Aironet Macintosh Clients FAQ

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Introduction

This document provides information on the most frequently asked questions (FAQ) about Cisco Aironet Client Adapters used with Apple Macintosh operating systems (OSs).

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Download Issues

Q. Where can I find the latest utilities, drivers, and firmware for my Macintosh client?

A. Aironet 350 Series Wireless LAN Client Adapters and Aironet 5 GHz 54 Mbps Wireless LAN Client Adapters (CB20A) are supported on the Macintosh OS. However, Cisco has announced the end−of−life (EOL) for the 350 Series products. Therefore, only the Aironet CB20A Client Adapter is supported on the Macintosh OS.

Refer to Downloads − Wireless (registered customers only) to download the Macintosh OS drivers and utilities for the CB20A. Choose **Wireless LAN Access > Cisco Wireless LAN Client Adapters > Cisco Aironet Wireless LAN Client Adapters > Cisco Aironet 5 GHz 54 Mbps Wireless LAN Client Adapter (CB20A) > Aironet Client Bundle (Firmware, Driver, Utility) > MacOS**. Choose from the available software releases and download the drivers and utilities.

Q. What is the CB20A Card?

A. The Aironet AIR−CB20A PC−Cardbus card is an IEEE 802.11a−compliant wireless client adapter. It contains an Orthogonal Frequency Division Multiplexing (OFDM) radio that operates in the Unlicensed National Information Infrastructure (UNII) 1 and UNII 2 license−free bands that are located in the lower 5−GHz portion of the radio frequency (RF). The CB20A Wireless Client Adapter is supported on Macintosh OS, Microsoft Windows 2000, Windows 98, Windows ME, and Windows XP OSs. These are the data rates that CB20A supports:

- ♦ 6 Mbps
- ♦ 9 Mbps
- ♦ 12 Mbps

- ♦ 18 Mbps
- ♦ 24 Mbps
- ♦ 36 Mbps
- ♦ 48 Mbps
- ♦ 54 Mbps

The data rate is configurable as fixed, or auto selecting to extend range.

Q. Which versions of the Macintosh OSs are supported on the CB20A Client Adapter?

A. The CB20A Client Cards are supported in Mac OS 9.X, and Mac OS X (10.2 or later).

Installation Issues

Q. After I install the driver for my client adapter, the client utility indicates that the radio cannot be found. How is this issue resolved?

A. Verify that the CiscoPCCardRadio.kext driver or the CiscoPCIRadio.kext driver (this depends on your client adapter) is installed in the /System/Library/Extensions folder.

- ♦ If you cannot find the driver, re–install the package and restart your computer.
- ♦ If you find the driver, try to remove and reinsert the client adapter in your computer. Wait a few seconds before you reinsert the client adapter. Then, restart your computer.

Q. The client adapter fails to associate to the access point. How is this issue resolved?

A. Use these instructions if your client adapter fails to associate to the access point:

- ♦ If possible, move your Macintosh a few feet closer to the access point and try again.
- ♦ Make sure the client adapter is securely inserted in the card slot of your PC.
- ♦ Make sure the access point is turned on and operating.
- ♦ Check that all parameters are set properly for both the client adapter and the access point. These include the network name or Service Set Identifier (SSID), network type and channel, Wired Equivalent Privacy (WEP) activation, and Lightweight Extensible Authentication Protocol (LEAP) activation.
- ♦ Try to increase the transmit power level for the client adapter.

Q. The client adapter fails to authenticate. How is this issue resolved?

A. Use these instructions if your client adapter fails to authenticate:

- ♦ If possible, move your Macintosh a few feet closer to the access point and try again.
- ♦ Make sure the client adapter is securely inserted in the card slot of your PC.
- ♦ Make sure the access point is turned on and operating.
- ♦ Check that all parameters are set properly for both the client adapter and the access point. These include the network name or Service Set Identifier (SSID), network type and channel, Wired Equivalent Privacy (WEP) activation, Lightweight Extensible Authentication Protocol (LEAP) activation, WEP password, and LEAP username and password.

- If your client adapter is a 40–bit card and LEAP is enabled, the adapter can associate to, but not authenticate, access points that use 128–bit encryption. There are two possible options to authenticate to an access point that uses 128–bit encryption:

    1. Purchase a 128–bit client adapter. This is the most secure option.
    2. Disable WEP for the client adapter. Then, configure the adapter and the access point to associate to mixed cells. This option presents a security risk because your data is not encrypted as it is sent over the radio frequency (RF) network.

- Try to increase the transmit power level for the client adapter.

Q. How is the client utility version that runs on the client adapter determined?

A. Use the guidelines listed for your operating system (OS) to determine the utility version that your client adapter uses:

- If you use Mac OS 9.x, choose **Get Info** from the File drop–down menu. The utility and driver version are displayed in the Info window.
- If you use Mac OS X, click **Client Utility** on the main menu bar and choose **About Aironet Client Utility** from the drop–down menu. The Client Utility About window displays the client utility and driver version number.

Q. How do I make a client card work with a non–Cisco access point?

A. The access point, not the client, controls interoperability. Make sure that the access point does not use any proprietary extensions, proprietary features, or requiring firmware specific to the products of the manufacturer. Also make sure that the access point is 802.11b–compliant.

Q. My Cisco Aironet Clients associate to an Apple Airport Base Station without Wired Equivalent Privacy (WEP), but not with WEP. I have verified the keys, but they still do not associate. What is the issue?

A. The Apple Airport uses WEP keys entered in ASCII. The Cisco Aironet products use hexadecimal. Use a $ symbol before the key to set a WEP key on an Airport in hex. Check the Airport Base Station Configurator to ensure that you use the correct key. Since that application is Java–based, it requires Mac Runtime Java (MRJ) and the swing libraries.

Q. In the Control Panels for AppleTalk and TCP/IP, or System Preferences for Network, my Cisco Aironet Card does not appear. Where do I start to find the problem?

A. The Apple System Profiler report can be very helpful to determine what items the system recognizes properly, particularly if you have to open a case with Cisco Technical Support. You can find the Apple System Profiler in OS 9 under the Apple Menu, or in OS X in the Utilities folder inside your Applications folder. Make sure to include System Profile, Devices and Volumes, Control Panels, Extensions, and System Folders in your report.

Q. Where can I find help to install my client card?

A. Refer to Installing the Client Adapter for information that is useful to help install the

wireless client adapter on Mac OS.

Q. How do I set the client card back to factory default settings?

A. Complete these steps to set the wireless client card to factory defaults:

1. Launch the Aironet Client Utility.
2. Click **Commands**.
3. Click **Edit Properties**.
4. On each tab, click **Defaults**.

Performance Issues

Q. How do I update the software for my Macintosh client?

A. There are three pieces to the client software:

- ♦ Radio firmware This is on the card itself and resides on the client device.
- ♦ Client driver This is for the OS Aironet Client Utility (OS X) and is the software that manages interactions between the OS and the hardware.
- ♦ Aironet Client Utility This is the utility to manage the card and the radio itself.

These three pieces of software all have different functions, but they work together to provide wireless connectivity to your client.

These three pieces should always be the most recent versions available. The files are bundled together in a .SIT file on the Macintosh utilities page. They are not individually available from the Cisco Wireless Downloads page for Macintosh systems. See the answer to Question 1 for information on how to update these items.

Q. How is the new desktop controls feature, which is introduced with release 3.0, used?

A. The Aironet desktop controls provide a convenient way to view client adapter status and initiate common client adapter tasks, such as location selection or LEAP logon. For the Mac OS X, the desktop control is an icon in the main menu bar. For the Mac OS 9, the desktop control is a control strip module. The desktop controls are automatically installed with the client utility.

Q. The access point has an entry in the association table for my wireless card, but I cannot get a dynamic IP address. What is the issue?

A. The most common cause of this behavior is a misconfiguration of AppleTalk or TCP/IP. The card receives power so the radio associates to the access point. However, the facilities on the other end of the card do not communicate with the OS. Verify that the card appears correctly on the **Connect Via:** (in OS 9) or **Show:** (in OS X) popup menus. Then configure TCP/IP accordingly.

Q. When my PC card is passing traffic, the speakers in my laptop buzz. What is the issue?

A. This issue occurs because of an inadequate shield around the PC Memory Card

International Association (PCMCIA) socket itself. The radio energy of the card passing traffic leaks into the speakers because it is not sufficiently contained in the card socket, and manifests as a buzz in the speakers. The problem is with the socket, not the card. Resolution comes from the manufacturer of the laptop because the manufacturer did not shield the socket.

Q. What are possible sources of interference for the radio frequency (RF) link of my client card?

A. Interference can occur from these different sources:

- 2.4 GHz cordless phones
- Improperly shielded microwave ovens
- Wireless equipment manufactured by other companies
- Police radars
- Electrical motors

Refer to Troubleshooting Connectivity in a Wireless LAN Network for more information.

Q. What devices can associate with a client card?

A. These are the associations:

- Client to Access Point
- Client to Bridge (in Access Point mode)
- Client to Base Station
- Client to Client (in Ad–hoc mode)

Q. What is the typical range for a client card?

A. In an optimal indoor installation, the range can be up to 300 feet at 1 Mbps. In an optimal outdoor installation, the range can be up to 2000 feet at 1 Mbps. The range for the client adapter depends on these factors:

- Data rate (bandwidth) desired
- Antenna type
- Cable length
- The device that receives the transmission
- Radio frequency (RF) environment

The RF environment is probably the single largest cause of range–related connectivity problems.

Q. Why does my client card fail to associate to the closest access point?

A. If there are multiple access points in your wireless topology, your client maintains an association with the access point where it originally associated until it loses keepalive beacons from that access point. Then, your client seeks another access point and attempts to associate to it, provided that the client has sufficient rights and authorization on the new access point.

Q. Can the CB20A Card be used for outdoor installations?

A. It is approved for indoor use only, except in the United States which allows for outdoor

use on channels 52 through 64.

Q. What kind of antenna does the CB20A Card support?

A. The CB20A Client Adapters come with an integrated, permanently attached non−diversity antenna that contains two antenna ports: one for transmitting and one for receiving. The card cannot switch and sample between the ports. The antenna is housed within the section of the card that hangs out of the cardbus slot when the card is installed.

Wireless Networking Issues

Q. The client adapter is unable to connect to the network. How is this issue resolved?

A. Use these instructions if your client adapter fails to associate to the access point:

- ♦ Verify that the client adapter is enabled for your Macintosh Network Preferences panel.
- ♦ Verify that the Macintosh Network TCP/IP settings are correct for the client adapter.

Q. Can I run two computers together without an access point?

A. Yes, it is possible to run two computers together without an access point. This mode of operation is called ad−hoc mode.

Ad−hoc mode is an 802.11 networking framework where devices or stations communicate directly with each other, without the use of an access point. Ad−hoc mode is also referred to as peer−to−peer mode or an Independent Basic Service Set (IBSS). Ad−hoc mode is useful for establishing a network where wireless infrastructure does not exist or where services are not required.

In order to enable this ad−hoc mode, go to the Advanced Properties window of the Aironet Client Utility and locate the Network Type field.

This Network Type specifies the type of network in which your client adapter is installed.

- ♦ Default Computer to access point.
- ♦ Network Type Computer to Computer also referred to as ad−hoc or peer to peer. Used to set up a small network between two or more wireless devices. For example, an ad−hoc network could be set up between computers in a conference room so users can share information in a meeting.
- ♦ Computer to Access Point Also referred to as infrastructure. Used to set up a connection to a wired Ethernet network (through an access point).

Q. What are the devices with which the CB20A Card can interoperate?

A. This card interoperates with other IEEE 802.11a−compliant client devices in ad−hoc mode, or with Cisco Aironet 1200 Series Access Points (with a 5−GHz radio) and other IEEE 802.11a−compliant infrastructure devices in infrastructure mode.

Q. What is meant by quiet mode?

A. This quiet mode forces the client adapter to become quiet (to passively scan or listen) when the associated access point is turned off. The client generates radio frequency (RF) energy only in direct response to an access point transmission. The quiet mode applies to individual cards rather than profiles. Also, it can be set differently for different cards that remain in effect across Aironet Client Utility sessions and computer reboots.

Q. How do I secure the data across the radio link of a client card?

A. Enable Wired Equivalent Privacy (WEP) to encrypt packets sent across a radio link. WEP provides basic security to a radio link You can also enable Cisco Lightweight Extensible Authentication Protocol (LEAP) to provide enhanced security. LEAP uses a AAA server, such as RADIUS, to authenticate the client. Extensible Authentication Protocol (EAP)–FAST is another authentication. EAP authentication mechanism is supported in the CB20A card, but Macintosh OS does not support EAP–FAST.

Q. How many clients can associate to an access point?

A. An access point has the physical capacity to handle 2,048 MAC addresses. However, because the access point is a shared medium and acts as a wireless hub, performance is degraded as the number of users increases on an individual access point.

Q. Is Extensible Authentication Protocol (EAP)–FAST authentication supported in CB20A Cards?

A. Yes, EAP–FAST is supported in CB20A Cards.

Q. Does Macintosh OS support Protected Extensible Authentication Protocol (PEAP), Extensible Authentication Protocol (EAP)–FAST, and Cisco Lightweight Extensible Authentication Protocol (LEAP) authentication?

A. The three authentication types mentioned here are supported by the Cisco Macintosh adapter with use of the Macintosh Airport Supplicant.

Q. I have a number of Macintosh clients in my Unified Wireless Network (which includes WLCs and LAPs). The Macintosh clients experience problems when they connect with Bonjour. How do I overcome this issue?

A. Bonjour is a general method used to discover services on a local area network (LAN). This technology is widely used with Mac OS X and allows users to set up a network without the need to configure printers and file sharing servers (and so forth) on a LAN.

Bonjour uses broadcast, multicast, and multicast Domain Name System (mDNS) service records in order to locate devices, such as printers, other computers, and the services that those devices offer.

In order to correct this issue, use these commands to enable broadcast and multicast on your

WLC:

config network broadcast enable

config network multicast global enable

Q. How does a client select an access point in order to get associated?

A. Access point selection is performed on the machine radio of the client. Based on the manufacturer, driver, and type of card, the client can use different metrics to make the selection. The most common access point affiliation mechanism used in most clients is based on the signal strength received by the client from the access points. The 802.11 standard requires only that the wireless client card uses a simple metric called Received Signal Strength Indicator (RSSI) in order to report signal strength. The client then associates with the access point with the strongest signal. It is known that these algorithms can lead to poor performance. The main reason is due to a lack of knowledge of the load on different access points.

Q. What are the modulation techniques available with this client adapter?

A. There are several modulation techniques deployed at different data rates:

- ♦ Orthogonal Frequency Division Multiplexing (OFDM) sub−carrier
- ♦ BPSK @ 6 and 9 Mbps
- ♦ QPSK @ 12 and 18 Mbps
- ♦ 16−QAM @ 24 and 36 Mbps
- ♦ 64−QAM @ 48 and 54 Mbps

Related Information

- **Wireless Product Support**
- **Wireless / Mobility Technology Support**
- **Cisco Aironet Wireless LAN Client Adapters Configuration Guides**
- **Cisco Aironet Wireless LAN Client Adapters Installation and Configuration Guide for Mac OS, OL−1377−03**
- **Cisco Aironet 5 GHz 54 Mbps Wireless LAN Client Adapter (CB20A) − Data Sheet**
- **Technical Support & Documentation − Cisco Systems**