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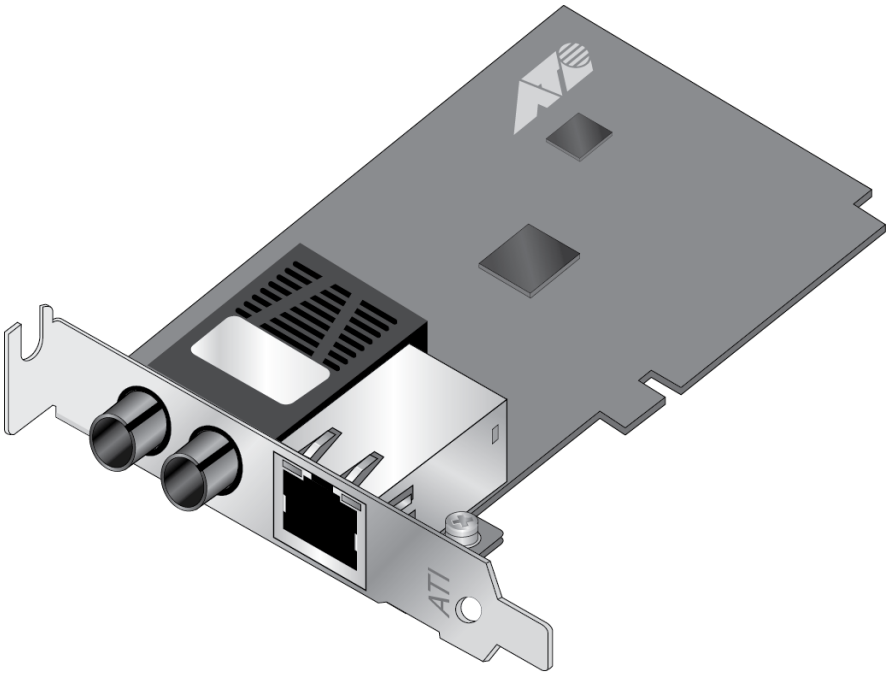
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Allied Telesis™

AT-2701 Series Adapters

Fiber Fast Ethernet Adapters

- AT-2701FXa/SC
- AT-2701FXa/ST
- AT-2701FTXa/SC
- AT-2701FTXa/ST



2974

Installation and User's Guide

613-001847 Rev. A

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Electrical Safety and Emissions Standards

This product meets the following standards:

U.S. Federal Communications Commission

Declaration of Conformity

Manufacturer Name: Allied Telesis, Inc.

Declares that the product: **Fiber Fast Ethernet Adapter**

Model Numbers: AT-2701FXa/SC, AT-2701FXa/ST, AT-2701FTXa/SC, AT-2701FTXa/ST

This product complies with FCC Part 15B, Class B Limits:

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

Radiated Energy

Note: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission rules.

Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment

This Allied Telesis RoHS-compliant product conforms to the European Union Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment. Allied Telesis ensures RoHS conformance by requiring supplier Declarations of Conformity, monitoring incoming materials, and maintaining manufacturing process controls.

RFI Emissions	FCC Class B, EN55022 Class B, VCCI Class B, C-TICK, CE
Immunity	EN55024 Class B
Electrical Safety	EN60950-1 (TUV), UL 60950-1 ($_{C}UL_{US}$)



Laser Safety EN60825

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Translated Safety Statements

Important: The ☞ indicates that a translation of the safety statement is available in a PDF document titled “Translated Safety Statements” posted on the Allied Telesis website at: www.alliedtelesis.com/support/.

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Preface

This manual is the installation and user's guide for the AT-2701 Series Fiber Fast Ethernet Network Adapter cards. The adapter cards included in this series are:

- AT-2701FXa/SC
- AT-2701FXa/ST
- AT-2701FTXa/SC
- AT-2701FTXa/ST

The Preface contains the following sections:

- "Safety Symbols Used in this Document" on page 8
- "Contacting Allied Telesis" on page 9

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Safety Symbols Used in this Document

This document uses the following conventions:

Note
Notes provide additional information.



Caution
Cautions inform you that performing or omitting a specific action may result in equipment damage or loss of data.



Warning
Warnings inform you that performing or omitting a specific action may result in bodily injury.



Warning
Warnings inform you that an eye and skin hazard exists due to the presence of a Class 1 laser device.

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Contacting Allied Telesis

If you need assistance with this product, you may contact Allied Telesis technical support by going to the Support & Services section of the Allied Telesis web site at **www.alliedtelesis.com/support**. You can find links for the following services on this page:

- 24/7 Online Support - Enter our interactive support center to search for answers to your questions in our knowledge database, check support tickets, learn about Return Merchandise Authorization (RMA), and contact Allied Telesis technical experts.
- USA and EMEA phone support - Select the phone number that best fits your location and customer type.
- Hardware warranty information - Learn about Allied Telesis warranties and register your product online.
- Replacement Services - Submit an RMA request via our interactive support center.
- Documentation - View the most recent installation guides, user guides, software release notes, white papers and data sheets for your product.
- Software Updates - Download the latest software releases for your product.

For sales or corporate contact information, go to **www.alliedtelesis.com/purchase** and select your region.

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Chapter 1
Overview

This chapter provides an introduction to the Allied Telesis AT-2701 series Fast Ethernet network adapter cards and contains the following sections:

- ❒ “Description” on page 12
- ❒ “Model Naming Conventions” on page 15
- ❒ “Features” on page 16
- ❒ “Supported Operating Systems” on page 17
- ❒ “Accessing Documents” on page 18
- ❒ “Contents of Your Shipment” on page 19
- ❒ “Warranty Registration” on page 20

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Description

The AT-2701 series adapters are Fiber Fast Ethernet PCI cards developed based on Realtek's RTL8139D Ethernet controller.

The AT-2701 series adapter connects a computer to a Fast Ethernet network using fiber optic cabling and operates at 100 Mbps full-duplex or half-duplex mode. The AT-2701 series offers the following models:

- AT-2701FXa

  A single port adapter card with a fiber optic connector.

- AT-2701FTXa

  A dual port adapter card equipped with fiber optic and copper connectors. Using the copper interface, the card operates at 10 or 100 Mbps.

The AT-2701 series includes the following models:

- AT-2701FXa/SC
- AT-2701FXa/ST
- AT-2701FTXa/SC
- AT-2701FTXa/ST

The AT-2701FTXa/ST adapter card is shown in Figure 1.

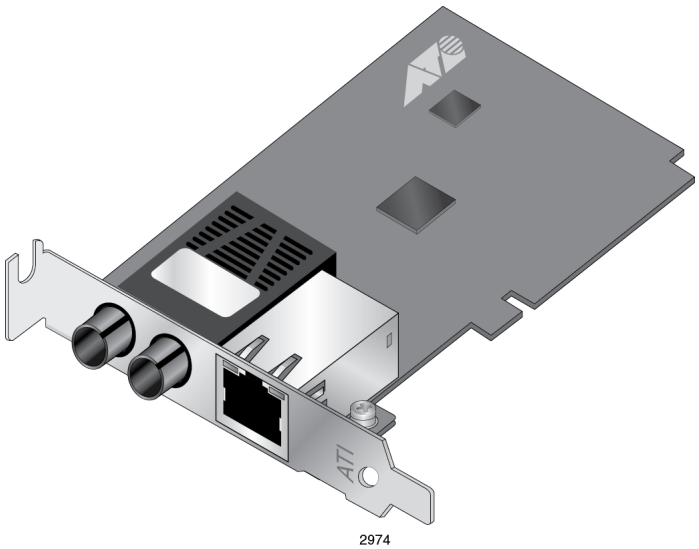


Figure 1. AT-2701FTXa/ST Adapter Card

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SC Fiber Optic Adapter

The AT-2701FXa/SC and AT-2701FTXa/SC adapter cards are equipped with a 100BASE-FX port with the SC adapter.

The SC adapter is shown in Figure 2.

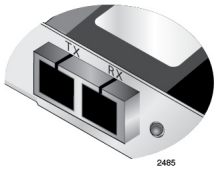


Figure 2. SC Fiber Optic Adapter

To connect the SC adapter to a network cable, you must have a fiber optic network cable with the SC connector.

ST Fiber Optic Adapter

The AT-2701FXa/ST and AT-2701FTXa/ST adapter cards are equipped with a 100BASE-FX port with the ST adapter.

To connect the ST adapter to a network cable, you must have a fiber optic network cable with the ST connector.

Twisted Pair Copper Port

The AT-2701FTXa/SC and AT-2701FTXa/ST adapter cards are equipped with a port for a 10/100BASE-T twisted pair cable.

The twisted pair cable port is shown in Figure 3.

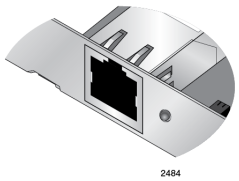


Figure 3. Twisted Pair Cable Port

The pin layout to a port and RJ-45 connector is illustrated in Figure 4.

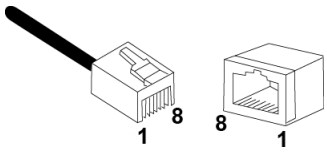


Figure 4. Pin and RJ-45 Connector Pin Layout

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LED

The AT-2701FXa model comes with a single combination LED that indicates both the link status and activity status.

The AT-2701FTXa model comes with two LED's. One LED indicates the link status for either the copper or fiber port; the other indicates the activity status for the port with the valid link.

Table 1 describes the link states that the LED indicates.

Table 1. LED Status

State	Description
On	Valid link.
Off	No link.
Flashing	The port is receiving or transmitting network packets at 100 Mbps.

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Model Naming Conventions

The hardware features of the AT-2701 series adapter cards represented by the letters and numbers in the model names. The conventions for the AT-2701 adapter cards are identified in Figure 5.

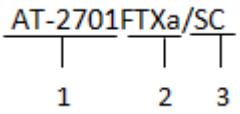


Figure 5. AT-2701 Model Naming Conventions

The conventions are defined in Table 2.

Table 2. AT-2701 Model Naming Conventions

Convention	Definition
1	Indicates the product name
2	Identifies the physical layer standard for Fast Ethernet transmission. The following is a list of standards: ❒ FX - single port of 100BASE-FX fiber optic cable ❒ FTX - dual port of fiber optic and 10/100BASE-T twisted-pair cables
3	Identifies the type of fiber optic connector. The following is a list of connectors: ❒ SC - SC connector ❒ ST - ST connector

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Features

The following list shows the features of the AT-2701 series adapter cards:

- One 100BASE-FX with an SC or ST fiber optic adapter
- PCI version 2.2 interface
- Pre-Execution Environment (PXE) 2.1 Remote Boot
- Wake on LAN (WOL)
- RoHS compliant
- Link/Activity LED

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Supported Operating Systems

The following list shows the supported operating systems for the AT-2701 series adapter cards:

- Windows 7
- Windows XP
- Linux

Note
To install driver software for Windows 7 and Windows XP, see Chapter 3, “Installing the Driver Software for Windows” on page 33. To install driver software for Linux, see Chapter 4, “Configuring the Ethernet Interface for Linux Systems” on page 51.

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Accessing Documents

Documents for AT-2701 series adapter cards are available at Allied Telesis websites.

Allied Telesis Documents

To access documents for AT-2701 series adapter cards, do the following:

1. Open a web browser, such as Internet Explorer or FireFox, on your system and enter the following:

   http://www.alliedtelesis.com/

   The Allied Telesis home page is displayed.

2. Enter “2701” in the search box and press the enter key.

3. Select the product model of your AT-2701 series adapter card.

   The AT-2701 series adapter page is displayed.

4. Click one of the listed documents.

   The content of the document is displayed.

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Contents of Your Shipment

The following items are Included with your adapter card:

- Antistatic bag

  The adapter card is shipped in an antistatic bag. It protects the adapter card when stored or shipped. Keep the adapter card in its packaging until ready for installation.

- Standard-profile bracket

  The standard-profile bracket is longer than the low-profile bracket. The AT-2701 series adapter cards are shipped with a low-profile bracket attached.

> **Note**
> The AT-2701 series adapter card is not shipped with a software driver CD. You must download the driver software for Windows from the Allied Telesis website. See Chapter 3, “Downloading the Driver Software for Windows” on page 35. For Linux systems, see Chapter 4, “Configuring the Ethernet Interface for Linux Systems” on page 51.

Inform your network equipment supplier of any missing or damaged items. If you need to return the module, you must pack it in the original (or equivalent) packing material or the warranty will be voided. See “Contacting Allied Telesis” on page 9.

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Warranty Registration

Allied Telesis hardware products are covered under limited warranties.

All Allied Telesis warranties are subject to and provided only on the terms and conditions set out in the Allied Telesis Limited Warranties listed on the Allied Telesis website at **http://alliedtelesis.com/support/warranty**.

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Chapter 2

Installing the Hardware

This chapter contains the following sections:

- “System Requirements” on page 22
- “Reviewing Safety Precautions” on page 23
- “Pre-Installation Checklist” on page 25
- “Replacing the Bracket” on page 26
- “Installing a Network Adapter Card” on page 28
- “Connecting the Network Cables” on page 32

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System Requirements

Before installing the AT-2701 Series Fiber Fast Ethernet Network Adapter cards, make sure your system meets the requirements listed below:

- PC with one of the following operating systems installed:
  - Windows XP
  - Windows 7
  - Linux
- One open PCI slot
- 128 MB RAM (minimum)

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Reviewing Safety Precautions

Review the following safety precautions before you begin to install a module.

Note
The ✍ indicates that a translation of the safety statement is available in a PDF document titled “Translated Safety Statements” posted on the Allied Telesis website at **www.alliedtelesis.com/support/software/**.



Warning
Do not stare into the laser beam. ✍ L2



Warning
This is a “Class 1 LED product”. ✍ L3



Warning
Do not look directly at the fiber optic cable ends or inspect the cable ends with an optical lens. ✍ L6



Warning
Do not work on this equipment or cables during periods of lightning activity. ✍ E2



Warning
Operating Temperature: This product is designed for a maximum ambient temperature of 40 degrees C. ✍ E7

Note
All Countries: Install this product in accordance with local and National Electric Codes. ✍ E8

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Warning

The module is being installed in a system that operates with voltages that can be lethal. Before you remove the cover of your system, you must observe the following precautions to protect yourself and to prevent damage to the system components.

- Remove any metallic objects or jewelry from your hands and wrists.
- Make sure to use only insulated or nonconducting tools.
- Verify that the system is powered OFF and unplugged before accessing internal components.
- Installation or removal of modules must be performed in a static-free environment. The use of a properly grounded wrist strap or other personal antistatic devices and an antistatic mat is strongly recommended. E39

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Pre-Installation Checklist

Before installing the AT-2701 series adapter card, check the following list:

1. Check that your computer has an appropriate open PCI slot.
2. Verify that your system is using the latest BIOS.
3. When you download the driver software from the Allied Telesis website, record the path to where the driver file resides on your system.
4. If your system is active, shut it down.
5. When system shutdown is complete, power OFF and unplug your system.
6. Holding the adapter card by the edges, remove it from its shipping package and place it on an antistatic surface.
7. Check the adapter for visible signs of damage, particularly on the card's edge connector.



Caution

Never attempt to install any damaged adapter card. If the adapter card is damaged, report it to Allied Telesis. See "Contacting Allied Telesis" on page 9.

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Replacing the Bracket

The AT-2701 series adapter card is shipped with the low-profile bracket attached to the adapter. Depending on your system, you may need to replace the bracket attached to your adapter card.

The following procedure describes how to remove the low-profile bracket from the adapter card and replace it with the standard bracket. You can also use this procedure to remove the standard bracket and replace it with the low-profile bracket.

To replace the low-profile bracket with the standard bracket, perform the following procedure:

1. Remove the screws that attach the bracket to the adapter card. See Figure 6.

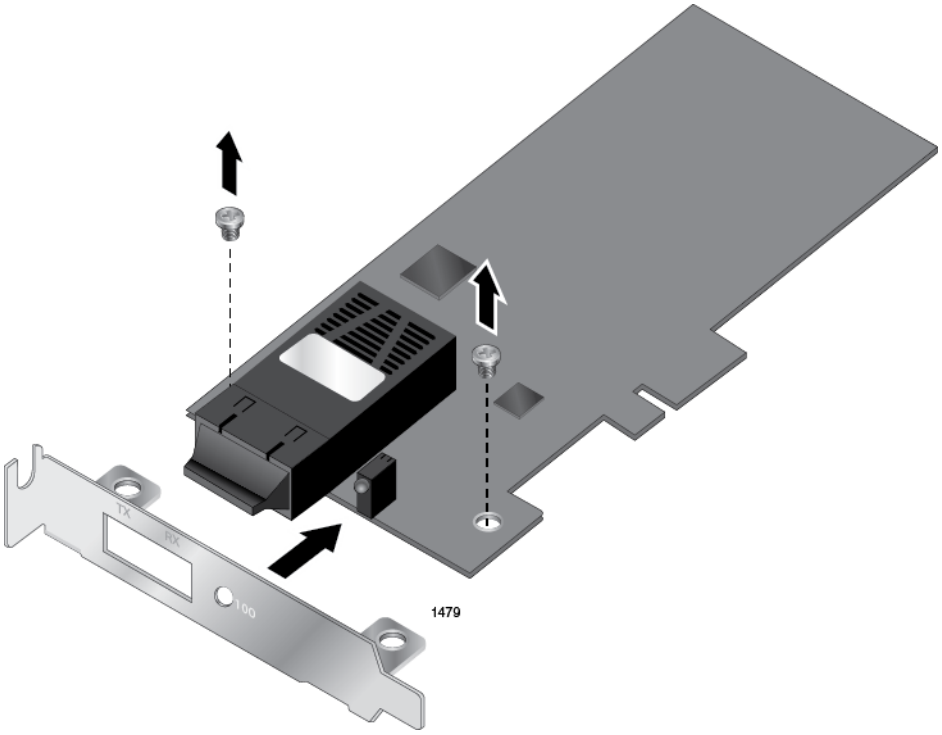


Figure 6. Removing the Low-Profile Bracket

2. Align the tabs of the standard bracket with the holes on the adapter card and fasten the screws onto the adapter card. See Figure 7 on page 27.

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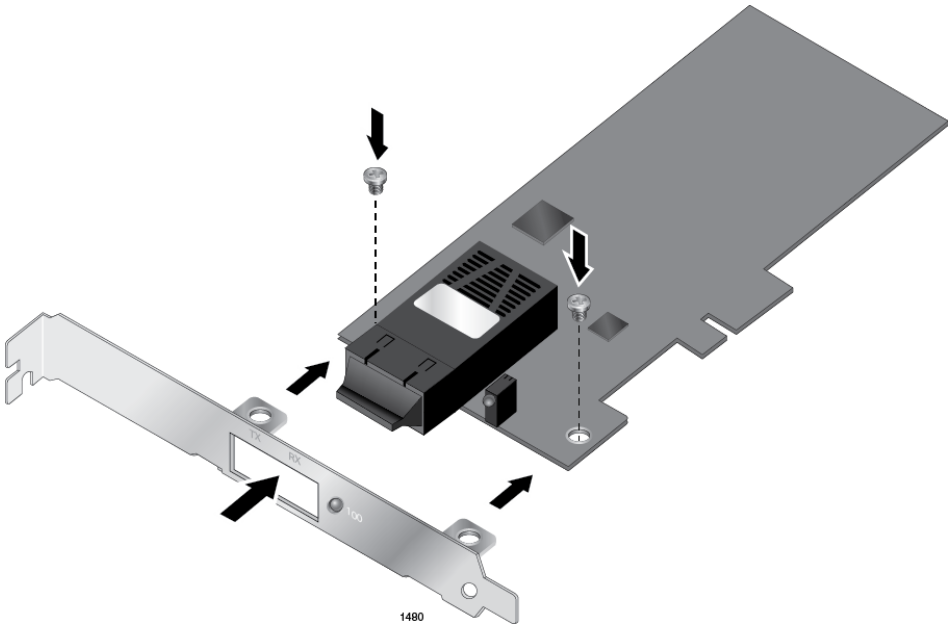


Figure 7. Fastening Screws onto Standard Bracket

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Installing a Network Adapter Card

The following instructions apply to installing an AT-2701 series adapter card in most systems. Refer to the manuals that were supplied with your system for details about performing these tasks on your particular system.

To install the network adapter card, perform the following procedure:

1. Review the “Pre-Installation Checklist” on page 25 and “Reviewing Safety Precautions” on page 23.

   Before installing the adapter card, ensure the system power is OFF and unplugged from the power outlet, and that proper electrical grounding procedures have been followed.



Warning
High voltage inside the system presents a safety hazard. Make sure the power is off before removing the cover.

2. Remove the system cover and select any empty PCI slot. See Figure 8.

   If you do not know how to identify a PCI slot, refer to your system documentation.

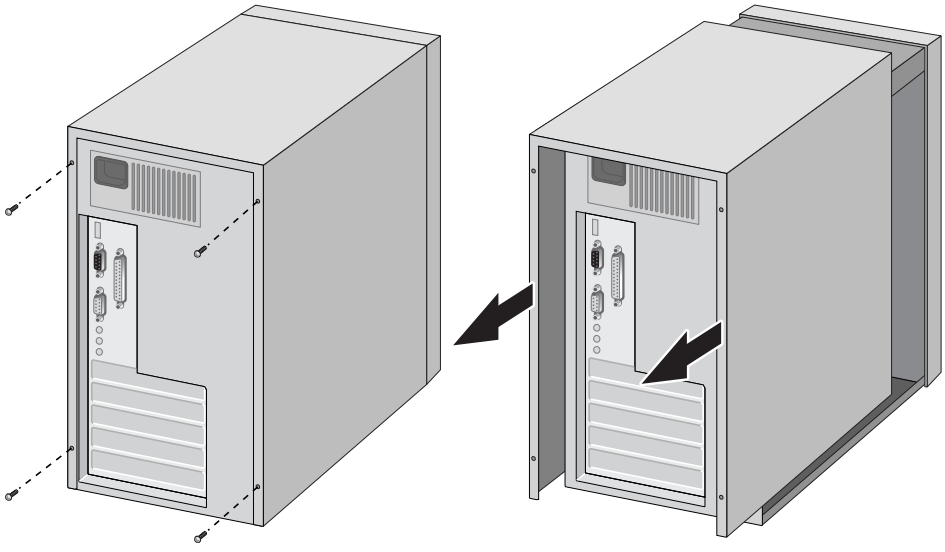


Figure 8. Removing the PC Cover

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3. Select an empty, non-shared PCI slot and remove the faceplate.

   Keep the faceplate in a safe place. You may need it for future use. See Figure 9.

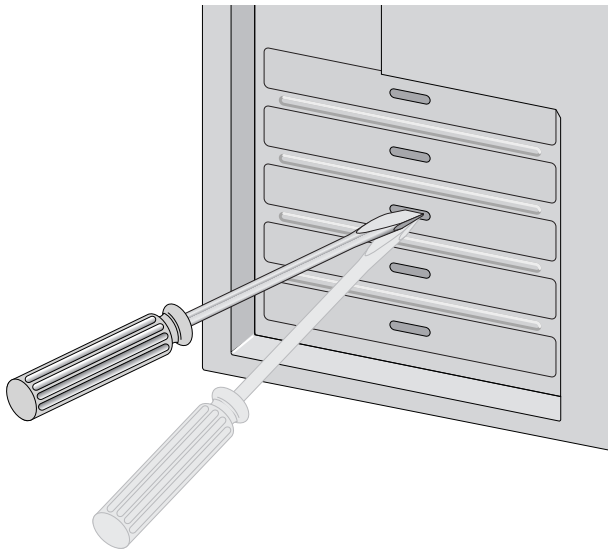


Figure 9. Removing the Faceplate From PCI Slot

Note
If you cannot locate or know how to find a PCI slot, refer to the documentation that came with your system.

4. Remove the network adapter card from the shipping package and store the packaging material in a safe location.

Caution
Wear a grounding device and observe electrostatic discharge precautions when installing the network adapter card in a system. Failure to observe this caution could result in damage to the card.

5. Applying even pressure at both corners of the card, push the adapter card until it is firmly seated in the PCI slot.

   Make sure the card is securely seated. See Figure 10 on page 30.

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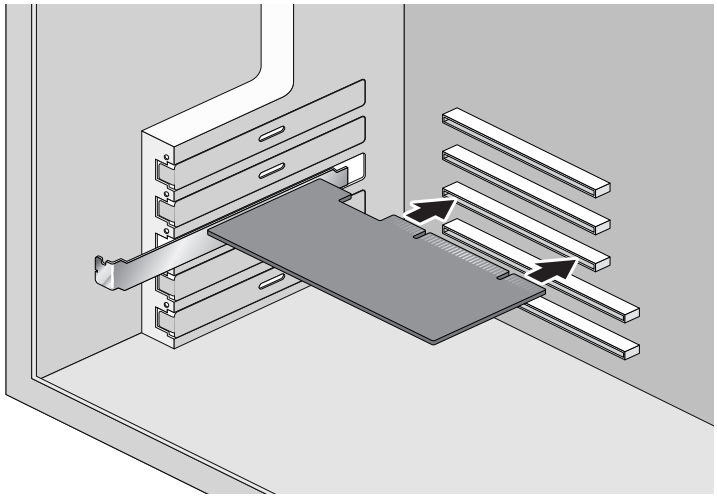


Figure 10. Inserting the Network Adapter Card

Caution

Do not use excessive force when seating the card, as this may damage the system or the adapter card. If the card resists seating, remove it from the system, realign it, and try again.

6. Secure the network adapter card to the chassis with a Phillips-head screw (not provided) as shown in Figure 11.

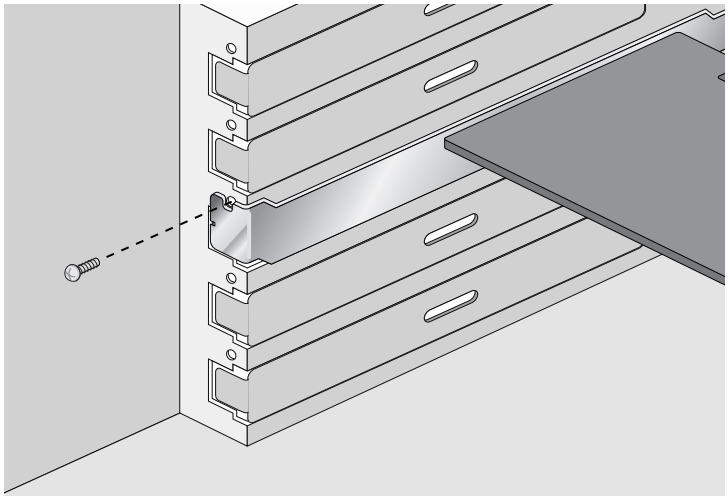


Figure 11. Securing the Adapter Card

7. Replace the system's cover and secure it with the screws removed in Step 2.

8. Disconnect any personal antistatic devices.

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9. Power the system on.

> **Note**
> If you installed the adapter card in Windows XP system before installing the driver software, the Found New Hardware Wizard launches automatically. For more information, see Chapter 3, “Installing the Driver Software for Windows” on page 33.

When the system returns to proper operation, the adapter hardware is fully installed. Next, connect the network cables. See “Connecting the Network Cables” on page 32.

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Connecting the Network Cables

The AT-2701 series network adapter card is equipped with the SC or ST fiber optic adapter.

To connect a network cable to the adapter, perform the following procedure:

1. Prepare a fiber optic cable with an appropriate connector to your adapter.



Warning
The fiber optic ports contain a Class 1 laser device. When the ports are disconnected, always cover them with the provided plug. Exposed ports may cause skin or eye damage.

2. Remove a rubber plug from the adapter.
3. Connect one end of the cable to the adapter.
4. Connect the other end of the cable to the appropriate Ethernet network port or fiber optic port.

Note
After the cable is properly connected at both ends, the adapter card LED should be functional. See Table 1 on page 14 for a description of LED operation.

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Chapter 3

Installing the Driver Software for Windows

This chapter describes how to install driver software for the AT-2701 series adapter onto your operating system. It contains the following topics:

- “Overview” on page 34
- “Downloading the Driver Software for Windows” on page 35
- “Accessing the Device Manager” on page 37
- “Installing the Driver Software for Windows” on page 40
- “Updating the Driver Software for Windows” on page 46
- “Performing the Silent Installation” on page 49

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Overview

When you install the AT-2701 series adapter on your computer, your next step is to install driver software for the adapter onto your Windows operating system. You can install driver software using Device Manager or using the silent installation method.

When you install deriver software using Device Manager, the dialog boxes guide you through the installation process. On the other hand, using the silent installation method, you can install software without constant interactions by suppressing dialog boxes.

Guidelines

Here are the guidelines for installing and updating the driver software on your operating system:

- ❒ To install or update the driver software, you must have administrative privileges.
- ❒ When you install the AT-2701 series adapter on your computer and start the system, the Windows system automatically installs the Realtek inbox driver. You must update the driver software for the AT-2701 series adapter. See “Installing the Driver Using Device Manager”, or “Installing the Driver Using the Silent Installation Method”.

Installing the Driver Using Device Manager

To install or update the driver software from Device Manager, follow the steps below:

- ❒ “Downloading the Driver Software for Windows” on page 35
- ❒ “Accessing the Device Manager” on page 37
- ❒ “Installing the Driver Software for Windows” on page 40

Or

- ❒ “Updating the Driver Software for Windows” on page 46

Installing the Driver Using the Silent Installation Method

To install or update the driver software using the silent installation, follow the steps below:

- ❒ “Downloading the Driver Software for Windows” on page 35
- ❒ “Performing the Silent Installation” on page 49

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Downloading the Driver Software for Windows

The AT-2701 series adapter is not shipped with a software driver CD. You must download driver software from the Allied Telesis website.

To download driver software, do the following:

1. Open a web browser, such as Internet Explorer or FireFox, on your system and enter the following:

   http://www.alliedtelesis.com/support/software

2. The Allied Telesis Software Download page is displayed.

3. Enter “2701” in the search box and press the enter key.

   Figure 12 shows an example of the search result.

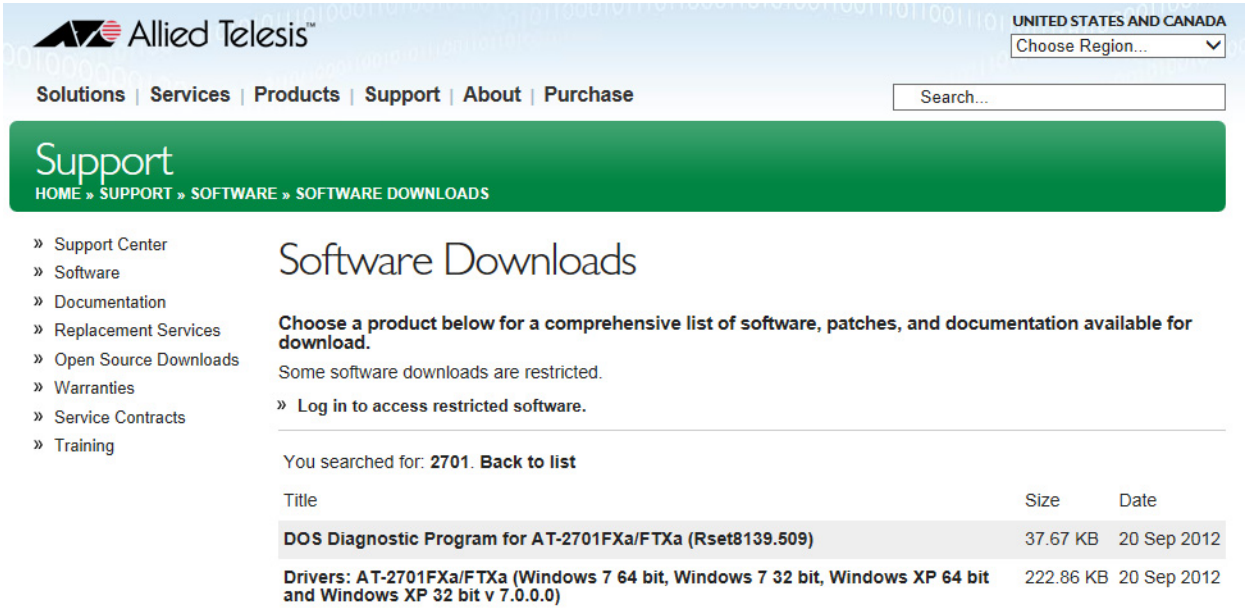


Figure 12. Software Downloads Search Result Example

4. Select the drivers.

5. Save the zip folder onto your system.

6. Right-click the zip folder and select **Extract All**.

   A window as shown in Figure 13 pops up and prompts you to specify the location of a folder that you want to place unzipped files in.

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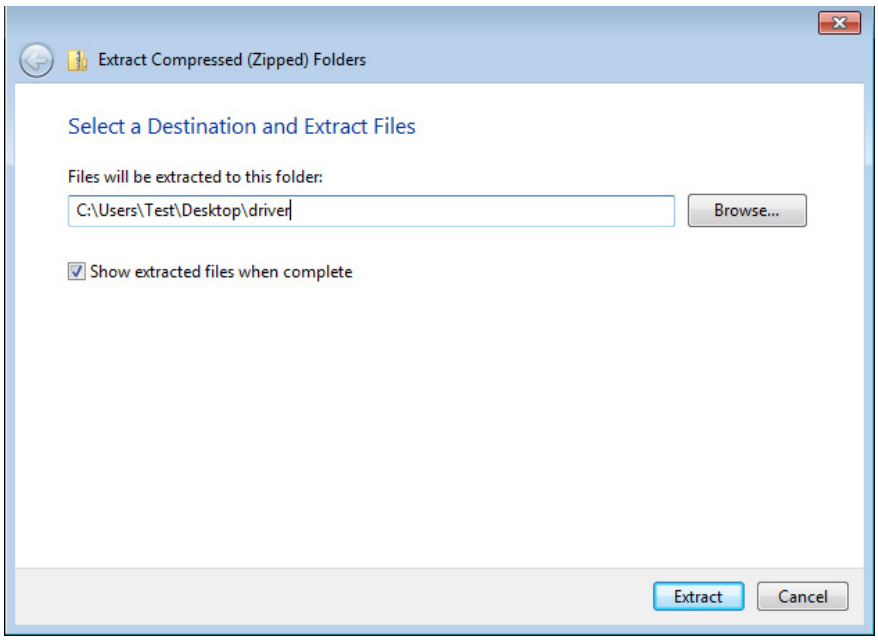


Figure 13. Specifying the Folder for Unzipped Files

7. Specify the location of the folder and click **Extract**.
8. Record the location of the folder.

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Accessing the Device Manager

When you install or update the driver software for AT-2701 series adapter, you must first access Device Manager.

The procedures for accessing Device Manager are slightly different among Windows operating systems. To access Device Manager on your operating system, follow one of the procedures below:

- “Accessing Device Manager on Windows 7,” next
- “Accessing Device Manager on Windows XP” on page 38

Accessing Device Manager on Windows 7

To access Device Manager on Windows 7, do the following:

1. Right-click the **Computer** icon on the desktop and select **Properties**.

   The System window is opened as shown in Figure 14 on page 37.

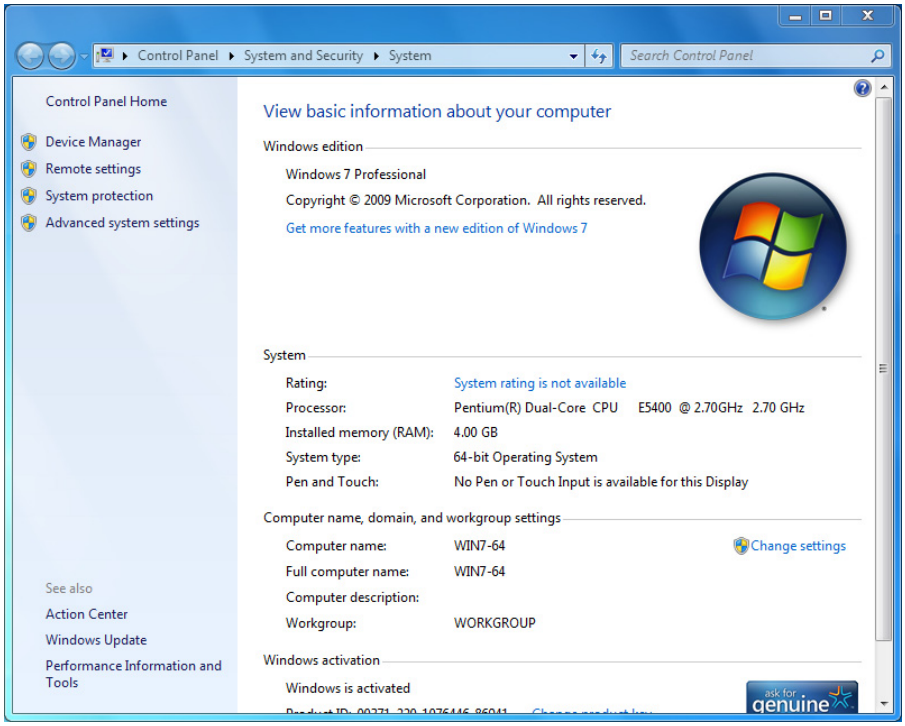


Figure 14. System Window on Windows 7

2. Click **Device Manager** on the left side bar.

   The Device Manager window opens. Your AT-2701 series adapter is detected as a Realtek device or Ethernet Controller as shown in Figure 15.

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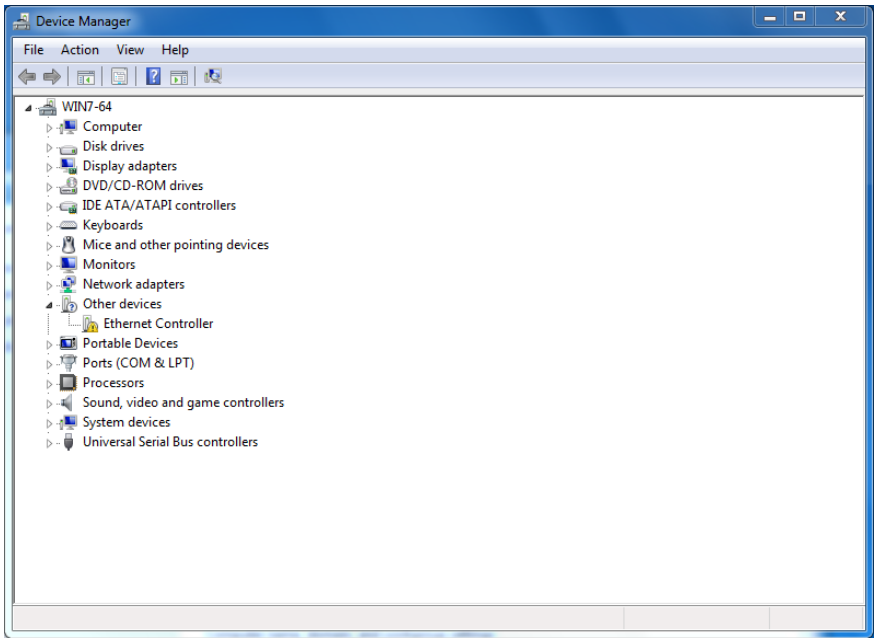


Figure 15. Device Manager Window on Windows 7

Accessing Device Manager on Windows XP

To access Device Manager on Windows XP, do the following:

1. Right-click the **My Computer** icon on the desktop and select **Properties**.

   The System Properties window is opened as shown in Figure 16.

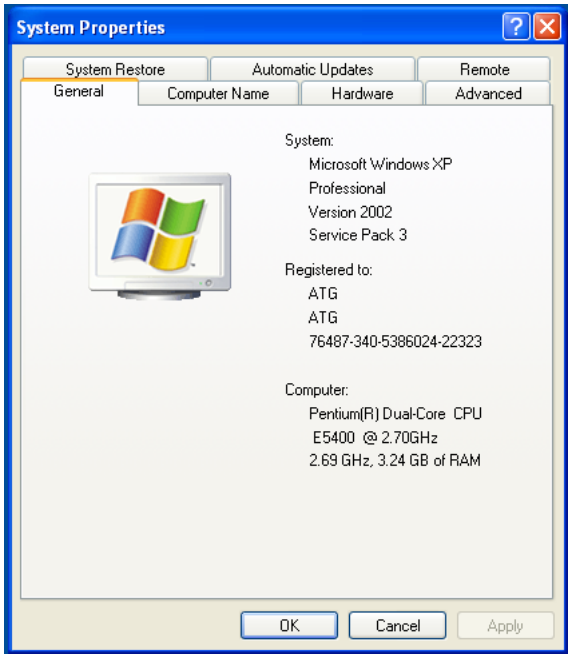


Figure 16. System Properties Window on Windows XP

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2. Select the **Hardware** Tab.

   The Hardware page is shown in Figure 17.

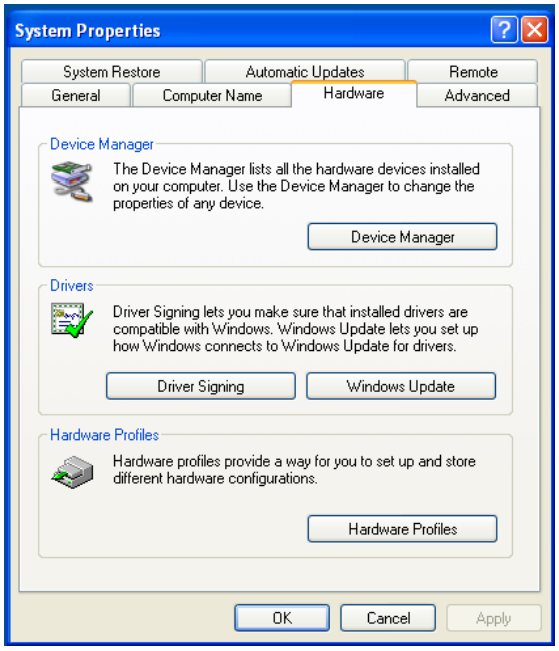


Figure 17. Hardware Page on Windows XP

3. Click **Device Manager**.

   The Device Manager window opens. Your AT-2701 series adapter is detected as a Realtek device or Ethernet Controller as shown in Figure 18.

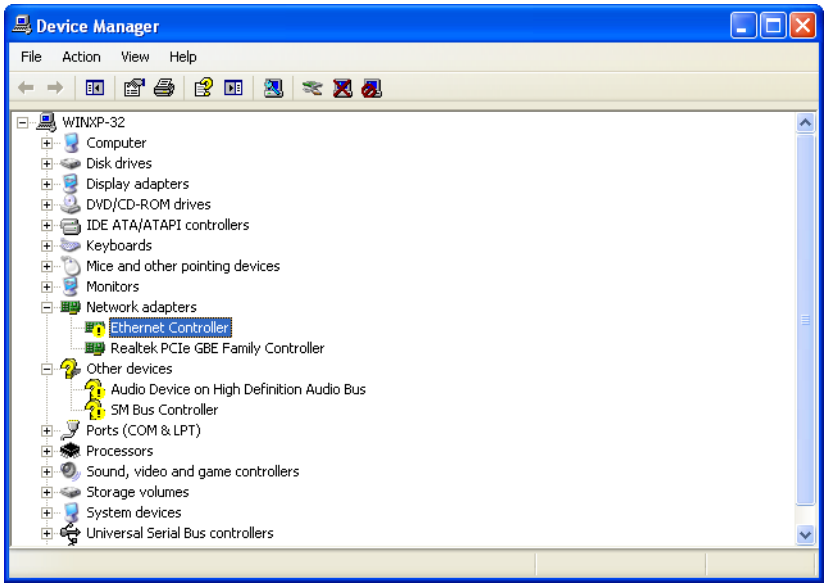


Figure 18. Device Manager Window on Windows XP

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Installing the Driver Software for Windows

Once you physically install the AT-2701 series adapter, the system detects the new hardware and creates an entry in Device Manager when the Windows operating system first boots up. Shortly after you log in, you need to install the driver software for your adapter card.

> **Note**
> To install the driver software, you must have administrative privileges.

The procedures for installing the driver software are slightly different among Windows operating systems. To install the driver software on your system, follow one of the procedures below:

- ❒ “Installing the Driver Software on Windows 7,” next
- ❒ “Installing the Driver Software on Windows XP” on page 42

Installing the Driver Software on Windows 7

To install the driver software on Windows 7, do the following:

1. Access Device Manager. see “Accessing Device Manager on Windows 7” on page 37.

2. In the Device Manager window, right-click **Ethernet Controller**. The Device Manager may list your adapter as a Realtek device.

   The shortcut menu appears as shown in Figure 19 on page 40.

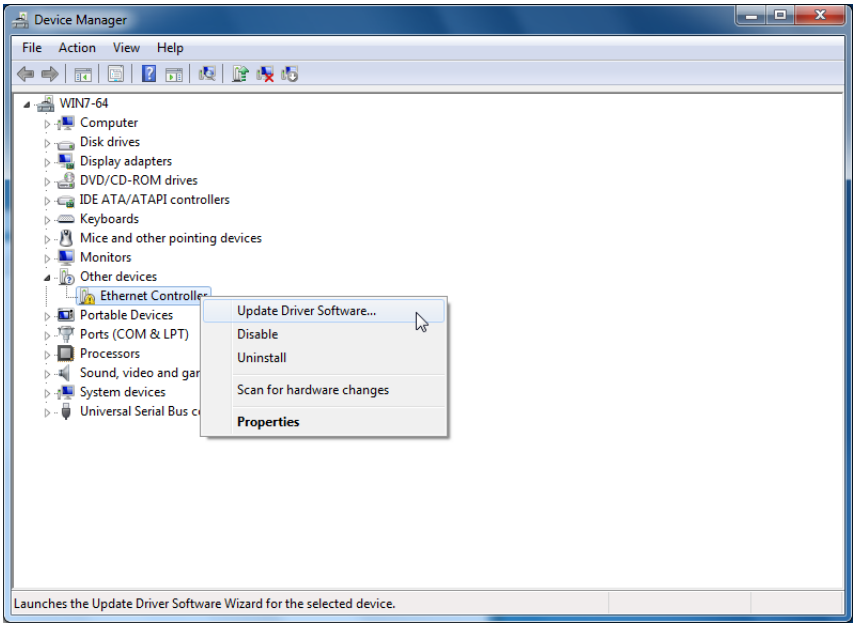


Figure 19. Ethernet Controller on Windows 7

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3. Select **Update Driver Software**.

   The Update Driver Software window pops up as shown in Figure 20.

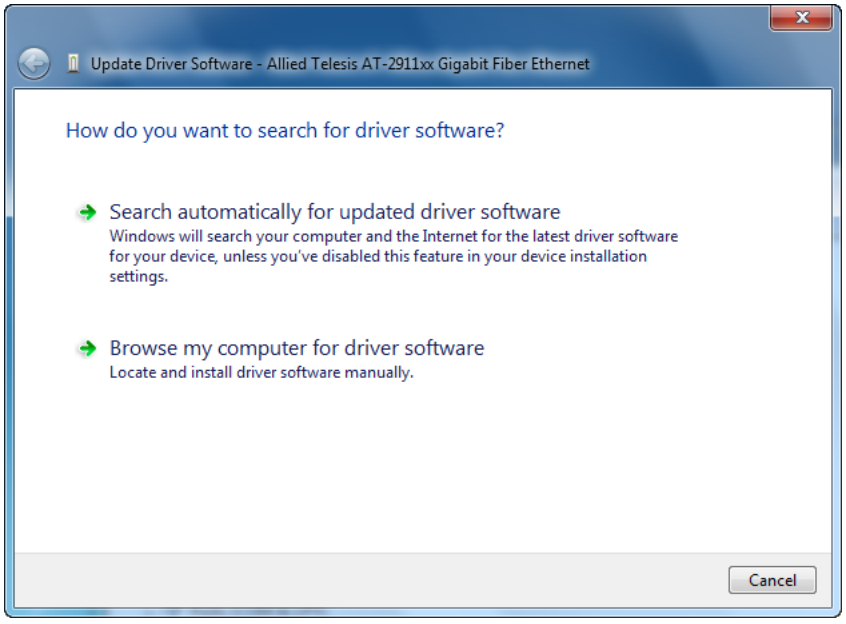


Figure 20. Update Driver Software Window on Windows 7

4. Select **Browse my computer for driver software**.

   The Update Driver Software window prompts you to enter the location of the driver folder as shown in Figure 21.

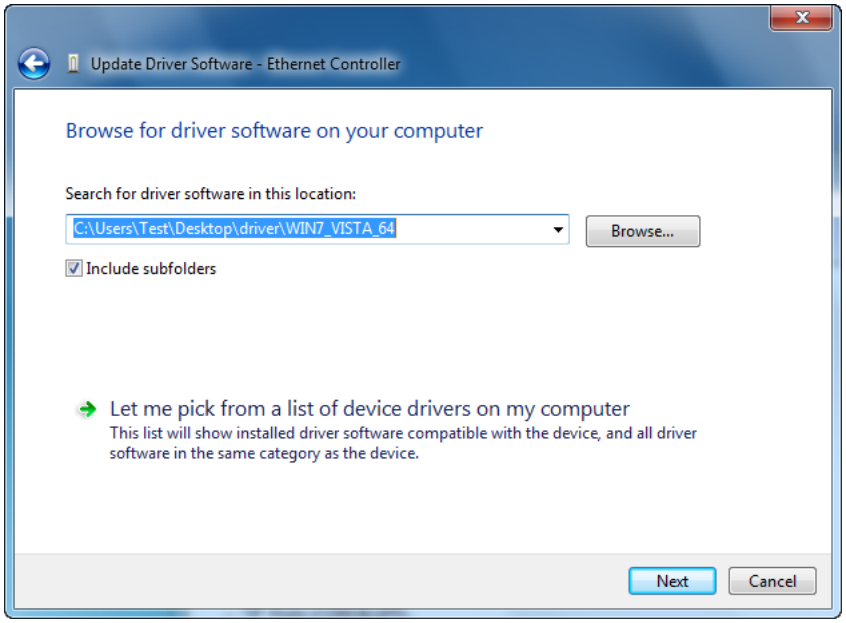


Figure 21. Update Driver Software Window on Windows 7

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5. Specify the location of the driver software. See “Downloading the Driver Software for Windows” on page 35 for details.

6. Click **Next**.

   The confirmation message shown in Figure 22 on page 42 appears when the driver software is successfully updated.

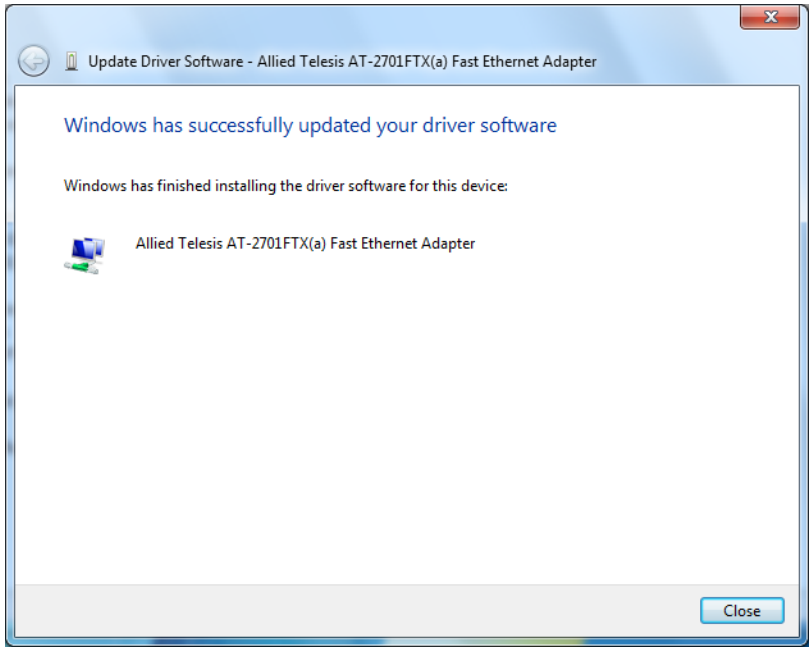


Figure 22. Update Driver Software Window on Windows 7

7. Click **Close**.

Installing the Driver Software on Windows XP

To install the driver software onto Windows XP, do the following:

1. Access Device Manager. See “Accessing Device Manager on Windows XP” on page 38.

2. In the Device Manager window, right-click **Ethernet Controller**. The Device Manager may list your adapter as a Realtek device.

   The shortcut menu appears as shown in Figure 23 on page 43.

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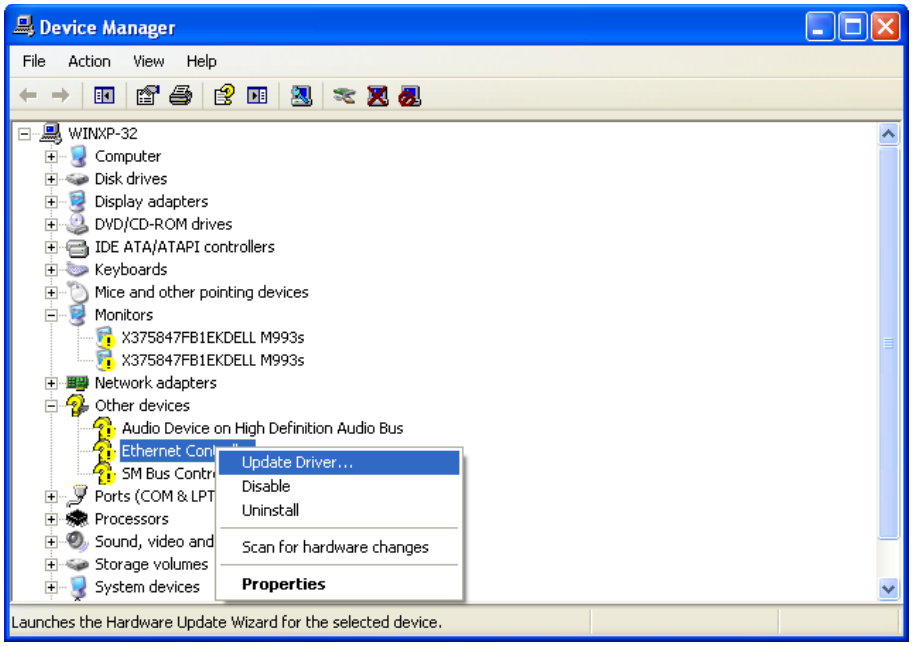


Figure 23. Ethernet Controller on Windows XP

3. Select **Update Driver**.

   The Hardware Update Wizard window pops up as shown in Figure 24.



Figure 24. Hardware Update Wizard 1

4. Select **No, not this time**.

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5. Click **Next**.

   The Hardware Update Wizard prompts you to select one of two options as shown in Figure 25

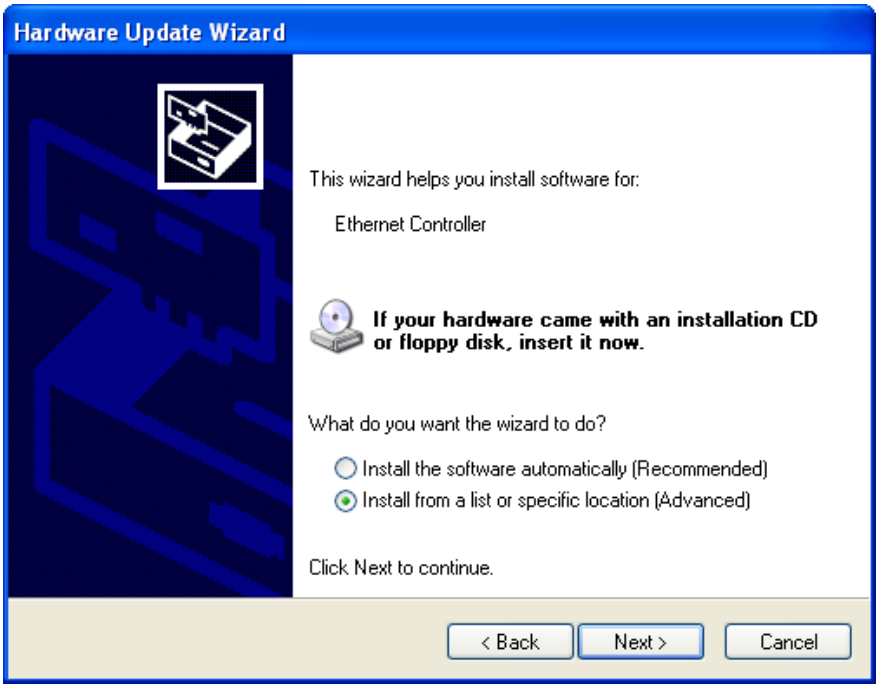


Figure 25. Hardware Update Wizard 2

6. Select **Install from a list or specific location (Advanced)**.

7. Click **Next**.

   The Hardware Update Wizard prompts you to specify the location of your driver software as shown in Figure 26 on page 45.

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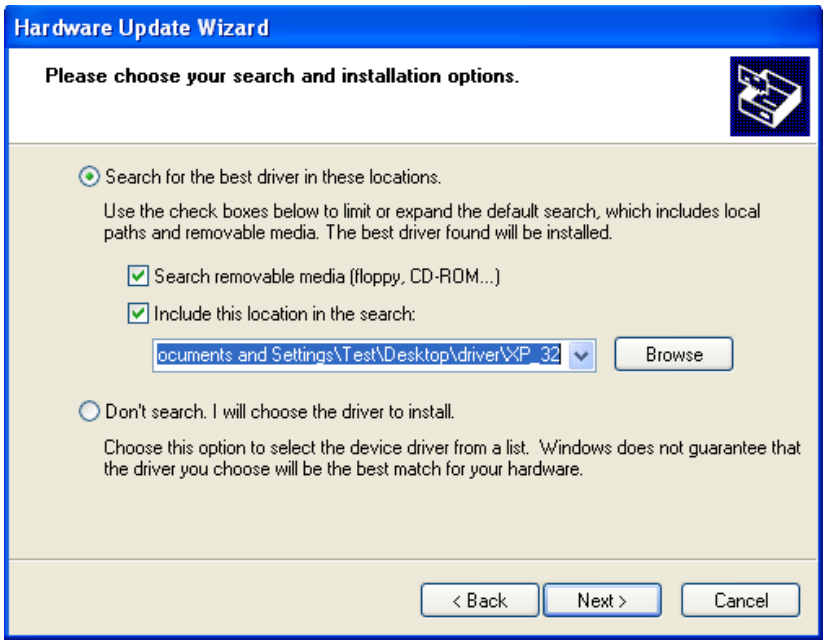


Figure 26. Hardware Update Wizard 3

8. Specify the location of the driver software.
9. Click **Next**.

   The confirmation message is displayed as shown in Figure 27.

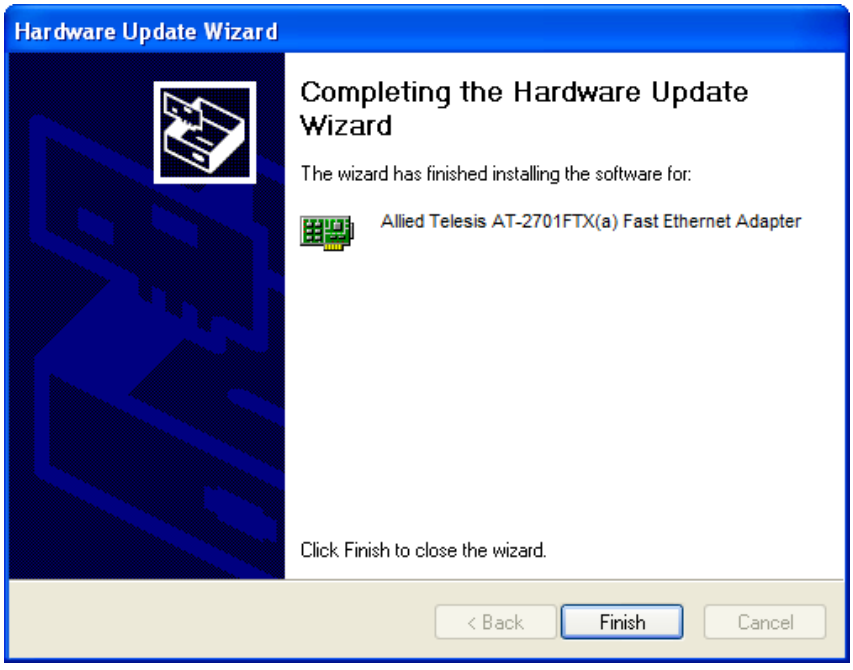


Figure 27. Hardware Update Wizard 4

10. Click **Finish**.

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Updating the Driver Software for Windows

To update the driver software, use the same procedure for installing the driver software for the first time. The only difference between updating and installing the driver software is the name of your adapter that Device Manager detects and lists.

Device Manager lists your adapter card as Allied Telesis AT-2701F*x*Xv2 100Mb Fiber Ethernet once you installed the driver software. Before you installed the driver software, Device Manager lists your adapter as Ethernet Controller or a Realtek device. To obtain the latest driver software from the Allied Telesis website, see “Downloading the Driver Software for Windows” on page 35.

The procedures for installing the driver software are slightly different among Windows operating systems. To install the driver software on your system, follow one of the procedures below:

- “Updating the Driver on Windows 7,” next
- “Updating the Driver on Windows XP” on page 47

Updating the Driver on Windows 7

To update the driver software for your AT-2701 series adapter, perform the following procedure:

1. Access the Device Manager. See “Accessing Device Manager on Windows 7” on page 37.
2. In the Device Manager window, right-click **Allied Telesis AT-2701F*x*X(a) Fast Ethernet Adapter**.

   The shortcut menu appears as shown in Figure 28 on page 47.

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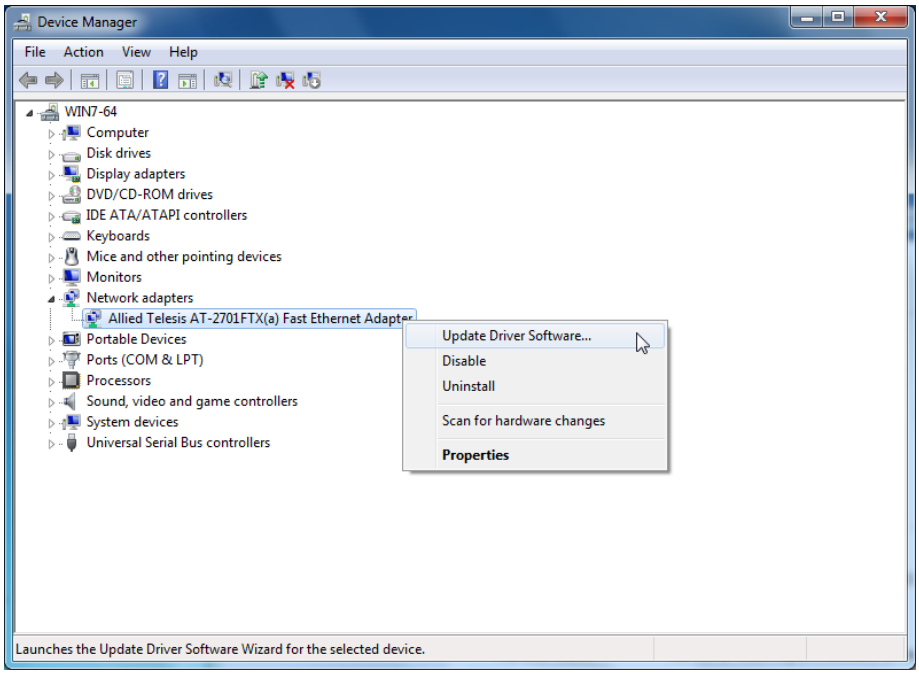


Figure 28. Device Manager with an Expanded List on Windows 7

3. Select **Update Driver Software**.

   The Update Driver Software window pops up as shown in Figure 20 on page 41.

4. Select **Browse my computer for driver software**.

   The Update Driver Software window prompts you to enter the location of the driver folder as shown in Figure 21 on page 41.

5. Specify the location of the driver software.

6. Click **Next**.

   The confirmation message appears when the driver software is successfully updated. See Figure 22 on page 42.

7. Click **Close**.

Updating the Driver on Windows XP

To install the driver software for the AT-2701 series adapter onto the Windows XP, do the following:

1. Access Device Manager. See “Accessing Device Manager on Windows XP” on page 38.

2. In the Device Manager window, right-click **Allied Telesis AT-2701F*x*X(a) Fast Ethernet Adapter**.

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The shortcut menu appears as shown in Figure 29.

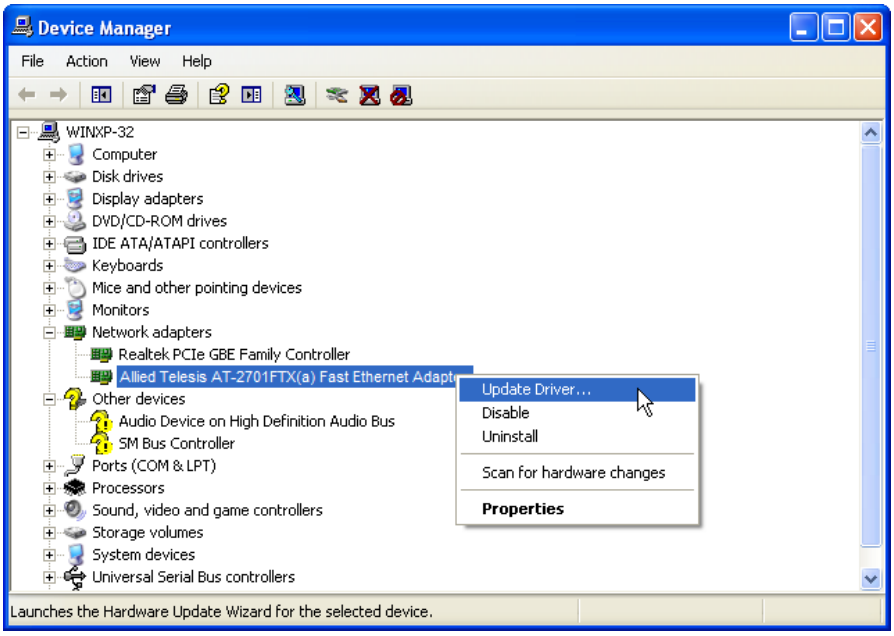


Figure 29. Network Adapters on Windows XP

3. Select **Update Driver**.

   The Hardware Update Wizard window pops up as shown in Figure 24 on page 43.

4. Select **No, not this time**.

5. Click **Next**.

   The Hardware Update Wizard prompts you to select one of two options as shown in Figure 25 on page 44.

6. Select **Install from a list or specific location (Advanced)**.

7. Click **Next**.

   The Hardware Update Wizard prompts you to specify the location of your driver software as shown in Figure 26 on page 45.

8. Specify the location of the driver software that you downloaded from Allied Telesis website.

9. Click **Next**.

   The confirmation message is displayed as shown in Figure 27 on page 45.

10. Click **Finish**.

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Performing the Silent Installation

To simplify the driver installation process, you may perform a silent installation when installing driver software for the AT-2701 series adapters. The silent installation is a method of installing software in the silent mode without constant interactions by suppressing dialog boxes.

> **Note**
> You can apply the silent installation method only to Microsoft certified drivers. The drivers that Allied Telesis provides for the AT-2701 series adapters are all Microsoft certified.

Use a command line utility called Driver package Installer (DPInst) for the silent installation. DPInst is included in the Windows Developer Kit (WDK) provided by Microsoft. You can obtain the latest DPInst by downloading and installing the latest WDK from the Microsoft website.

Installing the Driver Silently

To install the driver silently, perform the following instructions:

1. Create a folder in your Windows system.
2. Download driver software for the AT-2701 series adapter.

   See “Downloading the Driver Software for Windows” on page 35.
3. Place the driver files that you downloaded into the folder that you created in step 1.

   The folder should include the following driver files:

   - `.sys`
   - `.inf`
   - `.cat`
4. Download the latest WDK to obtain the `dpinst` utility.

   Consult Microsoft websites to download the WDK.
5. Place the `dpinst.exe` and its supporting files in the same folder where you placed the driver files.

   You must place the 64-bit `dpinst` utility if your operating system is the 64-bit version. Place the 32-bit for `dpinst` utility for the 32-bit version operating system.
6. Open a command prompt window with administrator privileges.

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7. Change the directory to the folder where the `dpinst` utility and the driver files reside.

8. Install the driver in the silent mode by entering the following command:

   ```
   > dpinst /S
   ```

   Note
   Adding the `/S` switch to the `dpinst` command suppresses the display of wizard pages, user dialog boxes, and other user intervention requests.

   The driver is installed silently.

Viewing Supported DPInst Options

You can display help information about the `dpinst` command-line options.

View all supported `dpinst` options by executing the following command:

1. Open a command prompt window with administrator privileges.

2. Change the directory to the folder where the `dpinst` utility and the driver files reside.

   ```
   > dpinst /?
   ```

   The command displays the help text.

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Chapter 4

Configuring the Ethernet Interface for Linux Systems

This chapter provides procedures for configuring Ethernet interfaces for AT-2701 series adapters on Linux systems and contains the following sections:

- ❒ “Overview” on page 52
- ❒ “Configuring an Ethernet Interface on Linux Systems” on page 53

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Overview

When you use the AT-2701 series fiber optic adapter on a PC with the Linux system, you must configure the Ethernet interface for the fiber optic port.

Note
If you install the AT-2701FTXa model and use the copper port, no changes in the Ethernet interface are necessary.

The AT-2701 series adapters use a Linux inbox driver to operate. A driver supplied with an operating system is called an inbox driver. Current Linux systems come with the inbox driver that the AT-2701 series adapters need.

Since the driver software for the AT-2701 series adapters has already been in place, you do not need to install it; however, the speed and duplex mode for the fiber optic port are not automatically negotiated. You must disable Auto-negotiation and sets these properties for the AT-2701 series fiber optic port manually. In addition, you must set the same property values on the port interfaces of the connected switch.

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Configuring an Ethernet Interface on Linux Systems

This section provides how to set the speed and duplex mode to the Ethernet interfaces of AT-2701 series fiber optic adapters. The following is the general instructions for Ubuntu and Red Hat Linux distributions. For other distributions of Linux, consult documentation for your systems.

Configuring an Ethernet Interface on Ubuntu

To configure Ethernet interfaces of AT-2701 series fiber optic adapters:

1. Verify that the `ethtool` utility is installed on your system by entering the following command:

   ```
   ethtool
   ```

   If the `ethtool` utility is not installed on your system, the system shows an error message. If the `ethtool` utility is installed, skip step 2.

2. If your system does not have the `ethtool` utility installed, Install it by entering the following command:

   ```
   sudo apt-get install ethtool
   ```

3. Obtain the name of the Ethernet interface for the AT-2701 series adapter, such as `eth0` and `eth1`, by entering the following command:

   ```
   ifconfig
   ```

   You have one Ethernet interface per AT-2701 series adapter card.

   Note
   To identify the Ethernet interface of the AT-2701 series adapter, match the MAC address of the `eth`*N* interface that the `ifconfig` command displays with one on the label of the shipping package.

4. Edit `/etc/network/interfaces` file to disable Auto-negotiation and set the speed and duplex mode by inserting the following statements:

```
auto ethx
iface ethx inet dhcp
pre-up/sbin/ethtool -s ethx speed 100 duplex full autoneg off
```

   Note
   Replace "`eth`*x*" with the name of the Ethernet interface that you obtained in step 3. "`eth`*x*" appears three times in the statement.

5. Repeat step 4 for all of the Ethernet interfaces of AT-2701 series adapters on your system.

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6. Save the `/etc/network/interfaces` file.
7. Reboot your Linux system.
8. Verify that your AT-2701 series adapter is running 100 Mbps in the full-duplex mode by entering the following command:

   `ethtool eth`*x*

   The command output should display:

   ```
   Advertised Auto-Negotiation is No
   Speed is 100
   Duplex mode is Full
   ```

9. Repeat step 8 for all of the Ethernet interfaces of AT-2701 series adapters on your system.

Configuring an Ethernet Interface on Red Hat

To configure Ethernet interfaces of AT-2701 series fiber optic adapters:

1. Ensure that the `ethtool` utility is installed on your system.

   Note
   To verify that the `ethtool` utility is installed or install the `ethtool` utility on your system, consult the documentation for your Red Hat distribution.

2. Obtain the name of the Ethernet interface for the AT-2701 series adapter, such as `eth0` and `eth1`, by entering the following command:

   `ifconfig`

   You have one Ethernet interface per AT-2701 series adapter card.

   Note
   To identify the Ethernet interface of the AT-2701 series adapter, match the MAC address of the `eth`*N* interface that the `ifconfig` command displays with one on the label of the shipping package.

3. Create a new file with the name "`ifcfg-eth`*x*" in `/etc/sysconfig/network-scripts` directory.

   For example, if the name of the Ethernet interface that you obtained in step 2 is `eth2`, then create a new file with the name "`ifcfg-eth2`."

4. Edit the `ifcfg-eth`*x* file to include the following information:

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```
##############################
DEVICE="ethx"
NM_CONTROLLED="yes"
ONBOOT=yes
HWADDR=xx:xx:xx:xx:xx:xx
TYPE=Ethernet
BOOTPROTO=dhcp
DEFROUTE=yes
PEERDNS=yes
PEERROUTES=yes
IPV4_FAILURE_FATAL=yes
IPV6INIT=no
NAME="auto ethx"
ETHTOOL_OPTS="autoneg off speed 100 duplex full"
##############################
```

Note
Replace "ethx" with the name of the Ethernet interface that you obtained in step 2 and *xx:xx:xx:xx:xx:xx* with the hardware address of your adapter. "ethx" appears twice in the file.

5. Save the ifcfg-ethx file.
6. Repeat step 3 to 5 for all of the Ethernet interfaces of AT-2701 series adapters on your system.
7. Reboot your Linux system.
8. Verify that your AT-2701 series adapter is running 100 Mbps in the full-duplex mode by entering the following command:

   ```
   ethtool ethx
   ```

   The command output should display:

   ```
   Advertised Auto-Negotiation is No
   Speed is 100
   Duplex mode is Full
   ```

9. Repeat step 8 for all of the Ethernet interfaces of AT-2701 series adapters on your system.

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Chapter 5

Modifying Advanced Properties

This chapter includes the following topics:

- “Overview” on page 58
- “Accessing Advanced Properties” on page 60
- “Early Tx Threshold” on page 62
- “Network Address (LAA)” on page 63
- “PCI PME” on page 65
- “Speed/Duplex” on page 67
- “Speed/Duplex (100Mb Fiber)” on page 68
- “Speed/Duplex (Copper)” on page 69
- “Vlan Id” on page 70
- “Wake-on-LAN” on page 71
- “Wake on Magic Packet” on page 72
- “Wake on Pattern Match” on page 74

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Overview

The AT-2701 series adapter allows you to modify advanced properties to meet your requirements. To access the advanced properties, you must access Device Manager, then go to each advanced property page.

Guidelines

Here are the guidelines to modifying the advanced properties:

- To change the advanced property settings, you must have Administrator privileges.
- When you upgrade the driver software, the settings of the advanced properties may change. Verify the settings after upgrading the driver software.

Supported Advanced Properties

The supported advanced properties depend upon the AT-2701 adapter model and the operating system that the adapter is installed on. See Table 3.

Table 3. Advanced Properties per Model

OS	Model	Advanced Properties
Windows 7	AT-2701FXa	❒ “Early Tx Threshold” on page 62 ❒ “Network Address (LAA)” on page 63 ❒ “PCI PME” on page 65 ❒ “Speed/Duplex” on page 67 ❒ “Vlan Id” on page 70 ❒ “Wake on Magic Packet” on page 72 ❒ “Wake on Pattern Match” on page 74
	AT-2701FTXa	❒ “Early Tx Threshold” on page 62 ❒ “Network Address (LAA)” on page 63 ❒ “PCI PME” on page 65 ❒ “Speed/Duplex (100Mb Fiber)” on page 68 ❒ “Speed/Duplex (Copper)” on page 69 ❒ “Vlan Id” on page 70 ❒ “Wake on Magic Packet” on page 72 ❒ “Wake on Pattern Match” on page 74

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Table 3. Advanced Properties per Model (Continued)

OS	Model	Advanced Properties
Windows XP	AT-2701FXa	❒ “Early Tx Threshold” on page 62 ❒ “Network Address (LAA)” on page 63 ❒ “Speed/Duplex” on page 67 ❒ “Vlan Id” on page 70 ❒ “Wake-on-LAN” on page 71
	AT-2701FTXa	❒ “Early Tx Threshold” on page 62 ❒ “Network Address (LAA)” on page 63 ❒ “Speed/Duplex (100Mb Fiber)” on page 68 ❒ “Speed/Duplex (Copper)” on page 69 ❒ “Vlan Id” on page 70 ❒ “Wake-on-LAN” on page 71

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Accessing Advanced Properties

To modify advanced properties, first access Device Manager, open the properties of your AT-2701 series adapter card, and select a feature you want to change its setting.

1. To access the Device Manager, follow one of these procedures:

   - “Accessing Device Manager on Windows 7” on page 37
   - “Accessing Device Manager on Windows XP” on page 38

2. In the Device Manager window, double-click **Allied Telesis AT-2701F*x*X(a) Fast Ethernet**.

   The properties window pops up as shown in Figure 30.

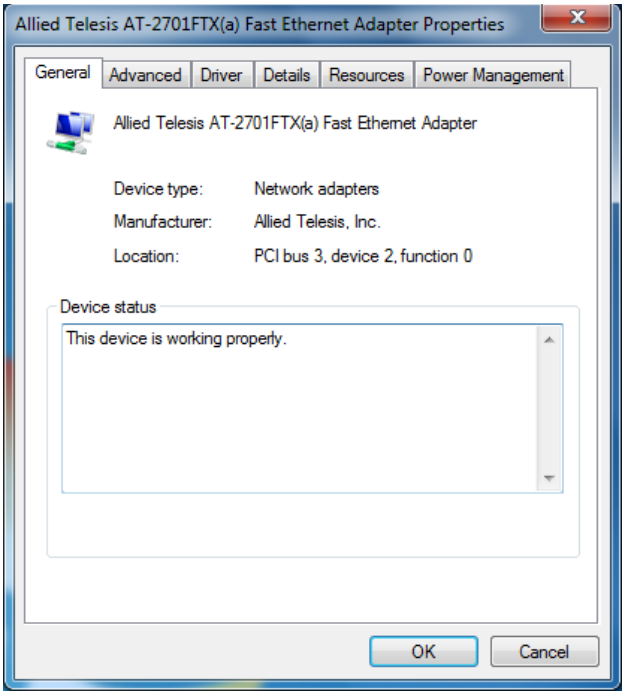


Figure 30. Properties Window

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3. Click the **Advanced** tab.

   The Advanced Properties window opens as shown in Figure 31.

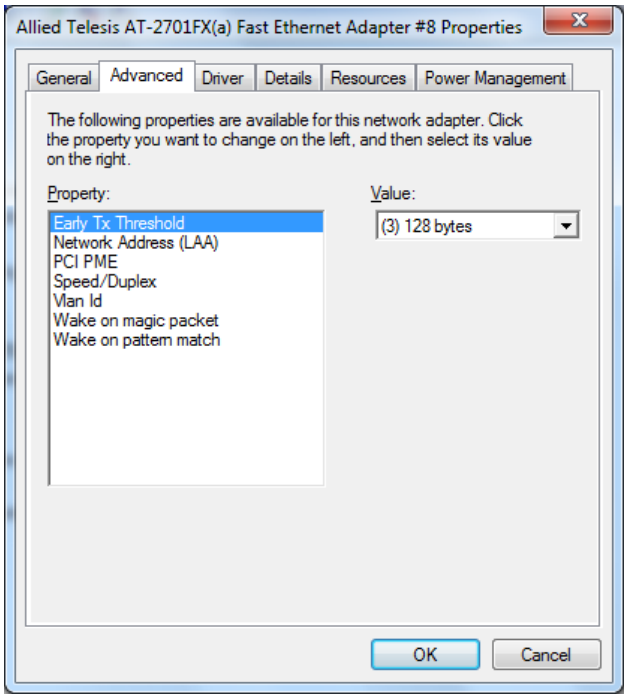


Figure 31. Advanced Properties Window

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Early Tx Threshold

The Early Tx Threshold property allows you to control the FIFO buffer threshold. The system starts transmitting the data when the FIFO buffer reaches the amount specified as the Early Tx Threshold.

To change the value of Early Tx Threshold, do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **Early Tx Threshold** in the Property box.

   The Early Tx Threshold page is displayed as shown in Figure 32.

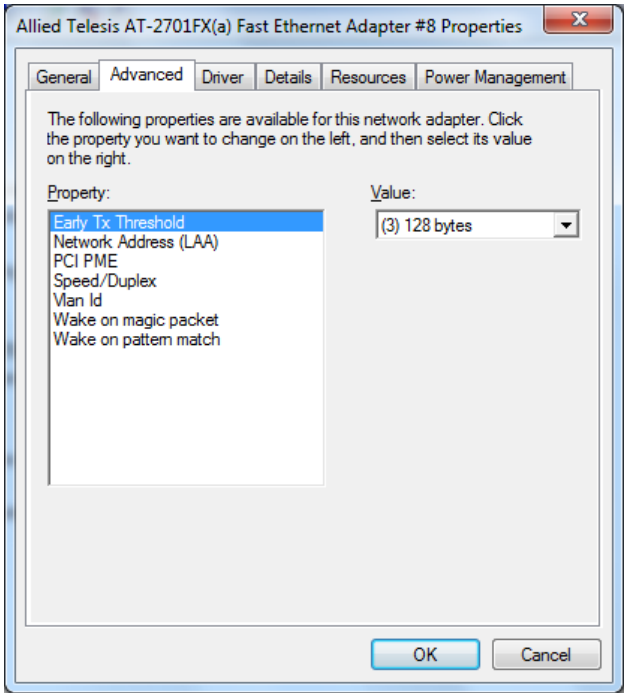


Figure 32. Early Tx Threshold Page

3. Select one of the following options:

   - **(1) 32 bytes**
   - **(2) 64 bytes**
   - **(3) 128 bytes —** This is the default setting.
   - **(4) 256 bytes**
   - **(5) 512 bytes**
   - **(6) 1500 bytes**

4. Click **OK**.

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Network Address (LAA)

The Network Address (LAA) allows you to replace the MAC address originally assigned to the adapter with a user-defined address. The user-defined address that you assign to the adapter is called a locally administered address (LAA).

Caution
A locally administered address (LAA) overrides the original MAC address stored in the AT-2701 series adapter card. When you change the MAC address, ensure that a unique MAC address is assigned.

Guidelines for Assigning a Locally Administered Address

Here are guidelines for assigning a locally administered address:

- The address must be unique.
- The address consists of a 12-digit hexadecimal number, for example, “020C46005501.”
- The address must start with “02” in the most significant byte, for example, “020304050607.”
- Do not assign “0000 0000 0000” or “FFFF FFFF FFFF.”
- The range is from 0200 0000 0000 to 02FF FFFF FFFF.

Assigning the Network Address (LAA)

To assign or change the Network Address (LAA), do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **Network Address (LAA)** in the Property box.

   The Network Address (LLA) page is displayed as shown in Figure 33 on page 64.

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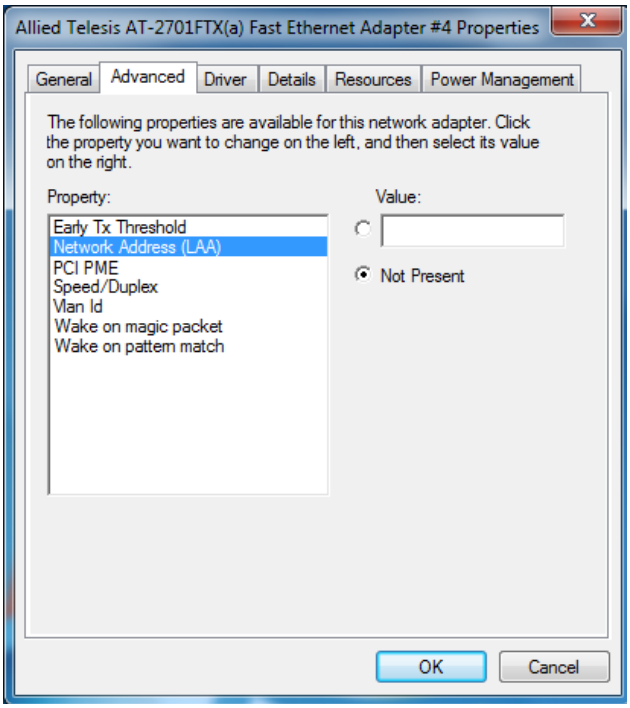


Figure 33. Network Address (LAA) Page

3. In the **Value** text box, enter a locally administered address for the AT-2701 series adapter card.

   By default, no locally administered address is assigned.

   For more information, see “Guidelines for Assigning a Locally Administered Address” on page 63.

4. Click **OK**.

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PCI PME

The PCI PME (Power Management Event) property enables the Wake-on-LAN (WOL) function to wake the adapter up from a low-power mode, based on the settings of the “Wake on Magic Packet” and “Wake on Pattern Match” properties.

For example, if the PCI PME and Wake on Magic Packet properties are enabled, the adapter wakes up from a low-power mode when receiving a Magic Packet. If the PCI PME, Wake on Magic Packet, and Wake on Pattern Match properties are enabled, the adapter wakes up from a low-power mode when receiving a Magic Packet or a packet that matches one of the patterns specified in the operating system.

To enable or disable the PCI PME property, do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **PCI PME** in the Property box.

   The PCI PME page is displayed as shown in Figure 34.

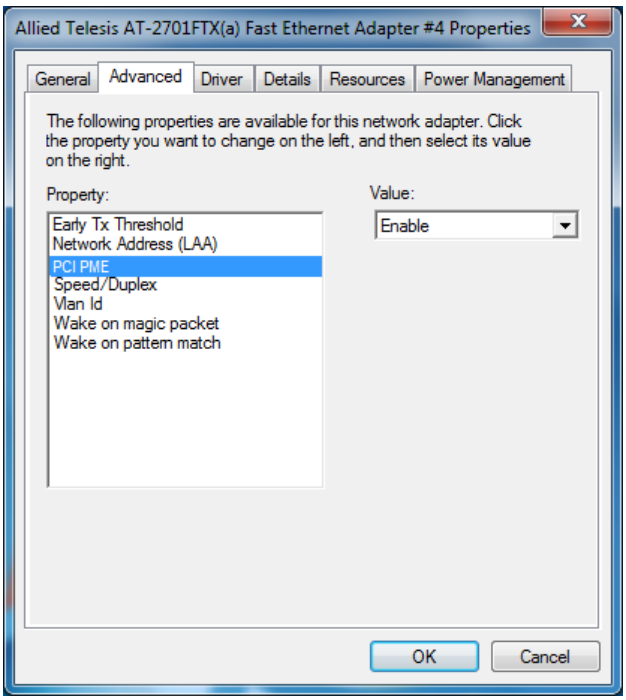


Figure 34. PCI PME Page

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3. Select one of the following options:

   - **Enable —** The adapter wakes up from a low-power mode according to the settings of the Wake on Magic Packet and Wake on Pattern Match properties.

   Note
   When the Wake on Magic Packet and Wake on Pattern Match properties are both disabled, the adapter stays in a low-power mode.

   - **Disable —** The adapter stays in a low-power mode regardless of the settings of the Wake on Magic Packet and Wake on Pattern Match properties.

4. Click **OK**.

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Speed/Duplex

The Speed/Duplex property sets the link speed and duplex mode of the adapter.

To change the Speed/Duplex property, do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **Speed/Duplex** in the Property box.

   The Speed/Duplex page is displayed as shown in Figure 35.

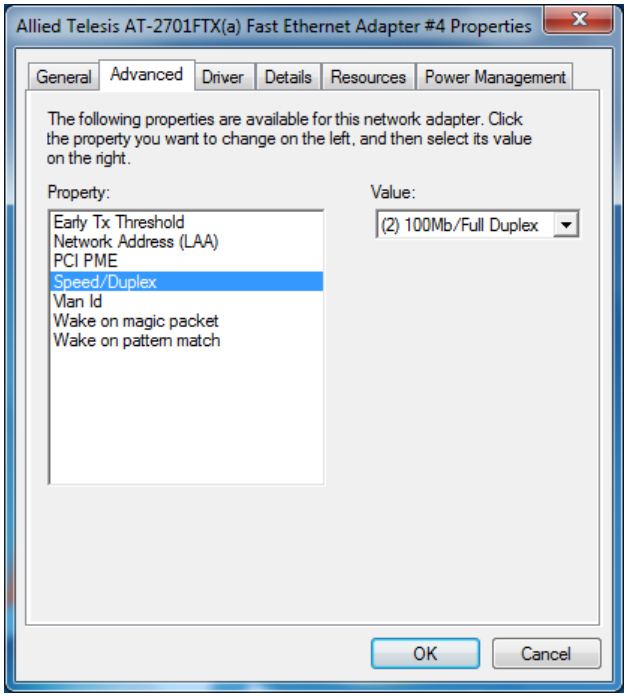


Figure 35. Speed/Duplex Page

3. Select one of the following options:

   - **(1) 100Mb/Half Duplex**
   - **(2) 100Mb/Full Duplex —** This is the default setting.

4. Click **OK**.

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Speed/Duplex (100Mb Fiber)

The Speed/Duplex (100MB Fiber) property sets the link speed and duplex mode for the optic fiber adapter.

To change the Speed/Duplex (100MB Fiber) property, do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **Speed/Duplex (100Mb Fiber)** in the Property box.

   The Speed/Duplex (100Mb Fiber) page is displayed as shown in Figure 36.

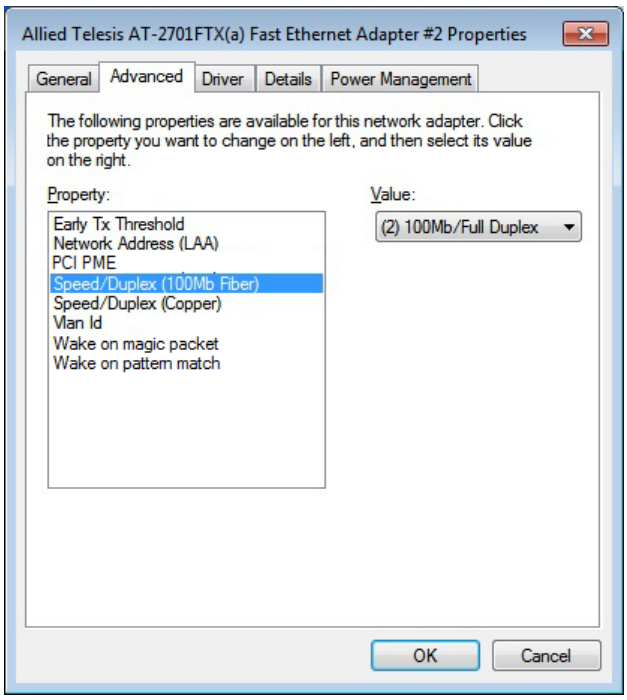


Figure 36. Speed/Duplex (100Mb Fiber) Page

3. Select one of the following options:

   - **(1) 100Mb/Half Duplex**
   - **(2) 100Mb/Full Duplex —** This is the default setting.

4. Click **OK**.

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Speed/Duplex (Copper)

The Speed/Duplex (Copper) property sets the link speed and duplex mode for the twisted pair copper interface.

To change the Speed/Duplex (Copper) property, do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **Speed/Duplex (Copper)** in the Property box.

   The Speed/Duplex (Copper) page is displayed as shown in Figure 37.

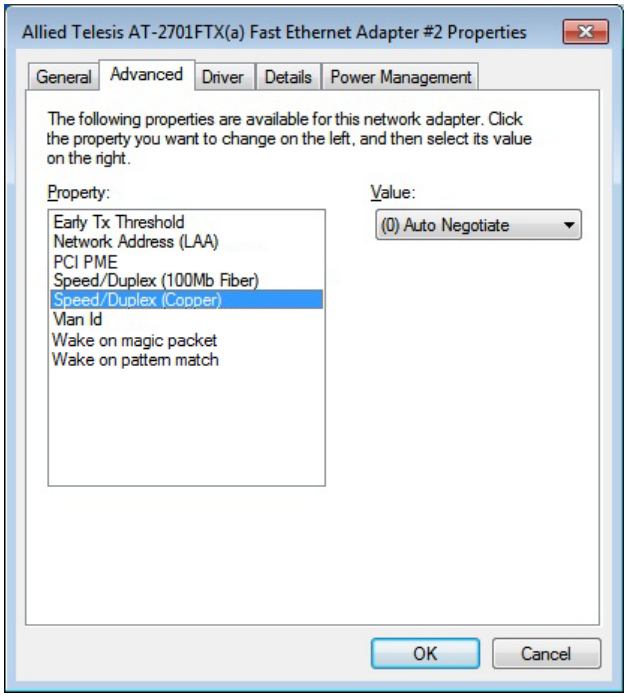


Figure 37. Speed/Duplex (Copper) Page

3. Select one of the following options:

   - **(0) Auto Negotiate —** The speed and duplex mode are automatically negotiated. This is the default setting.
   - **(1) 100Mb/Half Duplex**
   - **(2) 100Mb/Full Duplex**
   - **(3) 10Mb/Half Duplex**
   - **(4) 10Mb/Full Duplex**

4. Click **OK**.

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Vlan Id

The Vlan Id property allows you to specify a VLAN ID on your network to the adapter. The adapter adds the value of the VLAN ID to a frame in the VLAN tag before transmitting the frame.

To change the value of the Vlan Id, do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **Vlan Id** in the Property box.

   The Vlan Id page is displayed as shown in Figure 38.

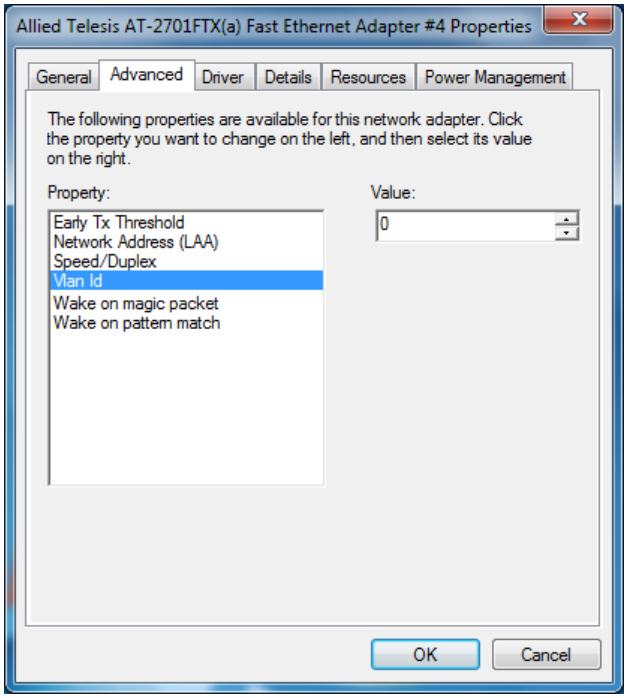


Figure 38. Vlan Id Page

3. Specify an Vlan Id in the Value box.

   The range of the value is from 0 to 4095. The default value is 0.

4. Click **OK**.

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Wake-on-LAN

The Wake-on-LAN feature enables the network adapter to wake up from a low-power mode when the adapter receives a network wake-up frame.

To enable or disable the Wake-on-LAN feature, do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **Wake-on-LAN** in the Property box.

   The Wake-on-LAN page is displayed as shown in Figure 39.

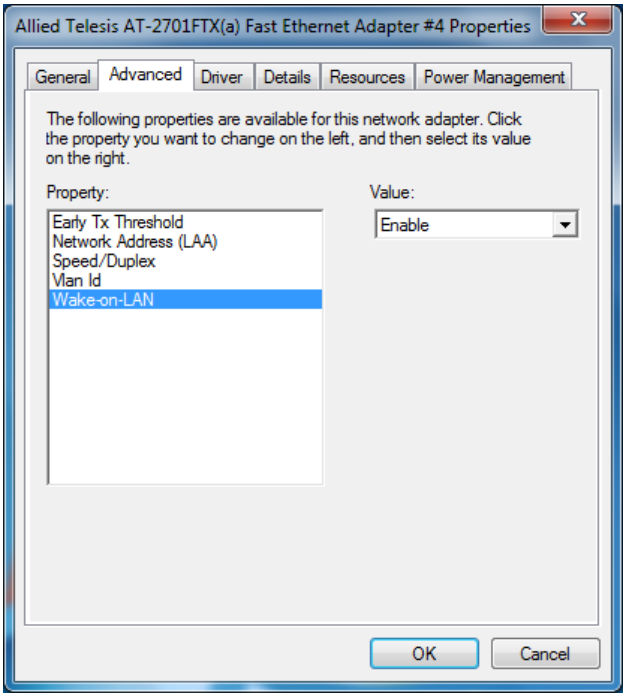


Figure 39. Wake-on-LAN Page

3. Select one of the following options:

   - **Enable —** The adapter to wake up from a low-power mode when receiving a network wake-up frame. This is the default setting.
   - **Disable —** The adapter stays in a low-power mode.

4. Click **OK**.

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Wake on Magic Packet

The Wake on Magic Packet property specifies a condition when the adapter wakes up from a low-power mode. The adapter wakes up when relieving a Magic Packet, if the Wake on Magic Packet and PCI PME properties are enabled.

> **Note**
> Even when you set the Wake on Magic Packet property to Enable, the adapter stays in a low-power mode if the PCI PME property is disabled. The Wake on Magic Packet property only specifies the condition. To activate the WOL function to wake up the adapter, you must enable the PCI PME property. See “PCI PME” on page 65.

To enable or disable the Wake on Magic Packet property, do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **Wake on Magic Packet** in the Property box.

   The Wake on Magic Packet page is displayed as shown in Figure 40.

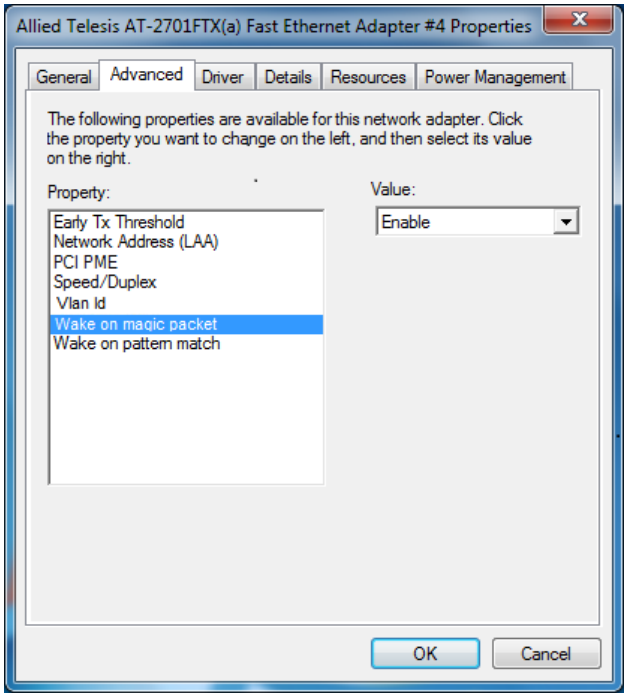


Figure 40. Wake on Magic Packet Page

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3. Select one of the following options:

   - **Enable —** The adapter wakes up from a low-power mode when receiving a Magic Packet when the PCI PME property is enabled.
   - **Disable —** The adapter stays in a low-power mode when receiving a Magic Packet.

4. Click **OK**.

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Wake on Pattern Match

The Wake on Pattern Match property specifies a condition when the adapter wakes up from a low-power mode. The adapter wakes up when a packet matches the wake patterns specified in the operating system, if the Wake on Pattern Match and PCI PME properties are enabled.

> **Note**
> Even when you set the Wake on Pattern Match property to Enable, the adapter stays in a low-power mode if the PCI PME property is disabled. The Wake on Pattern Match property only specifies the condition. To activate the WOL function to wake up the adapter, you must enable the PCI PME property. See “PCI PME” on page 65.

To enable or disable the Wake on Pattern Match property, do the following:

1. Access the Advanced Properties.

   See “Accessing Advanced Properties” on page 60.

2. Select **Wake on Pattern Match** in the Property box.

   The Wake on Pattern Match page is displayed as shown in Figure 41.

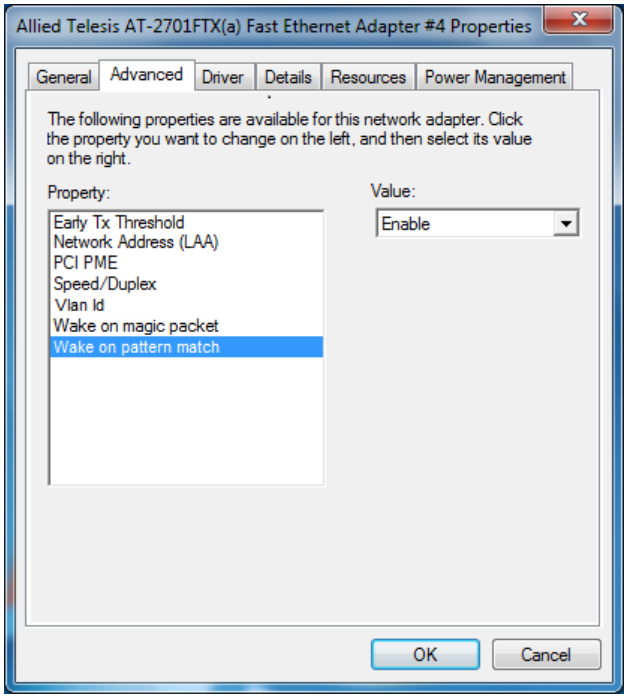


Figure 41. Wake on Pattern Match Page

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3. Select one of the following options:

   - **Enable —** The adapter wakes up from a low-power mode when receiving a packet that matches one of the patterns specified in the operating system when the PCI PME property is enabled.
   - **Disable —** The adapter stays in a low-power mode when receiving a packet that matches one of the patterns specified in the operating system.

4. Click **OK**.

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Chapter 6

Uninstalling the Driver Software

This chapter describes how to uninstall the driver software for the AT-2701 series network adapters.

This chapter contains the following topics:

- “Overview” on page 78
- “Uninstalling the Driver Software Using Device Manager” on page 79
- “Uninstalling the Driver Software Silently” on page 80

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Overview

When you no longer use the AT-2701 series adapter card for your computer, you may want to uninstall the driver software from your operating system.

As you can install driver software for the AT-2701 series adapter card using Device Manager or the silent installation method, you can also uninstall driver software in two ways:

- ❒ “Uninstalling the Driver Software Using Device Manager” on page 79
- ❒ “Uninstalling the Driver Software Silently” on page 80

Guidelines

Here are the guidelines to uninstalling the driver software from your system:

- ❒ You must have Administrator privileges to remove the driver software.
- ❒ Before uninstalling the Allied Telesis device, capture all of the Advanced Property settings for later use. The properties are lost during the uninstall process.

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Uninstalling the Driver Software Using Device Manager

To uninstall the driver software from your operating system, do the following:

1. Start your Windows operating system and log in.
2. Access the Device Manager.

   See “Accessing the Device Manager” on page 37.
3. In the Device Manager window, expand the Network Adapters folder.
4. Right-click **Allied Telesis AT-2701F*x*X(a) Fast Ethernet**.

   The shortcut menu appears. See Figure 28 on page 47.

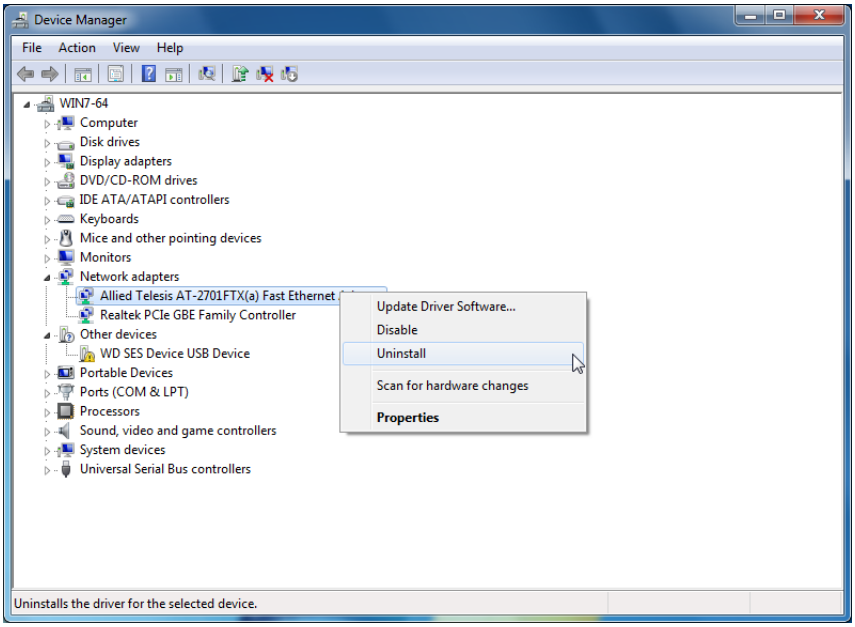


Figure 42. Device Uninstall Window

5. Select **Uninstall**.

   The Confirm Device Uninstall window pops up.
6. Check the check box if you want to remove the driver software for your adapter.

   Note
   The option to remove the driver is available only in Windows 7.
7. Click **OK** to complete the uninstall.

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Uninstalling the Driver Software Silently

You can apply the silent installation method to uninstall the driver.

Uninstall the driver without user-intervention, perform the following steps:

1. Open a command prompt window with administrator privileges.
2. Change the directory to the folder where the `dpinst` utility and the driver files reside.
3. Uninstall the driver silently by executing the following command:

   ```
   > dpinst /U inf_file_name.inf /S
   ```

   Note
   Replace *inf_file_name* with the name of `.inf` file.

   The driver is uninstalled without user-intervention.

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Chapter 7

Troubleshooting

This chapter describes troubleshooting procedures. It contains the following sections:

- “Checking the Port LED on the Adapter” on page 82
- “Troubleshooting Checklist” on page 83
- “Testing Network Connectivity” on page 84

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Checking the Port LED on the Adapter

The AT-2701 series adapter comes with one or two LED's, depending on the model. You can use the status of the port LED for troubleshooting.

The AT-2701FXa model comes with a single combination LED that indicates both the link status and activity status.

The AT-2701FTXa model comes with two LED's. One LED indicates the link status for either the copper or fiber port; the other indicates the activity status for the port with the valid link.

Note
Before the port LED can provide troubleshooting information, the driver software for your particular operating system must be installed and the adapter must be connected to the network. See Chapter 3, "Installing the Driver Software for Windows" on page 33.

Table 4 describes the link status that LED's indicate.

Table 4. LED Status

State	Description
On	Valid link.
Off	No link.
Flashing	The port is receiving or transmitting network packets at 100 Mbps.

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Troubleshooting Checklist

The following checklist provides recommended actions to take to resolve problems installing the AT-2701 series network adapter card or running it in your system.



Warning
Before opening the cabinet of your system for removing or inserting the adapter card, review all precautions outlined under “Reviewing Safety Precautions” on page 23.

- ❒ Inspect all cables and connections. Verify that the cable connections between the adapter and the switch are attached properly. Make sure that the cable length and rating are compliant with the requirements listed in “Connecting the Network Cables” on page 32."
- ❒ Check the adapter installation by reviewing Chapter 2, “Installing the Hardware” on page 21.
- ❒ Make sure that the adapter card is properly seated in a PCI slot. Check for specific hardware problems, such as obvious damage to board components or the PCI edge connector.
- ❒ Check the configuration settings and change them if they are in conflict with another device.
- ❒ Make sure that your system is using the latest BIOS.
- ❒ Try inserting the adapter card in another slot. If the new position works, the original slot in your system may be defective.
- ❒ Replace the failed adapter card with one that is known to work properly. If the second adapter card works in the slot where the first one failed, the original adapter card is probably defective.
- ❒ Install the adapter card in another functioning system and run the tests again. If the adapter card passed the tests in the new system, the original system may be defective.
- ❒ Remove all other adapter cards from the system and run the tests again. If the adapter card passes the tests, the other adapter cards may be causing contention.

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Testing Network Connectivity

This section describes how to test network connectivity for Windows and Linux networks.

> **Note**
> When you are using the fiber optic port, both the adapter and the switch must be set to the same speed and duplex mode. When you are using the copper port, set both the adapter and switch to Auto-Negotiation or the same speed and duplex mode.

Windows

To test the network connectivity for the Windows driver software, perform the following procedure.

Use the ping command to determine if network connectivity is working.

1. Select **Run** from the Windows Control Panel

   The Run command window opens, as shown in Figure 43.

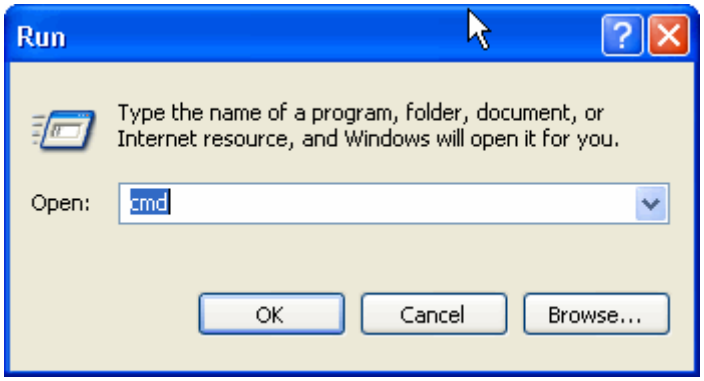


Figure 43. Run Command Window

2. Type **cmd** and click **OK**.
3. Type **ipconfig /all**

   The command window opens, as shown in Figure 44 on page 85.

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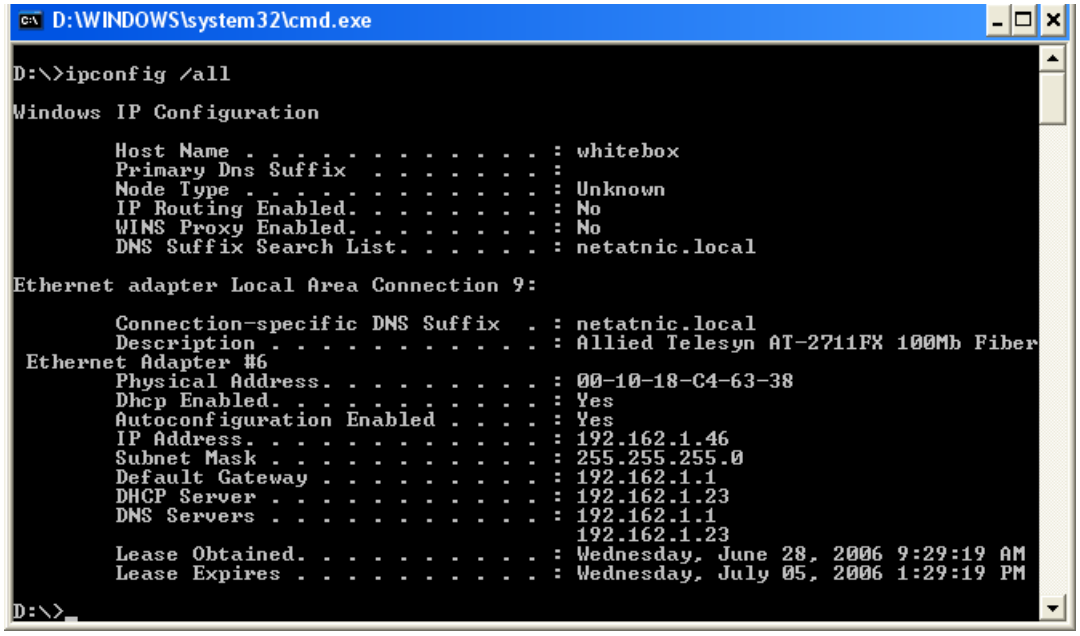


Figure 44. Command Window with ipconfig/all displayed

4. Type **ping <IP address>** from the command line, then press **Enter**.

   The network connectivity information is displayed, as shown in Figure 45.

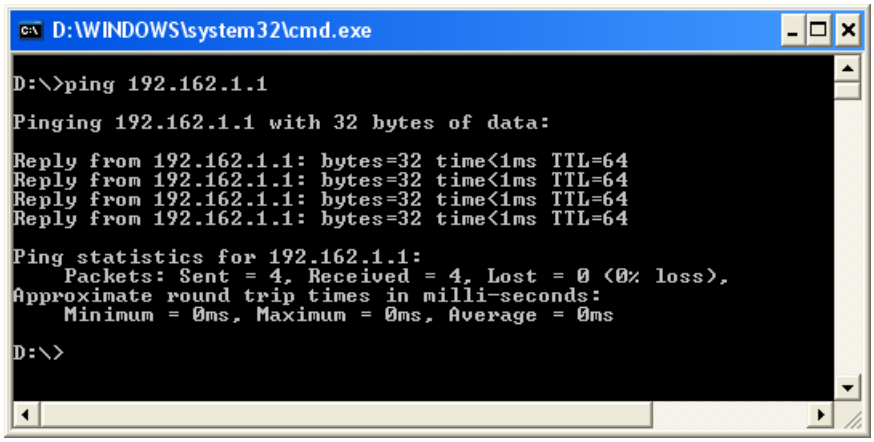


Figure 45. Command Window with ping displayed

Linux

To verify that the Ethernet interface is up and running, run '`ifconfig`' to check the status of the Ethernet interface. In addition, you can use the '`netstat -i`' command to check the statistics on the Ethernet interface. Consult the manual pages for more information about the '`ifconfig`' and '`netstat`' commands.

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To ping an IP host on the network to verify connection has been established, perform the following procedure.

1. From the command line, type **ping <IP address>**.
2. Press **Enter**.

   The command displays the packet send/receive status.

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Appendix A

Specifications

Physical Specifications

Dimensions:	12.5 cm x 6.4 cm (4.9 in. x 2.5 in.)

Environmental Specifications

Operating Temperature:	0°C to 40°C (+32°F to +104°F)
Storage Temperature:	-25°C to +70°C (-°13F to +158°F)
Relative Humidity:	5% to 90% (non-condensing)

Power Specifications

Signaling Voltage:	3.3 / 5V
Power Consumption:	2.5 Watts at 3.3V

Interface Type and Connectors

Connecter Type:	SC, ST, RJ-45
Optical Receive Sensitivity (typ):	-34 dBm
Transmit optical Power (min/max):	-19 / -14 dBm

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Appendix B

Cleaning Fiber Optic Connectors

This appendix provides how to clean fiber optic connectors and consists of the following sections:

- ❒ “Overview” on page 90
- ❒ “Cleaning Using a Cartridge-Type Cleaner” on page 91
- ❒ “Cleaning Using a Swab” on page 93

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The fiber optic connector consists of a fiber optic plug and its adapter. The end of the fiber optic cable is held in the core of the ferrule in the plug as shown in Figure 46. Light signals are transmitted through the core of the fiber.

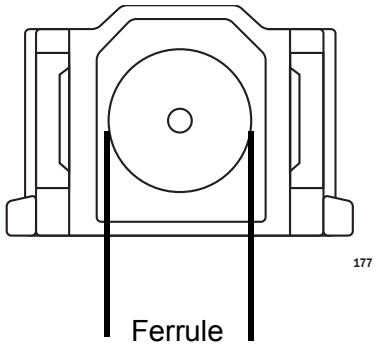


Figure 46. Ferrule in an SC Connector Plug

Even minor smudges or dirt on the end face of the fiber, completely invisible to the naked eye, can disrupt light transmission and lead to failure of the component or of the entire system. Figure 47 shows part of the end face of an unclean and clean ferrule.

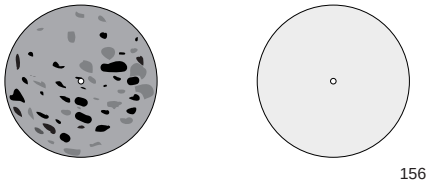


Figure 47. Unclean and Clean Ferrule

Guidelines

Here are general guidelines and warnings for fiber optic connectors:

- ❒ Always keep a dust cap on a fiber optic cable when it is not in use.
- ❒ Do not touch the end face of the ferrule in the connector.

Warning
Do not stare into the laser beam. 2

Warning
Do not look directly at the cable ends or inspect the cable ends with an optical lens. 31

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Cleaning Using a Cartridge-Type Cleaner

Fiber optic cartridge cleaners are available from many vendors and are typically called “cartridge cleaners,” as shown in Figure 48.



Figure 48. Cartridge Cleaner

Note
Do not use compressed air or aerosol air to clean a fiber optic connector.

To clean a fiber optic connector using a cartridge cleaner, perform the following procedure:

1. With one hand, hold the cartridge cleaner and push the lever on the cleaning cartridge in the direction of the arrow to expose the cleaning surface, as shown in Figure 49.

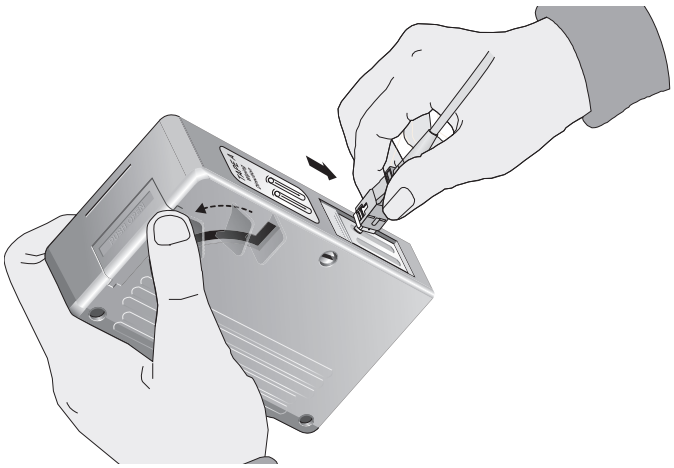


Figure 49. Rubbing the Ferrule Tip on the Cleaning Surface

2. Place the ferrule tip on the exposed cleaning surface and rub the ferrule in a downward direction, as shown in Figure 49.

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Note
Rub the ferrule tip on the cleaning surface in one direction only.

3. When you reach the end of the cleaning surface, pick up the ferrule tip, rotate and place it at the top and rub downwards at least 2 times.

Caution
Failing to pick up the ferrule tip when you reach the bottom of the cleaning surface can result in static electricity that can damage the fiber optic cable.

4. If desired, repeat steps 2 and 3.
5. If a fiber inspection scope is available, use the scope to inspect the ferrule end face to make sure that it is clean.
6. Reconnect the cable to the port or protect the ferrule tip with a dust cap.

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Cleaning Using a Swab

Specially treated swabs (stick cleaners) are available for cleaning inside connector adapters or hard-to-reach ferrule tips. These swabs, often referred to as “lint free” or “alcohol free” swabs, are available from many vendors. See Figure 50. Stick cleaners are available in both 2.5 mm and 1.25 mm sizes for use on SC and MU connectors respectively.

Note
NEVER use a household cotton swab and/or alcohol to clean a fiber optic connector. A cotton swab or alcohol may leave a residue on the ferrule tip.

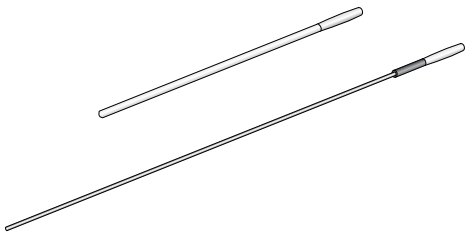


Figure 50. Lint-Free and Alcohol-Free Swabs

Note
Do not use compressed air or aerosol air to clean a fiber optic connector.

To clean a recessed ferrule using a swab, perform the following procedure:

1. Insert the swab into the adapter as shown in Figure 51 and rub the ferrule tip with the swab.

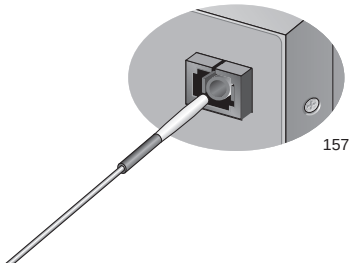


Figure 51. Cleaning a Recessed Ferrule

2. If desired, repeat step 1.

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3. If a fiber inspection scope is available, use the scope to inspect the connector to make sure that it is clean.

4. Reconnect the cable to the port or protect the ferrule tip with a dust cap.

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