C H A P T E R 9

Performing Maintenance Operations

This chapter describes how to back up and restore mobility services engine data and how to update the mobility services engine software. It also describes other maintenance operations.

This chapter contains the following sections:

Recovering a Lost Password

To recover a lost or forgotten password for a mobility services engine, follow these steps:

Step 1   When 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.

Recovering a Lost Root Password

To recover a lost or forgotten root password for a mobility services engine, follow these steps:

Step 1   When 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 enter a space and the number one (**1**). Press **Enter** to save this change.

Step 4   Press **b** to begin boot sequence.

At the end of the boot sequence, a shell prompt appears.

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Note   The shell prompt does not appear if you have setup a single user mode password.

Step 5   You can change the root password by entering the **passwd** command.

Step 6   Enter and confirm the new password.

Step 7   Restart the machine.

Backing Up and Restoring Mobility Services Engine Data

This information describes how to back up and restore mobility services engine data. It also describes how to enable automatic backup.

Backing Up Mobility Services Engine Historical Data

Cisco WCS includes functionality for backing up mobility services engine data.

To back up mobility services engine data, follow these steps:

Step 1   In Cisco WCS, click **Mobility > Mobility Service Engines.**

Step 2   Click the name of the mobility services engine 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.

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 mobility services engine operations in other Cisco WCS windows.

> **Note**   Backups are stored in the FTP directory you specify during the Cisco WCS installation.

Restoring Mobility Services Engine Historical Data

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

To restore mobility services engine data, follow these steps:

Step 1   In Cisco WCS, click **Mobility > Mobility Service Engines**.

Step 2   Click the name of the mobility services engine that you want to restore.

Step 3   Click **Maintenance** (left panel).

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.

Step 7   Click **Submit** to start the restoration process.

Step 8   Click **OK** to confirm that you want to restore the data from the Cisco WCS server hard drive.

When restoration is completed, Cisco WCS displays a message to that effect.

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> **Note**   You can run the restore process in the background while working on other mobility service engine operations in other Cisco WCS windows.

Enabling Automatic Location Data Backup

You can configure Cisco WCS to perform automatic backups of location data on a regular basis.

To enable automatic location service data backup on a mobility services engine, follow these steps:

Step 1   In Cisco WCS, click **Administration > Background Tasks**.

Step 2   Check the **Location Service Backup** check box.

Step 3   Select **Enable Task** from the Select a command drop-down menu. Click **GO**.

The backups are stored in the FTP directory you specified during the Cisco WCS installation.

Downloading Software to Mobility Services Engines

To download software to a mobility services engine, follow these steps:

Step 1   Verify that you can ping the mobility services engine 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, click **Mobility > Mobility Service Engines.**

Step 3   Click the name of the mobility services engine to which you want to download software.

Step 4   Click **Maintenance** (left panel).

Step 5   Click **Download Software**.

Step 6   To download software, do one of the following:

- To download software listed in the Cisco WCS directory, select **Select from uploaded images to transfer into the 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.

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

Step 7   Enter the time in seconds (between 1 and1800) after which software download times out.

Step 8   Click **Download** to send the software to the /opt/installers directory on the mobility services engine.

Step 9   After the image is transferred to the mobility service engine, log in to the mobility services engine CLI.

Step 10   Run the installer image from the */opt/installers* directory by entering the following command **./.bin** *mse imag,* This installs the software.

Step 11   To run the software enter **/etc/init.d/msed start**.

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> **Note**   To stop the software, enter **/etc/init.d/msed stop**, and to check status enter **/etc/init.d/msed status**.

Manually Downloading Software

If you do not want to automatically update the mobility services engine software using Cisco WCS, follow these steps to upgrade the software manually using a local (console) or remote (SSH) connection.

Step 1   Transfer the new mobility services engine image onto the hard drive.

    a.   Log in as root, and use the binary setting to send the image from an external FTP server root directory. The release note format is similar to the following and changes with each release: *CISCO-MSE-L-K9-x-x-x-x-64bit.bin.gz*.

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> **Note**   The mobility services engine image is compressed at this point.

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> **Note**   The default login name for the FTP server is *ftp-user*.

    Your entries should look like this example:

```
# cd /opt/installers
# ftp <FTP Server IP address>
Name: <login>
Password: <password>
binary
get CISCO-MSE-L-K9-5-1-28-0-64bit.bin.gz
<CTRL-Z>
#
```

    b.   Verify that the image (*CISCO-MSE-L-K9-x-x-x-x-64bit.bin.gz*) is in the mobility services engine /opt/installers directory.

    c.   To decompress (unzip) the image file enter the following command:

        gunzip *CISCO-MSE-L-K9-x-x-x-x-64bit.bin.gz*

        The decompression yields a *bin* file.

    d.   Make sure that the *CISCO-MSE-L-K9-x-x-x-x.bin* file has execute permissions for the root user. If not, enter **chmod 755** *CISCO-MSE-L-K9-x-x-x-x.bin*.

Step 2   Manually stop the mobility services engine.

    a.   Log in as root and enter **/etc/init.d/msed stop**.

Step 3   Enter **/opt/installers/***CISCO-MSE-L-K9-x-x-x-x.bin* to install the new mobility services engine image.

Step 4   Start the new mobility services engine software by entering the following command:

    /etc/init.d/msed start

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Caution   Only complete the next step that uninstalls the script files, if the system instructs you to do so. Removing the files unnecessarily erases your historical data.

Step 5   Enter **/opt/mse/uninstall** to uninstall the mobility services engine's script files.

Configuring NTP Server

You can configure NTP servers to set up the time and date of the mobility services engine.

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Note   • You are automatically prompted to enable NTP and enter NTP server IP addresses as part of the automatic installation script for the mobility services engine. For more details on the automatic installation script, refer to the *Cisco 3350 Mobility Services Engine Getting Started Guide* at the following link: http://www.cisco.com/en/US/products/ps9742/tsd_products_support_series_home.html

 • If you need to add or change an NTP server installation after a mobility services engine install, rerun the automatic installation script. You can configure the NTP server without adjusting the other values by just tabbing through the script.

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

Defragmenting the Mobility Services Engine Database

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

To defragment the mobility services engine database, follow these steps:

Step 1   In Cisco WCS, click **Mobility > Mobility Service Engines**.

Step 2   Click the name of the mobility services engine that you want to defragment its database.

Step 3   Click **System** (left panel).

Step 4   Click **Advanced Parameters**.

Step 5   In the Advanced Commands section, click **Defragment Database**.

Step 6   Click **OK** to confirm that you want to defragment the mobility services engine's database.

Rebooting the Mobility Services Engine Hardware

If you need to restart a mobility services engine, follow these steps:

Step 1   In Cisco WCS, click **Mobility > Mobility Service Engines.**

Step 2   Click the name of the mobility services engine that you want to reboot.

Step 3   Click **System** (left panel).

Step 4   Click **Advanced Parameters**.

Step 5   In the Advanced Commands section (right), click **Reboot Hardware**.

Step 6   Click **OK** to confirm that you want to reboot the mobility services engine hardware.

The rebooting process takes a few minutes to complete.

Shutting Down the Mobility Services Engine Hardware

If you need to shutdown a mobility services engine, follow these steps:

Step 1   In Cisco WCS, click **Mobility > Mobility Service Engines**.

Step 2   Click the name of the mobility services engine that you want to shutdown.

Step 3   Click **System** (left panel).

Step 4   Click **Advanced Parameters**.

Step 5   In the Advanced Commands section (right), click **Shutdown Hardware**.

Step 6   Click **OK** to confirm that you want to shutdown the mobility services engine.

Clearing Mobility Services Engine Configurations

To clear a mobility services engine configuration and restore its factory defaults, follow these steps:

Step 1   In Cisco WCS, click **Mobility > Mobility Service Engines**.

Step 2   Click the name of the mobility services engine you want to configure.

Step 3   Click **System** (left panel).

Step 4   Click **Advanced Parameters**.

Step 5   In the Advanced Commands section (right), click **Clear Configuration**.

Note   Using this command also clears the system's database.

Step 6   Click **OK** to clear the mobility services engine configurations.

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 mobility services engine using Cisco WCS, follow these steps:

Step 1   In Cisco WCS, click **Mobility > Mobility Service Engines.**

The All Servers summary window appears.

Step 2   Click the name of the mobility services engine for which you want to import asset information.

Step 3   Click **Location** (left panel).

Step 4   Click **Import Asset Information**.

Step 5   Enter the name of the text file or browse for the file name.

Information 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**.

Exporting Asset Information

To export asset information from the mobility services engine to a file using Cisco WCS, follow these steps:

Step 1   In Cisco WCS, click **Mobility > Mobility Service Engines.**

The All Servers summary window appears.

Step 2   Click the name of the server from which you want export asset information.

Step 3   Click **Location** (left panel).

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.

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Note   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.