CHAPTER 3

Troubleshooting Autonomous Access Points

This chapter provides troubleshooting procedures for basic problems with the autonomous access point (model: AIR-AP1131AG or AIR-AP1131G). For the most up-to-date, detailed troubleshooting information, refer torefer to the Cisco Technical Support and Documentation website at the following URL:

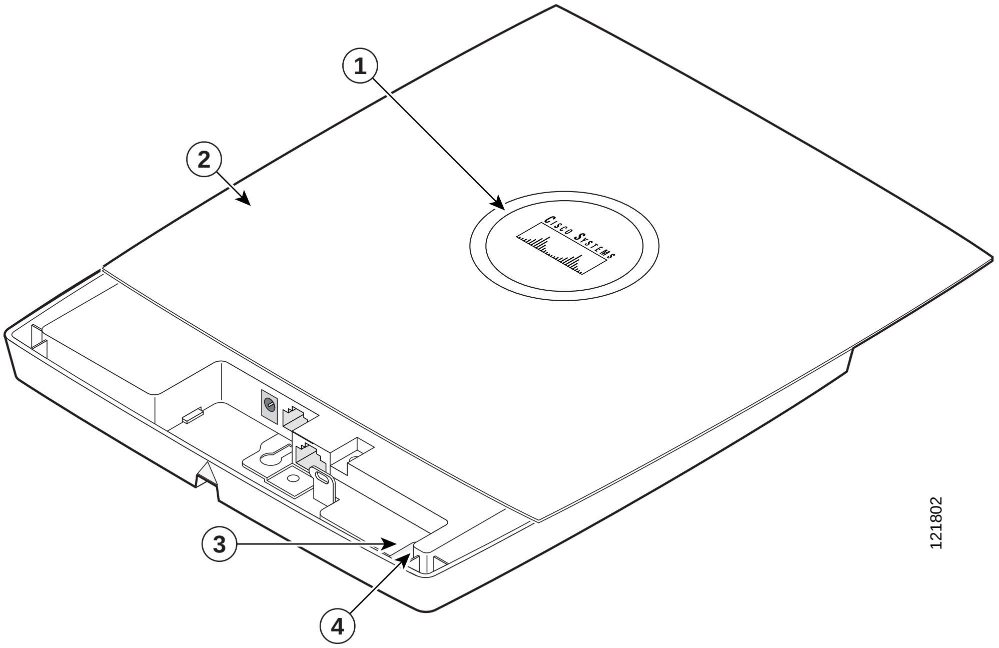
http://www.cisco.com/en/US/products/hw/wireless/tsd_products_support_category_home.html

Sections in this chapter include:

Checking the Autonomous Access Point LEDs

If your autonomous access point is not working properly, check the Status LED on the top panel or the Ethernet and Radio LEDs in the cable bay area. You can use the LED indications to quickly assess the unit's status. Figure 3-1 shows the access point LEDs (for additional information refer to the Event Log using the access point browser interface).

Figure 3-1 Access Point LEDs



1	Status LED	**3**	Ethernet LED
2	Access point cover	**4**	Radio LED

Note To view the Ethernet and Radio LEDs you must open the access point cover (refer to the "Opening the Access Point Cover" section on page 2-11).

Note When the access point cover is opened, the Status LED colors are not visible.

Note There can be slight color variations in the Status LED of each access point.

The LED signals are listed in Table 3-1.

Table 3-1 LED Signals

	Cable Bay Area		Top of Unit	
Message type	**Ethernet LED**	**Radio LED**	**Status LED**	**Meaning**
Operating status	Green	—	—	Ethernet link is operational.
	Blinking green	—	—	Transmitting or receiving Ethernet packets.
	—	Blinking green	—	Transmitting or receiving radio packets.
	—	—	Blinking dark blue	Software upgrade in progress
Association status	—	—	Light green	Normal operating condition, but no wireless client devices are associated with the unit.
	—	—	Blue	Normal operating condition, at least one wireless client device is associated with the unit.
Cisco IOS errors	Blinking amber	—	—	Transmit or receive Ethernet errors.
	—	Blinking amber	—	Maximum retries or buffer full occurred on the radio.
	Red	Red	Amber	Software failure; try disconnecting and reconnecting unit power.
	—	—	Amber	General warning, insufficient inline power (see the “Low Power Condition for Autonomous Access Points” section).
Boot loader status	Green	Green	Green	DRAM memory test ok.
	Off	Blinking green	Blue-green	Initialize Flash file system.
	Off	Green	Pink	Flash memory test ok.
	Green	Off	Dark blue	Ethernet test ok.
	Green	Green	Green	Starting Cisco IOS.
Boot loader warnings	Off	Off	Yellow	Ethernet link not operational.
	Red	Off	Yellow	Ethernet failure.
	Amber	Off	Yellow	Configuration recovery in progress (Mode button pressed for 2 to 3 seconds).
	Off	Red	Pink	Image recovery (Mode button pressed for 20 to 30 seconds).
	Blinking green	Red	Blinking pink and off	Image recovery in progress and Mode button is released.

Table 3-1 LED Signals (continued)

	Cable Bay Area		Top of Unit	
Message type	**Ethernet LED**	**Radio LED**	**Status LED**	**Meaning**
Boot loader errors	Red	Red	Red	DRAM memory test failure.
	Off	Red	Blinking red and blue	Flash file system failure.
	Off	Amber	Blinking red and blue-green	Environment variable (ENVAR) failure.
	Amber	Off	Blinking red and yellow	Bad MAC address.
	Red	Off	Blinking red and off	Ethernet failure during image recovery.
	Amber	Amber	Blinking red and off	Boot environment error.
	Red	Amber	Blinking red and off	No Cisco IOS image file.
	Amber	Amber	Blinking red and off	Boot failure.

Checking Basic Settings

Mismatched basic settings are the most common causes of lost connectivity with wireless clients. If the access point does not communicate with client devices, check the following areas.

Default IP Address Behavior

When you connect an 1130AG access point running Cisco IOS Release 12.3(2)JA or later software with a default configuration to your LAN, the access point requests an IP address from your DHCP server, and if it does not receive an IP address, it continues to send requests indefinitely.

Default SSID and Radio Behavior

In Cisco IOS Relese 12.3(2)JA2 and earlier, the access point radios are enabled by default and the default SSIDs are *tsunami*.

In Cisco IOS Release 12.3(4)JA and later, the access point radios are disabled by default, and there are no default SSIDs. You must create an SSID and enable the radio before the access point will allow wireless associations from other devices. These changes to the default configuration improve the security of newly installed access points. Refer to the *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points* for instructions on configuring the SSID and the "Enable Radio Interfaces" section on page 3-5 for instructions on enabling the radio interfaces.

Enable Radio Interfaces

To enable the radio interfaces, follow these instructions:

Step 1 Use your web-browser to access your access point.

Step 2 When the Summary Status page displays, click **Network Interfaces > Radio0-802.11B** or **Radio0-802.11G** and the radio status page displays.

Step 3 Click **Settings** and the radio settings page displays.

Step 4 Click **Enable** in the Enable Radio field.

Step 5 Click **Apply**.

Step 6 Click **Network Interfaces** > **Radio0-802.11A** and the radio status page displays.

Step 7 Click **Settings** and the radio settings page displays.

Step 8 Click **Enable** in the Enable Radio field.

Step 9 Click **Apply**.

Step 10 Close your web-browser.

SSID

Wireless clients attempting to associate with the access point must use the same SSID as the access point. If a client device's SSID does not match the SSID of an access point in radio range, the client device will not associate. The access point default SSID is *tsunami*. Refer to the *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points* for instructions on how to configure an SSID.

Note The default SSID (*tsunami*) is not supported in access points running Cisco IOS Release 12.3(4)JA or later. You must configure an SSID before client devices can associate to the access point.

WEP Keys

The WEP key you use to transmit data must be set up exactly the same on your access point and any wireless devices with which it associates. For example, if you set WEP Key 3 on your client adapter to 0987654321 and select it as the transmit key, you must also set WEP Key 3 on the access point to exactly the same value. The access point does not need to use Key 3 as its transmit key, however.

Refer to the *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points* for instructions on setting the access point's WEP keys.

Security Settings

Wireless clients attempting to authenticate with your access point must support the same security options configured in the access point, such as EAP or LEAP, MAC address authentication, Message Integrity Check (MIC), WEP key hashing, and 802.1X protocol versions.

If a wireless client is unable to authenticate with your access point, contact the system administrator for proper security settings in the client adapter and for the client adapter driver and firmware versions that are compatible with the access point settings.

Note The access point MAC address that appears on the Status page in the Aironet Client Utility (ACU) is the MAC address for the access point radio. The MAC address for the access point Ethernet port is printed on the label on the back of the access point.

Low Power Condition for Autonomous Access Points

Warning **This product must be connected to a Power over Ethernet (PoE) IEEE 802.3af compliant power source or an IEC60950 compliant limited power source.** Statement 353

The access point can be powered from the 48-VDC power module or from an in-line power source. The access point supports the IEEE 802.3af power standard, Cisco Pre-Standard PoE protocol, and Cisco Intelligent Power Management for in-line power sources.

For full operation, the access point requires 12.95 W of power. The power module and Cisco Aironet power injectors are capable of supplying the required power for full operation, but some inline power sources are not capable of supplying 12.95 W. Also, some high-power inline power sources, might not be able to provide 12.95 W of power to all ports at the same time.

Note An 802.3af compliant switch (Cisco or non-Cisco) is capable of supplying sufficient power for full operation.

Note If your access point is connected to in-line power, do not connect the power module to the access point. Using two power sources on the access point might cause the access point to shut down to protect internal components and might cause the switch to shut down the port to which the access point is connected. If your access point shuts down, you must remove all power and reconnect only a single power source.

On power up, the access point is placed into low power mode (both radios are disabled), Cisco IOS software loads and runs, and power negotiation determines if sufficient power is available. If there is sufficient power then the radios are turned on; otherwise, the access point remains in low power mode with the radios disabled to prevent a possible over-current condition. In low power mode, the access point activates the Status LED low power error indication, displays a low power message on the browser and serial interfaces, and creates an event log entry (see the "Checking the Autonomous Access Point LEDs" section on page 3-2 and "Inline Power Status Messages" section on page 3-7).

Intelligent Power Management

The access point requires 12.95 W of power for full power operation with both radios, but only needs 6.3 W of power when operating in low power mode with both radios disabled. To help avoid an over-current condition with low power sources and to optimize power usage on Cisco switches, Cisco developed Intelligent Power Management, which uses Cisco Discovery Protocol (CDP) to allow powered devices (such as your access point) to negotiate with a Cisco switch for sufficient power.

The access point supports Intelligent Power Management and as a result of the power negotiations, the access point will either enter full power mode or remain in low power mode with the radios disabled.

Note Independent of the power negotiations, the access point hardware also uses the 802.3af classification scheme to indicate the power required from the power source. However, the power source cannot report the power available to the access point unless the power source also supports Intelligent Power Management.

Some Cisco switches that are capable of supplying sufficient power require a software upgrade to support Intelligent Power Management. If the software upgrade is not desired, you can configure the access point to operate in pre-standard compatibility mode and the access point automatically enters full power mode if these Cisco switches are detected in the received CDP ID field.

When the access point determines that sufficient power is not available for full power operation, an error message is logged and the Status LED turns amber to indicate low power mode (see the "Checking the Autonomous Access Point LEDs" section on page 3-2 and the "Inline Power Status Messages" section on page 3-7).

Tip If your switch is capable of supplying sufficient power for full operation but the access point remains in low-power mode, your access point or your switch (or both) might be misconfigured (see Table 3-2 and Table 3-3).

If your inline power source is not able to supply sufficient power for full operation, you should consider these options:

- Upgrade to a higher-powered switch
- Use a Cisco Aironet power injector on the switch port
- Use the 48-VDC power module to locally power the access point

Inline Power Status Messages

These messages are logged on the console port by the access point to report the power condition:

- %CDP_PD-4-POWER_OK: Full Power - AC_ADAPTOR inline power source—This message indicates the access point is using the power module and can support full-power operation.
- %CDP_PD-4-POWER_OK: Full Power - NEGOTIATED inline power source—This message indicates the access point is operating at full power and has successfully negotiated for 12.95 W of power from a Cisco switch supporting Cisco Intelligent Power Management.
- %CDP_PD-4-POWER_OK: Full Power - HIGH_POWER_CLASSIC inline power source—This message indicates the access point is operating at full power because it has been configured for pre-standard compatibility mode and has detected a Cisco switch that does not support Intelligent Power Management but is able to supply sufficient power to the access point.

- %CDP_PD-4-POWER_OK: Full Power - INJECTOR_CONFIGURED_ON_SOURCE inline power source—This message indicates the access point is operating at full power because it is connected to a Cisco switch that supports Intelligent Power Management and the switch has been configured with the *power inline never* command.
- %CDP_PD-4-POWER_OK: Full power - INJECTOR_CONFIGURED_ON_CURRENT_PORT inline power source—This message indicates the access point is operating at full power because it has been configured to expect a power injector on this port.
- %CDP_PD-4-POWER_OK: Full Power - INJECTOR_DETECTED_PD inline power source—This message indicates the access point is operating at full power because it has detected a CDP packet from another Cisco powerable device (PD). The access point power is being supplied from a power injector or a non-Cisco power source because a Cisco power source does not transmit this type of CDP packet.
- %CDP_PD-4-POWER_OK: Full Power - INJECTOR_DETECTED_MULTIPLE_MACS_ON_HUB inline power source—This message indicates the access point is operating at full power because it has detected multiple Cisco devices. The access point power is being supplied from a power injector or a non-Cisco power source because a Cisco power source does not forward CDP packets.
- %CDP_PD-4-POWER_OK: Full Power - NON_CISCO-NO_CDP_RECEIVED inline power source—This message indicates the access point is operating at full power because it has not received any CDP packets within the timeout period. This condition indicates your access point is connected to a non-Cisco power source.

  Note To prevent possible over-current conditions, the power source must be an IEEE 802.3af compliant power source or an IEC60950 compliant limited power source.

- %CDP_PD-2-POWER_LOW: All radios disabled - NEGOTIATED inline power source—This message indicates the access point is in low power mode with all radios disabled because the Cisco power source has indicated it is not capable of supplying sufficient power to the access point.

  Note A Cisco power injector might be required.

- %CDP_PD-2-POWER_LOW: All radios disabled - LOW_POWER_CLASSIC_NO_INJECTOR_CONFIGURED <*platform name*> (<*MAC address*>)—This message indicates the access point is in low power mode with all radios disabled and has detected a CDP device that is unable to supply sufficient power to the access point.

  The< *platform name*> indicates the CDP device detected by the access point. The <*MAC address*> indicates the MAC address of the CDP device, typically, the switch port.

  Note A Cisco power injector might be required.

  Following the low power status message, two extra messages are displayed on the console port or when using a Telnet session that identify the actions needed to resolve this low power problem:

  – Verify the required power injector is installed on this port: <*platform name*> (<*Ethernet port*>).

    (where <*platform name*> indicates the CDP device detected by the access point and <*Ethernet port*> indicates the Ethernet port of the CDP device.

  – If a power injector is installed, issue the command: power inline negotiation injector installed.

- %CDP_PD-2-POWER_LOW: All radios disabled- LOW_POWER_CLASSIC_INJECTOR_ CONFIGURED_ON_ANOTHER_PORT <*platform name*> (<*MAC address*>)—This message indicates the access point is in low power mode with all radios disabled and has detected a CDP device that is unable to supply sufficient power to the access point. A power injector has been configured, but it is for another port. It is likely that the access point has been relocated and has not been reconfigured for a new power injector.

  The <*platorm name*> indicates the CDP device detected by the access point. The <*MAC address*> indicates the MAC address of the CDP device, typically, the switch port.

  Note A Cisco power injector might be required.

  Following the low power status message, two extra messages are displayed when using the console port or a Telnet session that identify the actions needed to resolve this low power problem:

  1. Verify the required power injector is installed on the new port: <*platform name*> (<*Ethernet port*>).

     (where <*platform name*> indicates the CDP device detected by the access point and <*Ethernet port*> indicates the Ethernet port of the CDP device.
  2. If a power injector is installed, issue the command: power inline negotiation injector installed.
- %CDP_PD-2-POWER_LOW: All radios disabled- HIGH_POWER_CLASSIC_NOT_ CONFIGURED inline power source <*platform name*> (<*MAC address*>)—This message indicates the access point is in low power mode with all radios disabled and has detected a Cisco switch that does not support Intelligent Power Management, but should be able to supply sufficient power. The access point must be configured for pre-standard compatibility.

  The< *platform name*> indicates the Cisco platform detected by the access point. The <*MAC address*> indicates the MAC address of the switch port.

  Note You need to upgrade the software on the Cisco switch to support Intelligent Power Management or configure the access point for pre-standard compatibility.
- %CDP_PD-4-POWER_OK: Full power - INJECTOR_CONFIGURED_OVERRIDE_SAFETY inline power source —This message indicates the access point has been configured to override the inline power checks and a power injector is installed.

Caution When using the **power inline negotiation injector override** command, a power injector must always be installed to prevent a possible overload condition with an underpowered power source.

Configuring Power Using the CLI

Intelligent Power Management support is dependent on the version of software resident in the Cisco switch that is providing power to the access point. Each Cisco switch should be upgraded to support Intelligent Power Management. Until the software is upgraded, you can configure the access point to operate with older Cisco switch software using the following Cisco IOS CLI command:

```
[no]power inline negotiation {prestandard source |injector {installed | override | H.H.H}}
```

(**prestandard source** indicates the Cisco switch does not support Intelligent Power Management. **injector installed** indicates a power injector is installed on the current switch port. **injector override** indicates a power injector is installed and the access point is configured to override the inline power checks. When you move the access point, *H.H.H* is used to specify the MAC address of the new switch port where the access point was moved. A MAC address of 0.0.0 is invalid.)

Caution When using the **power inline negotiation injector override** command, a power injector must always be installed to prevent a possible overload condition with an underpowered power source.

Note The **power inline negotiation injector installed** command will fail if CDP is disabled.

When using the p;ower inline negotiation injector override command, you must use a power injector to prevent possiblly overloading underpowered power sources.

You can use this Cisco IOS CLI command to inform the access point of the following:

- The Cisco switch does not support Intelligent Power Management but should be able to supply sufficient power.
- A power injector is being used to supply sufficient power and the Cisco switch does not support Intelligent Power Management.
- The access point was moved to a new Cisco switch port and a power injector is being used to supply sufficient power.

Caution If the access point receives power through PoE, the output current of the power sourcing equipment (PSE) cannot exceed 400 mA per port. The power source must comply with IEEE802.3af or IEC60950 for limited power sources.

Note After completing your configuration changes, you must remove the serial console cable from the access point.

Refer to Table 3-2 for information on when to use this special Cisco IOS command and the corresponding Cisco switch power command.

Table 3-2 Using Cisco IOS Commands

	Cisco IOS Commands	
Power Source	**Access Point**	**Cisco Switch**
AC power module	None required	**power inline never**
Cisco switch that supports Intelligent Power Management[1]	**no power inline negotiation prestandard source** **no power inline negotiation injector**	**power inline auto**
Cisco switch that does not support Intelligent Power Management[1]	**power inline negotiation prestandard source** **no power inline negotiation injector**	**power inline auto**
Power injector[2] used with a Cisco switch that supports Intelligent Power Management[1]	None required[3]	**power inline never**[4]
Power injector[2] used with a Cisco switch that does not support Intelligent Power Management[1]	**no power inline negotiation prestandard source** **power inline negotiation injector installed**	**power inline never**
Power injector used with a non-Cisco switch	None required	–
802.3af compliant non-Cisco switches	None required	–

[1] You should check the release notes for your Cisco power source to determine which Cisco IOS release supports Intelligent Power Management. Support for Intelligent Power Management might not be currently available for your Cisco power source.

[2] Power injector must be AIR-PWRINJ3 or AIR-PWRINJ-FIB.

[3] The Cisco switch uses Intelligent Power Management to inform the access point of the power injector being used.

[4] Cisco switches that support Intelligent Power Management always configure the use of a power injector at the switch.

Issuing the Cisco IOS Command Using the CLI

Follow these steps to issue the Cisco IOS command for your power scenario:

Step 1 Connect a PC to the access point console port and use a terminal emulator to establish a session with the access point (refer to the "Connecting to the Access Point Console Port" section on page 3-20).

Step 2 From the global configuration mode, enter the command below that applies to your power configuration (see Table 3-2):

- **power inline negotiation injector installed**
- **no power inline negotiation injector**
- **power inline negotiation prestandard source**
- **no power inline negotiation prestandard source**

Step 3 Enter **exit** to exit the global configuration mode.

Step 4 Enter **write memory** to save the setting to the access point memory.

Step 5 Enter **quit** to exit the terminal session.

Step 6 Close your terminal emulator.

Configuring the Access Point System Power Settings Using a Browser

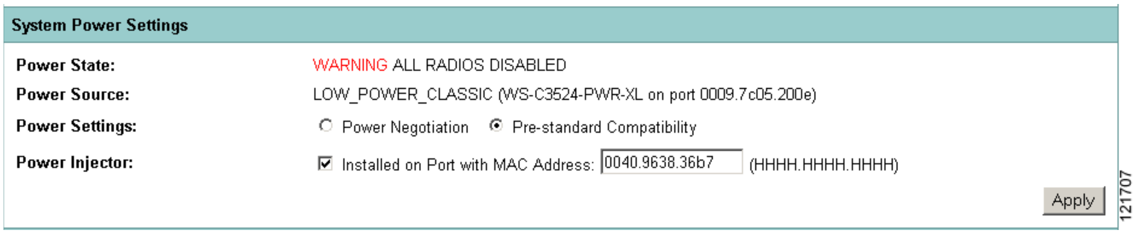
You can also use your browser to set the access point System Power Settings.

Note The access point web-browser interface is fully compatible with Microsoft Internet Explorer version 6.0 on Windows 98 and 2000 platforms and with Netscape version 7.0 on Windows 98, Windows 2000, and Solaris platforms.

Note When using the access point browser interface, you should disable your browser pop-up blocker.

Figure 3-2 shows the system power setting options and indicates the power status of the access point.

Figure 3-2 System Power Settings



System Power Settings

Power State: WARNING ALL RADIOS DISABLED

Power Source: LOW_POWER_CLASSIC (WS-C3524-PWR-XL on port 0009.7c05.200e)

Power Settings: ○ Power Negotiation ● Pre-standard Compatibility

Power Injector: ☑ Installed on Port with MAC Address: 0040.9638.36b7 (HHHH.HHHH.HHHH)

Caution If the access point receives power through PoE, the output current of the power sourcing equipment (PSE) cannot exceed 400 mA per port. The power source must comply with IEEE802.3af or IEC60950 for limited power sources.

Table 3-3 lists the access point system power settings and the Cisco switch power commands for several power options.

Table 3-3 Access Point System Power Settings and Cisco Switch Commands

Power Source	Access Point System Power Settings	Cisco Switch Power Command
AC power module	Configuration changes are not required	**power inline never**
Cisco switch that supports Intelligent Power Management[1]	Power Settings: **Power Negotiation** (selected) Power Injector: **Installed on Port with MAC Address** (unchecked)	**power inline auto**
Cisco switch that does not support Intelligent Power Management[1]	Power Settings: **Pre-standard Compatibility** (selected) Power Injector: **Installed on Port with MAC Address** (unchecked)	**power inline auto**

Table 3-3 Access Point System Power Settings and Cisco Switch Commands (continued)

Power Source	Access Point System Power Settings	Cisco Switch Power Command
Power injector[2] used with a Cisco switch that supports Intelligent Power Management[1]	Power Settings: **Power Negotiation** (selected) Power Injector: **Installed on Port with MAC Address** (unchecked)	**power inline never**[3]
Power injector[2] used with a Cisco switch that does not support Intelligent Power Management[1]	Power Settings: **Power Negotiation** (selected) Power Injector: **Installed on Port with MAC Address** (checked)	**power inline never**
Power injector used with a non-Cisco switch	Configuration changes are not required	–
802.3af compliant non-Cisco switches	Configuration changes are not required	–

[1] You should check the release notes for your Cisco power source to determine which Cisco IOS release supports Intelligent Power Management. Support for Intelligent Power Management might not be currently available for your Cisco power source.

[2] Power injector must be AIR-PWRINJ3 or AIR-PWRINJ-FIB.

[3] Cisco switches that support Intelligent Power Management always configure the use of a power injector at the switch.

Follow these steps to configure your access point power settings using the browser interface:

Step 1 Obtain the access point IP address and browse to your access point.

Step 2 Choose one of these operations:

a. When you browse to your access point operating in low-power mode, a Warning message appears indicating that all radios are disabled due to insufficient power. Click **OK** to jump to the System Power Settings located on the System Software > System Configuration page.

b. When you browse to your access point operating in full-power mode, choose **System Software > System Configuration**.

Step 3 Choose one of these Power Settings options (see Figure 3-2):

a. If your Cisco switch supports Intelligent Power Management negotiations, choose **Power Negotiation**.

b. If your Cisco switch does not support Intelligent Power Management negotiations, choose **Pre-standard Compatibility**.

c. If you are using a non-Cisco switch, changes to the power settings are not required.

Step 4 If you are using a power injector with a Cisco switch, choose one of these Power setting options:

a. If your Cisco switch supports Intelligent Power Management negotiations, uncheck **Installed on Port with MAC address**.

b. If your Cisco switch does not support Intelligent Power Management, check **Installed on Port with MAC address** and ensure the MAC address for your switch port is displayed in the MAC address field. The HHHH.HHHH.HHHH indicates the MAC address contains 12 hexadecimal digits.

Note The MAC address field is not case-sensitive.

Step 5 Click **Apply** and a message appears indicating that you should disable pop-up blockers before proceeding.

Step 6 Click **OK** to continue. Your access point reboots and your access point power settings are configured.

Note You might have to refresh your browser screen to obtain the latest browser page that indicates your radios are enabled.

Running the Carrier Busy Test

You can use the carrier busy test to determine the least conjested channel for a radio interface (802.11g or 802.11a). You should typically run the test several times over several days to obtain the best results and to avoid temporary activity spikes.

Note The carrier busy test is primarily used for single access points or bridge environments. For sites with multiple access points, a site survey is typically performed to determine the best operation location and operating frequency for the access points.

Note All associated clients on the selected radio are deassociated during the 6 to 8 seconds needed for the carrier busy test.

Follow these steps to activate the carrier busy test:

Step 1 Use your web browser to access the access point browser interface.

Step 2 Click **Network Interfaces** and the Network Interface Summary screen appears.

Step 3 Choose the radio interface experiencing problems by clicking **Radio0-802.11G** or **Radio1-802.11A**. The respective radio status page appears.

Step 4 Click the **Carrier Busy Test** tab and the Carrier Busy Test screen appears

Step 5 Click **Start** to begin the carrier busy test.

When the test completes, the results are displayed on the screen. For each of the channel center frequencies, the test produces a value indicating the percentage of time that the channel is busy.

Running the Ping Test

You can use the ping test to evaluate the link to and from an associated wireless device. The ping test provides two modes of operation:

a. Performs a test using a specified number of packets and then displays the test results.

b. Performs a test that continuously operates until you stop the test and then displays the test results.

Follow these steps to activate the ping test:

Step 1 Use your web browser to access the access point browser interface.

Step 2 Click **Association** and the main association page appears.

Step 3 Click the MAC address of an associated wireless device and the Statistics page for that device appears.

Step 4 Click the **Ping/Link Test** tab and the Ping/Link Test page appears.

Step 5 If you want to specify the number of packets to use in the test, follow these steps:

a. Enter the number of packets in the Number of Packets field

b. Enter the packet size in the Packet Size field and click **Start**.

Step 6 If you want to use a continuous test, follow these steps:

a. Enter the packet size in the Packet Size field.

b. Click **Start** to activate the test.

c. Click **Stop** to stop the test.

When the test has completed, the test results are displayed at the bottom of the page. You should check for any lost packets that can indicate a problem with the wireless link. For best results, you should also perform this test several times.

Resetting to the Default Configuration

If you forget the password that allows you to configure the access point, you may need to completely reset the configuration. You can use the MODE button on the access point or the web-browser interface.

Note The following steps reset *all* configuration settings to factory defaults, including passwords, WEP keys, the IP address, and the SSID.

For additional information on access point default behavior, refer to the "Default IP Address Behavior" section on page 3-4 and the "Default SSID and Radio Behavior" section on page 3-4.

Using the MODE Button

Follow these steps to delete the current configuration and return all access point settings to the factory defaults using the MODE button:

Step 1 Open the access point cover (refer to the "Opening the Access Point Cover" section on page 2-11).

Step 2 Disconnect power (the power jack for external power or the Ethernet cable for in-line power) from the access point.

Step 3 Press and hold the **MODE** button while you reconnect power to the access point.

Step 4 Hold the **MODE** button until the Ethernet LED turns an amber color (approximately 2 to 3 seconds), and release the button.

Step 5 After the access point reboots, you must reconfigure the access point by using the Web browser interface, the Telnet interface, or Cisco IOS commands.

Note The access point is configured with the factory default values including the IP address (set to receive an IP address using DHCP).

Using the Web Browser Interface

Follow these steps to delete the current configuration and return all access point settings to the factory defaults using the web browser interface.

Step 1 Open your Internet browser.

Note The access point web-browser interface is fully compatible with Microsoft Internet Explorer version 6.0 on Windows 98 and 2000 platforms and with Netscape version 7.0 on Windows 98, Windows 2000, and Solaris platforms.

Note When using the access point browser interface, you should disable your browser pop-up blocker.

Step 2 Enter the access point's IP address in the browser address line and press **Enter**. An Enter Network Password screen appears.

Step 3 Enter your username in the User Name field.

Step 4 Enter the access point password in the Password field and press **Enter**. The Summary Status page appears.

Step 5 Click **System Software** and the System Software screen appears.

Step 6 Click **System Configuration** and the System Configuration screen appears.

Step 7 Click **Reset to Defaults**.

Note If the access point is configured with a static IP address, the IP address does not change.

Step 8 After the access point reboots, you must reconfigure the access point by using the Web browser interface, the Telnet interface, or Cisco IOS commands.

Reloading the Access Point Image

If your access point has a firmware failure, you must reload the complete access point image file using the Web browser interface or by using the MODE button. You can use the browser interface if the access point firmware is still fully operational and you want to upgrade the firmware image. However, you can use the MODE button when the access point has a corrupt firmware image.

Using the MODE Button

You can use the MODE button on the access point to reload the access point image file from an active Trivial File Transfer Protocol (TFTP) server on your network or on a PC connected to the access point Ethernet port.

Note If your access point experiences a firmware failure or a corrupt firmware image, indicated by the Status LED turning an amber color, you must reload the image from a connected TFTP server.

Note This process resets *all* configuration settings to factory defaults, including passwords, WEP keys, the access point IP address, and SSIDs.

Follow these steps to reload the access point image file:

Step 1 The PC you intend to use must be configured with a static IP address in the same subnet as the access point.

Step 2 Place a copy of the access point image file (such as c1130-k9w7-tar.123-8.JA.tar) into the TFTP server folder on your PC. For additional information, refer to the "Obtaining the Access Point Image File" and "Obtaining the TFTP Server Software" sections.

Step 3 Rename the access point image file in the TFTP server folder to **c1130-k9w7-tar.default**.

Step 4 Activate the TFTP server.

Step 5 If using in-line power, use a Category 5 (CAT5) Ethernet cable to connect your PC to the **To Network** Ethernet connector on the power injector.

Step 6 Open the access point cover (refer to the "Opening the Access Point Cover" section on page 2-11).

Step 7 Disconnect power (the power jack for external power or the Ethernet cable for in-line power) from the access point.

Step 8 Press and hold the **MODE** button while you reconnect power to the access point.

Step 9 Hold the **MODE** button until the Radio LED turns a red color (approximately 20 to 30 seconds), and release the **MODE** button.

Step 10 After the access point reboots, you must reconfigure the access point by using the Web interface, the Telnet interface, or Cisco IOS commands.

Web Browser Interface

You can also use the Web browser interface to reload the access point image file. The Web browser interface supports loading the image file using HTTP or TFTP interfaces.

Note Your access point configuration is not changed when using the browser to reload the image file.

Browser HTTP Interface

The HTTP interface enables you to browse to the access point image file on your PC and download the image to the access point. Follow these instructions to use the HTTP interface:

Step 1 Open your Internet browser.

Note The access point web-browser interface is fully compatible with Microsoft Internet Explorer version 6.0 on Windows 98 and 2000 platforms and with Netscape version 7.0 on Windows 98, Windows 2000, and Solaris platforms.

Note When using the access point browser interface, you should disable your browser pop-up blocker.

Step 2 Enter the access point's IP address in the browser address line and press **Enter**. An Enter Network Password screen appears.

Step 3 Enter your username in the User Name field.

Step 4 Enter the access point password in the Password field and press **Enter**. The Summary Status page appears.

Step 5 Click the **System Software** tab and then click **Software Upgrade**. The HTTP Upgrade screen appears.

Step 6 Click the **Browse** button to locate the access point image file (such as c1130-k9w7-tar.123-8.JA.tar) on your PC.

Step 7 Click **Upload**.

For additional information, click the **Help** icon on the Software Upgrade screen.

Browser TFTP Interface

The TFTP interface allows you to use a TFTP server on a network device to load the access point image file. Follow these instructions to use a TFTP server:

Step 1 Open your Internet browser.

Note The access point web-browser interface is fully compatible with Microsoft Internet Explorer version 6.0 on Windows 98 and 2000 platforms and with Netscape version 7.0 on Windows 98, Windows 2000, and Solaris platforms.

Note When using the access point browser interface, you should disable your browser pop-up blocker.

Step 2 Enter the access point's IP address in the browser address line and press **Enter**. An Enter Network Password screen appears.

Step 3 Enter your username in the User Name field.

Step 4 Enter the access point password in the Password field and press **Enter**. The Summary Status page appears.

Step 5 Click the **System Software** tab and then click **Software Upgrade**. The HTTP Upgrade screen appears.

Step 6 Click the **TFTP Upgrade** tab.

Step 7 Enter the IP address for the TFTP server in the TFTP Server field.

Step 8 Enter the file name for the access point image file (such as c1130-k9w7-tar.123-8.JA.tar) in the Upload New System Image Tar File field. If the file is located in a subdirectory of the TFTP server root directory, include the relative path of the TFTP server root directory with the filename. If the file is located in the TFTP root directory, enter only the filename.

Step 9 Click **Upload** .

Step 10 When a message appears that indicates the upgrade is complete, click **OK**.

For additional information click the **Help** icon on the Software Upgrade screen.

Obtaining the Access Point Image File

The access point image file can be obtained from the Cisco.com software center using these steps:

Step 1 Use your Internet browser to access the Cisco Software Center at the following URL:

http://tools.cisco.com/support/downloads/pub/MDFTree.x?butype=wireless

Step 2 Click **Access Points** > **Cisco Aironet 1130 AG Series**.

Step 3 Click **Cisco Aironet 1130AG Access Point**.

Step 4 On the Enter Network Password window, enter your Cisco.com username and password and click **OK**.

Step 5 Click **IOS**.

Step 6 Choose the Cisco IOS release desired, such as 12.3.8.JA.

Step 7 Click **WIRELESS LAN** for an access point image file, such as c1130-k9w7-tar.123-8.JA.ta*r*.

Step 8 On the Enter Network Password window, enter your Cisco.com username and password and click **OK**.

Step 9 On the Security Information window, click **Yes** to display non-secure items.

Step 10 On the Encryption Software Export Authorization page, read the information and check **Yes** or **No** to the question asking if the image is for use by you or your organization. Click **Submit**..

Step 11 If you checked No, enter the requested information and click **Submit**.

Step 12 Click **Yes** to continue.

Step 13 Click **DOWNLOAD**.

Step 14 Read and accept the terms and conditions of the Software Download Rules.

Step 15 On the Enter Network Password window, enter your Cisco.com username and password and click **OK**.

Step 16 Click **Save** to download your image file to your hard disk.

Step 17 Select the desired download location on your hard disk and click **Save**.

Connecting to the Access Point Console Port

The console port is enabled during power up for diagnostic and monitoring purposes, which might be helpful if the access point is unable to associate to a controller. You can connect a PC to the console port using a DB-9 to RJ-45 serial cable.

⚠ **Caution** Be careful when handling the access point, the bottom plate might be hot.

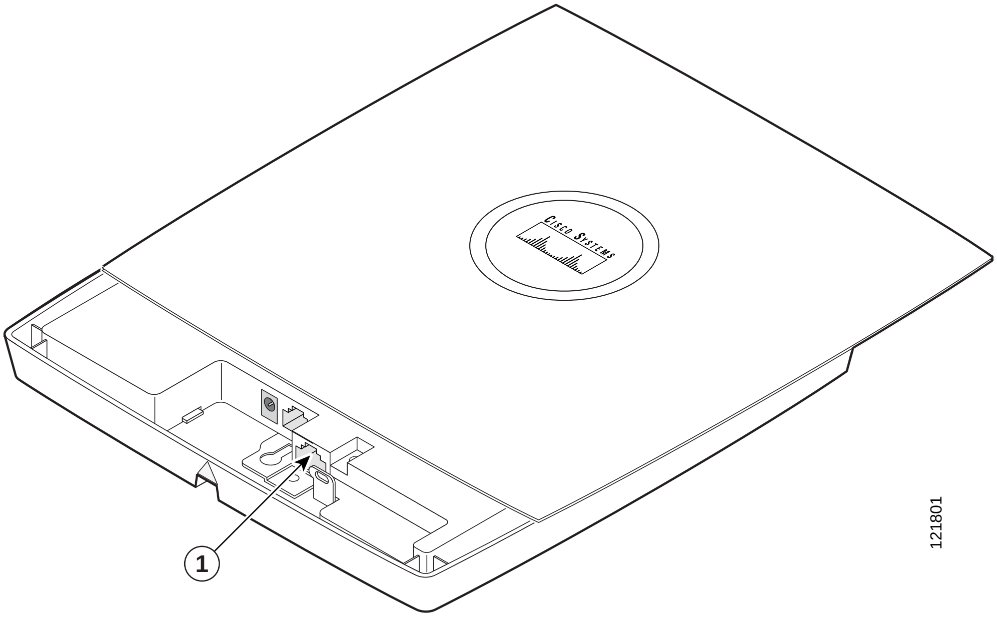
Note The Cisco part number for the DB-9 to RJ-45 serial cable is AIR-CONCAB1200. Browse to http://www.cisco.com/go/marketplace to order a serial cable.

Follow these steps to view the power up sequences by connecting to the access point console port:

Step 1 Open the access point cover (refer to the "Opening the Access Point Cover" section on page 2-11).

Step 2 Connect a nine-pin, female DB-9 to RJ-45 serial cable to the RJ-45 console port on the access point and to the COM port on a computer. The location of the access point console port is shown in Figure 3-3.

Figure 3-3 Console Port Location



1	Console port	

Step 3 Set up a terminal emulator on your PC to communicate with the access point. Use the following settings for the terminal emulator connection: 9600 baud, 8 data bits, no parity, 1 stop bit, and no flow control.

When you have finished using the console port, you must remove the serial cable from the access point.

Obtaining the TFTP Server Software

You can download TFTP server software from several web sites. Cisco recommends the shareware TFTP utility available at this URL:

http://tftpd32.jounin.net

Follow the instructions on the website for installing and using the utility.