



Release Notes for Cisco Aironet Conversion Tool Version 2.1 for Cisco IOS Software

July 2004

These release notes describe important information, limitations, restrictions, and caveats for the Cisco Aironet Conversion Tool version 2.1 (hereafter called the *conversion tool*). The conversion tool is used by administrators to upgrade VxWorks Cisco Aironet 350 or 1200 series access points and their configurations to Cisco IOS operation.

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Corporate Headquarters:

Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

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Overview of the Conversion Tool

The conversion tool is a special utility that is used by administrators to do the following:

- Create a Cisco IOS configuration using the configuration of an existing VxWorks 350 or 1200 series access point. [Table 1](#) identifies the access points, VxWorks versions, and images supported by the conversion tool.



Note The conversion tool does not support VxWorks 350 and 1200 series access points running operating system version 12.04. Access points running operating system version 12.04 must be downgraded to a supported operating system version before using the conversion tool.

Table 1 Supported Access Points, VxWorks Versions, and Images

Access Points	VxWorks Versions	Helper Image Filename	IOS Version (after conversion)
AP1200 AP1220	12.03T, 12.02T1, 12.01T1, 12.00T, 11.56, or 11.54T	AP1200-Cisco-IOS-Upgrade-Image-v3.img	12.2(11)JA3
AP350	12.03T, 12.02T1, 12.01T1, 12.00T, 11.23T, or 11.21	AP350-Cisco-IOS-Upgrade-Image-v2.img	12.2(13)JA1

- Store a Cisco IOS configuration file on your PC for later use.
- Upgrade VxWorks 1200 series access points to Cisco IOS operation by combining the Cisco IOS configuration file with a 1200 series helper image.
- Upgrade VxWorks 350 series access points to Cisco IOS operation by combining the Cisco IOS configuration file with a 350 series helper image.



Note The conversion tool does not support 802.11g radios. You must ensure that the VxWorks access points do not contain 802.11g radios before using the conversion tool.

To find your access point software version (Cisco IOS or VxWorks) refer to the *Cisco Aironet Conversion Tool for Cisco IOS Software, 2.1 Administrator Guide for Windows*.



Caution

The conversion tool cannot reverse the Cisco IOS upgrade process. Be sure you want to upgrade your access point to Cisco IOS operation before using the conversion tool.



Tip

If you want to upgrade a VxWorks 350 or 1200 series access point to Cisco IOS operation without preserving the existing configuration for that access point, refer to Appendix A.

Before You Begin

Before you begin, you must observe the following conversion tool requirements:

- The conversion tool operates only on a PC with the Windows 2000 or XP operating system and is not supported if Terminal Services is installed.
- The conversion tool requires the following minimum PC hardware:
 - Processor: Pentium III or equivalent
 - Speed: 850 MHz
 - RAM: 128 MB
 - Hard disk free space: 250 MB (4 MB for each helper image upgrade task)

When using the minimum PC hardware, the conversion tool supports up to 14 parallel helper image upgrades. You can enter up to 20 tasks, but only 14 of the tasks (maximum) can be helper image upgrades, and the remaining tasks can be used to store the access point's Cisco IOS configurations on your hard disk. Prior to starting multiple helper image upgrade tasks, you should verify that your PC has sufficient disk space.



Note When you upgrade your access points, you can recover disk space on your PC by deleting the Cisco IOS configurations (with helper images) that were saved in the ConversionToolDirectory/images folder.



Note The limit of 14 parallel helper image upgrades depends solely on the ability of the system and the network to handle multiple TFTP jobs. Faster systems, disks, and networks may be able to handle more parallel upgrade tasks, though too many tasks impact the speed of the individual tasks.

- The person installing and running the conversion tool must be logged in and must be the administrator of the PC.
- All your access points (source and target) must have an administrator enabled with admin, SNMP, write, and firmware privileges for the access point.



Note For additional information on SNMP, refer to the *Cisco IOS Software Configuration Guide for Access Points*.

- SNMP must be enabled on the source and target access points.
- The conversion tool uses SNMP commands to obtain configuration data from the source access point, but some security information cannot be accessed using SNMP. Before you use the conversion tool, you should obtain the following source access point security information:
 - The WEP keys used for the radio interfaces and VLANs
 - The LEAP passwords for repeater access points
 - The passwords used with the User Manager Configuration
 - AAA Server Configuration Secret Keys

- The upgrade process requires the following minimum contiguous free space in your VxWorks access points to be successful:
 - 4.0 MB for 1200 series access points
 - 4.2 MB for 350 series access points



Note You can verify the amount of free memory in your access point by connecting to your access point using the console port or a Telnet session and entering the command `:vxdiag_memshow`. The amount of contiguous free memory is listed in the *max block* column.

Complete these steps to increase the free memory in your access point:

- If your access point runs an .ini configuration file acquired by choosing the **Download All System Configuration** options from the Web interface, replace the configuration with an .ini file acquired by choosing the **Download Non-Default System Configuration** option.
- On Cisco Aironet 1200 series access points, you can remove the 802.11a radio module to obtain additional free space.

If necessary, you can free additional memory in your access point by performing these steps:

- a. Access the Advanced page (Setup > Associations > Advanced)
 - b. Disable the **RFC 1493 802.1D Statistics in MIB (dot1dTpFdbTable)** and the **Aironet Extended Statistics in MIB (awcTpFdbTable)** options.
 - c. Enable the **Map Multicast Entries to Broadcast Entry** option.
- The conversion tool should be used over Ethernet LANs and not over slower networks.



Caution

You must ensure that the same Ethernet and duplex settings are configured on all VxWorks access points and switches prior to beginning the conversion process. Different settings can result in inoperable access points that constantly power off and on.

Important Notes

This section describes important information about the upgrade of 350 series access points to IOS software. For more information on Cisco IOS releases for access points, refer to the release notes for specific releases.

Some Fields Not Updated During Upgrade to IOS Software

During the access point's power-up sequence after an upgrade to IOS software, some fields reported in the console messages are blank or are populated with zeros. However, blank or zero fields are normal after a successful upgrade, because 350 and 1200 series access points do not support that information. This example shows fields that might appear blank or populated with zeros:

```
32K bytes of flash-simulated non-volatile configuration memory.
Base Ethernet MAC Address: 00:05:9A:38:42:91
Part Number                : 0-0000-00
PCA Assembly Number        : 000-00000-00
PCA Revision Number        :
PCB Serial Number          :
Top Assembly Part Number   : 000-00000-00
Top Assembly Serial Number :
Top Revision Number        :
Product/Model Number       : AIR-AP352-IOS-UPGRD
```

Cisco Aironet Software Requires Completion of Encryption Authorization Form

In order to access Cisco Aironet software from the Software Center on Cisco.com, you must now fill out a form to receive authorization to download encrypted software. Registered Cisco.com users are required to fill out the form only once, while public users must do so once each session, each time software is downloaded. A form is automatically created for public users. The form for Registered Cisco.com users is located at the following URL: http://www.cisco.com/cgi-bin/Software/Crypto/crypto_main.pl

Obtaining Software

Obtaining the Conversion Tool Software

To obtain the latest conversion tool software from the Cisco Web site, follow these steps:

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- Step 1** Use your web browser to go to the Cisco Software Center at the following URL:
<http://www.cisco.com/cisco/software/navigator.html>
 - Step 2** Select **Option #2: Aironet Wireless Software Display Tables**.
 - Step 3** Under Cisco Aironet Wireless Access Point Firmware and Utilities, select **Cisco Aironet Conversion Tool or Cisco IOS Software**.
 - Step 4** Select conversion tool file **Aironet-AP-Cisco-IOS-Conversion-Tool-v2.1.exe** (where v2.1 is the version number).

- Step 5** On the Encryption Authorization Form, enter the requested information, read the encryption information, and check the boxes that apply.
 - Step 6** Click **Submit**.
 - Step 7** Read and accept the terms and conditions of the Software License Agreement.
 - Step 8** Select the conversion tool file again to download it.
 - Step 9** Save the file to your computer's hard drive, then exit the web browser.
-


Obtaining the Helper Image

The conversion tool uses a 350 or 1200 series access point helper image file to upgrade your VxWorks access point to IOS operation. To obtain the most recent 350 or 1200 series access point helper image from the Cisco Web site, follow these steps:

- Step 1** Use your web browser to go to the Cisco Software Center at the following URL:
<http://www.cisco.com/cisco/software/navigator.html>
 - Step 2** Select **Option #2: Aironet Wireless Software Display Tables**.
 - Step 3** Under Cisco Aironet Wireless Access Point Firmware and Utilities, select **Cisco Aironet Conversion Tool or Cisco IOS Software**.
 - Step 4** Select the 350 or 1200 series access point helper image file with the highest version number, such as AP1200-Cisco-IOS_Upgrade-Image-v3.img or AP350-Cisco-IOS_Upgrade-Image-v2.img (where v3 or v2 is the version number).
 - Step 5** On the Encryption Authorization Form, enter the requested information, read the encryption information, and check the boxes that apply.
 - Step 6** Click **Submit**.
 - Step 7** Read and accept the terms and conditions of the Software License Agreement.
 - Step 8** Select the helper image file again to download it.
 - Step 9** Save the file to your computer's hard drive then exit the web browser.
-

Installing or Upgrading the Conversion Tool

Follow these steps to install or upgrade the conversion tool on your PC:

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- Step 1** Close any Windows programs that are running.
 - Step 2** Prior to installing a new version of the conversion tool, you must uninstall any previous versions installed on your PC. (For additional information, refer to the [“Uninstalling the Conversion Tool”](#) section).
 - Step 3** Locate and double-click the downloaded conversion tool software on your hard drive. The conversion tool setup program activates.
-  **Note** If you did not uninstall the conversion tool, a message appears indicating that the conversion tool (CAC Tool) is already installed on your PC, click **OK** and uninstall the conversion tool. (For additional information, refer to the [“Uninstalling the Conversion Tool”](#) section).
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- Step 4** Click **Next** on the Welcome window.
 - Step 5** If you want to specify a destination folder, click **Browse** to locate a different folder.
 - Step 6** Click **Next** to accept the destination folder. The Select Program Folder window appears.
 - Step 7** Specify a folder. Click **Next** to accept the folder.
 - Step 8** Click **Yes** or **No** to place a conversion tool shortcut on your PC desktop. The Setup Complete window appears.
 - Step 9** On the Setup Complete window, you can select to view a Readme file and launch the conversion tool by clicking the corresponding check boxes. Click **Finish** to complete the installation.
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Uninstalling the Conversion Tool

Follow these steps to uninstall the conversion tool from your PC:

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- Step 1** Double-click **My Computer > Control Panel > Add/Remove Programs**.
 - Step 2** Select **Cisco Aironet Conversion Tool for Cisco IOS Software**.
 - Step 3** Click **Add/Remove** or **Change/Remove**. The conversion tool setup program activates and uninstalls the tool and the icon from your PC.
 - Step 4** Close the **Add/Remove** and **Control Panel** windows.
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- Note** You can also select **Start > Programs > CAC Tool** (or the name of your installation folder) > **UnInstall** to uninstall the conversion tool.
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Finding the Software Version

Conversion Tool Version

To find the conversion tool version number follow these steps:

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- Step 1** On the main window of the conversion tool, right-click the conversion tool name in the title line.
- Step 2** When the right-click window appears, click **About CAC Tool**.

The conversion tool About window appears and contains the conversion tool version number.

Access Point Software Version

To find the version of Cisco IOS running on your access point, use a Telnet session to log into the access point and enter the **show version EXEC** command. This example shows command output from an access point running Cisco IOS Release 12.2(13)JA:

```
ap1200>show version
Cisco Internetwork Operating System Software
IOS (tm) C1200 Software (C1200-K9W7-M), Version 12.2(13)JA
Copyright (c) 1986-2003 by Cisco Systems, Inc.
```

On access points running Cisco IOS software, you can also find the software version on the System Software Version page in the access point's browser interface.

If your access point does not run Cisco IOS software, the software version appears at the top left of most pages in the browser interface.

Limitations and Restrictions

Conversion Tool Operating Cautions

You should carefully review the following list of cautions to avoid potential problems when using the conversion tool.

- The conversion tool automatically installs a TFTP server during the installation process and may not detect the presence of an existing TFTP server installed on your PC. You should deactivate the existing TFTP server prior to installing and using the conversion tool.

The conversion tool's TFTP server is activated only when the conversion tool is activated. When you deactivate the conversion tool, the TFTP server is also deactivated.



Note You cannot use the conversion tool's TFTP server for other file transfer purposes.

- The Admin Name setting is not visible in the conversion tool and is displayed as a set of asterisks.

- If you bypass the entry of security information and if User Manager is enabled in your source access point, **you might not be able to log in on the upgraded access point**. All access to the access point might be blocked (Telnet, browser, and the console port). If this occurs, you must reset the access point to defaults using the mode button (refer to the “Troubleshooting” section of the *Cisco Aironet 1200 Series Access Point Hardware Installation Guide* or the *Cisco Aironet 350 Series Access Point Hardware Installation Guide*).
- If you bypass the entry of security information and if User Manager is disabled in your VxWorks access point, **you can only log in on the upgraded access point using the console port**.
- Upgrade tasks should not be performed on both root and repeater access points at the same time because this causes the repeater upgrade task to fail.
- The conversion tool uses SNMP commands to obtain configuration data from the source access point, but some security information cannot be accessed using SNMP. Before you use the conversion tool, you should obtain the following source access point security information:
 - The WEP keys used for the radio interfaces and VLANs
 - The LEAP passwords for repeater access points
 - The passwords used with the User Manager Configuration
 - AAA Server Configuration Secret Keys
- The upgrade process may not be successful if the configuration of your VxWorks access points was acquired by choosing the Download All System Configuration option on the access point’s System Configuration window. You should use the configuration (.ini) file acquired choosing the Download Non-Default System Configuration option.
- The upgrade process requires the following minimum contiguous free space in your VxWorks access points to be successful:
 - 4.0 MB for 1200 series access points
 - 4.2 MB for 350 series access points

**Note**

You can verify the amount of free memory in your access point by connecting to your access point using the console port or a Telnet session and entering the command **:vxdiag_memshow**. The amount of contiguous free memory is listed in the *max block* column.

Complete these steps to increase the amount of free memory in your access point:

- If your access point runs an .ini configuration file acquired by choosing the **Download All System Configuration** options from the Web interface, replace the configuration with an .ini file acquired by choosing the **Download Non-Default System Configuration** option.
- On Cisco Aironet 1200 series access points, you can remove the 802.11a radio module to obtain additional free space.

If necessary, you can free additional memory in your access point by performing these steps on the Setup > Associations > Advanced page:

- a. Disable the **RFC 1493 802.1D Statistics in MIB (dot1dTpFdbTable)** and the **Aironet Extended Statistics in MIB (awcTpFdbTable)** options.
- b. Enable the **Map Multicast Entries to Broadcast Entry** option.

- The conversion tool should be used over Ethernet LANs and not over slower networks.



Caution

You must ensure that the same Ethernet and duplex settings are configured on all VxWorks access points, switches, and routers prior to beginning the conversion process. Different settings can result in inoperable access points that constantly power off and on.

- The Cisco Aironet 350 access point conversion process can take up to 30 minutes.
- Cisco IOS access points do not allow the radio interface to adopt the Ethernet port identity that allows the radio and Ethernet interfaces to use the same IP and MAC addresses.



Caution

During the Cisco IOS conversion process, the radio interface MAC address for your access points might change from the original setting, resulting in lost repeater associations and failure of the hot standby option. This happens because Cisco IOS software does not support the VxWorks *Adopt Primary Port Identity* option for the radio interfaces. Before you begin the conversion process, Cisco recommends that you change your VxWorks configurations to disable the *Adopt Primary Port Identity* option and to use the actual radio interface MAC address in all repeater and hot standby configuration settings.

Limitations in the Cisco IOS Configuration

Because of differences between the configuration settings in your VxWorks access point and the Cisco IOS configuration settings, the conversion tool has the following limitations:

- The configuration of a Policy Group on an SSID without a VLAN are not migrated.
- A maximum of 100 Ethertype filters can be created.
- Ethertype filters will not have associated names; instead, they will have associated numbers ranging from 200 to 299.
- Separate filters are created for the Ethertype, IP port, and IP protocol filters that have been set to non-default priority. This may create multiple filters with the same numeric identifier, but the conversion tool inserts a numeric index to differentiate the filters.

Port filters, Protocol filters, Ethertype filters, and Policy Groups are created in the following format:

- Port filter—IP access list extended <Port_Filter_Name> _ <Numeric_Value>
- Protocol filter—IP access list extended <Protocol_Filter_Name> _ <Numeric_Value>
- Ether filter—access-list <Numeric_Value> <permit or deny> <Protocol-Type>
- Policy-Groups—policy-map_policy_ <Name>_<Policy_ID>

- For BOOTP settings, DHCP settings are configured. Cisco recommends that you change your VxWorks configurations to use DHCP before you begin the Cisco IOS conversion process.
- Only DHCP configuration settings with a Client Identifier type of Ethernet are migrated. All other Client Identifier types are discarded.
- If DHCP is configured, the fall-back IP addresses are not configured.
- Port assignments are not migrated.
- The Hot Standby configuration settings are migrated only when the radio MAC addresses are entered on the conversion tool's Device Configuration window.
- If the station role is configured as Client/NonRoot, the station role is migrated as Root.

- For the Console/Telnet settings, only the Enable and Disable settings are migrated.
- For the HTTP configuration settings, only the HTTP port and the Enable or Disable settings are migrated.
- VLANs (except the Native VLAN) are migrated only when they are associated with an SSID.
- Only MAC based filter settings with SSIDs associated to a VLAN and with MAC authentication enabled are migrated. The log file contains a list of the MAC filters that are not migrated.
- The Alert settings in filters are not migrated.
- AAA server timeout settings range from 1 to 1000. If the configured setting is greater than 1000, the migrated setting is 1000. If the configured setting is less than 1, the migrated setting is 1.
- AAA server retransmission settings range from 1 to 100. If the configured setting is greater than 100, the migrated setting is 100. If the configured setting is less than 1, the migrated setting is 1.
- Separate EAP and Non-EAP accounting server settings are not migrated. After an accounting server is enabled, all the users are configured to use that server.
- System names containing a space are migrated with an underscore (_) replacing the space. For example; a name of *AP 1200* is migrated as *AP_1200*.
- LEAP usernames with a space are not migrated.
- The following Ethernet parameters are not migrated:
 - Optimize Network for maximum multicast packets per second, loss of backbone connectivity timeout value, and maximum multicast packets per second.
- The following Boot Server configuration parameters are not migrated:
 - DHCP Multiple-Offer Timeout
 - DHCP Requested Lease Duration
 - DHCP Minimum Lease Duration
 - DHCP Client Identifier Value
- The FTP and TFTP configuration parameters are not migrated.
- The following AAA Server configuration parameters are not migrated:
 - Port configuration settings for TACACS server
 - 802.1X Protocol Version (for EAP authentication)
 - Update Delay per Server for the Accounting Server
- The following configuration settings are not migrated:
 - Rogue AP Alert Timeout
 - Unknown Class Timeout
 - Multicast Addresses Timeout
 - Infrastructure Hosts, Client Stations, and Repeater Timeout
 - When both port and protocol filters are applied on an interface
 - Default multicast address filtering for an interface
- Maximum RTS Retries settings range from 1 to 128. If the configured setting is greater than 128, the migrated setting is 128.
- Maximum Data Retries settings range from 1 to 128. If the configured setting is greater than 128, the migrated setting is 128.

- Data Beacon Rate (DTIM) settings range from 1 to 100. If the configured setting is greater than 100, the migrated setting is 100.
- Beacon Period settings range from 20 to 4000. If the configured setting is greater than 4000, the migrated setting is 4000 and if the configured setting is less than 20, the migrated setting is 20.
- WEP Key Rotation Interval settings range from 1 to 10. If the configured setting is greater than 10, the migrated setting is 10.
- If the configured settings for the LEAP or EAP transmit key is not set to Key 1, the following error is produced by Cisco IOS software in the migrated configuration:
 - Error: LEAP/EAP authentication does not support the key index#.
- If the configured setting for DSCP is not a specific value (0, 1, 2, 3, 4, 5, 6, 7, 11, 12, 12, 21, 22, 23, 31, 32, 33, 41, 42, or 43), the following error is produced by Cisco IOS software in the migrated configuration when viewing the settings using the HTTP interface:
 - *Policy_policy_fallback_policy* was created using CLI. It must be deleted via CLI to ensure proper operation of the web interface.



Note Even though this error message is displayed, the migrated configuration and the associated functionality are correct.

- If host names are used for RADIUS, accounting, and NTP servers, the converted Cisco IOS access points are unable to use DNS to obtain the corresponding IP addresses. Cisco recommends that you change your VxWorks configurations to use IP addresses rather than host names for RADIUS, accounting, and NTP servers, or to configure the servers after the converted access points boot up.
- If a Native VLAN is not configured, an error warning message is displayed.

Caveats

Open Caveats

There are no open caveats.

Resolved Caveats

The following caveats have been resolved:

- CSCef00958—The config.txt file on 350 series access points might be removed after conversion to Cisco IOS operation using the conversion tool.
- CSCef01859—The conversion tool should provide a free memory check for deployed access points.

Related Documentation

For more information about access points, refer to the following publications:

- *Cisco Aironet Conversion Tool for Cisco IOS Software, 2.1 Administrator Guide for Windows* describes the conversion tool and provides instructions for upgrading VxWorks 350 and 1200 series access points to Cisco IOS operation. This publication also provides instructions for obtaining and installing the conversion tool software on your PC.
- *Cisco IOS Software Configuration Guide for Cisco Aironet Access Points* provides configuration information.
- *Cisco Aironet 1200 Series Access Point Hardware Installation Guide* provides hardware installation information.
- *Cisco IOS Command Reference for Cisco Aironet Access Points and Bridges* provides a description of Cisco IOS commands supported by the 1200 and 350 series access points.
- *Cisco Aironet 350 Series Access Point Hardware Installation Guide* provides hardware installation information.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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