



# Release Notes for Cisco CMX Release 10.4.x

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This document describes what is new and important in Cisco Connected Mobile Experiences (Cisco CMX) Release 10.4.0 and later, and provides the system requirements and caveats. Unless otherwise noted, Cisco Connected Mobile Experiences is referred to as Cisco CMX in this document.

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# Introduction to Cisco CMX Release 10.4.x

Cisco CMX Release 10.4.x is a high-performing scalable software solution that addresses the mobility services requirements of high-density Wi-Fi deployments.

This release is suitable for deployments where the following features are required:

- Detect & Locate
- Analytics
- Presence Analytics
- Connect
- Hyperlocation
- Fast

This release is *not* suitable for deployments where the following are required:

- Cisco Adaptive Wireless Intrusion Prevention System (aWIPS) feature
- Federal Information Processing Standard (FIPS) FIPS deployment

## What's New

**Table 1** *What's New in Cisco CMX Release 10.4.1-34*

<b>Critical bug fixes</b>	This release provides critical bug fixes. No features were added or enhanced. We recommend this release to all Cisco CMX users.
<b>Term-based licenses</b>	The Cisco CMX Base and Advance Licenses now have an expiration date of 3 years.

**Table 2** *What's New in Cisco CMX Release 10.4.1-15*

<b>Critical bug fixes</b>	This release provides critical bug fixes. No features were added or enhanced. We recommend this release to all Cisco CMX users.
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**Table 3** *What's New in Cisco CMX Release 10.4.1-2*

<b>Critical bug fixes</b>	This release provides critical bug fixes. No features were added or enhanced. We recommend this release to all Cisco CMX users.
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**Table 4** *What's New in Cisco CMX Release 10.4.0*

<b>Rogue access point and rogue client support</b>	Cisco CMX now detects and tracks rogue access points and rogue clients.
<b>Cisco Hyperlocation mixed-mode support</b>	Cisco CMX now supports a mixed deployment of Cisco Hyperlocation access points (AP) and non-Hyperlocation AP on the same floor map. All Cisco Hyperlocation APs must be within a contiguous area. Increased accuracy on the floor is only within the convex hull of the Hyperlocation contiguous area.

Table 4 What's New in Cisco CMX Release 10.4.0

<b>Cisco CMX Fast support on Cisco 2800/3800 access points</b>	Cisco CMX Fast is now supported on Cisco Aironet 2800/3800 access points running Cisco Release 8.6 or later.
<b>Notification enhancements</b>	For the LocationUpdate notification, Cisco CMX provides a new <b>Status</b> option for the <b>Client</b> device type. Use this option to filter notifications to either associated or probing devices. If the <b>Status</b> option is not selected, the default option ( <b>All</b> ) is considered, and then notifications are sent for both associated and probing clients.
<b>API version 3 support</b>	Cisco CMX has a new active clients API version 3. Active clients API version 2 has been deprecated in this release.
<b>Cisco DNA Spaces integration</b>	You can now access Cisco DNA Spaces applications from Cisco CMX. Click the <b>Cloud Apps</b> option from the <b>Manage</b> tab.
<b>Change in Cisco CMX Base License</b>	The Cisco CMX Base License no longer provides access to Cisco CMX Hyperlocation or Partner Stream. The Cisco CMX Advanced License is required to access these services.
<b>Disabled support for CleanAir-based BLE Management</b>	The <b>BLE Beacons</b> management page is no longer available on the Cisco CMX user interface. Beacon notifications are no longer provided. BLE beacons detected by Cisco CleanAir are displayed on Cisco CMX as interferers. BLE-related information is no longer available on the apidocs file.
<b>Support for the Cisco Aironet 1800i Access Point and the Cisco Aironet 1800s Wireless Network Sensor</b>	Cisco CMX now supports the Cisco Aironet 1800i Access Point and the Cisco Aironet 1800s Wireless Network Sensor.

## Supported Platforms

Cisco CMX Release 10.4.x can be installed on the Cisco MSE 3365 platform.



### Note

Cisco CMX Release 10.4.x and later does not support the Cisco MSE 3355 platform.

Cisco CMX Release 10.4.x can be installed as a Virtual Cisco MSE appliance, which requires either VMware ESXi 5.1 to ESXi 6.5 versions, or Microsoft Hyper-V. For information about installing a Cisco MSE Virtual Appliance, see the Cisco MSE Virtual Appliance Installation Guide at:

<https://www.cisco.com/c/en/us/support/wireless/connected-mobile-experiences/products-installation-guides-list.html>

Table 5 lists the Cisco CMX Release 10.4.x hardware guidelines for a virtual Cisco MSE appliance, such as VMWare or Microsoft Hyper-V. For complete requirements, see the *Cisco Connected Mobile Experiences Data Sheet* at:

<https://www.cisco.com/c/en/us/solutions/enterprise-networks/connected-mobile-experiences/white-paper-listing.html>

Table 5 Hardware Guidelines

Hardware Platform	Low-End Appliance	Standard Appliance	High-End Appliance
CPU	8 vCPU \ 4 physical cores	16 vCPU \ 8 physical cores	20vCPU \ 10 physical cores
RAM	24 GB RAM	48 GB RAM	64 GB RAM
HDD	500 GB HD	500 GB HD	1TB HD

## Requirements



### Note

- Before you deploy Cisco CMX, we strongly recommend that you refer to the VM sizing guidelines described in the *Cisco CMX Dimensioning Calculator* at: [http://calculator.cmxcisico.com/aspnet\\_client/system\\_web/2\\_0\\_50727/CMX\\_calculator\\_v2.07/CMX\\_calculator\\_v2.07.aspx](http://calculator.cmxcisico.com/aspnet_client/system_web/2_0_50727/CMX_calculator_v2.07/CMX_calculator_v2.07.aspx)
  - For information about system scaling, see the *Cisco Connected Mobile Experiences Data Sheet* at: <https://www.cisco.com/c/en/us/solutions/enterprise-networks/connected-mobile-experiences/white-paper-listing.html>
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- Cisco CMX Release 10.4.x (which includes Cisco CMX Location, Connect, and Configuration APIs) has been tested using Google Chrome up to version 63.



### Note

If you are using Google Chrome version 72 or above, we recommend that you use Mozilla Firefox as your browser, or downgrade to Google Chrome version 63.

- Cisco CMX supports input and output only in English.
- For compatibility information, see the “Cisco Connected Mobile Experiences (CMX) Compatibility Matrix” section in the *Cisco Wireless Solutions Software Compatibility Matrix* at: <https://www.cisco.com/c/en/us/td/docs/wireless/compatibility/matrix/compatibility-matrix.html>
- (CSCvf91346) Cisco CMX Release 10.4 provides feature parity when using Cisco Prime Infrastructure (PI) Release 3.2 with Cisco PI Release 3.2 and Cisco MSE Release 8.0:



### Note

By default, Cisco Prime Infrastructure maps—including client location and client counts—refresh every 2 minutes. To manually refresh, click **Refresh** on the user interface.

**Table 6** Cisco CMX Release 10.4 Feature Parity with Cisco Prime Infrastructure and Cisco MSE

Feature	Cisco CMX-Cisco Prime Infrastructure	Cisco MSE-Cisco Prime Infrastructure
High Availability (HA)	Supported	Supported
RFID tags, wireless-connected clients, interferers	<ul style="list-style-type: none"> <li>Wireless-associated clients are supported.<sup>1</sup></li> <li>Interferers on Cisco Prime Infrastructure Release 3.2 is supported.</li> </ul>	<ul style="list-style-type: none"> <li>RFID tags are displayed.</li> <li>Wireless-associated clients are supported.</li> <li>Probing clients are supported.</li> <li>Interferers on Cisco Prime Infrastructure Release 3.2 is supported.</li> </ul>
Cisco CMX APIs used by Cisco Prime Infrastructure	<ul style="list-style-type: none"> <li>Use the /api/config/v1/version/image API to display the Cisco CMX version.</li> <li>Use the /api/config/v1/campuses/import API to import a map file to Cisco CMX.</li> </ul>	—
Cisco Prime Infrastructure performs the Cisco CMX API query when the Cisco Prime Infrastructure Map page is displayed.	Supported	Supported

1. Requires Cisco CMX Release 10.4 or later and Cisco Prime Infrastructure Release 3.2 or later.

## Licensing Information

Cisco CMX License	Features
Base	<ul style="list-style-type: none"> <li>RSSI Location Calculation</li> <li>GUI access to DETECT &amp; LOCATE, MANAGE, and SYSTEM Tabs</li> </ul>
Advanced	<ul style="list-style-type: none"> <li>Cisco CMX Base License features</li> <li>Cisco Hyperlocation</li> <li>Connect Services, Presence Analytics Services, Location Analytics Services, and exposed raw RSSI for Wi-Fi tags only</li> <li>Access to Partner Stream for native integration with third-party applications such as AeroScout MobileView</li> </ul>

- The Cisco CMX Evaluation License provides full functionality for a period of 120 days. The countdown starts when you start Cisco CMX and enable a service.

Two weeks before the evaluation license expires, you will receive a daily alert to obtain a permanent or term license. If the evaluation license expires, you will not be able to access the Cisco CMX GUI or APIs. Cisco CMX will continue to run in the background and collect data until you add a permanent or term license and regain access to it.

- The Cisco CMX Base License no longer provides access to Cisco CMX Hyperlocation or Partner Stream. The Cisco CMX Advanced License is required to access these services.

- Cisco CMX now includes license changes that warn that the use of Cisco Hyperlocation capabilities requires the Cisco CMX Advanced License. If you have any questions about licensing, contact your Cisco account team.
- The High-Availability feature on Cisco CMX Release 10.4.x is part of the Cisco CMX Release 10.4.x “CMX Base” license, which you would install on the primary HA server. The secondary HA server automatically receives a copy of the Cisco CMX license during sync up. There is no HA-specific license to install.
- You can add any license file from Cisco CMX Release 10.0 or later to Cisco CMX Release 10.4.x.
- For information about procuring Cisco CMX licenses, see the *Cisco Connected Mobile Experiences (CMX) Version 10 Ordering and Licensing Guide* for this release at: <https://www.cisco.com/c/en/us/solutions/collateral/enterprise-networks/connected-mobile-experiences/guide-c07-734430.html>
- For information about adding and deleting licenses, see the “Managing Licenses” section in the *Cisco Connected Mobile Experiences Configuration Guide* for this release at: <https://www.cisco.com/c/en/us/support/wireless/connected-mobile-experiences/products-installation-and-configuration-guides-list.html>

## Upgrading Information



### Caution

(CSCvf71126) When you upgrade to Cisco CMX Release 10.4.x, the old InfluxDB database is deleted.

- Downgrading from Cisco CMX Release 10.4.x to any release is not supported.
- Anticipate an increase in the client count if you upgrade from Cisco CMX Release 10.2.1 to Cisco CMX Release 10.3.0 (CSCux31137) or if you upgrade from Cisco CMX Release 10.2.3 to Cisco CMX Release 10.3.0 (CSCvd15253). This is due to the way Cisco CMX Release 10.3.0 counts visits to different areas. For more details, see the Analytics Documentation that is available from the UI on Cisco CMX Release 10.3.0.
- There are three ways to upgrade from Cisco CMX Release 10.x to Cisco CMX Release 10.4.x:
  - Option 1: Copy the Cisco CMX image to the Cisco CMX node, and then use the **cmxos upgrade <cmx-file>** command from the command line to perform the upgrade.
  - Option 2: Use the web installer on port 1984, and choose **Remote File** to download the Cisco CMX image from a hosted site, for example, the Cisco CMX image could be placed on an internal web server for the download.
  - Option 3: Use the web installer on port 1984, and choose **Local File** to upload the Cisco CMX image from your local machine through the web browser.



### Note

We recommend that you use Option 1.

With Option 3, the upload of the Cisco CMX image might fail. This is due to a memory leak in a third-party library used in the installer. However, this library is fixed in subsequent versions of the installer.

However, if you chose Option 3 and the upload fails, restart the installer program by using the **cmxos adminui stop** command and then the **cmxos adminui start** command. Option 3 might succeed after several tries.

- For information about upgrading from an earlier Cisco CMX release to a later release, see the applicable to *Cisco Mobility Services Engine Virtual Appliance Installation Guide for Cisco CMX* at:  
<https://www.cisco.com/c/en/us/support/wireless/connected-mobile-experiences/products-installation-guides-list.html>
- For information about upgrading from Cisco MSE Release 8.x to Cisco CMX Release 10.x, see the applicable *Release Notes for Cisco Mobility Services Engine, Release 8.0.x* at:  
<https://www.cisco.com/c/en/us/support/wireless/mobility-services-engine/products-release-notes-list.html>
  - We recommend that you run Cisco CMX Release 10.4.x in parallel with the existing Cisco MSE Release 8.0 or earlier, and utilize the evaluation license for 120 days. After the evaluation period, the older Cisco MSE release can be decommissioned.
  - No database migration or inline upgrade is supported from Cisco MSE Release 8.0 or earlier to Cisco CMX Release 10.4.x.

## Important Notes

- Cisco CMX Release 10.4.x supports the Cisco Mobility Express wireless network solution.
- Cisco CMX requires interaction with Cisco Prime Infrastructure only during the initial installation stage. After the maps and controllers are imported, Cisco CMX and Cisco Prime Infrastructure do not have any run-time dependencies.
- Do not use Internet Explorer 8.0 to edit the Cisco Wireless Controller's (WLC) SNMPv3 credentials. Use Google Chrome 50 to 63.
- The Cisco FlexConnect feature does not support DNS ACL and as such you cannot use DNS ACLs when configuring Cisco CMX Connect and Engage.
- The SSL mode is enabled by default.
  - To use the Cisco CMX Connect portal page in HTTP, disable the SSL mode by entering the **cmxctl node sslmode disable** command.
  - If SSL is enabled and you enable HTTPS for Cisco CMX Analytics (generally, Cisco CMX as a whole), make sure that a valid SSL certificate is installed. Otherwise, slower UI performance will occur.

If you do not have a valid SSL certificate to install, you need a self-signed certificate.

If neither a valid SSL certificate nor a self-signed certificate is present, Cisco CMX Analytics might not work as expected.
- For information on installing a certificate, see the “Importing Certificates” section in the *Cisco Connected Mobile Experiences Configuration Guide* for this release at:  
<https://www.cisco.com/c/en/us/support/wireless/connected-mobile-experiences/products-installation-and-configuration-guides-list.html>
- Observe disk space utilization by going to the **Overall Disk Usage** section in **Metrics** from the **Systems** tab. For information about increasing hard disk space, see the “Increasing the Hard Disk Space” section in the “Performing Administrative Tasks” chapter in the *Cisco Connected Mobile Experiences Configuration Guide* for this release at:  
<https://www.cisco.com/c/en/us/support/wireless/connected-mobile-experiences/products-installation-and-configuration-guides-list.html>

- When more than 85 percent of the disk space is consumed, all the Cisco CMX services shut down. For information about how to care of this issue, see the “Troubleshooting Cisco CMX Server Shutdown Problems” section in the “Performing Administrative Tasks” chapter in the *Cisco Connected Mobile Experiences Configuration Guide* for this release at: <https://www.cisco.com/c/en/us/support/wireless/connected-mobile-experiences/products-installation-and-configuration-guides-list.html>
- Accuracy results for Cisco FastLocate are reflected in the Cisco CMX Accuracy Tool under the **50% Error Distance** column. Accuracy is considered good if the distance displayed under those columns is 10 m or less, meaning the client will be detected less than 10 m from its actual position. For information on how to configure Cisco FastLocate, refer to the “FastLocate for Cisco Wave 2 Access Points” section in the *Cisco Wireless Controller Configuration Guide, Release 8.6*: [https://www.cisco.com/c/en/us/td/docs/wireless/controller/8-6/config-guide/b\\_cg86/location\\_services.html#ID2048](https://www.cisco.com/c/en/us/td/docs/wireless/controller/8-6/config-guide/b_cg86/location_services.html#ID2048)
- When the probing filter is enabled, Cisco CMX tracks up to 90,000 devices, including associated and probing devices. Tracking beyond this recommended limit can cause Cisco CMX to overload.
- While using v3 client APIs, Cisco CMX supports up to 6 unique IP addresses per second and 54 unique MAC addresses per second.
- (CSCvg23023) Cisco Hyperlocation cannot be enabled from two Cisco CMX instances on the same Cisco WLC.
- (CSCva36827) With Cisco CMX Release 10.4.0 and later, Cisco CMX users should transition to using the `/api/location/v3/clients` API. You must use the Cisco CMX CLI to configure your username and password to access this API.
- (CSCvc36715) We recommend that you monitor your northbound notifications. The Send rate per second can be monitored with the `/api/config/v1/notifications/stats` API. The one minute rate should be less than 500 per second.
- (CSCvc44074) Cisco CMX tracks up to 90,000 devices. Tracking beyond this recommended limit can cause an outage of the Cisco CMX Analytics service. If this occurs, restart Cisco CMX after the number of tracked devices decrease to less than 90,000 devices.
- (CSCvc89944) If the hostname of Cisco CMX is changed using the `cmxos reconfigure` command, and then changed back to `localhost.localdomain`, the following error is displayed:

```
1 assert/signal failures have occurred; MATLAB will abort in 10 seconds.
```

This is because the Cisco CMX agent cannot start the Matlab package. Use the following commands to resolve this:

```
cmxctl stop -a
cmxctl agent start
cmxctl start
```

- (CSCvc94895) Cisco CMX supports Google Earth coordinates on imported maps from Cisco Prime Infrastructure. Use the Cisco CMX `/api/config/v1/maps/` REST API to verify the GPS coordinates on Cisco CMX floor maps, and then use the Cisco CMX `/api/location/v3/clients` REST API to check that the GPS coordinates are available for the devices. For information about adding GPS markers, see the Cisco Prime Infrastructure documentation.



- (CSCvd17090) In Cisco CMX Release 10.3.0, the dwell-time calculation is improved to provide a more accurate total duration value. The dwell time is now based on the median values of the different types of visits (repeat or new, and associated or probing). For more information, see the Analytics Documentation and Definitions Online Help available in the Cisco CMX user interface. Choose **Documentation** from the **admin** drop-down list, and then click **Analytics Documentation and Definitions**.
- (CSCvd17114) Cisco CMX uses the Apache Cassandra database to store location history, raw visits for the Analytics service, and user statistics for the Connect service. Cassandra provides fast read and write performance by writing its data to a memcache, which is periodically written to disk. When the memtable contents exceed a configurable threshold, the memtable data, which includes indexes, is put in a queue to be flushed to disk. If the data to be flushed exceeds the queue size, Cassandra blocks writes until the next flush succeeds. Note that the timing of such memtable flushes would vary from installation to installation.

Blocked writes to the Cassandra database can result in errors in Cisco CMX, such as this analytics error message:

```
2017-02-14T20:27:26,258 [Thread-57] ERROR
com.cisco.mse.analytics.aggregation.processing.AggregationProcessor - AP-009: Error
updating visits: RVP-005: Could not merge redis + db data: Error while accessing
database....
```

You can prevent untimely memtable flushes by scheduling the flush during off-peak hours and running the **/opt/apache-cassandra-2.1.13/bin/nodetool flush** command.

- (CSCvd21695) Image tiling can take a few seconds to complete if images need to first be converted to RGB. Once the tiling completes, the image properly displays on the user interface.

If an imported floor map image is not an RGB/Truecolor image, Cisco CMX might take longer to prepare its image tiles, causing the floor map image to not display immediately after being imported. While the tiling process is in progress, the **Detect & Locate** window displays this warning message: `This image is currently being processed, it will be ready for viewing shortly.`

- (CSCvd29399) In Cisco CMX Release 10.3.1, the **Compare Data to** and the **Hourly Trend** views shown on **Analytics > Realtime** were removed.
- Initial HA configuration is dependent on data size. For example, for 5 GB of data, initial configuration could take up to 1 hour to complete.

The average time for a failover condition is 7 minutes, depending on your systems.

The failback time is dependent on the amount of data to resynchronize. For example, for 5 GB of data, the expected time for failback to complete is 1.5 hours.

- (CSCvd35578) When you import a new or existing map containing zones from Cisco Prime Infrastructure to Cisco CMX, make sure that you check the **Delete & replace existing zones** check box. Even if you are updating a map that was previously imported, check the **Delete & replace existing zones** check box.
- (CSCvd41641) Data loss will occur with the Cassandra database when restoring data with Cisco CMX Release 10.2.3 and earlier. We recommend upgrading to and using Cisco CMX Release 10.3.0 to successfully restore data from a previously made backup.
- For backup and restore information, see the “Performing Administrative Tasks” chapter in the *Cisco Connected Mobile Experiences Configuration Guide* for this release at: <https://www.cisco.com/c/en/us/support/wireless/connected-mobile-experiences/products-installation-and-configuration-guides-list.html>

- (CSCvd53632) Restoring Cisco CMX data must be done on a device that has the same local time as the device from which the data is collected. Otherwise, you will not be able to correctly access the analytics data. In addition, the data will result in errors or zero values on reports.
- (CSCvd73907) In certain situations, such as high traffic for the day, all visitors for that day, including new ones, are added to the collection of repeat visitors before the data for that day has been aggregated completely. This results in the visitor count showing 100% repeat visitors for that day.
- (CSCvd80519) Starting from Cisco CMX Release 10.3.1, you can use the **cmxctl config analytics setNumMonthsRepeatHistory <number>** command to change the number of months of repeat history used and maintained by the Cisco CMX Analytics service. You do not need to restart Cisco CMX for the change to take effect.




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**Note** If you change the repeat history setting, existing history will be deleted.

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- (CSCve05677) Cisco CMX Release 10.2.x and later uses the default Cisco 3365 Mobility Services Engine (MSE) power and fan settings displayed from the Cisco Integrated Management Controller (CIMC) interface. The default power and fan settings can vary, based on the installed Cisco MSE firmware. The current firmware version has these default power and fan settings:
  - Power setting is **Power On**
  - Fan setting is **Balanced**
- (CSCve13731) Use the **System > Presence Metrics** window and the **System > Metrics > System Summary** window to understand the overall Cisco CMX system health. Changes in normal patterns, such as unusual spikes, could indicate network issues.
  - The **Presence Metrics** window displays the number of clients being tracked and the number of clients reported with locally administered MAC addresses.
  - The **System Summary** window displays metrics that mainly describe the incoming message rate, data persistence rate, and so on.
- (CSCve15152) If the Analytics report uses the **Summary** view with the **This Week** time frame option, the **Daily Trend** chart will only show data points for the days of the week that have been completed. For example, on Monday, no data points will appear on the **Daily Trend** chart because Monday is considered the first day of the week and the day has not yet completed. If you want to display a breakdown of the data for the day, use the **Chart** or **Table** view to display details by a different granularity.
- (CSCve19090) If you perform an online backup of a Cisco CMX server, the backup might fail if a change to the system occurs during the backup. If a backup fails, try again during an off-peak period when there is low activity on the server. If the backup still fails, turn off the Cisco CMX services and then perform the backup offline.




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**Note** If HA is configured, first disable HA and then turn off the Cisco CMX services.

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- (CSCve24919) When generating a map report, we recommend that the number of floors that you select not exceed **100**. Use tags to restrict the data gathered by the report. If you exceed the recommended amount, the report might not generate and an error message might be displayed.

- (CSCve28851) Ignore this error message:

```
ERROR com.cisco.mse.matlabengine.heatmap.BaseMatlabHeatmapBuilder -
MatlabHeatmapBuilder#createApInterfaceHeatmap Number of heavy walls used by Matlab:
<nn> not equal to count reported by Java: <nn> during heatmap calculation for AP
Interface: 88:f0:31:08:06:70-5.0-2.
```

The heatmaps are correctly generated and stored.

This error occurs because MATLAB only counts heavy walls for location calculation, while Java counts all obstacles on the floor map.

- (CSCve37513) Cisco CMX detects the same sources of interferences as the Cisco CleanAir system. For more information, see the “Configuring Cisco CleanAir on the Cisco Wireless LAN Controller (GUI)” section in the “Wireless Quality of Service” chapter of the *Cisco Wireless Controller Configuration Guide, Release 8.4* at: [https://www.cisco.com/c/en/us/td/docs/wireless/controller/8-4/config-guide/b\\_cg84/wireless\\_quality\\_of\\_service.html#ID51](https://www.cisco.com/c/en/us/td/docs/wireless/controller/8-4/config-guide/b_cg84/wireless_quality_of_service.html#ID51)
  - Bluetooth Paging Inquiry—A Bluetooth discovery (802.11b/g/n only)
  - Bluetooth Sco Acl—A Bluetooth link (802.11b/g/n only)
  - Generic DECT—A digital enhanced cordless communication (DECT)-compatible phone
  - Generic TDD—A time division duplex (TDD) transmitter
  - Generic Waveform—A continuous transmitter
  - Jammer—A jamming device
  - Microwave—A microwave oven (802.11b/g/n only)
  - Canopy—A canopy bridge device
  - Spectrum 802.11 FH—An 802.11 frequency-hopping device (802.11b/g/n only)
  - Spectrum 802.11 inverted—A device using spectrally inverted Wi-Fi signals
  - Spectrum 802.11 non std channel—A device using nonstandard Wi-Fi channels
  - Spectrum 802.11 SuperG—An 802.11 SuperAG device
  - Spectrum 802.15.4—An 802.15.4 device (802.11b/g/n only)
  - Video Camera—An analog video camera
  - WiMAX Fixed—A WiMAX fixed device (802.11a/n/ac only)
  - WiMAX Mobile—A WiMAX mobile device (802.11a/n/ac only)
  - XBox—A Microsoft Xbox (802.11b/g/n only)
- (CSCve39234) Use the **cmxos sysproxy** command to configure proxy settings. Do not edit the `/etc/profile.d/cmxfprof.sh` file to configure proxy settings, because those settings will be overwritten when you upgrade Cisco CMX.

- (CSCve47829) On Cisco CMX, Redis memory is allocated based on system memory. If you try to restore data from a 64 GB machine onto a low-end 24 GB machine, downstream failures might occur.

Cisco MSE Model	RAM Available
Low-end MSE virtual appliance (vMSE)	24 GB
Standard vMSE	48 GB
High-End vMSE	64 GB
Cisco MSE 3365 (physical appliance)	64 GB

**Table 7 Recommendations for Backup and Restore**

Restore from...	Restore to...	Recommendations
Cisco MSE 3365 (physical appliance)	Standard MSE virtual appliance (vMSE)	Not recommended
Cisco MSE 3365	Low-end vMSE	Not recommended
High-end vMSE	Standard vMSE	Not recommended
High-end vMSE	Low-end vMSE	Not recommended
Standard vMSE	Low-end vMSE	Not recommended
Same machine specs	Same machine specs	OK
Low-end vMSE	Standard vMSE	OK
Low-end vMSE	High-end vMSE	OK
Low-end vMSE	Cisco MSE 3365	OK
Standard vMSE	High-end vMSE	OK
Standard vMSE	Cisco MSE 3365	OK
High-end vMSE	Cisco MSE 3365	OK unless the high-end machine has more RAM available than the recommended specs
Cisco MSE 3365	High-end machine	OK

**Note** HA pairing checks are done for software versions and hardware specs. HA pairs should have matching CPU count, memory size, and hard drive size. They should also have the same software versions for Cisco CMX, Redis, Cassandra, and Postgres.

- (CSCve51867) The **Dwell Threshold** setting affects the **Visitors** widget but does not affect the **Dwell Time Breakdown** widget. The **Dwell Time Breakdown** widget always uses the **0 Minutes To 24 Hours** setting, and always includes stationary devices regardless of the report settings. Thus, the data in **Visitors** widget and the **Dwell Time Breakdown** widget might not match.

For the data to match, set the **Dwell Threshold** filter either to **0 Minutes To 24 Hours** or to **No filter**, and then check the **Include stationary devices** check box.

- (CSCve56353) End users using Android devices are unable to open the landing page URL (Success Page) configured from **Connect & Engage > Connect Experiences**. In addition, the Guest Portal might also close after the end user registers. This is a known 'Redirection to Success Page' Android bug from Google. For more information, see <https://support.cmxcisico.com/hc/en-us/articles/115007357987>.

- (CSCve73287) The default setting of Cisco CMX Connect allows for a maximum of approximately two clients per second continuously, a higher number can be achieved at peak (for example 4,000 HTTP connections can be made during a 5-minute window). In addition, special configuration changes can be made to increase this rate. Contact Cisco Technical Support for these recommendations.
- (CSCve76843) For scheduled PDF reports, there are limitations for viewing tables that have a large number of rows. These limitations do not occur for direct PDF reports that are directly downloaded. Note these considerations about Analytics PDF reports on Cisco CMX:
  - Scheduled PDF reports, which have widgets that use the table view and have a large number of rows, do not display long tables. Pages containing long tables appear blank.  
To view a PDF report with long tables, we recommend that you use the direct PDF download instead of a scheduled PDF report.
  - Adobe Acrobat Reader DC has a limit of pages being 200 in. and does not display tables that go over this limit. If a table in the report is larger than this limit, you will not be able to view it using Adobe Acrobat Reader DC. Other viewers without this limit, such as Chrome, do not have this problem.
  - Large tables, even if they do not reach the 200 in. limit might not be immediately viewed on Adobe Acrobat Reader DC. This can be remedied by enabling the **Show large images** and **Show art, trim, & bleed** settings. To do this, select to **Edit > Preferences > Page Display > Page Content and Information**. Check the check boxes next to **Show large images** and **Show art, trim, & bleed** settings. Click **Confirm**. You will sometimes need to uncheck the check boxes, confirm, go back, check them again, and confirm.
- (CSCve76843) Note these considerations about PDFs on Cisco CMX:
  - Download the PDF to view extremely long tables.
  - Adobe Acrobat Reader DC has a limit of pages being 200 inches, and does not display tables that go over this limit. This does not occur with other viewers such as Chrome.
  - With Adobe Acrobat Reader, sometimes if you check the **Show large images** check box and the **Show art, trim, & bleed** check box on **Edit > Preferences > Page Display > Page Content and Information**, the changes are not saved. If this occurs, uncheck the check boxes, save, and confirm. Then, check the check boxes, save, and confirm. This problem occurs in scheduled PDF reports if you change a widget to a table view and it has a lot of rows.
- (CSCvf25629) Due to the nondeterministic nature of Wi-Fi signals from mobile devices, Cisco CMX makes a best effort in calculating and updating the location of probing wireless clients. The Wi-Fi probing behavior of each client can be different, therefore no guarantee can be made with respect to the accuracy of the client's location. For more guidance, see the "CMX Solution Components" chapter in the *Cisco Connected Mobile Experiences (CMX) CVD*:  
[https://www.cisco.com/c/en/us/td/docs/solutions/Enterprise/Borderless\\_Networks/Unified\\_Access/CMX/CMX\\_Components.html](https://www.cisco.com/c/en/us/td/docs/solutions/Enterprise/Borderless_Networks/Unified_Access/CMX/CMX_Components.html)
- (CSCvf60571) Cisco CMX does not support VMWare tools.
- If a map is modified in Cisco Prime Infrastructure, you must import the modified map to Cisco CMX. Similar with Cisco MSE.
- Cisco Prime Infrastructure Release 3.2 does not support Cisco CMX High Availability but it does support Cisco MSE High Availability.
- Cisco Prime Infrastructure Release 3.2 does not display RFID tags. Cisco CMX displays RFID tags

- (CSCvg10317) Cisco MSE virtual machine (VM) running Cisco CMX might not function properly after being powered on after a power outage. If this occurs,,:
  1. Enter the **cmxctl stop -a** command to shutdown the Cisco CMX services.
  2. Enter the **cmxctl start** command to start the services.
- (CSCvg23023) Cisco Hyperlocation cannot be enabled from two Cisco CMX instances on the same Cisco WLC.
- (CSCvg28274) If NMSP tunnel flapping occurs, ping an external address to check if the DNS resolution is slow. If it is slow, delete all the external DNS server entries in the **/etc/resolv.conf** file, except for the entry that maps to the localhost.
- (CSCvg31522) The Client Playback feature applies only to associated devices (clients). This feature is not applicable to RFID tabs because they are not associated devices.
- (CSCvg37621) The BLE beacon has the same characteristics as a wireless client. Thus, on Cisco CMX, the device appears to move around the map even though the device is considered stationary. The movement should be the same as a wireless client.
- (CSCvg48564) Note that due to CSCvg70464, synchronization problems can occur after changing the IP address and reenabling the High Availability (HA) feature. Refer to the CSCvg70464 bug details for further information.

If you need to change the IP addresses of your primary or secondary Cisco CMX servers configured with the High Availability (HA) feature, follow these steps:

1. From the Cisco CMX CLI on the primary server (as cmxadmin user), enter the **cmxha config disable** command to disable HA on servers.
  2. Enter the **cmxctl stop -a** command to shut down the Cisco CMX services.
  3. Enter the **cmxctl status** command to verify that the Cisco CMX services are not running.  
If the services are still running, enter the **cmxos kill** command to shut down the services, and then enter the **cmxctl status** command to verify the services are not running.
  4. Edit the Cassandra YAML files to update the seeds information with the correct IP address:
 

```
/opt/cmx/sw/confd/templates/cassandra.template.yaml
/opt/cmx/etc/cassandra/cassandra.yaml
```
  5. Verify the changes to the YAML files by using these command:
 

```
egrep -i "listen_address|seeds" /opt/cmx/etc/cassandra/cassandra.yaml
egrep -i "listen_address|seeds" /opt/cmx/sw/confd/templates/cassandra.template.yaml
```
  6. Enter the **cmxctl start** command to start the Cisco CMX services.
  7. From the Cisco CMX CLI on the primary server (as cmxadmin user), enter the **cmxha config enable** command to re-enable HA on the servers.
- (CSCvg68045) Cisco CMX Release 10.4.0 UI and API do not display the zone of impact for a rogue access point.
  - (CSCvg72780) The **Cloud Applications** window displays BLE notifications only if you log in to Cisco CMX as an admin user. Otherwise, the **Notifications** area on the window displays as blank.

- (CSCvg81107) Notification subscriptions—manually crated in Cisco CMX Release 10.3.x through the **Manage > Notifications** window—for sending data to CMX Cloud applications need to be deleted and then recreated from the Cisco CMX **Cloud Applications** page in Cisco CMX Release 10.4.x or 10.5.x. Notification subscriptions created in Cisco CMX Release 10.3.x do not display on the **Cloud Applications** page.
- (CSCvj52515) There is significant overhead seen in maintaining the compact history, which allows to query the unique clients seen on a floor or zone per day. This does not affect the regular clients history that is stored in the Cassandra database.




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**Note** As of Cisco CMX Release 10.4.1-15, the feature flags setting is disabled by default. If your system is running an earlier release of Cisco CMX, we recommend that you disable the feature flags setting.

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To disable the feature flags setting, enter these commands:

```
cmxctl config featureflags location.compactlocationhistory false
cmxctl agent restart
cmxctl location stop
cmxctl location start
```

- The GitHub version of API version 3 is supported through the Cisco DevNet Community, not by Cisco Technical Support.

## Caveats

- [Cisco Bug Search Tool, page 15](#)
- [Open Caveats, page 16](#)
- [Resolved Caveats in Cisco CMX Release 10.4.1-34, page 16](#)
- [Resolved Caveats in Cisco CMX Release 10.4.1-15, page 17](#)
- [Resolved Caveats in Cisco CMX Release 10.4.1-2, page 17](#)
- [Resolved Caveats in Cisco CMX Release 10.4.0, page 18](#)

## Cisco Bug Search Tool

The Bug Search Tool (BST), which is the online successor to the Bug Toolkit, is designed to improve the effectiveness of 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. Perform the following task:

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



**Note**

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Using the BST, you can also find information about the bugs that are not listed in this document.

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## Open Caveats

Use the BST to view the details of the caveats listed in this section. For more information about the BST, see the [“Cisco Bug Search Tool” section on page 15](#).

Bug ID	Description
CSCve56200	10.3: HA enabled failed with custom certificate used by customer; 10.3.0-62
CSCve86596	CMX doesn't work on certificates with passphrase
CSCvg50124	v3 API calls over VIP fail with 503 Service unavailable error after Failover
CSCvg79749	CMX10.3 : CPU usage increased and finally location service stopped
CSCvg81225	Backup restore failing when disk usage reaching above 80% in cmx.
CSCvg86733	10.4 V3 API response slowness
CSCvi08269	cmxos apiserver user account password changes when upgrading OS
CSCvi23988	CMX Reports incorrect number of Associated and Probing Clients
CSCvi24579	Redis check failed for Primary even after a restart of the agent, causing HA failover in 10.4.1-2
CSCvi84255	10.5 HighEnd : Unable delete zones if zone count more than 500
CSCvj05585	Ability to delete all data for clients and analytics raw data
CSCvj41314	CMX10.4.1-11: PI adds non-image files in images folder in the exported tar.gz archive

## Resolved Caveats in Cisco CMX Release 10.4.1-34

Use the BST to view the details of the caveats listed in this section. For more information about the BST, see the [“Cisco Bug Search Tool” section on page 15](#).

Bug ID	Description
CSCvj62419	CMX 10.4 - Unable to retrieve Client History by zoneid
CSCvk01994	CMX presence not showing accurately connected clients
CSCvk16626	CMX 10.4.1 - CMX Facebook wifi fails with \"Unable to obtain a gateway ID from Facebook\" error msg
CSCvk32267	CMX: Workmanager RULE_EVALUATED queue is full
CSCvk33389	Location optimization for better utilization of Redis cache.
CSCvk40719	API server stops responding to v3 calls when v1/v2 calls reach 200 per second approx.
CSCvk53552	Nodesetup service failed on Primary converted to Secondary
CSCvk58315	CMX adding zone will stuck on GUI(shown as \"saving\" forever)
CSCvk65099	CMX NMSP goes down because SSL handshake failure
CSCvk66624	v3 Count API shows invalid number of clients
CSCvm16726	CMX: 10.4.1 Realtime report Chart/Table shows wrong data
CSCvm29507	Notifications are not reaching cloud due to proxy compatibility with cmx libraries
CSCvm68477	CMX 10.4.1 - CMX Oauth not working with Instagram
CSCvn22368	CMX api rendered invalid AP macaddress preventing AP BLE management from cloud



Bug ID	Description
CSCvn45497	CMX sends SNMP getrequest without community string
CSCvn74143	CMX Base license file shows eval instead of perm or 3 years (only shows 120 days)
CSCvo08341	CMX 10.4.1-26 Fails To Load Connect Images
CSCvo08709	CMX Location API dropping RFID Tag information
CSCvo11605	Maps not since or blank/white after upgrade to 10.4.1-26. Other data since as in clients and APs.
CSCvo15106	Inclusion/Exclusion regions are not getting deleted from CMX after syncing with Prime Infrastructure

## Resolved Caveats in Cisco CMX Release 10.4.1-15

Use the BST to view the details of the caveats listed in this section. For more information about the BST, see the [“Cisco Bug Search Tool”](#) section on page 15.

Bug ID	Description
CSCvh77152	Map Import in CMX leads to loss of random floors
CSCvh93538	Unable to add WLC if ICMP is disabled. CMX tries to ping WLC before adding.
CSCvh95949	Enhance probing client filter to keep location service healthy
CSCvi06084	10.4.1-3 : SNMP v3 Auth protocol and Privacy Protocol type 'none' isn't working
CSCvi12075	Need an alternative way to resolve the PI AESUID change scenario in CMX
CSCvi62283	Enhance client history by mac API to allow date range.
CSCvi70857	CMX 10.5 /api/location/v3/clients?ipAddress= broken with ipv6 addresses
CSCvi71364	Unable to use ALL to deselect when i have more then 100 items
CSCvi77377	Perform cleanup of stale redis data
CSCvi77477	CMX 10.4.1 - CMX Social Oauth feature doesn't work for Facebook App
CSCvi85867	DNAC12: API V3 macAddressSearch does not allow enter MAC address in upper case
CSCvi90183	CMX 10.4: Mandatory services are reconfigured to NOT run if CMX 10.3 backup is restored on 10.4
CSCvj06499	10.4.1-8 : Deployment of Presence node gets stuck
CSCvj18524	10.4 : Restore from 10.2.2 and 10.2.3 to 10.4.1-10 has failed
CSCvj37466	10.4.1 : V3 API stress limitations
CSCvj58901	CMX 10.4.1: CLI only checks the first 8 characters of your password

## Resolved Caveats in Cisco CMX Release 10.4.1-2

Use the BST to view the details of the caveats listed in this section. For more information about the BST, see the [“Cisco Bug Search Tool”](#) section on page 15.

Bug ID	Description
CSCuw73675	CMX 10.2.0-213 iptables not allowing port 5555 for rest api
CSCuz66192	FTP command on CMX 10.X
CSCvg57042	CMX Failback via ssh times out as soon as ssh session on your laptop completes

Bug ID	Description
CSCvg64819	Cisco Live Cancun: HA fails over due to keepalived state set to fault; 10.3.1 CCO build
CSCvg70464	CMX HA Failure after changing CMX IPs
CSCvg96775	Truncate unused aggregation tables
CSCvh04575	Fix for issues when no clients were seen if using minap filter
CSCvh07962	Fix to address issues with extend timeouts for NSMP connections
CSCvh20456	Fix to address issues with UDP connection leaks for SNMP data exchange.

## Resolved Caveats in Cisco CMX Release 10.4.0

Use the BST to view the details of the caveats listed in this section. For more information about the BST, see the [“Cisco Bug Search Tool” section on page 15](#).

Bug ID	Description
CSCvc03935	Need an API to delete access points from CMX
CSCvc50355	10.3: Upgrade failed for the setup which is having influxdb data corrupted
CSCvc83511	BLE Beacon support: Inaccurate/ incomplete data available
CSCvd12949	10.3: QlessException due to OOM after 5 days of longevity on L+A+C; 10.3.0-39
CSCvd52707	Location tracking : Low sampling rate with Mac filter
CSCve30802	CMX API Server support in CMX
CSCve56206	Schedule Tab on CMX Analytics 10.3 does not show report type (PDF/EXCEL/HTML)
CSCve56255	CMX10.3 Analytics GUI Schedule Tab shows \"Invalid Date\" for Start From and cannot be modified.
CSCve69480	CMX 10.3 Analytics - Excel Reports show wrong Start and End dates on yesterday, last week reports
CSCve70958	API returns incorrect information
CSCve99900	10.3.1: An error occurred while merging bloom filter from day 2017-06-25@Cisco Live
CSCvf08330	CMX: 10.3 Location history doesn't give Zone information
CSCvf10773	CMX import from Prime 3.2 (maps and controllers) fails on Auth handshake
CSCvf16520	CMX presence hourly passerby counts dip at 4 pm
CSCvf23970	Increase threshold for CPU alerts in CMX
CSCvf75090	CMX : consul irregularly shutdown
CSCvg26224	with 35 WLC NMSP is flapping
CSCvg27585	CMX 10.3.1 - CMX performance issue when SSID filtering and exclude probing clients used together

## Cisco Support Community

Cisco Support Community is a forum for you to ask and answer questions, share suggestions, and collaborate with your peers. Join the forum at <https://supportforums.cisco.com/index.jspa>.

Get Cisco CMX Cloud support at: <https://support.cmx.cisco.com/hc/en-us>

## Related Documentation

For additional information on Cisco CMX, see:

- <https://www.cisco.com/c/en/us/solutions/enterprise-networks/connected-mobile-experiences/index.html>
- <https://www.cisco.com/c/en/us/support/wireless/connected-mobile-experiences/tsd-products-support-series-home.html>
- <https://www.cisco.com/c/en/us/support/wireless/mobility-services-engine/tsd-products-support-series-home.html>
- Cisco CMX documentation embedded in the product. From the Cisco CMX user interface, choose **admin > Documentation**.

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To find warranty information for a specific product or product family, access [Cisco Warranty Finder](#).

## Cisco Bug Search Tool

[Cisco Bug Search Tool \(BST\)](#) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

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