Introduction

This document describes how to install, verify, and troubleshoot the following two HP 100Base-T transceiver modules (termed 100Base-T transceivers in this manual):

- HP J3192B AdvanceStack 100Base-TX Twisted-Pair Transceiver Module
- HP J3193B AdvanceStack 100Base-FX Fiber-Optic Transceiver Module (Available mid-1997.)

These HP 100Base-T transceivers provide network connections for the:

- HP J3191A AdvanceStack Switch 100Base-T Module (for the Switch 2000)
- HP AdvanceStack Switch 208T (HP J3175A)
- HP AdvanceStack Switch 224T (HP J3177A)
- HP AdvanceStack Switch 800T (HP J3245A)
- Other HP networking devices that may be designed to accept these transceivers.

The transceivers are designed to be installed in the 100Base-T transceiver slot of the HP networking device or device module.
Disk Note

The disk shipped with your transceiver is needed only in specific instances for the “A” version of the Switch 2000 (HP J3100A). If you are installing a transceiver in the “B” version of the Switch 2000 (HP J3100B) or in a Switch 208T, 224T, or 800T, then you do not need the disk.

Coverage Note

The illustrations in this document show the transceivers being used with the HP J3191A AdvanceStack Switch 100Base-T Module. The procedures described in this document also pertain to using these units in other 100Base-T HP networking devices that are designed to accept them. To verify which transceiver to use with an HP networking device, refer to the documentation you received with that specific device.

Device Compatibility

The “A” version of the 100Base-TX Twisted-Pair Transceiver (J3192A) has been superseded by the “B” version (J3192B). Use the “A” version only in the Switch 2000 (with the J3191A 100Base-T Module). Use the “B” version in the Switch 2000, Switch 208T, Switch 224T, Switch 800T, and other HP networking devices designed to accept them. (Refer to the manual you received with the specific device.) The following table shows which version of the 100Base-TX Transceiver Module is compatible with specific Hewlett-Packard networking devices.

<table>
<thead>
<tr>
<th>Transceiver Model</th>
<th>Switch 2000 (HP J3191A 100Base-T Module)</th>
<th>Switch 800T</th>
<th>Switch 208T, Switch 224T, and Other Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP J3192A (UTP)</td>
<td>Yes</td>
<td>Not Supported</td>
<td>Not Supported</td>
</tr>
<tr>
<td>HP J3192B (UTP)</td>
<td>Yes*</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>HP J3193B (Fiber)</td>
<td>Yes*</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*For the “A” version of the Switch 2000 (HP J3100A), software (OS) version A.03.01 or later is required. Refer to “Software (OS) Update for the ‘A’ Version of the Switch 2000 (HP J3100A)” on page 8.
Installation Steps

**Switch 2000 Note**

If you are installing a transceiver in the “A” version of the Switch 2000 (HP J3100A), refer to “Software (OS) Update for the 'A' Version of the Switch 2000 (HP J3100A)” on page 8 before you continue in this section.

Transceiver Installation Overview

To install the HP 100Base-T Transceivers, follow these steps:

1. Unplug the switch from the AC power supply (or, for the Switch 2000, remove the 100Base-T Module from the switch).

**Caution**

To avoid possible damage to the transceiver circuitry, turn off power to the device before installing the transceiver into it. (For the Switch 2000, you can leave the power on to the switch, but must remove the switch module before loading a transceiver into it.) Before you install a transceiver into a device, read the transceiver installation information provided with the device.

Make sure you install these transceivers only into HP 100Base-T devices designed to accept them.

2. Insert the transceiver into an HP networking device's 100Base-T transceiver slot.

3. If the 100Base-T transceiver slot is in a hub or switch module, insert the hub or switch module into the HP networking device.

4. Connect the network cable(s) to the transceiver.

5. Apply power to the HP networking device into which the transceiver is installed, and check the transceiver for correct operation.

Details on these steps are provided in the rest of this document.
Insert the Transceiver Into the Slot

The transceivers are installed into an HP networking device, as follows:

1. Unplug the HP networking device from the AC power source. Then, using a flat-bladed or Torx T-10 screwdriver, unscrew the two retaining screws on the existing transceiver or 100Base-T transceiver cover plate, and remove it from the HP networking device or device module.

2. While touching a metal part of the networking device to discharge any static electricity difference between your body and the device, carefully remove the transceiver from its protective anti-static packaging. Hold the transceiver by its edges, taking care not to touch any of its metal connectors.

3. Slide the transceiver firmly into the 100Base-T transceiver slot as far as it will go. The transceiver's faceplate should touch the face of the device. The following illustration shows twisted-pair and fiber-optic transceivers sliding into an HP J3191A AdvanceStack Switch 100Base-T Module.

4. Using the flat-bladed or Torx T-10 screwdriver, tighten the retaining screws on the transceiver until they are snug. Be careful that you do not overtighten the screws. Then, insert the hub or switch module into the networking device.
Connect Network Cables to the Transceiver or Port.

The cabling instructions for each transceiver are different and are described in the next two sections of this guide. For cabling details, find the section that corresponds to your transceiver.

**HP 100Base-TX Twisted-Pair Transceiver**

The HP 100Base-TX Twisted-Pair Transceiver connects an HP networking device to an unshielded twisted-pair (UTP) network using Category 5 cable or better. This transceiver is compatible with IEEE 802.3 and IEEE 802.3u standards.

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**Note**

This transceiver can operate at two speeds: 10 Mbit/s or 100 Mbit/s. The default is 100 Mbit/s. The selection of the speed can be chosen or you specify automatic sensing in software. (Some devices may have autosensing as the default speed setting. Refer to the documentation you received for the specific device.) The current speed of the transceiver is shown in the software for the product in which it is installed, for example, in the switch console. On some products, the speed is also shown by an LED.

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**Connecting the Twisted-Pair Cable.** The 100Base-TX standard requires category 5, four-pair, 100 ohm UTP (unshielded twisted-pair) cables.

Push the cable’s 8-pin RJ-45 plug into the transceiver’s jack until it clicks into place.
When power has been supplied to the HP networking device or device module into which the transceiver is installed, check the port LED that pertains to the transceiver on the device. If the transceiver is receiving a signal properly, the port LED should be ON. If the port LED is OFF, see “Troubleshooting” on page 11.

**HP 100Base-FX Fiber-Optic Transceiver**

The HP 100Base-FX Fiber-Optic Transceiver connects an HP networking device to a fiber-optic network using SC connectors. This transceiver is compatible with the IEEE 802.3u protocol and its wavelength is 1300nm. Optical fibers used with this transceiver should conform to the ISO/IEC 793-2 type B1 and ITU-T G.652 standards.

**Connecting the Fiber-Optic Cable.** To connect a fiber-optic cable to a transceiver:

1. Remove the plastic dust covers from the cable connectors. Then use your fingers to pull the cover off of the transceiver.

2. Match the tabs on the bottom of the connectors to the slots in the transceiver’s jack. See the illustration.

3. Press the connector into the jack so that the tabs on the connector slide into the slots in the jack and the connector snaps securely into place.

4. If you are using cable with SC duplex connectors, as shown in the illustration, both cables are connected simultaneously. When power is applied to this transceiver in its module or networking device, the port LED should be ON. If the LED is off, see Troubleshooting on page 11. To determine distances between devices, use the following chart.
<table>
<thead>
<tr>
<th>Connection Type</th>
<th>Maximum Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch to switch, full duplex</td>
<td>2 km</td>
</tr>
<tr>
<td>Switch to switch, half duplex</td>
<td>412 meters</td>
</tr>
<tr>
<td>Switch to end node, full duplex</td>
<td>2 km</td>
</tr>
<tr>
<td>Switch to end node, half duplex</td>
<td>412 meters</td>
</tr>
<tr>
<td>Switch to Class I hub with 100 meters between the hub and end node</td>
<td>160 meters</td>
</tr>
<tr>
<td>Switch to Class II hub with 100 meters between the hub and end node</td>
<td>208 meters</td>
</tr>
</tbody>
</table>

The diskette shipped with your transceiver contains an operating system (OS) update for the “A” version of the Switch 2000—HP J3100A—plus an Update utility and other information. If you are installing a transceiver in a “B” version of the Switch 2000 (HP J3100B), or the Switch 208T, 224T, or 800T, then do not use this section.

Do You Need To Update the Switch 2000 (HP J3100A) OS?

If you are installing a 100Base-T transceiver in the “A” version of the Switch 2000, do the following to determine which OS version the switch is using:

1. In the Switch 2000 console, use the Version command to determine which version of the switch’s operating system (OS) software is in use. (At the Main Menu, select Command Prompt (or Advanced Commands), then type version and press Enter.) (Use the exit command to return to the Main Menu.)

2. Determine whether to update the switch’s operating system (OS) software to the OS version on the 3-1/2 inch disk included with the transceiver:

<table>
<thead>
<tr>
<th>Transceiver Model</th>
<th>OS Version A.02.01 or Earlier</th>
<th>OS Version A.02.50</th>
<th>OS Version A.03.01 or Later</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP J 3192A (UTP) Transceiver</td>
<td>Update the OS</td>
<td>No OS update needed.</td>
<td>No OS update needed.</td>
</tr>
<tr>
<td>HP J 3192B (UTP) Transceiver</td>
<td>Update the OS to version A.03.01 or later</td>
<td>Update the OS to version A.03.01 or later</td>
<td>No OS update needed.</td>
</tr>
<tr>
<td>HP J 3193B (Fiber) Transceiver</td>
<td>Update the OS to version A.03.01 or later</td>
<td>Update the OS to version A.03.01 or later</td>
<td>No OS update needed.</td>
</tr>
</tbody>
</table>

To Update the Switch 2000 (HP J3100A) OS:

Use the software that is provided on the disk shipped with your HP J3192B or HP J3193B transceiver.

The disk contains one or more of the following files:

- The switch update utility, named update.exe, and a readme.txt file containing instructions on how to use the update utility, plus other information. (This is a PC-based utility that you can run from DOS or from a DOS window to download the new switch software from a PC directory. This utility requires an RS-232 serial connection to the Switch 2000.)
Two OS files:

filename.swi
filename.fdd

where filename will be the same for both files; for example:

A_03_01.swi OS for the “A” version of the Switch 2000 chassis (HP J3100A) and all Switch 2000 modules (such as the HP J3191A 100Base-T Module) that operate with version A.03.01 or earlier software.

A_03_01.fdd OS for the FDDI Module. (Necessary if an FDDI Module is installed in the Switch 2000.)

Observe the following when downloading the OS software to the Switch 2000:
- filename.swi and filename.fdd must be in the same directory.
- filename must be the same for both files. (That is, the files must be the .swi and .fdd file pair from the disk.)

For the above reasons, do not place the filename.swi and filename.fdd in separate directories, and do not rename them.

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Note

For the “A” version of the Switch 2000 (HP J3100A) use only an OS version file beginning with “A” (such as A_03_01.swi).

Version A.03.01 of the OS for the “A” version of the Switch 2000 (J3100A) supports all Switch 2000 Modules and compatible transceivers available as of May 1, 1997. If you are installing more than one type of Switch 2000 module and/or if it is necessary to download a new version of the Switch 2000 OS, use the latest version available. The latest version is available electronically from Hewlett-Packard. Refer to “HP Customer Support Services” on page 13. For more on software compatibility, see the readme.txt file included on the disk shipped with your HP J3192B or HP J3193B transceiver.
**OS Download Steps.** Use this procedure if you need to download a new OS version to your Switch 2000. The procedure describes how to use a personal computer (PC) to download the OS. (If you are using a UNIX workstation, refer to the Note on page 10.)

1. Copy the files from the diskette into the DOS directory you will use for downloading to the switch. (You can also download directly from the diskette.)

2. Download the software upgrade by using one of the following methods:
   - **TFTP download using a TFTP server and the Download OS option in the Switch 2000 console interface:** This is the recommended download method if you have TFTP server access to the Switch 2000. Refer to the instructions in appendix A, “Downloading an Operating System”, in the Console User’s Guide you received with your Switch 2000. For this option, use the form
     
     ```
     filename.swi
     ```
     
     for the Remote File Name parameter. (The `filename.fdd` file will automatically be used if an FDDI Module is already installed in the Switch 2000.)
   - **Switch update utility:** Refer to the instructions in the `readme.txt` file provided on the disk with the update utility.

3. If you are performing a first-time installation of an HP J3192B or HP J3193B transceiver, go to the “Transceiver Installation Overview” on page 3.

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**Note**

To perform a TFTP download from a UNIX system, store the uncompressed `filename.swi` and `filename.fdd` in the UNIX TFTP directory, then perform the TFTP download as described in Step 2, above. If your TFTP server is a UNIX system, ensure that the case (upper or lower) that you specify for the filename in the Switch 2000 Download OS screen is the same case as the OS filenames in the TFTP server.
Troubleshooting

The fiber-optic cable connector doesn't fit in the 100Base-FX transceiver. The fiber-optic transceiver has SC connectors. The cable must have SC connectors also. You may be trying to connect a cable with ST connectors. SC-to-ST adapters are available. Contact your HP-authorized LAN dealer.

The port LED for the fiber transceiver is not on. The connected module or device must be a 100Base-T device. For twisted-pair cable, an example of a valid device is an HP 10/100TX PCI LAN Adapter.

A connected device is not transmitting the signal. Verify that the cable length does not exceed 100 meters for a twisted-pair connection or the distances listed above for a fiber-optic connection. Verify that the connected device is on and check all cabling and connections (including patch panels). If the port for the transceiver can be configured to either 10 Mbit/s or 100 Mbit/s and/or full- or half-duplex, ensure that the ports at both ends of the connection are configured alike. The cable may be defective; try a different cable.

The Fault LED is flashing. Verify that you have a 100Base-TX or FX transceiver in a 100Base-T transceiver slot. Placing a 100Base-TX or FX transceiver into a 100VG slot may cause the Fault LED to flash. Refer to the documentation you received with the networking device for information on transceiver installation. Turn off the power and reinsert the transceiver into the module and verify the screws are tightened.

Link from a J3192A 100Base-TX transceiver to another device not recognized or failing. The J3192A version of the transceiver should be installed only in a Switch 2000. For other HP devices (such as the Switch 208T, Switch 224T, and the Switch 800T) using J3192 series 100Base-TX transceivers, install the “B” version of the transceiver (J3192B).

For most of these problems, you can also use the device's console interface (for example with a VT-100 console device), or HP AdvanceStack Assistant to troubleshoot and configure the 100Base-T transceiver port. See the HP networking device's manual (such as the HP AdvanceStack Switch 2000 manual) for more information.

If you are still having trouble, see the Customer Support Services sheet in the beginning of any of the hub or switch manuals for a list of services HP offers. You may also want to contact your HP authorized dealer or reseller directly.
Specifications for All 100Base-T Transceivers

Physical

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Depth</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Weight</td>
</tr>
</tbody>
</table>

Environmental

Operating temperature: 0°C to 55°C (32°F to 131°F)
Nonoperating temperature: -40°C to 70°C (-40°F to 158°F)
Relative humidity: 15% to 95% at 40°C (104°F) non-condensing
Maximum altitude: 4.6 km (15,000 feet)

Electromagnetic

Emissions
FCC part 15 Class A
EN55022 / CISPR-22 Class A
VCCI Level 1

Complies with Canadian EMC Class A requirements.

Immunity

This product is designed for operation with the HP J3100A and J3100B versions of the HP AdvanceStack Switch 2000 (equipped with the HP J3191A AdvanceStack Switch 100Base-T module), the J3245A HP AdvanceStack Switch 800T, the J3175A HP AdvanceStack Switch 208T, the J3177A HP AdvanceStack Switch 224T, or other products and is listed in the Declaration of Conformity available from your HP-authorized dealer or reseller.

Standards

The fiber transceiver complies with the IEEE 802.3u standard. The twisted-pair transceiver complies with the IEEE 802.3 and IEEE 802.3u standards.
HP Customer Support Services

How to get the latest software/agent firmware
You can download from the World Wide Web, HP FTP Library Service, CompuServe, and HP BBS a compressed file containing the download utility file (update.exe) and the latest version of software and other files for your Hewlett-Packard switch. For example:

- j3200a.exe for the “A” version of the Switch 2000 (HP J3100A)
- j3200b.exe for the “B” version of the Switch 2000 (HP J3100B, available first half of 1997)
- j3178a.exe for the Switch 208/224 Management Module
- j3245a.exe for the Switch 800T

After you download the file, extract the file by typing `filename/c0/c65/c78/c68/c0/c80/c82/c69/c83/c83/c73/c78/c71/Enter`. For example, `j3245a Enter`.

World Wide Web
http://www.hp.com/go/network_city
Select the “Support” section.
From this web site, you can also download information on the HP networking products. If you have a growing network, download the Designing HP AdvanceStack Workgroup Networks Guide or call 1-800-752-0900 in the U.S. to receive a copy through the mail.

HP FTP Library Service
2. Log in as anonymous and press Return at the password prompt.
3. Enter bin to set the transfer type.
4. Enter cd/pub/networking/software.
5. Enter get filename to transfer the file to your computer, then quit.

CompuServe
1. Login to CompuServe.
2. Go to the “hp” service.
3. Select “HP Systems, Disks, Tapes, etc.”
5. Download filename and then quit.
HP BBS
Set your modem to no parity, eight bits, 1 stop bit, set speed up to 14400 bps, and with your telecommunication program (e.g., Windows Terminal) dial (208) 344-1691 in the U.S. to get the latest software for your HP networking product. For other countries, see:


HP FIRST Fax Retrieval Service
HP FIRST is an automated fax retrieval service that is available 24 hours a day, seven days a week. HP FIRST provides information on the following topics:

- Product information
- Troubleshooting instructions
- Technical reviews and articles
- Configuration information

To access HP FIRST, dial one of the following phone numbers:

<table>
<thead>
<tr>
<th>Location</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. and Canada Only</td>
<td>Dial 1 (800) 333-1917 with your fax machine or touch-tone phone and press 1.</td>
</tr>
<tr>
<td>Outside the U.S. and Canada</td>
<td>Dial 1 (208) 344-4809 from your fax machine and press 9.</td>
</tr>
</tbody>
</table>

To receive a list of currently available documents, enter document number 19941. The information you requested will be sent to you by return fax. For other countries, see http://www.hp.com/cposupport/eschome.html.

Additional HP Support Services. In addition to the above services, you can purchase various HP telephone support services which provide you expert HP technical assistance:

- Network Phone-In Support provides you support at an hourly rate. In the U.S., call 1-800-790-5544. In other countries, please contact your local HP Response Center to see if this service is available in your country.
- HP SupportPack Comprehensive Network Support provides complete problem resolution for medium to large interconnected local and wide area networks. Contact your HP Authorized Reseller or the nearest HP Sales and Support Office for more information.

HP offers other hardware support services. Please contact your reseller for more information.