

4-Port 10/100 Base-TX Ethernet PCI Adapter

# Installation and Using Guide

**Note**

Before using this information and the product it supports, be sure to read the general information under "Product Warranties and Notices" included with your system unit.

**Third Edition (September 2001)**

Before using this information and the product it supports, read the information in "Safety Information" on page v and "Appendix B. Notices" on page 25.

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## Safety Information

### DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.



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## Handling Static Sensitive Devices

**Attention:** Static electricity can damage this device and your system unit. To avoid damage, keep this device in its anti-static protective bag until you are ready to install it. To reduce the possibility of electrostatic discharge, follow the precautions listed below:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and possibly damage the device.
- While the device is still in its anti-static package, touch it to an unpainted metal part of the system unit for at least two seconds. (This drains static electricity from the package and from your body.)
- Remove the device from its package and install it directly into your system unit without setting it down. If it is necessary to set the device down, place it on its static-protective package. (If your device is an adapter, place it component-side up.) Do not place the device on your system unit cover or on a metal table.
- Take additional care when handling devices during cold weather, as heating reduces indoor humidity and increases static electricity.



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## About This Book

This book provides information about installing the 4-Port 10/100 Base-TX Ethernet PCI Adapter and device driver support software, as well as how to attach the adapter to a network. Use this book in conjunction with your specific system unit and operating system documentation.

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## ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

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## Related Publications

The following publications contain related information:

- System unit documentation for information specific to your hardware configuration
- Operating system documentation for information specific to your software configuration. This documentation is located on the AIX V4.3 Documentation CD. The documentation information is made accessible by loading the documentation CD onto the hard disk or by mounting the CD in the CD-ROM drive.
- *PCI Adapter Placement Reference*, SA38-0538 (for the latest version, you may need to contact your marketing representative)

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- AIX
- RS/6000
- SP

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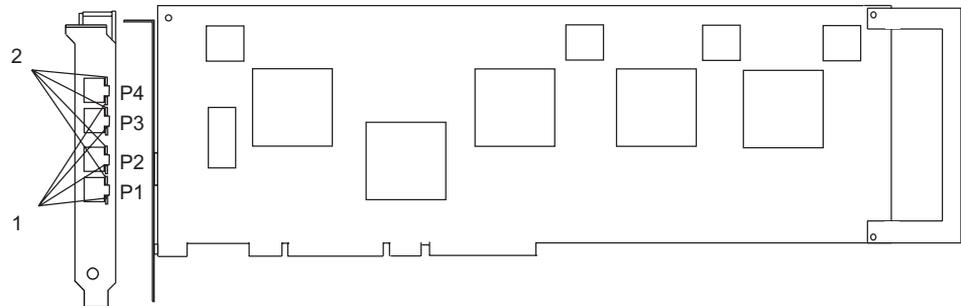
## Chapter 1. Overview

The 4-Port 10/100 Base-TX Ethernet PCI Adapter is a 32/64-bit high performance expansion adapter card for systems adhering to the Peripheral Component Interconnect (PCI) and IEEE 802.3 standards. The adapter connects the system to an Ethernet LAN at either 10Mbps or 100Mbps data rate.

The 4-Port 10/100 Base-TX Ethernet PCI Adapter provides the following features:

- Easy installation and automatic configuration
- PCI bus master, 32/64-bit, 33MHz
- PCI Universal connector to accommodate +5 Volt and +3 Volt signaling
- 2 LED adapter status indicators per each port
- Auto negotiation of 10Mbps or 100Mbps
- Half-duplex or full-duplex operation
- 64KB on-card FIFO for transmit and receive per port
- 4 RJ-45 connectors for UTP or STP cabling
- Ball Grid Array (BGA), surface mount (SMT) and pin-in-hole (PIH) technology.

The following figure illustrates the 4-Port 10/100 Base-TX Ethernet PCI Adapter.



- 1      100 LED (green)  
2      Activity LED (yellow)

---

### Understanding the Adapter LEDs

The LEDs on the 4-Port 10/100 Base-TX Ethernet PCI Adapter provide information about the card's operation status. The LEDs are visible through the card's mounting bracket and, when lit, indicate the following conditions:

LED	Meaning
100 LED (green)	The adapter is operating at 100Mbps data rate
Activity LED (yellow)	Packets are being received or transmitted over the network

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## Software Requirements

The 4-Port 10/100 Base-TX Ethernet PCI Adapter is supported on AIX Versions 4.3.3 or later. The device driver package (devices.pci.23100020) must be at VMRF/PTF level 4.3.3.10 or later. Before you install the adapter, ensure that your operating system supports it. Contact your support representative for assistance.

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## Chapter 2. Preparing for Installation

This chapter helps you prepare to install the 4-Port 10/100 Base-TX Ethernet PCI Adapter.

**Note:** If you are installing a version of AIX later than 4.3.3 at this time, install the 4-Port 10/100 Base-TX Ethernet PCI Adapter before you install the operating system (see “Chapter 6. Installing the 4-Port 10/100 Base-TX Ethernet PCI Adapter” on page 15 for instructions). Your device driver software automatically installs when you install AIX. You may have to update the system firmware after installing AIX (see “Chapter 5. Updating System Firmware” on page 13 for instructions).

If you are installing AIX 4.3.3 on your system at this time, install the operating system first and then install the device driver software before installing the adapter (see “Chapter 3. Installing the Device Driver Software” on page 5 for instructions).

If a version later than AIX 4.3.3 is operating on your system, install your firmware before installing the adapter (see “Chapter 5. Updating System Firmware” on page 13 for instructions).

If AIX 4.3.3 is operating on your system, install your software before installing the adapter (see “Chapter 3. Installing the Device Driver Software” on page 5 for instructions).

---

### Verifying Your Hardware Requirements

The 4-Port 10/100 Base-TX Ethernet PCI Adapter requires the following hardware:

- 4 wrap plugs for the RJ-45 connectors, if you are running the total diagnostics package
- Category 3, 4, or 5 unshielded twisted pair cables for a 10Mbps network attachment
- Category 5 unshielded twisted pair cables for a 100Mbps network attachment.

**Note:** The cable segment length for either of the cables listed above can be no longer than 100 meters (328 feet). This is the maximum allowable cable length from the adapter to the local concentrator, including patch cables.

---

### Checking Prerequisites

To install the adapter, make sure you have the following on hand:

- The 4-Port 10/100 Base-TX Ethernet PCI Adapter
- The operating system documentation
- The system unit installation documentation
- The *PCI Adapter Placement Reference* guide
- Media containing the device driver software
- Firmware diskette

- A flat-blade screwdriver
- A registration card

**Note:** Be sure to retain your proof of purchase as it might be required to receive warranty service.

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## Chapter 3. Installing the Device Driver Software

This chapter explains how to install the device driver software for the 4-Port 10/100 Base-TX Ethernet PCI Adapter on an AIX system. The device driver is provided in AIX and in other operating systems that support the adapter. It is also available on separate media.

If you are installing the 4-Port 10/100 Base-TX Ethernet PCI Adapter on a system with a version of AIX later than 4.3.3, the device driver is already installed and you can continue with “Chapter 5. Updating System Firmware” on page 13. If you must install the device driver on a system with AIX 4.3.3, continue with the following steps.

To install the device driver software on an AIX system, do the following:

1. Be sure you have read “Chapter 2. Preparing for Installation” on page 3 to determine:
  - If you should install your device driver software first, go to step 2. and continue with this section.
  - If you should install your system firmware first, go to “Chapter 5. Updating System Firmware” on page 13.
2. Turn on the system unit power.
3. Log in as **root** user.
4. Insert the media containing the device driver software (for example; CD-ROM) into the appropriate media device.
5. Type the following System Management Interface Tool (SMIT) fast path:  
`smitty install_latest`
6. Press Enter. The Install and Update from Last Available Software screen highlights the **INPUT device/directory for software** option.
7. Select or type *your input device*
  - Press **F4** to display the input device list. Select the *name of the device* (for example; CD-ROM) that you are using and press Enter.  
OR
  - In the entry field, type the *name of the input device* you are using and press Enter.  
The Install and Update from Latest Available screen highlights the **SOFTWARE to Install** option, with the entry fields automatically updated.
8. Press Enter to accept the information.
9. The ARE YOU SURE window displays. Press Enter to accept the information.
10. The COMMAND STATUS screen displays.
  - The term **RUNNING** is highlighted to indicate that the installation and configuration command is in progress.
  - When **RUNNING** changes to **OK**, scroll to the bottom of the page and locate the Installation Summary.

- After a successful installation, SUCCESS displays in the Result column of the Installation Summary at the bottom of the page.
11. Remove the installation media from the drive.
  12. Press **F10** to exit SMIT.
  13. Go to “Chapter 5. Updating System Firmware” on page 13. to update your system firmware.

---

## Chapter 4. Installing the Device Driver on the RS/6000 SP System

For an SP system, the installation tasks must be performed on each node. You must make the installation files available and then install them on all the relevant nodes. This chapter discusses the following tasks to enable you to install the device driver on the RS/6000 SP System:

- Checking System Prerequisites
- Installing Software on the Control Workstation (*if* the device driver is not in the `lppsource` directory)
- Installing Device Drivers on the SP Nodes (*if* the device driver and additional software are not already installed)

Perform the following tasks on the Control Workstation. If you are unfamiliar with the **dsh** command, refer to one of the following Parallel System Support Program (PSSP) publications:

- *Parallel System Support Program for AIX: Administration Guide*
- *Parallel System Support Program for AIX: Command and Technical Reference*

If you cannot use the **dsh** command because of the setup at your site, then use the **telnet** command to each node. Then perform the steps below, beginning with step 5, and omitting the `dsh` prefix.

---

### Checking System Prerequisites

Do the following to check system prerequisites:

- \_\_\_ 1. Log into the Control Workstation as a root user.
- \_\_\_ 2. Go to a temporary directory by typing the following at the system prompt:  

```
cd /tmp
```

Press Enter.
- \_\_\_ 3. Make a "working collective" file containing a list of the relevant nodes on which you want to perform the update. Type the following, pressing Enter after each line:  

```
cat > group1  
nodename1  
nodename2  
nodename3.....  
CTRL-D  
export WCOLL=/tmp/group1
```
- \_\_\_ 4. Test the working collective file by typing the following:  

```
dsh date
```

Press Enter. The results should look similar to the following:

```
nodename1: Wed Apr 10 10:37:46 EDT 1999
nodename2: Wed Apr 10 10:37:46 EDT 1999
nodename3: Wed Apr 10 10:37:47 EDT 1999
nodename4: Wed Apr 10 10:37:48 EDT 1999
```

If not, examine your nodelist file **/tmp/group1** to ensure that the node names are correct. Also ensure that the Kerberos ticket is current to permit **rsh** to be performed. If not, you may need to refresh it. Contact your system administrator for assistance with Kerberos initialization. If the system administrator is unable to help you, consult your support center.

An alternative way to specify a working collective is by using the **-w** flag with the **dsh** command. If you need to install only a few nodes, use the **dsh -w host1, host2, host3...command** format to explicitly reference groups of nodes.

- \_\_\_ 5. Determine if the AIX operating system on each relevant node is at the required level by typing the following at the prompt:

```
dsh oslevel
```

OR

```
dsh -w <host1,host2> oslevel
```

Press Enter. **<host1,host2>** is a list of the host names for the nodes on which the adapter will be installed. The required AIX level is: 4.3.3 or later.

If the nodes are *not* at a supported AIX level, upgrade the AIX level on the nodes. Contact the system administrator for assistance.

- \_\_\_ 6. Determine if the PSSP level on each node is at the required level by typing the following:

```
/usr/lpp/ssp/bin/sp1stdata -G -b
```

Press Enter. The results display for all nodes and are in a form similar to the following:

```
node#      hostname  hdw_enet_addr  srvr    response  install_disk
last_install_image  last_install_time  next_install_image  lppsource_name
                                                                pssp_ver
-----
1 eion01.ppd.pok.i  08005A75A6D4    0        disk      hdisk0
                    default Thu_Dec__4_09:07:23      default <lppsource>
                                                                <pssp level>
```

**<lppsource>** is the lppsource name for the node. **<pssp level>** is the PSSP level installed on the node. The required PSSP level is 3.1 or later.

If the nodes are *not* at a supported PSSP level, upgrade the PSSP level on the nodes. Contact the system administrator for assistance.

- \_\_\_ 7. Record the name that appears below **lppsource\_name** for each node on which the adapters are being installed. You will use this information later.

- \_\_\_ 8. Verify that the device driver is installed in the lppsource directory by typing the following at the system prompt:

```
cd spdata/sys1/install/<lppsource_name>/lppsource
```

<lppsource\_name> was recorded in the previous step. Once you are in this directory, verify that the fileset is in the lppsource directory by typing the following at the prompt:

```
ls devices.pci.23100020*
```

If the device driver is not in the lppsource directory, proceed to section "Installing Software on the Control Workstation" on page 10 to install the software.

- \_\_\_ 9. Update the SPOT (Shared Product Object Tree) by doing the following:

- \_\_\_ a. Type the following at the system prompt:

```
smitty nim_res_op
```

The Resource Name screen displays with the following highlighted:

```
boot          resources    boot
```

- \_\_\_ b. Move the cursor down until the *SPOT resource* is highlighted. The *SPOT resource* should look similar to:

```
spot_AIX421   resources    spot
```

The format of the spot name is: spot\_<lppsource\_name>.  
<lppsource\_name> was the name you recorded in a previous step.

- \_\_\_ c. When the *SPOT resource* is highlighted, press Enter to select this option. The Network Install Operation to Perform screen displays with the **reset** option highlighted for selection.

- \_\_\_ d. Move the cursor until the **cust** option is highlighted and press Enter to select this option. The Customize a SPOT screen displays with the **Source of Install Images** highlighted for selection.

- \_\_\_ e. Press F4 to display the list of installation images and select the appropriate lppsource.

- \_\_\_ f. Move the cursor until the appropriate lppsource is displayed. For example:

```
lppsource_AIX421   resources    lpp_source
```

Press Enter.

- \_\_\_ g. Move the cursor until *Fileset Names* is highlighted. Type the following fileset name:

```
devices.pci.23100020
```

- \_\_\_ h. Press Enter to start the SPOT update. This operation can take up to 15 minutes.

- \_\_\_ 10. Verify that the device driver is already installed by typing the following at the system prompt:

```
dsh "ls1pp -l devices.pci.23100020* 2>&1" |more
```

- \_\_ 11. If the device driver is already installed on the node, contact your service provider to have the adapter installed.

OR

If the device driver is not installed on the node, proceed to section “Installing Device Drivers on the SP Nodes” on page 11.

---

## Installing Software on the Control Workstation

**Note:** If your system is *partitioned*; that is, there are more than one operating system among the nodes, you may *only* install this adapter in nodes that have AIX 4.3.3 or later.

- \_\_ 1. If you are not logged into the Control Workstation as a root user, log in now. You may also need to export the working collective. Refer to “Checking System Prerequisites” on page 7.
- \_\_ 2. Select the appropriate CD-ROM for the operating system, as follows:
- AIX 4.3.x - Additional Device Software
- \_\_ 3. Insert the installation media into the drive of the Control Workstation.
- \_\_ 4. Transfer the files to the Control Workstation's lppsource, as follows:

- a. Type the following, and then press Enter.

```
smitty bffcreate
```

- b. Select the input device/directory. Press F4. Then move the cursor to the appropriate input device and press Enter.

- c. Move the cursor to the **SOFTWARE package to copy** option and press F4 to select the software to be installed. Use the F7 key to select the following device driver(s) at the system prompt:

```
devices.pci.23100020
```

Press Enter.

- d. Move the cursor down to **DIRECTORY for storing software package** and enter the appropriate lppsource destination directory:

```
/spdata/sys1/install/<lppsource_name>/lppsource
```

Use the <lppsource\_name> you recorded earlier.

- e. Press Enter to begin copying the files.

**Note:** This step may take several minutes while the directory table of contents is updated.

- \_\_ 5. Update the SPOT (Shared Product Object Tree) by doing the following:
- a. Type the following at the system prompt:

```
smitty nim_res_op
```

The Resource Name screen displays with the following highlighted:

```
boot          resources  boot
```

- b. Move the cursor down until the *SPOT resource* is highlighted. The *SPOT resource* should look similar to:
 

```
spot_AIX421    resources    spot
```

The format of the spot name is: `spot_<lppsource_name>`. `<lppsource_name>` was the name that you recorded in a previous step.
- c. When the *SPOT resource* is highlighted, press Enter to select this option. The Network Install Operation to Perform screen displays with the **reset** option highlighted for selection.
- d. Move the cursor until the **cust** option is highlighted, and press Enter to select this option. The Customize a SPOT screen displays with the **Source of Install Images** highlighted for selection.
- e. Press F4 to display the list of installation images and select the appropriate lppsource.
- f. Move the cursor until the appropriate **lppsource** is displayed. For example:
 

```
lppsource_AIX421    resources    lpp_source
```

Press Enter.
- g. Move the cursor down until *fileset names* is highlighted. Type the following fileset name:
 

```
devices.pci.23100020
```
- h. Press Enter to start the SPOT update. This operation can take up to 15 minutes.

\_\_\_ 6. Proceed to step 9 under “Checking System Prerequisites” on page 7.

---

## Installing Device Drivers on the SP Nodes

Do the following to install device drivers on the SP nodes:

- \_\_\_ 1. Make sure that the lppsource directory is exported to the nodes by typing the following at the system prompt:

```
showmount -e
```

If the directory is exported to the nodes, the result should look similar to the following:

```
/spdata/sys1/install/AIX421/lppsource (everyone)
```

- \_\_\_ 2. If the directory is not exported, you may temporarily export the directory by typing the following:

```
exportfs -i /spdata/sys1/install/<lppsource_name>/lppsource
```

- \_\_\_ 3. Perform an NFS mount of the lppsource directory by typing the following:

```
dsh mount <controlwks>:  
/spdata/sys1/install/<lppsource_name>/lppsource /mnt
```

`<controlwks>` is the name of the Control Workstation recognized by the nodes.  
`<lppsource_name>` is the name you recorded earlier in “Checking System Prerequisites” on page 7.

- \_\_\_ 4. Perform a preview of the files to be installed on the nodes by typing the following at the system prompt:

```
dsh "installp -p -acqXd /mnt device driver 2>&1" | more
```

*device driver* is the fileset that must be installed for the adapter. The list includes:

- devices.pci.23100020

- \_\_\_ 5. Install the device driver by typing the following at the system prompt:

```
dsh "installp -acqXd /mnt device driver 2>&1" | more
```

*device driver* is defined in the previous step.

After the device driver is installed on the node, contact your service provider to have the adapter installed.

---

## Chapter 5. Updating System Firmware

You may need to update the current level of firmware installed on your system. Refer to your system documentation to determine the level of firmware installed on your system. Your system firmware version installed will be similar to the following: SPX98285 or 98285SPX.

- In the example above, if the current version of System Firmware installed is SPX98285, the last five characters of the System Firmware Level represent a date in yyddd format.
- In the example above, if the current version of System Firmware installed is 98285SPX, the first five characters of the System Firmware Level represent a date in yyddd format.

Examine the label of the Firmware Update diskette. If the version of System Firmware currently installed on your system is newer than, or the same as, the System Firmware listed on the Firmware Update diskette, *do not* apply the update, and continue with “Chapter 6. Installing the 4-Port 10/100 Base-TX Ethernet PCI Adapter” on page 15.

If you need to update the firmware installed on your system, use the instructions in your system documentation and return to “Chapter 6. Installing the 4-Port 10/100 Base-TX Ethernet PCI Adapter” on page 15. If you need further assistance, contact your support representative.



---

## Chapter 6. Installing the 4-Port 10/100 Base-TX Ethernet PCI Adapter

After you install the device driver and system firmware, you can install the 4-Port 10/100 Base-TX Ethernet PCI Adapter. This chapter explains how to install the 4-Port 10/100 Base-TX Ethernet PCI Adapter, which involves the following tasks:

- Installing the adapter into your system unit
- Verifying installation
- Running adapter diagnostics

---

### Installing the Adapter

**Attention:** Be sure to read “Handling Static Sensitive Devices” on page vii and “Chapter 2. Preparing for Installation” on page 3 before you begin the installation process.

To install the adapter, do the following:

1. Log in as **root** user and type:

```
shutdown
```

at the system prompt, then press Enter. When `halt` completed displays, turn the system unit power off and unplug the power cord from the wall outlet.

**Note:** Refer to your system unit documentation for further shutdown information.

2. Remove the covers of your system unit. Follow the instructions provided in your system unit documentation.
3. Install the adapter into an available expansion slot in your system unit. See the instructions in your system unit documentation for installing PCI adapters. Refer to your *PCI Adapter Placement Reference* for slot locations.
4. Follow the directions provided in your system unit documentation to reinstall the covers of your system unit.
5. Connect the appropriate network cables to the adapter. Refer to “Chapter 7. Connecting to an Ethernet Network” on page 19.
6. Plug the power cord back into the wall outlet.
7. Turn on the power to your system unit.

---

### Verifying the Installation

Use the following procedures to verify the initial installation:

- Verify Adapter Hardware Installation (`lsdev`)
- Verify AIX Software Installation (`lspp`)

### Verifying Adapter Hardware Installation

To verify that your system unit recognizes the PCI adapter, do the following:

1. If necessary, log in as **root** user.

- At the command line, type:
 

```
lsdev -Cs pci | grep 4-Port
```

- Press Enter.

Possible results are as follows:

- If the 4-Port 10/100 Base-TX Ethernet PCI Adapter and is AVAILABLE, the following is an example of the data that displays on your screen:
 

```
ent1 Available 2C-00 4-Port 10/100 Base-TX Ethernet PCI Adapter (23100020)
(Port 1)
ent2 Available 2C-08 4-Port 10/100 Base-TX Ethernet PCI Adapter (23100020)
(Port 2)
ent3 Available 2C-10 4-Port 10/100 Base-TX Ethernet PCI Adapter (23100020)
(Port 3)
ent4 Available 2C-18 4-Port 10/100 Base-TX Ethernet PCI Adapter (23100020)
(Port 4)
```

If a similar message displays and the 4-Port 10/100 Base-TX Ethernet PCI Adapter displays as Available in the slot where you installed your adapter, you are finished installing your adapter. Continue with “Chapter 7. Connecting to an Ethernet Network” on page 19.

If the message on your screen indicates your adapter is Defined instead of Available, shut down your machine. Verify that the 4-Port 10/100 Base-TX Ethernet PCI Adapter is installed correctly. Go to “Chapter 6. Installing the 4-Port 10/100 Base-TX Ethernet PCI Adapter” on page 15, and return to this section and repeat the verification steps.

**Note:** If the message on your screen indicates your adapter is Defined a second time, it may be necessary to contact your service representative.

- If the adapter installed does not appear, continue with “Verify AIX Software Installation”.

## Verify AIX Software Installation

To verify that the device driver for the 4-Port 10/100 Base-TX Ethernet PCI Adapter is installed, do the following:

- If necessary, log in as **root** user.
- At the command line, type:
 

```
lspp -l devices.pci.23100020.rte
```
- Press Enter.

Possible results are as follows:

- If the 4-Port 10/100 Base-TX Ethernet PCI Adapter device driver is installed, the following is an example of the data that displays on your screen:
 

Fileset	Level	State	Description
-----			
Path: /usr/lib/objrepos			
devices.pci.23100020.rte	4.3.3.10	COMMITTED	PCI 10/100 Ethernet Adapter Software

```
Path: /etc/objrepos  
      devices.pci.23100020.rte 4.3.3.10 COMMITTED PCI 10/100 Ethernet  
                                         Adapter Software
```

You should verify that the filesets **devices.pci.23100020.rte** are installed at the 4.3.3.10 level or higher.

If this information displays but you continue to have problems, go to “Chapter 6. Installing the 4-Port 10/100 Base-TX Ethernet PCI Adapter” on page 15.

- If no data displays on your screen, the 4-Port 10/100 Base-TX Ethernet PCI Adapter device driver did not install correctly. Return to “Chapter 3. Installing the Device Driver Software” on page 5. Then return to “Verifying Adapter Hardware Installation” on page 15 and continue with step 1 again.

If you continue to experience problems, it may be necessary to call your system support organization. Refer to your operating system documentation for directions.

---

## Running Adapter Diagnostics

Diagnostics are provided with the device driver software. If you must run diagnostics, refer to your system unit documentation for instructions.



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## Chapter 7. Connecting to an Ethernet Network

Refer to your local procedures for information about connecting the 4-Port 10/100 Base-TX Ethernet PCI Adapter to your Ethernet network.

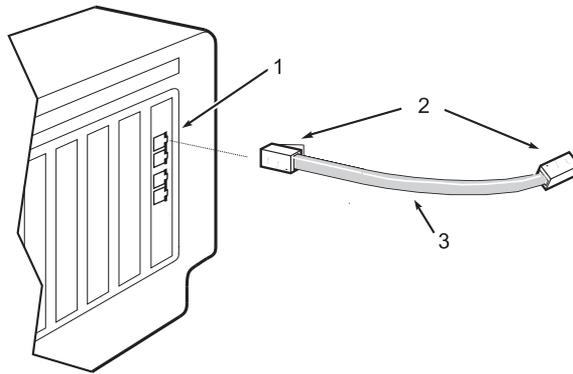
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### Connecting the Network Cables and Adapter

Make sure you have the hardware listed in “Verifying Your Hardware Requirements” on page 3 before you begin connecting the adapter.

To connect the adapter to an unshielded twisted-pair network, do the following:

1. Insert the male RJ-45 jack at one end of the unshielded twisted-pair cable segment into the female RJ-45 connector.
2. Insert the male RJ-45 connector at the other end of the unshielded twisted-pair wire segment into the network hub/switch.



- |   |                               |
|---|-------------------------------|
| 1 | RJ-45 connector               |
| 2 | RJ-45 jack                    |
| 3 | Unshielded twisted-pair cable |



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## Appendix A. Communications Statements

The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying documentation.

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### Federal Communications Commission (FCC) Statement

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer is responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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### European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

**Attention:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

---

## International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

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## United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

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## Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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## Canadian Department of Communications Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

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## VCCI Statement

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 V C C I - A

The following is a summary of the VCCI Japanese statement in the box above.

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

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## Electromagnetic Interference (EMI) Statement - Taiwan

警告使用者：  
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

The following is a summary of the EMI Taiwan statement above.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user will be required to take adequate measures.

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## Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit Dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

### Hinweis

Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.



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## Appendix B. Notices

This information was developed for products and services offered in the U.S.A.

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

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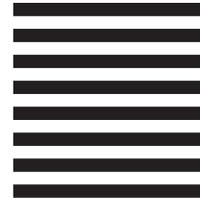
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