



# **Network & Internet Communications Guide**

## Business Desktops

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This guide provides definitions and instructions for using network interface controller (NIC) features that are preinstalled on select models. It also provides information about Internet Service Providers and solving Internet access problems.

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**CAUTION:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

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# Network Communications

The following items are covered in this section:

- Ethernet Network Structure
- Network Interface Controller (NIC)-Based Alerts
- Wake-On-Lan (WOL) Support
- Interpreting the Network Status Lights
- Disabling the Autosensing Capabilities
- Installing Network Drivers

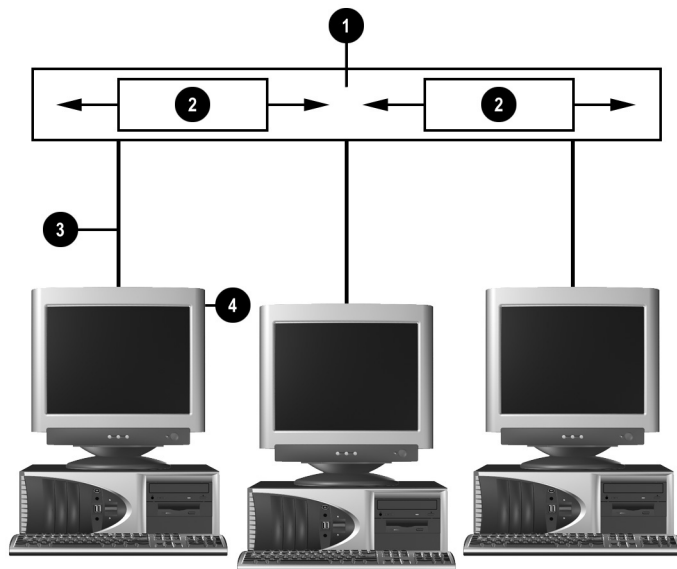
This section provides information about Ethernet networks and the hardware connectors and software device drivers that allow you to access an Ethernet network. Access to a computer network immediately increases your productivity potential. Once the network connection is active, you can share resources, such as a printer, exchange information from computer to computer, and run common software programs.

The computer comes network-ready, which means that it has an integrated network controller and network device drivers already loaded onto the computer hard drive. The computer is ready to make the network connection.

## Ethernet Network Structure

All Ethernet networks include some combination of the following elements:

- ❶ Ethernet cable
- ❷ Information packets
- ❸ Drop cables
- ❹ Workstations



*Ethernet Network Structure*

Refer to the Hardware Reference Guide for network connector identification and connection instruction.

## NIC-Based Alerts

Some NICs feature Alerting Capabilities, which allow a system administrator to monitor the computer over the network remotely. The computer can send hardware and operating system alerts over the network before the operating system is loaded, while the operating system is loaded, while the computer is in low power states, and when the computer is powered off. Depending on the NIC model, these alerts may include:

- System BIOS hang
- Operating system hang
- Processor missing
- Operating temperature exceeded
- Chassis intrusion
- Watchdog
- Heartbeat monitoring



NICs featuring Alerting Capabilities comply with Alert Standard Format (ASF) specification 1.0. RMCP events are not supported due to lack of security in the ASF 1.0 specification.

NIC-Based Alerts are enabled and configured by installing the ASF 1.0 agents for the NIC you are using. These are available at <http://www.hp.com>. ASF alerts can also be enabled and configured using DMI or CIM.

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## Wake-On-LAN Support (WOL)

Wake-On-Lan (WOL) can be enabled and disabled in Windows 2000 and Windows XP.

To enable or disable Wake-On-Lan:

*Windows 2000*

1. Select **Start > Settings > Control Panel**.
2. Double-click **Network Dial-up Connections**.

3. Double-click **Local Area Connection**.
4. Click **Properties**.
5. Click **Configure**.
6. Click the **Power Management** tab, then select or clear the check box to **Allow this device to bring the computer out of standby**.

### Windows XP

1. Select **Start > Control Panel**.
2. Double-click **Network Connections**.
3. Double-click **Local Area Connection**.
4. Click **Properties**.
5. Click **Configure**.
6. Click the **Power Management** tab, then select or clear the check box to **Allow this device to bring the computer out of standby**.



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For more information on Wake-On-LAN, refer to the online *Desktop Management Guide* or to the *Remote Management Administrators Guide*. The *Remote Management Administrators Guide* is included with the Remote Management Setup Utilities and is available on the *Support Software CD* or at <http://www.compaq.com>.

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For information on filtering out unintentional Wake-On-LAN events, refer to any additional documentation provided for the NICs advanced diagnostics/configuration utility.

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## Interpreting the Network Status Lights

Select Ethernet network interface controllers include network status lights:

- **Link light**—illuminates when the system is physically connected to an active network.
- **Activity light**—illuminates when the computer detects network activity. When the system is connected to a highly used network, the activity light will remain on almost constantly.



- **Operating Speed light**—illuminates during 1000 Mbps or 100 Mbps operation. The color of the light identifies the operating speed.

Some NICs include only two network status lights where link (light on) and activity (light blinking) are indicated by one light and 1000-Mbps or 100-Mbps operation is indicated by the second light. The integrated NIC has two network status lights on the NIC connector:

- **Link/Activity light**—Illuminates green when physically linked to the network and blinks on and off to indicate network activity.
- **Operating Speed light**—Illuminates green when operating at 1000 Mbps, yellow when operating at 100 Mbps, and is not illuminated when operating at 10 Mbps.

## Disabling 802.3u Auto-Negotiation Capabilities

Auto-Negotiation NICs automatically determine the maximum network operating speed and duplex capabilities of the attached network and configure themselves on the highest common combination. The computer begins Auto-Negotiation whenever it obtains a valid network link, or when the NIC driver is loaded.

In addition to determining the network operating speed, the computer determines if full-duplex is supported. Full-duplex systems can transmit and receive information on the network simultaneously. Half-duplex systems cannot transmit and receive simultaneously.

If necessary, you can disable the Auto-Negotiation capabilities and force the system to operate in one mode only.

### *Windows 2000*

1. Select **Start > Settings > Control Panel**.
2. Double-click **Network Connections**.
3. Double-click **Local Area Connection**.
4. Click **Properties**.
5. Click **Configure**.
6. Click the **Advanced** tab.

7. Select **Link Speed/Duplex Mode** in the Property list box.
8. Change the speed and duplex values to the appropriate values, depending on the capabilities of the network.
9. Click **OK**. You may be prompted to restart the computer for the changes to take effect.

### *Windows XP*

1. Select **Start > Control Panel**.
2. Double-click **Network Connections**.
3. Double-click **Local Area Connection**.
4. Click **Properties**.
5. Click **Configure**.
6. Click the **Advanced** tab.
7. Select **Link Speed & Duplex** in the Property list box.
8. Change the speed and duplex values to the appropriate values, depending on the capabilities of the network.
9. Click **OK**. You may be prompted to restart the computer for the changes to take effect.

Refer to the documentation provided with the network controller for additional information.



100Base-TX and 1000Base-Tx operation requires the use of Category 5 UTP cable with an RJ-45 network connection.

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## Installing Network Drivers

The device drivers in the network software enable the computer to communicate with the network. Because Compaq does not know which network operating system you'll be using, the computer comes ready to work with several different environments.

The device drivers for the network controller enable the drivers to load correctly in the operating system used, allowing communication with the network.



Device drivers are supplied for the Windows 2000, Windows XP Professional, and Windows XP Home operating systems, depending on the computer model. If you are using another operating system, device drivers may be installed from media included with the network operating system or are available from HP. If it ever becomes necessary to reinstall the operating system, use the *Compaq Restore Plus! CD*.

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Complete instructions for installing the network device drivers are available as ASCII text files, located in the *C:\COMPAQNIC* directory. Use the instructions found in the subdirectory that relates to the network environment.

Install the correct device drivers according to the operating system you are using, as listed below.

### *Windows 2000*

Follow the instructions in the ASCII text files located in the *C:\CPQNET* directory. Use the instructions found in the subdirectory that relates to the network environment.

### *Windows XP*

1. Select **Start > Control Panel**.
2. Double-click **Network Connections**.
3. Double-click the **New Connection Wizard** icon and follow the instructions on the screen.



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## Internet Communications

The following items are covered in this section:

- Choosing an Internet Service Provider
- Content Advisor
- Solving Internet Access Problems

### Choosing an Internet Service Provider

An Internet service provider (ISP) gives you the dial-up (telephone or cable networking) access and software you need to connect to the Internet. Most ISPs also offer e-mail, access to newsgroups, space to create Web pages, and technical support. Some ISPs offer commercial services, such as domain hosting, to companies and individuals wanting to do business on the Internet. You can choose from local and national ISPs.

An online service provider, such as MSN or America Online (AOL), offers special features, content, and technical support in addition to providing access to the Internet. An online service provider may provide a categorized or customizable home page that makes it easy for you to find some of the most popular and useful sites on the Internet.

To find the provider that is right for you:

- Look in the Yellow Pages
- Ask a friend or colleague for recommendations
- If you have access to the Internet already, you can use a search engine, such as Google, to help you locate an ISP or online service provider.

- ISPs typically offer a variety of service plans for different customers' needs. Be sure to review and compare plans, services offered, and price to find the provider that is right for you and your needs.

## Content Advisor

The Internet provides you with access to a wide variety of information, but some information may not be suitable for every viewer.

With Content Advisor, you can:

- Control Internet access
- Set up a password
- Set up a list of Web sites that people who use the computer cannot view
- Adjust the types of content people who use the computer can view with or without your permission

## Restricting Internet Content

*Windows 2000*

If you have not previously enabled Content Advisor:

1. On the Windows desktop, select **Start > Settings > Control Panel**.
2. Double-click **Internet Options**.
3. Click the **Content** tab.
4. In the Content Advisor area, click the **Enable** button.
5. Click a category in the list, then drag the slider to set the limits you want to use. Repeat this process for each category you want to limit.
6. Click **OK**, then type your password in the Password box. A dialog box will inform you that Content Advisor has been turned on. Click **OK**.

If you have previously enabled Content Advisor:

1. Select **Start > Settings > Control Panel**.
2. Double-click **Internet Options**.
3. Click the **Content** tab.
4. To change the settings:
  - a. Click the **Settings** button. Type your password and click **OK**.
  - b. Click a category in the list, then drag the slider to set the limits you want to use. Repeat this process for each category you want to limit.
5. To disable Content Advisor:
  - a. Click the **Disable** button. Type your password and click **OK**.
  - b. A dialog box will inform you that Content Advisor has been turned off. Click **OK**.

### *Windows XP*

If you have not previously enabled Content Advisor:

1. Select **Start > Control Panel**.
2. Double-click **Internet Options**.
3. Click the **Content** tab.
4. In the Content Advisor area, click the **Enable** button. If you have previously created a password for Internet settings, you will be prompted for your password now.
5. Click a category in the list, then drag the slider to set the limits you want to use. Repeat this process for each category you want to limit.
6. Click **OK**, then type your password in the Password box. A dialog box will inform you that Content Advisor has been turned on. Click **OK**.

If you have previously enabled Content Advisor:

1. Select **Start > Control Panel**.
2. Double-click **Internet Options**.

3. Click the **Content** tab.
4. To change the settings:
  - a. Click the **Settings** button. Type your password and click **OK**.
  - b. Click a category in the list, then drag the slider to set the limits you want to use. Repeat this process for each category you want to limit.
5. To disable Content Advisor:
  - a. Click the **Disable** button. Type your password and click **OK**.
  - b. A dialog box will inform you that Content Advisor has been turned off. Click **OK**.

## Solving Internet Access Problems

If you encounter Internet access problems, consult the ISP or refer to the common causes and solutions listed in the following table.

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### Solving Internet Access Problems

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<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Unable to connect to the Internet.	Internet Service Provider (ISP) account is not set up properly.	Verify Internet settings or contact the ISP for assistance.
	Modem is not set up properly.	Reconnect the modem. Verify the connections are correct using the quick setup documentation.
	Web browser is not set up properly.	Verify that the Web browser is installed and set up to work with the ISP.
	Cable/ DSL modem is not plugged in.	Plug in cable/DSL modem. You should see a "power" LED light on the front of the cable/DSL modem.
	Cable/DSL service is not available or has been interrupted due to bad weather.	Try connecting to the Internet at a later time or contact the ISP. (If the cable/DSL service is connected, the "cable" LED light on the front of the cable/DSL modem will be on.)

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**Solving Internet Access Problems** *(Continued)*


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<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Unable to connect to the Internet. <i>(continued)</i>	The CAT5 10/100 cable is disconnected.	Connect the CAT5 10/100 cable between the cable modem and the computers's RJ-45 connector. (If the connection is good, the "PC" LED light on the front of the cable/DSL modem will be on.
	IP address is not configured properly.	Contact the ISP for the correct IP address.
	Cookies are corrupted. (A "cookie" is a small piece of information that a Web server can store temporarily with the Web browser. This is useful for having the browser remember some specific information that the Web server can later retrieve.)	<p><i>Windows 2000</i></p> <ol style="list-style-type: none"> <li>1. Select <b>Start &gt; Settings &gt; Control Panel</b>.</li> <li>2. Double-click <b>Internet Options</b>.</li> <li>3. On the <b>General</b> tab, click the <b>Delete Cookies</b> button.</li> </ol> <p><i>Windows XP</i></p> <ol style="list-style-type: none"> <li>1. Select <b>Start &gt; Control Panel</b>.</li> <li>2. Double-click <b>Internet Options</b>.</li> <li>3. On the <b>General</b> tab, click the <b>Delete Cookies</b> button.</li> </ol>
Cannot automatically launch Internet programs.	You must log on to the ISP before some programs will start.	Log on to the ISP and launch the desired program.

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## Solving Internet Access Problems *(Continued)*

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<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Internet takes too long to download Web sites.	Modem is not set up properly.	Verify that the correct modem speed and COM port are selected. <i>Windows 2000</i> <ol style="list-style-type: none"><li>1. Select <b>Start &gt; Settings &gt; Control Panel</b>.</li><li>2. Double-click <b>System</b>.</li><li>3. Click the <b>Hardware</b> tab.</li><li>4. In the Device Manager area, click the <b>Device Manager</b> button.</li><li>5. Double-click <b>Ports (COM &amp; LPT)</b>.</li><li>6. Right-click the COM port the modem uses, then click <b>Properties</b>.</li><li>7. Under <b>Device status</b>, verify that the modem is working properly.</li><li>8. Under <b>Device usage</b>, verify the modem is enabled.</li><li>9. If there are further problems, click the <b>Troubleshoot</b> button and follow the on-screen instructions.</li></ol>

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**Solving Internet Access Problems** *(Continued)*

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<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Internet takes too long to download Web sites. <i>(continued)</i>	Modem is not set up properly. <i>(continued)</i>	Verify that the correct modem speed and COM port are selected. <i>(continued)</i> <i>Windows XP</i> <ol style="list-style-type: none"><li>1. Select <b>Start &gt; Control Panel</b>.</li><li>2. Double-click <b>System</b>.</li><li>3. Click the <b>Hardware</b> tab.</li><li>4. In the Device Manager area, click the <b>Device Manager</b> button.</li><li>5. Double-click <b>Ports (COM &amp; LPT)</b>.</li><li>6. Right-click the COM port the modem uses, then click <b>Properties</b>.</li><li>7. Under <b>Device status</b>, verify that the modem is working properly.</li><li>8. Under <b>Device usage</b>, verify the modem is enabled.</li><li>9. If there are further problems, click the <b>Troubleshoot</b> button and follow the on-screen instructions.</li></ol>

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