



## APPENDIX **C**

# Conversion of a WLSE Autonomous Deployment to a WCS Controller Deployment

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This chapter describes how to convert a Cisco Wireless LAN Solution Engine (WLSE) network management appliance to a Cisco Wireless Control System (WCS) network management station. After converting a WLSE appliance to WCS, you must re-create configuration templates and manually add access points (or import them). For information on how to migrate the data, refer to the [“Importing or Exporting WLSE Map Data”](#) section on page 5-79.

After WLSE is converted to WCS, it can no longer be used as a WLSE or converted back into a WLSE. This is a one-way conversion only.

- **WLSE Autonomous:** A WLSE network management appliance is deployed with autonomous access points from the Aironet products. Some access points act as domain controllers (WDS) for sets of access points in a SWAN architecture, and the access points communicate over the wired network using the WLCCP protocol.

The WLSE network management station is a Cisco appliance with the WLSE software installed.

- **WCS Controller:** A WCS network management station is deployed on customer selected hardware running Red Hat Enterprise Linux. The network management station manages controller switches that control access points. The controllers communicate over the wired network with access points using the LWAPP protocol.
  - WCS 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 Wireless LAN Solution components and configurations in the Cisco WCS database, depending on privilege level.

This chapter contains these sections:

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# Supported Hardware

## Cisco WLSE Management Stations

The conversion from WLSE management station to WCS management station is supported on the Cisco 1130-19 and 1133 hardware platforms.

**Note**

The conversion from WLSE management station to WCS management station is not supported on the Cisco WLSE 1030 Express platform.

## Autonomous Access Points Convertible to LWAPP

The following autonomous AP models can be converted to a WCS controller deployment:

- Cisco Aironet 1230AG Series Access Point (AP 1232AG)
- Cisco Aironet 1200 Series Access Point (AP 1200)
- Cisco Aironet 1130AG Series Access Point (AP 1131AG)

## Installation and Configuration

To convert a WLSE network management appliance to a WCS network management station, you need three CDs:

- A conversion CD for the Wireless Control System version 4.0 release. This CD installs the WCS software and Red Hat Enterprise Linux 3 on the WLSE network management appliance.
- An upgrade CD to upgrade the WCS network management station to Red Hat Enterprise Linux 4. It is necessary to complete the installation of WCS software and Red Hat Enterprise Linux 3 prior to performing the Red Hat Enterprise Linux 4 upgrade due to the partitioning of the WLSE network station.

**Note**

After you have converted the WLSE network management appliance to a WCS network management station, it is irreversible and you cannot convert back to a WLSE network management appliance.

- An upgrade CD to upgrade the WCS network management station to Red Hat Enterprise Linux 5. It is necessary to complete the installation of WCS software and Red Hat Enterprise Linux 4 prior to performing the Red Hat Enterprise Linux 5 upgrade due to the partitioning of the WLSE network station.

## Installing Cisco WCS

Follow these steps to install the Cisco WCS software. You need to have physical access to the WLSE network management appliance. Console access is necessary to the WLSE appliance because the setup and install scripts require console interaction. The complete installation process takes approximately 45 seconds.

**Note**

Before installing the WCS software, backup any data on your WLSE appliance that you would like for record keeping. To backup the data, refer to *Backing Up and Restoring Data* in the *User Guide for the CiscoWorks WLSE and WLSE Express*.

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- Step 1** Insert the installation CD with the WCS software and the Red Hat Linux Enterprise 3 software into the CD drive of the WLSE network management appliance.
- Step 2** Using the command line interface (CLI) prompt, log in the WLSE as **administrator**.
- Step 3** Enter the **reload** command to reboot. The WLSE reboots, loads, and then installs from the CD. After the install, the CD automatically ejects and reboots again.
- Step 4** Log in using **root** as the username and **setup** as the password. You are guided through the WCS wizard setup scripts as you would in a regular WCS install. Answer the prompts with the applicable values for your network setup. See “[Installing WCS for Linux](#)” procedure on page 2-14 if you need further assistance.

**Note**

If you cannot execute the installation file, enter the **chmod +x WCS-install-file.bin** command.

- Step 5** When you are prompted to reboot, type **Y** or **Yes**. After the reboot continue to [Upgrading to Red Hat Enterprise Linux 4 or 5](#).

## Upgrading to Red Hat Enterprise Linux 4 or 5

Follow these steps to upgrade the WLSE network management station to Red Hat Enterprise Linux 4 or 5.

**Note**

Before upgrading the Red Hat Enterprise Linux, you should have already converted WLSE to the Cisco WCS software and Red Hat Linux Enterprise 3 software.

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- Step 1** Insert the upgrade CD with the Red Hat Enterprise Linux upgrade software (either version 4 or 5 as needed) into the CD drive of the WLSE network management appliance.
- Step 2** Log in using **root** as the username and the password you were supplied in the wizard.
- Step 3** Enter the **reboot** command to reboot the WLSE network management appliance.

## Minor Upgrades to WCS

If you need to perform a minor upgrade that does not require an upgrade of Red Hat, you can download the upgrade from [cisco.com](http://cisco.com) and burn a CD yourself. If you burn a CD yourself, you cannot access the CD drive from the Linux CLI so you must mount the CD drive using `mount /dev/cdrom /media`.

# Configuring the Converted Appliance

If you have installed Red Hat Linux 3 with the CD and performed the upgrade to 4.0, you are ready to configure the appliance. After the Linux installation, the machine reboots. You must have a connection to the appliance console, and then you are prompted to log in. After you log in, you are presented with the following prompts over the console connection.



## Caution

After WLSE is converted to WCS, it can no longer be used as a WLSE or converted back into a WLSE. This is a one-way conversion only.



## Note

The WCS server will not start until you have configured the appliance.

```
localhost.localdomain login:
```

Enter the login **root**.

```
Password:
```

Enter the **setup** password.

```
Setup parameters via Setup Wizard (yes/no) [yes]:
```

Enter **yes** if you want to use the setup wizard or **No** if you want to manually set the parameters. Only experienced Linux system administrators should opt to configure the system using the setup script. The option in square brackets is the default. You can press **Enter** to choose that default.

```
Current hostname=[localhost]
Configure hostname? (Y)es/(S)kip/(U)se default [Yes]:
```

The host name is a unique name that can identify the device on the network.

```
Enter a host name [localhost]:
```

The host name should start with a letter, end with a letter or number, and contain only letters, numbers, and dashes.

```
Current domain=[localdomain]
Configure domain name? (Y)es/(S)kip/(U)se default [Yes]:
```

A domain name specifies the network domain this device belongs to.

```
Enter a domain name [localdomain]:
```

The domain name should start with a letter, end with a valid domain name suffix (such as .com), and contain only letters, numbers, dashes, and dots.

```
Configure root password? (Y)es/(S)kip/(U)se default [Yes]:
```

Press **Enter** to choose Yes.

```
Enter root password:
Confirm root password:
```

Enter a password for the superuser and confirm it by typing it again. Your typing is not visible.

```
Remote root login is currently disabled.
Configure remote root access? (Y)es/(S)kip/(U)se default [Yes]:
```

To enable root login over secure shell for this machine, choose **Yes**. This allows a **root** login both from the console and using SSH. Otherwise, choose **Skip**. If you choose to leave remote root login disabled, then a *root* login can only occur from the console.

```
Enable remote root login (yes/no) [no]
```

Choose **yes** to allow remote login through SSH in addition to console login. Choose **no** to allow root login only from the console.

```
Current IP address=[]  
Current eth0 netmask=[]  
Current gateway address=[]  
Configure eth0 interface parameters? (Y)es/(S)kip/(U)se default [Yes]:
```

Choose **Yes** to begin setup for the main ethernet interface. A network administrator can provide the information for the following prompts.

```
Enter eth0 IP address:
```

Enter an IP address for the main ethernet interface of this machine.

```
Enter network mask [255.255.0.0]:
```

Enter the network mask for the IP address you provided.

```
Enter default gateway address:
```

Provide the default gateway that must be reachable from the main Ethernet interface.

```
The second ethernet interface is currently disabled for this machine.  
Configure eth1 interface parameters? (Y)es/(S)kip/(U)se default [Yes]:
```

Choose **Yes** if you want to provide information for a second Ethernet interface. If you choose to configure eth1, you must manually edit the WCS property file (`/opt/WCS4.0/webnms/classes/com/aes/common/net/LocalHostUtils.properties`) to specify which of the eth1 or eth0 are used to communicate with controllers and which are used to communicate with location servers. (Changing the `ManagementInterface=` line to either `ManagementInterface=eth0` or `ManagementInterface=eth1` specifies the controller interface. Changing the `PeerServerInterface=` line to either `PeerServerInterface=eth0` or `PeerServerInterface=eth1` specifies the location server interface. This can be skipped, and the next prompt you would see would be DNS.

```
Enter eth1 IP address [none]:
```

Enter an IP address for the second Ethernet interface on this machine.

Because you entered an IP address for the second interface of this machine, you are given the opportunity to define up to two static routing entries for that interface. Each entry requires a network address, network mask, and a gateway address.

```
Enter network mask [255.0.0.0]:
```

Enter the network mask for the IP address you specified.

```
Enter network [none]:
```

Enter the network address.

```
Enter network mask [255.0.0.0]:
```

Enter the network mask for the IP address you provided.

```
Enter gateway address:
```

Enter a gateway address for the network and network mask you provided.

```
Domain Name Service (DNS) Setup
DNS is currently enabled.
No DNS servers currently defined
Configure DNS related parameters? (Y)es/(S)kip/(U)se default [Yes]:
```

You can enter up to three DNSs, but you can also leave it disabled. No servers have been defined.

```
Enable DNS (yes/no) [yes]:
```

Choose **Yes** to enable DNS.

```
Enter primary DNS server IP address:
```

Enter the IP address for this DNS server.

```
Enter backup DNS server IP address (or none) [none]:
```

Enter the backup IP address. If you enter a second DNS server, you are prompted for an optional third server.

```
Configure timezone? (Y)es/(S)kip/(U)se default [Yes]:
```

Choose **Yes** to configure the timezone.

```
Please identify a location so that time zone rules can be set correctly.
Please select a continent or ocean.
```

- 1) Africa
- 2) Americas
- 3) Antarctica
- 4) Arctic Ocean
- 5) Asia
- 6) Atlantic Ocean
- 7) Australia
- 8) Europe
- 9) Indian Ocean
- 10) Pacific Ocean
- 11) UTC - I want to use Coordinated Universal Time.
- 12) Return to previous setup step (^).

You need to select a location so that time zone rules can be set correctly. Choose the number for the appropriate continent or ocean.

```
Please select a country.
```

You are given a choice of countries based on the continent or ocean you selected. Choose the appropriate number.

```
Please select one of the following time zone regions.
```

Enter the number for the desired time zone region based on the country you selected.

The timezone information you chose is given.

```
Is the above information OK?
```

- 1) Yes
- 2) No

Choose **Yes** to verify if the information is correct. If No, you will be taken through the series of prompts again.

```
NTP is currently disabled.
```

```
Configure NTP related parameters? (Y)es/(S)kip/(U)se default [Yes]:
```

If you choose to enable network time protocol (NTP), the system is configured from the NTP servers you select. If you choose Skip, you are prompted to enter the current date and time.

```
Enable NTP (yes/no) [no]:
```

If you choose Yes, you will be required to enter an NTP server name or address.

```
Enter NTP server name or address:
```

```
Enter another NTP server IP address (or none) [none]:
```

All of your selections are shown. You are then asked to verify all the setup information you provided. You can enter Yes to proceed with the configuration, No to make more changes, or ^ to go back to the previous step.

```
Is the above information correct (yes, no, or ^):
```

If yes, the configuration information will be applied. Cisco recommends that you reboot the system when prompted to ensure that changes occur. The WCS server starts automatically after the reboot.

The next time you log in using *root*, you will only get the Linux shell prompt and not the setup script. You can rerun the setup script at any time to change settings by logging in using *root* and running `/opt/setup-appliance/setup.sh`.

## Licensing

You will need a license to access the complete WCS user interface on the WLSE network management appliance. A discounted WCS WLSE Upgrade License is available for these appliances. When you purchase the license, you receive the WCS-WLSEU-K9-4.1.xx.0.iso conversion file you need and the WCS-WLSEU-K9-4.0.xx.0.upgrade.iso upgrade file you need.



### Note

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In the filename *xx* represents the version number.

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## WLSE Upgrade License

The WLSE Upgrade license can only be used on a converted WLSE appliance. It cannot be transferred to a different machine at a later time.

The WLSE Upgrade license must be specific to the hostname of the network station that you are converting from WLSE to WCS. The installation and startup will proceed without the license but you cannot access the WCS user interface without the license.

To install the license, refer to the [Appendix B, “WCS and End-User Licenses.”](#)

