



# Release Notes for Cisco Aironet Client Adapter Drivers, Version 1.5.2 for Linux

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## Introduction

This document describes system requirements, upgrade procedures, and caveats for release 1.5.2 of the Cisco Aironet client adapter driver for Linux. This release resolves the caveats listed in the “Resolved Caveats” section on page 9.

## System Requirements

Release 1.5.2 of the Cisco Aironet client adapter driver can be used with only Cisco Aironet 340, 350, 4500, and 4800 Series Wireless LAN Adapters (PC cards, LM cards, and PCI client adapters) and Linux kernel version 2.2.xx or 2.4.xx.



# Upgrading to a New Driver Release

This section describes how to upgrade to the 1.5.2 Linux driver release.

## Determining the Driver Version

Select **Status** from the Commands pull-down menu in ACU. The driver version is displayed in the Status screen.

## Upgrade Procedure

Follow the instructions below to upgrade your current version of the Linux driver and client utilities.



### Caution

Do not insert your client adapter into the computer until the driver has been loaded; otherwise, the computer may hang. The procedure indicates when the client adapter should be inserted.



### Note

These instructions are the same regardless of whether you are doing an initial install or upgrading from a previous version. If you are upgrading, your previous driver and client utilities will be overwritten by the new ones.

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- Step 1** Use your web browser to access the following URL:  
<http://www.cisco.com/public/sw-center/sw-wireless.shtml>
  - Step 2** Under Cisco Aironet Drivers & Utilities, select **For Linux**.
  - Step 3** Click **AIROLINUXv15000.tar.gz**.
  - Step 4** Read and accept the terms and conditions of the Software License Agreement.
  - Step 5** Select the Cisco server from which to download the file.
  - Step 6** Save the file to your hard drive.
  - Step 7** Uncompress the AIROLINUXv15000.tar.gz file to a writeable location on your hard drive, such as the /tmp directory.
  - Step 8** Type **sh ./cwininstall** and press **Enter**. Information displays indicating the files that will be installed and their locations. For example, the client utilities will be installed in the /opt/cisco/bin directory.
  - Step 9** Press **Enter** to continue the installation.
  - Step 10** When prompted, type the name of your browser (such as **netscape**) and press **Enter**.

- Step 11** When you are asked if you are using a RedHat 7.1 system with an unmodified kernel, perform one of the following:
- If you are not using a RedHat 7.1 system and your distribution does not enable PCMCIA support in the kernel by default, type **n**, press **Enter**, and go to Step 12.
  - If you are not using a RedHat 7.1 system but your distribution enables PCMCIA support in the kernel by default, follow the instructions in the “Option 3 for RedHat 7.1 Systems” section on page 7.
  - If you are using a RedHat 7.1 system, type **y** (lowercase), press **Enter**, and go to the “Installation Instructions for RedHat 7.1 Systems” section on page 4.




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**Note** If you do not enter a lowercase **y**, your response is treated as negative.

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- Step 12** When you are asked if you already have `pcmcia-cs-3.1.26.tar.gz` (the source for Card and Socket Services) or greater unpacked, perform one of the following:
- If you do not already have Card and Socket Services unpacked, follow the steps below:
    - a. Type **n** and press **Enter**.
    - b. Follow the instructions on the screen to obtain the source for Card and Socket Services; then follow the instructions to unpack it.
    - c. Retype **sh ./cwininstall** and press **Enter** to return to the installation process. You are returned to the part of the installation that asks if you are using a RedHat 7.1 system.
    - d. Follow the instructions in Step 11 to answer the RedHat question. If you type **n**, you are again asked if you already have `pcmcia-cs-3.1.26.tar.gz` or greater unpacked. This time type **y** and press **Enter**.
    - e. Go to Step 13.
  - If you already have Card and Socket Services unpacked, type **y**, press **Enter**, and go to Step 13.

- Step 13** When prompted, type in the path to Card and Socket Services and press **Enter**. The driver is copied, and instructions display for building and installing the driver.




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**Note** You may want to open another session so you can refer to the instructions on the screen.

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- Step 14** Change to the directory where the source of Card and Socket Services was unpacked. The exact path, which was determined by the information you provided earlier, is included in the on-screen instructions. Type in the `cd` command exactly as it appears.
- Step 15** Type **make config**.
- Step 16** Press **Enter** to accept all defaults.
- Step 17** If it configures without errors, type **make all**.
- Step 18** If it builds without errors, type **make install**. The driver is now compiled and installed.
- Step 19** Insert your PC card or PCI client adapter into the computer.

**Step 20** Perform one of the following, depending on the type of client adapter you have:

- If you have a PC card, reboot your computer (recommended) or restart Card and Socket Services. The driver loads automatically.
- If you have a PCI client adapter, perform one of the following:
  - If you have a distribution of Linux that uses `linuxconf`, such as RedHat, use this utility to assign the driver to the PCI client adapter.
  - If your distribution does not use `linuxconf`, manually edit one startup file to insert `insmod airo.o` to load the driver.



**Note** Follow the recommendations of your distribution regarding which startup file to modify and where to insert the command.

**Step 21** Go to the “Additional Procedures” section on page 7 to see if you need to perform any other procedures before using your client adapter.

## Installation Instructions for RedHat 7.1 Systems

If you are using a RedHat 7.1 system, you have three installation options:

1. Use supplied driver binaries - recommended
2. Using supplied patch and driver source, create your own modules, no kernel compilation required
3. Disable kernel pcmcia support and install pcmcia-cs for pcmcia support

Option 1 is highly recommended. Options 2 and 3 require kernel sources and compilation tools. Follow the instructions in one of the subsections below for the option you choose.

### Option 1 for RedHat 7.1 Systems

Option 1 is the easiest installation method because no compilation is required. This method is recommended for systems installed with the workstation configuration.

**Step 1** To select option 1, type **1** and press **Enter**.

**Step 2** After an explanation appears, press **Enter** to continue.

**Step 3** Your kernel information line is displayed, followed by a choice of default kernel configuration options. Here is an example kernel information line:

```
Linux leftbox.aironet.com 2.4.2-2 #1 Sun Apr 8 20:41:30 EDT 2001 i686 unknown
```

In this example, *i686* signifies this is a kernel for the i686 CPU family. Also note that the example does not contain *smp* or *enterprise*. From the list of available options displayed on the screen, the proper choice for this example would be h) kernel-2.4.2-i686.



**Caution** Be careful when selecting your option. Some configuration options look similar, and the system does not ensure that you select the correct one.

Type the letter of the configuration that matches your kernel and press **Enter**. The driver is now installed.

- Step 4** Insert your PC card or PCI client adapter into the computer.
- Step 5** Perform one of the following, depending on the type of client adapter you have:
- If you have a PC card, reboot your computer (recommended) or restart Card and Socket Services. The driver loads automatically.
  - If you have a PCI client adapter, perform one of the following:
    - If you have a distribution of Linux that uses `linuxconf`, such as RedHat, use this utility to assign the driver to the PCI client adapter.
    - If your distribution does not use `linuxconf`, manually edit one startup file to insert `insmod airo.o` to load the driver.



**Note** Follow the recommendations of your distribution regarding which startup file to modify and where to insert the command.

- Step 6** Go to the “Additional Procedures” section on page 7 to see if you need to perform any other procedures before using your client adapter.

## Option 2 for RedHat 7.1 Systems

Option 2 requires the presence of compilation tools but does not require the complete compilation/replacement of the installed kernel.



**Caution** You must use the kernel source in order to properly execute this procedure.

- Step 1** To select option 2, type `2` and press **Enter**.
- Step 2** After an explanation appears, press **Enter** to continue or **Ctrl+C** to exit.
- Step 3** After another explanation appears, press **Enter**.
- Step 4** Your kernel information line is displayed, followed by a choice of default kernel configuration options. Here is an example kernel information line:

```
Linux leftbox.aironet.com 2.4.2-2 #1 Sun Apr 8 20:41:30 EDT 2001 i686 unknown
```

In this example, *i686* signifies this is a kernel for the i686 CPU family. Also note that the example does not contain *smp* or *enterprise*. From the list of available options displayed on the screen, the proper choice for this example would be h) kernel-2.4.2-i686.



**Caution** Be careful when selecting your option. Some configuration options look similar, and the system does not ensure that you select the correct one.

Type the letter of the configuration that matches your kernel and press **Enter**.

**Step 5** After an explanation appears on patching the kernel source, press **Enter**. The driver is now in place to be compiled, and the kernel source is patched.



**Caution**

You should be using the kernel source as installed from RedHat's CD-ROM. If the kernel is already in the patched state or has been modified, the patching process will fail. If, however, the only change to the kernel is that it has used the Cisco Aironet patch previously, you can successfully complete the procedure by pressing **Enter** twice at each series of prompts to skip the patch.



**Note**

You may want to open another session so you can refer to the instructions on the screen.

**Step 6** Type **cd /usr/src/linux-2.4.2** and press **Enter**.

**Step 7** Type **make menuconfig** and press **Enter**.

**Step 8** In the menuconfig window, scroll down to **Network device support** and press **Enter**.

**Step 9** Scroll down to **Wireless LAN (non-hamradio)** and press **Enter**.

**Step 10** Scroll down to **Cisco/Aironet 340/350. . .** and type **M**. (*M* indicates to make it as a module.)

**Step 11** Type **E** to exit.

**Step 12** Scroll down to **PCMCIA network device support** and press **Enter**.

**Step 13** Scroll down to **Cisco/Aironet 340/350. . .** and type **M**.

**Step 14** Continue to select **Exit** and press **Enter** until the following message appears: "Do you wish to save your new kernel configuration?"

**Step 15** Select **Yes** and press **Enter**.

**Step 16** Type **dep ; make modules ; make modules\_install**. The driver and client utilities are now installed.

**Step 17** Insert your PC card or PCI client adapter into the computer.

**Step 18** If you have a PCI client adapter, perform one of the following:

- If you have a distribution of Linux that uses linuxconf, such as RedHat, use this utility to assign the driver to the PCI client adapter.
- If your distribution does not use linuxconf, manually edit one startup file to insert **insmod airo.o** to load the driver.



**Note**

Follow the recommendations of your distribution regarding which startup file to modify and where to insert the command.

**Step 19** Go to the "Additional Procedures" section on page 7 to see if you need to perform any other procedures before using your client adapter.

## Option 3 for RedHat 7.1 Systems

Option 3 is the most advanced installation method because it requires a complete kernel rebuild and installation.



### Caution

You must use the kernel source in order to properly execute this procedure.



### Note

If you are not using a RedHat 7.1 system but your distribution enables PCMCIA support in the kernel by default, you need to disable it by following the instructions in this section.

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- Step 1** To select option 3, type **3** and press **Enter**.
  - Step 2** Type **cd /usr/src/linux-2.4.2** and press **Enter**.
  - Step 3** Type **make menuconfig** and press **Enter**.
  - Step 4** In the menuconfig window, scroll down to **General setup** and press **Enter**.
  - Step 5** Scroll down to **PCMCIA/Cardbus support** and press **Enter**.
  - Step 6** Continue to press the **spacebar** until the selector in front of the option is blank (does not contain an *M* or an *\**).
  - Step 7** Continue to select **Exit** and press **Enter** until the following message appears: “Do you wish to save your new kernel configuration?”
  - Step 8** Select **Yes** and press **Enter**.
  - Step 9** Rebuild your kernel.
  - Step 10** After the kernel is remade and reinstalled, reboot your computer.
  - Step 11** Go to Step 8 of the main upgrade procedure on page 2. This time select **n** when asked in Step 11 if you are using a RedHat 7.1 system with an unmodified kernel.
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## Additional Procedures

After the driver and client utilities are properly installed, you may need to perform additional procedures before using your client adapter. This section provides instructions for the following procedures:

- Changing the permission rights regarding configuration of the client adapter
- Assigning an IP address
- Installing the drivers for more than one client adapter and then selecting between them

### Changing the Permission Rights

By default, all users are permitted to configure the client adapter. If you want only root users (those with administrative rights) to be able to run the client utilities and configure the client adapter, type **chmod 500 /opt/cisco/bin/\*** and press **Enter**.

## Assigning an IP Address

Follow the steps below to assign an IP address to your computer.

**Step 1** Perform one of the following:

- If you want your computer's IP address to be assigned by DHCP and your network has a DHCP server, you must use `linuxconf` or run a DHCP client utility. The two most popular client utilities are DHCP CD and Pump. Most Linux distributions should have one of them. If you have neither, you must install it from your distribution CD-ROM or download one from the Internet. Refer to your distribution's home page for more information.
- If your computer is not connected to a DHCP server, follow the steps below to enter the IP address, subnet mask, and default gateway address of your computer.
  - a. Perform one of the following:
    - If you want to set the IP address and have the system determine the broadcast address and subnet mask, type `ifconfig ethx IP address` (where *x* is the number of your client adapter and *IP address* is your computer's IP address) and press **Enter**.
    - If you want to set the IP address and manually set the broadcast address and subnet mask, type `ifconfig ethx IP address broadcast broadcast address netmask netmask` (where *x* is the number of your client adapter, *IP address* is your computer's IP address, *broadcast address* is the corresponding broadcast address, and *netmask* is your subnet mask) and press **Enter**.



**Note** Your client adapter's number is zero (0) if it is the only Ethernet adapter card installed. The Device field of the Status screen in the Aironet Client Utility (ACU) indicates the number of the adapter being used.

- b. To enter the default gateway address, type `route add default gw IP address of gateway netmask 0.0.0.0 metric 1` (where *IP address of gateway* is your default gateway address) and press **Enter**.

**Step 2** Reboot your computer.

## Installing the Drivers for More Than One Client Adapter

Linux allows you to install the drivers for more than one client adapter and to then select between the adapters. Up to two PC cards and up to five PCI client adapters can be supported.

To install the driver for another client adapter, repeat the instructions in the "Upgrade Procedure" section on page 2; however, the process will be abbreviated now that some files are already installed.

After the drivers and the client utilities are installed, you can switch back and forth between the client adapters using the Select Radio parameter in ACU. See the *Cisco Aironet Wireless LAN Adapters Software Configuration Guide* for information on using this parameter.

## Resolved Caveats

The following caveat is resolved in Linux driver release 1.5.2.

The Linux driver does not compile on a system running kernel version 2.4.xx (CSCdt13558). This caveat is resolved in version 1.5.2 of the Linux driver.

## Getting Bug Information on Cisco.com

If you are a Cisco registered user, you can use the Cisco TAC Software Bug Toolkit, which consists of three tools (Bug Navigator, Bug Watcher, and Search by Bug ID Number) that help you to identify existing bugs (or caveats) in Cisco software products.

Access the TAC Software Bug Toolkit today at: <http://www.cisco.com/support/bugtools/>.

## Troubleshooting

For the most up-to-date, detailed troubleshooting information, refer to the Cisco TAC website at <http://www.cisco.com/tac>. Select **Wireless LAN** under Top Issues.

## Related Documentation

For more information about Cisco Aironet client adapters, refer to the following documents:

- *Quick Start Guide: Cisco Aironet Wireless LAN Adapters*
- *Cisco Aironet Wireless LAN Adapters Hardware Installation Guide*
- *Cisco Aironet Wireless LAN Adapters Software Configuration Guide*

## Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

## World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

## Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package shipped separately from the Cisco Aironet Series Wireless LAN Adapters CD that shipped with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

## Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco product documentation from the Networking Products MarketPlace:  
[http://www.cisco.com/cgi-bin/order/order\\_root.pl](http://www.cisco.com/cgi-bin/order/order_root.pl)
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:  
<http://www.cisco.com/go/subscription>
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## Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

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To access Cisco.com, go to the following website:

<http://www.cisco.com>

## Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

### Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

<http://www.cisco.com/register/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

## Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

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This document is to be used in conjunction with the documents listed in the “Related Documentation” section.

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