



## Performing Maintenance Operations

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This chapter describes how to back up and restore location server data and how to update the location server software. It also describes other maintenance operations. This chapter contains the following sections:

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### Recovering Lost Password

If you lose or forget the root password for the location appliance, you can recover the password by doing the following:

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- Step 1** Once the GRUB screen comes up, press **Esc** to enter the boot menu.
  - Step 2** Press **e** to edit.
  - Step 3** Navigate to the line beginning with "kernel," and press **e**.  
At the end of the line put a space, followed by the number one (1). Press **Enter** to save this change.
  - Step 4** Press **b** to begin boot.  
The boot sequence will commence and at the end the user will be given a shell prompt.
  - Step 5** The user may change the root password by invoking the **passwd** command.
  - Step 6** Enter and confirm the new password.
  - Step 7** Reboot the machine.
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# Backing Up and Restoring Location Server Data

This information describes how to back up and restore location server data. It also describes how to enable automatic backup.

## Backing Up Location Server Historical Data

Cisco WCS includes functionality for backing up location server data.

To back up location server data, follow these steps:

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- Step 1** In Cisco WCS, choose **Location > Location Servers**.
  - Step 2** Click the name of the server that you want to back up.
  - Step 3** Click **Maintenance** (left).
  - Step 4** Click **Backup**.
  - Step 5** Enter the name of the backup.
  - Step 6** Enter the time in seconds after which the backup times out.



### Note

- For location servers versions 2.1 and later, the timeout value is not required.
  - For location server versions 2.0 and earlier, the timeout indicates how long the full operation will take. The default value is 1800 seconds. For pre-2.0 versions of the location server, the timeout parameter refers only to the connection timeout value and a smaller value should be entered (120 seconds by default)
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- Step 7** Click **Submit** to back up the historical data to the hard drive of the server running Cisco WCS. Status of the backup can be seen on the screen while the backup is in process. Three items will display on the screen during the backup process: (1) Last Status field provides messages noting the status of the backup; (2) Progress field shows what percentage of the backup is complete; and (3) Started at field shows when the backup began noting date and time.



### Note

- You can run the backup process in the background while working on other location server operations in other WCS windows.
  - Backups are stored in the FTP directory you specify during the Cisco WCS installation
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## Restoring Location Server Historical Data

You can use Cisco WCS to restore backed-up historical data.

To restore location server data, follow these steps:

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- Step 1** In Cisco WCS, choose **Location > Location Servers**.
  - Step 2** Click the name of the server that you want to restore.

- Step 3** Click **Maintenance** (left).
- Step 4** Click **Restore**.
- Step 5** Choose the file to restore from the drop-down menu.
- Step 6** Enter the time in seconds after which restoration times out.

**Note**

- For location servers versions 2.1 or later, the timeout value is not required.
- For location server versions 2.0 or earlier, the timeout represents how long the full operation will take (by default, the user interface suggest 1800 seconds). For older location servers, the timeout represents the connection timeout and you should use a small value (120 seconds by default).

- Step 7** Click **Submit** to start the restoration process.
- Step 8** Click **OK** to confirm that you want to restore location server data from the Cisco WCS Server hard drive. When restoration is completed, Cisco WCS displays a message to that effect.

**Note**

You can run the restore process in the background while working on other location server operations in other WCS windows.

## Enabling Automatic Location Server Backup

You can configure Cisco WCS to perform automatic backups of location server data on a regular basis. To enable automatic location server data backup, follow these steps:

- Step 1** In Cisco WCS, choose **Administration > Scheduled Tasks**.
- Step 2** Click **Location Server Backup**.
- Step 3** Enable automatic backup by checking the **Enabled** check box.
- Step 4** In the “Max backups to keep” field, enter the maximum number of backups to keep on the system running Cisco WCS.
- Step 5** In the Interval field, enter the interval (in days) for performing automatic backups. By default, the location server performs automatic backups every 7 days.
- Step 6** In the Time of Day field, enter the time of day at which to perform backups.
- Step 7** Click **Submit**.
- Cisco WCS instructs all the location servers registered in its database to perform backups at the specified time interval. The backups are stored in the FTP directory you have specified during the Cisco WCS installation.

# Updating Location Appliance Software

You can update the location appliance using the WCS server or manually download the software using a console port connected to the location appliance.



## Note

For the latest WCS and location appliance compatibility and installation notes, refer to the appropriate location release note at [http://www.cisco.com/en/US/products/ps6386/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/ps6386/prod_release_notes_list.html).

Before downloading and updating software on the location appliance, note the following:

- The location appliance (server) image is compressed.
  - If upgrading a location appliance installed with a pre-2.0 version, you must first download and decompress the file (`gzip -d imageFilename`) **before** installing the image. After decompressing the file, run the resulting \*.bin installer file.

Enter the following command after the file download to make the file executable:

```
chmod + x. *.bin
```

- If upgrading a location appliance installed with 2.0 or later version of the location server image already installed, the software image automatically decompresses during its download from WCS.
- A backup of location appliance software releases 2.0.x and later cannot be restored on any location appliance running an earlier software release.
  - Before you upgrade a location appliance to 2.0.x release or later, Cisco recommends that you create a backup of the earlier release and archive it. This will enable you to convert an upgraded system to an earlier release, if necessary.
- Secure shell (SSH) version 1 (v1) is no longer supported in releases 2.1.x and later due to known security issues; however, SSH version 2 (v2) is supported.
  - If you are installing release 2.1.x or later, you must reboot the location appliance after software installation to remove support of SSH v1.
  - If you are installing release 2.0.x or earlier, you must edit the `sshd_config` file to remove support for SSH v1 by adding **Protocol 2** to the end of the script as noted below.

```
#override default of no subsystems
Subsystem sftp /usr/libexec/openssh/sftp-server
```

**Protocol 2**

With this addition, the script will match that of releases 2.1.x and later.

A restart is required to reread the config file after the edit is made.

- Approximately 5 minutes is required for the newly loaded location appliance software version to appear on the WCS Location > Location Server screen.



## Note

WCS queries for location appliance connectivity and database updates every 5 minutes by default.

## Downloading Software Using the WCS Server

Follow these steps to download software to a location appliance using WCS:

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- Step 1** Verify that you can ping the location server from the Cisco WCS Server or an external FTP server, whichever you are going to use for the application code download.
- Step 2** In Cisco WCS, choose **Location > Location Servers**.
- Step 3** Click the name of the server that is to receive the software download.
- Step 4** Click **Maintenance** (left).
- Step 5** Click **Download Software**.
- Step 6** To download software, do one of the following:
- To download software listed in the WCS directory, select **Select from uploaded images to transfer into the Location Server**. Then, choose a binary image from the drop-down menu.  
Cisco WCS downloads the binary images listed in the drop-down menu into the FTP server directory you have specified during the Cisco WCS installation.
- Step 7** Enter the time in seconds (between 1 and 999) after which software download times out.
- Step 8** Click **Download** to send the software to the /opt/installers directory on the location server.



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**Note** If upgrading a location server installed with a pre-2.0 version, you must first download and decompress the file (`gzip -d imageFilename`) **before** installing the image. After decompressing the file, run the resulting \*.bin installer file.

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**Note** If you have a 2.0 or later version of the location server image already installed, the software image automatically decompresses during its download from WCS.

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- To use downloaded software available locally or over the network, select the **Browse a new software image to transfer into the Location Server** and click **Browse**. Locate the file and click **Open**.



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**Note** After the image has been transferred to the location appliance, follow the instructions on the screen. Log in to the location appliance's CLI, stop the server, and run the installer image from the /opt/installers directory.

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## Downloading Software Using a Console Port

If you do not want to update the location appliance software using WCS, follow these steps to upgrade the software manually using CLI and a console:

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- Step 1** Transfer the new Location Server code onto the hard drive.
- a. Log in as root, and use the binary setting to send the application code (for example, *AIR-LOC2700-L-K9-1-2-17-0.bin*; 1-2-17-0 is the release number and changes with each release) from an external FTP server root directory. Your entries should look like this example:
 

```
# cd /opt/installers
# ftp <FTP Server IP address>
Name: <login>
Password: <password>
binary
get AIR-LOC2700-L-K9-1-2-17-0.bin
<CTRL-Z>
#
```
  - b. Verify that the application code (*AIR-LOC2700-L-K9-x-x-x-x.bin*) is in the location server /opt/installers directory.
  - c. Make sure that the *AIR-LOC2700-L-K9-x-x-x-x.bin* file has execute permissions for the root user. If not, enter **chmod 755 AIR-LOC2700-L-K9-x-x-x-x.bin**.
- Step 2** Manually stop the old Location Server application.
- a. Log in as root and enter **/etc/init.d/locserverd stop**.
- Step 3** Enter **/opt/installers/AIR-LOC2700-L-K9-x-x-x-x.bin** to install the new location appliance application files.
- Step 4** Start the new Location Server application by entering the following command:
- ```
/etc/init.d/locserverd start
```
-  **Caution** Only complete the next step that uninstalls the application files, if the system instructs you to do so. Removing the application files unnecessarily erases your historical data.
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- Step 5** Enter **/opt/locserver/uninstall/uninstall** to uninstall the location appliance application files.
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## Configuring an NTP Server

You can configure NTP servers to set up the time and date of the 2700 and 2710 location appliances.



### Note

You are automatically prompted to enable NTP and enter NTP server IP addresses as part of the automatic installation script. For more details on the automatic installation script, refer to the *Cisco 2700 Series Wireless Location Appliance Installation and Configuration Guide* at the following link: [http://www.cisco.com/en/US/products/ps6386/prod\\_installation\\_guides\\_list.html](http://www.cisco.com/en/US/products/ps6386/prod_installation_guides_list.html)

The `/etc/ntp.conf` file is the main configuration file in which you place the IP addresses or DNS names of the NTP servers you want to use (see the following example).

```
server ntp.mydomain.com # my corporate NTP
server 192.168.2.5 # my second NTP
```

To get NTP configured to start at bootup, enter the following:

```
[root@loc-server1]# chkconfig ntpd on
```

To start, stop, and restart NTP after booting, follow these examples:

```
[root@loc-server1]# service ntpd start
[root@loc-server1]# service ntpd stop
[root@loc-server1]# service ntpd restart
```

After configuring and starting NTP, make sure it is working properly. To test whether the NTP process is running, use the following command:

```
[root@loc-server1]# pgrep ntpd
```

You should get a response of plain old process ID numbers.

Enter the `ntpdate -u<serverIP>` command to force your server to become instantly synchronized with its NTP servers before starting the NTP daemon for the first time (see the following example).

```
[root@loc-server1]# service ntpd stop
[root@loc-server1] ntpdate -u 192.168.1.100
Looking for host 192.168.1.100 and service ntp
host found: ntpl.my-site.com
12 Aug 08:03:38 ntpdate[2472]: step time server 192.168.1.100 offset 28993.084943 sec
[root@smallfry tmp]# service ntpd start
```

**Note**

For more information on the NTP configuration, consult the Linux configuration guides.

## Defragmenting the Location Server Database

Over time, the location server's database might get fragmented, which might lead to a decrease in the server's performance. To fix this problem, use Cisco WCS to defragment the database.

To defragment the location server database, follow these steps:

- Step 1** In Cisco WCS, choose **Location > Location Servers**.
- Step 2** Click the name of the location server that you want to defragment its database.
- Step 3** Click **Administration** (left) to display the administrative configuration options.
- Step 4** Click **Advanced Parameters**.
- Step 5** Click **Defragment Database**.
- Step 6** Click **OK** to confirm that you want to defragment the location server's database.

## Running Java GC on the Location Server Memory

Cisco WCS enables you to run a Java General Cleanup (Java GC) program to free up memory on a location server.

To run the Java GC on a location server, follow these steps:

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- Step 1** In Cisco WCS, choose **Location > Location Servers**.
  - Step 2** Click the name of the location server whose database you want to defragment.
  - Step 3** Click **Administration** (left) to display the administrative configuration options.
  - Step 4** Click **Advanced Parameters**.
  - Step 5** In the Memory Information section, click **Run Java GC**.
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## Rebooting the Location Server Hardware

If you need to restart the location appliance, use Cisco WCS to reboot the hardware on which the location server is running.

To reboot the location server hardware, follow these steps:

- 
- Step 1** In Cisco WCS, choose **Location > Location Servers**.
  - Step 2** Click the name of the location server that you want to reboot.
  - Step 3** Click **Administration** (left) to display the administrative configuration options.
  - Step 4** Click **Advanced Parameters**.
  - Step 5** In the Advanced Commands section (bottom right), click **Reboot Hardware**.
  - Step 6** Click **OK** to confirm that you want to reboot the location server hardware.

The rebooting process takes a few minutes to complete.

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## Clearing Location Server Configurations

To clear the location server configuration and restore the factory defaults using Cisco WCS, follow these steps:

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- Step 1** In Cisco WCS, choose **Location > Location Servers**.
  - Step 2** Click the name of the server you want to configure.
  - Step 3** Click **Administration** (left) to display the administrative configuration options.
  - Step 4** Click **Advanced Parameters**.
  - Step 5** In the Advanced Commands section, click **Clear Configuration**.



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**Note** Using this command also clears the server's database.

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**Step 6** Click **OK** to clear the location server configurations.

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## Importing and Exporting Asset Information

This section describes how to import and export asset information stored in a flat text file to minimize manual entry.

### Importing Asset Information

To import asset information for the location server using Cisco WCS, follow these steps:

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- Step 1** In Cisco WCS, choose **Location > Location Servers**.  
The All Location Servers summary page appears.
- Step 2** Click the name of the server for which you want to import asset information.
- Step 3** Click **Administration** (left) to display the administrative configuration options.
- Step 4** Click **Import Asset Information**.
- Step 5** Enter the name of the text file or browse for the file name.  
Information stored in the imported file should be in the following format:
- a. tag format: #tag, 00:00:00:00:00:00, categoryname, groupname, assetname
  - b. station format: #station, 00:00:00:00:00:00, categoryname, groupname, assetname
- Step 6** Click **Import**.
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### Exporting Asset Information

To export asset information from the location server to a file using Cisco WCS, follow these steps:

- 
- Step 1** In Cisco WCS, choose **Location > Location Servers**.  
The All Location Servers summary page appears.
- Step 2** Click the name of the server from which you want export asset information.
- Step 3** Click **Administration** (left) to display the administrative configuration options.
- Step 4** Click **Export Asset Information**.
- Step 5** Click **Export**.  
You are prompted to **Open** (display to screen) or **Save** (to external PC or server) the asset file or to **Cancel** the request.

**Note**

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If you select **Save**, you are asked to select the asset file destination and name. The file is named “assets.out” by default. Click **Close** from the dialog box when download is complete.

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