Wireless-G

AP+2

USER'S GUIDE

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Package Contents

The AP+2 package contains the following:

- AP+2 Device
- Power Cube
- Ethernet Cable
- CD for Windows, Macintosh, and Linux

If anything is missing or damaged, please contact Zoom Customer Support or whoever sold you the AP+2.

Overview

Depending on your needs, the Zoom AP+2 can be used in any of the following ways:

- **Access Point.** You can plug the AP+2 into a router, modem/router, switch, or hub to allow wireless devices (for example, computers or gaming devices) to make a wireless connection to your network. Setting the AP+2 up as an access point is explained in **Chapter 1: Installing the AP+2 as an Access Point** on page 7.
- **Ethernet Client.** You can plug the AP+2 into the Ethernet port of a gaming device or computer so that device can have wireless access to a wireless network. This is also known as a "client bridge." Setting the AP+2 up as an Ethernet client is explained in **Chapter 2: Installing the AP+2 as an Ethernet Client** on page 13.
- **Repeater.** You can install the AP+2 near the edge of a wireless network's area of coverage to extend the area of coverage. Setting the AP+2 up as a repeater is explained in **Chapter 3: Installing the AP+2 as a Repeater** on page 17.

This User's Guide provides instructions for setting up your AP+2 for each of the above scenarios. It also includes details about setting up security, advanced settings, and specific information for Windows, Macintosh, and Linux users.

If we update information about the AP+2, we provide the updated information at this Zoom Web site:

http://www.zoom.com/techsupport/index.html

1

Installing the AP+2 as an Access Point

This chapter provides detailed instructions about installing the AP+2 as an access point. If you have already done this using the printed Quick Start booklet, you do not have to perform the steps in this chapter. Instead, you should now set up security for your wireless network. To do this, please continue with *Chapter 4: Setting Security on page 21.*

Installing the Hardware

1 Connect the AP+2 to your router, combination modem/router, switch, or hub. To do this, plug one end of the included Ethernet cable into the **RJ-45** port on the back of the AP+2 and plug the other end into an available Ethernet port on the router, modem/router, switch, or hub. The AP+2 works with both 100 and 10 Mbps Ethernet port speeds.

2 Plug the included power cube into a power strip or wall outlet and then plug its other end into the **Power** jack on the back of the access point.

> **Important!** Only use the power cube shipped with the AP+2. Other power cubes may damage the device.

The **TX/RX**, **LINK/ACT**, and **Power** lights on the top of the device should blink while the AP+2 boots up and configures itself. When a valid connection has been made, the **LINK/ACT** light will be solid green (for a 100 Mbps Ethernet link) or solid orange (for a 10 Mbps Ethernet link).

3 You may want to try to position the unit's antennas to improve wireless speed and coverage. Typically the antennas should not be parallel. For example, try making one vertical and the other horizontal.

Adding Devices to Your Wireless Network

Each device that you plan to use on your wireless network must have wireless capabilities. Some newer desktop and notebook computers have this capability built-in, while other Windows, Macintosh, or Linux computers require the installation of a wireless network adapter.

Note: Gaming devices typically need to use an Ethernet client (such as another AP+2 in Client Bridge-Infrastructure mode) to access your wireless network. Once you have a wireless network established, see Chapter 2 to learn how to use a second AP+2 as an Ethernet client with a gaming device.

If you are using a Windows XP desktop or notebook computer that has built-in wireless capabilities, continue with **My Windows XP Computer Has Built-In Wireless Capabilities** on page 9. If it does not, or if you are using a Macintosh or Linux computer, continue with **My Computer Requires a Wireless Network Adapter** on page 10.

Tip! To see if your Windows notebook has built-in wireless capabilities: On the Windows desktop, click **Start**, click **Connect to**, and then locate the **Wireless Network Connection** option. If **Connect to** does not appear, or if there is no **Wireless Network Connection** option, then your notebook does not have wireless capabilities. If you need help, refer to the documentation that came with your Windows notebook.

My Windows XP Computer Has Built-In Wireless Capabilities

1. On your Windows desktop, click the **Start** button, then click **Control Panel**.

2. Double-click the **Network Connections** icon.

3. Right-click the **Wireless Network Connection** icon, then select **Properties**.

4. On the **Wireless Network Connection Properties** dialog box, select the **Wireless Networks** tab. Windows XP will automatically scan for available wireless networks in your area. Its findings will appear in the **Available networks** list. It should find the wireless network of your new access point—named **zoom**. (The scan is done automatically because the **Use Windows to configure my wireless network settings** check box is selected by default.)

5. Select **zoom** from the **Available networks** list, then click the **Configure** button to add it to the **Preferred networks** list. The notebook will try to connect to the Internet using the wireless networks listed here, in the order in which they appear. (If you already have networks listed here, we recommend you either remove them or use the **Move up** button to move **zoom** to the top of the list.)

6. Click **OK**.

7 If you are like most users, you set up the AP+2 as an access point to provide wireless access to the Internet. If this is the case, test your wireless connection by opening a Web browser on the computer you just set up and trying to connect to a familiar Web address. (If you do not connect, see **Appendix A: Troubleshooting** on page 53)

Congratulations! This computer has been added to your wireless network. If you do not have any other computers to add to the network, you can optionally add security to your network by following the instructions in **Chapter 4: Setting Security** on page 21.

My Computer Requires a Wireless Network Adapter

If your computer does not have built-in wireless capabilities, you need to install a wireless network adapter, such as the Zoom Wireless-G PC Card or Zoom Wireless-G USB Adapter.

Although we recommend that you use a Zoom adapter, the Zoom AP+2 is compatible with most USB adapters, PC card adapters, or PCI adapters on the market. However, you will typically experience better performance if you use Zoom wireless adapters.

1 Install the adapter and ensure that it is set to **infrastructure** or **access point mode** (NOT **ad-hoc** or **peer to peer** mode). If you need help installing the adapter or setting its mode, refer to the documentation that came with it.

2 Access the adapter's software and perform a "site search" to scan for available wireless networks in your area. For most wireless adapters, you will use its wireless configuration manager software and click a **Scan** button or select a **Site Scan**, **Scan Networks** (or other similarly named) tab to do a site search. If you need help, refer to the documentation that came with your wireless adapter.

Tip! If your computer is running Windows XP, your operating system may try to configure the AP+2 (rather than let you use the software provided with the wireless adapter). You will know this is happening because you are prompted with a message about one or more wireless networks being available and you will be able to click a link to open the **Wireless Network Connection Properties** dialog box. If this happens, click the link and clear the **Use Windows to configure my wireless network settings** check box to disable it, then click **OK**. You can then use the software provided with your wireless adapter without interruption from Windows XP.

3 When a list of available wireless networks appears, you will see a Service Set Identifier (SSID) of **zoom**. Select it as the network you want to use to connect to the Internet.

4 If you are like most users, you set up the AP+2 as an access point to provide wireless access to the Internet. If this is the case, test your wireless connection by opening a Web browser on the computer you just set up and trying to connect to a familiar Web address. (If you do not connect, see **Appendix A: Troubleshooting** on page 53.)

Congratulations! This computer has been added to your wireless network. If you do not have any other computers to add to the network, you can optionally add security to your network by following the instructions in **Chapter 4: Setting Security** on page 21.

2

Installing the AP+2 as an Ethernet Client

The AP+2 can be connected to a gaming device (for example, an Xbox or Playstation) or computer so that device can have wireless access to a wireless network. This chapter explains how to do this.

Tip! Sony PlayStation® devices do not have an Ethernet port. To wirelessly enable a Sony PlayStation using the AP+2, you must purchase an Ethernet adapter from Sony. The AP+2 can plug into this adapter.

1 Access the AP+2's **Web Management Interface** by logging into the device, as explained below.

a Directly connect the AP+2 to an Ethernet-equipped computer that has a Web browser. To do this, plug one end of the included Ethernet cable into the **RJ-45** port on the back of the AP+2 and plug the other end into the Ethernet port on the computer.

b Plug the included power cube into a power strip or wall outlet and then plug its other end into the **Power** jack on the back of the AP+2.

Important! Only use the power cube shipped with the AP+2. Other power cubes may damage the device.

c Change the TCP/IP Settings on the computer so that it uses static IP addressing and the IP address and subnet mask below. Be sure to make note of what the settings are prior to changing them, since you will need to restore these settings later.

IP Address: 10.0.0.100
Subnet Mask: 255.255.255.0

> **Tip!** If you do not know how to access and specify TCP/IP settings on your computer, see **Appendix B: Specifying TCP/IP Settings** on page 55.

d Open a Web browser, type **10.0.0.200** in the address bar, then press **Enter**. (This is the IP address of the AP+2.)

e When the **Login Screen** opens, do not enter a password. Click the **Login** button to access the **Web Management Interface** for the AP+2.

2 Click **System** in the left navigational menu, then click **Operation Mode** to open the **Operating Mode** page.

3 From the **Operating Mode** drop-down list, select either **Client Bridge (Infrastructure)** or **Client Bridge (AdHoc)**. If you are using the AP+2 with a gaming device, select the Infrastructure option.

4 Click the **Save Changes** button.

5 When a confirmation message appears, click **OK** to change the operating mode. Another message will appear letting you know that it may take a few moments while the unit resets itself and changes mode. Click **OK**. (Once the AP+2 reboots itself, you will be prompted to log into the **Web Management Interface** again.)

6 Click **Wireless** in the left navigational menu, then click **Site Survey**. The page that opens lists the wireless networks detected by the AP+2. Click the SSID of the network you want to be a part of, then click **OK** when asked to confirm this choice.

7 If the wireless network you just selected has security applied, click **WPA Configuration** or **WEP Configuration** (depending on the security used for that network) in the left navigational menu. Specify the **same** security settings as the network, then click the **Save Changes** button. This will allow your AP+2 to access the wireless network. (If you need help specifying security on the AP+2, refer to **Chapter 4: Setting Security** on page 21.)

8 Click the **Logout** icon at the top right of the screen, then close your Web browser.

9 Reset the computer's TCP/IP settings to what they were before you changed them.

10 Connect the AP+2 to the device you want to wirelessly enable:

- If the computer you used to access the **Web Management Interface** is the one you want to wirelessly enable, leave the Ethernet cable and power cube plugged in and continue with step 11.
- If you want to wirelessly enable a gaming device or a different computer, move the AP+2 to that gaming device or computer. First, unplug the AP+2's power cube from the power strip or wall outlet and disconnect the AP+2's Ethernet cable from the Ethernet port of the computer you used to configure it. Then, connect the AP+2 to the Ethernet port of the gaming device or different computer and plug the AP+2's power cube into a strip or wall outlet near this gaming device or computer.

11 You may want to try to position the unit's antennas to improve wireless speed and coverage. Typically the antennas should not be parallel. For example, try making one vertical and the other horizontal.

Congratulations! Your AP+2 is installed as an Ethernet client and your gaming device or computer should be able to wirelessly connect to the wireless network you specified.

3

Installing the AP+2 as a Repeater

The AP+2 can be used as a repeater to extend the range of your wireless network. For example, you may have purchased two AP+2 devices so that you can ensure wireless coverage throughout a large home or office. This chapter explains how to do this.

When installed as a repeater, the AP+2 is able to wirelessly communicate with other access points and wireless gateways via Wireless Distribution System (WDS) links.

Important! Any access point you plan to use with the AP+2 in repeater mode must support WDS in order to communicate with the AP+2.

1. Access the AP+2's **Web Management Interface** by logging into the device, as explained below.

   a. Directly connect the AP+2 to an Ethernet-equipped computer that has a Web browser. To do this, plug one end of the included Ethernet cable into the **RJ-45** port on the back of the AP+2 and plug the other end into the Ethernet port on the computer.

b Plug the included power cube into a power strip or wall outlet and then plug its other end into the **Power** jack on the back of the AP+2.

> **Important!** Only use the power cube shipped with the AP+2. Other power cubes may damage the device.

c Change the TCP/IP Settings on your computer so that it uses static IP addressing and the IP address and subnet mask below. Be sure to make note of what the settings are prior to changing them, since you will need to restore these settings later.

IP Address: 10.0.0.100
Subnet Mask: 255.255.255.0

> **Tip!** If you do not know how to access and specify TCP/IP settings on your computer, see **Appendix B: Specifying TCP/IP Settings** on page 55.

d Open a Web browser, type **10.0.0.200** in the address bar, then press **Enter**. (This is the IP address of the AP+2.)

e When the **Login Screen** opens, do not enter a password. Click the **Login** button to access the **Web Management Interface** for the AP+2.

2 Click System in the left navigational menu, then click **Operation Mode** to open the **Operating Mode** page.

3 From the **Operating Mode** drop-down list, select **Repeater**.

4 Click the **Save Changes** button.

5 When a confirmation message appears, click **OK** to change the operating mode. Another message will appear letting you know that it may take a few moments while the unit resets itself and changes mode. Click **OK**. (Once the AP+2 reboots itself, you will be prompted to log into the **Web Management Interface** again.)

6 Click **Wireless** in the left navigational menu, then click **Repeater Settings**. The page that opens lists the WDS links of the wireless networks and gateways detected by the AP+2. (Each link is defined by the MAC address of the other repeater-capable access point. This is because WDS communicates using only MAC addresses at the Data Link Layer. SSIDs are not used to communicate.)

7 Select a check box for each WDS link to which you want your repeater to associate. You can select up to six WDS links.

> **Important!** For every WDS link you select here, you must access the repeater settings for that access point or wireless gateway and specify the Zoom AP+2 as a WDS link.

8 If any of the wireless networks or gateways you just selected has security applied, click **WEP Configuration** in the left navigational menu. (WDS only supports WEP.) Specify the same WEP security settings as the network, then click the **Save Changes** button. This will allow your AP+2 to access the wireless network/gateway. (If you need help specifying WEP security on the AP+2, refer to **Setting Up Security Using WEP** on page 24.)

9 Click the **Logout** icon at the top right of the screen, then close your Web browser.

10 Reset the computer's TCP/IP settings to what they were before you changed them.

11 Unplug the power cube from the strip or wall outlet and disconnect the Ethernet cable from the Ethernet port of the computer.

12 Move the AP+2 to a location at the edge of the access point's or wireless gateway's coverage area that you want to extend.

13 Plug the included power cube into a power strip or wall outlet and then plug its other end into the **Power** jack on the back of the access point.

> **Important!** Only use the power cube shipped with the access point. Other power cubes may damage the device.

The **TX/RX**, **LINK/ACT**, and **Power** lights on the top of the device should blink while the AP+2 boots up and configures itself. When a valid connection has been made, the **LINK/ACT** light will become solid.

14 You may want to try to position the unit's antennas to improve wireless speed and coverage. Typically, the antennas should not be parallel. For example, try making one vertical and the other horizontal.

Congratulations! Your AP+2 is installed as a repeater.

4

Setting Security

This chapter explains how to enable security for the AP+2 using WPA and WEP.

When you first set up your Zoom AP+2, security is turned off by default. This means that your wireless signal is not encrypted and that anyone with compatible wireless technology can access your network.

You can select one of two ways to configure and implement security for your wireless network:

- **WPA** – WiFi Protected Access, sometimes called WPA Shared Key. This is more secure and easier to install than WEP, but you can only use it if all of your wireless devices support WPA.
- **WEP** – Wired Equivalent Privacy. This uses static keys and is less secure than WPA. WEP security allows you to specify whether you want 64-bit or 128-bit encryption.

Before you proceed with the instructions in this section, you must decide whether you want to use WPA or WEP security. If all of your wireless devices support WPA or WPA Shared Key, we recommend you use WPA. You can check a device by checking the manual that came with that device or by checking the configuration software for that device. Look under **Security** or **Encryption** or **Setup** or **Advanced Features**.

If you have to use WEP, go to **Setting Up Security Using WEP** on page 24. Otherwise, continue below.

Setting Up Security Using WPA/WPA Shared Key

1 Access the AP+2's **Web Management Interface** by logging into the device, as explained below.

a Directly connect the AP+2 to an Ethernet-equipped computer that has a Web browser. To do this, plug one end of the included Ethernet cable into the **RJ-45** port on the back of the AP+2 and plug the other end into the Ethernet port on the computer. (If your AP+2 is already connected to another device, such as a router or gaming device, do not worry; simply plug it back in after you have used an Ethernet-equipped computer to specify the settings you need.)

b Plug the included power cube into a power strip or wall outlet and then plug its other end into the **Power** jack on the back of the AP+2.

> **Important!** Only use the power cube shipped with the AP+2. Other power cubes may damage the device.

c Change the TCP/IP Settings on your computer so that it uses static IP addressing and the IP address and subnet mask below. Be sure to make note of what the settings are prior to changing them, since you will need to restore these settings later.

IP Address: 10.0.0.100
Subnet Mask: 255.255.255.0

> **Tip!** If you do not know how to access and specify TCP/IP settings on your computer, see **Appendix B: Specifying TCP/IP Settings** on page 55.

d Open a Web browser, type **10.0.0.200** in the address bar, then press **Enter**. (This is the IP address of the AP+2.)

e When the **Login Screen** opens, do not enter a password. Click the **Login** button to access the **Web Management Interface** for the AP+2.

2 Click **Wireless** in the left navigational menu, then click **WPA Configuration** to open the WPA Configuration page.

3 From the **WPA Mode** drop-down list, select one of the following:

- **WPA-PSK** – This option is for WPA with a "pre-shared key." When you select this option, a **Passphrase** box appears so you can enter a passphrase (password). The passphrase can be between eight and 63 characters. You can use upper- and lower-case letters and numbers. Once you enter it, click **Save Changes**.

- **WPA-802.1x** – Select this option if you have a RADIUS server that supports 802.1x installed via a wired connection. When you select this option, several boxes appear so that you can enter settings specific to your RADIUS server. Once you enter the appropriate information, click **Save Changes**.

Tip! If you do not know what a RADIUS server is, you most likely do not have one and should select **WPA-PSK**.

4 Click the **Logout** icon at the top right corner of the screen, then close your Web browser.

5 Reset the computer's TCP/IP settings to what they were before you changed them.

6 Disconnect the AP+2 from the computer and plug it back in where it was before you set security.

7 If you are using the AP+2 as an access point, locate the security settings on each device that will use your wireless network and enter the same WPA settings as the AP+2. This will allow each device to access your **zoom** wireless network. If you need help doing this, refer to the documentation that came with the device.

Congratulations! You have specified WPA security for your wireless network. Your AP+2 installation should be complete.

Setting Up Security Using WEP

Remember that you should only use WEP security if you cannot use WPA security.

1 Access the AP+2's **Web Management Interface** by logging into the device, as explained below.

a Directly connect the AP+2 to an Ethernet-equipped computer that has a Web browser. To do this, plug one end of the included Ethernet cable into the **RJ-45** port on the back of the AP+2 and plug the other end into the Ethernet port on the computer. (If your AP+2 is already connected to another device, such as a router or gaming device, do not worry; simply plug it back in after you have used an Ethernet-equipped computer to specify the settings you need.)

b Plug the included power cube into a power strip or wall outlet and then plug its other end into the **Power** jack on the back of the AP+2.

> **Important!** Only use the power cube shipped with the AP+2. Other power cubes may damage the device.

c Change the TCP/IP Settings on your computer so that it uses static IP addressing and the IP address and subnet mask below. Be sure to make note of what the settings are prior to changing them, since you will need to restore these settings later.

IP Address: 10.0.0.100
Subnet Mask: 255.255.255.0

> **Tip!** If you do not know how to access and specify TCP/IP settings on your computer, see **Appendix B: Specifying TCP/IP Settings** on page 55.

d Open a Web browser, type **10.0.0.200** in the address bar, then press **Enter**. (This is the IP address of the AP+2.)

e When the **Login Screen** opens, do not enter a password. Click the **Login** button to access the **Web Management Interface** for the AP+2.

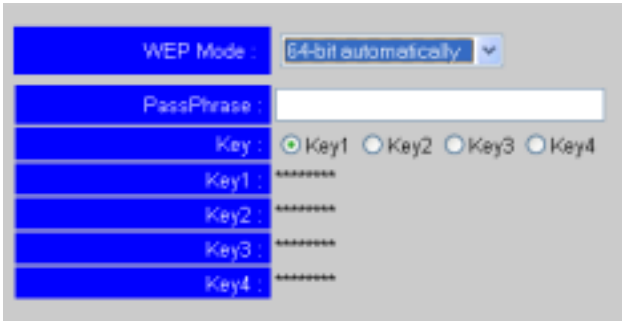
2 From the AP+2 **Web Management Interface**, click **Wireless** in the left navigational menu, then click **WEP Configuration** to open the WEP Configuration page.

3 Use the **WEP Mode** drop-town list to specify whether you want to use 64-bit or 128-bit encryption and whether you want to manually enter hexadecimal keys or have them automatically generated based on a passphrase. (Note that 128-bit encryption is more secure, but 64-bit can be faster, depending on the devices on your network.)

- **64-bit manually** – When you select this option, the screen changes so you can enter up to four WEP keys manually. Select the option button for the key you want to enter (for example, **Key1**), then enter five hexadecimal pairs in the boxes provided. The range for hexadecimal characters is 0-9 and A-F. Once you have entered the keys you want, click the **Save Changes** button

Note: The 64-bit manually options uses only one key to encrypt the data and the receiving device will use the same key to decrypt it. This means that all devices must have the exact same keys in the exact same order. However, each device can specify which key it wants to use for encryption so that all devices are not using the same keys. All four keys should be filled in.

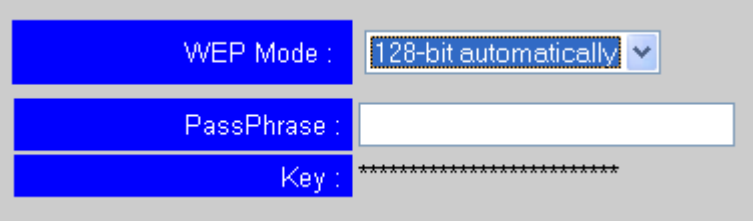
- **64-bit automatically** – Select this option if you want to use a passphrase (password) to define the hexadecimal keys. When you select this option, the screen changes so you can specify a passphrase. The passphrase can be greater or less than five characters (it cannot be exactly five). When complete, click the **Save Changes** button. All four hexadecimal keys are generated automatically and appear on the screen. (Be sure to write down the hexadecimal keys—you may need them later.)



Tip! If you are using the AP+2 with a device that does not allow you to use a passphrase for WEP key definition, or if that device's passphrase does not generate the same hexadecimal characters for the keys, copy the hexadecimal keys generated by the AP+2 an enter them in the appropriate fields on the other device.

- **128-bit manually** – When you select this option, the screen changes so you can enter a WEP key manually. Enter 13 hexadecimal pairs in the boxes provided. The range for hexadecimal characters is 0-9 and A-F. Once you have entered the key, click **Save Changes**.

- **128-bit automatically** – Select this option if you want to use a passphrase (password) to represent the 13 hexadecimal pairs in the key. When you select this option, the screen changes so you can enter a passphrase. The passphrase can be greater or less than 13 characters (it cannot be exactly 13). Enter a passphrase in the **PassPhrase** box, then click the **Save Changes** button. The hexadecimal key generated by the passphrase appears on the screen. (Be sure to write down the hexadecimal key that is generated by the passphrase—you may need it later.)



4 Click the **Logout** icon at the top right corner of the screen, then close your Web browser.

5 Reset the computer's TCP/IP settings to what they were before you changed them.

6 Disconnect the AP+2 from the computer and plug it back in where it was before you set security.

7 If you are using the AP+2 as an access point, locate the security settings on each device that will use your wireless network and enter the same WEP settings as the AP+2. This will allow each device to access your **zoom** wireless network. If you need help doing this, refer to the documentation that came with the device.

> **Important!** If your client devices are not Zoom devices, enter the hexadecimal keys generated by your passphrase, not the passphrase itself. This is because devices by other vendors may not translate the passphrase the same way.

Congratulations! You have specified WEP security for your wireless network. Your AP+2 installation should be complete.

5

Advanced Options

Once your AP+2 is installed and running, you may want to specify some advanced settings for the device. These advanced options are not required and many users may not need or want to use them. However, for those advanced users that do, this chapter provides details about these options and how to apply them to your wireless network.

To specify advanced options, you must log into the AP+2's **Web Management Interface**, as explained below.

1 Directly connect the AP+2 to an Ethernet-equipped computer that has a Web browser. To do this, plug one end of the included Ethernet cable into the **RJ-45** port on the back of the AP+2 and plug the other end into the Ethernet port on the computer. (If your AP+2 is already connected to another device, such as a router or gaming device, do not worry; simply plug it back in after you have used an Ethernet-equipped computer to specify the settings you need.)

2 Plug the included power cube into a power strip or wall outlet and then plug its other end into the **Power** jack on the back of the AP+2.

> **Important!** Only use the power cube shipped with the AP+2. Other power cubes may damage the device.

3 Change the TCP/IP Settings on your computer so that it uses static IP addressing and the IP address and subnet mask below. Be sure to make note of what the settings are prior to changing them, since you will need to restore these settings later.

IP Address: 10.0.0.100
Subnet Mask: 255.255.255.0

> **Tip!** If you do not know how to access and specify TCP/IP settings on your computer, see **Appendix B: Specifying TCP/IP Settings** on page 55.

4 Open a Web browser, type **10.0.0.200** in the address bar, then press **Enter**. (This is the IP address of the AP+2.)

5 When the **Login Screen** opens, do not enter a password. Click the **Login** button to access the **Web Management Interface** for the AP+2.

One you are logged in, a navigational menu appears on the left side of the **Web Management Interface**. If you click an item in the menu, a list of pages on which settings can be specified appears.

The following table lists each page that you can access from the **Web Management Interface**. Each page is described in detail later in this chapter.

Menu Item	Page	Use this Page to...
System	Password Setting	Specify a password to restrict access to the AP+2's **Web Management Interface**.
	Operation Mode	Specify whether to use the AP+2 as an access point, Ethernet client/client bridge, or repeater. (Access point is the default.)
LAN	LAN Settings	Specify whether you want the AP+2 to act as a DHCP Client or DHCP Server. In DHCP Client mode, the AP+2 will receive IP addresses from a router and pass them through to the devices on your wireless network. In DHCP Server mode, the AP+2 will assign IP addresses to devices on your network. By default, the AP+2 is set to DHCP Client mode.
Wireless	Settings	Specify wireless settings, such as SSID and channel information. The settings you can specify on this page depend on the operation mode of the AP+2.
	WEP Configuration	Specify WEP encryption settings for the AP+2 to protect the wireless network from unauthorized use. By default, no security is applied.
	WPA Configuration	Specify WPA encryption settings for the AP+2 to protect the wireless network from unauthorized use. By default, no security is applied.
	Client List	View a list of the devices that are currently connected to your wireless network.
	Site Survey	Have the AP+2 search for and display available wireless access points. This page is only accessible when the **Operating Mode** is set to **Client Bridge (Infrastructure)**.

Table continued on next page...

	Page	Use this Page to...
Wireless *(cont.)*	Repeater Settings	Specify the MAC addresses of the wireless gateways whose coverage area you want to connect via Wireless Distribution System (WDS) links. This page is only accessible when the **Operating Mode** is set to **Repeater**.
	Connection Control	Enable MAC filtering and specify which devices you want to be able to access the wireless network. By default, all devices within range can access the network.
Tools	Configuration Tool	Backup the AP+2's current configuration, restore the unit to a saved configuration, or reset it to its factory defaults.
	Firmware Upgrade	If Zoom releases updated software for the AP+2, upgrade the firmware.
	Reset	Reset the AP+2, but retain the current configuration.
	Status	View the current status of the AP+2, the wireless network, or the local area network.

Viewing the System Status Page

The System Status page opens when you first log into the **Web Management Interface**. (You can also access it by clicking **Tools** in the left navigational menu, then clicking **Status**.)

This page shows you the current settings of the following:

- **Device Status.** Provides information about the AP+2, including the version of firmware currently installed on it and its serial number.
- **Wireless Status.** Shows the current wireless settings for the AP+2, including the SSID of the wireless network to which it is connected, the channel on which it is broadcasting, its mode (Access Point/Wireless Client/Repeater), and the type of encryption (if any) applied for security (WPA/WEP).

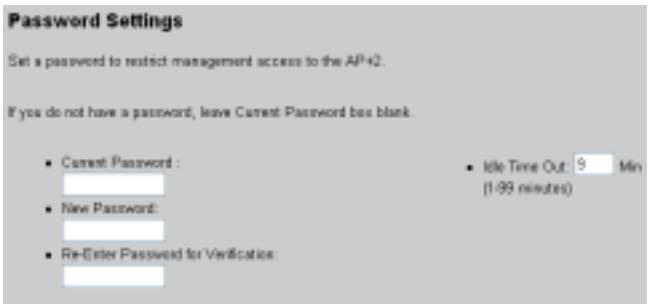
- **LAN Status.** Shows the current settings for your local area network, including the IP address of the AP+2, subnet mask, configuration, and MAC address.

Using the Password Settings Page

Use the Password Settings page to change the password needed to access the **Web Management Interface**. This is typically done if you want to prohibit other users from logging in to the AP+2's interface.

You can also use this page to specify how long the interface can remain idle before it times out. (If it times out, a user will have to log in again to continue using the interface.)

To open the Password Settings page, click **System** in the left navigational menu, then click **Password Settings**.



To change the password

1. Enter the current password in the **Current Password** box. (By default, there is not password, so if you are adding a password for the first time, leave this box blank.)

2. Type the password that you now want to use in the **New Password** box. The password can be up to 12 alphanumeric characters and is not case sensitive.

3. Type the new password again in the **Re-Enter Password for Verification** box.

4. Click the **Save Changes** button.

To change the idle time out

1 In the **Idle Time Out** box, enter the number of minutes after which the **Web Management Interface** connection with the current computer will time out (if the connection is idle for that period of time). You can enter a value between 1 and 99.

2 Click the **Save Changes** button.

Using the Operating Mode Page

Use the Operating Mode page to specify whether you want to use the Zoom AP+2 as an access point, wireless client, or repeater.

By default, the AP+2 is set up as an access point. You only need to change this setting if you are using the AP+2 as an Ethernet client (also called a client bridge) or a repeater.

To open the Operating Mode page, click **System** in the left-navigational menu, then click **Operation Mode**.

To specify the operation mode for the AP+2

1. From the **Operating Mode** drop-down list, select how you plan to use the unit:

   - **Access Point.** This is the default option. Select this option if you plan to plug the AP+2 into a router, modem/router, switch, or hub to allow wireless devices (for example, computers) to make a wireless connection to your network.
   - **Client Bridge (Infrastructure).** Select this option if you want to connect to an existing wireless network through an access point (for example, to wirelessly enable a gaming device). If you know you want to use the AP+2 as an Ethernet client/bridge, but are unsure of which option to choose, select Infrastructure.
   - **Client Bridge (AdHoc).** Select this option if you want to connect wirelessly without an access point to another computer or gaming device in a "peer-to-peer" setup.
   - **Repeater.** Select this option if you plan to install the AP+2 near the edge of a wireless network's area of coverage to extend the area of coverage.

2. Click the **Save Changes** button.

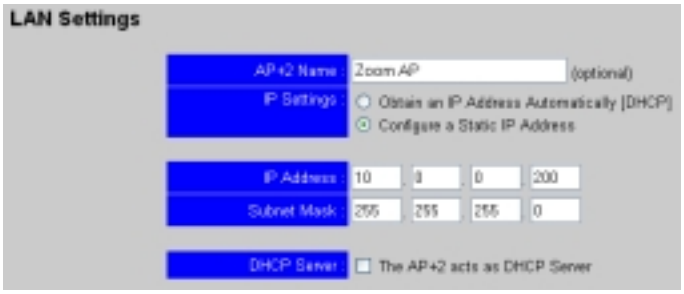
3. When a confirmation message appears, click **OK** to change the operating mode. Another message will appear letting you know that it may take a few moments while the unit resets itself and changes mode. Click **OK**. (Once the unit reboots itself, you will be prompted to log into the **Web Management Interface** again.)

Using the LAN Settings Page

Use the LAN Settings page to specify local area network settings for your AP+2.

By default, the AP+2 is set up to use a static IP address (**10.0.0.200**) to access its **Web Management Interface**. Any requests from LAN devices for DHCP information will be passed through to a router/DHCP server, which will send IP address information through the AP+2 back to the LAN device.

To open the LAN Settings page, click **LAN** in the left-navigational menu, then click **LAN Settings**.



To specify LAN settings

1 [Optional] Enter a name for the AP+2. By default, it is named **Zoom AP**.

2 Specify whether you want to use dynamic or static IP addressing by selecting one of the following option buttons:

- **Configure a Static IP Address.** Select this option button if you want to use a static IP address to access the **Web Management Interface** of the AP+2. This is the default setting. With this option selected, wireless devices will receive their IP addresses from a DHCP server on your network (for example, a router). If you want the AP+2 to assign the IP addresses to the wireless devices, select the next option.

- **Obtain an IP Address Automatically [DHCP].** Select this option button if you have a DHCP server on the network and want to use dynamic addressing to acquire an IP address for accessing the **Web Management Interface**. The AP+2 will automatically be assigned a new IP address when booted. The AP+2 will also assign an IP address to any wireless device that requests one. If you select this option, you do not have to specify any other information on this page; click the **Save Changes** button.

3 If you selected **Configure a Static IP Address**, the additional fields appear so you can specify more information. Specify the following:

a Specify the IP address for the **Web Management Interface** of the AP+2 by entering it in the boxes provided. By default, the unit's IP address is 10.0.0.200.

b Specify the subnet mask for the unit by entering it in the boxes provided. By default, it is 255.255.255.0.

c Select or clear the **The Access Point acts as a DHCP Server** check box, depending on your needs. If you select this option, the AP+2 will provide DHCP information to any devices requesting it. When filling in the settings that appear when this option is selected, ensure that the range of IP addresses is in the same subnet as the IP address of the AP+2. If you are plugging the AP+2 into a router, you should allow the DHCP server in that router assign the IP addresses to the wireless devices on your network.

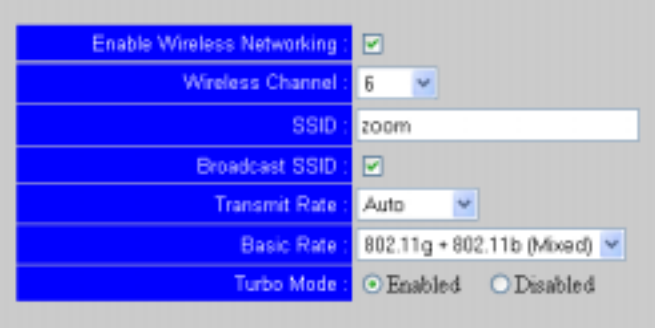
d Click the **Save Changes** button.

Using the Wireless Settings Page

Use the Wireless Settings page to specify the SSID and channel information for AP+2.

Once this information is set, all devices that you want to access your wireless network must use these settings.

To open the Wireless Settings page, click **Wireless** in the left-navigational menu, then click **Settings**.



To specify wireless settings

The following steps assume that you want to set up a wireless network.

1. Select the **Enable Wireless Network** check box. (Note that if you clear this, wireless networking will be disabled and the other options on this page will disappear).

2. From the **Wireless Channel** drop-down list, select the radio channel you want to use. If you are using the AP+2 as an Ethernet client in Infrastructure mode, you do not have to specify this because it is controlled by the access point you are using with the device.

3 In the **SSID** box, enter the SSID you want the AP+2 to broadcast (when in access point or repeater mode). This is the name of the wireless network that will appear to other devices on your network. By default, this is set to **zoom**. The SSID can be up to 32 alphanumeric characters and is case sensitive.

4 Select the **Broadcast SSID** check box to broadcast the name you entered in step 3 so other devices within range can connect to your wireless network. (This check box should be selected by default.) For security reasons, we recommend that you clear this check box after you have connected all the devices that you want to access your wireless network. This will ensure that other devices in your area—for example, those of your neighbors—do not see your network when they search for available networks.

5 From the **Transmit Rate** drop-down list, select the rate at which you want data sent over your wireless network. We recommend you keep the default value of **Auto**. When set to **Auto**, the rate of transmission will automatically increase or decrease depending on the strength and quality of the radio signal. (If you want to change the default option, note that the higher the rate, the better the signal.)

6 From the **Basic Rate** drop-down list, select whether you want your AP+2 to only allow 802.11g devices to access the wireless network or if both 802.11g and 802.11b devices will be granted access. We recommend you select **802.11g only**. You should only select **802.11g +802.11b (mixed)** if you have both types of devices on your network.

7 Enable or disable **Turbo Mode** by selecting either the **Enabled** or **Disabled** option button. (If you enable this feature, your wireless connectivity will be boosted up to 125 Mbps.)

8 Click the **Save Changes** button.

Accessing the WEP/WPA Configuration Pages

Use these two pages to specify security for your AP+2.

To open these pages, click **Wireless** in the left-navigational menu, then click **WEP Configuration** or **WPA Configuration**, as appropriate.

Details about specifying security are covered in **Chapter 4: Setting Security** on page 21.

Viewing the Client List Page

Use the Client List page to view the devices that are currently connected to your wireless network.

To open the Client List page, click **Wireless** in the left-navigational menu, then click **Client List**.

Each device is listed with its MAC address and type. You cannot configure any settings on this page. However, you can click the **Refresh** button to update the list.

Using the MAC Address Filtering Page

If you want to add more security to your network, use the MAC Address Filtering page to restrict access to your wireless network based on a device's unique MAC address. If you do this, only devices with the MAC addresses you specify can access the network.

By default, the MAC address filter is disabled.

To open the MAC Address Filtering page, click **Wireless** in the left-navigational menu, then click **Connection Control**.

To filter devices based on MAC address

1. Select the **Enable Mac Address Filtering** check box.

2. Type the MAC address for a device you want to be able to access your wireless network, then click the **Add** button. (The device will appear on the screen in the MAC Address Filtering List.)

3. Repeat step 2 for each device that you want to grant access to your wireless network

4. Click the **Save Changes** button.

Using the Site Survey Page

This page is only accessible when the AP+2's **Operating Mode** is set to **Client Bridge (Infrastructure)**.

Use the Site Survey page to have the AP+2 detect the available wireless networks in the area. For example, you would use the Site Survey page if you plan to plug the AP+2 into a gaming device to wirelessly enable it so it can connect to an existing network.

To open the Site Survey page, click **Wireless** in the left-navigational menu, then click **Site Survey**.

To perform a Site Survey

1. Click the **Refresh** button to have the AP+2 search for available wireless networks. Each one detected will appear in a list showing its SSID, signal strength, and other information.

2. Click the SSID for network you want.

Using the Repeater Settings Page

This page is only accessible when the AP+2's **Operating Mode** is set to **Repeater**.

Use the Repeater Settings page to specify the MAC addresses of the access points and/or wireless gateways whose coverage you want the AP+2 to be able to extend.

When in repeater mode, the AP+2 is able to wirelessly communicate with the access points and gateways of these other networks via Wireless Distribution System (WDS) links.

To open the Repeater Settings page, click **Wireless** in the left-navigational menu, then click **Repeater Settings**.

To specify repeater settings

1. Click the **Refresh** button to have the AP+2 search for available wireless networks or gateways in the area. (Each link is defined by the MAC address of the other repeater-capable device.)

2. Select a check box for each WDS link that you want your repeater to associate. You can select up to six WDS links.

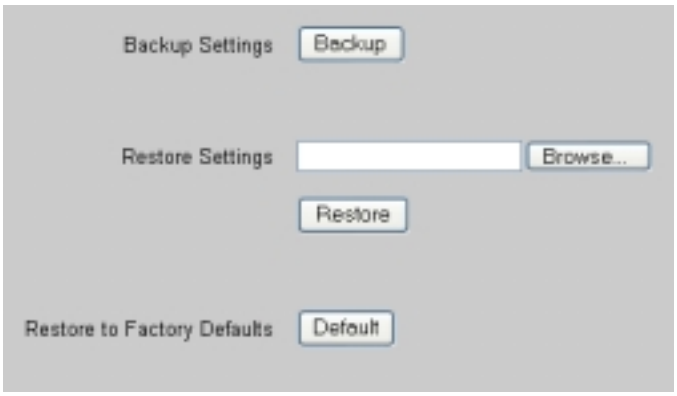
   Important! For every WDS link you select here, you must access the repeater settings for that access point or wireless gateway and specify the Zoom AP+2 as a WDS link.

3. Click the **Save Changes** button.

Using the Configuration Tools Page

Use the Configuration Tools page to save the AP+2's current configuration to a backup file, to restore the unit to a saved backup file, or to restore it to its factory defaults.

To open the Configuration Tools page, click **Tools** in the left-navigational menu, then click **Configuration Tools**.



To backup the current settings

1. Click the **Backup** button.
2. When asked if you really want to save this file, click **Save**.
3. On the Save As dialog box, navigate to the location on your computer where you want to save this file. By default, the file is named **backup.bin**. Be sure to note this location, you will need it should you ever want to restore the AP+2 to this configuration.
4. Click **Save**.

To restore to a saved configuration

1. Click the **Browse** button and navigate to the location of the backup file. Select the file, then click **Save**. The path to the file is automatically entered in the **Restore Settings** box.

2. Click the **Restore** button. A message appears to let you know that the AP+2 is being reset, click **OK**.

3. Wait while the unit is reset using the saved configuration. You will be prompted to log in to the **Web Management Interface** after the process is complete.

To restore to factory defaults

1. Click the **Default** button. A message appears to let you know that the AP+2 is being reset to factory defaults, click **OK**.

2. Wait while the unit is reset to its factory defaults. You will be prompted to log in to the **Web Management Interface** after the process is complete.

An alternative

If you do not want to log into the AP+2 to restore the factory defaults, you can do the following. Unplug the AP+2 from the wall outlet or power strip, insert a paper clip into the **Reload** pinhole on the bottom of the unit and depress the button. While the button is depressed, plug the unit back in and continue depressing the button for five seconds. All of the LEDs on the AP+2 will go out and then turn back on. (If you do not keep the button depressed for at least five seconds, the AP+2 will be reset to its current configuration, NOT the factory defaults.

Using the Firmware Upgrade Page

From time to time, Zoom may release updated software for your AP+2. Use the Firmware Upgrade page to install the new software onto the unit. To see if there is a firmware update, periodically visit the Zoom Web site (www.zoom.com).

To open the Firmware Update page, click **Tools** in the left-navigational menu, then click **Firmware Update**.

To update the firmware

1. Ether the path and name of the upgrade file, or click **Browse** and navigate to the file. (Typically, you would have downloaded the file to your computer from the Zoom Web site.)

2. Click the **Upload** button. You will be prompted to confirm the upgrade.

You can verify whether the upgrade was successful by checking the System Status page (click **Tools** in the left navigational menu, then clicking **Status**).

Using the Reset Page

Use the Reset page to reset the AP+2, but maintain the current settings.

To open the Reset page, click **Tools** in the left-navigational menu, then click **Reset**.

To reset the AP+2

1. Click the **Reset** button.
2. When prompted to confirm the reset click **OK**.
3. When message appears to let you know that the unit is being reset, click **OK**. You will be prompted to log into the AP+2 again once the reset is complete.

Appendix A
Troubleshooting

Problem

I set up my AP+2 as an access point, but the computers I set up on my **zoom** wireless network cannot access the Internet.

Solution

Verify that a "wired" computer can access the Internet.

- If it cannot, then the problem appears to be with your cable or DSL Internet connection. Contact your Internet Service Provider.
- If it can, reboot the computer(s) on your wireless network and try to access the Web again. If you still cannot connect to the Internet wirelessly, try the following:
  - Verify that security is not set on the AP+2. If it is, ensure that the wireless computers are using the same settings. If you accessed the AP+2's **Web Management Interface**, you should ensure that you reset the computer's TCP/IP settings.
  - Verify that the computer is connected to the correct wireless network and that the signal strength is adequate. (Try repositioning the device if the signal strength is not active.)
    - **If you are using a Windows XP operating system with built-in wireless access:**
      a. On your Windows desktop, click the **Start** button, then click **Control Panel**.
      b. Double-click the **Network Connections** icon.

c Click the **Wireless Network Connection** icon.

d Look at the details that appear on the left side of the screen. If the signal strength is low, try repositioning the antennas of the AP+2. You can also try moving the wireless computer closer to the AP+2. You should also verify that **zoom** is selected as the wireless network. If it is not, then you are connected to the wrong network.

- **If you are using a computer with a wireless network card installed**, access the network card's software and verify that it is connected to the **zoom** network and that the signal strength is adequate. Refer to the documentation that came with the adapter if you need help doing this.

Appendix B
Specifying TCP/IP Settings

Accessing the AP+2's **Web Management Interface** requires that you plug the unit directly into the Ethernet port of a computer. It also requires that the computer's TCP/IP settings be set for static IP addressing and the following IP address and subnet mask:

IP Address: 10.0.0.100

Subnet Mask: 255.255.255.0

This Appendix details how to access and set the TCP/IP settings for Windows, Macintosh, and Linux operating systems. Depending on your operating system, follow the steps in the appropriate section to ensure your TCP/IP settings are correct.

- If you are using Windows, see **Windows TCP/IP Settings** on page 56.
- If you are using Macintosh, see **Macintosh TCP/IP Setting** on page 59.
- If you are using Linux, see **Linux TCP/IP Settings** on page 61.

Windows TCP/IP Settings

How you configure your Windows computer's network settings differs, depending on your operating system.

Windows XP

1. Open the **Internet Protocol (TCP/IP) Properties** dialog box.

   a. From the desktop, click the **Start** button, point to **Control Panel**, and then click **Network and Internet Connections**.

   b. Click **Network Connections**.

   c. Right-click the **Local Area Connection** icon, and select **Properties**.

   d. Select the Internet Protocol (TCP/IP) entry (it should include "TCP/IP" in it, but not "AOL," "Dial-up," or "Adapter") and click the **Properties** button.

2. Select **Use the following IP address** and enter **10.0.0.100** and **255.255.255.0** as the **IP address** and **Subnet mask**, respectively.

3. Click **OK**, then click **Close**.

Windows 2000

1. Open the **Internet Protocol (TCP/IP) Properties** dialog box.

   a. From the desktop, click the **Start** button, point to **Settings**, then **Network and Dial-up Connections**.

   b. Right-click the **Local Area Connection** icon, and select **Properties**.

   c. Select the Internet Protocol (TCP/IP) entry (it should include "TCP/IP" in it, but not "AOL," "Dial-up," or "Adapter") and click the **Properties** button.

2. Ensure that **Use the following IP address** is selected and enter **10.0.0.100** and **255.255.255.0** as the **IP address** and **Subnet mask**, respectively.

3. Click **OK**, then click **OK** again.

Windows 98/Me

1. Open the **Internet Protocol (TCP/IP) Properties** dialog box.

   a. From the desktop, click the **Start** button, point to **Settings**, then **Control Panel**.

   b. Double-click the **Network** icon to display the **Network** dialog box.

   c. Select your NIC card's TCP/IP entry (it should include "TCP/IP" in it, but not "AOL," "Dial-up," or "Adapter") and click the **Properties** button and then click **OK**

2. On the IP Address tab, ensure that **Specify an IP address** is selected and enter **10.0.0.100** and **255.255.255.0** as the **IP Address** and **Subnet Mask**, respectively.

3. Click **OK**, then click **OK** again.

Macintosh TCP/IP Settings

How you configure your Macintosh computer's network settings differs, depending on your Mac OS. For OS X, follow the instructions below. Otherwise, go to page 60.

Mac OS X

1. From the **Dock**, choose **System Preferences** and then **Network** to display the **Network** pane. (For OS X 3, you also have to click the **Configure** button.)

2. Ensure that **Automatic** is selected from the **Location** list box.

3. Under the **Show** drop-down tab, choose **Built-in Ethernet**.

4. Under the **TCP/IP** tab, specify that you want to use static IP addressing and enter **10.0.0.100** and **255.255.255.0** as the **IP address** and **Subnet mask**, respectively.

5. Click **Apply Now** (or **Save** if prompted) and close the **Network** pane.

Mac OS 7.6.1 - 9.2.2

1. From the **Apple** menu, choose **Control Panels** and then **TCP/IP** to display the **TCP/IP** Window.

2. Under Connect via:, select **Ethernet built-in**.

3. Under Configure:, specify that you want to use static IP addressing and enter **10.0.0.100** and **255.255.255.0** as the **IP address** and **Subnet mask**, respectively.

4. Close the **TCP/IP** Window. You will be asked if you want to save the changes. Click **Save**.

Linux TCP/IP Settings

The instructions for setting up static IP addressing vary dramatically by distribution, so you may want to refer to your particular version's documentation.

Note: If you have more than one network card installed, you will need to pick distinct Ethernet identifiers for each (eth0, eth1, eth2, and so forth). If you select an identifier other than eth0 for your AP+2, use that identifier throughout.

RedHat

Edit or create **/etc/sysconfig/network-scripts/ifcfg-eth0** so that it contains the following lines:

```
DEVICE=eth0
BOOTPROTO=static
ONBOOT=yes
IPADDR=10.0.0.100
NETMASK=255.255.255.0
USERCTL=no
PEERDNS=no
GATEWAY=10.0.0.200
TYPE=ethernet
NETWORK=10.0.0.0
BROADCAST=10.0.0.255
```

Once you have modified this file and saved the changes, issue the following commands to have the changes applied:

```
ifdown eth0
ifup eth0
```

SuSE

Edit the file **/etc/rc.config** and specify a static IP address of 10.0.0.100. The settings you need to specify will be similar to the Red Hat example above.

Reboot with this command: **/sbin/shutdown -r now**.

Debian

Locate **/etc/network/interfaces** and specify a static IP address of 10.0.0.100. The settings you need to specify will be similar to the Red Hat example above.

Reboot with this command: **/sbin/shutdown -r now**.

Appendix C
LED Description

The following table describes each of the LEDs on the top of the AP+2 and what each light means when it is flashing and/or steady.

LED	What it does	Flashing/Steady Status
TX/RX	Shows the status of the AP+2's wireless link	When flashing green, the AP+2 is sending or receiving data wirelessly.
LINK/ACT	Shows the status of the AP+2's Ethernet LAN connection	• If it flashes green and then becomes steady green, the AP+2 has established a valid 100 Mbps Ethernet connection. • If it flashes orange and then becomes steady orange, the AP+2 has established a valid 10 Mbps Ethernet connection. • When flashing (regardless of color), the AP+2 is sending or receiving data over the Ethernet LAN.
PWR	Shows whether the AP+2 is powered on.	When steady green, the AP+2 is powered on.

Appendix D
Zoom Technical Support Services

Zoom has a variety of technical support services available to our customers. We strive to provide convenient, professional support responsive to our customers' needs and capabilities. If you find yourself unable to get your Zoom product to operate, and you have thoroughly reviewed your owner's manual and all relevant documentation, please feel free to contact us for help.

For your records, and to facilitate Technical Support from either your equipment supplier or Zoom, please record the following information when you receive your Zoom product.

Product Information

Product Name

_____

Product Model Number

_____

Product Serial Number

_____

Date Installed

_____

The Serial Number is located on the bottom of the unit below the barcode. Once you have located the Serial Number, please be sure to write it down. This will greatly speed up your service and insure that the service representative is addressing the proper model of the product.

Calls to Zoom's voice technical support staff are the most time consuming, and at times you may find it difficult to get through. We do not want you left on hold for long periods of time, so we limit the queue length. We recommend that you take the time to familiarize yourself with the other services described in this section

before calling. Many questions can be answered more quickly using e-mail or our World Wide Web Home page.

World Wide Web

Zoom's Web page lets you send e-mail for assistance, register on-line, access product reviews and descriptions, and do a whole lot more. Visit the Zoom Technical Support area for the latest Flash Files and Drivers for your Zoom Product. To access Zoom's Web page, please log onto your local Internet Service Provider, then go to the Web browser and select: **www.zoom.com**

From Zoom's Homepage you can easily go to Technical Support or many other useful areas.

Smart Facts™ Q&A Search Engine (English Only)

Smart Facts™ is an automated intelligent database of Frequently Asked Questions (FAQ's) about Zoom Products. It allows you to search for solutions to your Technical Support questions, by product or via a powerful Keyword Search Engine. If you still cannot find a solution to your question, SmartFacts lets you access our Technicians via e-mail for a personalized response. SmartFacts provides you with a way to track the history of your problem and to add or change the description without having to enter any facts that were previously sent. SmartFacts can even contact you automatically if there is an update to your modem or software that helps to address the question you had. You can access SmartFacts from **www.zoom.com/techsupport**

Contact Zoom by E-mail

You can e-mail Zoom with any tech support questions you might have and one of our Technical Support Engineers will respond by e-mail within 2 business days. You may request personal assistance via e-mail at www.zoom.com/techmail. When e-mailing Zoom, be sure to include the following:

- Serial Number
- Your full name and address
- A detailed description of your problem

Contact Zoom by Phone

The U.S.A. Technical Support phone lines are available:
Monday to Friday 9:00 AM to 11:00 PM Eastern Time and
Saturday 9:00 AM to 5:00 PM Eastern Time.
Please call **(561) 997-9683**.

Our European Technical Support is available:
Monday to Friday 9:00 AM to 11:00 PM GMT.
In the UK, please call **0870 720 0090**. Outside the UK, please call **44 (0)1276 704440**.

Return of Defective Units

Please contact your local distributor or reseller for Factory Authorized Repair or Replacement of your **In Warranty Defective Product**. If you are unable to reach your distributor, you can contact the Zoom Factory Customer Service by calling:

US: (561) 241-7712

UK: 0870 720 0090

Europe: 44 (0)1276 704440

Please note that the customer is responsible for any charges (including brokerage or customs and duties) associated with shipping the defective unit to Zoom for repair. During the first year Zoom will pay return shipping to the customer by common carrier. After the first year the customer may be required to pay a shipping and handling fee. Any applicable customs, duties and brokerage charges to import the product are the responsibility of the customer. Zoom encourages all customers to return defective units to their respective reseller whenever possible

Appendix E
Regulatory Information

U.S. FCC Part 15 Emissions Statement

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 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 that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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.
FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:
IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

Industry Canada Emissions Statement

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.
Operation is subject to the following two conditions:
1) this device may not cause interference and
2) this device must accept any interference, including interference that may cause undesired operation of the device.

European Declaration of Conformity

The manufacturer declares under sole responsibility that this equipment is compliant to Directive 1999/5/EC (R&TTE Directive) via the following. This product is CE Marked.

Directive	Standard	Test Report
73/23/EEC-Low Voltage	EN 60950-1: 2001	electrical safety
89/336/EEC-EMC	EN55022 :1998+A1/2000+A2 :2003, Class B EN61000-3-2 :2000, Class A EN61000-3-3 :1995+A1:2001 EN61000-4-2 :1995+A1/1998+A2/2001 EN61000-4-3 :1996+A1/1998+A2/2001 EN61000-4-4 :1995+A1/2001+A2/2001 EN61000-4-5 :1995+A1/2001 EN61000-4-6 :1996+A1/2001 EN61000-4-11 :1994+A1/2001	EMC Requirements for Emissions and Immunity
89/336/EEC-EMC	EN 301 489-1, 489-17	EMC Requirements for Radio Equipment
99/5/EC	EN 300 328 V1.4.1 : 2003-04	Technical Requirements for 2.4GHz Radio Equipment

Countries of Operation & Conditions of Use in the European Community

This device is intended to be operated in all countries of the European Community.
Requirements for indoor vs. outdoor operation, license requirements and allowed channels of operation apply in some countries as described below:

Note: The user must use the configuration utility provided with this product to ensure the channels of operation are in conformance with the spectrum usage rules for European Community countries as described below.

• This device requires that the user or installer properly enter the current country of operation in the command line interface as described in the user guide, before operating this device.
• This device will automatically limit the allowable channels determined by the current country of operation. Incorrectly entering the country of operation may result in illegal operation and may cause harmful interference to other system. The user is obligated to ensure the device is operating according to the channel limitations, indoor/outdoor restrictions and license requirements for each European Community country as described in this document.
• This device may be operated *indoors or outdoors* in all countries of the European Community
using the 2.4 GHz band: Channels 1 - 13, except where noted below.
- In Italy the end-user must apply for a license from the national spectrum authority to
operate this device outdoors.
- In Belgium outdoor operation is only permitted using the 2.46 - 2.4835 GHz band:
Channel 13.
- In France outdoor operation is only permitted using the 2.4 - 2.454 GHz band:
Channels 1 - 7.

Electrostatic Discharge Statement

The unit may require resetting after a severe electrostatic discharge event.
Additional compliance information is located on the CD.

NOTICE