Quick Start Guide: Cisco Wireless Control System for Linux

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Preface

This guide assists you in the installation of Cisco Wireless Control System, hereafter referred to as the *Cisco WCS,* on a Redhat Linux workstation to create a Cisco WCS Server. To install the Cisco WCS on a Windows workstation, refer to the *Quick Start Guide: Cisco Wireless Control System for Microsoft Windows*.

Organization

This guide is organized into the following sections:

- "Prerequisites" lists the things that you should have completed before installing Cisco WCS.
- "Installing Cisco WCS" describes how to install Cisco WCS.
- "Starting, Verifying, and Stopping Cisco WCS" explains how to perform basic operations like starting, verifying the status, and stopping Cisco WCS.
- "Starting and Stopping a Cisco WCS User Interface" describes how to start and stop a Cisco WCS user interface.

Conventions

Notes, cautions, and timesavers use these conventions and symbols:

Tip Means the following will help you solve a problem. The tips information might not be troubleshooting or even an action, but could be useful information.

Note Means reader take note. Notes contain helpful suggestions or references to materials not contained in this manual.

Caution Means reader be careful. In this situation, you might do something that could result equipment damage or loss of data.

Warning **This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.**

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation DVD

Cisco documentation and additional literature are available in a Documentation DVD package, which may have shipped with your product. The Documentation DVD is updated regularly and may be more current than printed documentation. The Documentation DVD package is available as a single unit.

Registered Cisco.com users (Cisco direct customers) can order a Cisco Documentation DVD (product number DOC-DOCDVD=) from the Ordering tool or Cisco Marketplace.

Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/

Cisco Marketplace:

http://www.cisco.com/go/marketplace/

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

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Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

- From this site, you can perform these tasks:
- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies — security-alert@cisco.com
- Nonemergencies — psirt@cisco.com

Tip We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.
Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:
http://pgp.mit.edu:11371/pks/lookup?search=psirt%40cisco.com&op=index&exact=on

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year, at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Note Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support Website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

- Severity 1 (S1)—Your network is "down," or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.
- Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.
- Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.
- Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

  http://www.cisco.com/go/iqmagazine

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/ipj

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html

Installation and Configuration

Cisco WCS is part of the innovative Cisco Wireless LAN Solution.

- It maintains the Cisco wireless LAN solution configuration, which includes controllers, access points, and location appliances.
- It enables Cisco WCS system administrators to assign logins, passwords and privileges for all Cisco WCS operators, and to set times for periodic system tasks.
- It allows Cisco WCS operators to use a web browser on any connected workstation to access Cisco WCS configuration, monitoring, and administrative functions. The Cisco WCS operators can also add, change, and delete Cisco Wireless LAN Solution components and configurations in the Cisco WCS database, depending on privilege level.

The Cisco WCS can be run either as a service or application.

Cisco WCS requires the following communication ports to be available on the Cisco WCS Server for proper operation:

Table 1 Ports Information

Port Name	Port Number
Rmi	1299
Http	80 (can be changed during installation)
Https	443 (can be changed during installation)
WebContainer	8009
Database	1315
HttpConnector	8456
HttpConnectorRedirect	8457
TomcatShutdown	8005
TFTP	69
FTP	21
WCS Data	2000
Traps	169

Prerequisites

Before installing the Cisco WCS, you must have completed the following:

- Ensured that you meet the necessary hardware and software requirements as listed in "System Requirements for Cisco WCS."
- Updated your system with the necessary critical updates and service packs.

Note Refer to the latest Linux Cisco WCS release notes for information on the service packs and patches required for correct operation of Cisco WCS.

System Requirements

The following table describes the system requirements for Cisco WCS.

Table 2 System Requirements for Cisco WCS

Requirement Type	Minimum Requirement
System Hardware	• IBM PC- compatible computer with 2.4-GHz Intel Pentium processor if you have up to 500 access points in your network. • IBM PC- compatible computer with 2.4-GHz dual processors if you have more than 500 access points in your network.
Memory	• 1 GB if you have up to 500 access points in your network. • 2 GB if you have more than 500 access points in your network.
Available drive space	• 20 GB
Operating System Software	• Red Hat Enterprise Linux ES 3.
Additional Software	• Internet Explorer 6.0 or later. • XWindows

Installing Cisco WCS

This section describes how to install Cisco WCS.

Note Before reinstalling or updating Cisco WCS, you may want to back up the Cisco WCS database. After you have taken a backup, uninstall the old release.

Step 1 If not already done, log in as root.

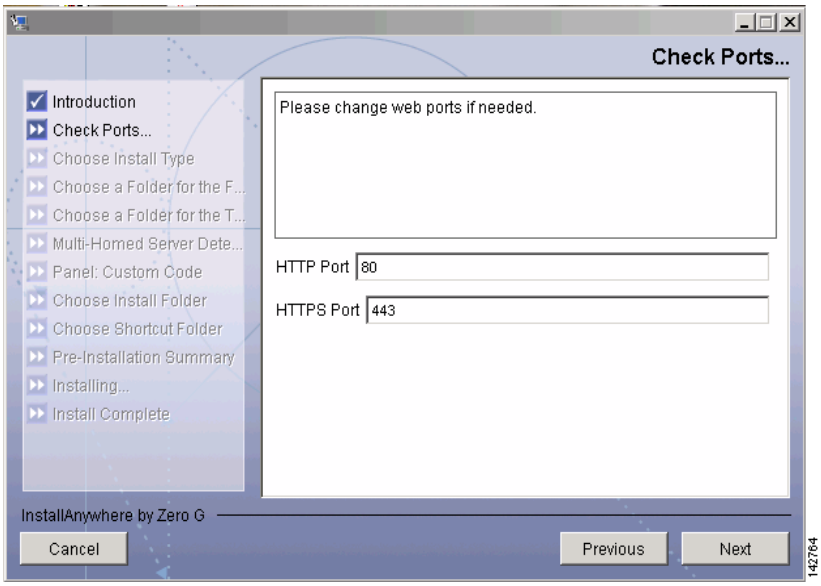
Step 2 Find the AIR-WCS-LL-1.0-k9-3.2.X.Y.bin file, where 3.2.X.Y is the software build. Obtain this file from the Linux Cisco WCS CD-ROM or from Cisco Technical Assistance Center (TAC).

Step 3 In the Linux command line interface, navigate to the AIR-WCS-LL-1.0-k9-3.2.X.Y.bin file directory.

Step 4 Enter **./AIR-WCS-LL-1.0-k9-3.2.X.Y.bin** to start the install script.

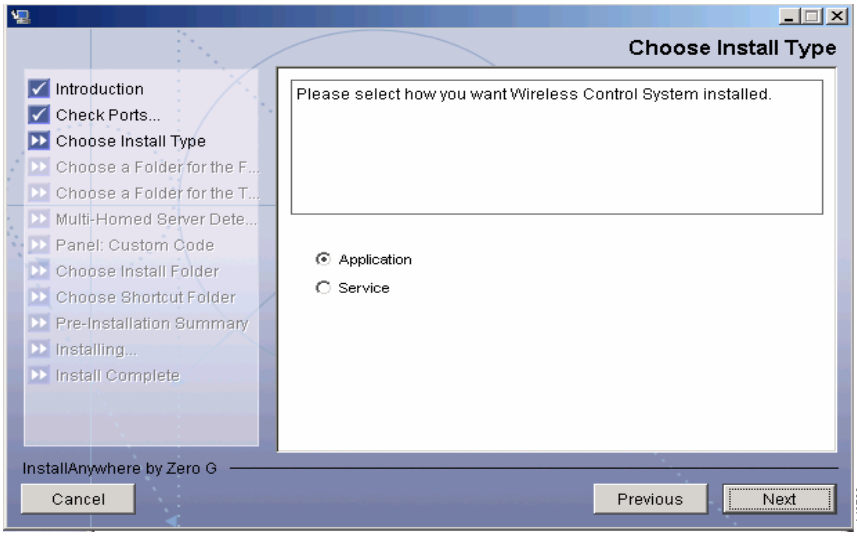
Step 5 The install script prepares the install environment, and displays the Introduction window. Click **Next** to bring up the Check Ports window (Figure 1).

Figure 1 Checking HTTP and HTTPS Ports



Step 6 In the Check Ports window, change the default HTTP and HTTPS ports if necessary and click **Next** to bring up the Choose Install Type window (Figure 2).

Figure 2 Choosing the Type of Installation



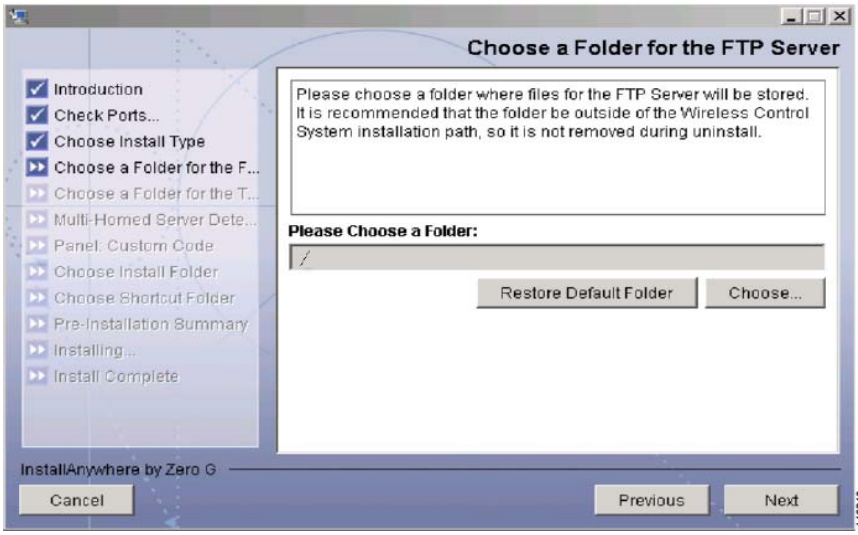
Step 7 In the Choose Install Type window, choose either **Application** or **Service** and click **Next**:

- If you want to manually launch the Cisco WCS after installation and have it run on the desktop, select **Application**.
- If you want to launch Cisco WCS as a service at reboot and run in the background (especially useful when the Cisco WCS is to always be online), select **Service**.

Note Cisco recommends that you always install WCS as a service because it is designed to be running all the time.

The Choose a Folder for FTP Server window appears (Figure 3).

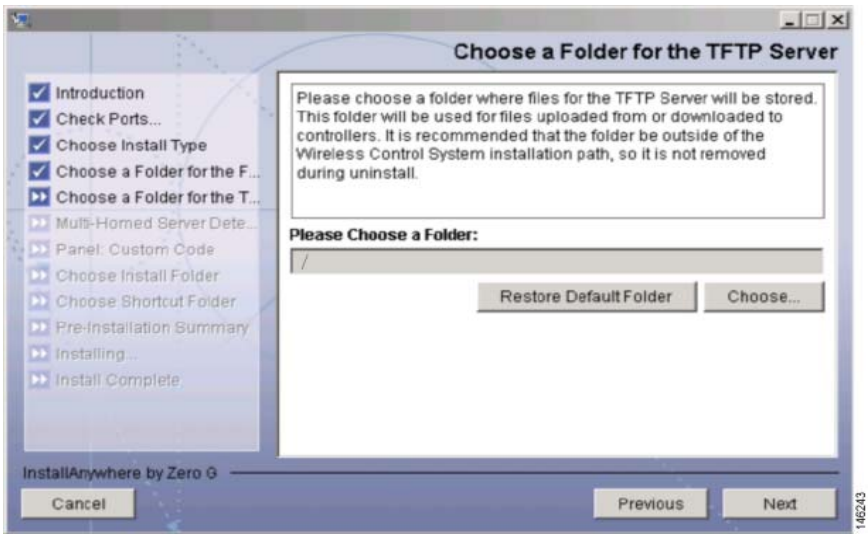
Figure 3 Choosing FTP Server File Folder



Step 8 Choose a folder to store the FTP server files and click **Next**. The Choose a Folder for the TFTP Server window appears (Figure 4).

Note Store the FTP server files in a folder outside the main installation folder. This ensures that the FTP server files are not deleted when Cisco WCS is uninstalled.

Figure 4 Choosing TFTP Server File Folder



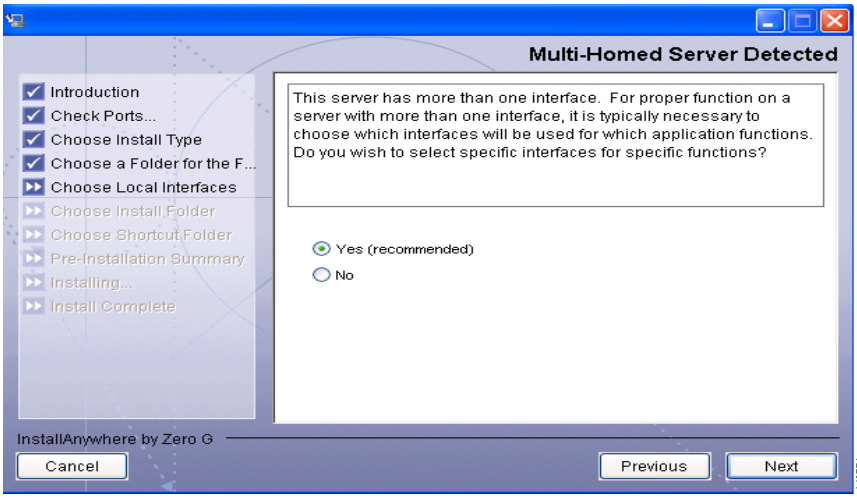
Step 9 From the TFTP Server File window, choose a folder to store the TFTP server files and click **Next**.

Note Store the TFTP server files in a folder outside the main installation folder. This ensures that the TFTP server files are not deleted if Cisco WCS is uninstalled.

If you are installing Cisco WCS on a multi-homed server (a server having multiple interfaces), the installer automatically detects the presence of multiple interfaces and brings up the Multi-Homed Server Detected window (Figure 5).

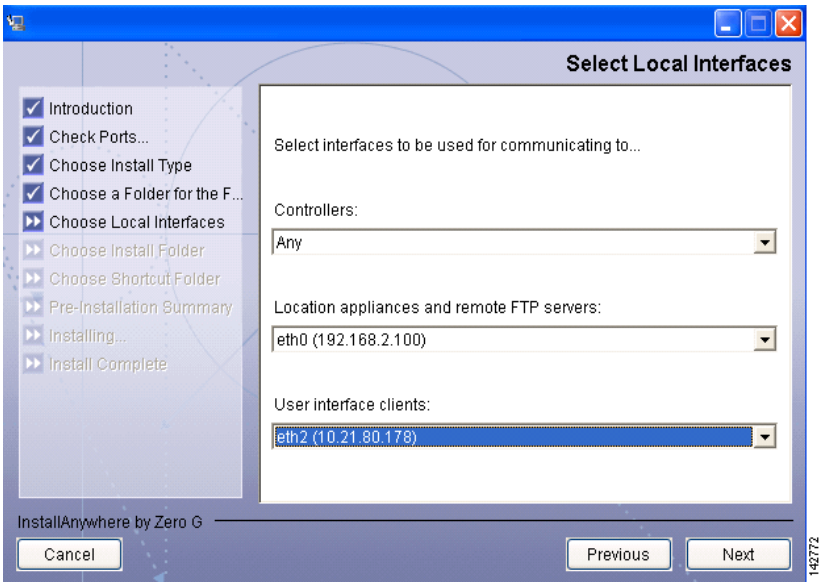
Note The Multi-Homed Server Detected window does not appear if you install Cisco WCS on a server which has only one interface.

Figure 5 Detecting a Multi-Homed Server



Step 10 Click **Yes** and then click **Next** to bring up the Select Local Interfaces window (Figure 6) where you can configure specific interfaces on the server for communicating with controllers, location appliances, remote FTP servers, and clients. Click **No** if you do not want to configure specific interfaces.

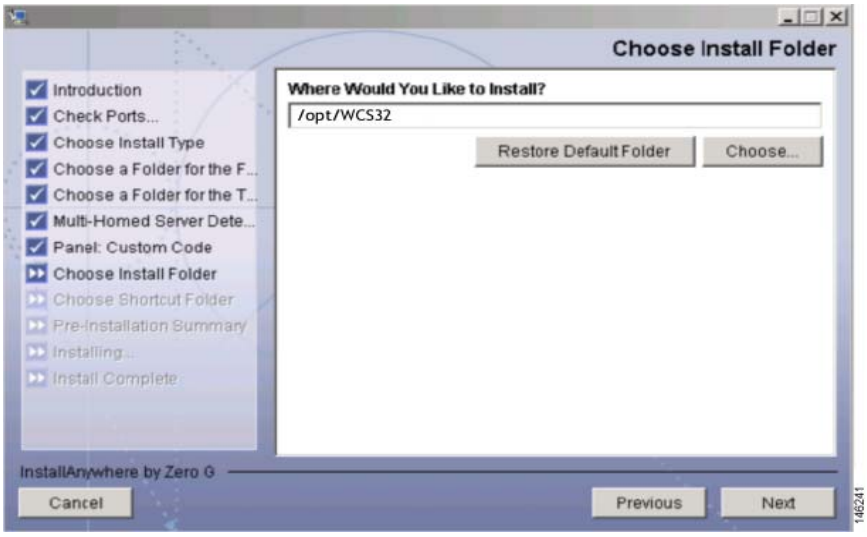
Figure 6 Selecting Local Interfaces



Step 11 From the Select Local Interfaces window, select the interfaces that are used by the server for communicating with controllers, location appliances and remote FTP servers, and clients. Click **Next** to bring up the Choose Install Folder window (Figure 7).

Note If you do not select any specific interface and instead select “Any” as the option, Cisco WCS randomly selects an interface on its own and uses this interface to communicate with the devices. This might lead to an issue where the interface is not able to communicate with the device. Hence, Cisco recommends that you always select specific interface for each device.

Figure 7 Choosing the Installation Folder

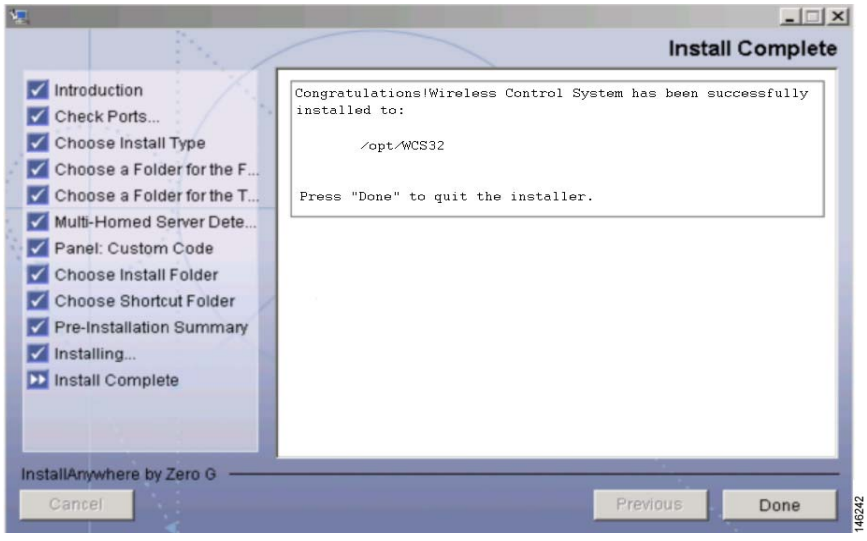


Step 12 From the Choose Install Folder window, choose a folder in which to install the Cisco WCS and click **Next**. The Choose Link Folder window appears.

Step 13 In the Choose Link Folder window, choose the folder in which to create links and click **Next**.

Step 14 Click **Next** to continue installing Cisco WCS software. After the installation is complete, the Install Complete window appears (Figure 8).

Figure 8 Installation Complete



Step 15 Click **Done** to complete the installation.

Continue with "Starting, Verifying, and Stopping Cisco WCS."

Starting, Verifying, and Stopping Cisco WCS

This section describes how to start, verify, and stop Cisco WCS. Before you can use a Cisco WCS user interface, you must start the Cisco WCS as described in "Starting Cisco WCS."

Starting Cisco WCS

After Cisco WCS is installed, you can start the Cisco WCS at any time.

To start Cisco WCS, follow these steps:

Step 1 If not already done, log in as root.

Step 2 Using the Linux command line interface, navigate to the */opt/WCS32* directory (or to the directory chosen when you installed Cisco WCS).

Step 3 Enter **./StartWCS** to start the Cisco WCS. When the `WCS server started successfully` message is displayed, the server is ready to host Cisco WCS user interfaces.

Verifying Cisco WCS Status

You can verify the status of the Cisco WCS at any time:

To verify the status, follow these steps:

Step 1 Using the Linux command line interface, navigate to the */opt/WCS32* directory (or to the directory chosen when you installed Cisco WCS).

Step 2 Enter **./WCSStatus**. The following messages are displayed:

```
Database server is running
Apache server is running
WCS is running
```

If Cisco WCS is not running and you attempt to verify the Cisco WCS Server status, the following messages are displayed:

```
Database server is stopped
Apache server is stopped
WCS is stopped.
```

Stopping Cisco WCS

You can stop the Cisco WCS application at any time.

Note If there are any Cisco WCS user interfaces logged in when you stop Cisco WCS, the Cisco WCS User Interface sessions stop functioning.

To stop Cisco WCS, follow these steps:

Step 1 If not already done, log in as root.

Step 2 Using the Linux command line interface, navigate to the default */opt/WCS32* directory (or the directory chosen during installation).

Step 3 Enter **./StopWCS** to stop the Cisco WCS application.

You have shut down the Cisco WCS application.

Starting and Stopping a Cisco WCS User Interface

After you have started Cisco WCS as described in "Starting Cisco WCS", starting and stopping a Cisco WCS user interface are simple tasks.

Starting a Cisco WCS User Interface

To start a Cisco WCS user interface, follow these steps:

Step 1 Start the Cisco WCS as described in "Starting Cisco WCS."

Step 2 Launch Internet Explorer 6.0.

Note Some documented features may not function properly if you choose to use any web browser other than Internet Explorer 6.0 on a Windows workstation.

Step 3 In the web browser address field, enter

```
https://<localhost|Cisco WCS IP Address>
```

For example, in the web browser address field, enter **https://176.89.43.44**

where

- *https://* is a secure (http + Secure Sockets Layer) login, to which the Cisco WCS usually returns a Security Alert message before continuing.
- *localhost* is used when the Cisco WCS user interface is on the Cisco WCS Server.
- *Cisco WCS IP Address* is the IP Address of the Cisco WCS on any other workstation.

Step 4 The Cisco WCS user interface displays the Cisco WCS login window (Figure 9).

Figure 9 Cisco WCS Login Window

Step 5 In the Cisco WCS login window, enter the following:

- Username (default is *root*).
- Password (default is *public*).

Click **Submit**.

The Cisco WCS user interface is now active and available for your use.

Stopping a Cisco WCS User Interface

This section describes how to stop a Cisco WCS user interface. A Cisco WCS user interface can be stopped either by logging out of the interface or by stutting down the Cisco WCS.

Logging Out of the Cisco WCS User Interface

Follow these steps to log off from a Cisco WCS user interface:

Step 1 When you are finished working in the Cisco WCS user interface, exit by clicking **Logout** in the upper right corner of the Cisco WCS user interface. The Cisco WCS user interface displays the Cisco WCS login window.

Note You can return to the previous cached screen in the web browser. However, if you attempt to access any of the parameters in that screen, you are returned to the Cisco WCS login window.

Step 2 You can also close the web browser window.

The Cisco WCS user interface window shuts down, leaving the Cisco WCS running.

Shutting Down Cisco WCS to Stop a Cisco WCS User Interface

Occasionally, the system administrator may stop the Cisco WCS while a Cisco WCS user interface is logged in. If this happens, the web browser displays a `The page cannot be displayed` message.

Note When the Cisco WCS user interface has been stopped by a Cisco WCS Server shutdown, it does not reassociate with the Cisco WCS when the Cisco WCS Server restarts. You must restart the Cisco WCS user interface as described in "Starting a Cisco WCS User Interface".

Where to Go From Here

Continue with the *Cisco Wireless Control System Configuration Guide,* which provides information on configuring your network.