Release Notes for Cisco Mobility Services Engine, Release 8.0.100.0

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These release notes describe what is new in this release, instructions to upgrade to this release, open and resolved caveats for this release, and related information for release 8.0.100.0 of the Cisco Mobility Services Engine (MSE) and its services.

- Location Service
- Wireless Intrusion Protection System (wIPS)
- Mobile Concierge Service
- CMX Analytics Service
- CMX Connect & Engage

Note Before installing this software, see the "Upgrading the MSE" section on page 12 for details on compatibility with the Cisco Wireless LAN controllers (WLC) and the Cisco Prime Infrastructure.

Note Licenses are required to run all services. For ordering information, see the "Base Location license" section on page 18.

Note Cisco MSE 3310 and 3350 are not supported beyond Release 7.3.

Contents

These release notes contain the following sections:

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Introduction

This section introduces the Cisco Mobility Services Engine (MSE) and the various services that it supports.

Cisco Mobility Services Engine and Services

The Cisco Mobility Services Engine supports various services within the overall Cisco Unified Wireless Network (CUWN).

The Cisco Mobility Services Engine currently supports the following services:

- Location Service—Also known as Context Aware Service (CAS). This is the core service of the Mobility Services Engine (MSE) that turns on Wi-Fi client tracking and location API functionality. Allows MSE to simultaneously track thousands of mobile assets and clients by retrieving contextual information such as presence, location, telemetry data, and historical information.
- Wireless Intrusion Protection Service—Provides wireless-specific network threat detection and mitigation against malicious attacks, security vulnerabilities, and sources of performance disruption within the CUWN infrastructure. wIPS visualizes, analyzes, and identifies wireless threats, and centrally manages mitigation and resolution of security and performance issues using Cisco monitor mode and Enhanced Local Mode (ELM) Access Points. Proactive threat prevention is also supported to create a hardened wireless network core that is impenetrable by most wireless attacks.
- Mobile Concierge—Mobile Concierge enables the Cisco Mobility Services Advertisement Protocol (MSAP). This protocol enables direct communication between the MSE and mobile devices, allowing content to be pushed directly to the mobile device pre-association. This functionality is dependent on the mobile device supporting 802.11u and MSAP.
- CMX Analytics Service—The CMX Analytics service analyzes wireless device location information in a particular network. The CMX Analytics service uses the data provided by the Cisco Mobility Services Engine (MSE) to calculate the location of Wi-Fi devices in the Wireless Local Area Network (WLAN). In addition, the FastLocate feature sends information about the RSSI strength of data packets to the Cisco WLC that can be used for location calculations.

  When a wireless device is enabled in a network, it transmits probe request packets to identify the wireless network in its neighborhood. Even after connecting to the access point in the WLAN, the client devices continue to transmit probe request packets to identify other access points for better quality of service. The access points gather these request and the associated RSSI from the various wireless devices and forwards them to the Wireless LAN Controller (WLC). The controller then forwards this information to the MSE.

The basic data that is collected from various APs, when analyzed, produces information and knowledge about the movement and behavior patterns of people who are using Wi-Fi devices in the building. For example, the building can be an airport, shopping mall, city center, and so on. The CMX Analytics service helps the airport authorities or the building owners to understand the movement of passengers or customer within their building. This helps them improve the signage, make changes to the under utilized areas, and so on.

- CMX Connect and Engage Service—Formerly known as Browser Engage Service. The CMX Connect and Engage service provides Connect, a guest Wi-Fi onboarding solution, as well as zone and message configuration for the CMX Software Development Kit (SDK).

Note From Release 7.5 onwards, Cisco Location engine is used to track clients and tags. If AeroScout engine is detected when you are upgrading from Release 7.2 and later Releases to Release 7.5, then a warning message is displayed about removing the AeroScout license and engine. If you accept, the installer will remove all partner engine sub services. If you do not accept the removal of partner engine, then the installer will exit.

Note Starting from Release 7.4, the evaluation licenses for 100 clients, 100 tags, and 10 wIPS monitor mode access points come standard on each Mobility Services Engine installed for 120 days, which earlier from Release 6.0 till Release 7.3 was installed for 60 days.

Note From Release 7.4 onwards, licensing is based on AP count and not based on tracked device count.

Software Compatibility Matrix

Table 1 lists the Cisco MSE compatibility matrix.

Table 2 lists the Cisco MSE compatibility matrix for legacy software versions.

Cisco MSE Compatibility Matrix

Table 1 lists the Cisco MSE compatibility matrix.

Table 1 Cisco MSE Compatibility Matrix

MSE 3355	MSE Virtual Appliance	PI	WLC	Converged Access	Remarks
8.0.100.0*	8.0.100.0	2.2 2.1.1*** 1.4*****	8.0.100.0 7.6.130.0 7.6.120.0 7.6.110.0* 7.6.100.0* 7.5.102.0**** 7.4.121.0**** 7.4.110.0**** 7.4.100.60**** 7.4.100.0**** 7.3.112.0**** 7.3.101.0**** 7.2.111.3**** 7.2.110.0**** 7.2.103.0**** 7.0.240.0**** 7.0.235.3**** 7.0.235.0**** 7.0.230.0**** 7.1.91.0**** 7.0.220.0**** 7.0.116.0**** 7.0.98.218**** 7.0.98.0****	3.7.0 3.6.1 3.6.0 3.3.5 3.3.4 3.3.3 3.3.2 3.2.3 3.2.2	* For FIPS compliance, MSE 8.0 works with PI 2.2, Wireless LAN Controller (WLC) 8.0.100.0, and Converged access 3.6.0. *** While using PI 2.1.1, the wIPS will have MSE 7.4 feature parity. **** wIPS profile cannot be applied to Cisco WLC Version 7.5 or prior using the Prime Infrastructure 2.2. ***** If you are you are running Analytics and Location services on different machines and using Cisco Prime Infrastructure 1.4 Version, then additional setup is required. You can download the Setup script from this location: https://software.cisco.com/download/release.html?mdfid=283765380&flowid=24866&softwareid=282487503&release=8.0.110.0&relind=AVAILABLE&rellifecycle=ED&reltype=latest

Table 1 Cisco MSE Compatibility Matrix (continued)

MSE 3355	MSE Virtual Appliance	PI	WLC	Converged Access	Remarks
7.6.120.0	7.6.120.0	2.1.1** 1.4.2	7.6.120.0 7.6.110.0* 7.6.100.0* 7.5.102.0 7.4.121.0 7.4.110.0 7.4.100.60 7.4.100.0 7.3.112.0 7.3.101.0 7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	—	**Prime Infrastructure 2.1.1 allows you to manage Cisco MSE Releases 7.5.102.101 and 7.6.120.0 with feature compatibility of Cisco MSE Release 7.4.121.0. Prime Infrastructure 2.1.1 does not support any new features introduced in Cisco MSE Releases 7.5.102.101 and 7.6.120.0. **Note** For PI 2.1.1 to work with MSE 7.6, you need to install a patch for Cisco bug Id CSCup93101. Contact Cisco TAC for a patch.

Table 1 Cisco MSE Compatibility Matrix (continued)

MSE 3355	MSE Virtual Appliance	PI	WLC	Converged Access	Remarks
7.6.100.0	7.6.100.0	Update 1 for 1.4.0.45* Update 2 for 1.4.0.45**	7.6.110.0* 7.6.100.0* 7.5.102.0 7.4.121.0 7.4.110.0 7.4.100.60 7.4.100.0 7.3.112.0 7.3.101.0 7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	—	*The Update 1 for Cisco Prime Infrastructure 1.4.0.45 enables you to manage Cisco WLC 7.6.x with the features of Cisco WLC 7.5.102.0 and earlier releases. This release does not support any new features of Cisco WLC 7.6.x including the new access point platforms. **The Update 2 for Cisco Prime Infrastructure 1.4.0.45 enables you to manage Cisco WLC 7.6.x with the features of Cisco WLC 7.5.102.0 and earlier releases. This release does not support any new features of Cisco WLC 7.6.x. However, this release supports two new AP platforms—Cisco 702w and Cisco 2700.

Table 1 Cisco MSE Compatibility Matrix (continued)

MSE 3355	MSE Virtual Appliance	PI	WLC	Converged Access	Remarks
7.6.100.0	7.6.100.0	2.0*	7.6.110.0** 7.6.100.0** 7.5.102.0** 7.4.121.0 7.4.110.0 7.4.100.60 7.4.100.0 7.3.112.0 7.3.101.0 7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	3.2.2** 3.3.2**	*Cisco Prime Infrastructure 2.0 enables you to manage Cisco WLC 7.5.102.0 with the features of Cisco WLC 7.4.110.0 and earlier releases. Prime Infrastructure 2.0 does not support any features that are introduced in Cisco WLC 7.5.102.0 or later releases including the new access point platforms. **Supports 7.4 MSE feature parity—CAS, wIPS, and CMX Analytics service. **Note** wIPS profile cannot be pushed to Cisco Wireless LAN Controller (WLC) Version 7.5 or prior using the Prime Infrastructure 1.4.x or 2.x with MSE 7.6 Release.
7.5.102.101	7.5.102.101	Update 1 for 1.4.0.45 1.4.0.45	7.5.102.0 7.4.121.0 7.4.110.0 7.4.100.60 7.4.100.0 7.3.112.0 7.3.101.0 7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	—	—

Table 1 Cisco MSE Compatibility Matrix (continued)

MSE 3355	MSE Virtual Appliance	PI	WLC	Converged Access	Remarks
7.5.102.101	7.5.102.101	2.0*	7.5.102.0 7.4.121.0 7.4.110.0 7.4.100.60 7.4.100.0 7.3.112.0 7.3.101.0 7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	3.2.2** 3.3.2**	*Cisco Prime Infrastructure 2.0 enables you to manage Cisco WLC 7.5.102.0 with the features of Cisco WLC 7.4.110.0 and earlier releases. Prime Infrastructure 2.0 does not support any features that are introduced in Cisco WLC 7.5.102.0 or later releases including the new access point platforms. **Supports 7.4 MSE feature parity—CAS, wIPS, and CMX Analytics service.

Table 2 Cisco MSE Compatibility Matrix—Legacy Software Versions

MSE 3355	MSE 3350	MSE Virtual Appliance	AeroScout CLE	WCS	WLC	Prime Infrastructure / NCS
7.4.121.0	—	7.4.121.0	4.5.2.16 4.4.2.11	—	7.4.121.0 7.4.110.0 7.4.100.60 7.4.100.0 7.3.112.0 7.3.101.0 7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	2.0 Update 1 for 1.4.0.45 1.4.0.45 Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20

Table 2 Cisco MSE Compatibility Matrix—Legacy Software Versions (continued)

MSE 3355	MSE 3350	MSE Virtual Appliance	AeroScout CLE	WCS	WLC	Prime Infrastructure / NCS
7.4.110.0	—	7.4.110.0	4.5.2.16 4.4.2.11	—	7.4.110.0 7.4.100.60 7.4.100.0 7.3.112.0 7.3.101.0 7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	2.0 Update 1 for 1.4.0.45 1.4.0.45 Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20
7.4.100.0	—	7.4.100.0	4.5.2.16 4.4.2.11 4.4.2.7	—	7.4.100.0 7.3.112.0 7.3.101.0 7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	Update 1 for 1.4.0.45 1.4.0.45 Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20
7.3.101.0	7.3.101.0	7.3.101.0	4.4.2.4	—	7.3.112.0 7.3.101.0 7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20 1.2.1.12

Table 2 Cisco MSE Compatibility Matrix—Legacy Software Versions (continued)

MSE 3355	MSE 3350	MSE Virtual Appliance	AeroScout CLE	WCS	WLC	Prime Infrastructure / NCS
7.2.110.0	7.2.110.0	7.2.110.0	4.4.2.4	—	7.2.111.3 7.2.110.0 7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20 1.2.1.12 1.1.1.24 1.1.0.58
7.2.103.0	7.2.103.0	7.2.103.0	4.4.1.4	—	7.2.103.0 7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20 1.2.1.12 1.1.124 1.1.0.58
7.0.240.0	7.0.240.0	—	4.3.1.10	7.0.240.0	7.0.240.0 7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20 1.2.1.12 1.1.1.24 1.1.0.58 1.0.2.29
7.0.230.0	7.0.230.0	—	4.3.1.19	7.0.230.0	7.0.235.3 7.0.235.0 7.0.230.0 7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20 1.2.1.12 1.1.1.24 1.1.0.58 1.0.2.29

Table 2 Cisco MSE Compatibility Matrix—Legacy Software Versions (continued)

MSE 3355	MSE 3350	MSE Virtual Appliance	AeroScout CLE	WCS	WLC	Prime Infrastructure / NCS
7.0.220.0	7.0.220.0	—	4.3.1.19	7.0.220.0	7.1.91.0 7.0.220.0 7.0.116.0 7.0.98.218 7.0.98.0	Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20 1.2.1.12 1.1.1.24 1.1.0.58 1.0.2.29 1.0.1.4
7.0.201.204	7.0.201.204	—	4.2.4.4	7.0.172.0	7.0.116.0 7.0.98.218 7.0.98.0	Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20 1.2.1.12 1.1.1.24 1.1.0.58 1.0.2.29 1.0.1.4 1.0.0.96
7.0.112.0	7.0.112.0	—	4.2.4.4	7.0.164.3 7.0.164.0	7.0.98.218 7.0.98.0	Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20 1.2.1.12 1.1.1.24 1.1.0.58 1.0.2.29 1.0.1.4 1.0.0.96
7.0.105.0	7.0.105.0	—	4.2.4.4	7.0.164.3	7.0.98.218	Update 4 for 1.3.0.20 Update 1 for 1.3.0.20 1.3.0.20 1.2.1.12 1.1.1.24 1.1.0.58 1.0.2.29 1.0.1.4 1.0.0.96

Note AeroScout CLE is no longer bundled with MSE starting from Release 7.5 Release. However, AeroScout CLE is compatible with MSE Release 7.5 and above using the API interface.

Note Cisco MSE 3310 and 3350 are not supported beyond Release 7.3.

Note This compatibility matrix lists only the compatibility information of Cisco MSE with other Cisco wireless products. This matrix does not reflect compatibility information between Cisco WLC and Cisco Prime Infrastructure or Cisco NCS. For compatibility information about Cisco Prime Infrastructure with Cisco WLC and other wireless products, see the Cisco Prime Infrastructure Release Notes.

Upgrading the MSE

For instructions on automatically downloading the software using the Prime Infrastructure or for manually downloading the software using a local or remote connection, see the "Updating Mobility Services Engine Software" section in Chapter 2 of the *Cisco Mobility Services Engine Getting Started Guide.*

You can find these documents at the following URL:

http://www.cisco.com/en/US/products/ps9742/prod_installation_guides_list.html

This section contains the following topics:

Upgrade Scenarios

The following scenarios are available to upgrade MSE to 8.0.100.0 from 7.x releases:

Note Do not run uninstall on the 7.4, 7.5, or 7.6 Release, instead stop the MSE and directly run the installer.

Note Cisco MSE no longer supports management from HTTP. As a workaround, use HTTPS or allow HTTP in the Cisco MSE firewall with "iptables - L".

Upgrading the MSE to 8.0.100.0 from 7.x Release

To upgrade from 7.x release to 8.0.100.0, follow these steps:

Note You must untar the MSE software image before placing it in the **/opt/installers** directory (CSCuo09569).

Step 1 Download the 8.0.100.0 software image from Cisco.com. The file to be downloaded is: **CISCO-MSE-L-K9-8-0-100-0-64bit.bin.tar.gz**.

Warning **If you are downloading the above file on a Windows system, remember that some browsers modify the downloaded filename. If the downloaded filename is not correct, you must update it to the correct filename before using Prime Infrastructure to transfer the file, or directly copying the file to MSE. The correct filename is CISCO-MSE-L-K9-8-0-100-0-64bit.bin.tar.gz**

Step 2 Back up the MSE using Prime Infrastructure (highly recommended).

Step 3 To download software to a Mobility Services Engine, choose **Services > Mobility Services Engine** from the Prime Infrastructure UI.

Step 4 Click the name of the mobility services engine to which you want to download software.

Step 5 Choose **System > Maintenance > Download Software** from the left sidebar menu.

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

- To download software listed in the Prime Infrastructure directory, select the **Select from uploaded images to transfer into the Server** radio button. Choose a binary image from the drop-down list.

  Prime Infrastructure downloads the binary image to the FTP server directory you specified during the Prime Infrastructure installation.

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

Step 7 Click **Download** to send the software to the /opt/installers directory on the Mobility Services Engine.

Step 8 When using Prime Infrastructure to transfer the image to MSE, the file will be decompressed, and the "**.gz**" will be removed from the filename. Verify that the MSE image file (`CISCO-MSE-L-K9-8-0-100-0-64bit.bin.tar`) is in the Mobility Services Engines **/opt/installers** directory.

Note When copying the image file directly to the MSE, without using Prime Infrastructure, the filename on MSE will remain unchanged and it will be `CISCO-MSE-L-K9-8-0-100-0-64bit.bin.tar.gz`.

Step 9 Go to /opt/installers and create a directory to extract the installer files using the command: **`mkdir 8.0.100.0`**

Step 10 Move to the new directory using the command: **`cd 8.0.100.0`**

Step 11 To unpack the installation files, run the following command:

`tar xvf ../CISCO-MSE-L-K9-8-0-100-0-64bit.bin.tar`

This unpack yields the following three files. These three files must be in the same directory when running the installer. The installation process uses the MSE_PUB.pem and signhash.bin to validate the integrity of the MSE image.

- **Cisco-MSE-L-K9-8-0-100-0-64bit.bin**
- **MSE_PUB.pem**
- **signhash.bin**

Note If the MSE image file was transfered directly to the MSE and not downloaded using PI, then the following command should be used to decompress and unpack the installer files:
`tar zxvf ../CISCO-MSE-L-K9-8-0-100-0.bin.tar.gz`

Step 12 Make sure that the `CISCO-MSE-L-K9-8-0-100-0-64bit.bin` file has execute permissions for the root user. If not, enter the following command:

`chmod +x CISCO-MSE-L-K9-8-0-100-0-64bit.bin`

Step 13 Manually stop the MSE service using the following command:

`/etc/init.d/msed stop` or **`service msed stop`**

Step 14 To install the new Mobility Services Engine image, enter the following command:

`/opt/installers/8.0.100.0/CISCO-MSE-L-K9-8-0-100-0-64bit.bin`

Note The installation process takes a minimum of 30 minutes. The actual installation time depends on the amount of data present in your system. After the installation, you need to reboot the system before starting the MSE.

Step 15 Start the new Mobility Services Engine software by entering the following command. If you attempt to start the MSE, it just returns an error saying that MSE needs to be rebooted.

`/etc/init.d/msed start`

Step 16 The system must be rebooted after upgrading the MSE. After exiting the installer, enter the command `reboot` at the prompt to reboot the MSE.

Restoring an Old Database to 8.0.100.0

To restore an old database, follow these steps:

Note The regular Restore option on the Prime Infrastructure cannot be used to restore a backup from an older MSE releases such as 6.0, 7.0.105.0, or 7.0.110.0 onto 8.0.100.0.

Step 1 Stop the MSE service: `/etc/init.d/msed stop`

Step 2 Uninstall the software and select to delete the database.

Step 3 To restore the backup data, you must first install the appropriate version of MSE software. Use the table below to determine the correct version of MSE to install.

Table 3 Release Matrix

Version of Database to be restored	New Version that Should be Installed
5.2.0	6.0, 7.0
6.0	6.0, 7.0

Step 4 Once you have installed the software, restore the desired database backup onto this new MSE using the regular procedure from Prime Infrastructure.

Step 5 To migrate data to 7.x.x.x, follow the steps in the "Upgrading the MSE to 8.0.100.0 from 7.x Release" section on page 13.

Compressed Software Image

If you download the Mobility Services Engine image *.gz file using the Prime Infrastructure, the Mobility Services Engine automatically decompresses (unzips) it, and you can proceed with the installation as before.

If you manually download the compressed *.gz file using FTP, you must decompress the files before running the installer. These files are compressed under the LINUX operating system and must be decompressed using the **`tar zxvf`** command. For more information, see the *Manually Downloading Software* section in the *Cisco Connected Mobile Experiences Configuration Guide, Release 8.0*.

To make the bin file executable, use the **chmod +x filename.bin** command.

The MSE virtual appliance is distributed as:

- Open Virtualization Format (OVF) for VMware
- Virtual Hard Disk (VHD) for Microsoft Hyper-V
- Open Virtualization Format (OVF) for Citrix XenServer

For more information on deploying the MSE virtual appliance, see the *Cisco MSE Virtual Appliance Configuration Guide, Release 8.0*.

Updated Software Version Shown in the Prime Infrastructure After Polling

After a software update, the new Mobility Services Engine software version does not immediately appear in Mobility Services Engine queries on the Prime Infrastructure. Up to 5 minutes is required for the new version to appear. Prime Infrastructure, by default, queries the Mobility Services Engine for status every 5 minutes.

Licensing Information for MSE

The Cisco Mobility Services Engine (MSE) provides a wide variety of location-based services. To enable these services, the following are required:

- Cisco MSE hardware or software appliance

  - Physical Appliance—An activation license is not required.
  - Virtual Appliance—Virtual Appliance instance requires a MSE Virtual Appliance Activation license (L-MSE-7.0-K9). It is not sufficient to simply have a service/feature license on an MSE Virtual Appliance.
- Licenses
- Support

There are three types of MSE licenses available:

Table 4 MSE License Types

MSE Service License	Provides
Base Location License	Provides advanced spectrum capability with the ability to detect, track, and trace rogue devices, Cisco CleanAir® interferers, Wi-Fi clients, and RFID tags. The Base Location license also enables customers and partners to use standard MSE APIs.

Table 4 MSE License Types (continued)

MSE Service License	Provides
CMX License	Provides the above Base Location license capabilities and the CMX features: • CMX Analytics, a user-friendly location analytics platform to view and analyze how, where, and when visitors move through a venue. • CMX Connect and Engage for a customizable and location-aware captive portal to on-board guest users to Wi-Fi including: • CMX for Facebook Wi-Fi, helping guests connect to Wi-Fi and use the Internet. Enterprises or merchants gain social demographic data via Facebook Insights. • CMX SDK for enabling organizations to integrate Wi-Fi-based indoor navigation with push notification and auto-launch capabilities into mobile applications.
wIPS License	Provides complete wireless threat detection and mitigation in the wireless network infrastructure • Rogue Detection, Classification, and Mitigation • Over-the-Air Attack Detection • Security Vulnerability Monitoring • Performance Monitoring, and Auto-Optimization • Management, Monitoring, and Reporting Requires a separate MSE running the wIPS service. There are 3 deployment options: • Enhanced Local mode: Number of wIPS licenses required equals the number of access points in local mode (data serving) deployed in the network. • Monitor mode: Number of wIPS licenses required equals the number of access points configured in the full-time monitor mode. • Wireless Security Module (WSM)/Monitor module: Number of wIPS licenses required equals the number of wireless security and spectrum intelligence modules deployed in the network.

Client and wIPS licenses are installed from the Prime Infrastructure UI (Administration > License Center). See, Chapter 2: “Adding and Deleting Mobility Services Engines and Licenses” in the *Cisco Connected Mobile Experiences Configuration Guide, Release 8.0, Cisco Wireless Intrusion Prevention System, Release 8.0*, and *Cisco Location Analytics Configuration Guide, Release 8.0* respectively.

For complete details on ordering and downloading licenses, see the *Cisco Mobility Services Engine Licensing and Ordering Guide* at the following URL:
http://www.cisco.com/en/US/prod/collateral/wireless/ps9733/ps9742/data_sheet_c07-473865.html

Base Location license

Table 5 Base Location License

MSE Release	License Name	Based On
Post 7.4	Base Location Services license	Number of APs
7.4	Location services license	Number of APs
Prior 7.4	Context Aware Services (CAS) license	Number of elements

The Base Location Services License is equivalent to the Location Services license in software release 7.4, which itself replaced the Context Aware Services (CAS) license in the software versions prior to release 7.4. This license is used for device endpoint tracking, enabling basic calculation of the x,y coordinates of a tracked device. The license count is based on the number of APs supported since release 7.4.

The part number format of this license is L-LS-100AP. Here 'LS' refers to Location Services and '100AP' refers to 100 AP count.

CMX License

Table 6 CMX License

MSE Release	License Name	Based On
Post 7.4	CMX license	Number of APs
7.4	Advanced Location Services license	Number of APs
Prior 7.4	Nonexistent	—

The CMX license, called Advanced Location license in release 7.4, supports new features, such as:

- CMX Analytics
- CMX Connect
- CMX for Facebook Wi-Fi
- Mobile Concierge

The CMX license includes the Base Location license features used for device tracking and the new additional features of CMX.

The part number format of this license is L-AD-LS-100AP. Here 'AD-LS' refers to Advanced Location services license and '100AP' gives the AP count supported.

wIPS License

Table 7 wIPS License

MSE Release	License Name	Based On
Post 7.4	wIPS license	Number of APs
7.4	wIPS license	Number of APs
Prior 7.4	wIPS license	Number of elements

There are 3 deployment options:

- Enhanced Local mode: Number of wIPS licenses required equals the number of access points in local mode (data serving) deployed in the network.
- Monitor mode: Number of wIPS licenses required equals the number of access points configured in the full-time monitor mode.
- Monitor module: Number of wIPS licenses required equals the number of wireless security and spectrum intelligence modules deployed in the network.

Note AP with a third module needs a monitor mode wips license even if AP is running in local mode.

- Provides advanced spectrum capability and the ability to detect presence and track rogue device, interferers, Wi-Fi clients and RFID tags. Cisco Base Location also enables third-party solutions that use the MSE API.

Licensing is based on the number of access points in the environment. The licenses are additive.

Note Connected Mobile Experiences licenses will be End of Life with standard 6 months of End of Sales and until then both Connected Mobile Experiences and LS licenses will co-exist.

MSE License Product Numbers and SKUs

Ordering Support for Physical and Virtual Appliance

The MSE Virtual appliance activation license is required for every instance of an MSE Virtual Appliance. No separate license is required for high availability. To enable high availability, you need to deploy a primary Cisco MSE appliance with Cisco Connected Mobile Experiences and wIPS licenses, and a secondary Cisco MSE appliance without any Cisco Connected Mobile Experiences or wIPS license

Table 8 lists the ordering support for physical and virtual appliance.

Table 8 Ordering Support for Physical and Virtual Appliance

MSE Model	SKU	Service SKU	Description
MSE 3355 (Physical Appliance)	AIR-MSE-3355-K9	CON-SNT-MSE3355	Hardware and licenses support

Table 8 Ordering Support for Physical and Virtual Appliance

MSE Model	SKU	Service SKU	Description
MSE Virtual Appliance	L-MSE-7.0-K9	CON-SAU-LMSE7K	Software and licenses support

Licenses Summary

Table 9 License Summary

Base Location License SKU	CMX License SKU	wIPS Monitor Mode/Monitor Mode SKUs	wIPS Enhanced Local Mode SKUs	Description
L-LS-1AP	L-AD-LS-1AP	L-WIPS-MM-1AP	L-WIPS-ELM-1AP	Supports 1 AP
L-LS-100AP	L-AD-LS-100AP	L-WIPS-MM-100AP	L-WIPS-ELM-100AP	Supports 100 APs
L-LS-1000AP	L-AD-LS-1000AP	L-WIPS-MM-1000AP	L-WIPS-ELM-1000AP	Supports 1000 APs

- 1 AP license gives 10 elements for evaluation license.
- 100 AP license gives 1000 elements for evaluation license.
- 1000 AP license gives 10000 elements for evaluation license.

Base Location Services Licenses

Table 10 Base Location Services Licenses

License SKU	Description
L-LS-1AP	1 AP Base Location Services license
L-LS-100AP	100 AP Base Location Services license
L-LS-1000AP	1000 AP Base Location Services license

CMX Licenses (Previously known as Advanced Location Services)

Table 11 CMX Licenses

License SKU	Description
L-AD-LS-1AP	1 AP CMX license (Advanced Location Services)
L-AD-LS-100AP	100 AP CMX license (Advanced Location Services)
L-AD-LS-1000AP	1000 AP CMX license (Advanced Location Services)

The CMX licenses include the Base Location Service licenses. There is no need to purchase a separate Base Location Service license when purchasing a CMX license.

Base Location Services to CMX Upgrade License

Table 12 Base Location Services to CMX Upgrade License

License SKU	Description
L-UPG-LS-1AP	1 AP Upgrade from Base Location to CMX license.

wIPS Enhanced Local Mode License

Table 13 wIPS Enhanced Local Mode License

License SKU	Description
L-WIPS-ELM-1AP	1 AP wIPS Enhanced Local Mode License
L-WIPS-ELM-100AP	100 AP wIPS Enhanced Local Mode License
L-WIPS-ELM-1000AP	1000 AP wIPS Enhanced Local Mode License

wIPS Monitor Mode/Monitor Module License

Table 14 wIPS Monitor Mode Licenses

License SKU	Description
L-WIPS-MM-1AP	1 AP wIPS Monitor Mode License
L-WIPS-MM-100AP	100 AP wIPS Monitor Mode License
L-WIPS-MM-1000AP	1000 AP wIPS Monitor Mode License

Cisco MSE Virtual Appliance Product Specifications

Table 15 Cisco MSE Virtual Appliance Product Specifications

Feature	Cisco MSE Virtual Appliance
Virtual appliance versions	VMware ESX/ESXi version 4.1/5.0/5.1/5.1 or higher Xen Server version 6.1 or higher Hyper-V version 2008, 2012 (Note: Hyper-V version 2012R2 is not supported.

Table 15 Cisco MSE Virtual Appliance Product Specifications

Feature	Cisco MSE Virtual Appliance
Minimum Server Requirements	**Cisco MSE High-End Virtual Appliance** • Base location license: 5000 access points • CMX license: 5000 access points • wIPS license: 10,000 access points • Maximum number of tracked devices: 50,000 (regardless of number of access point licenses). Note that the end device scaling guidelines differ if using FastLocate or presence as a method for determining device location. See the MSE ordering and licensing guide for more details. • Minimum RAN: 24 GB • Minimum hard disk space allocation: 500 GB with SAS drivers and 1600 I/O operations per second (IOPS) • Processors: 16 vCPUs at 2.0 GHz or faster and a passmark (cpubenchmark.net) no less than 4000 • Cisco UCS ® ref: Cisco UCS C240 M3 Rack Server or C460 M2 High-Performance Rack Server
	Cisco MSE Standard Virtual Appliance • Base Location license: 2500 access points • CMX license: 2500 access points • wIPS license: 6000 access points • Maximum number of tracked devices: 25,000 (regardless of number of access point licenses). Note that the end device scaling guidelines differ if using FastLocate or presence as a method for determining device location. See the MSE ordering and licensing guide for more details. • Minimum RAM: 16 GB • Minimum hard disk space allocation: 500 GB with SAS drivers and 1000 IOPS • Processors: 8 vCPUs at 2.0 GHz or faster and a passmark (cpubenchmark.net) no less than 4000 • Cisco UCS ref: Cisco UCS C240 M3 Rack Server
	Cisco MSE Low-End Virtual Appliance Base Location license: 200 access points • CMX license: Does not support CMX license • wIPS license: 2000 access points • Maximum number of tracked devices: 2000 (regardless of number of access point licenses). Note that the end device scaling guidelines differ if using FastLocate as a method for determining device location. See the MSE ordering and licensing guide for more details. • Minimum RAM: 8 GB • Minimum hard disk space allocation: 250 GB with SAS drives and 900 IOPS • Processors: 4 vCPUs at 2.0 GHz or faster and a passmark (cpubenchmark.net) no less than 4000

What's New in This Release

This section provides a brief description of what is new in Release 8.0. For more information about instruction on how to configure these features, see the *Cisco Connected Mobile Experiences Configuration Guide*, *Cisco Wireless Intrusion Prevention System Configuration Guide*, *Cisco CMX Analytics Service Configuration Guide*, *Cisco CMX Connect and Engage Configuration Guide*, and *Cisco MSE Virtual Appliance Configuration Guide* at

http://www.cisco.com/en/US/products/ps9742/products_installation_and_configuration_guides_list.html

Presence Analytics

Presence analytics is a comprehensive location analytics and engagement platform that detects presence of visitors by determining which is the nearest access point to the visitor Wi-Fi device. With the CMX location analytics, organizations get a lot of useful business intelligence from the wireless and location technologies. For location technology to work, you require precise maps and triangulated computation from at least three Access Points (APs). In case of organizations with one or two APs, it is not possible to do a triangulated location computation. With presence analytics, the organizations with one or two AP deployments can still use the wireless technology to understand the customer pattern and behavior.

The presence analytics uses Received Signal Strength Indication (RSSI), along with the duration of high signal strength to determine whether a client device is in the site or just passing by. Data collected by the APs is reported in the Analytics dashboard.

The Presence Analytics provides:

- Location statistics to improve customer engagement and loyalty across sites.
- Insight into mobile behavior across locations and enables you to enhance your on site customer experience, make better decisions about how to engage the visitors, and optimize business strategies.
- Statistics on the number of first visitors vs. repeat visitors and number of devices passing by vs. devices spending time in the store.

Visitor Connect Updates

- Visitor connect in Release 8.0 provides a scalable and customizable guest portal.
- Provides location-specific guess access to the customers.
- Visitor policy quota limit configuration
  - In Release 8.0, Visitor connect has two new system created user groups: SOCIAL and BASIC. By default the usage limit is 0 MB. The Administrators can change the usage limits based on the user type.
  - When a visitor is redirected to Visitor Connect splash page, the user is given an option to login with social network credentials. The user is placed into the SOCIAL group if social network credentials are used. The user is placed into the BASIC group if no social credentials are used.
  - If the usage limit of the visitor is zero, then the MSE does not check usage against the limit. If the usage is greater than zero, the location MSE checks usage against the limit for visitors with the usage limit. When the client usage is over the limit, the MSE sends NMSP message to Controllers to de-authenticate the user. When the visitor tries to connect again, he will be redirected to visitor connect portal.

CMX Facebook Wi-Fi

The CMX Facebook Wi-Fi allows customer to use the Facebook page as the Wi-Fi captive page. This allows customers to access the free Wi-Fi from their mobile devices after checking into their Facebook account. The Facebook Wi-Fi helps business to learn more about their customers.

The CMX Facebook Wi-Fi is based on WLAN Web Passthrough authentication on Wireless LAN Controllers (WLC). The controllers intercepts the HTTP/HTTPs traffic and redirects client browser to the MSE. The MSE finds client location and redirects the client browser location to the configured location specific Facebook page. After successful Facebook sign-in and check-in, the MSE redirects client browser to the specific Facebook page.

The CMX Facebook Wi-Fi provides:

- Simple free Wi-Fi
- In-venue promotions
- Provides demographic data
- Increases brand exposure

Note CMX Facebook Wi-Fi on MSE 8.0 requires Cisco WLC 8.0. With Cisco WLC 7.6 and earlier versions, the session duration cannot be enforced.

CMX SDK

- Client Side SDK—The Mobile Application SDK is part of the overall CMX Engage strategy. This is a software development kit (client side and server side) for Apple iOS Version 6.x and higher and Android platforms with minimum Version of 2.3 or higher. The App SDK leverages CMXs location capability to provide indoor capabilities and other application-enabled services.
- CMX Mobile Application Server—The CMX mobile application server provides indoor location and navigation of a device on the map. The location is updated as the device moves through a venue and helps navigate to certain defined location for the users. The SDK connects with the CMX Mobile Application Server to determine the users location.

IPV6 Updates

When you configure a remote syslog server or NTP server, you can use either IPV4 or IPV6 address.

FastLocate

Warning **Please check your country regulations before turning on FastLocate in public venues.**

Mobility Services Engine (MSE) delivers faster location updates for Wi-Fi clients using signal strength (RSSI) from probe and data packets. This requires a deployment of AP 3600/3700 with Wireless Security Module (WSM). All APs in the deployment must have the WSM module. It is a 1:1 mapping.

Wi-Fi client location is refreshed more frequently leading to a better blue dot experience. CMX FastLocate can be turned on simultaneously with advanced security on existing modular APs.

Fastlocate on Prime Infrastructure and Cisco WLC is known as Packet RSSI and Data Packet RSSI respectively.

FIPS Compliance

CMX 8.0 Release is enhanced to be Federal Information Processing Standard (FIPS) 140-2 compliant. By default, FIPS mode (also knows as Root Access Control) is disabled. FIPS mode can be enabled by customers who need the CMX system to be FIPS compliant.

Before FIPS mode is enabled:

- The user have full root access to the CMX server via SSH or console.
- CMX can establish NMSP connection to the following controller releases:
  - Cisco WLC release 8.0 and earlier versions
  - Cisco IOS XE release 3.6.0 and earlier versions.

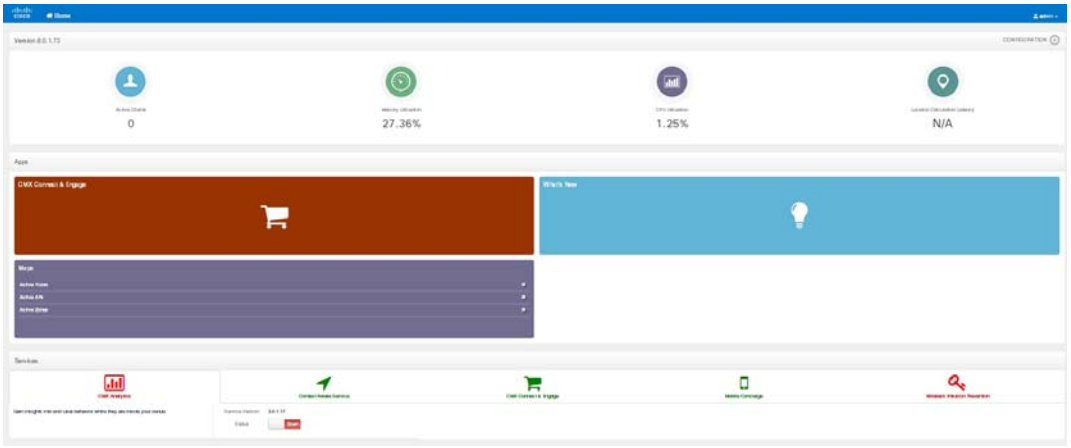
After FIPS mode is enabled:

- SSH access to the CMX server is disabled. You can access CMX server only through the console.
- Root access is disabled.
- You can access CMX server as admin user, which has restricted privileges.
- User can get privileged access to CMX server by making use of the Remote Support feature with Cisco TAC support.
- Weak ciphers are disabled in the SSL connection. CMX can only establish NMSP connection to Cisco WLC 8.0 and Cisco IOS XE 3.6.0 releases that support strong ciphers (which means, CMX cannot establish connection to controller releases earlier than Cisco WLC 8.0 and IOS XE 3.6.0).

Note CMX Release 8.0 uses SHA2 algorithm to compute keyhash for peer authentication with Cisco WLC 8.0 and IOS XE 3.6, and uses SHA1 algorithm for controller releases prior to Cisco WLC 8.0 and IOS XE 3.6.

MSE Admin User Interface Changes

You can launch the MSE admin user interface by typing **`https://mseip/mseui/`** in the Web browser or you can launch it from the Cisco Prime Infrastructure (PI) by clicking the MSE name link from **Services > Mobility Services Engines** page.



The MSE Admin UI allows you to:

- View and manage MSE services
- Configure MSE settings
- Get quick information via live tiles

New wIPS Signatures

The following are the new signatures added in Release 8.0:

- Device unprotected by VPN
- DoS: Beacon DS Set DoS
- Broadcom RSN Out of Bounds Attack
- WiFi-Direct Device detected
- WPA Dictionary Attack Detected

Important Notes

This section describes the operational notes and navigation changes for Connected Mobile Experiences, wIPS, and the Mobility Services Engine for Release 6.0.103.0 and later releases.

Features and operational notes are summarized separately for the Mobility Services Engine, Connected Mobile Experiences, and wIPS.

This section contains the following topics:

- Operational Notes for Mobility Services Engine, page 28
- Operational Notes for Context Aware Service, page 32
- Operational Notes for CMX Analytics, page 34
- Prime Infrastructure Screen and Navigation Changes, page 21

Operational Notes for Mobility Services Engine

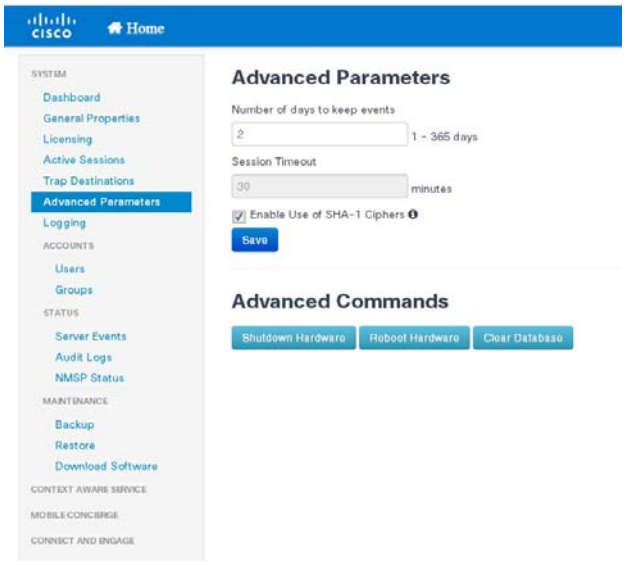
This section lists the operational notes for the Mobility Services Engine and contains the following topics:

Resolution to NMSP/SHA2 keyhash Mismatch Issue

MSE 8.0 by default supports SHA-2 keyhash algorithm for peer authentication with Cisco WLC 8.0 during the SSL handshake. Prime Infrastructure 1.4.2 and 2.1 supports only SHA-1 AP (or MSE) Authorization template when synchronizing Cisco WLC with the MSE. This causes keyhash mismatch issue because the PI and MSE uses different keyhash algorithm on Cisco WLC 8.0. An option is added to the Advanced Parameters page in the MSE user interface (UI) to allow the user to force MSE 8.0 to use SHA-1 keyhash algorithm.

Follow these instructions to configure SHA-1 Cipher:

1. Launch the MSE admin UI by typing **`https://mseip/mseui/app`** in the web browser.
2. Click **Configuration**.
3. Choose **System** > **Advanced Parameters** from the left sidebar menu.
4. Select the **Enable Use of SHA-1 Ciphers** check box.
5. Click **Save**.



6. Un-synchronize Cisco WLC from MSE, and then re-synchronize WLC with MSE from PI.
7. The NMSP status should go into active state.

Note If the FIPS mode (also known as Root Access Control) is enabled on the MSE, then this option will not be available to the users as FIPS mode requires all operations in SHS-2.

DNS Server

Use a valid DNS sever as CAS and Analytics service use nslookups.

How and When to Use the db.tar installer

Note You can use the db.tar installer file when you want to install the MSE newly along with the fresh DB installation. The recommended method is to follow the usual Upgrade process unless you want a fresh installation.

- Stop the MSE software (`/etc/init.d/msed stop`).
- You must delete the following directories if you want to reinstall again:
  - `/opt/mse`
  - `/opt/data`
  - `/opt/oracle`
  - `/opt/ORCLfmap`
  - `/opt/installers/*`
- `Scp` the db.tar file to `/opt/installers` directory and untar it at that location.
- Run the MSE installer.

Reboot MSE After Fresh Installation or Upgrade

After a new installation or upgrade of the MSE software, you must reboot the MSE using the "reboot" command.

Automatic Installation Script for Initial Setup

An automatic setup wizard is available to help you initially set up the Mobility Services Engine.

An example of the complete automatic setup script is provided in the *Cisco Mobility Services Engine Getting Started Guide.*

You can find these documents at the following URL:

http://www.cisco.com/en/US/products/ps9742/prod_installation_guides_list.html

Controller and Associated Mobility Services Engine Must be Mapped to the Same NTP and Prime Infrastructure Server

Communication between the Mobility Services Engine, the Prime Infrastructure, and the controller are in Coordinated Universal Time (UTC). Configuring the Network Time Protocol (NTP) on each system provides devices with the UTC time. An NTP server is required to automatically synchronize time between the controller, Prime Infrastructure, and the Mobility Services Engine.

The Mobility Services Engine and its associated controllers must be mapped to the same NTP server and the same Prime Infrastructure server.

Local time zones can be configured on a Mobility Services Engine to assist network operations center personnel in locating events within logs.

Note You can configure NTP server settings while running the automatic installation script. See the *Cisco Mobility Services Engine Getting Started Guide Started Guide* for details on the automatic installation script at the following URL:
http://www.cisco.com/en/US/products/ps9742/prod_installation_guides_list.html

Mandatory Default Root Password Change

You must change the default root password of the Mobility Services Engine while running the automatic installation script to ensure optimum network security.

You can also change the password using the Linux **passwd** command.

Note For the initial login, even if you choose Skip (S), you will be prompted to enter the password. This is because it is mandatory to change the root password at the initial login.

Configuring the Prime Infrastructure Communication Username and Password Using MSE setup.sh

You can configure the Prime Infrastructure Communication username and password using the MSE setup.sh script file.

Scenarios which you might encounter while configuring the Prime Infrastructure username and password are as follows:

- If you configure a new Prime Infrastructure username and password, the password provided is applicable for the new Prime Infrastructure username created.
- If you only configure the Prime Infrastructure username without configuring the Prime Infrastructure password, then the default password admin is applied to the configured username.
- If you only configure the Prime Infrastructure password without configuring the Prime Infrastructure username, then the password for the admin user is changed.
- If you configure an existing username for the Prime Infrastructure username and also configure the password, then the password for that existing user is changed.

Note These users are API users, and they do not have corresponding OS users on the MSE appliance.

Configuration Changes for Greater Location Accuracy

In some RF environments, where location accuracy is around 60 to 70% or where incorrect client or tag floor location map placements occur, you might need to modify the moment RSSI thresholds in the **Context Aware Service > Advanced > Location Parameters** page on the Prime Infrastructure.

The following RSSI parameters might require modification:

- locp-individual-rssi-change-threshold
- locp-aggregated-rssi-change-threshold
- locp-many-new-rssi-threshold-in-percent
- locp-many-missing-rssi-threshold-in-percent

Caution Contact Cisco TAC for assistance in modifying these parameters.

Wireless Security Module with 3600 AP

If you are attempting to deploy Wireless Security Module (WSM) with 3600 APs, then APs should be placed in monitor mode with submode wIPS and advanced wIPS engine enabled on the Prime Infrastructure.

AeroScout Engine Module Changes

Starting Release 7.5, the AeroScout engine module is removed from both the Connected Mobile Experiences setup and location code. During installation, if you are upgrading from Release 7.2 and later to Release 7.5, then you will be prompted to remove the AeroScout engine. If you agree to remove, the it removes the AeroScout engine and by default, the Cisco Tag Engine is started as part of Connected Mobile Experiences. If you do not agree to remove the AeroScout engine, then installation will exit.

Ports to be Opened for High Availability Between MSEs

The following is the list of ports to be opened for High Availability between MSEs:

- tcp 22
- tcp 80
- tcp 443

- tcp 1411
- tcp 1521
- tcp 1522
- tcp 1523
- tcp 1524
- tcp 1525
- tcp 1621
- tcp 1622
- tcp 1623
- tcp 1624
- tcp 1625
- tcp 8001
- tcp 8080
- tcp 8081
- tcp 9006
- tcp 15080
- tcp 59000
- tcp 61617
- udp 12091

Synchronizing Floor Maps in Location Service

While synchronizing floor maps in location service, we recommend that you synchronize floor maps in batches of 1000 access points at a time.

Operational Notes for Context Aware Service

This section lists the operational notes for a Mobility Services Engine and contains the following topics:

Synchronization Required When Upgrading to Release 8.0.100.0 or Importing CAD Floor Images

When upgrading to Release 8.0.100.0 from Release 7.x, you must synchronize after the software upgrade and also when CAD-generated floor images are imported into the Prime Infrastructure.

Floor Change or Minimum Distance Required for Location Transitions to Post to the History Log

When history logging is enabled for any or all elements (client stations, asset tags, rogue clients, and access points), a location transition for an element is posted only if it changes floors or the new location of the element is at least 30 feet (10 meters) from its original location.

Note The other conditions for history logging are as follows:

- Clients: Association, authentication, re-association, re-authentication, or disassociation.
- Tags: Tag Emergency button.
- Interferers: Interferer severity change, cluster center change, or merge.

See Services > Mobility Services > Device Name > Context Aware Service > Administration > History Parameters.

Logs can be viewed at Services > Mobility Services > Device Name > Systems > Log.

Non-Cisco Compatible Extensions Tags Not Supported

The Mobility Services Engine does not support non-Cisco CX Wi-Fi tags. Additionally, these non-compliant tags are not used in location calculations or shown on the Prime Infrastructure maps.

Cisco Compatible Extensions Version 1 Tags Required at a Minimum

Only Cisco CX Version 1 (or later) tags are used in location calculations and mapped in the Prime Infrastructure.

Monitoring Information Varies for Clients and Tags

In the Monitor > Clients page (when Location Debug is enabled), you can view information on the last heard access point and its corresponding Received Signal Strength Indicator (RSSI) reading.

Calibration Models and Data

Calibration models always applies to Wireless clients, Interferers, Rogue APs, and Rogue Clients.

See Chapter 7, “Context-Aware Planning and Verification” in the *Cisco Connected Mobile Experiences Configuration Guide, Release 8.0* for more details on client calibration.

Advanced Location Parameters

Settings for advanced location parameters related to RSSI, chokepoint usage, location smoothing, and assignment of outside walls on floors, are not applicable to tags.

See the "Editing Advanced Location Parameters" section in Chapter 7 of the *Cisco Connected Mobile Experiences Configuration Guide, Release 8.0*.

See Services > Mobility Services > Device Name > Context Aware Service > Advanced > Location Parameters.

Location History Time stamps Match Browser Location

The Prime Infrastructure time stamp is based on the browser location and not on the Mobility Services Engine settings. Changing the time zone on the Prime Infrastructure or on the Mobility Services Engine does not change the time stamp for the location history.

Tablets and Smartphone with Limited Probe Requests Might Affect Location

Many tablets, smartphones, and other Wi-Fi devices with power save mode do not continuously send out probe requests after an initial association to the CUWN. Therefore, calculating the location accuracy of such devices using RSSI readings is not always optimal.

Repeat Use of FloorID returns +1 After Every Hour

In the relevant CAS API, the use of the parameter FLOORID is not guaranteed to return the same value on consecutive calls. It may get changed by such activities as resynchronizing the MSE. Instead, the parameter FLOORAESUID should be used. The API call getStationHistoryListByArgs now can use both parameters in MSE Release 8.0.

Operational Notes for wIPS

wIPS Profile

wIPS profile cannot be pushed to Cisco Wireless LAN Controller (WLC) Version 7.5 or prior using the Prime Infrastructure 1.4.x or 2.x with MSE 7.6 Release.

Operational Notes for CMX Analytics

This section lists the operational notes for CMX Analytics service and contains the following topics:

Peer's Certificate Invalid Signature Error with Firefox Browser

While using the newer version of Firefox browser to connect to the MSE user interface or CMX Analytics user interface, an error message appears saying "Peer's certificate has an invalid signature". For more information on how to fix this, see the https://support.mozilla.org/en-US/questions/776144.

To fix this, follow these steps:

- Open the Firefox browser.

- Enter `about:config` in the address/URL.
- Enter `browser.xul` in the Filter box.
- Check if `browser.xul.error_pages.expert_bad_cert` property exists with a value of false.
- Right-click on `browser.xul.error_pages.expert_bad_cert` and select Toggle. The value will change to true.
- Exit from Firefox.
- Restart the browser and try the CMX Analytics user interface. You are now asked to add the exception.

WebGL Compatibility

The CMX Analytics in Release 8.0 provides ability to view the analytic results in both 2D (Open Street Maps) and 3D (WebGL) environments. This provides improved understanding of results on multiple floor paths or when dwell times are calculated throughout a multi-storey building. The 3D environment presents the same information as the 2D environment.

WebGL is an advanced feature that provides graphic capabilities. All browsers do not support WebGL on a particular hardware. Verify your browser compatibility in the Get WebGL website. If your browser supports WebGL, then you must see a spinning cube.

If your browser does not support WebGL, you must do the following:

- Update your latest drivers for video card.
- For Google Chrome, follow the instructions given for WebGL and 3D Graphics in the Google Chrome support website.
- For Firefox, follow these steps to enable WebGL:
  - Download the latest build of Firefox browser and launch Firefox on your computer.
  - In the browser address line, enter **about:config**
  - In the Search text box, enter webgl to filter the settings
  - Double click **webgl.enabled_for_all_sites**
  - Set the **webgl.enabled_for_all_sites=true**
- For Safari, follow these steps to enable WebGL:
  - Choose **Safari > Preferences**.
  - Click the **Advanced** tab.
  - Select the **Show Develop menu in menu bar** check box.
  - Choose **Enable WebGL** from the Develop menu.

Note If your system does not support 3D, then the analytic results are displayed only in 2D Open Street Maps view.

Jboss Issue

Sometimes CMX Analytics service does not start up because of a stray Jboss process that runs as a root user. If Analytics engine does not start and if you notice a stray Jboss process with root permissions running, then you must to do the following:

- Stop CMX Analytics service from the Prime Infrastructure.
- Kill the Jboss process. command
- Run the `chown -R nobody:nobody /opt/mse/analytics` command.
- Start CMX Analytics service from the Prime Infrastructure.

Operational Notes for Facebook Wi-Fi

When you try to pair a location with the Facebook page, it may fail with no notification in Connect and Engage user interface. One of the reasons could be due to Facebook site outage. You can check Facebook API health at the following URL: http://developers.facebook.com/status/

Caveats

Cisco Bug Search Tool

The Bug Search Tool (BST), which is the online successor to Bug Toolkit, is designed to improve the effectiveness in network risk management and device troubleshooting. The BST allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The tool has a provision to filter bugs based on credentials to provide external and internal bug views for the search input.

To view the details of a caveat listed in this document:

1. Access the BST (use your Cisco user ID and password) at https://tools.cisco.com/bugsearch/.
2. Enter the bug ID in the **Search For:** field.

Open Caveats

Use the BST to view the details of a caveat listed in this section. For more information about the BST, see the "Cisco Bug Search Tool" section on page 36.

Table 16 Open Caveats

ID	Headline
CSCun78876	Unable to select multiple date option for the zone analysis.
CSCuo81806	Zone names with strange characters (including space) break certain reports.
CSCuo86012	Delete a zone and you can never access it again via Dashboard and Analytics.
CSCuo99951	Fragment the wIPS profile before passing on to CAWAP process.
CSCup13804	MSE setup: Error in connecting to JMX service (secondary MSE setup.sh)
CSCup48232	No confirmation message is displayed after creating zones from connect and engage application.
CSCup55602	In the Connect and Engage application, the configured user is not displayed in the user interface if it is not activated first before submitting.
CSCup65382	Clearing the database from the admin UI shows no indication or progress about what is happening.
CSCup70252	The heading of conversion percentage report zone name is displayed as null in legend.
CSCup74011	NAPP: wIPS admin setting is accepting incorrect values.
CSCup76159	The CMX Mobile App Enablement menu option in the Connect and Engage should be displayed only if the context aware service is added.
CSCup77825	Unable to change the MSE Notification Parameter Queue limit in the virtual machine.
CSCup78588	Visitor Connect Active Visitors summary has incorrect count of visitors.
CSCup85502	Zones and heatmaps do not show restricted space.
CSCup85537	Movement Report Graph and Table do not match up for numbers
CSCup90743	Issues with Editing Notification subscription.
CSCuq24728	MSE 8.0 installer taking long time at Analytics aggregation stage.
CSCuq10145	Refresh of any analytics page takes you back to the login page.

Resolved Caveats

Use the BST to view the details of a caveat listed in this section. For more information about the BST, see the "Cisco Bug Search Tool" section on page 36.

Table 17 Resolved Caveat

ID	Headline
CSCuj74131	MSE locserver outOfMemoryHeap
CSCul83060	Context Aware Notification last seen fields are not updated
CSCum69202	Need an MSE alarm to be generated for split brain situation to high availability
CSCum85033	Problem in creating mail notification
CSCun01437	Location information is not shown for wIPS attacker on Prime Infrastructure maps by default
CSCun01444	Facebook gateway registration is failing even though Facebook says Success
CSCun28889	Add script to monitor hourly MSE statistics
CSCun54449	Floor ID is not found in the database when loading floor location cache for floor
CSCuo06115	REST northbound notification is missing confidence factor
CSCuo07657	Inconsistent numbers is displayed between associated /probing in the Analytics reports
CSCuo28090	Unable to start wIPS and CAS service once the CMX analytics evaluation license is expired
CSCup27525	Change some default values in ServiceMix
CSCup27596	For some wIPS alarms, the detailed information is cut off
CSCup47901	In locserver-0-0.log file, found tags are aged out when they should not
CSCup53327	Browser: Login prompt keeps displaying even after analytics user interface launches
CSCup67480	Add scripts to increase Oracle process limit
CSCup99923	CAS MSE is not reachable from the Prime Infrastructure
CSCuq10782	Analytics stops fetching floors information

If You Need More Information

If you need information about a specific caveat that does not appear in these release notes, you can use the Cisco Bug Toolkit to find caveats of any severity. Click this URL to browse to the Bug Toolkit:

http://tools.cisco.com/Support/BugToolKit/

(If you request a defect that cannot be displayed, the defect number might not exist, the defect might not yet have a customer-visible description, or the defect might be marked Cisco Confidential.)

Troubleshooting

For the most up-to-date, detailed troubleshooting information, see the Cisco TAC website at the following URL:

http://www.cisco.com/cisco/web/support/index.html

Click **Troubleshooting**, choose your product, and then click the **Troubleshoot and Alerts** heading on the product page to find information on the problem you are experiencing and other service advisories.

Related Documentation

The following documents are related to the Mobility Services Engine:

- *Cisco Connected Mobile Experiences Configuration Guide, Release 8.0*

  http://www.cisco.com/en/US/products/ps9742/tsd_products_support_series_home.html
- *Cisco Wireless Intrusion Prevention System Configuration Guide, Release 8.0*

  http://www.cisco.com/en/US/products/ps9817/products_installation_and_configuration_guides_list.html
- *Cisco CMX Analytics Configuration Guide, Release 8.0*

  http://www.cisco.com/en/US/products/ps9742/products_installation_and_configuration_guides_list.html
- *Cisco CMX Connect and Engage Configuration Guide for Visitor Connect, Release 8.0*

  http://www-author.cisco.com/c/en/us/support/wireless/mobility-services-engine/products-installation-and-configuration-guides-list.html
- *Cisco CMX Connect and Engage Configuration Guide for SDK, Release 8.0*

  http://www-author.cisco.com/c/en/us/support/wireless/mobility-services-engine/products-installation-and-configuration-guides-list.html
- Cisco Virtual Appliance Installation and Configuration Guide, Release 8.0

  http://www.cisco.com/en/US/products/ps9742/tsd_products_support_series_home.html
- *Cisco Mobility Services Engine Getting Started Guide*

  http://www.cisco.com/en/US/products/ps9742/prod_installation_guides_list.html
- The Prime Infrastructure Online Help is available with the Prime Infrastructure product.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.
