 4.0, JETADMIN creates the Everyone group that JETPRINT uses to grant automatic access rights to the printer. In NetWare 3.11 this group is created by NetWare.

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**NOTE**

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In order for the NDS user "Admin" to access the print queues, the Administrator must add this user to the group Everyone.

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Software Installation and  
Configuration for Novell NetWare  
Networks

## Overview

This chapter describes how to install the HP administration and printing utilities, JETADMIN and JETPRINT, and how to use these utilities to manage your HP JetDirect network interface on the Novell NetWare network.

## To Install the Software

Follow the instructions below to install the software for the HP JetDirect printing utilities, JETADMIN and JETPRINT.

1. Using DOS, log on to the server with supervisor privileges.
2. Insert the "Novell NetWare Administration and Printing Utilities" disk into your floppy drive A (or drive B, if that drive is your 3-1/2 inch drive).
3. Type A:\  
  
*or*  
  
Type B:\
4. Type CD\.
5. Type INSTALL.
6. Follow the instructions on the screen.

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### **NOTE**

Installing JETADMIN and JETPRINT does not affect previously installed and configured printers or plotters. After JETADMIN has been installed, any printers or plotters already configured will be listed automatically on the *HP JetDirect Administration Utility* screen.

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## To Configure Queue Server Mode

1. Log on to the network as supervisor at any user workstation.
2. Run JETADMIN .

- a. Using DOS:

Type JETADMIN at the DOS prompt. The *HP JetDirect Administration Utility* screen appears.

- b. Using Windows:

To run JETADMIN for the first time, from Program Manager, type [Alt]-F, R, JETADMIN and press .

*or*

from File Manager, double-click on JETADMIN.EXE. This installs the JETADMIN icon in the HP JetDirect group and starts the program.

To run JETADMIN in the future, double-click or use the arrow keys to select the JETADMIN icon in the HP JetDirect group. The *HP JetDirect Administration Utility* screen appears.

3. Click on the printer you want to configure from the list box. The printer is listed under its "JetDirect Interface Name", which appears on the self-test page/configuration plot. If no printer is listed, the network is unable to recognize the HP JetDirect interface; if this happens check all cable connections.
4. Select Configuration.... The *Printer I/O Configuration* screen appears.

**To Configure Queue Server Mode**

5. Choose Queue Server.
  6. Enter a name for the printer in the *Print Server (Printer Name)* field.
  7. Select the Add Queue button. The *Add Queue to Server* screen appears.
  8. Click on a print queue from the list, or create a new queue, and click on Select.
  9. Click on Close. The *Printer I/O Configuration* screen appears.
  10. Type a description of the queue in the description field. The description will be available to Windows users through the JETPRINT utility.
- This completes the configuration. Continue on to the verification steps.

**To Verify the Configuration**

1. Click on OK to exit the *Printer I/O Configuration* screen
2. Select the printer.
3. Click on Configuration....
4. Click on Test Page at the top of the screen.  
A list of available printer languages will appear.
5. Select the printer language that matches the language used by your printer or plotter (HP-PCL, PostScript, HP-GL2, or Text).  
A Test Page will print.

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**NOTE**

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Product numbers C2071A, C2071B and C2071E are used with the HP LaserJet II, IID, III, and IIID printers, which do not support HP-GL2.

6. Exit JETADMIN.  
This completes the software configuration.

## To Configure Remote Printer Mode

1. Run PCONSOLE and create or modify your selected print server.
  - a. Create a print queue that will be used by your printer.
  - b. Configure a print server slot by highlighting the *Type* field on the *Printer Types* menu and choosing **Remote Other/Unknown**.
  - c. Assign the print queue to the printer slot by choosing the *Queues Serviced by Printer* menu.
  - d. Restart your print server.

2. Run JETADMIN.

- Using DOS:

Type JETADMIN at the prompt. The *Printer I/O Selection* screen appears.

- Using Microsoft Windows:

To run JETADMIN for the first time, from Program Manager, type [Alt]-F, R, JETADMIN and press [Enter] or, from File Manager double-click on JETADMIN.EXE.

This installs the JETADMIN icon in the HP JetDirect group.

To run JETADMIN in the future, double-click or use the arrow keys to select the JETADMIN icon in the HP JetDirect group. The *HP JetDirect Administration Utility* screen appears.

3. Select the printer you want to configure. The printer is listed under its "NODE NAME" which appears on the self-test page/configuration plot.
4. Select Configuration...  
The *Printer I/O Configuration* screen appears.
5. Choose Remote Printer.
6. Enter a name for the printer in the *Print Server (Printer Name)* field.
7. Select the print server's name from the list in the *Print Server* field.
8. Select the printer number assigned in PCONSOLE.
9. Type a description in the description field. The description will be available to Microsoft Windows users in the JETPRINT utility.

This completes the configuration. Continue on to the verification steps.

#### **To Verify the Configuration**

1. Click on OK to exit the *Printer I/O Configuration* screen
2. Select the printer.
3. Click on Configuration....
4. Click on Test Page at the top of the screen.  
A list of available printer languages will appear.
5. Select the printer language that matches the language used by your printer (HP-PCL, PostScript, HP-GL2, or Text).  
A Test Page will print.

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#### **NOTE**

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Product numbers C2071A, C2071B and C2071E are used with the HP LaserJet II, IID, III, and IIID printers, which do not support HP-GL2.

6. Exit JETADMIN.

This completes the software configuration.

## Using the JETADMIN Utility

The table below lists various types of tasks you can perform using JetAdmin and briefly describes the procedures to follow. Some functions are available only if the selected printer or interface supports that function.

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**NOTE**

You can obtain additional information about any JETADMIN function by selecting the Help button on the open screen. Several screens also offer additional help that can be accessed by double-clicking on a specific line or selecting a [?] key.

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**Managing Printer and Network Functions using JetAdmin**

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Task	Procedure
To view network, printer, or interface status	From the HP JetDirect Administration Utility screen, select a printer, then click on the Status button. The Status screen will display the operational status of a printer and its connection status.
To configure a new network printer or check the configuration of an existing printer	From the HP JetDirect Administration Utility screen, select a printer and click on the Configuration button. The Printer I/O Configuration screen will appear. You can configure the printer in Queue Server mode or Remote Printer mode, add queues, and provide a description of the printer and its location.
To add or remove queues	From the HP JetDirect Administration Utility screen, select a printer and click on the Configuration button. The Printer I/O Configuration screen will appear. To remove a queue, click on the queue to highlight its name and then click on Remove Queues. To add a queue click on Add Queues to get to the Add Queue to Server List screen. You can configure queues on other file servers by creating queues and adding those queues to the Server list.
To attach to or detach from file servers	From the HP JetDirect Administration Utility screen, click on the Servers button. The File Server Connections screen appears. Available and Connected file servers are listed. You can add or remove available file servers from the Connected File Servers list. This screen also displays the security access each connection holds.
To create or modify driver associations with any printer on the network	From the Printer I/O Configuration screen, click on the Drivers button. The Windows Drivers screen will appear, showing available drivers. You can add or delete these drivers by selecting a driver and clicking on the Add or Delete button. The Help function includes the file location of printer drivers.

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**Managing Printer and Network Functions using JetAdmin**

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<b>Task</b>	<b>Procedure</b>
To set the HP JetDirect broadcast rate (SAP rate)	You can set the broadcast rate from 0-3600 seconds. From the Printer I/O Configuration screen, click on the Advanced button. A list of available options will appear. Select the JetDirect Broadcast Rate option, and enter the appropriate information in the window that appears. Setting the rate to zero disables JetDirect broadcast.
To set job poll rate	This function lets you determine how long the interface card waits before checking for new print jobs. You can set the job poll rate from 1-255 seconds. From the Printer I/O Configuration screen, click on the Advanced button. A list of available options will appear. Select the Job Poll Rate option, and enter the appropriate information in the window that appears.
To restart Novell NetWare protocol	You can restart server connections or re-initialize the system with this function. From the Printer I/O Configuration screen, click on the Advanced button. A list of available options will appear. Select the NetWare Protocol Restart option, and make the appropriate selection.
To choose PJP (Printer Job Language) settings	You can use PJP settings for special functions such as adding banners. From the Printer I/O Configuration screen, click on the Advanced button. A list of available options will appear. Select the PJP option and make the appropriate selection.
To select frame type settings	You can choose to enable specific frame types or all frame types. From the Printer I/O Configuration screen, click on the Advanced button. A list of available options will appear. Select the Protocol Stacks option and make the appropriate selection.
To define which users and/or groups receive standard NetWare notification of changes in printer status	This option applies to standard NetWare messaging services, such as the Windows pop-up messages or the line 25 pop-up messages for DOS clients. From the Printer I/O Configuration screen, click on the Notification button. The Printer Error Notification List appears. You can add or delete users from the list.
To view network statistics	From the HP JetDirect Administration Utility screen, click on the Diagnostics button. The diagnostic screen that appears includes button for selecting types of statistics: printer, network, or all statistics for the Novell NetWare network.
	NOTE: The colored button left of each item indicates status. Green indicates the item is functioning correctly. Yellow and red indicate a problem. Gray indicates that status does not change.
To print a self-test page	From the Printer I/O Configuration screen click on the Test Page button. The Advanced Settings screen lists available printer language selections. Click on the appropriate language for the printer and a self-test page will automatically print.

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## Windows Driver Installation

### Using JETADMIN To Install a Printer Driver

1. Insert the printer driver disk into your floppy disk drive.
2. Open JETADMIN and select a printer from the available list.
3. Open the Printer I/O Configuration screen and click on the Drivers button.

This opens the Printer Drivers screen.

4. Click on Install.

A window will open and ask you to indicate the drive from which you wish to install the printer driver.

5. Click on Add to add the driver to the Selected Drivers list.
6. Open JETPRINT and select a default print queue.

The Printer Driver screen appears.

7. Associate the driver with the selected print queue by selecting the driver and clicking on Add.

Associating the drivers with the queue allows Windows clients, using JETPRINT, to automatically install the driver(s) when selecting a network printer.

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### **NOTE**

You can also install an existing printer driver in JETPRINT using the Select Installed Printer Driver screen.

## Using the JETPRINT Utility

The HP JETPRINT utility will simplify network printing for Windows 3.1 users on the Novell NetWare network. Users can select whether to have a locally-attached printer or networked (NetWare) printer as their default printer, customize functions so that they are alerted when a printer malfunctions, print files without opening applications, and manage other printer functions from their workstations.

### To Run JETPRINT for the First Time

1. Run Windows.
2. To run JETPRINT for the first time, from Program Manager type **Alt-F, R**, JETPRINT and press **Enter**.

To run JETPRINT in the future, select the JETPRINT icon. The *HP JETPRINT Utility* screen appears.

## Managing Printer Functions Using JETPRINT

Several common functions are described in the table below. For a complete listing of JETPRINT functions, click on the Help button in the JETPRINT main screen.

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### NOTE

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You can obtain information about any JETPRINT function by clicking on the Help button in the ToolBar.

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Task	Procedure
To set a default print queue/printer	<p>This function lets you select a locally-attached or networked (NetWare) printer as your default printer. Open JETPRINT and choose a printer type from the <i>Printer Type</i> list. Available printer queues appear below. Click on Set Default or double-click on a print queue name to make that queue the default queue/printer. The Default Printer name appears at screen right along with a description of the printer and its status. It will remain the default printer after you exit from JETPRINT.</p> <p>NOTE: If no drivers are associated with the queue, if your system does not have the driver loaded, or if a new version of the driver is available, the program may prompt you to have JETPRINT automatically install a driver.</p>
To view printer status	<p>This function lets you view printer status from your workstation. Open JETPRINT and select a print queue/printer. The current printer status, description, jobs queued, and configuration information will appear on the screen. This information is available for NetWare (networked) printers but not for local (attached to workstation) printers. Click on the Stoplight to get an explanation of the status.</p>
To print using "Drag and Drop"	<p>This function is useful if you want to print a file without opening its application. Make sure JETPRINT is minimized to its icon, then open File Manager. Drag the file you want to print to the minimized JETPRINT icon.</p>
To delete jobs from the network print queue	<p>This function lets you delete a job you've sent to the printer. Open JETPRINT and select the type of printer (NetWare, Local, or All) you wish to view from the <i>Printer Type</i> field. Click on the name of the job in <i>Your Print Jobs</i> list. Press the [Delete] key to delete the print job.</p>
To select printer/print queue icons	<p>This function lets you select different icons to identify printers/queues you want to use. Open JETPRINT and click on the Preferences button in the ToolBar. Click on the Set Icon button in the Preferences screen to open the screen for setting icons.</p>
To attach an available file server.	<p>This function lets you connect to different file servers. Open JETPRINT and click on File Servers in the ToolBar. Choose a file server from the Available File Servers list, enter the user name and file server password and click on Attach to complete the connection.</p>

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Task	Procedure
To detach from a file server	<p>This function lets you disconnect from any attached file server. Open JETPRINT and click on the File Servers button in the ToolBar. Select the file server from which you want to detach in the Attached File Servers list. Click on Detach to complete the disconnection.</p> <p>NOTE: You may <i>not</i> detach from file servers with mapped network drivers or from the file server on which your default queue resides.</p>
To set refresh rates for printer status messages	<p>This function lets you determine how much time you want to have pass before printer and job list status messages are updated on the screen. Open JETPRINT and click on the Preferences button in the ToolBar. On the Preferences screen, click on the Refresh Rates button to open that screen and set the times.</p>
To set up banner pages	<p>This function lets you send a banner preceding each of your print jobs. Open JETPRINT and click on Job Options in the ToolBar. In the Job Options screen check the box in front of Print Banner and type in the banner name. It can be up to 13 characters long. Type in the user's name or use the default. Click on OK to save the changes.</p>
To send End of Job notifications	<p>This function sets JETPRINT to notify you at the end of a job. Open JETPRINT and click on Job Options in the ToolBar. In the Job Options screen, check the Notifications box under End of Job. Then click OK to save the changes.</p>
To set sounds	<p>This function lets you set a sound to warn you when a printer event, such as a printer offline, occurs. Open JETPRINT and click on Preferences in the ToolBar. Select Sounds. Click on a printer event and click on a sound you want to associate with that event. Repeat this sequence for each event you want to associate with a sound.</p>
To display or hide the ToolBar or HelpBar	<p>This function lets you display the ToolBar with text only, icon only, or icon and text, and lets you display or hide the HelpBar. To hide the ToolBar or HelpBar, open JETPRINT and click on the Preferences button in the ToolBar. In the Preferences screen select the options you want. To display a hidden ToolBar or HelpBar, open JETPRINT and pull down the File menu and choose Preferences. Open that screen and check the appropriate boxes.</p>
To load JetPrint automatically when Windows starts	<p>This function lets you access JETPRINT automatically whenever you start up Windows. Open JETPRINT and click on Preferences in the ToolBar. In the Preferences screen, check the box in front of Auto Start. Click OK to save the change. The JETPRINT icon will automatically appear the next time Windows is opened.</p>

## Replacing an HP JetDirect Interface

If you need to replace an HP JetDirect interface, remove the old one and install the new one following the installation instructions supplied with the interface. Then configure the new interface using the appropriate instructions for your mode.

### **Queue Server Mode**

Use JETADMIN to configure the new external interface for Queue Server mode. Refer to “To Configure Queue Server Mode” earlier in this chapter.

### **Remote Printer Mode**

Configure the HP JetDirect in Remote Printer mode using JETADMIN. Refer to “To Configure Remote Printer Mode” earlier in this chapter.

## Removing Printers from NetWare Networks

The first step in removing a printer (or plotter) from the network is to delete the printer configuration at the server. The printer must not be servicing a job when you do this.

1. Turn off the printer.
2. Disconnect the network cable from the back of the printer.

---

### **CAUTION**

If using Ethernet, do not detach the Ethernet cable from the BNC "T" connector. Detaching the cable from the "T" connector will cause a break in the network. Instead, detach the entire "T" connector (with its LAN cables still attached) from the BNC port on the HP JetDirect interface unit.

---

3. For Queue Server mode: Delete the print server name and queue(s) from PCONSOLE.
4. For Remote Printer mode: Delete the configuration information for the printer number in PCONSOLE. (This change will not occur until the print server is brought down then brought back up again.)

You have now removed the printer from the network.



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Troubleshooting

## Overview

This chapter includes a troubleshooting process that uses JETADMIN to troubleshoot problems related to the HP JetDirect interface. The chapter also includes self-test page/configuration plot messages that are new or have changed from prior versions of the HP JetDirect interfaces.

This chapter supplements the troubleshooting information in your HP JetDirect manuals.

## Troubleshooting with JETADMIN

Log in as supervisor before using JETADMIN.

1. Does the printer appear in JETADMIN? If yes, click on it in the Printer I/O Selection window. If not, check the cable connections, then print a self-test page/configuration plot. Refer to either “Understanding the Ethernet Self-Test Page/Configuration Plot” or “Understanding the Token Ring Self-Test Page/Configuration Plot” later in this chapter. You will not be able to use JETADMIN until the HP JetDirect interface can communicate with JETADMIN.
2. Click **Status** to view the HP JetDirect interface’s and the printer’s status. You may click Help to receive more information. Click **Close** to exit the window.
3. Click **Diagnostics...** to view HP JetDirect interface and network information. Scroll the window to view all of the information. You can highlight individual lines to get more information. Click **Close** to exit the window.

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### NOTE

If your HP JetDirect interface is configured to service queues on more than one file server, then you must select **Diagnostics...** to view the status of all connected servers. Selecting **Status** only displays the status of the first file server with a problem (or the first good connection if no file servers have problems). Also, the printer’s self-test page/configuration plot only displays the first file server’s status.

---

4. Click **Configuration...** . Is the configuration correct? Is the printer configured to service the appropriate set of queues? Is the printer correctly set for Queue Server mode or Remote Printer mode?
5. Highlight a queue and click **Test Page**. Does the test page print successfully?

## Understanding the Self-Test Page/ Configuration Plot

This section describes the Ethernet/802.3 and Token Ring (802.5) self-test pages/configuration plots for:

- HP LaserJet II, IID, III, and IIID printers used with the HP JetDirect C2071A, C2071B, and C2071E upgrades
- HP LaserJet IIISi and HP PaintJet XL300 printers and HP DesignJet plotter used with the HP JetDirect C2059A and C2059C upgrades

The networking section of the self-test page/configuration plot is divided into four parts which correspond to the following groups of status and error messages:

1. Environment messages
2. I/O Card status messages
3. Novell NetWare status messages
4. Network statistics messages

## Sample Ethernet and Token Ring Self-Test Pages

Sample Ethernet and Token Ring self-test pages are included on the next four pages. Your self-test page may differ somewhat depending on your printer or plotter model.

Sample Ethernet self-test page/configuration plot for HP LaserJet II, IID, III, and IID printers used with the HP JetDirect C2071A, C2071B, and C2071E upgrades

HEWLETT-PACKARD

NETWORK PRINTER INTERFACE STATUS

NOVELL ETHERNET/802.3 FIRMWARE REVISION: A.02.00 LAN HW ADDRESS: 0800090903C3 =====	NOVELL ETHERNET/802.3 FIRMWARE REVISION: A.02.00 DIRECCION HW LAN: 0800090903C3 =====	NOVELL ETHERNET/802.3 VERSIONE FIRMWARE: A.02.00 INDIRIZ HW LAN: 0800090903C3 =====	NOVELL ETHERNET/802.3 FIRMWARE-REVISION: A.02.00 LAN-HW-ADRESSE: 0800090903C3 =====	NOVELL ETHERNET/802.3 REV MICROLOG: A.02.00 ADRESSE LAN: 0800090903C3 =====
I/O CARD READY	TARJETA E/S PREPARADA	SCHEDA DI I/O PRONTA	E/A-KARTE BEREIT	CARTE E/S PRETE
=====	=====	=====	=====	=====
MODE: REMOTE PRINTER 0 NODE NAME: XIO SERVER NAME: XIO	MODD: IMPRESORA REMOTA 0 NOMBRE DE MODD: XIO NOMBRE DE SERV: XIO	MODD: REM 0 NOME DEL MODD: XIO NOME SERVER: XIO	MODUS: REMOTE-DRUCKER 0 KNOTENNAME: XIO SERVER-NAME: XIO	MODE: FILE ATT, IMPR DIST 0 NOM DU NOEUD: XIO NOM DU SERVEUR: XIO
NETWORK FRAME TYPE RCVD 00000002 EM_802.2 42	RED TIPO DE TRAMA RECIB 00000002 EM_802.2 42	RETE TIPO RICEZ RIC 00000002 EM_802.2 42	NETZWERK RAHMEN TYP EMPF 00000002 EM_802.2 42	RESEAU TYPE DE TRAME REC 00000002 EM_802.2 42
=====	=====	=====	=====	=====
NETWORK STATISTICS TOTAL PACKETS RCVD: 49 BAD PACKETS RCVD: 0 FRAMING ERRORS RCVD: 0 PACKETS TRANSMITTED: 33 UNSENDABLE PACKETS: 0 XMIT COLLISIONS: 0 XMIT LATE COLLISIONS: 0 NOVELL RETRANS: 0	ESTADISTICAS DE LA RED TOT. PAQUETES RCBD: 49 PAQUETES ERR RECIB: 0 ERRS DE TRAMA RCBD: 0 PAQUETES TRANSMIT: 33 PAQTS NO ENVIAIBLES: 0 COLISIONES EN XMIT: 0 COLISIONES TARD XMIT: 0 RETRANS DE NOVELL: 0	STATISTICHE DI RETE TOTALE RICEZIONI: 49 ERRORI RICEZIONE: 0 ERR FORMATO RICEZ: 0 TRASH. SENZA ERR: 33 ERR TRASMISSIONE: 0 COLLISIONI TRASH: 0 ULTIM COLLIS TRASH: 0 RITRASH NOVELL: 0	NETZWERK-STATISTIK RX GESAMTPAKETE: 49 RX FEHLERH. PAKETE: 0 RX RAHMENFEHLER: 0 TX PAKETE: 33 TX KEINE PAKETE: 0 TX KOLLISIONEN: 0 TX SPÄTE KOLLISION.: 0 NOVELL-SENDEWIEDER: 0	CONFIGURATION RESEAU PAQUETS RECUS: 49 MAUVAIS PAQ. RECUS: 0 ERR. TRAMES RECUS: 0 PAQUETS TRANSMIS.: 33 PAQ. INTRANSMIS.: 0 COLLISIONS: 0 COLL. TARDIVES: 0 RETRANS NOVELL: 0

Sample token ring self-test page/configuration plot for HP LaserJet II, IID, III, and IIID printers used with the HP JetDirect C2071A, C2071B, and C2071F upgrades

HEWLETT - PACKARD

NETWORK PRINTER INTERFACE STATUS

NOVELL TOKEN-RING/802.5  
FIRMWARE REVISION: A.02.00  
LAN HW ADDRESS: 10009090C093  
DATA RATE: 16 Mbps  
=====

NOVELL TOKEN-RING/802.5  
FIRMWARE REVISION: A.02.00  
DIRECCION HW LAN: 10009090C093  
DATA RATE: 16 Mbps  
=====

NOVELL TOKEN-RING/802.5  
VERSIONE FIRMWARE: A.02.00  
INDIRIZ HW LAN: 10009090C093  
VELOC TRASM: 16 Mbps  
=====

NOVELL TOKEN-RING/802.5  
FIRMWARE-REVISION: A.02.00  
LAN-HW-ADRESSE: 10009090C093  
DATENRATE: 16 Mbps  
=====

NOVELL TOKEN-RING/802.5  
REV MICROLOG: A.02.00  
ADRESSE LAN: 10009090C093  
DEBIT DONNEES: 16 Mbps  
=====

I/O CARD READY

TARJETA E/S PREPARADA

SCHEDA DI I/O PRONTA

E/A-KARTE BEREIT

CARTE E/S PRETE

=====

MODE: QUEUE SERVER  
SOURCE ROUTING: ALL RT  
MODE NAME:  
XIO TOKEN  
SERVER NAME: NOVELL4

=====

MODD: SERVIDOR DE COLA  
ORIGEN DE DIRCMTO: TODDS RT  
NOMBRE DE MODD:  
XIO TOKEN  
NOMBRE DE SERV: NOVELL4

=====

MODD: SERVER CODE STAMPANTE  
PERCORSO ORIGINE: TUTTI P  
NOME DEL MODD:  
XIO TOKEN  
NOME SERVER: NOVELL4

=====

MODUS: WARTESCHL.-SERVER  
URSPR.-ROUTING: ALLE-R  
KNOTENNAME:  
XIO TOKEN  
SERVER-NAME: NOVELL4

=====

MODE: SERVEUR FILE ATT  
ROUTAGE SOURCE: TOUS  
NOM DU MODEL:  
XIO TOKEN  
NOM DU SERVEUR: NOVELL4

NETWORK FRAME TYPE RCVD  
00001100 TR\_SNAP 354

RED TIPO DE TRAMA RECIB  
00001100 TR\_SNAP 354

RETE TIPO RICEZ RIC  
00001100 TR\_SNAP 354

NETZWERK RAHMENTYP EMPF  
00001100 TR\_SNAP 354

RESEAU TYPE DE TRAME REC  
00001100 TR\_SNAP 354

=====

NETWORK STATISTICS  
TOTAL PACKETS RCVD: 354  
BAD PACKETS RCVD: 0  
LINE ERRORS RCVD: 0  
BURST ERRORS RCVD: 0  
FS SET ERRORS RCVD: 0  
FRAME COPIED RCVD: 0  
BAD LENGTH RCVD: 0  
LOST FRAMES: 0  
TOKEN ERRORS: 0  
PACKETS TRANSMITTED: 334

=====

ESTADISTICAS DE LA RED  
TOT. PAQUETES RCBD: 354  
PAQUETES ERR RECIB: 0  
ERRS EN LINEA RC: 0  
ERRS DE IMPUL RCBD: 0  
ERRS AJUST FS RCBD: 0  
TRAMA COPIADA RCBD: 0  
LONG. ERRONEA RCBD: 0  
PERDIDA DE TRAMAS: 0  
ERRORES DE TESTIGG: 0  
PAQUETES TRANSMIT: 334

=====

STATISTICHE DI RETE  
TOTALE RICEZIONI: 354  
ERRORI RICEZIONE: 0  
ERRORI LINEA RICEV: 0  
ERR. BURST RICEV: 0  
ERR. ST FS RICEV: 0  
ERR COPIA PACC RIC: 0  
PAG TRP LUNGO RIC: 0  
PACCHETTI PERSI: 0  
ERRORI TOKEN: 0  
TRASM. SENZA ERR: 334

=====

NETZWERK-STATISTIK  
RX GESAMTPAKETE: 354  
RX FEHLERH. PAKETE: 0  
RX LEITUNGSFEHLER: 0  
RX BURST-FEHLER: 0  
RX FS-SETZFEHLER: 0  
RX RAHMEN-KOP.FEHL: 0  
RX UNGÜLTIGE LÄNGE: 0  
VERLORENE RAHMEN: 0  
TOKEN-FEHLER: 0  
TX PAKETE: 334

=====

CONFIGURATION RESEAU  
PAQUETS RECUS: 354  
MAUVAIS PAQ. RECUS: 0  
ERR. LIGNES RECUES: 0  
ERR. DONNEES RECUES: 0  
FS SET RECUES: 0  
TRAMES RECUES: 0  
MAUV. LONG. RECUES: 0  
TRAMES PERDUES: 0  
ERREURS DE JETON: 0  
PAQUETS TRANSITS: 334





## Environment Messages and I/O Card Status Messages

The messages below describe the network protocol, firmware revision, hardware address, data rate, and I/O card status.

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### Environment Messages and I/O Card Status Messages

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Field	Description
NOVELL ETHERNET/802.3	(Ethernet only) Indicates an HP JetDirect interface that supports Novell NetWare network.
NOVELL 802.5	(Token Ring only) Indicates an HP JetDirect interface that supports Novell NetWare.
FIRMWARE REVISION: X.XX.XX	Indicates the firmware revision number of the JetDirect interface currently installed in the printer.
LAN HW ADDRESS: 080009XXXXXX	LAN HW ADDRESS is the unique 12-digit hexadecimal network address of the HP JetDirect interface installed in the printer.
PORT SELECT: BNC 10BASE-T	(Ethernet MIO only) Indicates the port on the card that was automatically sensed as having the cable attached.
DATA RATE: 4 Mbps 16 Mbps JUMPER ERROR	(Token Ring only) Indicates the rate at which the JetDirect interface can transfer information. This setting should be either for 4 or 16 Megabits per second (4 or 16 Mbps), depending on your network configuration. If the DATA RATE field displays JUMPER ERROR, check the jumper switch setting on the HP JetDirect interface. Refer to your installation manual for information on setting the jumper switch on the interface.
I/O CARD READY	READY indicates that the HP JetDirect interface is connected and awaiting data.
INITIALIZING	INITIALIZING indicates that the HP JetDirect interface is initializing the network protocols. Refer to the network operating system status line on the self-test page/configuration plot for more information.
TRYING TO CONNECT TO SERVER	TRYING TO CONNECT TO SERVER indicates that the HP JetDirect interface is trying to connect to the print or file server after being configured. Wait for the interface to establish a connection with the print or file server.
NOT READY	NOT READY indicates that there is a problem with the interface, its configuration, or the print server. Following the I/O CARD NOT READY message is a two-digit code and a status message. Refer to the next table for a detailed explanation of all status messages. The messages are listed by their code numbers.

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## I/O Card Not Ready Messages

I/O CARD READY indicates that the interface is configured correctly and is capable of communicating with the printer server.

I/O CARD NOT READY message is a two-digit code and a status message. The following table lists all of the possible HP JetDirect interface status messages, listed by their two-digit code number:

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### Ethernet I/O CARD NOT READY Status Messages (continued)

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Message	Description and Recommended Action
02 LAN ERROR-INTERNAL LOOPBACK	(Token Ring only) Check the data rate switch on the HP JetDirect interface to ensure it is set correctly. Refer to your installation manual for information on setting the data rate switch. In addition, check the cabling, external transceiver, wiring concentrator, and taps.
03 LAN ERROR-EXTERNAL LOOPBACK	(Ethernet only) The HP JetDirect interface is incorrectly connected to your network or is defective. Make sure your HP JetDirect interface is correctly attached to your network. In addition, check the cabling and BNC "T" connectors.  When this message is displayed, up to four lines of further explanation may follow. These are the following unnumbered messages:
• BABBLE ERROR	Run the power-on self-test by turning the printer off and then on again. If the error persists, replace the HP JetDirect interface. Refer to the appropriate chapter for your network operating system for information on replacing your JetDirect interface.
• CRC ERROR	Check the network topology and verify all cable segments. Check for damaged cables.
• FRAMING ERROR	Check the network topology and verify all cable segments. Check for damaged cables.
• LATE COLLISION ERROR	Check the network topology, verify all cable segments and make sure no segment is too long.
• LOSS OF CARRIER ERROR	Check connections. Run the power-on self-test by turning the printer off and then on again. If the error persists, replace the HP JetDirect interface.
• MEMORY ERROR	Run the power-on self-test by turning the printer off and then on again. If the error persists, replace the HP JetDirect interface.
• OVERFLOW ERROR	Run the power-on self-test by turning the printer off and then on again. If the error persists, replace the HP JetDirect interface.

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**Ethernet I/O CARD NOT READY Status Messages (continued)**


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Message	Description and Recommended Action
<ul style="list-style-type: none"> <li>• RECEIVE BUFFER ERROR</li> </ul>	Run the power-on self-test by turning the printer off and then on again. If the error persists, replace the HP JetDirect interface.
RETRY ERROR	Verify that the Ethernet network cable is correctly terminated on both ends. Make sure your HP JetDirect interface is correctly attached to your network.
<ul style="list-style-type: none"> <li>• SQE ERROR</li> </ul>	Run the power-on self-test by turning the printer off and then on again. If the error persists, replace the HP JetDirect interface.
<ul style="list-style-type: none"> <li>• TRANSMIT ERROR</li> </ul>	Check the network topology and verify all cable segments.
<ul style="list-style-type: none"> <li>• UNDERFLOW ERROR</li> </ul>	Check the cabling and BNC "T" connectors. If the error persists, run the power-on self-test by turning the printer off and then on again. If the error still persists, replace the HP JetDirect interface.
04 LAN ERROR-JUMPER	(Token Ring only) The data rate switch on the HP JetDirect interface is set incorrectly. Refer to Interface Hardware Installation Guide for instructions on setting the data rate switch.
07 LAN ERROR-CONTROLLER CHIP	(Ethernet only) Check the network connections. If the connections are intact, turn the printer off and then on again to run the HP JetDirect interface's power-on self-test. If the error persists, replace the HP JetDirect interface.
08 LAN ERROR-INFINITE DEFERRAL	(Ethernet only) Your network is not correctly terminated. Check to make sure that both ends of the cable are terminated correctly, and that the HP JetDirect interface is correctly attached to the network.
09 LAN ERROR-BABBLE	(Ethernet only) Check the network connections. If the connections are intact, turn the printer off and then on again to run the JetDirect interface's power-on self-test. If the error persists, replace the HP JetDirect interface.
0A LAN ERROR-NO SQE	(Ethernet only) Check the network connections. If the connections are intact, turn the printer off and then on again to run the JetDirect interface's power-on self-test. If the error persists, replace the interface.
0A LAN ERROR-OPEN	(Token Ring only) Indicates the HP JetDirect interface could not insert into the ring and join the network. Check the data rate switch on the HP JetDirect interface to ensure it is set properly. Refer to the Interface Hardware Installation Guide for information on setting the data rate switch. In addition, check the cabling, external transceiver, wiring concentrator, and taps.

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## Troubleshooting Overview

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### Ethernet I/O CARD NOT READY Status Messages (continued)

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Message	Description and Recommended Action
OC LAN ERROR-RECEIVER OFF	(Ethernet only) There may be a problem with your network cabling or the HP JetDirect interface. Check the cabling and BNC "T" connectors on your Ethernet network. If you cannot find a problem with your network cabling, turn the printer off and then on again to run the HP JetDirect interface power-on self-test. If the error persists after the printer is turned on again, there is a problem with the HP JetDirect interface.
OD LAN ERROR-TRANSMITTER OFF	(Ethernet only) There may be a problem with your network cabling or the HP JetDirect interface. Check the cabling and BNC "T" connectors on your Ethernet network. If you cannot find a problem with your network cabling, turn the printer off and then on again to run the HP JetDirect interface power-on self-test. If the error persists after the printer is turned on again, there is a problem with the HP JetDirect interface.
OE LAN ERROR-LOSS OF CARRIER	(Ethernet only) Check connections. Run the power-on self-test by turning the printer off and then on again. If the error persists, replace the HP JetDirect interface.
OF LAN ERROR-WIRE FAULT	(Token Ring only) Indicates that there is a problem with the network cabling. Check the cabling between the printer and the network.
10 LAN ERROR-UNDERFLOW	(Ethernet only) There may be a problem with your network cabling or the HP JetDirect interface. Check the cabling and BNC "T" connectors on your network. If you cannot find a problem with your network cabling, turn the printer off and then on again. This activates the HP JetDirect interface power-on self-test. If the error persists after the printer is turned on again, there is a problem with the HP JetDirect interface.
10 LAN ERROR-AUTO REMOVAL	(Token Ring only) Run the interface power-on self test by turning the printer off and then on again. If this message reappears on another self-test page/configuration plot, you may have a problem with one of the HP JetDirect interfaces on your network. Check all the interfaces on the network for proper operation.
11 LAN ERROR-RETRY FAULTS	(Ethernet only) There is a problem with your network cabling or external network configuration. Make sure that your network cable is correctly terminated on both ends.
11 LAN ERROR-REMOVE RECEIVE	(Token Ring only) Run the interface power-on self-test by turning the printer off and then on again. If this message reappears on the resulting self-test page/configuration plot, you may have a problem with one of the HP JetDirect interfaces on your network. Check all the cards on the network for proper operation.

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**Ethernet I/O CARD NOT READY Status Messages (continued)**

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<b>Message</b>	<b>Description and Recommended Action</b>
12 LAN ERROR-NO LINKBEAT	(Ethernet only) With 10Base-T port connected, this message is displayed if Link Beat is not sensed. Check the network cable, and verify that the concentrator/hub is providing Link Beat.
14 DISCONNECTED	The Novell NetWare protocol is disconnected. Check the server and print server.
15 CONFIGURATION ERROR	Indicates that the configuration information for the NetWare functions is not stored correctly on the HP JetDirect interface. Rerun the JETADMIN utility to reconfigure. If this error persists, there may be a problem with the HP JetDirect interface.
16 NOT CONFIGURED	Indicates that the NetWare functions of the HP JetDirect interface have not been configured. To use the HP JetDirect interface with NetWare, you must first run the JETADMIN utility to configure it.
17 UNABLE TO FIND SERVER	The HP JetDirect interface was unable to find the print server (Remote Printer mode) or file server (Queue Server mode) (there was no response to service queries for advertising print servers or file servers that matched the configured print server or file server name). Make sure that the print server or file server is running and that the print server or file server name configured on the HP JetDirect interface matches the actual name used by the print server or file server and that all cables and routers are functioning properly.
18 PASSWORD ERROR	The HP JetDirect interface detected that the password for the print server object is wrong. Use the PCONSOLE utility to erase the password for the print server object. When the HP JetDirect interface logs in again, it will set a new password. You can also use the JETADMIN utility to create a new print server object and change the HP JetDirect interface's NetWare node name to match. When multiple file servers are configured, the error is only displayed on the test page if none of the file servers were connected. Use JETADMIN to obtain the status of all file servers.
19 NO QUEUE ASSIGNED	The HP JetDirect interface detected that the print server object has not been assigned any queues to service. Assign queues to the print server object using the JETADMIN or PCONSOLE utilities.  When multiple file servers are configured, the error is only displayed on the self-test page/configuration plot if none of the file servers were successfully connected. However, JETADMIN can display status for all of the file servers.

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## Troubleshooting Overview

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### Ethernet I/O CARD NOT READY Status Messages (continued)

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Message	Description and Recommended Action
1A PRINTER NUMBER NOT DEFINED	The printer number you assigned to the remote printer using the JETADMIN utility has not been defined. Rerun the JETADMIN utility and assign a valid printer number to the JetDirect interface, or run PCONSOLE and define this printer number for the print server. Refer to the "Software Installation and Configuration for Novell NetWare Networks" chapter for instructions on running JETADMIN.
1B PRINTER NUMBER IN USE	The printer number you assigned to the remote printer using the JETADMIN utility is already in use by another printer. Rerun the JETADMIN utility and assign an unused printer number to the HP JetDirect interface. Refer to Software Installation and Configuration for Novell NetWare Networks for instructions on running JETADMIN.
1C PRINT SERVER NOT DEFINED	The file server does not have a print server object that corresponds to the HP JetDirect NetWare node name. Use the JETADMIN or PCONSOLE utilities to create the print server object or use the JETADMIN utility to change the HP JetDirect NetWare node name to match an existing print server object.
1D UNABLE TO CONNECT TO SERVER	Remote Printer mode: The HP JetDirect interface was unable to establish an SPX connection with the print server. Make sure that the print server is running and that all cables and routers are functioning properly. Queue Server mode: The HP JetDirect interface could not establish an NCP connection to the file server. Make sure that the correct file servers were connected. Use JETADMIN to obtain the status of all file servers.
1E FAIL RESERVING PRINTER NUMBER	The SPX connection to the print server was lost when the HP JetDirect interface attempted to reserve the printer number. This probably indicates a network problem or a problem with the print server. Make sure that all cables and routers are functioning correctly. Try re-starting the print server.
1F ERR NEGOTIATING BUFFER SIZE	A failure was detected when selecting the buffer size to be used when reading print data from the file server. This is an unlikely stage to have an error and probably indicates a networking problem.  When multiple file servers are configured, the error is only displayed on the test page if none of the file servers were successfully connected. However, JETADMIN can display status for all of the file servers.

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**Ethernet I/O CARD NOT READY Status Messages (continued)**

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Message	Description and Recommended Action
20 UNABLE TO LOGIN	<p>A failure was detected when the HP JetDirect interface tried to log in to the file server. Make sure that the file server name and the print server object name are correct. Try using PCONSOLE to erase the password for the print server object.</p> <p>When multiple file servers are configured, the error is only displayed on the self-test page/configuration plot if one of the file servers was successfully connected. However, JETADMIN can display status for all of the file servers.</p>
21 UNABLE TO SET PASSWORD	<p>A failure was detected when the HP JetDirect interface tried to set the password for the print server object. (Whenever the HP JetDirect interface is able to log in without a password, it will set password automatically.) This indicates a networking or security problem. Try using JETADMIN to create a new print server object.</p> <p>When multiple file servers are configured, the error is only displayed on the test page if none of the file servers were successfully connected. However, JETADMIN can display status for all of the file servers.</p>
22 UNABLE TO CONNECT TO SERVER	<p><b>Remote Printer mode:</b> The HP JetDirect interface was unable to establish an SPX connection with the print server. Make sure that the print server is running and that all cables and routers are functioning properly.</p> <p><b>Queue Server mode:</b> The HP JetDirect interface could not establish an NCP connection to the file server. Make sure that the correct file servers were connected. Use JETADMIN to obtain the status of all file servers.</p>
23 UNABLE TO ATTACH TO QUEUE	<p>A failure was detected when the HP JetDirect interface tried to attach to one of the queues assigned to the print server object. Use PCONSOLE to make sure that servers are allowed to attach to the queue, or to delete the print server object from the list of queue servers if you want the HP JetDirect interface to service other queues. You can also try using PCONSOLE to delete the queue and create a new queue (don't forget to add the print server object to the list of queue servers).</p> <p>When multiple file servers are configured, the error is only displayed on the test page if none of the file servers were successfully connected. However, JETADMIN can display status for all of the file servers.</p>
24 PSERVER CLOSED CONNECTION	<p>The print server requested a termination of the connection with the HP JetDirect interface. Make sure that the print server is running and re-start it if necessary.</p>

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Troubleshooting  
Overview

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**Ethernet I/O CARD NOT READY Status Messages (continued)**

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<b>Message</b>	<b>Description and Recommended Action</b>
25 DISCONNECTING - SPX TIMEOUT	The SPX connection to the print server was lost after the connection was up and running. This probably indicates a network problem or a problem with the print server. Make sure that all cables and routers are functioning correctly. Try restarting the print server.
26 UNKNOWN NCP RETURN CODE	The HP JetDirect interface encountered a fatal error after it connected to the file server. Many failures could produce this error message, ranging from a down file server to a network router failure. The raw NCP error code is available to the JETADMIN utility, and might provide more information.
27 UNEXPECTED PSERVER DATA RCVD	The print server sent data to the HP JetDirect interface without permission. This may indicate a print server problem or software bug.
28 OUT OF BUFFERS	The HP JetDirect interface was unable to allocate a buffer from its internal memory. This means that all buffers are busy because of heavy broadcast traffic or an unusual amount of network traffic directed at the HP JetDirect interface.
29 UNABLE TO SENSE NETWORK NUMBER	The HP JetDirect interface has been trying for over 3 minutes to determine the NetWare protocol used on the network. Make sure that any file servers and routers are operating correctly. Make sure that the settings for NetWare frame type and source routing are correct.
83 DISCONNECTING FROM SERVER	The server has been shut down because of a JETADMIN or PCONFIG configuration change or reset request. This message will automatically clear after a few seconds, unless the printer is offline or is in an error state.

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## Novell NetWare Status Messages

This portion of the self-test page/configuration plot identifies the NetWare printing mode used by the JetDirect interface, the node name, and the file server or print server, and the network frame type.

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### Novell NetWare Status Messages

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Field	Description
MODE:	Indicates the mode used by the interface. QUEUE SERVER indicates that the interface receives data directly from the queue; REMOTE PRINTER, with the printer number following it, indicates that the interface emulates a Novell remote printer. If the printer has not been configured, this field will display QUEUE SERVER.
SOURCE ROUTING (Token Ring only): UNKNOWN, "NO", "YES"	UNKNOWN is displayed when source routing is configured to AUTO, but the source routing method has not been detected.  NO is displayed when source routing is configured to AUTO, and the automatic algorithm has determined that source routing should not be used.  YES is displayed when source routing is configured to AUTO, and the automatic algorithm has determined that source routing should be used.
"DISABLED", "SINGLE R", or "ALL RT"	DISABLED, SINGL R, and ALL RT are displayed when the user has manually configured source routing through the printer's control panel, or through software (JETADMIN).
NODE NAME:	<b>Queue Server Mode:</b> Indicates the print server name. This name must match a valid print server on the appropriate file server. The default name is NPIXXXXXX. <b>Remote Printer Mode:</b> Indicates the name you gave to the network printer when you used JETADMIN to configure the network printer. The default name is NPIXXXXXX.
SERVER NAME:	Indicates the name of the file server or print server. If no name is displayed, the printer has not been configured.
NETWORK FRAME TYPE RCVD XXXXXX XXXXX XXXX	The first line indicates the network number associated with the protocol frame type for communication between server and printer. The interface automatically determines the protocol frame type by listening to the NetWare data being transferred over the network, unless a specific frame type has been configured using JETADMIN or the printer's control panel. If UNKNOWN is listed, the HP JetDirect interface is still trying to determine which network number to use. If the network number is DISABLED, a specific frame type has been manually configured. The Frame Type value can be EN_8023, EN_8022, EN_II, or EN_SNAP. The RCVD count indicates how many packets have been received for each frame type.

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## Network Statistics Messages

This portion of the self-test page/configuration plot lists network statistics gathered by the HP JetDirect interface. NETWORK STATISTICS consists of the following eight fields. Each field is listed along with the number of times (if any) that the condition occurred. When the printer is turned off and on again, all of the statistic counters are reset to zero.

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### Network Statistics Messages

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Field	Description
TOTAL PACKETS RCVD:	Total number of frames (packets) received by the JetDirect interface without error. Includes broadcast, multicast packets, and packets specifically addressed to the interface. This number does not include packets specifically addressed to other nodes.
BAD PACKETS RCVD:	Total number of frames (packets) received by the JetDirect interface with errors.
FRAMING ERRORS RCVD:	(Ethernet only) Maximum of CRC (Cyclic Redundancy Check) errors and framing errors. CRC errors are frames received with CRC errors. Framing errors are frames received with alignment errors. A large number of framing errors could indicate a cabling problem with your network.
LINE ERRORS RCVD:	(Token Ring only) Total number of frames received by the HP JetDirect interface with code violations or CRC (Cyclic Redundancy Check) errors. A large number may indicate faulty cabling on your network.
BURST ERRORS RCVD:	(Token Ring only) Number of times the HP JetDirect interface could detect no transitions for 5 half-bit times between the Start Delimiter (SD) and the End Delimiter (ED).
FS SET ERRORS RCVD:	(Token Ring only) Total number of frames with frame status set errors, indicating another node could not set the frame status.
FRAME COPIED RCVD:	(Token Ring only) Total number of frames received with frame copy error indicated in the Frame Status (FS) field.
BAD LENGTH RCVD:	(Token Ring only) Total number of frames missed because they were too long for the HP JetDirect interface to receive.

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**Network Statistics Messages**

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<b>Field</b>	<b>Description</b>
LOST FRAMES:	(Token Ring only) Number of times the end of the frame could not be detected while transmitting.
TOKEN ERRORS:	(Token Ring only) Total number of times a violation of the token-passing protocol has been detected.
PACKETS TRANSMITTED:	Total number of frames (packets) transmitted without error.
UNSENDABLE PACKETS:	(Ethernet only) Total number of frames (packets) not successfully transmitted because of errors.
XMIT COLLISIONS:	(Ethernet only) Number of frames not transmitted because of repeated collisions.
XMIT LATE COLLISIONS:	Ethernet only) Total number of frames not transmitted because a late collision occurred. A large number may indicate a cabling problem on the network.
NETWARE RETRANS.	Number of retransmissions necessary because a remote node did not acknowledge receipt of a frame sent to it. Excessive retransmissions may degrade performance, cause 40 ERRORS, or indicate developing network hardware or congestion problems.

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## Token Ring Phase Messages

This section describes the PHASE messages that can be displayed on the Token Ring self-test page/configuration plot. There are five phases that must be completed in order before the HP JetDirect interface is successfully inserted into the network ring. The PHASE message indicates the current phase in which the I/O CARD NOT READY condition occurred.

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### Token Ring Phase Messages

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Phase Message	Description
LOBE MEDIA TEST	The HP JetDirect interface or relay at the wiring concentrator wraps the transmitter's signal from a station back to its receiver. The HP JetDirect interface verifies that this lobe wrap path is functioning.
PHYS INSERTION	The HP JetDirect interface physically inserts by impressing a DC current on the transmit signal pair. This activates a relay in the wiring concentrator that connects the receive and transmit pairs into the physical ring.
ADDRESS VERIFY	The ring station address must be unique to this HP JetDirect interface. This phase of the insertion process ensures that this address is not being used by another HP JetDirect interface that is inserted into the network ring.
RING POLL	This phase ensures that the HP JetDirect interface has participated in the ring polling process. In this process, the HP JetDirect interface acquires its upstream neighbor's address (UNA) and allows the nearest downstream HP JetDirect interface to acquire its address as that HP JetDirect interface's UNA.
REQUEST INIT	The purpose of the Request Initialization phase is to request additional parameters. These parameters are associated with each node on the ring. The parameters received in this process replace the default parameters set at the start of the ring insertion process.

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## Token Ring Code Messages

Associated with each Token Ring PHASE messages is one CODE message. The CODE message provides a specific description of the PHASE problem.

The possible CODE messages are as follows:

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### Token Ring Code Messages

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Code Message	Description
FUNCTION FAILURE	The HP JetDirect interface is unable to transmit to itself while wrapped through its lobe at the wiring concentrator. This message may also indicate that data frames are received before physical insertion.
SIGNAL LOSS	A signal loss condition is detected at the HP JetDirect interface receiver input during the open process (either when wrapped or inserted onto the ring).
TIMEOUT	The HP JetDirect interface fails to logically insert onto the ring before the insertion timer expires. Each phase of the insertion process must complete before expiration of the 18-second insertion timer.
RING FAILURE	The HP JetDirect interface times out when attempting a ring purge after becoming the active monitor; that is, the HP HP JetDirect interface is unable to receive its own ring purge data frames.
RING BEACONING	The HP JetDirect interface receives a beacon data frame after physically inserting into the ring. This indicates a break in the ring.
DUP NODE ADDRESS	The HP JetDirect interface finds that another station on the ring already has the address which the HP JetDirect interface wishes to use. Ensure that all addresses are unique.
REQUEST PARAM	The HP JetDirect interface determines that a Ring Parameter Server (RPS) is present on the ring, but does not respond to a request initialization data frame.
REMOVE RECEIVED	The HP JetDirect interface received a Remove Adapter data frame during the insertion process.

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## Token Ring Status Messages

The self-test page/configuration plot may list up to three RING STATUS messages for each PHASE and CODE message pair. The following table describes all of the possible RING STATUS messages.

<b>Token Ring Status Messages</b>	
<b>Message</b>	<b>Description</b>
RING RECOVERY	The HP JetDirect interface has received claim token data frames on the ring. The HP JetDirect interface may be transmitting the claim token frames.
SINGLE STATION	The HP JetDirect interface has sensed that it is the only station on the ring.
REMOVE RECEIVED	The HP JetDirect interface has received a remove ring station data frame request, and has removed itself from the ring.
AUTO-REMOVAL ERROR	The HP JetDirect interface has detected an internal hardware error following the beacon auto-removal process and has removed itself from the ring.
LOBE WIRE FAULT	The HP JetDirect interface has detected an open or short circuit in the cable between the HP JetDirect interface and the wiring concentrator. Verify that this cable is functional and replace it if necessary.
TRANSMIT BEACON	The HP JetDirect interface is transmitting beacon frames to the ring.
HARD ERROR	The HP JetDirect interface is transmitting or receiving beacon frames to or from the ring.
SIGNAL LOSS	The HP JetDirect interface has detected a loss of signal on the ring. Check the cable from the HP JetDirect interface to the network and check the wiring concentrator.







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