



11 Mbps Wireless LAN Workgroup Bridge User Guide

Quickly and cost-effectively create Wi-Fi certified workgroups

Version 1

<http://www.3com.com/>
<http://support.3com.com/registration/frontpg.pl/>

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REGULATORY COMPLIANCE INFORMATION

1

INTRODUCTION

3Com wireless technology has all the benefits of a local area network (LAN) without the restraints and expense of network wiring. 3Com 11 Mbps Wireless LAN products provide easy, affordable, flexible ways to extend wireless networks to more users.

This guide shows how you can use the 3Com 11 Mbps Wireless LAN Workgroup Bridge in your office or classroom to connect groups of wired Ethernet client devices to your wireless LAN.

Infrastructure and Ad Hoc Operating Modes

Operating in *infrastructure* mode and connected to an Ethernet hub, a single workgroup bridge can combine up to four client devices—such as computers with network adapters, printers, and 3Com NBX® telephone sets—into a multiclient *workgroup*. The workgroup associates with the wired network through a wireless LAN access point such as the 3Com 11 Mbps Wireless LAN Access Point 6000. Infrastructure configurations extend your wireless LAN to devices that would otherwise have to be connected to the wired network.

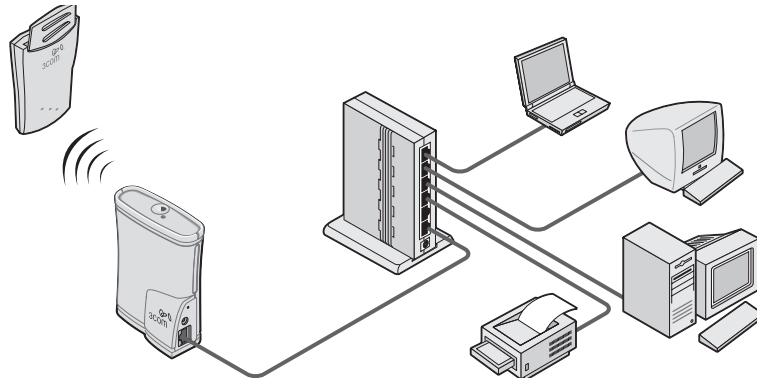
Operating in *ad hoc* mode, two or more bridges can associate among themselves at close range without an access point, allowing their workgroups to communicate. You may wish to set up an ad hoc network, for example, if a group is working away from the office, or if a group in the office needs to share files apart from the wired LAN.

Example Configurations

The following examples illustrate ways you can use the wireless workgroup bridge to configure Ethernet client devices into workgroups. (Details for setting up specific configurations are in “Installing the Workgroup Bridge” on page 7.)

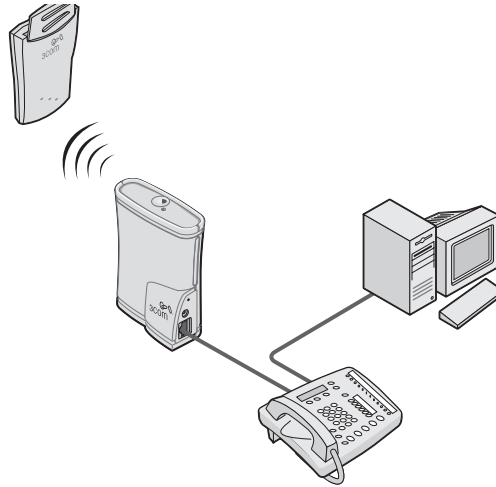
Wireless Network for the Office or Classroom

You can connect several computers, including those with non-Windows operating systems, and printers, as shown below.

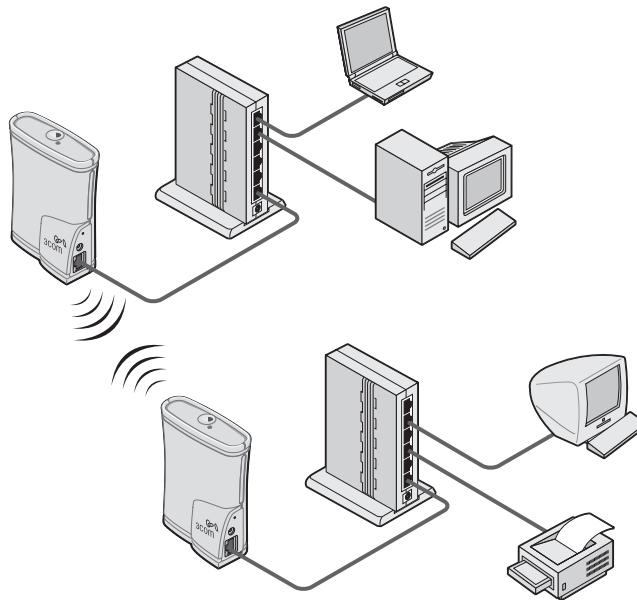


**Converged Connections
in the Office**

You can provide converged voice and data services by connecting the bridge and a computer to a 3Com NBX® telephone set as shown below.

**Workgroup Ad Hoc
Networks**

You can provide flexible wireless network association for small groups in areas that cannot be wired as shown below.

**Product Registration
and Support**

To register your product with 3Com, go to the following Web page:

<http://support.3com.com/registration/frontpg.pl>

For support information, log on to the 3Com Web site at <http://www.3com.com> and navigate to the product support page.

2

INSTALLING THE WORKGROUP BRIDGE

Before You Begin

Make sure that you have the following items, which are included with the 3Com 11 Mbps Wireless LAN Workgroup Bridge:

- Power supply and power cord.
- Standard Category 5 unshielded twisted pair (UTP) Ethernet cable.

To connect the bridge to a hub that does not have an uplink (MDIX) port, you need an Ethernet crossover cable (not supplied).

Before you connect the bridge, decide where to place it and whether you need to configure it.



To configure the bridge, you need a computer running one of the following operating systems and one of the following browsers:

Operating Systems	Browsers
Windows XP	Netscape 4.7 or later
Windows 2000	Internet Explorer 5.0 or later
Windows NT 4.0	
Windows Me	
Windows 98	
Windows 95	

Where should I Place the Bridge?

You should place the bridge in a dry, clean location near the hub, telephone, computer, or printer that will be connected to the bridge. The location must have a power source and be within 300 feet (100 meters) of a Wi-Fi compliant wireless LAN access point. The location should be away from transformers, heavy-duty motors, fluorescent lights, microwave ovens, refrigerators, or other equipment that could cause radio signal interference.

Do I Need to Configure the Bridge?

If your network has a DHCP server and no special security requirements, you can use the workgroup bridge just as it is shipped from the factory. If your network is more complex, you will want to organize devices so that you can manage the wireless LAN easily and keep it secure. The following table shows the workgroup bridge configuration factory defaults.

Property	Default Setting
Device Name	3ComWWB
Device Location	None

Property	Default Setting
Help File Location	Local Drive
Help File Path	c:\Program Files\3Com\Management Help
IP Network Setting	Obtain IP address automatically
IP Address	Obtained automatically
Subnet Mask	Obtained automatically
Gateway IP Address	Obtained automatically
Clear Channel Select	Off
Channel	Uses access point channel.
Wireless LAN Service Area	Attach to any WLAN Service Area automatically
Network Mode	Access Point (infrastructure)
Access Point Privacy Mode	Off
Network Traffic Accelerator	Off (Wi-Fi interoperable)
Data Preamble	Long (Wi-Fi interoperable)
Security Setting	No Security (Open System)
Administration Password	None
TFTP Server IP Address	None (Uses TFTP port 69.)



If the configuration that was set at the factory does not meet your network requirements, or if you want to customize settings, see “Summary of Configuration Steps” on page 11 before connecting the bridge.

If the factory defaults meet your requirements, you can connect the bridge as described in the following topics:

- “Hub Connection” on page 9
- “3Com NBX Telephone Set Connection” on page 9
- “Computer Connection” on page 10
- “Printer Connection” on page 10.

Connecting the Bridge

The workgroup bridge supports up to four specific Ethernet devices. It uses a *client list* of MAC addresses to keep track of specific devices that have been connected.

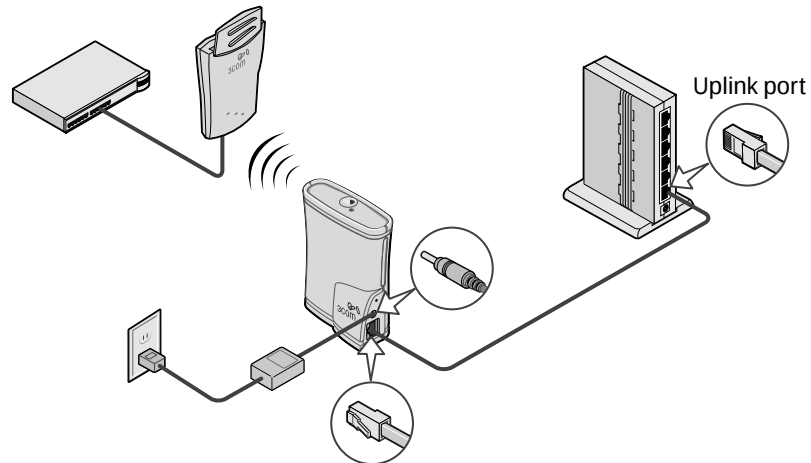
About the Client List

Each time a new device is connected to the bridge, either directly or through a hub, that device’s MAC address is added to the client list. After four different devices have been connected, the client list is full, and you must refresh it before the next new device can associate with the network through the bridge. To refresh

the list, you must access the bridge's configuration management system. Details on this procedure are in "Refreshing the Client List" on page 15.

Hub Connection

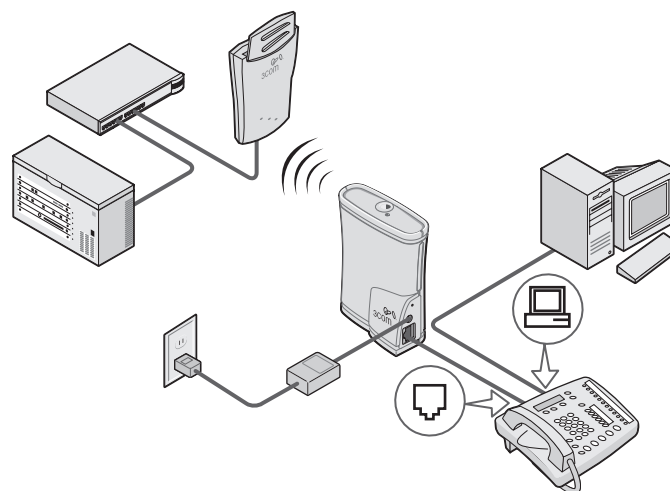
You can supply network connections for up to four devices, such as computers and printers, by connecting the bridge to an Ethernet hub, as shown below.



Make sure that the workgroup bridge Ethernet cable is plugged into the hub uplink (MDIX) port. If your hub does not have an uplink port, you must use an Ethernet crossover cable (not provided), which can be connected in any port.

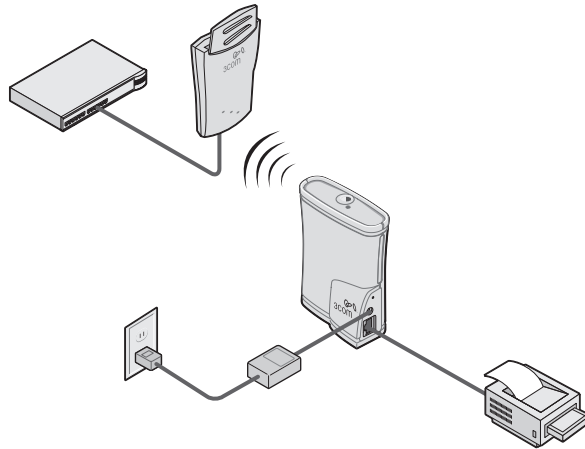
3Com NBX Telephone Set Connection

You can provide converged voice and data services in an office cubicle that is not wired for Ethernet by connecting the bridge to a 3Com NBX telephone set as shown below. The NBX server is connected to the same switch or router to which the access point is connected.

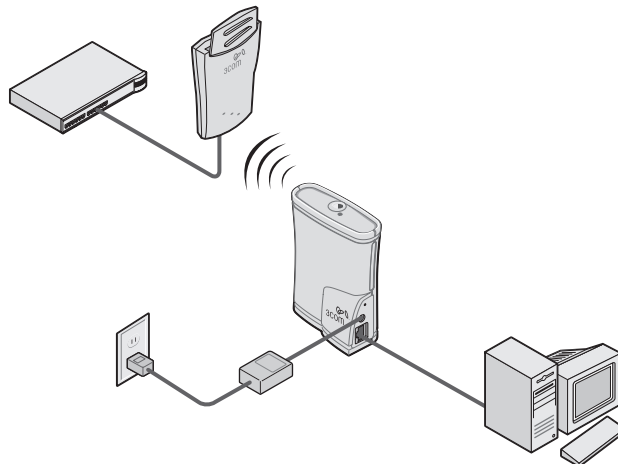


Printer Connection

You can connect the bridge directly to a printer as shown below. Used this way, the workgroup bridge allows you to place a printer in an area that is not wired for Ethernet.

**Computer Connection**

You can connect the bridge directly to a computer as shown below. Used this way, the workgroup bridge can convert a desktop computer to a wireless computer. This connection also allows you to configure a bridge before connecting it to another device.

**Checking the LED Indicators**

When the bridge is connected to power, two LEDs indicate activity as described below.

LED Indicator	Location	Description
Wireless association	On the top of the bridge	■ On—Unit is receiving power. ■ Off—Unit is not receiving power. ■ Blinking—The unit is transmitting or receiving. Faster blinking indicates faster transmission speed.
Ethernet connection	At the RJ45 Ethernet connector	■ On—Unit is receiving power. ■ Off—The unit is not receiving power. ■ Blinking—Wired LAN traffic is detected. Faster blinking indicates heavier traffic.

Summary of Configuration Steps

The default configuration settings are shown in “Do I Need to Configure the Bridge?” on page 7. To change these settings, follow these steps:

- 1 Install the 3Com Wireless Infrastructure Device Manager on a computer as described in “Installing the Infrastructure Device Manager” on page 11.
- 2 The first time you configure the workgroup bridge, it is recommended that you connect it directly to the computer where the device manager is installed.
Once the bridge has been configured to associate with the wireless network, you can change its configuration at any time from any location on the network.
- 3 Launch the device manager and select the bridge as described in “Locating a Wireless Device” on page 13.
- 4 Use the 3Com 11 Mbps Wireless LAN Workgroup Bridge Configuration Management System to change and save the settings. For details, see “Configuring Workgroup Bridges” on page 13.
- 5 After you save the configuration, disconnect the bridge from the computer and connect it in its permanent place in the network.
For details on various ways to connect the bridge, see “Connecting the Bridge” on page 8.

Installing the Infrastructure Device Manager

The 3Com installation CD contains the 3Com Wireless Infrastructure Device Manager, a tool that helps you select 3Com wireless LAN devices and launch their configuration management systems. The device manager must be installed on a computer that has an Ethernet adapter and is running one of the Windows operating systems and Web browsers listed in “Before You Begin” on page 7.

Follow these steps to install the device manager on your computer:

- 1 Turn on the computer.
- 2 Put the 3Com CD in the CD-ROM drive.
The setup menu appears. If it does not appear, you can start the setup menu from the Windows Start menu. For example: *Start/Run/D:setup.exe*.
- 3 In the menu, click *Install the Tools and Documentation*.
- 4 In the next screen, click *Install the Administration Tool*.
- 5 Follow the instructions on the screens to complete the installation.
Optionally, you can install documentation before you reboot. You must reboot the computer before you can launch the tool.
- 6 To launch the tool from the Windows Start menu. Select *Start/Programs/3Com Wireless Infrastructure Device Manager/3Com Wireless Infrastructure Device Manager*

For details on using the tool, see “Locating a Wireless Device” on page 13.

3

CONFIGURING WORKGROUP BRIDGES

If the workgroup bridge configuration that was set at the factory does not meet your network requirements, or if you want to customize the settings, you can use these tools to change the configuration:

3Com Wireless Infrastructure Device Manager—Helps you locate 3Com wireless LAN devices on the network, select a device and view its properties, and launch the device's configuration management system. The device manager must be installed on a computer that has an Ethernet adapter and is running one of the Windows operating systems and Web browsers listed in "Before You Begin" on page 7.

- **3Com 11 Mbps Wireless LAN Workgroup Bridge Configuration Management System**—Resides on the 3Com workgroup bridge and lets you configure that bridge through your Web browser.

Locating a Wireless Device

Make sure that the 3Com Wireless Infrastructure Device Manager is installed. The device to be configured must be either connected directly to the computer or associating with the wireless network, and it must be connected to power. If you have more than one device connected, make a note of the MAC address of the device you want to select so that you can identify it in the device manager.

- 1 To launch the device manager, select *Start/Programs/3Com Wireless Infrastructure Device Manager/3Com Wireless Infrastructure Device Manager*.

If you have more than one network adapter installed on your computer, you may be prompted to choose a network adapter. Choose the appropriate adapter and click *OK*.

The Wireless Network Tree appears in the 3Com Wireless Infrastructure Device Manager window. The tree lists all WLAN service areas on the network and expands to show the 3Com wireless LAN devices that are associated to each service area. Devices in a different subnet than your computer are identified with exclamation points (!). You can refresh this display by clicking *Refresh*. You should refresh the display, for example, after you change a device IP address.

- 2 In the Wireless Network Tree, select the device you want to configure.

If more than one wireless LAN device appears in the tree and you are not sure that you have selected the right one, click *Properties* and check the MAC address to verify that it is the one you want.

- 3 Click *Configure*.

If the selected device is on the same subnet as your computer, the Configuration Management System main page appears in your Web browser.

If the selected device is on a different subnet, the device manager helps you to assign an IP address on the same subnet as your computer. You may accept the address offered or enter an address and click *Next*. The next window prompts for

an administrative password to allow the new IP address to be set. If this is the first time the device is being configured, leave the password field blank and click *Next*. The Configuration Management System main page appears in your Web browser.

The following table describes the functions of the buttons in the 3Com Wireless Infrastructure Device Manager window.

Button	Description
Properties	Displays the following properties of the selected device: Device Name, Device Type, ESSID, IP Address, Subnet Mask, and MAC Address.
Configure	Launches the Configuration Management System for the selected device. If the selected device is on a different subnet, you are prompted to assign an address on the same subnet as your computer.
Refresh	Scans the network and displays the connected 3Com 11 Mbps Wireless LAN devices.
Choose NIC	If your computer has more than one network interface card installed, allows you to choose which card you want to use.
Close	Closes the device manager window and ends the session.
Help	Launches the device manager help page in your browser.

Entering, Clearing, and Applying System Configuration Settings

Some pages in the configuration have three buttons: *Enter*, *Clear all Changes*, and *Apply all Changes*. Here is how to use these buttons:

- *Enter* stores settings temporarily in the device cache memory, but does not apply them permanently in the device nonvolatile memory. You can use *Enter* to save changes while you are configuring, but you cannot see the changes on the System Summary Page until after you click *Apply all Changes*. You can use *Enter* when you are making changes on multiple configuration pages, but you do not want the changes to take effect until after all have been set.
- *Clear all Changes* returns the settings in the device cache memory to the values they had before you last clicked *Apply all Changes*.
- *Apply all Changes* stores the settings permanently in the device nonvolatile memory. After you click *Apply all Changes*, the new configuration settings take effect and you can see the changes on the System Summary page.



If you forget to Enter or Apply all Changes before moving to a new configuration page, your changes to the current page are lost. If you forget to Apply all Changes before closing the browser, your changes are lost.

Changing System Properties

Under System Configuration, click *System Properties*. The System Properties page displays the properties of the selected device. You can change properties by entering values in the fields and clicking the radio buttons (see the following table). When you are finished, click *Enter* or *Apply all Changes*.

The following table describes the properties.

Property	Description	Default Value
Device Name	This name appears in the System Summary window. You can change the default name to one of your choice.	3ComWWB

Property	Description	Default Value
Device Location	Optionally, you can enter the location of the device.	None
Help File Location	- Web Server: Help files are located on the network at the specified Help File Path. - Local Drive: Help files are located on the client at the specified Help File Path.	Local Drive
Help File Path	The location of the Configuration Management System help files on the web server or on the local drive. If you want to have access to help when you click the ? in the configuration pages, you must install the help from the 3Com CD in the default location on the local computer. If you install the help in a different location on the local disk or on a web server, you must set the Help File Path to the correct location.	c:\Program Files\3Com\Management Help

Setting IP Network Properties

Under System Configuration, click *IP Network*. The *IP Network Properties* page appears, where you can change the settings shown in the table below.

If you change the IP address and click *Apply all Changes*, you cannot continue to configure the device using the old IP address. Therefore, you should click *Enter* if you want to continue configuring this device after you make this change. Otherwise, you must do the following:

- 1 Close your browser.
- 2 Return to the 3Com Wireless Infrastructure Device Manager and click *Refresh*.
- 3 Select the device and click *Configure* to start a new configuration session.

Setting	Description
IP Network Setting	This setting allows you to change the IP address of the device. To let the device get an IP address automatically from a DHCP server, click <i>Obtain an IP address automatically</i> and click <i>Enter</i>. To specify an IP address, click <i>Specify an IP address</i>, enter the IP address parameters in the spaces provided, and click <i>Enter</i>.
IP Address	Parameters for use when you click <i>Specify an IP address</i> . Enter the parameters in the spaces provided, and click <i>Enter</i> .
Subnet Mask	
Gateway IP Address	

Refreshing the Client List

The workgroup bridge supports up to four specific clients (for example, computers and printers) and keeps track of the clients with a list of their MAC addresses. After the client limit is reached, you must refresh the client list to allow a new client to associate with the network. For example, in a hub configuration with four clients connected, if you disconnect a desktop computer and connect a new laptop in its place, you must refresh the client list to establish network association for the laptop. Follow these steps:

- 1 Disconnect a client by unplugging its Ethernet cable from the hub or the bridge.
- 2 Use the 3Com Wireless Infrastructure Device Manager to select the workgroup bridge and launch its configuration management system.

- 3 Under System Configuration, click *IP Network*. The *IP Network Properties* page appears. Click *Refresh Client List*.
- 4 Connect the new client by plugging its Ethernet cable into the hub or the bridge.

Setting Wireless Network Properties

Under System Configuration, click *Wireless Network Properties*. The *Wireless Network Properties* page appears, where you can select radio channel settings and advanced performance settings. When you are finished, click *Enter* or *Apply all Changes*.

- **Network Mode**—Click *Access Point (Infrastructure)* to associate with an access point. Click *Ad-hoc (Peer-to-Peer)* to associate in ad hoc mode.
- **Wireless LAN Service Area**—Click *Attach to any WLAN Service Area (ESSID) automatically* to allow the bridge to associate with any access point that is also set to use any ESSID. In this mode, the bridge detects access points set for any ESSID and uses the ESSID of the access point with the best signal strength. This mode is not available when the network mode is Ad-hoc (Peer-to-Peer).

Click *Specify the Wireless LAN Service Area* and type the WLAN service area name to allow the bridge to associate only with access points with the same service area. You must specify the WLAN service area when the network mode is Ad-hoc (Peer-to-Peer).

To maintain wireless association, the WLAN service area on a bridge and the access point with which it is associated must match exactly. Therefore, if you change the access point WLAN service area, make sure to change the bridge WLAN service area also.

- **Clear Channel Select**—When the network mode is Access Point (Infrastructure), this option is enabled automatically and cannot be changed. When this option is enabled, the device scans the primary channels to determine the traffic on those channels and chooses the channel with the least number of packets.

To allow the device to find a channel automatically, click *On (automatically select the best channel)*.

To select a specific channel, click *Off (specify the channel)* and choose a channel from the Channel list. This option can be used only when the network mode is Ad-hoc (Peer-to-Peer).

- **Access Point Privacy Mode**—This mode only applies when the network mode is Access Point (Infrastructure) and should only be used when access points are set with privacy enabled. Click *On* to associate with access points set with privacy mode enabled. Click *Off* to associate with access points set with privacy mode disabled. When privacy mode is on, you must specify a Wireless LAN Service Area, which must match the access point service area exactly.

Setting Advanced Performance Properties

When the network mode is Access Point (Infrastructure) the advanced performance properties are set automatically to match the access point. When the mode is Ad-Hoc (Peer-to-Peer) you may specify these properties.

Under System Configuration, click *Wireless Network Properties*. On the *Wireless Network Properties* page, click the link to go to advanced wireless network configuration. The *Advanced Wireless Network* page appears, where you can

change the settings shown below. When you are finished, click *Enter* or *Apply all Changes*.

- **Network Traffic Accelerator**—To increase performance, click *On (Enhanced performance)*. If you experience problems when equipment other than 3Com 11 Mbps Wireless LAN equipment is being used, click *Off (Wi-Fi Interoperable)*.
- **Data Preamble**—To increase performance, click *Short (Enhanced performance)*. When equipment that does not support short preamble is also being used, click *Long (Wi-Fi Interoperable)*.

Setting up an Ad Hoc Network

Operating in ad hoc mode, two or more bridges can associate among themselves at close range without an access point, allowing their workgroups to communicate. You may wish to set up an ad hoc network, for example, if a group is working away from the office, or if a group in the office needs to share files apart from the wired LAN.

Follow these steps to set up an ad hoc network with two workgroup bridges.



To ensure correct operation, the settings on the two bridges must match exactly.

- 1 Use the 3Com Wireless Infrastructure Device Manager to select the first workgroup bridge and launch its configuration management system.
- 2 Under System Configuration, click *Wireless Network*.
- 3 In the Wireless Network page:
 - a Locate the Network Mode field and click *Ad-hoc (Peer-to-Peer)*.
 - b The Wireless LAN Service Area defaults to Any ESSID and Clear Channel Select defaults to On (automatically select the best channel. Optionally, you can specify the Wireless LAN Service Area and the Channel as described in “Setting Wireless Network Properties” on page 16.
 - c Click *Enter* or *Apply all Changes*.
 - d Click *To go to advanced wireless network configuration*.
- 4 In the Advanced Wireless Network page:
 - a Set the *Data Preamble*.
To increase performance, click *Short (Enhanced performance)*. When equipment that does not support short preamble is also being used, click *Long (Wi-Fi Interoperable)*.
 - b Click *Enter* or *Apply all Changes*.
- 5 Security settings default to No Security (Open System). Optionally, you can set 40-bit Shared Keys security as described in “40-bit Shared Key (Wi-Fi)” on page 18. (You cannot use 128-bit security options in ad hoc mode.)
- 6 When you are finished, click *Apply all Changes*.
- 7 End the browser session.
- 8 Repeat the procedure with the second workgroup bridge. Make sure you configure bridge settings to match exactly. When you are finished, click *Apply all Changes* and end the browser session.

- 9 Connect the Ethernet devices to the bridges. If you use hubs, make sure that the workgroup bridges are connected through the hub uplink ports.

Changing Security Settings

Under *System Configuration*, click *Security Settings*. The Security Settings page appears, where you can select the type of security to be used on the bridge. The bridge can be configured to support one type of security at a time. You can change the settings by clicking the radio buttons and entering values in the fields. When you are finished, click *Enter* or *Apply all Changes*.

The following sections describe the settings. To maintain wireless association, the settings on clients and the access points they associate with (or other members of an ad hoc network) must match exactly.

If you are configuring through a wireless association (not on the wired LAN) and you reconfigure both the WLAN service area and the security settings, be sure to click *Enter* to save changes temporarily until you are finished. Then click *Apply all Changes*. If you apply one set of changes and not the other, the bridge may lose association with one access point before it is configured to associate with another.

No Security (Open System)

No encryption is used. The network communications could be intercepted by unintended recipients.

40-bit Shared Key (Wi-Fi)

This option encrypts the wireless transmissions to protect data, but still allows communication among compatible wireless LAN clients and access points from third-party manufacturers that are Wi-Fi certified.

This type of security requires you to set up encryption in one of the following ways:

- **String**—For use only with other 3Com 11 Mbps wireless LAN devices, an encryption string is a case-sensitive string of characters between 6 and 30 characters long. To enter the string, click *Enter a string to generate shared keys*. Then type any combination of letters and numbers in the space provided and click *Enter* or *Apply all Changes*.
- **Shared keys**—Hexadecimal keys are sequences of hexadecimal digits arranged into four keys. A hexadecimal digit may be a letter from A to F or a number from 0 to 9. This type of encryption is compatible with equipment from other manufacturers that use Wi-Fi certified 40-bit encryption. To enter the keys, click *Specify shared keys and which to use*. Then click *To specify and select the shared keys*. In the shared keys window, enter all the keys in the provided spaces, then click a radio button in the Selected Key column to specify which key to use and click *Enter* or *Apply all Changes*.

128-bit Shared Key

This option can be used with other 3Com 11 Mbps Wireless LAN devices and with equipment from certain manufacturers that also support 128-bit shared key encryption. It provides a higher level of security than the 40-bit Shared Key (Wi-Fi) option and uses a more complicated type of encryption. This type of security requires you to set up encryption using a string or shared keys as described in “40-bit Shared Key (Wi-Fi)” on page 18.

128-bit Dynamic Security Link	This option can only be used with other 3Com 11 Mbps Wireless LAN devices. It is the highest level of security, requiring a user name and password to access the wireless LAN. The user name and password set up on the bridge must match those set up on the access point. Each network session creates a unique, one-time encryption code. If you choose this type of security, you must also set up a login as described in “Setting up the Wireless Network Login”.
Setting up the Wireless Network Login	If you configure a bridge for 128-bit Dynamic Security Link, you must also set up a login user name and password, which must match a listing in the access point access control list. In the Security Settings page, click 128-bit Dynamic Security Link. Then click the link to modify the wireless network login. In the Wireless Network Login page, enter a login name and password, and confirm the password in the spaces provided. When you are finished, click Save.
Resetting the Bridge	If the bridge stops responding correctly, you can perform a reset, which disrupts the network association temporarily, but does not affect the bridge configuration settings. To reset the bridge, under Tools, click <i>Reset Wireless Workgroup Bridge</i>. In the next page, click <i>Reset</i>.
Restoring a Bridge to Factory Defaults	You can restore bridge settings to the defaults that were set at the factory as follows: 1 Under Tools, click <i>Restore Factory Defaults</i>. 2 Click <i>Restore</i>. You can also restore the bridge factory settings by inserting a pointed object (such as the end of a paper clip that you have unbent) into the reset hole on the front near the RJ-45 connector and holding for five seconds. If the bridge was using an IP address setting other than the default, restoring the factory defaults will change the IP address. If you want to continue configuring the bridge, do the following: 1 Close your browser. 2 Return to the 3Com Wireless Infrastructure Device Manager and click <i>Refresh</i>. 3 Select the device and click <i>Configure</i> to start a new configuration session.
Upgrading the System	You can download firmware updates or updates of the configuration management system from the 3Com Web site and install those updates on the bridge. The upgrade uses the 3Com customer support Trivial File Transfer Protocol (TFTP) server. The workgroup bridge acts as a TFTP client to receive the download. To avoid problems that could occur if a wireless association were interrupted during the upgrade, it is recommended that you perform the upgrade from a

computer that is wired to the LAN and has access to the device you want to upgrade.



If you upgrade both the firmware and the configuration management system, be sure to upgrade the Web server file system first.

Locating Upgrade Files To locate upgrade files:

- 1 Log on to the 3Com Web site at <http://www.3com.com>.
- 2 Navigate to the product support page.
- 3 Navigate to the software download page and locate the files you want to download.
- 4 Read the instructions on the download page, and make a note of the file names and the IP address of the 3Com TFTP server.

Installing an Upgrade After you obtain the upgrade file names and TFTP server IP address, perform the following steps on a computer that is wired to the network and has access to the device you want to upgrade:

- 1 Use the 3Com Wireless Infrastructure Device Manager to select the device and launch its configuration management system.
- 2 Under Tools, click *Upgrade System*.
- 3 Select the item to upgrade:
 To upgrade the configuration management system, click *Configuration Management System*.
 To upgrade firmware, click *Wireless Workgroup Bridge Firmware*.
- 4 Verify that the file name displayed is the same as the name you got from the 3Com Web site. If it is not the same, delete it and enter the name you got from the Web site.
- 5 Enter the IP address of the 3Com TFTP server.
- 6 Click *Upgrade*.

Changing the Administration Password

The first time you launch the Configuration Management System on the device or after you reset a device to factory defaults, you are prompted to set an administrative password. Although a password is not required, 3Com recommends that you set a password to protect against unauthorized access. After you set the password, you must enter a user name and password each time you launch the configuration for the device.

Under Tools, click *Change Administration Password*. The Change Administration Password page appears, where you can change the administration password for the device. Enter the current password and new password in the spaces provided and click *Save*.

Backing up a Configuration

As part of system maintenance, you should save and back up the configurations of individual bridges in case you need to reload them in the future. The backup saves

all the parameters of the selected bridge in a file on your computer. The file can be used later to restore the configuration on this or another bridge.

- 1 Set the bridge parameters in the System Configuration pages.
- 2 Under Tools, click *Backup Wireless Workgroup Bridge*.
- 3 In the next page, click *Backup Now*.
- 4 Specify a name and location for the backup, and click *OK*.

Restoring a Configuration

If you have stored a backup configuration on your computer, you can restore the configuration as follows:

- 1 Under Tools, click *Restore Wireless Workgroup Bridge*.
- 2 In the next page, click *Browse* and select the backup file to upload to the access point.
- 3 Click *Restore*.

The configuration is restored and activated on the bridge. This operation may cause the bridge to reboot.

If the bridge was using an IP address setting other than the backup, restoring the configuration will change the IP address. If you want to continue configuring the bridge, do the following:

- 1 Close your browser.
- 2 Return to the 3Com Wireless Infrastructure Device Manager and click *Refresh*.
- 3 Select the device and click *Configure* to start a new configuration session.

Viewing System Status

Under System Status, you can view the following information:

- Click *Connection Status* to see the data rate and signal strength at which the bridge is associating with the access point. Signal strength values range from 0 (no signal) to 5 (excellent signal quality).
- Click *System Summary* to see information about the bridge.
- Click *Refresh* to update the information.

Interoperating with Third-Party Equipment

Because 3Com 11 Mbps Wireless LAN equipment complies with IEEE 802.11 standards, it can interoperate with third-party equipment that also complies with the standards. However, some third party equipment may not support 3Com enhanced performance features. You may need to turn off the Network Traffic Accelerator and Data Preamble transmission properties to support this equipment on the network.

4

TROUBLESHOOTING

If you have difficulty with the 3Com 11 Mbps Wireless LAN Workgroup Bridge, try the solutions in the following table.

Symptom	Solutions
Four devices have been connected to the bridge, either simultaneously or sequentially. After connecting another device, the new device cannot associate with the network.	The workgroup bridge supports up to four specific clients (for example, computers and printers) and keeps track of them using a client list of MAC addresses. After the client limit is reached, you must refresh the client list to allow a new client to associate. For example, in a hub configuration with four clients connected, if you disconnect a desktop computer and connect a laptop in its place, you must refresh the client list to establish network association. 1 Disconnect a client by unplugging its Ethernet cable from the hub. 2 Use the 3Com Wireless Infrastructure Device Manager to select the workgroup bridge and launch its configuration management system. 3 Under System Configuration, click <i>IP Network</i>. The <i>IP Network Properties</i> page appears. Click <i>Refresh Client List</i>. 4 Connect the new client by plugging its Ethernet cable into the hub.
After you change the IP address, after you restore a backup configuration, or after you reset the bridge to factory defaults, the Configuration Management System stops responding and you cannot continue configuring the bridge.	If you change the IP address and click <i>Apply all Changes</i>, you cannot continue to configure the device using the old IP address. Therefore, you should click <i>Enter</i> if want to continue configuring this device after you make this change. Similarly, after you restore a backup configuration or reset the bridge to factory defaults, the IP address setting may be changed. To recover from this situation and continue configuring the bridge: 1 Close your browser. 2 Return to the 3Com Wireless Infrastructure Device Manager and click <i>Refresh</i>. 3 Select the device and click <i>Configure</i> to start a new configuration session.
The bridge cannot associate with an access point.	■ Make sure the security settings on the bridge match those on the access point. ■ Check the privacy mode set on the access point and make sure the bridge setting matches. Launch the bridge configuration management system. Under System Configuration, click <i>Wireless Network</i>. Click <i>Access Point Privacy Mode On</i> or <i>Off</i>.
The Wireless Network Tree does not appear in the 3Com Wireless Infrastructure Device Manager window.	Verify that you are using the correct network adapter. In the device manager window, click <i>Choose NIC</i>. Select the network adapter for the network you want to scan, and click <i>OK</i>.

Symptom	Solutions
Two workgroup bridges cannot communicate in ad hoc mode.	To ensure correct operation in ad hoc mode, the settings on the two bridges must match exactly. Make sure that the Wireless LAN Service Area, channel selections, Data Preamble setting, and security setting are the same on both bridges.
128-bit security settings do not work in ad hoc mode.	128-bit security settings are not supported in ad hoc mode. Use 40-bit Shared Keys setting instead.
You are running Windows 95 or Windows NT. After you connect the workgroup bridge, your computer cannot obtain a valid IP address.	The workgroup bridge configuration settings may not be compatible with the network. If they are not, and your Windows 95 or Windows NT computer is set up to obtain its IP address from a DHCP server, the workgroup bridge is unable to associate with the network to obtain the IP address. To work around this problem, set a static IP address on your computer. Then set the workgroup bridge configuration to match the network. When the bridge is able to associate, reset your computer to obtain its IP address from the DHCP server.

Disconnecting the Bridge



CAUTION: Disconnecting the bridge ends the network association. To avoid possible data loss, exit all networking applications on connected devices before you disconnect the bridge.

- 1 Unplug the workgroup bridge Ethernet cable from the hub or other device.
- 2 Unplug the workgroup bridge power cord.

Uninstalling the Infrastructure Device Manager

Use the standard operating system procedure for removing programs. Under most Windows operating systems, from the Start menu select Settings and then select Control Panel. In the Control Panel, double click Add/Remove Programs and follow the prompts to remove the program.

Uninstalling Configuration Help Files

???what is the procedure? do we need a procedure??

Upgrading Bridge Firmware

Firmware is the software that is installed on the bridge at the factory. Some problems can be solved by installing a new version of the firmware (*upgrading firmware*).

For details on how download a firmware update from the 3Com customer support Web site and install it on your bridge, see “Upgrading the System” on page 19.

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REGULATORY COMPLIANCE INFORMATION

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 20 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
P.O. Box 58145
Santa Clara, CA 95054-8145
(408) 326-5000

Declares that the product:

Date: 25 October 2001

Brand Name: 3Com Corporation

Model Number: WL-308

Equipment Type: Wireless LAN Workgroup Bridge

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.



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 conforme 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:



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:

- EN 300 328-2 - 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
- 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

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