

Wireless LAN PC Card, PCI Card and USB User Guide

Model WL-305 Model WL-307

Model WL-308

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Introduction	The Wireless LAN network offers performance comparable to Ethernet networks, but without the restraints of network cables. The Wireless LAN product family includes the model WL-305 PC Card, the WL-307 USB Device, and the WL-308 PCI Card described in this manual.
Features	Wireless LAN adapters use IEEE 802.11HR direct-sequence-based technology to extend the range and versatility of a network. They provide a high-capacity link across multiple access points within large or small indoor environments. Wireless LAN product-family features include:
	 Bridging architecture allows communication between wired network devices and mobile devices.
	 Compliance with IEEE 802.11 HR specification. This open architecture allows Wireless LAN devices to communicate with wireless devices from other manufacturers.
	 Extended roaming allows mobile devices to roam throughout large facilities while remaining connected to the LAN.
	Wireless LAN PC and PCI Card operating features include:
	Support for standard NDIS (Network Driver Interface Specification) and drivers.
	 Support for Wndows 2000, Windows 98, Windows 95B, and Windows NT 4.0 (with Service Pack 3.0 or greater).
	 Plug and Play support.
	 Power management.
	 Low-power operation for battery-powered devices with PC Card slots.
	Wireless LAN adapters support a maximum data rate of 11 Mbps. (The data rate drops back to 5.5, 2, or 1 Mbps when the adapter cannot establish or maintain an 11 Mbps association.) Factors that can affect the data rate include:
	 A separation or change in signal strength between the Access Point and the wireless client
	 The ratio of packets transmitted to transmissions attempted falling below a preset threshold
	• The wireless client finding and switching to another Access Point with a higher transmit rate

Roaming means the Wireless LAN NIC Card will maintain your network connection as you roam between Access Points in the same subnet. You can also roam across routers, depending on how your Extended Roaming configuration is set. When configured for Extended Roaming, the wireless client retains its network address as it moves between subnets, between Ethernet segments, or from an Ethernet segment to a wireless LAN. See "Easy Setup" on page 13 for details. The wireless LAN NIC cards support *Continuous Active* and *Power Save Polling* power-management modes.

- In Continuous Active Mode, the radio that establishes and maintains the link to the network remains on. Continuous Active mode is not recommended for battery powered devices.
- Power Save Polling conserves power by suspending the adapter's communication with an associated access point. The access point saves data for transmission to the wireless client when it wakes at given intervals. When the adapter wakes to check for data, it switches back into Continuous Active Mode until it is ready to suspend communications again.

Installation Overview Installing the Wireless LAN network PC or PCI card involves these tasks:

- Running the Setup program from the End User Utilities CD. See "Installing the Drivers" on page 9.
- Installing the card in a PC Card slot on your computer. Do not install the card until instructed to do so by the setup software. The procedure for installing the PC card is described in "Installing the PC Card" on page 19. The procedure for installing the PCI card is described in "Installing the PCI Card" on page 23.
- Installing the software, including the drivers for the card and the Wireless LAN software utilities. See "Installing the Card Software" on page 10.

If you are reading this manual from the CD and want to install it on your hard disk for easier access, see "Installing the Documentation" on page 10.

- The card installation procedure covers basic configuration. For advanced configuration options, or to explore the utilities available for managing and configuring the card, see "Software Tools and Utilities" on page 13.
- **Disk Factory** If you are installing the software on a computer that does not have a CD-ROM drive, or if you choose to install the drivers manually, you will have to make diskettes from the *End User Utilities CD*. The setup application includes Disk Factory, a utility for creating disks from CD. To use disk factory, you need access to a computer with a CD-ROM drive and a floppy drive.
 - 1 For a transfer of the driver software to a diskette, prepare a diskette labeled *Drivers.*

For a transfer of the application software to diskette, prepare three disks labeled as follows:

Wireless LAN Application Disk 1 Wireless LAN Application Disk 2 Wireless LAN Application Disk 3

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- 2 Put the *End User Utilities CD* in the CD-ROM drive. The SETUP program should start automatically. If it does not start, you can run it manually by selecting *Run* from the Start menu.
- **3** Select *Create Diskettes*.
- 4 In the Disk Factory window, click Next.
- **5** Select the software you want to transfer to diskette. If you select *All*, you will need four floppy diskettes.
- 6 Select the action, for example, *Create and Verify Disks*, and click *Next*.
- 7 When you are ready to install the application software from diskette, put *Wireless LAN Application Disk 1* in the floppy drive and run SETUP.

If you are installing the drivers manually, use the Drivers diskette when the setup wizard for your operating system prompts for drivers supplied by the manufacturer.

SOFTWARE INSTALLATION

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Introduction		Use the procedures described in this chapter to install the Wireless LAN NIC Card software and drivers under Windows 2000, Windows 98, and Windows 95.
		Windows 95 users should note that the Wireless LAN NIC card runs under Windows 95 version B or higher. If you do not know which version of Windows 95 is installed on your computer, follow these steps:
	1	In the Control Panel, double-click <i>System</i> to display the System Properties dialog box.
	2	Click the <i>General Tab</i> to display the Windows 95 version information.
		Version B (also known as OSR 2) is identified as 4.00.950b.
		Windows NT 4.0 users should refer to the driver installation instructions described later in this book.
		For drivers for other operating systems, refer to the 3Com customer support Web site at <u>http://support.3com.com</u> .
Before Installing the Drivers		Before installing the driver, you will need a copy of the Windows 98 installation media supplied with your computer or operating system. On many Windows 98 systems, instead of a CD, the installation files are archived on the hard disk in C:\WINDOWS\OPTIONS\CABS. On Windows 2000 systems, you may be prompted to load operating system files from the Windows 2000 installation disk.
		You will also need the Wireless LAN <i>End User Utilities CD</i> supplied with your Wireless LAN NIC card. Along with other utilities, the <i>End User Utilities CD</i> installs the Wireless LAN <i>Network Configuration Properties Application</i> in the Control Panel on your system. Use this application to view and edit Wireless LAN WLAN adapter settings.
		If your site requires installation using diskettes, see "Disk Factory" on page 6. Where the driver installation procedure mentions the <i>End User Utilities CD</i> and and CD-ROM drive, use the diskettes and the floppy drive instead.
Installing the Drivers		
0	1	Turn on your computer.
	2	Put the <i>End User Utilities CD</i> in the CD-ROM drive.
		The setup program should start automatically. If it does not start, you can run it manually by selecting <i>Run</i> from the Start menu.
	3	From the 3Com Wireless LAN WLAN Installer, select <i>Install Wireless LAN WLAN Adapter</i> . Follow the instructions as they appear.

Chapter 2: Software Installation

4 When prompted to insert the Wireless LAN PC card, insert the card into the notebook or laptop PC slot as described in "Installing the PC Card" on page 19. The PCI card installation into a desktop PC is described in "Installing the PCI Card" on page 23. The driver installation procedure will guide you through the steps standard for your operating system. If you are unfamiliar with driver installation procedures, refer to the Wireless LAN Network Interface Card User Guide for details. You will be asked to supply CDs or directory path information for the End User Utilities CD and your operating system software. As part of the driver installation process, the setup program will install and open the Network application in the Control Panel. 5 Enter the name of the Wireless LAN Service Area of the wireless network to which your computer will connect. The name you enter here must match exactly the name assigned to the access point. Characters, capitalization, and spacing must be identical. **6** Save the configuration settings and exit by clicking *OK*. 7 Restart your computer. Installing the Card When the system reboots, restart the setup program and install any other Software components required. 3Com recommends that you install the wireless LAN applications so you can access the utilities described in the Wireless LAN Network Interface Card User Guide. Restart your computer for changes to take effect. Installing the If you are reading this manual from the CD, you may want to install it on your hard disk Documentation using the following procedure: 1 Put the End User Utilities CD in the CD-ROM drive. The Setup program will start automatically. If the Setup program does not start, use Start/Run to run the SETUP.EXE program from CD-ROM drive. 2 Select Documentation. You can view the manuals from the CD. **3** To install the manuals on your hard disk, select *Install User Documentation*. Follow the instructions on the screen to complete the installation. 4 Exit the setup program. You can open the manuals from the Wireless LAN program group. Product Registration To register this product with 3Com, go to the following Web page: and Support http://www.3com.com/productreg/index.html For support information and pointers to the latest drivers and utilities available for the Wireless LAN network interface card, go to the following Web page: http://support.3com.com

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Uninstalling the Card If the card installation is unsuccessful for any reason, your best course may be to completely uninstall the Wireless LAN PC Card and its software and repeat the installation procedure.

Previous installations or interrupted installation attempts sometimes leave problems that affect card operation. Possible problems include:

- The card functions not working.
- Windows 98 not detecting the card.
- The system issuing a warning tone at startup.

You can remove the card and driver files using the procedures below.

Removing Card
SoftwareOpen Control Panel/System/Device Manager. Select the Wireless LAN WLAN NIC
card components and click *Remove*.

Using the Device Manager to remove the card will uninstall the driver files.

Removing the Card When removing the PC card, use the release lever or button on your card slot to release the card. When pulling out the card, do not pull on the antenna. Refer to "Removing the PC Card" on page 21.

When removing the PC card, use the release lever or button on your card slot to release the card. When pulling out the card, do not pull on the antenna. Refer to "Removing the PCI Card" on page 24.



CAUTION: Exit any networking applications and disable PC Card in the software before removing the card.

Troubleshooting

Symptom	Solution
Weak signal or intermittant connection.	Try reorienting the antenna. The NIC Card antenna is attached to the end of the card. For best use of the antenna:
	• Keep the area around the antenna clear from materials that could block radio transmission, such as metal objects, electronic devices, and cordless telephones.
	 If your signal is weak, change the direction of the antenna slightly.
	 If necessary, move your computer a few inches to find a better signal. Depending on your environment, a difference of one or two inches can mean the difference between a strong and a weak signal. See "Status" on page 14 for details.
	Use the Signal Strength display in the Wireless LAN Status application to determine the best location and orientation for a network connection. See "Connection" on page 15 for information on monitoring your Wireless LAN connection.
Windows does not recognize the	Verify that PCMCIA support is installed.
adapter when installed.	Check whether the computer has a Plug and Play BIOS.
	Check whether an Wireless LAN adapter is already in use.
Driver fails to load.	A resource conflict could exist. Use the Device Manager to resolve resource conflicts. Select <i>System</i> from the Control Panel, then click on the Device Manager tab.
Workstation cannot attach to the network.	Verify that the adapter Wireless LAN Service Area ID matches the access point ID. See "Easy Setup" on page 13
	Verify that the adapter Data Rate is configured properly for the access point.
Network drive mappings disappear when the laptop suspends or the adapter is removed then reinserted.	Windows 98 will not restore NetWare network drive mappings under these conditions. Log out and log in again, or restart the machine to restore the connections.
Nonfunctioning PCI adapter LEDs.	Verify that the Card Type parameter is set to PCI.
	Verify that the Wireless LAN Service Area ID matches the access point ID.

SOFTWARE TOOLS AND UTILITIES

Introduction The Wireless LAN PC Card software includes three groups of utilities. The best to familiarize yourself with the software, the information it provides, and the options you can change, is to open and browse through the applications themselves. If you hold the cursor over an icon or item, a popup window will identify it for you. Help is available throughout the applications. Easy Setup Easy Setup lets you set common configuration parameters for the Wireless LA NIC card. 1 Open the Control Panel and double-click the Network application. 2 Select the 3Com WLAN Adapter and select <i>Properties</i> . • Wireless LAN Service Area lets you specify the ID for the Access Point you connect to. • Advanced Properties lets you set more advanced options in their WLAN ada configuration. You can also access the Advanced Properties settings through the Network application located in the control panel. Advanced Properties include: • Wireless Clans Service Area, and Power Management settings. Wireless LAN Service Area, and Power Management settings. • Wireless LAN Service Area is equivalent to the 802.11 parameter ESID. Th initial value was set when you ran the 3Com Wireless Easy Setup applicatio • Power Management is a silder that controls how you trade off performanc and power management for the adapter. The system polls the other wirele devices on the network to determine if any traffic exists for this PC. To sav power the interval between polls increased. • Mobile IP lets you neable and confligure extended roaming between router To enable Extended Roaming, check the Mobile IP check box. When this be checked, the Home Agent IP Address Nobile Home MD5 Key. Registratior Timeout, and Dela	3	SOFTWARE TOOLS AND UTILITIES
 Easy Setup Easy Setup lets you set common configuration parameters for the Wireless LANIC card. Open the Control Panel and double-click the Network application. Select the 3Com WLAN Adapter and select <i>Properties</i>. Wireless LAN Service Area lets you specify the ID for the Access Point your connect to. Advanced Properties lets you set more advanced options in their WLAN ada configuration: You can also access the Advanced Properties settings through the Network application located in the control panel. Advanced Properties include: Wireless Client lets you set the two most common settings for the WLAN adapter, Wireless LAN Service Area is equivalent to the 802.11 parameter ESSID. Th initial value was set when you ran the 3Com Wireless Easy Setup applicatio Power Management is a slider that controls how you trade off performance and power management for the adapter. The system polls the other wireled devices on the network to determine if any traffic exists for this PC. To saw power the interval between polls is increased. Mobile IP lets you enable and configure extended roaming between router To enable Extended Roaming, check the Mobile IP check box. When this be checked, the Home Agent IP Address lets your Wireless Client with your Ho Access Point through a Foreign subnet Access Point (commonly called a For Agent) and tell the Foreign Access Point where your home access point is located. Mobile Home MD5 Key is a password that protects your registration packe from being tampered with by others while they are being forwarded to your pacent with by others while they are being forwarded to your both parts while they are being forwarded to your both parts while they are being forwarded to your both parts while they are being forwarded to your both parts while they are being forwarded to your both parts while they are being forwarded to your both parts while they are being forwa	Introduction	The Wireless LAN PC Card software includes three groups of utilities. The best way to familiarize yourself with the software, the information it provides, and the options you can change, is to open and browse through the applications themselves. If you hold the cursor over an icon or item, a popup window will identify it for you. Help is available throughout the applications.
home access point. It should match the MD5 key on the Access Point of yo home subnet.	Easy Setup	 Easy Setup lets you set common configuration parameters for the Wireless LAN NIC card. 1 Open the Control Panel and double-click the Network application. 2 Select the 3Com WLAN Adapter and select <i>Properties</i>. <i>Wireless LAN Service Area</i> lets you specify the ID for the Access Point you will connect to. <i>Advanced Properties</i> lets you set more advanced options in their WLAN adapter configuration: You can also access the Advanced Properties settings through the Network application located in the control panel. Advanced Properties include: <i>Wireless Client</i> lets you set the two most common settings for the WLAN adapter, Wireless LAN Service Area, and Power Management settings. Wireless LAN Service Area is equivalent to the 802.11 parameter ESSID. The initial value was set when you ran the 3Com Wireless Easy Setup application. <i>Power Management</i> is a slider that controls how you trade off performance and power management for the adapter. The system polls the other wireless devices on the network to determine if any traffic exists for this PC. To save power the interval between polls is increased. <i>Mobile IP</i> lets you enable and configure extended roaming between routers. To enable Extended Roaming, check the Mobile IP check box. When this box is checked, the Home Agent IP Address, Nobile Home MD5 Key, Registration Timeout, and Delay Time fields are enabled. <i>Home Agent IP Address</i> lets you register your Wireless Client with your Home Access Point through a Foreign Access Point where your home access point is located. <i>Mobile Home MD5 Key</i> is a password that protects your registration packets from being tampered with by others while they are being forwarded to your home access point. It should match the MD5 key on the Access Point of your home access Point. It should match the MD5 key on the Access Point of your home access point. It should match the MD5 key on the Access Point of your home subnet.

Registration Timeout (5 to 3600 seconds) tells the Wireless Client how often it needs to reregister with the Home Agent. When a Wireless Client registers with the Home Agent through a Foreign Agent the registration has an expiration time associated with it. The Registration Timeout value The default value is 60 seconds. If the Wireless Client does not reregister in the time allowed, the Home Agent will remove the Wireless Client from its list of registered Wireless Clients when the time expires.

Delay Time is the amount of time (1 to 10 seconds) that the Wireless Client will wait for a response from aforeign subnet access point when trying to register with that access point. The Wireless Client will try to register a maximum of three times.

WLAN Adapter lets you set specific hardware parameters that effect the operation of the WLAN adapter. This tab has different views depending on the operating system. In Windows NT 4, the tab displays hardware resource information and lets you change the settings. In Windows 95 and Windows 98, the tab does not display this information because it is set by Plug and Play.

Card Type lets you specify the card currently installed. For the selected card, you can review or change:

Interrupt Number is displayed only in the Windows NT environment. This field lets you select an Interrupt Request Number (IRQ) to use with this card.

I/O Port Address is displayed only in the Windows NT environment. This field lets you select an I/O Port Address to use with this card.

Memory Base Address is displayed only in the Windows NT environment. This field lets you select an Memory Base Address to use with this card.

StatusThe Wireless LAN Status application displays status information about the current
signal strength and provides access to 3Com WLAN application tools, including
Settings, Connection, and Adapter Information utilities.

Start the Status application by clicking the 3Com icon in the tool tray in the lower right-hand corner of the Windows desktop.

- Settings launches the 3Com Wireless LAN Settings application in another window.
- Connection launches the 3Com Wireless LAN Connection application in another window. The signal status display is constantly updated to show the status of the wireless signal. The signal is rated as follows: no adapter installed, no connection, no signal, poor signal, fair signal, average signal, good signal, and excellent signal.
- Adapter Information launches the 3Com Wireless LAN Adapter Information application in another window.

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- Settings The Settings application displays information about the current card settings. It also lets you change the configuration of the card without rebooting your system. The application lets you set parameters such as Wireless Service Area and Power Mode settings.
 - Wireless LAN Service Area displays the name of the access point with which the wireless PC Card is associated. You can enter a new name in this field or select a name from the drop-down list.
 - Power Mode lets you select the power mode to use and specify when power-save options are in effect.

Continuous access does not use power save polling and disables it.

Power save polling uses Power Save Polling at all times.

Switch based upon active power source causes the system to switch the power mode based upon whether the system is using AC or battery power. In this mode, the system use continuous polling mode with an AC power source and power save polling with battery power.

The Power Save Polling slider lets you balance network performance against power consumption. When the slider is set to lowest power, the adapter checks network traffic less frequently, reducing power consumption used. When the slider is set to highest performance, the adapter tries to maintain constant contact with the network, increasing network performance but consuming correspondingly more power. If you check *Let the adapter manage power usage*, the card will use the best setting available at any given time. The polling interval is based on whether the system has received data recently. If no data is being received, the polling interval becomes less frequent over time, gradually decreasing power consumption.

- **Connection** The Connection application allows more detailed checks of card performance than is possible with the Wireless LAN Status application. Signal strength is displayed over time, which lets you check the performance of the wireless link.
 - *Signal Strength* tracks the signal strength in real time and displays a graph showing the historical trend.
 - Link Performance lets you run a ping test between the wireless client and another IP device on the network. When the ping test is run to another wireless device, the round trip ping time can give an idea of what the upper limit is for connection speed.

Start Test starts a ping test using the information provided in the Test Count and Host Address fields.

Test Count lets you select the number of pings to perform in testing link performance.

Host Address lets you enter the IP address or host name of the system to perform the ping test.

Link Performance displays the results of the ping test specified on this tab. A graph indicating the round trip ping time of each ping and timing statistics are shown.

Adapter Information The Adapter Information application lets you perform a wide range of adapter configuration and monitoring tasks from a single user interface. The application lets you configure the adapter, monitor performance, diagnose problems, and set up system logging. Each screen has a category list that lets you select which information is to be displayed in the window.

 Adapter provides basic information about the adapter and the current hardware settings

Signal Quality updates in real time to indicate the current signal strength.

Adapter Information displays basic adapter information.

Hardware Properties indicate the hardware resources being used by the PC, and hardware characteristics of the WLAN adapter (Hardware Revision, MAC Address, and Adapter Type).

- Known Access Points shows which access points your adapter can sense and displays basic statistics for each. The display shows the access point addresses, channel, a type/status indicator, noise, and signal. The access point is indicated by a graphic of an access point transmitting on the left hand side of the list.
- Association displays statistics on the performance of the adapter related to adapter to access point associations and roaming.

Association Statistics include the current number of associations, access point counts, number of fill scans, number of partial scans, and the current access point that the adapter is associated with.

Roaming Reasons list the reason that the adapter roamed from access point to access point.

Miscellaneous Statistics lets you see if the adapter is experiencing transmission problems.

Reset Statistics clears and restarts all statistics counters.

• *Transmit and Receive Statistics* are concerned with the quality of the wireless connection between the PC Card and the access point.

Transmit Statistics include the total host packets transmitted, information on non-directed packets, information on directed packets, and the total number of bytes transmitted.

Receive Statistics include the total host packets received, information on non-directed packets, information on directed packets, and the total number of bytes received.

The transmit and receive graph displays a histogram of the directed and non-directed traffic at varying data rates.

 Diagnostics panel lets you perform low level tests to determine if the WLAN hardware is functioning.

Select Function lets you choose a self-test or reset the adapter.

Execute Function perfors the selection.

Results shows the results of the diagnostics.

Options lets you save adapter performance information in a file.

Enable Logging starts or stops logging to a group of HTML files on the system.

Log File Path is the current path to store the log files. The field is disabled when logging is not turned on. Use *Browse* to select a Log File Path.

View Log Files selects the log file to view in the default browser.

Firmware Upgrade The Adapter Firmware Upgrade tool lets you download and install firmware updates that you have downloaded from the 3Com Customer Support Web site at <u>http://support.3com.com</u>.

To run the Card Upgrade utility:

- 1 Open the Start menu.
- 2 Select Programs.
- **3** Select *3Com Wireless LAN*.
- 4 Select Wireless LAN Upgrade Utility.

The Upgrade Utility lets you view information on the current firmware version of the currently installed card and install firmware updates by selecting a firmware and CIS file downloaded from the 3Com Web site.

- *Firmware loaded in adapter* displays the version information for the current firmware on the adapter.
- *Primary Firmware Filename* lets you specify a new firmware binary to load on the adapter.
- *Pbrowse* opens a browser so you can select a primary firmware file. The new selection updates the Firmware Filename field.
- Secondary Firmware Filename lets you specify a new firmware binary to load on the adapter.
- Sbrowse opens a browser so you can select a secondary firmware file. The new selection updates the Firmware Filename field.
- CIS Filename lets you specify a new CIS binary to load on the adapter.
- *Cbrowse* opens a browser so you can select a CIS file. The new selection updates the Firmware Filename field.
- *Update* initiates the update of the firmware on the adapter based using the Firmware and CIS files specified.

Encryption

The client and access point can be set for encryption to provide a level of security to the data stream between the client and its associated AP.

Encryption Configuration Requirements

- The encryption level (open, 40-bit, or 128-bit) must be the same on the wireless client and the access point.
- All Shared Keys on the wireless client must be the same as those on the access point with which the client will associate. They must match exactly (key order and hex-digit sequence).
- The selected keys do not need to be the same among different clients and/or access points.

Enabling Encryption on
the Wireless ClientThis procedure describes how to enable encryption on the wireless client. Refer to
the Access Point User Guide for instructions on how to enable encryption on the
AP.

- 1 Go to Start > Settings > Control Panel > Network.
- 2 Highlight the Wireless LAN Card, click on the Properties tab.
- 3 Click on the Wireless LAN tab,
- 4 Click on the Advanced button.
- **5** Select the Encryption tab.
- 6 Change the current Encryption setting from the default "No encryption" to 40-bit or 128-bit (USA) or 40-bit (-E1 product, non-USA).
- 7 Select Shared Keys.
- 8 Click OK in the Advanced Properties window to save changes.
- 9 Click OK to exit the 3Com Wireless LAN WLAN Easy Setup window.
- **10** Click OK to exit the Network window.
- 11 Reboot the system.

INSTALLING THE PC CARD



Installing the PC Card



- **1** Insert the PC Card into the PC slot. Arrows on the front of the PC Card indicate the insertion point to the slot.
- 2 Slide in the PC Card until it seats snugly.



CAUTION: Align the card properly before putting it in the slot. Insert the card firmly without forcing. Forcing a misaligned card into the slot can damage the computer or the card.

Wireless LAN Adapter LEDs

The WLAN adapter LEDs (see 1 and 2 in the figure below) perform identical functions when indicating the operational status of the card.

- If there is no access point associated with the PC Card, the LEDs are off.
- If the card is attempting to associate with an access point, the LEDs blink slowly.
- If the card is exchanging data with an associated access point, the LEDs blink rapidly. The higher the data rate, the faster the blinking.



Removing the PC Card When removing the card, use the release lever or button on your card slot to release the card. When pulling out the card, do not pull on the antenna.



CAUTION: The antenna on the PC Card is not removable. If you try to remove the card by pulling on the antenna, you may break the antenna and permanently damage the card.



CAUTION: Exit any networking applications and disable PC Card in the software before removing the card.

INSTALLING THE PCI CARD



Installing the PCI Card

- **1** Remove the top panel from your computer according to the instructions that accompany your system.
- 2 Locate the correct slot for the Wireless LAN PCI Card.
- **3** Remove the blank faceplate covering the rear of the slot, if one is present, by loosening the screw that secures the faceplate to the computer chassis.



- **4** Insert the PCI Card into the computer slot so that the metal faceplate faces the rear of your computer.
- 5 Insert the PCI Card into the slot until it seats snugly.



CAUTION: Align the card properly before putting it in the slot. Insert the card firmly without forcing. Forcing a misaligned card into the slot can damage the computer or the card.

6 Reattach the computer top panel.

Connecting the Antenna Attach the cable from the antenna to the connector on the PCI card faceplate.

Wireless LAN PCI Card LEDs The PCI card LEDs (see 1 and 2 in the figure below) perform identical functions when indicating the operational status of the card.

- If there is no access point associated with the PCI Card, the LEDs are off.
- If the card is attempting to associate with an access point, the LEDs blink slowly.
- If the card is exchanging data with an associated access point, the LEDs blink rapidly. The higher the data rate, the faster the blinking.



Removing the PCI Card Before removing the card, you must disconnect the antenna cables from the card faceplate.

To Remove the PCI Card:

- **1** Turn off power to the computer.
- 2 Disconnect the antenna cables from the card faceplate.
- **3** Remove the computer's top cover.
- **4** Loosen the screw that secures the card's metal faceplate to the computer's rear panel.
- **5** Pull the card up and out of the card slot.

INSTALLING THE USB DEVICE



Installing the USB Device



- 1 Mount the USB device in desired location using the enclosed mounting hardware.
- 2 Connect the device to a USB port using an approved USB cable.

USB Device LED

The USB device features one LED to indicate the status of connection and traffic.

- No light indicates no connection has been made.
- A slowly blinking light indicates a data rate of 1 or 2 Mbps.
- A medium blinking light indicates a data rate of 5.5 Mbps.
- A fast blinking light indicates a data rate of 11 Mbps.

TECHNICAL SUPPORT



Online Technical Services	3Com offers worldwide product support 24 hours a day, 7 days a week, through the following online systems:
	 World Wide Web site
	■ 3Com FTP site
	 3Com Bulletin Board Service (3Com BBS)
	■ 3Com Facts [™] automated fax service
World Wide Web Site	Access the latest networking information on the 3Com Corporation World Wide Web site by entering the URL into your Internet browser:
	http://www.3com.com/
	This service provides access to online support information such as technical documentation and software library, as well as support options ranging from technical education to maintenance and professional services.
3Com FTP Site	Download drivers, patches, software, and MIBs across the Internet from the 3Com public FTP site. This service is available 24 hours a day, 7 days a week.
	To connect to the 3Com FTP site, enter the following information into your FTP client:
	 Hostname: ftp.3com.com (or 192.156.136.12)
	■ Username: anonymous
	Password: <your address="" e-mail="" internet=""></your>

3Com Bulletin Board Service

The 3Com BBS contains patches, software, and drivers for 3Com products. This service is available through analog modem or digital modem (ISDN) 24 hours a day, 7 days a week.

To reach the service by modem, set your modem to 8 data bits, no parity, and 1 stop bit. Call the telephone number nearest you:

Country	Data Rate	Telephone Number	Country	Data Rate	Telephone Number
Australia	Up to 14,400 bps	61 2 9955 2073	Japan	Up to 14,400 bps	81 3 3345 7266
Brazil	Up to 14,400 bps	55 11 5181 9666	Mexico	Up to 28,800 bps	52 5 520 7835
France	Up to 14,400 bps	33 1 6986 6954	P.R. of China	Up to 14,400 bps	86 10 684 92351
Germany	Up to 28,800 bps	4989 62732 188	Taiwan, R.O.C.	Up to 14,400 bps	886 2 377 5840
Hong Kong	Up to 14,400 bps	852 2537 5601	U.K.	Up to 28,800 bps	44 1442 438278
Italy	Up to 14,400 bps	39 2 27300680	U.S.A.	Up to 53,333 bps	1 847 262 6000

ISDN users can dial in to the 3Com BBS using a digital modem for fast access up to 64 Kbps. To access the 3Com BBS using ISDN, use the following number:

1 847 262 6000

3Com Facts Automated Fax Service The 3Com Facts automated fax service provides technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, 7 days a week.

Call 3Com Facts using your Touch-Tone telephone:

1 408 727 7021

Support from Your Network Supplier

If additional assistance is required, contact your network supplier. Many suppliers are authorized 3Com service partners who are qualified to provide a variety of services, including network planning, installation, hardware maintenance, application training, and support services.

When you contact your network supplier for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com If you are unable to obtain assistance from the 3Com online technical resources or from your network supplier, 3Com offers technical telephone support services. To find out more about your support options, please call the 3Com technical telephone support phone number at the location nearest you.

When you contact 3Com for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

Below is a list of worldwide technical telephone support numbers:

Country	Telephone Number	Country	Telephone Number
Asia Pacific Rim Australia Hong Kong India Indonesia Japan Malaysia New Zealand Pakistan Philippines	1 800 678 515 800 933 486 61 2 9937 5085 001 800 61 009 0031 61 6439 1800 801 777 0800 446 398 61 2 9937 5085 1235 61 266 2602	P.R. of China Singapore S. Korea From anywhere in S. Korea: From Seoul: Taiwan, R.O.C. Thailand	10800 61 00137 or 021 6350 1590 800 6161 463 82 2 3455 6455 00798 611 2230 0080 611 261 001 800 611 2000
Europe From anywhere in Europe, call:	+31 (0)30 6029900 phone +31 (0)30 6029999 fax		
From the following European co	untries, you may use the toll-fre	e numbers:	
Austria Belgium Denmark Finland France Germany Hungary Ireland Israel Italy	06 607468 0800 71429 800 17309 0800 113153 0800 917959 0130 821502 00800 12813 1 800 553117 177 3103794 1678 79489	Netherlands Norway Poland Portugal South Africa Spain Sweden Switzerland U.K.	0800 0227788 800 11376 0800 3111206 05 05313416 0800 995014 900 983125 020 795482 0800 55 3072 0800 966197
Latin America Argentina Brazil Chile Colombia North America	AT&T +800 666 5065 0800 13 3266 1230 020 0645 98012 2127 1 800 NET 3Com (1 800 638 3266)	Mexico Peru Puerto Rico Venezuela	01 800 CARE (01 800 2273) AT&T +800 666 5065 800 666 5065 AT&T +800 666 5065

Returning Products for Repair

Before you send a product directly to 3Com for repair, you must first obtain a Return Materials Authorization (RMA) number. Products sent to 3Com without RMA numbers will be returned to the sender unopened, at the sender's expense.

To obtain an RMA number, call or fax:

Country	Telephone Number	Fax Number
Asia, Pacific Rim	65 543 6500	65 543 6348
Europe, South Africa, and	+ 44 1442 435860	+ 44 1442 435718

Middle East

From the following European countries, you may call the toll-free numbers; select option 2 and then option 2:

Austria Belgium Denmark Finland France Germany Hungary Ireland Israel Italy Netherlands Norway Poland Portugal South Africa Spain Sweden Switzerland U.K.	06 607468 0800 71429 800 17309 0800 113153 0800 917959 0130 821502 00800 12813 1800553117 177 3103794 1678 79489 0800 0227788 800 11376 00800 3111206 05 05313416 0800 995014 900 983125 020 795482 0800 55 3072 0800 966197	
Latin America	1 408 326 2927	1 408 326 3355
U.S.A. and Canada	1 800 NET 3Com (1 800 638 3266)	1 408 326 7120

WARRANTY AND REGULATORY COMPLIANCE

3Com Corporation Limited Warranty

	This warranty applies to customers located in the United States, Australia, Canada (except Quebec), Ireland, New Zealand, U.K., and other English language countries, and countries for which a translation into the local language is not provided
3Com Wireless LAN	
Hardware	3Com warrants to the end user (" Customer") that this hardware product will be free from defects in workmanship and materials, under normal use and service, for the following length of time from the date of purchase from 3Com or its authorized reseller:
	Three (3) years
	Spare Parts and Spares Kits are warranted for ninety (90) days
	3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, 3Com may, in its sole discretion, refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products or parts may be new or reconditioned. 3Com warrants any replaced or repaired product or part for ninety (90) days from shipment, or the remainder of the initial warranty period, whichever is longer.3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, 3Com may, in its sole discretion, refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. 3Com warrants any replaced or repaired product or part for ninety (90) days from shipment, or the remainder of the initial warranty period, whichever is longer.
Software	3Com warrants to Customer that each software program licensed from it , except as noted below, will perform in substantial conformance to its program specifications, for a period of ninety (90) days from the date of purchase from 3Com or its authorized reseller. 3Com warrants the media containing software against failure during the warranty period. No updates are provided. 3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to refund the purchase price paid by Customer for any defective software product, or to replace any defective media with software which substantially conforms to applicable 3Com published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or applications software products in the software products will be corrected. For any third party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a "bug" or defect in the third party's product from use of the software product not in accordance with 3Com's published specifications or user manual.
	The site survey software is licensed "AS IS".
	THIS 3COM PRODUCT MAY INCLUDE OR BE BUNDLED WITH (1) THIRD PARTY SOFTWARE, OR (2) 3COM SOFTWARE WHICH IS USED WITH THE LINUX OPERATING SYSTEM, THE USE OF WHICH IS GOVERNED BY A SEPARATE END USER LICENSE AGREEMENT. THIS 3COM WARRANTY DOES NOT APPLY TO SUCH THIRD PARTY SOFTWARE OR 3COM LINUX SOFTWARE. FOR THE APPLICABLE WARRANTY, PLEASE REFER TO THE END USER LICENSE AGREEMENT GOVERNING THE USE OF SUCH SOFTWARE OR THE ACCOMPANYING DOCUMENTATION RELATING TO SUCH SOFTWARE
YEAR 2000 WARRANTY	In addition to the Hardware Warranty and Software Warranty stated above, 3Com warrants that each product sold or licensed to Customer on and after January 1, 1998 that is date sensitive will continue performing properly with regard to such date data on and after January 1, 2000, provided that all other products used by Customer in connection or combination with the 3Com product, including hardware, software, and firmware, accurately exchange date data with the 3Com product, with the exception of those products identified at 3Com's Web site, http://www.3com.com/products/yr2000.html, as not meeting this standard. If it appears that any product that is stated to meet this standard does not perform properly with regard to such date data on and after January 1, 2000, and Customer notifies 3Com before the later of April 1, 2000, or ninety (90) days after purchase of the product from 3Com or its authorized reseller, 3Com shall, at its option and expense, provide a software update which would effect the proper performance of such product, repair such product, deliver to Customer an equivalent product to replace such product, or if none of the foregoing is feasible, refund to Customer the purchase price paid for such product.
	Any software update or replaced or repaired product will carry a Year 2000 Warranty for ninety (90) days after purchase or until April 1, 2000, whichever is later.
Obtaining Warranty Service	Customer must contact a 3Com Corporate Service Center or an Authorized 3Com Service Center within the applicable warranty period to obtain warranty service authorization. Dated proof of purchase from 3Com or its authorized reseller may be required. Products returned to 3Com's Corporate Service Center must be pre-authorized by 3Com with a User Service Order (USO) number (or a Return Material Authorization (RMA) number or a Service Repair Order (SRO) number, whichever was issued) marked on the outside of the package, and sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured or sent by a method that provides for tracking of the package. Responsibility for loss or damage does not transfer to 3Com until the returned item is received by 3Com. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after 3Com receives the defective product, and 3Com will retain risk of loss or damage until the item is delivered to Customer.
	3Com shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to 3Com for repair, whether under warranty or not.

	Dead- or Defective-on-Arrival. In the event a product completely fails to function or exhibits a defect in materials or workmanship within the first forty-eight (48) hours of installation but no later than thirty (30) days after the date of purchase, and this is verified by 3Com, it will be considered dead- or defective-on-arrival (DOA) and a replacement shall be provided by advance replacement, but only if Customer provides a purchase order number, credit card number, or other method of payment acceptable to 3Com, to be used if 3Com needs to charge Customer for the replacement, as explained below. The replacement product will normally be shipped not later than three (3) business days after 3Com's verification of the DOA product, but may be delayed due to export or import procedures. The shipment of advance replacement products is subject to local legal requirements and may not be available in all locations. When an advance replacement, 3Com will charge Customer for the replacement product, at list price.
	INCLUDED SERVICES: Telephone Support, with coverage for basic troubleshooting only, will be provided for ninety (90) days from the date of purchase, on a commercially reasonable efforts basis. Telephone support is available from 3Com only if Customer purchased this product directly from 3Com, or if Customer's reseller is unable to provide telephone support. Please refer to the Technical Support appendix in the User Guide for telephone numbers.
WARRANTIES EXCLUSIVE	IF A 3COM PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, CUSTOMER'S SOLE REMEDY FOR BREACH OF THAT WARRANTY SHALL BE REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT 3COM'S OPTION. TO THE FULL EXTENT ALLOWED BY LAW, THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, TERMS, OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES, TREMS, OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, CORRESPONDENCE WITH DESCRIPTION, AND NON-INFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. 3COM NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE OR USE OF ITS PRODUCTS.
	3COM SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT OR MALFUNCTION IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLECT, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO OPEN, REPAIR OR MODIFY THE PRODUCT, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, POWER CUTS OR OUTAGES, OTHER HAZARDS, OR ACTS OF GOD.
LIMITATION OF LIABILITY	TO THE FULL EXTENT ALLOWED BY LAW, 3COM ALSO EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF ITS PRODUCTS, EVEN IF 3COM OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT 3COM'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.
DISCLAIMER	Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers, or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to you. When the implied warranties are not allowed to be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights which may vary depending on local law.
GOVERNING LAW	This Limited Warranty shall be governed by the laws of the State of California, U.S.A. excluding its conflicts of laws principles and excluding the United Nations Convention on Contracts for the International Sale of Goods.
	3Com Corporation 5400 Bayfront Plaza Santa Clara, CA 95054 (408) 326-5000 January 3, 2000

Regulatory Compliance Information

CAUTION:

FCC RADIO-FREQUENCY EXPOSURE NOTICE

This device generates and radiates radio-frequency energy. In order to comply with FCC radio-frequency radiation exposure guidelines for an uncontrolled environment, this equipment has to be installed and operated while maintaining a minimum body to antenna distance of 2.5 cm.

This product does not contain any user serviceable components. Any unauthorized product changes or modifications will invalidate 3Com's warranty and all applicable regulatory certifications and approvals.

FCC PART 15 NOTICE (APPLICABLE TO USE WITHIN THE USA)

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

WARNING: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the 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 the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does 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 receiver.
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-00345-4.



MANUFACTURER'S DECLARATION OF CONFORMITY

3Com Corporation 5400 Bayfront Plaza Santa Clara, CA 85054 408-326-5000

Declares that the product:

Date: Brand Name: Model Number: Equipment Type: 1 November 2000 3Com Corporation WL-305 3Com Wireless Bluetooth PC Card

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



INDUSTRY CANADA NOTICE (APPLICABLE TO USE WITHIN CANADA)

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

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

AVIS DE CONFORMITÉ À LA RÉGLEMENTATION D'INDUSTRIE CANADA

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

Pour empêcher que cet appareil cause du brouillage au service faisant l'objet d'une licence, cet appareil doit être utilisé à l'intérieur seulement et devrait être placé loin des fenêtres afin de fournir un écran de blindage maximal.

EUROPEAN COMMUNITY - CE NOTICE

Marking by the symbol CE_{0682} indicates compliance of this equipment to the R&TTE Directive 1999/5/EC. Such marking is indicative that this equipment meets or exceeds the following technical standards:

- ETS 300 328 Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques
- ETS 300 826 Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for 2,4 GHz wideband transmission systems and HIgh PErformance Radio Local Area Network (HIPERLAN) equipment
- ES 59005 Considerations for the evaluation of human exposure to electromagnetic fields (EMF's) from mobile telecommunication equipment (MTE) in the frequency range 30 MHz - 6 GHz
- EN 55022 Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. (CISPR 22 Class B).
- EN 60950 Safety of information technology equipment, including electrical business equipment.

SAFETY COMPLIANCE NOTICE

This device has been tested and certified according to the following safety standards and is intended for use only in Information Technology Equipment which has been tested and certified to these or other equivalent standards:

- UL Standard 1950 / CSA C22.2 No. 950
- IEC 60950
- EN 60950

3Com End User Software License Agreement

IMPORTANT: Read Before Using This Product

YOU SHOULD CAREFULLY READ THE FOLLOWING TERMS AND CONDITIONS BEFORE USING THIS PRODUCT. IT CONTAINS SOFTWARE, THE USE OF WHICH IS LICENSED BY 3COM CORPORATION ("3COM") TO ITS CUSTOMERS FOR THEIR USE ONLY AS SET FORTH BELOW. IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT, DO NOT USE THE SOFTWARE. USING ANY PART OF THE SOFTWARE INDICATES THAT YOU ACCEPT THESE TERMS.

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The 3Com product and/or software covered by this agreement may contain encryption code which is unlawful to export from the US or Canada without an approved US Department of Commerce export license. You agree that you will not export, reexport, either physically or electronically, any encrypted product without an approved export license.

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LIMITED WARRANTY; LIMITATION OF LIABILITY: All warranties and limitations of liability applicable to the Software are as stated on the Limited Warranty Card or in the product manual, whether in paper or electronic form, accompanying the Software. Such warranties and limitations of liability are incorporated herein in their entirety by this reference.

SEVERABILITY: In the event any provision of this License Agreement is found to be invalid, illegal or unenforceable, the validity, legality and enforceability of any of the remaining provisions shall not in any way be affected or impaired and a valid, legal and enforceable provision of similar intent and economic impact shall be substituted therefor.

ENTIRE AGREEMENT: This License Agreement sets forth the entire understanding and agreement between you and 3Com, supersedes all prior agreements, whether written or oral, with respect to the Software, and may be amended only in a writing signed by both parties.

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3Com Corporation, 5400 Bayfront Plaza, P.O. Box 58145, Santa Clara, CA 95052-8145. (408) 326-5000