



## **Cisco CMX Command Reference Guide, Release 10.6.0 and Later**

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## Preface

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## Audience

This document is for network administrators who configure Cisco Connected Mobile Experiences (Cisco CMX) services.

Cisco CMX is the on-premise location service that is provided as part of the Cisco DNA Spaces overall location as a platform service.

## Conventions

This document uses the following conventions:

**Table 1: Conventions**

Convention	Indication
<b>bold font</b>	Commands and keywords and user-entered text appear in <b>bold font</b> .
<i>italic font</i>	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic font</i> .
[ ]	Elements in square brackets are optional.
{x   y   z }	Required alternative keywords are grouped in braces and separated by vertical bars.
[ x   y   z ]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string. Otherwise, the string will include the quotation marks.
<code>courier font</code>	Terminal sessions and information the system displays appear in <code>courier font</code> .

Convention	Indication
<>	Nonprinting characters such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.




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**Note** Means reader take note. Notes contain helpful suggestions or references to material not covered in the manual.

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**Tip** Means the following information will help you solve a problem.

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**Caution** Means reader be careful. In this situation, you might perform an action that could result in equipment damage or loss of data.

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## Related Documentation

For more information on coding and specific assistance, see:

<https://developer.cisco.com/site/cm-x-mobility-services/>

For more information about Cisco Mobility Services Engine and related products, see:

<http://www.cisco.com/c/en/us/support/wireless/mobility-services-engine/tsd-products-support-series-home.html>

For more information about Cisco Connected Mobile Experiences (Cisco CMX), see:

<http://www.cisco.com/c/en/us/solutions/enterprise-networks/connected-mobile-experiences/index.html>

For more information about Cisco DNA Spaces, see:

<https://support.dnaspaces.io/>

## Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at [Cisco Profile Manager](#).
- To get the business impact you're looking for with the technologies that matter, visit [Cisco Services](#).
- To submit a service request, visit [Cisco Support](#).
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit [Cisco Marketplace](#).
- To obtain general networking, training, and certification titles, visit [Cisco Press](#).
- 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.





## Cisco CMX Commands

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## Using the Command-Line Interface

Starting from Cisco CMX 10.3.1, you can use the **Tab** key to auto complete any Cisco CMX command on the command line interface. If you enter **cmxos** and then click the **Tab** key, the CLI displays the available keywords. If you enter a partial string and then click the **Tab** key, the CLI then displays the complete string.

# cassandraexport

To export Cisco CMX history data from Cassandra to a CSV file, use the **cassandraexport** command.

```
cassandraexport [--date <yyyy/mm/dd>] [--table <tablename> | --file <filename> | --sql <sql statement> | --rowsprefetch <rows per fetch>}]
```

Syntax	Description
<b>--date</b> <yyyy/mm/dd>	Date on which the export is to be performed. This is required.
<b>--table</b> <table name>	(Optional) Name of the table to export.
<b>--file</b> <filename>	(Optional) Name of the CSV file. The default is /tmp/CassandraExport_sql.csv.
<b>--sql</b> <sql statement>	This option is not currently supported.
<b>--rowsprefetch</b> <rows per fetch>	(Optional) The default is 1000 rows.

**Command Default** None.

**Command Modes** CMX root user

Command History	Release	Modification
	Cisco CMX Release 10.3.0	This command was introduced.

**Usage Guidelines** This command extracts a maximum of only one day of data, starting from midnight of the date given to the time when the command is issued.

You can use these methods to export Cisco CMX data from Cassandra:

- The method that we most recommend is through the Notifications feature (**Manage > Notifications > New Notification**). For more information, see the “Managing Notifications from Applications” section in the *Cisco Connected Mobile Experiences Configuration Guide* for this release at: <http://www.cisco.com/c/en/us/support/wireless/mobility-services-engine/products-installation-and-configuration-guides-list.html>
- An alternative method is to use the **cassandraexport** command, and to export daily. We recommend that you schedule the export during a quiet period of the day, for example 2:00 A.M. If you use this method during a time when the system is continuously changing, a timeout can occur.
- Use the Cisco CMX History API only if your export does not exceed 2000 records, for example 100 floors.

## Example

The following example shows how to export Cisco CMX data from Cassandra to a CSV file:

```
[cmxadmin@server]# /opt/cmx/bin/cassandraexport --date 2017/06/14
```

```
Data exported into the file /tmp/CassandraExport_201706150220-02.csv
```

# cmxctl checkdb

To check the database for schema integrity, use the **cmxctl checkdb** command.

```
cmxctl checkdb { cassandra | postgres }
```

<b>Syntax Description</b>	<b>cassandra</b> Checks the cassandra schema.				
	<b>postgres</b> Checks the postgres schema.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.3</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.3	This command was introduced.
Release	Modification				
Cisco CMX Release 10.3	This command was introduced.				

## Example

The following example shows how to the schemen integrity for cassandra and postgres database:

```
[cmxadmin@server]# cmxctl checkdb cassandra
Schema passed analytics
Schema passed loc
Schema passed mse
Cassandra passed schema validation

[root@server]# cmxctl checkdb postgres
Schema passed analytics
Schema passed loc
Schema passed mse
Postgres passed schema validation
```

# cmxctl checklogs

To check logs and generate a report, use the **cmxctl checklogs** command.

## cmxctl checklogs

### Command Default

None

### Command Modes

CMX admin user

### Usage Guidelines

After a report is generated, the specific log that shows the error can be viewed for additional details. For example, `/opt/cmx/var/log/cmxjobs.log.3` has 108 errors, use the command **more** `/opt/cmx/var/log/cmxjobs.log.3` to view the corresponding file.

The following example shows how to check logs and generate a report:

```
[cmxadmin@cmx]# cmxctl checklogs

*****
Checking /opt/cmx/var/log/cmxjobs.log.3 for errors..
/opt/cmx/var/log/cmxjobs.log.3 has 108 errors
*****
Checking /opt/cmx/var/log/system-cron.log for errors..
/opt/cmx/var/log/system-cron.log has 0 errors
*****
Checking /opt/cmx/var/log/cmxjobs.log for errors..
/opt/cmx/var/log/cmxjobs.log has 81 errors
*****
Checking /opt/cmx/var/log/collectd.log for errors..
/opt/cmx/var/log/collectd.log has 0 errors
*****
Checking /opt/cmx/var/log/consul.log for errors..
/opt/cmx/var/log/consul.log has 0 errors
*****
Checking /opt/cmx/var/log/qless-py-worker.log for errors..
/opt/cmx/var/log/qless-py-worker.log has 0 errors
*****
Checking /opt/cmx/var/log/influxdb.log for errors..
/opt/cmx/var/log/influxdb.log has 0 errors
*****
Checking /opt/cmx/var/log/cmxjobs.log.4 for errors..
/opt/cmx/var/log/cmxjobs.log.4 has 108 errors
*****
```

# cmxctl config analytics

To configure general analytics settings, use the **cmxctl config analytics** command:

```
cmxctl config analytics {cleanRedis | enableMinDwellFilter | {True | False} | setMinDwellFilter <value> | setNumMonthsRepeatHistory <value> | view}
```

Syntax Description		
<b>cleanRedis</b>		Removes old, invalid Redis bloom filters.
<b>enableMinDwellFilter</b> {True   False}		<ul style="list-style-type: none"> <li>• <b>True</b>—Enables the minimum dwell filter.</li> <li>• <b>False</b>—Disables the minimum dwell filter. This is the default.</li> </ul>
<b>setMinDwellFilter</b> <value>		Sets the minimum dwell filter value [0-1440]. The default is 0.
<b>setNumMonthsRepeatHistory</b> <value>		Sets the number of months [0-6] to retain the repeat history. The default is 6.
<b>view</b>		Displays the general analytics settings.

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.5	Additional subcommands were added.
	Cisco CMX Release 10.3.1	This command was introduced.

## Usage Guidelines

You can set a minimum dwell filter to filter out visitors whose dwell at the root campus level is less than a specified amount. The root campus level encompasses all campuses; it represents the root of the heterarchy. This affects the aggregated data, so once the filter is enabled, it applies to all reports for that day moving forward (until it is disabled again). This filter does not affect the raw visits.

If you configure the minimum dwell filter setting, you must restart Cisco CMX for the change to take effect. Use the **cmxctl restart** command to restart Cisco CMX.



**Note** Use the minimum dwell filter only if you don't want to see devices that spend less than the minimum number of minutes at the root campus level.

Repeat history is kept for the current month and the set number of previous months. This set number of months must be in the range of 0 to 6 months. You do not need to restart Cisco CMX to put this setting into effect.



**Note** If you use the **setNumMonthsRepeatHistory** command, all current repeat history is deleted.

## Examples

The following example shows how to display the current general analytics settings:

```
[cmxadmin@cmx]# cmxctl config analytics view
```

```
+-----+-----+
| enableMinimumDwellFilter | True |
+-----+-----+
| minimumDwellFilter       | 30  |
+-----+-----+
| numMonthsRepeatHistory   | 6   |
+-----+-----+
```

The following example shows how to set and enable the Analytics minimum dwell filter setting:

```
[cmxadmin@cmx]# cmxctl config analytics setMinDwellFilter 30
```

```
+-----+-----+
| enableMinimumDwellFilter | False |
+-----+-----+
| minimumDwellFilter       | 0    |
+-----+-----+
| numMonthsRepeatHistory   | 6    |
+-----+-----+
```

```
[root@server]# cmxctl config analytics enableMinDwellFilter True
```

```
+-----+-----+
| enableMinimumDwellFilter | True  |
+-----+-----+
| minimumDwellFilter       | 30   |
+-----+-----+
| numMonthsRepeatHistory   | 6    |
+-----+-----+
```

```
[root@server]# cmxctl analytics restart
```

```
.....
Service Analytics has successfully restarted.
```

The following example shows how to disable the minimum dwell filter setting:

```
[cmxadmin@cmx]# cmxctl config analytics cleanRedis
Cleaning up old bloom filters from redis on 2018-06-26
Month filter cutoff date = 2017-12-01
Current valid ids = [4, 3, 2, 1, 17, 18, 8, 9, 11, 12, 13, 14, 19]
cutoff = 2017-12-01
validids = [4, 3, 2, 1, 17, 18, 8, 9, 11, 12, 13, 14, 19]
cutoff = 2018-06-25
validids = [4, 3, 2, 1, 17, 18, 8, 9, 11, 12, 13, 14, 19]
Deleting key: Day_2018-06-23_2
Deleting key: Day_2018-06-24_4
Deleting key: Day_2018-06-21_2
Deleting key: Day_2018-06-21_12
Deleting key: Day_2018-06-24_12
Deleting key: Day_2018-06-22_12
Deleting key: Day_2018-06-23_4
Deleting key: Day_2018-06-21_8
Deleting key: Day_2018-06-23_12
Deleting key: Day_2018-06-22_2
Deleting key: Day_2018-06-24_8
Deleting key: Day_2018-06-22_8
Deleting key: Day_2018-06-21_14
Deleting key: Day_2018-06-22_4
Deleting key: Day_2018-06-23_14
Deleting key: Day_2018-06-24_2
```

The following example shows how to set the repeat history setting:

```
[cmxadmin@cmx]# cmxctl config analytics setNumMonthsRepeatHistory 5
```

Doing this will delete current history for ALL months. This will affect aggregated report data but will NOT affect raw visits data. Do you want to continue? [y/N]: y  
Successfully change the number of months tracked for repeat history.

```
+-----+  
| enableMinimumDwellFilter | False |  
+-----+  
| minimumDwellFilter      | 0    |  
+-----+  
| numMonthsRepeatHistory  | 5    |  
+-----+  
[root@server]# #
```

## cmxctl config aps delete

To delete an access point from Cisco CMX, use the **cmxctl config aps delete** command.

**cmxctl config aps delete** *MAC Address*

<b>Syntax Description</b>	<i>MAC Address</i> Displays the MAC address of the access point.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco CMX Release 10.4</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				
<b>Usage Guidelines</b>	This command should be run at the cmxadmin level.				

# cmxctl config audit

To enable and manage the remote logging of system events (syslogs), use the **cmxctl config audit settings** command. To view logged files, use the **cmxctl config audit view** command.

**cmxctl config audit** {**status** | **settings** | **view**}

Syntax Description	status	Displays whether audit logging is running on CMX, or is disabled. For example, Remote Audit Logging = Disabled.
settings	Enables, disables and configures audit log settings. See Usage Guidelines for information.	
view	Displays all or specific log files. See Usage Guidelines for information.	
Command Default	By default, remote system logging is disabled.	
Command Modes	CMX admin user	
Command History	Release	Modification
	Cisco CMX Release 10.5.0	This command was introduced.

## Usage Guidelines

- The command **cmxctl config audit settings** prompts you to enter the following configuration questions. If you enter no value, CMX selects the default value, shown in [brackets].



**Note** To enable remote audit logging, enter a remote syslog IP address, port number and domain name. Otherwise, only local audit logging is enabled.

```
[cmxadmin@cmx]#cmxctl config audit settings
Enable or Disable Remote Syslogging [Enable / Disable] [Enable]:
If logs size goes beyond lgb, drop or overwrite messages? [drop / overwrite] [overwrite]:
Please enter rsyslog IP:
Please enter rsyslog port [514]:
Please enter rsyslog DNS name: yoursyslogserver.yourco.com
Please enter the email IDs (comma separated) for mail alerts: email@example.com
```

Follow the prompts to select what events you would like logged:

```
Please select the events to be logged
All Events [yes/no] [yes]:
```

If you enter **yes**, all events are logged. If **no**, answer the following prompts:

```
Enter day [today(1)/yesterday(2)/last week(3)/last month(4)/all(5)] [5]:
Enter event type [MGMT_EVENT(1)/CONN_EVENT(2)/AUTH_EVENT(3)/CONF_EVENT(4)/ALL(5)] [5]:
Enter identity [root(1)/admin(2)/all(3)] [3]:
Enter status [success(1)/failure(2)/all(3)] [3]:
```

- The command **cmxctl config audit view** prompts you to enter which types of logs you want to view.

```
Show all logs [yes/no] [yes]:
```

If you enter **yes**, all logged events are displayed. If **no**, answer the following prompts, or **Enter** to accept the default value.

```
Enter day [today(1)/yesterday(2)/last week(3)/last month(4)/all(5)] [5]:
Enter event type [MGMT_EVENT(1)/CONN_EVENT(2)/AUTH_EVENT(3)/CONF_EVENT(4)/ALL(5)] [5]:
Enter identity [root(1)/admin(2)/all(3)] [3]:
Enter status [success(1)/failure(2)/all(3)] [3]:
```

## Examples

The following example shows how to enable remote system logging of all events:

```
[cmxadmin@cmx]# cmxctl config audit settings
Enable or Disable Remote Syslogging [Enable / Disable] [Enable]:
If logs size goes beyond lgb, drop or overwrite messages? [drop / overwrite] [overwrite]:
Please enter rsyslog IP: 168.172.1.20
Please enter rsyslog port [514]: 514
Please enter rsyslog DNS name: s1s1296@wowco.com
Please enter the email IDs (comma separated) for mail alerts: email@example.com

Remote Audit Logging = Enabled

Please select the events to be logged
All Events [yes/no] [yes]: yes
Settings saved

Restarting rsyslog service
Shutting down system logger: [OK]
Starting system logger: [OK]
```

The following example shows how to display all admin-level success status logs for the current day.

```
[cmxadmin@cmx]# cmxctl config audit view
Show all logs [yes/no] [yes]: no
Enter day [today(1)/yesterday(2)/last week(3)/last month(4)/all(5)] [5]: 1
Enter event type [MGMT_EVENT(1)/CONN_EVENT(2)/AUTH_EVENT(3)/CONF_EVENT(4)/ALL(5)] [5]: 5
Enter identity [root(1)/admin(2)/all(3)] [3]: 2
Enter status [success(1)/failure(2)/all(3)] [3]: 1
```

CMX displays the selected logs.

## cmxctl config auth

To set strong CMX authentication requirements for passwords, logging in, and session timeout, use the **cmxctl config auth settings** command. To view these authentication settings, use the **cmxctl config auth show** command.

**cmxctl config auth** {**settings** | **show**}

Syntax Description	settings	Configures CMX authentication settings.
	show	Displays CMX authentication settings.

**Command Default** By default, strong authentication is not enabled.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6.2	This command was modified to set fail interval to 15 minutes when UCAPL mode is enabled. Added two new parameters: <b>Maximum password lifetime</b> and <b>Password Expiry Warning Period</b> .
	Cisco CMX Release 10.6	This command was modified to add the default values for FIPS and UCAPL.
	Cisco CMX Release 10.5.0	This command was introduced.

**Usage Guidelines** The command **cmxctl config auth** prompts you to set the appropriate values, according to your system authentication settings.

```
Enable strong password [yes / no] [yes]:
Minimum password length [8-20] [8]:
Maximum password lifetime [1-9999] [9999]:
Password Expiry Warning Period [1-30] [14]:
Unsuccessful login attempts before account lock [3-5] [3]:
Fail interval in minutes [1-120] [15]:
Account lockout interval in minutes [1-120] [30]:
Session idle timeout in minutes [1-120] [30]:
```

- CMX authentication defaults with FIPS/UCAPL off:

```
Enable strong password: yes/no
Minimum password length: 8-20 characters
Maximum password lifetime: [1-9999]
Password Expiry Warning Period [1-30]
Unsuccessful login attempts before account lock: 3-5 attempts
Fail interval in minutes: [1-120]
Set session timeout in minutes: 10-60 minutes
```

- CMX authentication defaults in FIPS mode:

```

Enable strong password [yes / no] [yes]:
Minimum password length [8-20] [8]:
Maximum password lifetime [1-9999] [9999]:
Password Expiry Warning Period [1-30] [14]:
Unsuccessful login attempts before account lock [3-5] [3]:
Account lockout interval in minutes [1-120] [30]:
Session idle timeout in minutes [1-120] [30]:
Restart services for the changes to take effect

```

- **CMX authentication defaults in UCAPL mode:**

```

Enable strong password [yes / no] [yes]:
Minimum password length [15-20] [15]:
Maximum password lifetime (in days): 60 days
Password Expiry Warning Period (in days): 7 days
Unsuccessful login attempts before account lock is set to 3 for UCAPL mode.
Fail interval in minutes [1-120] [15]:
Account lockout interval in minutes [1-120] [30]:
Session timeout is set to 15 minutes for UCAPL mode.
Enable Global session timeout (10 mins) for UCAPL mode [yes / no] [no]:
Global Session timeout set to: 15 minutes
Restart services for the changes to take effect

```




---

**Note** Fail interval is automatically set to 15 minutes when UCAPL mode is enabled. Cisco CMX account will be locked if consecutive failed login attempts occur within the set fail interval period.

---

- **CMX authentication defaults in UCAPL over FIPS mode:**

```

Enable strong password: yes
Minimum password length: 15-20 characters
Unsuccessful login attempts before account lock: 3
Enable Global session timeout (10 mins) for Web UI: yes

```

## Examples

The following example shows how to display security parameters for a FIPS-enabled CMX:

```

[cmxadmin@cmx]# cmxctl config auth show

Enable strong password : yes
Minimum password length : 8
Maximum password lifetime : 9999
Password Expiry Warning Period : 30
Unsuccessful login attempts before account lock : 3
Fail interval in minutes : 15
Account Lockout interval in minutes : 30
Session idle timeout in minutes : 30

```

## Examples

The following example shows how to configure auth settings:

```

[cmxadmin@cmx]# cmxctl config auth settings
Enable strong password [yes / no] [yes]: yes
Minimum password length [8-127] [8]: 8

```

```

Maximum password lifetime [1-9999] [9999]:9999
Password Expiry Warning Period [1-30] [14]:30
Unsuccessful login attempts before account lock [3-5] [3]: 3
Fail interval in minutes [1-120] [15]: 15
Account lockout interval in minutes [1-120] [30]: 30
Session idle timeout in minutes [1-720] [30]:
Restart services for the changes to take effect

```

The following example shows how to view the auth settings:

```

[cmxadmin@cmx]# cmxctl config auth show
Enable strong password : yes
Minimum password length : 8
Maximum password lifetime :9999
Password Expiry Warning Period :30
Unsuccessful login attempts before account lock : 3
Fail interval in minutes : 15
Account Lockout interval in minutes : 30
Session idle timeout in minutes : 30

```

#### Related Commands

Command	Description
<b>cmxctl config fips</b>	Enables FIPS mode, which requires strong authentication.
<b>cmxctl config fips ucaplmode</b>	Enables UCAPL over FIPS mode, which requires strong authentication.

# cmxctl config authinfo get

To view the the SHA1 (keyHash) and SHA2(sha2KeyHash) strings, use the **cmxctl config authinfo get** command.

**cmxctl config authinfo get**

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.4	This command was introduced.

**Usage Guidelines** This command gets the authorization information for NMSP connections to the controllers.

## Example

The following example shows how to get the authorization information:

```
[cmxadmin@cmx]# cmxctl config authinfo get
```

macAddress	keyHashString	sha2KeyHashString
00:0c:29:07:36:84	e743ac54029ce36282c582f04fb45ec187c824d	560d69882adb90dda10227651da0c6a2850999620b50f83ed0d157fb87d1a920

# cmxctl config banner

To create and manage a banner that displays when users log into CMX, use the **cmxctl config banner** command.

**cmxctl config banner** {**disable** | **edit** | **show**}

Syntax Description	disable	Disable the login banner.
	<b>edit</b>	Edit the login banner text.
	<b>show</b>	Display the login banner.

**Command Default** By default, CMX has no login banner.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.5.0	This command was introduced.
	Cisco CMX Release 10.6	This command was modified to include <b>disable</b> keyword.

**Usage Guidelines** None

## Examples

The following example shows how to create the login banner “CentOS release 7.0.”

```
[cmxadmin@cmx]# cmxctl config banner edit
Current Login Banner = []
Enter text to be displayed as login banner. Enter a single period on a line to terminate.
CentOS release 7.0
.
```

When you log into the CLI, you would see something like this:

```
login as: cmxadmin
CentOS release 7.0
cmxadmin@168.172.1.20's password:
Last login: 6/5/2018 1:10 PM
```

When you log into CMX from a browser, the banner message appears in a pop-up window on the login page.

The following example shows how to disable the login banner.

```
[cmxadmin@cmx]# cmxctl config banner disable
Login banner disabled successfully
```

## cmxctl config certs

To create, import, or manage security key certificates, use the **cmxctl config certs** command.

```
cmxctl config certs {clear | clientcertvalidation {enable | disable} | createcsr | importcacert
filename.pem | importcrl filename.pem | importcrlurl URL | importsyslogca filename.pem |
importradiusca filename.pem | importservercert filename.pem | installnewcerts | keytype {RSA
| ECDSA} | show}
```

### Syntax Description

<b>clear</b>	Clears certificate files in the <code>/opt/cmx/srv/certs</code> directory.
<b>clientcertvalidation</b>	When FIPS or UCAPL is enabled, configures CMX to validate all client certificates. <ul style="list-style-type: none"> <li>• <b>Enable</b> — requires every CMX user to have a client certificate.</li> <li>• <b>disable</b> — does not check for client certificates.</li> </ul>
<b>createcsr</b>	Creates a new public and private keypair, and generates a corresponding Certificate Signing Request (CSR).
<b>importcacert</b> <i>filename.pem</i>	Imports a Certificate of Authority (CA) Privacy Enhanced Mail (pem) file.
<b>importcrl</b> <i>filename.pem</i>	Imports a Certificate Revocation List (CRL) pem file.
<b>importcrlurl</b> <i>URL</i>	Imports the URL of the CRL online, to keep the CRL current.
<b>importsyslogca</b> <i>filename.pem</i>	Imports a CA pem file for the remote syslog server.
<b>importradiusca</b> <i>filename.pem</i>	Imports a CA pem file for the Radius/AAA server.
<b>importservercert</b> <i>filename.pem</i>	Imports the signed certificate and private key for the CMX server, concatenated into a single pem file. <p><b>Note</b> When certificates are imported, there is a validity check that verifies the start date and end date. If the dates are not within the range or if the certificates are going to expire soon (within 30 days), an alert is generated on <b>System &gt; Alerts</b> tab in Cisco CMX. The alert will be generated once a day until certificate expires or new valid certificate is installed.</p>

<b>installnewcerts</b>	Generates new self-signed certificates.  <b>Note</b> When certificates are imported, there is a validity check that verifies the start date and end date. If the dates are not within the range or if the certificates are going to expire soon (within 30 days), an alert is generated on <b>System &gt; Alerts</b> tab in Cisco CMX. The alert will be generated once a day until certificate expires or new valid certificate is installed.
<b>keytype</b>	Selects your encryption algorithm key type.  <ul style="list-style-type: none"> <li>• <b>RSA</b> — Install the Rivest–Shamir–Adleman (RSA) encryption algorithm.</li> <li>• <b>ECDSA</b> — Install the Elliptic Curve Digital Signature Algorithm (ECDSA).</li> </ul>
<b>show</b>	Displays certificate details.

**Command Default** By default, authentication certificates are not created, imported, or validated.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6.2	This command was modified to include <b>importradiusca</b> <i>filename.pem</i> keyword.
	Cisco CMX Release 10.6	This command was modified to include <b>clientcertvalidation</b> , <b>importcontrollerca</b> , and <b>importrsyslogca</b> keywords.
	Cisco CMX Release 10.5.0	This command was introduced.

### Usage Guidelines



**Note** Certificates and keys are stored in the `/opt/cmx/srv/certs` folder.

Cisco recommends following this deployment order for **cmxctl config certs** commands.

1. **cmxctl config certs clear** — Optional, but recommended. Clears any certificates from the `/opt/cmx/srv/certs` directory.
2. **cmxctl config certs keytype** — Selects your key type: RSA (the default) or ECDSA.
3. **cmxctl config certs installnewcerts** — Generates new self-signed certificates in the `/opt/cmx/srv/certs` directory.
4. **cmxctl config certs createcsr** — Creates a Certificate Signing Request (CSR).
  - Private key — `/opt/cmx/srv/certs/cmserverkey.pem`

- CSR — /opt/cmx/srv/certs/cmxservercsr.pem

5. Send the CSR to an external CA, to obtain a signed certificate for the CMX server.
6. **cmxctl config certs importcert** — Installs the CA certifications. At the prompt, provide an export and import password specific to this command.
7. **cmxctl config certs importservercert** — Installs the CA-signed server certificate and the private key as a concatenated pem file. At the prompt, provide an export and import password specific to this command.

The command **cmxctl config certs clientcertvalidation enable** prompts you to answer whether or not you want CMX to accept invalid client certificates.

Do you want to accept invalid client certificate? [yes/no] [no]:

- **no**—Enables client certificate validation, and will not accept invalid client certificates.
- **yes**—Enables client certificate validation, but will accept invalid client certificates.

### Examples

The following example shows how to clear out old certificates from the /opt/cmx/srv/certs directory.

```
[cmxadmin@cmx]# cmxctl config certs clear
Clear Certificates
```

The following example shows how to select key type ECDSA:

```
[cmxadmin@cmx]# cmxctl config certs keytype
Please enter key type [RSA / ECDSA] [RSA]:ECDSA
Keytype is set to ECDSA.
```

The following example shows how to generate new self-signed certification files in the /opt/cmx/srv/certs directory using an RSA key:

```
[cmxadmin@cmx]# cmxctl config certs installnewcerts
Keytype is RSA, generating RSA key with length 4096
Generating RSA private key, 4096 bit long modulus
.....
.....
e is 65537 (0x10001)
Generating RSA private key, 4096 bit long modulus
.....
.....
e is 65537 (0x10001)
Signature ok
subject=/C=US/ST=CA/L=San Jose/O=MSE/CN=ServerCrt
Getting CA Private Key
Certificates are valid.
New self-signed certificates installed successfully.
```

To apply these certificate changes, CMX Services will be restarted now. Please press Enter to continue.

The following example shows how to create a new certificate signing request (CSR):

```
[cmxadmin@cmx]# cmxctl config certs createcsr

For SAN field of CSR, enter FQDN for CMXX server : servername.domain.com
Keytype is RSA, so generating RSA key with length 4096
Generating RSA private key, 4096 bit long modulus
.....
.....
e is 65537 (0x10001)
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]: US
State or Province Name (full name) [Some-State]: CA
Locality Name (eg, city) []: San Jose
Organization Name (eg, company) [Internet Widgits Pty Ltd]: Yourco, Inc.
Organizational Unit Name (eg, section) []: Gulag 10
Common Name (e.g. server FQDN or YOUR name) [servername.domain.com]:
wirelesstestserver.domain.com
Email Address []:email@yourco.com

Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:
An optional company name []:
The CSR is in: /opt/cmx/srv/certs
The Private key is in: /opt/cmx/srv/certs

CSR created successfully.
```

Sometimes two or more files need to be combined (or *concatenated*) before you can import the resulting file. For example, you may have intermediate CA certificates as well as root certs. This example shows how to concatenate the files `root-ca-cert.pem` and `intermediate-ca-cert.pem`, and import the resulting file to CMX.

1. Concatenate the files:

```
[cmxadmin@cmx]# cat root-ca-cert.pem intermediate-ca-cert.pem >
ca-chain.pem
```

2. Import the new file `ca-chain.pem`:

```
[cmxadmin@cmx]# cmxctl config certs importcacerts ca-chain.pem
Importing CA certificate.....
Enter Export Password: caexportpw
Verifying - Enter Export Password: caexportpw
Enter Import Password: caimportpw
Import CA Certificate successful
0
```

The `importservercert` command requires you to combine the server key and the server certificate into one pem file. The following example shows how to combine the files and import the resulting file.



**Note** Import CA chain certificates before importing the server certificate.

1. Concatenate the files:

```
[cmxadmin@cmx]# cat cmxserverkey.pem signed-cert.pem >
server-key-cert.pem
```

2. Import the new file `server-key-cert.pem`:

```
[cmxadmin@cmx]# cmxctl config certs importservercerts
server-key-cert.pem
```

```
Importing Server certificate.....
```

```
Successfully transferred the file
```

At the prompts, provide an export and import password specific to this command.

```
Enter Export Password: svreexportpw
Verifying - Enter Export Password: svreexportpw
Enter Import Password: svrimportpw
Private key present in the file: /home/cmxadmin/server-key-cert.pem
Enter Import Password: svrimportpw
No CRL URI found. Skipping CRL download.
Validation of server certificate is successful
Import Server Certificate successful
Restart CMX services for the changes to take effect.
Server certificate imported successfully.
```

To apply these certificate changes, CMX Services will be restarted now.  
Please press Enter to continue.

The following example shows how to display the details of the server certificate and all CA chain certificates:

```
[cmxadmin@cmx]# cmxctl config certs show

Certificate details

***** Certificate Listing *****
=====
***** UMLC CA Certificate(s) *****
=====

Certificate:
  Data:
    Version: 3 (0x2)
    Serial Number:
      b6:c0:fc:05:f6:27:45:1a
    Signature Algorithm: sha256WithRSAEncryption
    Issuer: C=US, ST=CA, L=San Jose, O=MSE, CN=RootCA
    Validity
      Not Before: Jan 19 05:17:33 2018 GMT
      Not After : Jan 18 05:17:33 2021 GMT
    Subject: C=US, ST=CA, L=San Jose, O=MSE, CN=RootCA
    Subject Public Key Info:
      Public Key Algorithm: rsaEncryption
      Public-Key: (4096 bit)
      Modulus:
```

```

00:ba:f2:2b:cd:87:90:23:f0:64:f5:83:d5:f2:90:
43:1a:16:36:c9:67:1a:82:f1:8f:6b:eb:1c:47:f1:
c4:fd:bf:55:98:ab:06:c0:90:dc:d7:13:1f:d3:2f:
12:e8:f2:74:66:65:7c:49:12:72:0c:27:9c:2e:84:
7e:29:a8:b6:18:62:5f:c2:97:a4:1c:e7:45:a2:cb:
f3:35:f3:64:15:e5:f0:27:6f:f1:07:61:41:9b:4c:
96:b3:56:d4:28:a4:85:90:86:52:4c:04:bc:da:38:
cc:f8:05:5b:3e:5c:03:b4:59:ec:8b:c9:5d:eb:61:
76:ba:20:3f:64:6c:25:5d:50:1e:85:37:ad:09:b2:
4a:fa:58:15:89:91:d9:5f:b8:9d:dd:64:31:8b:a4:
df:99:ff:ae:72:19:f8:a3:93:81:b9:4e:07:74:74:
95:b6:42:7b:5a:7d:38:92:4a:f4:86:5a:54:66:f0:
c1:fe:38:31:df;24:1c:40:94:36:67:8b:b3:56:93:
62:26:29:c2:cd:7f:7d:66:9d:f1:78:54:88:4f:6c:
b3:b7:80:54:05:03:09:c9:f9:14:65:8a:21:00:b5:

```

### Related Commands

Command	Description
<b>cmxctl config fips</b>	Enables FIPS mode, which requires these certificates.
<b>cmxctl config fips ucaplmode</b>	Enables UCAPL over FIPS mode, which requires these certificates.

# cmxctl config connect

To manage Cisco CMX Connect service data, use the **cmxctl config connect** command.

**cmxctl config connect deleteClientAll**

<b>Syntax Description</b>	<b>deleteClientAll</b> Deletes all the client data.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.5</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.5	This command was introduced.
Release	Modification				
Cisco CMX Release 10.5	This command was introduced.				

## Example

The following example shows how to delete all CMX connect clients:

```
[cmxadmin@cmx]# cmxctl config connect deleteClientsAll
Successfully Deleted Connect Data, deleted 1 clients
```

# cmxctl config controllers

To manage Cisco Wireless Controllers (Cisco WLC), use the **cmxctl config controllers** command.

```
cmxctl config controllers {activeaps | add | delete | floors wlc-ip-address | import | missingaps | show}
```

Syntax Description		
<b>activeaps</b>		Displays active access points.
<b>add</b>		Adds a Cisco WLC.
<b>delete</b>		Deletes a Cisco WLC.
<b>floors</b> <i>wlc-ip-address</i>		Displays floors managed by Cisco WLCs.
<b>import</b>		Imports a Cisco WLC from Cisco Prime Infrastructure by providing the corresponding credentials, or by placing an exported Cisco Prime Infrastructure MAP file in the /opt directory of the Cisco CMX server and providing the path to the exported MAP file.
<b>missingaps</b>		Lists the access points from which Cisco CMX has received data, but the access points are not yet placed on a map.
<b>show</b>		Displays information pertaining to a Cisco WLC.

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.3.1	The <b>missingaps</b> and <b>floors</b> keywords were added.
	Cisco CMX Release 10.3.0	This command was introduced.

**Usage Guidelines** The message "controller added successfully" after a Cisco WLC is added, refers only to the correct parsing of the command. You should issue a **cmxctl controllers show** command to ensure that the Cisco WLC is not active.

The **missingaps** keyword uses SNMP to retrieve the AP's MAC addresses from the access point's configuration cache every six hours. If the AP MAC address is not present, it will be displayed as NA on the CLI.

In addition, the AP MAC address will be displayed only if you have enabled the **configuration.apimport feature** flag by using the **cmxctl config featureflags configuration.apimport: true** command. For example:

```
[cmxadmin@server]# cmxctl config featureflags configuration.apimport true
```

```
+-----+-----+
| location.compactlocationhistory | false |
+-----+-----+
| configuration.apimport           | true  |
```

The AP MAC address import occurs every 6 hours, so for new APs added to the controller, the AP MAC value for missingap will be available only after the next job run.

## Examples

Starting from Cisco CMX Release 10.3.1, you can specify SNMP settings when you use the **cmxctl config controllers add** command. For example:

```
[cmxadmin@cmx]# cmxctl config controllers add
Please enter controller type [WLC / NGWC] [WLC]: WLC
Please enter controller ip: 0.0.0.0
Please enter the controller version [Optional]:
Please enter controller SNMP version [v1 / v2c / v3] [v2c]: v2c
Please enter controller SNMP write community [private]:
.....
Controller Added 0.0.0.0
```

The following example shows how to display the Cisco WLC information:

```
[cmxadmin@cmx]# cmxctl config controllers show
```

IP Address	Type	Version	Device Version	SHA2	Status
30.30.30.65	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.44	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.46	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.70	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.93	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.97	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.35	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.58	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.82	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.84	WLC	8.0.72.141	-	No	ACTIVE
30.30.30.53	WLC	8.0.72.141	-	No	ACTIVE

# cmxctl config data

To manage history data, use the **cmxctl config data** command.

## **cmxctl config data deleteAll**

<b>Syntax Description</b>	<b>deleteALL</b> Deletes all client history and analytics raw data.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.5</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.5	This command was introduced.
Release	Modification				
Cisco CMX Release 10.5	This command was introduced.				

## **Example**

This example shows how to delete client history and raw analytics data.

```
[cmxadmin@cmx]# cmxctl config data deleteAll
Do you wish to continue? All client history data, analytics data will be deleted and CMX
services will be restarted. [y/N]: y
Stopping all the services
All the Application services are stopped
Data Deletion Began
Deleting All Analytics Raw Visits Data
Deleting All Clients History Data
Starting all the services
All the Application services are restarted
```

# cmxctl config devicelimitalert

To manage percent setting at which warning alert is generated for unique device count on Cisco CMX, use the **cmxctl config devicelimitalert** command.

```
cmxctl config devicelimitalert {getalertpercent | setalertpercent percent}
```

<b>Syntax Description</b>	<b>getalertpercent</b> Displays the current percent setting after which warning alert is generated for <b>Unique Device Count</b> on Cisco CMX.				
	<b>setalertpercent</b> Sets a percentage limit for <b>Unique Device Count</b> warning alert on Cisco CMX.				
	<i>percent</i> Enter the percent settings after which a warning alert is generated for <b>Unique Device Count</b> on Cisco CMX. Percent value can be between 1-99. The default value is 90%.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.6.2</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.6.2	This command was introduced.
Release	Modification				
Cisco CMX Release 10.6.2	This command was introduced.				
<b>Usage Guidelines</b>	This command should be run at the cmxadmin level.				

## Example

The following example shows how to set percent setting after which a warning alert is generated for **Unique Device Count** on Cisco CMX:

```
[cmxadmin@cmx]# cmxctl config devicelimitalert setalertpercent
Percent after which Unique Device Alert gets generated [1-99] [90]: 50
Changed the Warning Alert Percent Setting for Device Count Successfully
```

## Example

The following example shows how to display the percent setting for **Unique Device Count** warning alert on Cisco CMX:

```
[cmxadmin@cmx]# cmxctl config devicelimitalert getalertpercent
90
```

# cmxctl config featureflags

To list and toggle feature flags, use the **cmxctl config featureflags** command.

```
cmxctl config featureflags {feature name} {true | false}
```

## Syntax Description

*service.featurename* Name of the Cisco CMX service and feature.

- location.compactlocationhistory
- configuration.oi.host
- configuration.apimport
- location.ssidfilterpersistblockedmacs
- location.rogueapclienthistory
- location.filteredssidscleanupatmidnight
- nmsplb.cmxgrouping
- monit
- container.influxdbreporter
- nmsplb.autolearnssids
- configuration.highendbypass
- apiserver.enabled
- location.computelocthroughassociatedap
- analytics.queueotime

---

**true** Enables the feature of the service.

---

**false** Disables the feature of the service

---

## Command Default

None

## Command Modes

CMX admin user

## Command History

Release	Modification
Cisco CMX Release 10.6.2	This command was modified to add more location feature names.
Cisco CMX Release 10.2.2	This command was changed. The display default for analytics.sma was changed to false.
Cisco CMX Release 10.2.0	This command was introduced.

### Example

The following example shows how to list the feature flags:

```
[cmxadmin@cmx]# cmxctl config featureflags
+-----+-----+
| location.compactlocationhistory      | false |
+-----+-----+
| configuration.oi.host                 | true  |
+-----+-----+
| configuration.apimport                | false |
+-----+-----+
| location.ssidfilterpersistblockedmacs | false |
+-----+-----+
| location.rogueapclienthistory        | false |
+-----+-----+
| location.filteredssidscleanupatmidnight | true  |
+-----+-----+
| nmsplb.cmxgrouping                   | false |
+-----+-----+
| monit                                 | true  |
+-----+-----+
| container.influxdbreporter            | true  |
+-----+-----+
| nmsplb.autolearnssids                 | true  |
+-----+-----+
| configuration.highendbypass           | false |
+-----+-----+
| apiserver.enabled                     | true  |
+-----+-----+
| location.computelocthroughassociatedap | false |
+-----+-----+
| analytics.queueetime                  | false |
+-----+-----+
```

# cmxctl config fips

To enable, verify, and manage Federal Information Processing Standards (FIPS) mode, use the **cmxctl config fips** command.

**cmxctl config fips** {**enable** | **status** | **verify**}

Syntax Description	enable	Enables FIPS mode.
	<b>status</b>	Displays FIPS mode status.
	<b>verify</b>	Verifies that your CMX system is correctly configured to support FIPS mode.

**Command Default** By default, FIPS mode is disabled.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6	This command was introduced.

**Usage Guidelines** Cisco CMX supports the Federal Information Processing Standard 140-2 (FIPS 140-2). FIPS 140-2 is a standard published by the National Institute of Standards and Technology (NIST) and is used to accredit cryptographic modules in software components. The US Federal government requires that all IT products dealing with Sensitive, but Unclassified (SBU) information meet these standards. If your system needs to be FIPS 140-2 compliant, you can enable FIPS. Once you do so, the system uses the cryptographic algorithms defined by the NIST for FIPS 140-2 for all encrypted communication between its internal and external components.



**Note** FIPS is a prerequisite to UCAPL mode. Enable and configure FIPS before running the **cmxctl config fips ucapl** command. See [cmxctl config fips ucaplmode](#), on page 35.

Cisco recommends that you run these commands before enabling FIPS mode:

- **cmxctl config certs...** —Removes old certificates and installs or imports new ones.
- **cmxctl config audit settings**—Configures CMX authentication settings.
- **cmxctl config certs importrsyslogca <cert.pem>**—Imports a CA pem file for the remote syslog server.
- **cmxctl config fips verify**—Checks to see if your system is correctly configured for FIPS.



**Note** Note that the command **cmxctl config fips enable** is irreversible. You cannot disable FIPS mode after you enable the FIPS mode.

The following example shows how to check that your CMX system is correctly configured to support FIPS mode. In this example, the system lacks the strong password required for FIPS compliance.

```
[cmxadmin@cmx]# cmxctl config fips verify
+-----+
| CA Certificate                | True |
+-----+
| Server Certificate            | True |
+-----+
| Server Key                    | True |
+-----+
| Rsyslog CA Certificate        | False|
+-----+

Certificate Validation

+-----+
| CA Cert Validation            | True |
+-----+
| Server Cert Validation        | True |
+-----+
| Client Cert Validation        | True |
+-----+

Security Configuration

+-----+
| Strong Password                | True |
+-----+
| Security Parameters            | True |
+-----+

Audit Logging

+-----+
| Audit Logging Status          | False|
+-----+
```

#### Related Commands

Command	Description
<b>cmxctl config auth</b>	Sets strong CMX authentication requirements, which are required for FIPS and UCAPL modes.
<b>cmxctl config certs</b>	Creates, imports, and manages security key certificates, which are necessary for FIPS and UCAPL modes.

## cmxctl config fips ipsecauth

To enable and manage pre-shared key (PSK) authentication in Federal Information Processing Standards (FIPS) mode, use the **cmxctl config fips ipsecauth** command.

**cmxctl config fips ipsecauth** { **disablepsk** | **enablepsk** | **status**}

Syntax Description	ipsecauth	Manages IPsec authentication.
	disablepsk	Disables pre-shared key (PSK) authentication.
	enablepsk	Enables PSK authentication.
	status	Displays the current IPsec authorization type. The default is <b>pubkey</b> .
Command Default	By default, pre-shared key (PSK) authentication is disabled.	
Command Modes	CMX admin user	
Command History	Release	Modification
	Cisco CMX Release 10.6	This command was introduced.

The following example shows how to enable pre-shared key (PSK) authentication.

```
[cmxadmin@cmx]# cmxctl config fips ipsecauth enablepsk
IPsec auth type changed to PSK.
IPsec is configured with PSK : U9u3Pr8agBoUQoP2bKtXtk555J1JxfNr
Configuring ipsec ....
In primary
Stopping strongSwan IPsec...
Starting strongSwan 5.6.2 IPsec [starter]...
```

# cmxctl config fips ucaplmode

To enable, view status, or disable compliance with the U.S. Department of Defense Unified Capabilities Approved Products List (UCAPL) certification, use the **cmxctl config fips ucaplmode** command.

**cmxctl config fips ucaplmode** {enable | disable | status}

Syntax Description	enable	Disables UCAPL over FIPS mode.
	disable	Enables UCAPL over FIPS mode.
	status	Displays UCAPL mode status.

**Command Default** By default, UCAPL mode is disabled.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6	This command was introduced.

**Usage Guidelines** UCAPL mode is a higher level of security than FIPS alone. Its purpose is to maintain a single consolidated list of products that have completed Interoperability and cybersecurity certification. Less secure protocols, such as HTTP, TLS ver. 1, and RSA 1024 are no longer supported. Once you have enabled FIPS mode, you have the option to enable UCAPL mode. UCAPL requires a 15-20 character password, and disk encryption, among other restrictions.

Once UCAPL mode is enabled, the following authentication changes are made, if they are not already specified:

- Enable strong password : yes
- Minimum password length : 15
- Unsuccessful login attempts before account lock : 3
- Session timeout in minutes : 10

The following example shows how to enable UCAPL over FIPS mode:

```
[cmxadmin@cmx]# cmxctl config fips ucaplmode enable
UCAPL mode enabled.
```

The CMX processes restart.

Related Commands	Command	Description
	<b>cmxctl config audit</b>	Enables and manages audit logging, which is necessary for UCAPL mode.
	<b>cmxctl config auth</b>	Sets strong CMX authentication requirements, which are required for FIPS and UCAPL modes.

<b>Command</b>	<b>Description</b>
<b>cmxctl config certs</b>	Creates, imports, and manages security key certificates, which are necessary for FIPS and UCAPL modes.
<b>cmxctl config fips</b>	Enables FIPS mode, which is a prerequisite to enable UCAPL mode.
<b>cmxos encryptdisk</b>	Enables post-installation disk encryption of the CMX /opt partition, which is a prerequisite to enable UCAPL mode.

# cmxctl config fips ucaplmode authserver

To add and manage external RADIUS authentication servers, use the **cmxctl config fips ucaplmode authserver** command.

**cmxctl config fips ucaplmode authserver** {delete | settings | show}

Syntax Description	delete	Remove an external RADIUS authentication server.
	settings	Add and configure an external RADIUS authentication server.
	show	Show external server configuration.

**Command Default** By default, no external RADIUS authentication server is configured.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6	This command was introduced.

**Usage Guidelines** Before running this command, create a Remote Authentication Dial-In User Service (RADIUS) user with information similar to the following example:

**Table 2: Example of RADIUS authentication user**

Entry	Values
File name:	/usr/local/etc/raddb/users
#Create user with User-Name =	radiusUser
radiusUser Cleartext-Password :=	"Cisco123"
Reply-Message =	"Hello, %{User-Name}"

The **cmxctl config fips ucaplmode authserver settings** command prompts you to configure the authentication server:

```
Enter external RADIUS authentication server host :
Enter RADIUS server shared secret key :
Configure local account. This account can be used if RADIUS server is not reachable.
Enter username :
Enter password :
Repeat for confirmation :
External RADIUS authentication server configured successfully.
```

The following example shows how to add an external RADIUS authentication server to CMX.



---

**Note** This example uses the values described in the Usage Guidelines.

---

```
[cmxadmin@cmx]# cmxctl config fips ucaplmode authserver settings  
  
Enter external RADIUS authentication server host : 168.192.28.114  
Enter RADIUS server shared secret key : Cisco123  
Configure local account. This account can be used if RADIUS server is not reachable.  
Enter username : radiusUser  
Enter password : Cisco123  
Repeat for confirmation : Cisco123  
External RADIUS authentication server configured successfully.
```

# cmxctl config fips ucaplmode autobackup

To enable or disable an automatic backup that will run when UCAPL mode is enabled, use the **cmxctl config fips ucaplmode autobackup** command.

## cmxctl config fips ucaplmode autobackup

**Command Default** By default, the CMX automatic backup is disabled. The backup duration is weekly.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6	This command was introduced.

**Usage Guidelines** All auto-backups are run weekly, on the day and hour you select.



**Note** You can configure the auto-backup without being in UCAPL mode, but it will not run until UCAPL mode is enabled.

The following example shows how to enable and configure an automatic backup for every Saturday night, while in UCAPL mode.

```
[cmxadmin@cmx]# cmxctl config fips ucaplmode autobackup
CMX Auto Backup is currently disabled.

Do you want to enable it ? (yes/no) [yes]: yes
CMX Auto Backup frequency is weekly.
Please select day and hour of the week to run the auto-backup.

Day of the week: [0=Sunday, 1=Monday ... 6=Saturday] [0]: 6
Hour of the day: [0-23] [2]: 10
CMX auto-backup is now enabled.
Redirecting to /bin/systemctl restart crond.service
auto-backup will execute every Saturday at 10:10 AM
```

## cmxctl config fips ucaplmode logFileAccess

To enable read/write access to configuration file, use the **cmxctl config fips ucaplmode logFileAccess** command.

**cmxctl config fips ucaplmode logFileAccess**

---

### Command Default

None.

---

### Command Modes

CMX admin user

---

### Command History

Release	Modification
Cisco CMX Release 10.6	This command was introduced.

The **cmxctl config fips ucaplmode logFileAccess** command prompts you to enable file access logging:

```
[cmxadmin@cmx]# cmxctl config fips ucaplmode logFileAccess
Enable File Access Logging [yes / no] [no]: yes
Restarting Audit Service
...
```

# cmxctl config fips ucaplmode logHTTPHeaders

To enable HTTP headers logging, use the **cmxctl config fips ucaplmode logHTTPHeaders** command.

**cmxctl config fips ucaplmode logHTTPHeaders**

## Command Default

None.

## Command Modes

CMX admin user

## Command History

Release	Modification
Cisco CMX Release 10.6	This command was introduced.

## Usage Guidelines

We recommend that you enable this command only if needed. Note that this command can degrade the performance of the system due to the excessive logging. Disable this command when not needed.

The **cmxctl config fips ucaplmode logHTTPHeaders** command prompts you to enable file access logging:

```
[cmxadmin@cmx]# cmxctl config fips ucaplmode logHTTPHeaders
Enable HTTP Headers Logging [yes / no] [no]: yes
Restarting haproxy service
True
Done
The nodeagent service is currently running with PID: 4061
Attempting to restart Haproxy
....Service Haproxy has successfully restarted
logHTTPHeaders is enabled.
```

## cmxctl config gateway

To change the gateway configuration for cloud beacon management, use the **cmxctl config gateway** command.

```
cmxctl config gateway { cmx_cloud_url URL | show }
```

Syntax Description		
<b>cmx_cloud_url</b>	Configure the cloud URL for Beacon Management.	
<i>URL</i>	Enter the cloud URL for Beacon Management.	
<b>show</b>	Displays the cloud URL configured for Beacon Management.	
Command Default	None	
Command Modes	CMX admin user	
Command History	Release	Modification
	Cisco CMX Release 10.5	This command was introduced.

### Examples

The following example shows how to display the gateway configuration for cloud beacon management:

```
[cmxadmin@cmx]# cmxctl config gateway show
CMX_CLOUD_SERVER: demo.com
```

# cmxctl config get

To display configuration information for Cisco CMX services, use the **cmxctl config get** command.

```
cmxctl config get [{analytics | cache_6378 | cache_6379 | cache_6380 | cache_6381 | cache_6382
| cache_6383 | cache_6385 | cache_6378 | cassandra | configuration | connect | database | haproxy
| hyperlocation | location | matlabengine | metrics | nmsplb}]
```

## Syntax Description

<b>analytics</b>	Performs analytics on calculated location data.
<b>agent</b>	Manages Cisco CMX system lifecycle. Starts, stops, and monitors all the services running in Cisco CMX.
<b>cache_6378</b>	Caches the service used by location service.
<b>cache_6379</b>	Caches the service used by location service.
<b>cache_6380</b>	Caches the service used by analytics service.
<b>cache_6381</b>	Caches the service used by analytics service.
<b>cache_6382</b>	Caches the service used by analytics service.
<b>cache_6383</b>	Caches the service used by analytics service.
<b>cache_6385</b>	Caches the service used by analytics service.
<b>cassandra</b>	Displays the cassandra database service used by the location service for historical data.
<b>configuration</b>	Configures nodes and clusters.
<b>connect</b>	Displays the connect services.
<b>database</b>	Displays the database service used by analytics and configuration service.
<b>haproxy</b>	Displays the TCP or HTTP load balancer gateway to all service APIs.
<b>hyperlocation</b>	Displays hyperlocation configuration.
<b>location</b>	Displays location service to compute location.
<b>matlabengine</b>	Provides access point heatmap for location service.
<b>metrics</b>	Collects system metrics.
<b>nmsplb</b>	Displays the load balancer service used for distributing Network Mobility Services Protocol (NMSP) messages to location services.

## Command Default

The default command **cmxctl config get** displays configuration information for all supported services when executed without options.

## Command Modes

CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.5	Additional services were documented.
	Cisco CMX Release 10.3.0	This command was introduced.

## Examples

The following example shows how to display configuration information for the CMX analytics service.

```
[cmxadmin@cmx]# cmxctl config get analytics
{
  "services": {
    "analytics": {
      "maxdirectmemory": "1536M",
      "maxnewsizem": "400M",
      "mem": "1536M"
    }
  }
}
```

Optionally, you can filter the results by using one of the listed configuration keywords. For example:

```
[cmxadmin@cmx]# cmxctl config get cassandra
{
  "services": {
    "cassandra": {
      "keycachesize": "100",
      "maxnewsizem": "800M",
      "mem": "4096M"
    }
  }
}
[root@server]$ cmxctl config get cassandra maxnewsizem
{"maxnewsizem": "800M"}
```

## cmxctl config heatmaps summary

To show the details of the heatmap from the location service, use the **cmxctl config heatmaps summary** command.

### **cmxctl config heatmaps summary**

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Command History**

<b>Release</b>	<b>Modification</b>
Cisco CMX Release 10.4	This command was introduced.

---

**Usage Guidelines**

This command should be run at the cmxadmin level.

## cmxctl config hyperlocation mixmode

To manage mixed mode for hyperlocation for a specified floor, use the **cmxctl config hyperlocation mixmode** command.

**cmxctl config hyperlocation mixmode** *Floor ID*{**enable** | **disable**}

<b>Syntax Description</b>	<i>Floor ID</i> Provides the specific floor ID.				
	<b>enable</b> Enables mixed mode support for hyperlocation for the specified floor.				
	<b>disable</b> Disables mixed mode support for hyperlocation for the specified floor.				
<b>Command Default</b>	None				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.4</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				

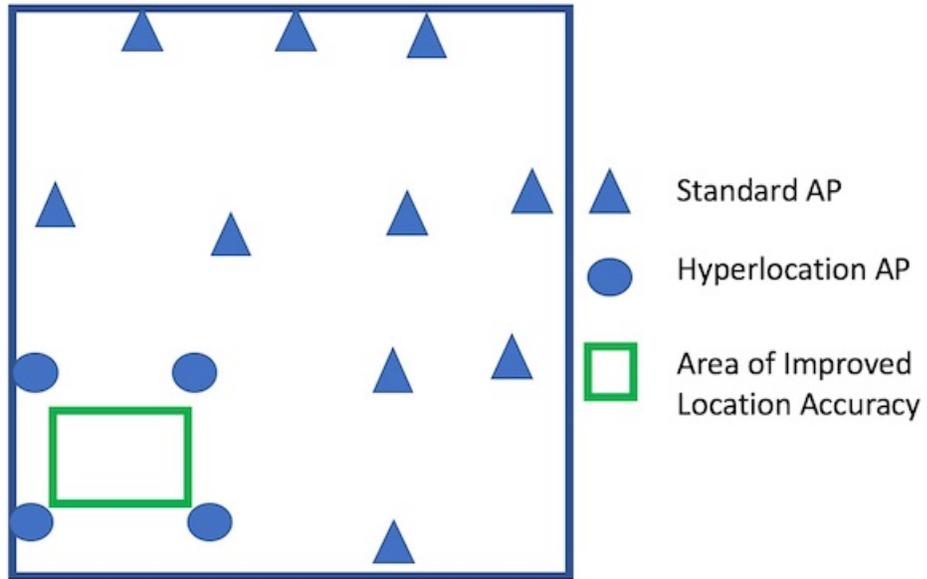
### Usage Guidelines

We recommend that you use this command in a scenario where on a single floor there are both Hyperlocation enabled AP and non Hyperlocation APs. The improved location accuracy that comes from the use of Hyperlocation AP will occur within the convex hull of the Hyperlocation APs. Outside of this convex, standard location accuracy results will occur. At the edges of the convex hull there may also be lower accuracy, when clients are at least 10M inside of the convex hull.

This command does not support the interspersation of Hyperlocation AP with non Hyperlocation AP. If this is type of deployment is used, then there will be no improvement in location over standard probe RSSI based location.

The following is an example of a supported deployment:

Figure 1: Supported Hyperlocation Mixed Mode Deployment



# cmxctl config import

To import a map and Cisco Catalyst 9800 Wireless Controller from Cisco Prime Infrastructure, use the **cmxctl config import** command.

```
cmxctl config import {prime | status}
```

<b>Syntax Description</b>	<b>prime</b> Imports maps from Cisco Prime Infrastructure. <b>status</b> Shows import status.
<b>Command Default</b>	None.
<b>Command Modes</b>	CMX admin user

## Examples

The following example shows how to import a map and controller from Cisco Prime Infrastructure:

```
[cmxadmin@cmx]# cmxctl config import prime  
  
Please enter PI ip address: x.x.x.x  
Please enter PI username [root]: root  
Please enter PI password [Public123]:  
Import successfully started from PI x.x.x.x. Check import status using cmxctl config  
import status.
```

# cmxctl config ipsec

To manage IP security (IPSec) protocol, use the **cmxctl config ipsec** command.

**cmxctl config ipsec** {**authtype** | **disable** | **enable** | **restart** | **start** | **status** | **stop**}

## Syntax Description

<b>authtype</b>	Changes IPSec authentication type.
<b>disable</b>	Disables IPSec protocol.
<b>enable</b>	Enables IPSec protocol.
<b>restart</b>	Restarts IPSec tunnel.
<b>start</b>	Starts IPSec tunnel.
<b>status</b>	Shows IPSec status.
<b>stop</b>	Stops IPSec status.

## Command Default

None.

## Command Modes

CMX admin user

## Command History

Release	Modification
Cisco CMX Release 10.6.1	This command was introduced.

## Usage Guidelines

The default authentication type for IPSec is “PUBKEY”/Public Key. It is set when you run the **cmxctl config ipsec enable** command.

## Example

The following example shows how to enable IPSec:

```
[cmxadmin@cmx]# cmxctl config ipsec enable
Do you want to enable IPSec? (y/n) [n]: y
IPSec is enabled and Authtype set to PUBKEY
Configuring ipsec ....
In primary
Stopping strongSwan IPsec failed: starter is not running
Starting strongSwan 5.6.2 IPsec [starter]...
IPSEC tunnel established successfully with 192.0.2.1
```

The following example shows how to display the status of the IPSec service:

```
[cmxadmin@cmx]# cmxctl config ipsec status
IPSec is enabled
IPSec Authentication Type = Public Key (Certificate)

Security Associations (1 up, 0 connecting):
  rsyslog[2]: ESTABLISHED 18 seconds ago,
  192.0.2.1[cisco-cmx-ova-30]...192.0.2.3[cisco-cmx-ova-32]
```

```
rsyslog{2}:  INSTALLED, TUNNEL, reqid 1, ESP SPIs: c549935a_i c02aee35_o
rsyslog{2}:  192.0.2.1/32 === 192.0.2.3/32
```

The following example shows how to change the authentication type:

```
[cmxadmin@cmx]# cmxctl config ipsec authtype
Current IPsec Auth Type = PUBKEY
Do you want to change it? (y/n) [n]: y
Select IPsec Auth Type: (PUBKEY/PSK) [PUBKEY]: PSK
IPsec auth type changed to PSK.
IPsec is configured with PSK : nIXRjNrMiNzcKj7yVZ0Nod5IzxUyO9XZ
Configuring ipsec ....
In primary
Stopping strongSwan IPsec...
Starting strongSwan 5.6.2 IPsec [starter]...
Failed to establish IPSEC tunnel with 192.0.2.3 (cisco-cmx-ova-32)
```

The following example shows how to restart the IPsec service:

```
[cmxadmin@cmx]# cmxctl config ipsec restart
Starting IPsec tunnel ...
Stopping strongSwan IPsec...
Starting strongSwan 5.6.2 IPsec [starter]...
establishing CHILD_SA rsyslog{2}
generating CREATE_CHILD_SA request 2 [ N(USE_TRANSP) SA No TSi TSr ]
sending packet: from 192.0.2.1[500] to 192.0.2.3[500] (272 bytes)
received packet: from 192.0.2.3[500] to 192.0.2.1[500] (208 bytes)
parsed CREATE_CHILD_SA response 2 [ N(USE_TRANSP) SA No TSi TSr ]
CHILD_SA rsyslog{2} established with SPIs c8553144_i c727bbd3_o and TS 10.30.114.175/32 ===
10.30.114.177/32
connection 'rsyslog' established successfully
IPsec tunnel established successfully
```

# cmxctl config loginrate

To configure login rate limit, use the **cmxctl config loginrate** command.

**cmxctl config loginrate** {**disable** | **enable** | **resetall** | **resetuser***username* | **status**}

Syntax	Description
<b>disable</b>	Disables login rate limit.
<b>enable</b>	Enables login rate limit.
<b>resetall</b>	Resets login rate details for all the users.
<b>resetuser</b> <i>username</i>	Resets login rate details for a specific user.
<b>status</b>	Displays the login rate status as enabled or disabled.

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6.1	This command was introduced.

## Example

The following example shows how to enable login rate limit:

```
[cmxadmin@cmx]# cmxctl config loginrate enable
Enter the allowed number of login failure for a user per source ip [3]: 3
Enter the number of source IPs for which login failure is to be maintained [3]: 3
Enter the total allowed number of login failure for a user [10]: 10
Login rate limit enabled
```

The following example shows how to disable login rate limit:

```
[cmxadmin@cmx]# cmxctl config loginrate disable
Login rate limit is disabled
```

The following example shows how to reset login rate limit for a specific user:

```
[cmxadmin@cmx]# cmxctl config loginrate reset admin
The user details have been reset.
```

# cmxctl config manageacl

To manage CMX access control lists (ACLs), use the **cmxctl config manageacl** command.

**cmxctl config manageacl** {**add** | **disable** | **enable** | **status**}

## Syntax Description

<b>add</b>	Adds an access control list.
<b>disable</b>	Disables ACL authentication.
<b>enable</b>	Enables ACL authentication.
<b>status</b>	Displays access control list status information.

## Command Default

By default, access control lists are disabled.

## Command Modes

CMX admin user

## Command History

Release	Modification
Cisco CMX Release 10.6	This command was introduced.

## Usage Guidelines

When ACLs are enabled, only the servers added in the ACL will be allowed to access CMX through SSH or HTTPS.

The following example shows how to enable access control lists, and add servers to the ACL.

```
[cmxadmin@cmx]# cmxctl config manageacl enable

[cmxadmin@cmx]# cmxctl config manageacl add
inside aclAdd.
Enter the ip address to be added in the ACL: 168.172.12.18
Do you want to add more ip address in the ACL [Y/n]: Y
Enter the ip address to be added in the ACL: 172.19.35.122
Do you want to add more ip address in the ACL [Y/n]: n
```

The following example shows how to display access control list status information.

```
[cmxadmin@cmx]# cmxctl config manageacl status

ACL is enabled
The following ip addresses are allowed to access the CMX box.
Use add command to add the ipaddresses if the list is empty.
168.172.10.10
168.172.10.57
168.172.12.18
168.172.35.122
```

# cmxctl config maps address

To set a directory path to an optional map address file, use the **cmxctl config maps address** command.

```
cmxctl config maps address --path filepath
```

<b>Syntax Description</b>	<b>--path</b> <i>filepath</i>	Sets the directory path to an optional map address file. See Usage Guidelines for more information.
<b>Command Default</b>	None.	
<b>Command Modes</b>	CMX admin user	
<b>Usage Guidelines</b>	Use the <b>cmxctl config maps address</b> command to access an optional map address file that you can associate with a map. This is not a necessary step for maps you create in CMX and PI, but you may have a map from another source that requires a valid address.	
		
<b>Note</b>	The first entry in each line of the map address file should be the fully-qualified name and address in Campus>Building format. For example: My Campus>My Building, 123 Road St, San Jose CA 95137.	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.5	Additional keywords were documented.
	Cisco CMX Release 10.3.0	This command was introduced.

## Examples

The following example shows how to set the path to a map address file, which you can then associate with a map.

```
[cmxadmin@cmx]# cmxctl config maps address --path /home/cmxadmin/campusPath.csv
cmxctl config maps address --path /home/cmxadmin/campusPath.csv
Now importing address for: North Campus>Building 9

Done importing addresses
```

# cmxctl config maps aplist

To display a list of access points (APs) and their status for a specified floor, use the **cmxctl config maps aplist** command.

**cmxctl config maps aplist** [--active | --inactive] *floorID*

<b>Syntax Description</b>	<b>--active</b> Optional. Display only the active access points (APs) on the specified floor.
	<b>--inactive</b> Optional. Display only the inactive access points (APs) on the specified floor.
	<b>floorID</b> The identifying number for the floor. Use the <b>cmxctl config maps floors</b> command to see the Floor ID.

**Command Default** All access points display for the designated floor.

**Command Modes** CMX admin user

**Usage Guidelines** To see all the APs on a floor, use the **cmxctl config maps aplist** command without additional arguments.  
To get the Floor ID for a CMX floor map, use the **cmxctl config maps floors** command.

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.5	Additional keywords were documented.
	Cisco CMX Release 10.3.0	This command was introduced.

## Examples

The following example shows how to list all the APs on the Registration Floor of Bld-4.

First, use the **cmxctl config maps floors** command to get the Location Floor ID for the floor you want to view:

```
[cmxadmin@cmx]# cmxctl config maps floors
+-----+-----+-----+
| Floor Name                | Location Floor ID | Analytics Floor ID |
+-----+-----+-----+
| North Campus>Bld-4>Registration | 727035700041482593 | 35                |
+-----+-----+-----+
```

Now run the **cmxctl config maps aplist** command, and paste in the Floor ID:

```
[cmxadmin@cmx]# cmxctl config maps aplist 72703570082593
+-----+-----+-----+-----+-----+
| Name                | EthMacAddress     | RadioMacAddress    | FloorId          | Status          |
+-----+-----+-----+-----+-----+
| CMX-AP05-7069      | None              | 70:69:5a:51:48:40 | 72703570082593 | INACTIVE       |
+-----+-----+-----+-----+-----+
| CMX-AP01-7070      | 40:01:7a:b2:c7:a2 | 70:70:8b:06:19:60 | 72703570082593 | ACTIVE         |
+-----+-----+-----+-----+-----+
| CMX-AP02-7071      | 40:01:7a:b2:c8:86 | 70:70:8b:06:1d:e0 | 72703570082593 | ACTIVE         |
+-----+-----+-----+-----+-----+
```

```
+-----+-----+-----+-----+-----+
| CMX-AP06-7072 | 4c:77:6d:9e:61:9e | 70:69:5a:51:52:80 | 72703570082593 | ACTIVE |
+-----+-----+-----+-----+-----+
| CMX-AP03-7073 | 40:01:7a:b2:c7:92 | 70:70:8b:06:19:20 | 72703570082593 | ACTIVE |
+-----+-----+-----+-----+-----+
| CMX-AP04-7074 | 4c:77:6d:9e:61:04 | 70:69:5a:51:48:e0 | 72703570082593 | ACTIVE |
+-----+-----+-----+-----+-----+
```

# cmxctl config maps buildings

To see a list of buildings for a CMX Campus or for all buildings, use the **cmxctl config maps buildings** command.

```
cmxctl config maps buildings [{--campus campusname | --csv}]
```

Syntax Description	
<b>--campus</b>	Optional. Restricts the list of buildings to a particular campus.
<i>campusname</i>	The name of the campus you would like to include.
<b>--csv</b>	Optional. Displays the results in comma-separated values (CSV) format, which can be cut and pasted into a spreadsheet.

**Command Default** Running the command without arguments will display all buildings on all campuses.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.5	Additional keywords were documented.
	Cisco CMX Release 10.3.0	This command was introduced.

**Usage Guidelines** Command *options* must follow the last command *keyword* with a space and two dashes. For example:  

```
[root@server]# command keyword --option1 --option2.
```

When you select the option **--csv**, the map information you specify is displayed in comma-separated values (CSV) format, which can be cut and pasted into a spreadsheet.

## Examples

The following example shows how to display a list of all buildings, in CSV format. The output format is *Campus Name > Building Name, Location Building ID, Analytics Building ID*.

```
[cmxadmin@cmx]# cmxctl config maps buildings --csv
System Campus>TMT,749980497668473090,18
System Campus>LCN,727001546461545854,16
System Campus>PCH,769481534004431937,15
North Campus>Newtech Building,732849996352089441,13
```

The following example shows how to display a list of building maps for North Campus:

```
[cmxadmin@cmx]# cmxctl config maps buildings --campus North Campus
+-----+-----+-----+
| Building Name           | Location Building ID | Analytics Building ID |
+-----+-----+-----+
| North Campus>Newtech 1  | 727001546461544629  | 48                    |
+-----+-----+-----+
| North Campus>Newtech 2  | 725930212039482938  | 49                    |
+-----+-----+-----+
```

# cmxctl config maps campuses

To see a list of your CMX Campuses, use the **cmxctl config maps campuses** command.

**cmxctl config maps campuses** [--csv]

## Syntax Description

**-csv** Optional. Displays the results in comma-separated values (CSV) format, which can be cut and pasted into a spreadsheet.

## Command Default

Running the command without arguments will display all campuses in table format.

## Command Modes

CMX admin user

## Command History

Release	Modification
Cisco CMX Release 10.5	Additional keywords were documented.
Cisco CMX Release 10.3.0	This command was introduced.

## Usage Guidelines

Command *options* must follow the last command *keyword* with a space and two dashes. For example:  
`[root@server]# command keyword --option1 --option2.`

When you select the option `--csv`, the map information you specify is displayed in comma-separated values (CSV) format, which can be cut and pasted into a spreadsheet.

## Examples

The following example shows how to display a list of campus maps:

```
[cmxadmin@cmx]# cmxctl config maps campuses
+-----+-----+-----+
| Campus Name | Location Campus ID | Analytics Campus ID |
+-----+-----+-----+
| North Campus | 727001546461544473 | 14 |
+-----+-----+-----+
| South Campus | 384920494820170003 | 15 |
+-----+-----+-----+
```

If you want the campus map to be displayed in CSV format, add the `--csv` flag:

```
[cmxadmin@cmx]# cmxctl config maps campuses --csv
North Campus,727001546461545275,14
South Campus,384920494820170003,15
```

## cmxctl config maps delete

To delete a map, or all maps in your CMX network, use the **cmxctl config maps delete** command.

```
cmxctl config maps delete [--name mapname | --all]
```

<b>Syntax Description</b>	<b>--name</b> Optional. Deletes a specific map.						
	<i>mapname</i> The name of the map you want to delete.						
	<b>--all</b> Optional. Deletes all CMX maps.						
<b>Command Default</b>	The default for all delete options are not to confirm the delete.						
<b>Command Modes</b>	CMX admin user						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.5</td> <td>Additional keywords were documented.</td> </tr> <tr> <td>Cisco CMX Release 10.3.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.5	Additional keywords were documented.	Cisco CMX Release 10.3.0	This command was introduced.
Release	Modification						
Cisco CMX Release 10.5	Additional keywords were documented.						
Cisco CMX Release 10.3.0	This command was introduced.						

### Usage Guidelines

For all **cmxctl config maps delete** command options, you are asked to confirm the deletion.

If you enter the **cmxctl config maps delete** command without optional flags, you are asked to provide the map heirarchy in *campus-name>building-name>floor-name* format.

```
Please enter the hierarchy to be deleted (campus-name>building-name>floor-name):
```

### Example

This example shows how to delete the Newtech 1 Security floor in North Campus:

```
[cmxadmin@cmx]# cmxctl config maps delete
Please enter the hierarchy to be deleted (campus-name>building-name>floor-name):
North Campus>Newtech 1>Security
map deleted.
```

This example shows how to delete the map named NorthCampus.

```
[cmxadmin@cmx]# cmxctl config maps delete --name NorthCampus
Confirm delete hierarchy: NorthCampus ? [y/N]: y
Map deleted.
```

# cmxctl config maps floors

To list the floor maps in a selected campus, building, or all floors, use the **cmxctl config maps floors** command.

```
cmxctl config maps floors [--campus mapname --building mapname --csv]
```

## Syntax Description

**--campus** Optional. Restricts the list of floors to a particular campus.

*mapname* The name of the campus you would like to include.

**--building** Optional. Restricts the list of floors to a particular building.

*mapname* The name of the building you would like to include.

**--csv** Optional. Displays the results in comma-separated values (CSV) format, which can be cut and pasted into a spreadsheet.

## Command Default

None.

## Command Modes

CMX admin user

## Usage Guidelines

Command *options* must follow the last command *keyword* with a space and two dashes. For example:  
[cmxadmin@server]# command keywords *--option1 --option2*.

When you select the option **--csv**, the map information you specify is displayed in comma-separated values (CSV) format, which can be cut and pasted into a spreadsheet.

## Command History

Release	Modification
Cisco CMX Release 10.5	Additional keywords were documented.
Cisco CMX Release 10.3.0	This command was introduced.

## Examples

The following example shows how to display a list of floor maps for North Campus, building A9:

```
[cmxadmin@cmx]# cmxctl config maps floors --campus North Campus --building A9
```

Floor Name	Location Floor ID	Analytics Floor ID
North Campus>A9>Main Floor	615446507270015464	16
North Campus>A9>Lab Floor	727001546461544650	17
North Campus>A9>Offices Floor	615447265700154640	18

# cmxctl config maps import

To import CMX location maps, use the **cmxctl config maps import** command.

```
cmxctl config maps import --type {PI | FILE} --path importpath --override {yes | no} --importzones {yes | no}
```

Syntax Description	
<b>--type</b> {PI   FILE}	Identifies the source of the map you want to import. <ul style="list-style-type: none"> <li>• <b>PI</b>—Imports a Cisco Prime Infrastructure map.</li> <li>• <b>FILE</b>—Imports a maps archive file.</li> </ul>
<b>--path</b> <i>importpath</i>	Designates the path to the map you want to import.
<b>--override</b> {yes   no}	Resolves how the import should handle duplicate map names: <ul style="list-style-type: none"> <li>• <b>yes</b>—Overwrites any duplicate map names.</li> <li>• <b>no</b>—Does not overwrite duplicate map names. See Usage Guidelines for more information.</li> </ul>
<b>--importzones</b> {yes   no}	This option resolves how the import should handle duplicate zone names: <ul style="list-style-type: none"> <li>• <b>yes</b>—Overwrites any duplicate zone names.</li> <li>• <b>no</b>—Does not overwrite duplicate zone names. See Usage Guidelines for more information.</li> </ul>

**Command Default** None.

**Command Modes** CMX admin user

**Usage Guidelines**

- When CMX accepts your request to import a map from Cisco Prime Infrastructure, you are prompted to answer the following questions. The defaults are in [brackets].

```
Please enter PI ip address:
Please enter PI username [root]:
Please enter PI password [Public123]:
```

- When the **--override** or **--importzones** options are set to yes, existing maps or zones with the same names will be overwritten by the import. If you select no, the import will fail if there are conflicting map or zone names. You will need to resolve the conflict by changing the name and importing it again.
- Starting from Cisco CMX Release 10.3.1, you must provide the full (absolute) path to the tar file when using the **cmxctl config maps import** command. For example:
 

```
/opt/cmx/srv/floormap/Importfile.tar.gz .
```
- Command *options* must follow the last command *keyword* with a space and two dashes. For example:
 

```
[cmxadmin@server]# command keyword --option1 --option2.
```

Command History	Release	Modification
	Cisco CMX Release 10.5	Additional keywords were documented.
	Cisco CMX Release 10.3.1	The <b>import</b> keyword was modified.
	Cisco CMX Release 10.3.0	This command was introduced.

### Examples

The following example shows how to import a map, overwriting any existing maps or zones with the same name:

```
[cmxadmin@cmx]# cmxctl config maps import --type PI --path
/opt/Import_fdff5788ad650.tar.gz --override yes --importzones yes

Please enter PI ip address: 168.172.206.3
Please enter PI username [root]: root
Please enter PI password [Public123]: *****
Import successfully started from PI 168.172.206.3.
```

# cmxctl config maps reprocessimage

When CMX floor map images occasionally become misaligned, use the **cmxctl config maps reprocessimage** command to realign them.

```
cmxctl config maps reprocessimage --imagename imagename
```

<b>Syntax Description</b>	<b>--imagename</b> Identify the image needing reprocessing.						
	<i>imagename</i> The name of the image you would like to reprocess.						
<b>Command Default</b>	None.						
<b>Command Modes</b>	CMX admin user						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.5</td> <td>Additional keywords were documented.</td> </tr> <tr> <td>Cisco CMX Release 10.3.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.5	Additional keywords were documented.	Cisco CMX Release 10.3.0	This command was introduced.
Release	Modification						
Cisco CMX Release 10.5	Additional keywords were documented.						
Cisco CMX Release 10.3.0	This command was introduced.						

**Usage Guidelines** Sometimes maps can become misaligned. When this happens, the **cmxctl config maps reprocess image** command reprocesses the image and realigns the map.

The default folder path for CMX maps is `/opt/cmx/srv/floormaps`.

## Example

The following example shows how to reprocess floor tile images when they become misaligned:

```
[cmxadmin@cmx]# cmxctl config maps reprocessimage --imagename domain_2_147753.png
File domain_2_147753.png exists in /opt/cmx/srv/floormaps. Proceeding...
Image processing job submitted for domain_2_147753.png.
```

# cmxctl config maps zones

To list the floor maps in a selected campus, building, or all floors, use the **cmxctl config maps floors** command.

```
cmxctl config maps zones [--campus mapname --building mapname --csv]
```

## Syntax Description

**--campus** Optional. Restricts the list of floors to a particular campus.

*mapname* The name of the campus you would like to include.

**--building** Optional. Restricts the list of floors to a particular building.

*mapname* The name of the building you would like to include.

**--csv** Optional. Displays the results in comma-separated values (CSV) format, which can be cut and pasted into a spreadsheet.

## Command Default

All zones display when the command is run without options.

## Command Modes

CMX admin user

## Usage Guidelines

Command *options* must follow the last command *keyword* with a space and two dashes. For example:

```
[root@server]# command keywords --option1 --option2.
```

When you select the option **--csv**, the map information you specify is displayed in comma-separated values (CSV) format, which can be cut and pasted into a spreadsheet.

## Command History

Release	Modification
Cisco CMX Release 10.5	Additional keywords were documented.
Cisco CMX Release 10.3.0	This command was introduced.

## Examples

The following example shows how to display a list of zones for North Campus Bld-4:

```
[cmxadmin@cmx]# cmxctl config maps floors --campus North Campus building Bld-4
[cmxadmin@cmx]# cmxctl config maps zones
+-----+-----+-----+
| Floor Name           | Zone Name | Analytics Zone ID |
+-----+-----+-----+
| North Campus>Bld-4>1st Floor | NOC      | 376                |
+-----+-----+-----+
| North Campus>Bld-4>1st Floor | School   | 375                |
+-----+-----+-----+
```

# cmxctl config qlesspyworker

To manage qlesspyworker, use the **cmxctl config qlesspyworker** command.

**cmxctl config qlesspyworker cleanRedis**

<b>Syntax Description</b>	<b>cleanRedis</b> Removes stale and invalid qlesspyworker history data.
---------------------------	---

<b>Command Default</b>	None.
------------------------	-------

<b>Command Modes</b>	CMX admin user
----------------------	----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.5	This command was introduced.

## Example

```
[cmxadmin@cmx]# cmxctl config qlesspyworker cleanRedis
QlessHistoryCleanupTask started
Deleted 0 qless-job-history records that were idle for 1209600 seconds.
Found 0 SMA-job records, deleted all.
QlessHistoryCleanupTask completed
```

# cmxctl config reload

To forcefully generate a configuration file, use the **cmxctl config reload** command.

## cmxctl config reload

**Command Default**      None

### Examples

The following example shows how to forcefully generate a configuration file:

```
[cmxadmin@cmx]# cmxctl config reload

2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: WARNING Skipping confd config file.
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/analytics.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/cassandra/cassandra-env.sh in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/cassandra/cassandra.yaml in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/collectd.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/configuration.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/connect.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/halo.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/haproxy.cfg in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/influxdb.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/location.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/matlabengine.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/nmsplb.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/nmspproxy.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/postgresql.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/redis_6379.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/redis_6380.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: INFO Target config
/opt/cmx/etc/redis_6381.conf in sync
2015-03-10T17:45:50Z cmx-vmdev117 -verbose[17174]: ERROR template:
redis.template.conf:15:20: executing "redis.template.conf" at <getv ($tag | printf ...>:
error calling getv: key does not exist
```

## cmxctl config rfid timeout

To set the timeout for maintaining RFID tags in Cisco CMX, use the **cmxctl config rfid timeout** command.

```
cmxctl config rfid timeout {get | set value}
```

<b>Syntax Description</b>	<p><b>get</b> Displays the timeout value.</p> <hr/> <p><b>set value</b> Sets the timeout value that Cisco CMX maintains RFID tags before expiring them. The time range is 60 to 10800 seconds. The default value is 300 seconds.</p>				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.3.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.3.1	This command was introduced.
Release	Modification				
Cisco CMX Release 10.3.1	This command was introduced.				
<b>Usage Guidelines</b>	We recommend that you set the RFID tag timeout value below 600 seconds. An ideal RFID tag timeout value is 300 seconds. The RFID timeout must be set to a range between 60 - 600 seconds irrespective of your longest RFID tag's chirp interval.				

### Example

The following example shows how to set the timeout for RFID tags, and then verify the setting:

```
[cmxadmin@cmx]# cmxctl config rfid timeout set
Need to include a timeout within 60 to 10800 seconds

[cmxadmin@server]# cmxctl config rfid timeout set 300

[cmxadmin@server]# cmxctl config rfid timeout get
300 seconds
```

# cmxctl config set

To set a config key for a Cisco CMX service, use the **cmxctl config set** command.

```
cmxctl config set {analytics | cache_6378 | cache_6379 | cache_6380 | cache_6381 | cache_6382
| cache_6383 | cache_6385 | cache_6378 | cassandra | configuration | connect | database | haproxy
| hyperlocation | location | matlabengine | metrics | nmsplb}
```

Syntax	Description
<b>analytics</b>	Performs analytics on calculated location data.
<b>agent</b>	Manages Cisco CMX system lifecycle. Starts, stops, and monitors all the services running in Cisco CMX.
<b>cache_6378</b>	Caches the service used by location service.
<b>cache_6379</b>	Caches the service used by location service.
<b>cache_6380</b>	Caches the service used by analytics service.
<b>cache_6381</b>	Caches the service used by analytics service.
<b>cache_6382</b>	Caches the service used by analytics service.
<b>cache_6383</b>	Caches the service used by analytics service.
<b>cache_6385</b>	Caches the service used by analytics service.
<b>cassandra</b>	Enables cassandra database service used by the location service for historical data.
<b>configuration</b>	Configures nodes and clusters.
<b>connect</b>	Enables connect services.
<b>database</b>	Enables the database service used by analytics and configuration service.
<b>haproxy</b>	Enables the TCP or HTTP load balancer gateway to all service APIs.
<b>hyperlocation</b>	Enables hyperlocation.
<b>location</b>	Enables location service to compute location.
<b>matlabengine</b>	Provides access point heatmap for location service.
<b>metrics</b>	Collects system metrics.
<b>nmsplb</b>	Enables the load balancer service used for distributing Network Mobility Services Protocol (NMSP) messages to location services.

---

**Command Default** None.

---

**Command Modes** CMX admin user

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.5	Additional options were documented.
	Cisco CMX Release 10.4	This command was introduced.

---

### Example

This example shows how to generate a key for the service **location**.

```
[cmxadmin@cmx]# cmxctl config set location key 2512
{"key": "2512"}
Change will take effect on service restart.
```

Restart the service.

```
[cmxadmin@cmx]# cmxctl restart location
Done
The nodeagent service is currently running with PID: 3299
Attempting to restart Location
.....
Service Location has successfully restarted
```

To verify the key, use the **cmxctl config get location** command:

```
[cmxadmin@cmx]# cmxctl config get location
{
  "services": {
    "location": {
      "key": "2512",
      "maxdirectmemory": "1536M",
      "maxnewsize": "800M",
      "mem": "6144M"
    }
  }
}
```

## cmxctl config sso

To manage Single Sign-On (SSO) authentication settings in Cisco CMX, use the **cmxctl config sso** command.

**cmxctl config sso** {**configure** | **disable** | **enable** | **generate** | **status**}

Syntax Description	
<b>configure</b>	Configures SSO authentication settings.
<b>disable</b>	Disables SSO on Cisco CMX.
<b>enable</b>	Enables SSO on Cisco CMX.
<b>generate</b>	Generates SP metadata file required by IDP.
<b>status</b>	Shows if SSO authentication is enabled or disabled.

**Command Default** By default, SSO is disabled in Cisco CMX.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6.2	This command was introduced.

### Example

The following example shows how to configure SSO on Cisco CMX if IDP metadata file is available to download:

```
[cmxadmin@cmx]# cmxctl config sso configure
Allow Role lookup [yes/no] [no]: yes
Choose SSO user role [Admin/Read Only] [Admin]:
Please Enter the Url for IDP Metadata xml:
https://company.cisco.com/FederationMetadata/2007-06/FederationMetadata.xml
Configured the Role settings for SSO Mode
```

# cmxctl config verify

To verify the Cisco Connected Mobile Experiences (Cisco CMX) installation and configuration, use the **cmxctl config verify** command.

## cmxctl config verify

### Command Default

None.

### Command Modes

CMX admin user

### Examples

The following example shows how to verify the Cisco CMX installation and configuration:

```
[cmxadmin@cmx]# cmxctl config verify
Verifying node configuration...
NetworkManager: unrecognized service
Consul v0.4.1
Consul Protocol: 2 (Understands back to: 1)
confd 0.6.0
+-----+-----+-----+-----+
| module | check | passed | msg
|
+=====+=====+=====+=====+
| netman_stopped | NetworkManager service is not | Success |
|
| | running | |
|
+-----+-----+-----+-----+
--+
| matlabengine | http://matlabengine.service.co | Failed | check the log files
under |
| | nsul:5577/api/services/matlabengine/status | | /opt/cmx/var/log
|
+-----+-----+-----+-----+
| database | connect to database port:5432 | Success |
|
+-----+-----+-----+-----+
| consul_dns | 127.0.0.1 (consul) is present | Success |
|
| | as dns server in | |
|
| | /etc/resolv.conf | |
|
+-----+-----+-----+-----+
--+
| etchost_hacks | consul service hostnames not | Success |
|
| | static in /etc/hosts | |
|
+-----+-----+-----+-----+
| analytics | http://analytics.service.consu | Failed | check the log files
under |
| | l:5556/api/services/analytics/ | | /opt/cmx/var/log
|
```

```

| | status | |
|
+-----+-----+-----+-----+
| hostname_ping | ping to hostname:cmx-master-1 | Success |
|
+-----+-----+-----+-----+
--+
| location | http://location.service.consul | Failed | check the log files
under |
| | :5555/api/services/location/st | | /opt/cmx/var/log
|
| | atus | |
|
+-----+-----+-----+-----+
--+
| confd_installed | Confd is installed | Success |
|
+-----+-----+-----+-----+
| consul_installe | Consul is installed | Success |
|
| d | | |
|
+-----+-----+-----+-----+
--+
| nmsplb | http://nmsplb.service.consul:6 | Failed | check the log files
under |
| | 001/api/services/nmsplb/status | | /opt/cmx/var/log
|
+-----+-----+-----+-----+
| configuration | http://configuration.service.c | Failed | check the log files
under |
| | onsul:6000/api/services/config | | /opt/cmx/var/log
|
| | uration/status | |
|
+-----+-----+-----+-----+
| cassandra | connect to cassandra port:9042 | Success |
|
+-----+-----+-----+-----+

```

# cmxctl debug

To create a debug tarball in the current directory, use the **cmxctl debug** command.

## cmxctl debug

<b>Command Default</b>	None.	
<b>Command Modes</b>	CMX admin user	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.4	This command is depreciated.

**Usage Guidelines** The debug tarball that is created will be approximately 300 MB in size, and takes at 90 seconds to complete. This command should to be run using the cmxadmin (non-root) account. This commnd is depreciated in Cisco CMX release 10.4 and we recommend that you use **cmxos techsupport** command.

## Examples

The following example shows how to create a debug tarball in the current directory:

```
[cmxadmin@cmx]# cmxctl debug
running locally
Dumping debug information...
[localhost] Executing task 'dump_config'
cp: cannot stat `/opt/cmx/share/upgrade.answers': No such file or directory
[localhost] Executing task 'dump_state'
running 'ps aux'
running 'ifconfig -a'
running 'cmxctl status'
running 'ulimit -a'
running 'ps -u root,postgres -o %cpu,%mem,cmd'
running 'netstat -o -n -a'
running 'df -h'
running 'ntpdate -d 172.19.28.250'
running 'consul members'
[localhost] Executing task 'dump_apis'
getting /api/config/v1/clusters
getting /api/config/v1/nodes
[localhost] Executing task 'dump_hosts'
pinging configuration.service.consul
pinging location.service.consul
pinging 6379.cache.service.consul
pinging 6380.cache.service.consul
pinging 6381.cache.service.consul
pinging database.service.consul
pinging analytics.service.consul
pinging halo.service.consul
Done.
```

## cmxctl disable

To disable a service, use the **cmxctl disable** command.

```
cmxctl disable {consul | qllesspyworker | cassandra | iodocs | cache_6382 | cache_6383 | cache_6380
| cache_6381 | cache_6384 | cache_6385 | influxdb | metrics | confd | cache_6379 | cache_6378 |
haproxy | database | analytics | connect | gateway | location | configuration | matlabengine |
hyperlocation | nmsplb | agent }
```

Syntax	Description
<b>analytics</b>	Performs analytics on calculated location data.
<b>agent</b>	Manages Cisco CMX system lifecycle. starts, stops, and monitors all the services running in Cisco CMX.
<b>cache_6378</b>	Caches the service used by location service.
<b>cache_6379</b>	Caches the service used by location service.
<b>cache_6380</b>	Caches the service used by analytics service.
<b>cache_6381</b>	Caches the service used by analytics service.
<b>cache_6382</b>	Caches the service used by analytics service.
<b>cache_6383</b>	Caches the service used by analytics service.
<b>cache_6385</b>	Caches the service used by analytics service.
<b>cassandra</b>	Enables cassandra database service used by the location service for historical data.
<b>confd</b>	Internal service.
<b>configuration</b>	Configures nodes and clusters.
<b>connect</b>	Enables connect services.
<b>consul</b>	Internal service.
<b>database</b>	Enables the database service used by analytics and configuration service.
<b>haproxy</b>	Enables the TCP or HTTP load balancer gateway to all service APIs.
<b>hyperlocation</b>	Enables hyperlocation.
<b>location</b>	Enables location service to compute location.
<b>matlabengine</b>	Provides access point heatmap for location service.
<b>metrics</b>	Collects system metrics.

<b>nmsplb</b>	Enables the load balancer service used for distributing Network Mobility Services Protocol (NMSP) messages to location services.
<b>influxdb</b>	Enables database services used for storing statistics from various services.
<b>iodocs</b>	Enables online document service for REST API offered by various services.
<b>qlesspyworker</b>	Internal service.
<b>gateway</b>	Enables gateway services that establishes secure bidirectional communication with Cisco CMX Cloud applications.

**Command Default** None

**Command Modes** CMX admin user

### Examples

The following example shows how to disable the cassandra database service:

```
[cmxadmin@cmx]# cmxctl disable cassandra
Done
The nodeagent service is currently running with PID: 31776
Stopping cassandra process...
Done
Successfully shutdown cassandra Process.
```

# cmxctl dump

To create a configuration tarball in the current directory, use the **cmxctl dump** command.

## **cmxctl dump**

---

**Command Default**

None

---

**Command Modes**

CMX admin user

## **Examples**

The following example shows how to create a configuration tarball in the current directory:

```
[cmxadmin@cmx]# cmxctl dump
running locally
Dumping configuration information...
[localhost] Executing task 'dump_config'
Done.
```

# cmxctl enable

To enable a service, use the **cmxctl enable** command.

```
cmxctl enable {consul | qlesspyworker | cassandra | iodocs | cache_6382 | cache_6383 | cache_6380
| cache_6381 | cache_6384 | cache_6385 | influxdb | metrics | confd | cache_6379 | cache_6378 |
haproxy | database | analytics | connect | gateway | location | configuration | matlabengine |
hyperlocation | nmsplb | agent }
```

Syntax Description		
<b>analytics</b>		Performs analytics on calculated location data.
<b>agent</b>		Manages Cisco CMX system lifecycle. starts, stops, and monitors all the services running in Cisco CMX.
<b>cache_6378</b>		Caches the service used by location service.
<b>cache_6379</b>		Caches the service used by location service.
<b>cache_6380</b>		Caches the service used by analytics service.
<b>cache_6381</b>		Caches the service used by analytics service.
<b>cache_6382</b>		Caches the service used by analytics service.
<b>cache_6383</b>		Caches the service used by analytics service.
<b>cache_6384</b>		Caches the service used by analytics service.
<b>cache_6385</b>		Caches the service used by analytics service.
<b>cassandra</b>		Enables cassandra database service used by the location service for historical data.
<b>confd</b>		Internal service.
<b>configuration</b>		Configures nodes and clusters.
<b>connect</b>		Enables connect services.
<b>consul</b>		Internal service.
<b>database</b>		Enables the database service used by analytics and configuration service.
<b>haproxy</b>		Enables the TCP or HTTP load balancer gateway to all service APIs.
<b>hyperlocation</b>		Enables hyperlocation.
<b>location</b>		Enables location service to compute location.
<b>matlabengine</b>		Provides access point heatmap for location service.

<b>metrics</b>	Collects system metrics.
<b>nmsplb</b>	Enables the load balancer service used for distributing Network Mobility Services Protocol (NMSP) messages to location services.
<b>influxdb</b>	Enables database services used for storing statistics from various services.
<b>iodocs</b>	Enables online document service for REST API offered by various services.
<b>qlesspyworker</b>	Internal service.
<b>gateway</b>	Enables gateway services that establishes secure bidirectional communication with Cisco CMX Cloud applications.

**Command Default**

None.

**Command Modes**

CMX admin user

**Command History**

<b>Release</b>	<b>Modification</b>
Cisco CMX Release 10.6	This command was introduced in a release prior to Cisco CMX Release 10.6.

**Examples**

The following example shows how to enable analytics service:

```
[cmxadmin@cmx]# cmxctl enable analytics
The nodeagent service is not running.
Agent is not running, starting it now.
Starting nodeagent Process...
Retrying..
Done
Started nodeagent service with PID: 31027
```

# cmxctl heterarchy

To manage the deployment hierarchy, use the **cmxctl heterarchy** command.

**cmxctl heterarchy** {**backup** | **rebuild** | **repair** | **restore** | **retire** | **verify**}

Syntax Description	
<b>backup</b>	Backs up the deployment hierarchy.
<b>rebuild</b>	Rebuilds the deployment hierarchy.
<b>repair</b>	Repairs the deployment hierarchy.
<b>restore</b>	Restores the deployment hierarchy.
<b>retire</b>	Retires the deployment hierarchy.
<b>verify</b>	Verifies the deployment hierarchy.

**Command Default** None

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.2	This command was introduced.

## Example

The following example shows how to verify the heterarchy:

```
[cmxadmin@cmx]# cmxctl heterarchy verify
Verifying heterarchy...
Checking user levels
Heterarchy is healthy.
```

# cmxctl influxdb wipe

To wipe the influx database, use the **cmxctl influxdb wipe --silent** command.

**cmxctl influxdb wipe --silent**

<b>Syntax Description</b>	<b>silent</b> Silently wipe the influx database				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.3</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.3	This command was introduced.
Release	Modification				
Cisco CMX Release 10.3	This command was introduced.				

The following example shows how to wipe the influx database:

```
[cmxadmin@cmx]# cmxctl influxdb wipe
This command will wipe the Influx database. All system metric data will be erased.
Do you want to continue?: y
Stopping influxdb Process...
executing shutdown
Retrying..
Retrying...
Retrying....
Done
Successfully shutdown influxdb Process.
Cleaning Influx database directories
Configuring InfluxDB
```

# cmxctl jobs

To configure recurring background jobs, use the **cmxctl jobs** command.

```
cmxctl jobs { cancel jobname | list | run jobname | runnow jobname}
```

Syntax Description	
<b>cancel</b> <i>jobname</i>	Cancels a scheduled job.
<b>list</b>	Lists all the scheduled jobs.
<b>run</b> <i>jobname</i>	Runs a job at a specified time.
<b>runnow</b> <i>jobname</i>	Triggers a one-time run of the job.

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.2	This command was introduced.

## Usage Guidelines

The Apache Cassandra database stores location history data. Pruning should be performed to maintain disk usage. Cisco CMX 10.2 introduces the option to prune database size. The default disk-pruning task runs at an interval of 90 days. You can also use the `cmxctl jobs runnow cleanupcassandra` command to run an on-demand job of cleaning up the Cassandra database, which is a normal scheduled task that runs once every two days.

## Examples

The following example shows how to run a background job:

```
[cmxadmin@cmx]# cmxctl jobs run LocationIndexCleanup
submitted the job, verify using cmxctl jobs list.
```

# cmxctl metrics notification

To generate notification metrics for a Cisco Connected Mobile Experiences (Cisco CMX) file, use the **cmxctl metrics notification** command.

**cmxctl metrics notification**

---

## Command Default

None

---

## Command Modes

CMX admin user

---

## Usage Guidelines

The **notification** keyword provides metrics for notification.

## Examples

The following example shows how to generate metrics for a Cisco CMX file:

```
[cmxadmin@cmx]# cmxctl metrics notification
+-----+-----+-----+-----+-----+
| EndPoint | Success | Failure | SuccessRate |
FailureRate |
+=====+=====+=====+=====+=====+
+-----+-----+-----+-----+-----+
```

# cmxctl node

To manage node installation, use the **cmxctl node** command.

```
cmxctl node { sslmode | { enable | { --key key-file-location | --pem pem-file-location } | disable } }
```

## Syntax Description

<b>sslmode</b>	Enables or disables Secure Sockets Layer (SSL).
<b>enable</b>	Enables Secure Sockets Layer (SSL).
<b>--key</b> <i>key-file-location</i>	Location of the SSL key file.
<b>--pem</b> <i>pem-file-location</i>	Location of the SSL pem file.
<b>disable</b>	Disables Secure Sockets Layer (SSL).

## Command Default

None.

## Command Modes

CMX admin user

## Usage Guidelines

Before initiating the import process, ensure that you have a self-signed or a Certificate Authority (CA)-signed certificate and the key file. The certificate and the key file must have minimum global read permissions (0644). Starting from Cisco CMX Release 10.3.1, you can install a new Cisco CMX certificate by using the key and pem keywords. For example:

```
[cmxadmin@cmx]# cmxctl node sslmode enable --pem /home/cmxadmin/cert.pem --key /home/cmxadmin/host.key
```

## Command History

Release	Modification
Cisco CMX Release 10.3.1	This command was modified. The <b>sslmode enable</b> keyword was modified.
Cisco CMX Release 10.3.0	This command was introduced.

## Examples

The following example shows how to manage node installation:

```
[cmxadmin@cmx]# cmxctl node sslmode enable --pem <pem-file-location> --key <key-file-location>
enabling ssl
ssl enabled
```

## cmxctl restart

To restart a Cisco Connected Mobile Experiences (Cisco CMX) service, use the **cmxctl restart** command.

```
cmxctl restart {consul | qllesspyworker | cassandra | iodocs | cache_6382 | cache_6383 | cache_6380
| cache_6381 | cache_6384 | cache_6385 | influxdb | metrics | confd | cache_6379 | cache_6378 |
haproxy | database | analytics | connect | gateway | location | configuration | matlabengine |
hyperlocation | nmsplb | agent }
```

Syntax Description		
	<b>analytics</b>	Performs analytics on calculated location data.
	<b>agent</b>	Manages Cisco CMX system lifecycle. Starts, stops, and monitors all the services running in Cisco CMX.
	<b>cache_6378</b>	Caches the service used by location service.
	<b>cache_6379</b>	Caches the service used by location service.
	<b>cache_6380</b>	Caches the service used by analytics service.
	<b>cache_6381</b>	Caches the service used by analytics service.
	<b>cache_6382</b>	Caches the service used by analytics service.
	<b>cache_6383</b>	Caches the service used by analytics service.
	<b>cache_6385</b>	Caches the service used by analytics service.
	<b>cassandra</b>	Enables cassandra database service used by the location service for historical data.
	<b>confd</b>	Internal service.
	<b>configuration</b>	Configures nodes and clusters.
	<b>connect</b>	Enables connect services.
	<b>consul</b>	Internal service.
	<b>database</b>	Enables the database service used by analytics and configuration service.
	<b>haproxy</b>	Enables the TCP or HTTP load balancer gateway to all service APIs.
	<b>hyperlocation</b>	Enables hyperlocation.
	<b>location</b>	Enables location service to compute location.
	<b>matlabengine</b>	Provides access point heatmap for location service.
	<b>metrics</b>	Collects system metrics.

<b>nmsplb</b>	Enables the load balancer service used for distributing Network Mobility Services Protocol (NMSP) messages to location services.
<b>influxdb</b>	Enables database services used for storing statistics from various services.
<b>iodocs</b>	Enables online document service for REST API offered by various services.
<b>qlesspyworker</b>	Internal service.
<b>gateway</b>	Enables gateway services that establishes secure bidirectional communication with Cisco CMX Cloud applications.

**Command Default** None

**Command Modes** CMX admin user

### Examples

The following example shows how to restart a Cisco CMX service:

```
[cmxadmin@cmx]# cmxctl restart database
Done
The nodeagent service is currently running with PID: 16718
Stopping postgres Process...
Successfully shutdown postgres Process.
Starting postgres Process...
Done
Started postgres service with PID: 25702
Exception while notifying CE
```

## cmxctl stack

To generate the jstack for a java service, use the **cmxctl stack** command.

```
cmxctl stack {cmx_service}
```

<b>Syntax Description</b>	<b>cmx_service</b> Lists all Cisco CMX services. The services include: location, analytics, configuration, matlabengine, and nmsplb.				
<b>Command Default</b>	None				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.2</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.2	This command was introduced.
Release	Modification				
Cisco CMX Release 10.2	This command was introduced.				

## cmxctl start

To start a Cisco Connected Mobile Experiences (Cisco CMX) service, use the **cmxctl start** command.

```
cmxctl start {consul | qlesspyworker | cassandra | iodocs | cache_6382 | cache_6383 | cache_6380
| cache_6381 | cache_6384 | cache_6385 | influxdb | metrics | confd | cache_6379 | cache_6378 |
haproxy | database | analytics | connect | gateway | location | configuration | matlabengine |
hyperlocation | nmsplb | agent }
```

### Syntax Description

<b>analytics</b>	Performs analytics on calculated location data.
<b>agent</b>	Manages Cisco CMX system lifecycle. starts, stops, and monitors all the services running in Cisco CMX.
<b>cache_6378</b>	Caches the service used by location service.
<b>cache_6379</b>	Caches the service used by location service.
<b>cache_6380</b>	Caches the service used by analytics service.
<b>cache_6381</b>	Caches the service used by analytics service.
<b>cache_6382</b>	Caches the service used by analytics service.
<b>cache_6383</b>	Caches the service used by analytics service.
<b>cache_6385</b>	Caches the service used by analytics service.
<b>cassandra</b>	Enables cassandra database service used by the location service for historical data.
<b>confd</b>	Internal service.
<b>configuration</b>	Configures nodes and clusters.
<b>connect</b>	Enables connect services.
<b>consul</b>	Internal service.
<b>database</b>	Enables the database service used by analytics and configuration service.
<b>haproxy</b>	Enables the TCP or HTTP load balancer gateway to all service APIs.
<b>hyperlocation</b>	Enables hyperlocation.
<b>location</b>	Enables location service to compute location.
<b>matlabengine</b>	Provides access point heatmap for location service.
<b>metrics</b>	Collects system metrics.

<b>nmsplb</b>	Enables the load balancer service used for distributing Network Mobility Services Protocol (NMSP) messages to location services.
<b>influxdb</b>	Enables database services used for storing statistics from various services.
<b>iodocs</b>	Enables online document service for REST API offered by various services.
<b>qlesspyworker</b>	Internal service.
<b>gateway</b>	Enables gateway services that establishes secure bidirectional communication with Cisco CMX Cloud applications.

**Command Default**

None

**Command Modes**

CMX admin user

**Examples**

The following example shows how to display the status for the consul service:

```
[cmxadmin@cmx]# cmxctl start consul
Done
The nodeagent service is currently running with PID: 16718
Done
The analytics service is already running with pid: 1099
Done
Exception while notifying CE
Done
The location service is already running with pid: 16005
Done
Exception while notifying CE
Done
The configuration service is already running with pid: 16165
Done
Exception while notifying CE
Done
The matlabengine service is already running with pid: 1251
Done
Exception while notifying CE
Done
The nmsplb service is already running with pid: 1377
Done
Exception while notifying CE
```

## cmxctl status

To view the status of one or all Cisco Connected Mobile Experiences (Cisco CMX) services, use the **cmxctl status** command.

```
cmxctl status { analytics | agent | cache_6378 | cache_6379 | cache_6380 | cache_6381 | cache_6382
| cache_6383 | cache_6385 | cassandra | configuration | confd | consul | database | haproxy |
location | matlabengine | metrics | nmsplb | influxdb | iodocs | qllesspyworker }
```

Syntax	Description
<b>analytics</b>	Performs analytics on calculated location data.
<b>agent</b>	Manages Cisco CMX system lifecycle. starts, stops, and monitors all the services running in Cisco CMX.
<b>cache_6378</b>	Caches the service used by location service.
<b>cache_6379</b>	Caches the service used by location service.
<b>cache_6380</b>	Caches the service used by analytics service.
<b>cache_6381</b>	Caches the service used by analytics service.
<b>cache_6382</b>	Caches the service used by analytics service.
<b>cache_6383</b>	Caches the service used by analytics service.
<b>cache_6385</b>	Caches the service used by analytics service.
<b>cassandra</b>	Enables cassandra database service used by the location service for historical data.
<b>confd</b>	Internal service.
<b>configuration</b>	Configures nodes and clusters.
<b>connect</b>	Enables connect services.
<b>consul</b>	Internal service.
<b>database</b>	Enables the database service used by analytics and configuration service.
<b>haproxy</b>	Enables the TCP or HTTP load balancer gateway to all service APIs.
<b>hyperlocation</b>	Enables hyperlocation.
<b>location</b>	Enables location service to compute location.
<b>matlabengine</b>	Provides access point heatmap for location service.
<b>metrics</b>	Collects system metrics.

<b>nmsplb</b>	Enables the load balancer service used for distributing Network Mobility Services Protocol (NMSP) messages to location services.
<b>influxdb</b>	Enables database services used for storing statistics from various services.
<b>iodocs</b>	Enables online document service for REST API offered by various services.
<b>qlesspyworker</b>	Internal service.
<b>gateway</b>	Enables gateway services that establishes secure bidirectional communication with Cisco CMX Cloud applications.

**Command Default**

None.

**Command Modes**

CMX admin user

**Usage Guidelines**

After installing the ISO file on the Cisco MSE 3355 or 3365, use the **cmxctl status** command to check if the CMX services are running. If they are not running, use the **cmxctl start** command.

**Examples**

The following example shows how to display the status for the consul service:

```
[cmxadmin@cmx]# cmxctl status consul
Done
The nodeagent service is currently running with PID: 6190
+-----+-----+-----+-----+
| Host          | Service      | Status  | Uptime (HH:mm) |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Analytics    | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Cache_6378   | Running | 5 days, 05:52 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Cache_6379   | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Cache_6380   | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Cache_6381   | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Cache_6382   | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Cache_6383   | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Cache_6385   | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Cassandra    | Running | 5 days, 05:51 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Confd        | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Configuration | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Connect      | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Consul       | Running | 5 days, 05:52 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Database     | Running | 5 days, 05:52 |
```

```
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Haproxy      | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Hyperlocation | Running | 5 days, 05:47 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Influxdb     | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Iodocs       | Running | 5 days, 05:50 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Location     | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Matlabengine | Running | 5 days, 05:48 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Metrics      | Running | 5 days, 05:49 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Nmsplb      | Running | 5 days, 05:47 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | Qlesspyworker | Running | 5 days, 05:50 |
+-----+-----+-----+-----+
| CMX-LowEnd-200 | gateway     | Running | 5 days, 05:50 |
+-----+-----+-----+-----+
```

## cmxctl stop

To shut down a Cisco Connected Mobile Experiences (Cisco CMX) service, use the **cmxctl stop** command.

```
cmxctl stop { analytics | agent | cache_6378 | cache_6379 | cache_6380 | cache_6381 | cache_6382
| cache_6383 | cache_6385 | cassandra | configuration | confd | consul | database | haproxy |
location | matlabengine | metrics | nmsplb | influxdb | iodocs | qlesspyworker }
```

### Syntax Description

<b>analytics</b>	Performs analytics on calculated location data.
<b>agent</b>	Manages Cisco CMX system lifecycle. starts, stops, and monitors all the services running in Cisco CMX.
<b>cache_6378</b>	Caches the service used by location service.
<b>cache_6379</b>	Caches the service used by location service.
<b>cache_6380</b>	Caches the service used by analytics service.
<b>cache_6381</b>	Caches the service used by analytics service.
<b>cache_6382</b>	Caches the service used by analytics service.
<b>cache_6383</b>	Caches the service used by analytics service.
<b>cache_6385</b>	Caches the service used by analytics service.
<b>cassandra</b>	Enables cassandra database service used by the location service for historical data.
<b>confd</b>	Internal service.
<b>configuration</b>	Configures nodes and clusters.
<b>connect</b>	Enables connect services.
<b>consul</b>	Internal service.
<b>database</b>	Enables the database service used by analytics and configuration service.
<b>haproxy</b>	Enables the TCP or HTTP load balancer gateway to all service APIs.
<b>hyperlocation</b>	Enables hyperlocation.
<b>location</b>	Enables location service to compute location.
<b>matlabengine</b>	Provides access point heatmap for location service.
<b>metrics</b>	Collects system metrics.

<b>nmsplb</b>	Enables the load balancer service used for distributing Network Mobility Services Protocol (NMSP) messages to location services.
<b>influxdb</b>	Enables database services used for storing statistics from various services.
<b>iodocs</b>	Enables online document service for REST API offered by various services.
<b>qlesspyworker</b>	Internal service.

**Command Default** The services are running.

**Command Modes** CMX admin user

### Examples

The following example shows how to stop the analytics service:

```
[cmxadmin@cmx]# cmxctl stop analytics
Done
The nodeagent service is currently running with PID: 16987
Stopping analytics Process...
Service analytics with pid: 19095
Retrying..
Done
Successfully shutdown analytics Process.
```

## cmxctl trace mac

To enable MAC address tracing, use the **cmxctl trace mac** command.

```
cmxctl trace mac { add | delete | status }
```

### Syntax Description

<b>add</b>	Add MAC address for tracing
<b>delete</b>	Delete MAC address for tracing
<b>status</b>	Display MAC address tracing settings

### Command Default

None.

### Command Modes

CMX admin user

### Command History

Release	Modification
Cisco CMX Release 10.3	This command was introduced.

### Examples

The following example shows how to enable MAC address tracing:

```
[cmxadmin@cmx]# cmxctl trace mac status
+-----+
| MAC Address      |
+-----+
| 3c:a9:f4:6c:ee:44 |
+-----+
| ac:37:43:4b:cc:2f |
+-----+
| 3c:a9:f4:6c:5a:ac |
```

## cmxctl trace status

To display current trace levels of each CMX service, use the **cmxctl trace status** command.

**cmxctl trace status**

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Command History**

Release	Modification
Cisco CMX Release 10.3	This command was introduced.

### Examples

The following example shows how to display current tarce levels:

```
[cmxadmin@cmx]# cmxctl trace mac status
+-----+
| MAC Address |
+-----+
| 00:01:02:03:04:05 |
+-----+
```

## cmxctl trace update

To update the trace level of a Cisco CMX service, use the **cmxctl trace update** command.

```
cmxctl trace update {service service-to-update | level tracelevel | [{INFO | DEBUG}]}
```

<b>Syntax Description</b>	<b>service</b> <i>service-to-update</i>	Configure service to update.
	<b>level</b> <i>tracelevel</i>	Configure trace level [INFO   DEBUG]
<b>Command Default</b>	None.	
<b>Command Modes</b>	CMX admin user	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.x	This command was introduced.

## cmxctl users

To list or to configure Cisco Connected Mobile Experiences (Cisco CMX) users using the CLI, use the **cmxctl users** command.

**cmxctl users** { **list** | **passwd** *username* | **logout** *userid* }

Syntax Description		
<b>list</b>		Lists all the current users.
<b>passwd</b>		Sets the password for a user.
<i>username</i>		Username of a user in Cisco CMX.
<b>logout</b> <i>userid</i>		Account of a user in Cisco CMX.
<b>Command Default</b>		None.
<b>Command Modes</b>		CMX admin user

### Examples

The following example shows how to list Cisco CMX users using the CLI:

```
[cmxadmin@cmx]# cmxctl users list
+-----+-----+-----+
| Username | Full Name | Roles |
+=====+=====+=====+
| monitor | Monitor User | Read Only |
+-----+-----+-----+
| admin | Admin User | Admin |
+-----+-----+-----+
```

# cmxctl users unlock

To unlock CMX access for a CLI or GUI user after they have been locked out, use the **cmxctl users unlock** command.

```
cmxctl users unlock {cli username | gui username}
```

---

**Syntax Description**

**cli** *username* Unlocks the command line interface (CLI) user.

**gui** *username* Unlocks the graphical user interface (GUI) user.

---

---

**Command Default**

By default, active accounts will automatically unlock in **30 minutes**. Dormant accounts—accounts inactive for 35 days or more—do not automatically unlock.

---

**Command Modes**

CMX admin user

---

**Command History**

Release	Modification
Cisco CMX Release 10.5	This command was introduced.

---

---

**Usage Guidelines**

The CMX admin can unlock accounts before the 30-minute expiry time.

The following example shows how to unlock the CMX user interface user *someguy*:

```
[cmxadmin@cmx]# cmxctl users unlock gui someguy  
Account unlocked successfully
```

# cmxctl version

To know the Cisco Connected Mobile Experiences (Cisco CMX) version, use the **cmxctl version** command.

## cmxctl version

---

**Command Default**      None.

---

**Command Modes**      CMX admin user

## Examples

The following example shows how to display version information for Cisco CMX:

```
[cmxadmin@cmx]# cmxctl version
Build Version : 10.1.0-27
Build Time : 2015-05-05 03:06:45.437430
-----
Name : cmx-ng-container
Commit Count : 17
Short Hash : bf20ec1
-----
Name : cmx-ng-location
Commit Count : 5
Short Hash : efc84fa
-----
Name : cmx-ng-ui
Commit Count : 5
Short Hash : d793df7
-----
Name : cmx-ova
Build Time : Fri Feb 20 06:34:38 UTC 2015
-----
```

# cmxloc delete

To delete a location accuracy test in Cisco CMX, use the **cmxloc delete** command.

**cmxloc delete**

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Command History**

<b>Release</b>	<b>Modification</b>
Cisco CMX Release 10.4	This command was introduced.

---

**Usage Guidelines**

This command should be run at the cmxadmin level.

# cmxloc download

To view the link to download the log files, use the **cmxloc download** command.

**cmxloc download** *test name*

---

**Command Default**      None

---

**Command Modes**      CMX admin user

---

Command History	Release	Modification
	Cisco CMX Release 10.4	This command was introduced.

---



---

**Usage Guidelines**      This command will move the log files into a location and can be downloaded using a browser.

# cmxloc find

To search for the MAC address provided and return all the current attributes for the device, use the **cmxloc find** command.

**cmxloc find** *MAC address*

<b>Syntax Description</b>	<i>MAC Address</i> MAC address of the device.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco CMX Release 10.4</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				
<b>Usage Guidelines</b>	This command should be run at the cmxadmin level.				

# cmxloc list

To list the accuracy tests in Cisco CMX, use the **cmxloc list** command.

## cmxloc list

<b>Command Default</b>	None				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.4</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				
<b>Usage Guidelines</b>	This command should be run at the cmxadmin level.				

## Example

The following example shows how to list all Cisco CMX accuracy tests:

```
[cmxadmin@cmx]# cmxloc list
```

Name	Status	MAC Address	Comp Freq (s)	Avg Error (m)	90% (m)	50% (m)
FB1	PAUSED	98:07:2d:2a:11:fa	0.0	0.0	0.0	0.0
Test1	FINISHED	98:07:2d:2a:11:fa	61.0	2.45	3.23	1.93
Test2	FINISHED	98:07:2d:2a:11:fa	33.25	4.36	6.27	3.44

# cmxloc monitor

To monitor the location accuracy test, use the **cmxloc monitor** command.

**cmxloc monitor** *MAC Address*

---

## Syntax Description

*MAC Address* MAC address of the device.

---



---

## Command Default

None.

---

## Command Modes

CMX admin user

---

## Command History

Release	Modification
Cisco CMX Release 10.4	This command was introduced.

---



---

## Usage Guidelines

This command searches for a client and returns the attributes. The command monitors for any location changes and will update the screen for the new location attributes. Press the enter key to terminate the command execution.

## cmxloc start

To start a location accuracy test, use the **cmxloc start** command.

**cmxloc start** *MAC Address Test Name X, Y Locations Time*

<b>Syntax Description</b>	<i>MAC Address</i>	MAC address of the device to run the location accuracy test.
	<i>Test Name</i>	Name of the new location accuracy test.
	<i>X, Y Locations</i>	X and Y location information.
	<i>Time</i>	Estimated time to run the test.
<b>Command Default</b>	None	
<b>Command Modes</b>	CMX admin user	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.4	This command was introduced.
<b>Usage Guidelines</b>	This command triggers the location accuracy test.	

# cmxos addswap

To add a 10 GB space to the operating system, use the **cmxos addswap** command.

**cmxos addswap**

---

**Command Default** This command has no arguments or keywords.

---

**Command Modes** CMX admin user

---

**Usage Guidelines** This command should be run at the root user level.

## Examples

The following example shows how to increase disk space in the operating system:

```
[cmxadmin@cmx]# cmxos addswap
10485760+0 records in
10485760+0 records out
10737418240 bytes (11 GB) copied, 29.6845 s, 362 MB/s
Setting up swapspace version 1, size = 10485756 KiB
no label, UUID=2734f069-e687-4635-b2d6-9381241bc7ee
swap added, run system info to verify
[root@cmx-vmdev146 ~]#
```

# cmxos adminui

To start, stop, and restart the administrator UI, use the **cmxos adminui** command.

**cmxos adminui** {start | stop | restart}

Syntax Description	
<b>start</b>	Starts the administrator UI.
<b>stop</b>	Stops the administrator UI.
<b>restart</b>	Restarts the administrator UI.

**Command Default** None

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.2	This command was introduced.

## Example

The following example shows how to stop the administrator UI:

```
[cmxadmin@cmx]# cmxos adminui stop
Stopping adminui...
```

# cmxos apiserver disable

To disable Cisco CMX API server, use the **cmxos apiserver disable** command.

## cmxos apiserver disable

<b>Syntax Description</b>	<b>disable</b> Disables the Cisco CMX API server.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco CMX Release 10.4</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				

## Example

The following example shows how to disable the Cisco CMX API server:

```
[cmxadmin@cmx]# cmxos apiserver disable  
Starting CMX API Server...
```

# cmxos apiserver enable

To enable Cisco CMX API server, use the **cmxos apiserver enable** command.

## cmxos apiserver enable

<b>Syntax Description</b>	<b>enable</b> Enables the Cisco CMX API server.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.4</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				

## Example

The following example shows how to enable the Cisco CMX API server:

```
[cmxadmin@cmx]# cmxos apiserver enable
Enabling CMX API Server...
Starting CMX API Server...
```

# cmxos apiserver reset

To reset the configuration of the Cisco CMX API server, use the **cmxos apiserver reset** command.

## cmxos apiserver reset

<b>Syntax Description</b>	<b>reset</b> Resets CMX API Server configuration.				
<b>Command Default</b>	None				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco CMX Release 10.4</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				

## Example

The following example shows how to reset the Cisco CMX API server:

```
[cmxadmin@cmx]# cmxos apiserver reset  
Resetting CMX API Server...
```

## cmxos apiserver restart

To restart Cisco CMX API server, use the **cmxos apiserver restart** command.

**cmxos apiserver restart**

<b>Syntax Description</b>	<b>restart</b> Restarts the Cisco CMX API server.				
<b>Command Default</b>	None				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.4</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				

### Example

The following example shows how to start the Cisco CMX API server:

```
[cmxadmin@cmx]# cmxos apiserver restart
Restarting CMX API Server...
```

## cmxos apiserver start

To start Cisco CMX API server, use the **cmxos apiserver** command.

**cmxos apiserver** { **start** | **stop** | **restart** | **enable** | **disable** | **status** | **user**}

Syntax Description	
<b>start</b>	Starts the Cisco CMX API server.
<b>stop</b>	Stops the Cisco CMX API server.
<b>restart</b>	Restarts the Cisco CMX API server.
<b>enable</b>	Enables the Cisco CMX API server.
<b>disable</b>	Disables the Cisco CMX API server.
<b>status</b>	Displays the current status of the Cisco CMX API server.
<b>user</b>	Sets the userid and password for the CMX API Server.

**Command Default** None

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.4	This command was introduced.

### Example

The following example shows how to start the Cisco CMX API server:

```
[cmxadmin@cmx]# cmxos apiserver start
Starting CMX API Server...
```

## cmxos apiserver status

To view the status of Cisco CMX API server, use the **cmxos apiserver status** command.

### cmxos apiserver status

<b>Syntax Description</b>	<b>status</b> Displays the current status of the Cisco CMX API server.				
<b>Command Default</b>	None				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.4</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				

### Example

The following example shows how to view the status of Cisco CMX API server:

```
[cmxadmin@cmx]# cmxos apiserver status
+-----+
| CMX API Server Status |
+-----+-----+
| Configuration | Enabled |
+-----+-----+
| Status        | Running |
+-----+-----+
```

## cmxos apiserver stop

To stop the CMX API Server, use the **cmxos apiserver stop** command.

**cmxos apiserver stop**

<b>Syntax Description</b>	<b>stop</b> Stops the Cisco CMX API server.				
<b>Command Default</b>	None				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco CMX Release 10.4</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco CMX Release 10.4	This command was introduced.
Release	Modification				
Cisco CMX Release 10.4	This command was introduced.				

### Example

The following example shows how to start the Cisco CMX API server:

```
[cmxadmin@cmx]# cmxos apiserver stop  
Stopping CMX API Server...
```

## cmxos apiserver user

To manage user IDs and passwords for the Cisco CMX API server, use the **cmxos apiserver user** command.

**cmxosapiserveruser** {**add** *userid password* | **delete** *userid* | **list**}

### Syntax Description

<b>add</b>	Adds a new CMX API server user.
<i>userid</i>	Enter a user ID (username) for the new CMX API server user.
<i>password</i>	Enter a temporary password for the new user.
<b>delete</b> <i>userid</i>	Deletes the specified user ID.
<b>list</b>	Displays CMX API server user IDs.

### Command Default

None

### Command Modes

CMX admin user

### Command History

Release	Modification
Cisco CMX Release 10.5	This command was modified.
Cisco CMX Release 10.4	This command was introduced.

### Example

The following example shows how to add a new user for the Cisco CMX API server:

```
[cmxadmin@cmx]# cmxos apiserver user add
Please enter the userid for the CMX API Server: user1
Please enter the password for the CMX API Server: password
Please re-enter the password for the CMX API Server: password
Restarting CMX API Server...
Stopping CMX API Server...
Starting CMX API Server...
Successfully updated userid/password and restarted the CMX API Server
```

The following example shows how to list Cisco CMX API server users:

```
[cmxadmin@cmx]# cmxos apiserver user list
+-----+
| User ID |
+-----+
| admin   |
+-----+
| user1   |
+-----+
```

# cmxos backup

To back up a node, use the **cmxos backup** command.

**cmxos backup**{path | i | all | help}

<b>Syntax Description</b>	<p><b>--path DIRECTORY</b> Path where the backup file will be created.</p> <p><b>-i, --include_only TEXT</b> Backups selected parts only. Options are database, cache, cassandra, influxdb, consul, floormaps, licenses, setup, and connect images.</p> <p><b>--all</b> Includes InfluxDB data in backup bundle. If specific options are not selected, only the following services are included in the backup bundle: confd, database, cache, cassandra, floormaps, licenses, setup, and connect images.</p> <p><b>--HELP</b> Shows the help content.</p>
<b>Command Default</b>	None.
<b>Command Modes</b>	CMX admin user
<b>Usage Guidelines</b>	This command should to be run using the cmxadmin (non-root) account. The destination directory for backup file requires rwx permission. When you specify a backup directory other than /tmp, ensure that the directory has "r/w/x" permission by user:cmx.

## Examples

The following example shows how to back up a node:

```
[cmxadmin@cmx]# cmxos backup
Please enter the path for backup file [/tmp]:
[17:43:50] Preparing for backup...
[17:43:50] Backup Database...
[17:43:51] Backup Cache...
[17:43:51] Backup Cassandra...
[17:43:53] Backup InfluxDb...
[17:43:53] Backup Consul...
[17:43:53] Backup Floormaps...
[17:43:53] Backup node configuration...
[17:43:59] Creating tar file..
[17:43:59] Done Backup. Created backup file
/tmp/cmx_backup_cmx-vmdev117_2015_03_10_17_43.tar.gz
```

# cmxos backupsched

To schedule a Cisco CMX backup capability, use the **cmxos backupsched** command.

**cmxos backupsched** {**schedule** | **unschedule** | **show**}

Syntax Description	
<b>schedule</b>	Schedules a backup.
<b>unschedule</b>	Unscheduled a backup.
<b>show</b>	Displays the current backup schedule.

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6.2	This command was introduced.

## Usage Guidelines

You can use this command to schedule a daily or weekly backup. For the daily backup schedule, you must select an hour based on the UTC time of the system. For the weekly backup schedule, enter a day of the week to schedule the backup. After the scheduled backup is completed, the CMX backup is available at `/home/cmxadmin/cmxbackups`.

You can create custom scripts to run specific commands during the scheduled backup. The pre-script `/home/cmxadmin/bin/preScheduleBackup.sh` helps you to run commands before the scheduled backup. The post-script `/home/cmxadmin/bin/postScheduleBackup.sh` helps to run the commands after the backup is completed.

# cmxos benchmark disk

To benchmark disk performance, use the **cmxos benchmark disk** command.

```
cmxos benchmark disk [{ --verbose }]
```

---

## Syntax Description

**--verbose** Prints full output.

---



---

## Command Default

None.

---

## Command Modes

CMX admin user

---

## Command History

Release	Modification
Cisco CMX Release 10.2	This command was introduced.

---



---

## Usage Guidelines

You must manually stop all Cisco CMX services before executing this command.

## Examples

The following example shows how to verify the disk performance:

```
[cmxadmin@cmx]# cmxos benchmark disk
This process will check disk performance on /opt/cmx/srv/
You must stop all CMX services manually before running this command
Do you want to continue?: yes
Running disk performance...this may take a while...please wait...
READ IOPS: 6085, WRITE IOPS: 2024
```

# cmxos changedate

To update system date and time, use the **cmxos changedate** command.

## cmxos changedate

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6	This command was introduced.

**Usage Guidelines** Enter the new date and time in YYYY-mm-dd hh:mm:ss format.

## Example

The following example shows how to update system date and time:

```
[cmxadmin@cmx]# cmxos changedate
Enter Date and Time(YYYY-mm-dd hh:mm:ss) : 2018-11-26 03:51:00
2018-11-26 03:51:00
System date and time changed successfully
```

# cmxos checkpostgresdatasize

To display postgres data size, use the **cmxos checkpostgresdatasize** command.

```
cmxos checkpostgresdatasize
```

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Command History**

Release	Modification
Cisco CMX Release 10.3	This command was introduced.

---

## Examples

The following example shows how to display postgres data size:

```
[cmxadmin@cmx]# cmxos checkpostgresdatasize  
651488 /opt/cmx/srv/postgres
```

# cmxos clean

To clean up files on CMX, use the **cmxos clean** command.

```
cmxos clean {find | normal | {delete}}
```

Syntax Description	find	normal	delete
	Find files over 1 Gigabyte in size.	List files which can be cleaned.	Remove the files listed.
Command Default	None.		
Command History	Release	Modification	
	Cisco CMX Release 10.3	This command was introduced.	

## Examples

The following example shows how to search for large files:

```
[cmxadmin@cmx]# cmxos clean find
Starting search for large files
Size: 1.96G File: /tmp/cmx_backup_CMX-LowEnd-200_2017_01_18_17_56.tar.gz
Size: 2.36G File: /tmp/cmx_backup_CMX-LowEnd-200_2017_03_14_11_16.tar.gz
Size: 2.43G File: /tmp/cmx_backup_CMX-LowEnd-200_2017_03_20_14_36.tar.gz
Size: 2.32G File: /tmp/cmx_backup_CMX-LowEnd-200_2017_01_18_18_00.tar.gz
Size: 1.45G File: /var/log/maillog-20170212.gz
Size: 2.63G File: /var/log/maillog-20170205.gz
Size: 6.84G File: /home/cmxadmin/cmx_backup_CMX-LAC-210_2017_03_23_22_09.tar.gz
Size: 1.17G File: /home/cmxadmin/CISCO_CMX-10.3.0-58.cmx
Completed search for large files

[cmxadmin@cmx]# cmxos clean normal
Files which can be removed in: /opt/cmx/var/log
/opt/cmx/var/log/adminui/adminui.pid
/opt/cmx/var/log/adminui/webui.ans
/opt/cmx/var/log/agent/server.log.3
/opt/cmx/var/log/agent/server.log.1
/opt/cmx/var/log/agent/server.log.5
/opt/cmx/var/log/agent/server.log.2
/opt/cmx/var/log/agent/server.log.4
/opt/cmx/var/log/backup.log.2
/opt/cmx/var/log/backup.log.3
/opt/cmx/var/log/setup.log.8
/opt/cmx/var/log/setup.log.7
/opt/cmx/var/log/cmxjobs.log.1
/opt/cmx/var/log/cmxjobs.log.5

[cmxadmin@cmx]# cmxos clean normal --delete
Are you sure you wish to remove files? [y/N]: y
Removing files in: /opt/cmx/var/log
Remove: /opt/cmx/var/log/agent/server.log.2
Remove: /opt/cmx/var/log/agent/server.log.1
Remove: /opt/cmx/var/log/cmxjobs.log.5
Remove: /opt/cmx/var/log/cmxjobs.log.2
```

```
Remove: /opt/cmx/var/log/cmxjobs.log.4  
Remove: /opt/cmx/var/log/cmxjobs.log.1  
Remove: /opt/cmx/var/log/cmxjobs.log.3
```

# cmxos configure

To configure the network and operating system parameter, use the **cmxos configure** command.

## cmxos configure

### Command Default

None

### Command Modes

CMX admin user

### Usage Guidelines

This command should to be run at the root user level. You can use the `--force` option to force a fresh configuration if the device is already configured.

### Examples

The following example shows how to configure the network and operating system parameters:

```
[cmxadmin@cmx]# cmxos configure --force
*** The system is already configured
*****
Checking if the machine meets required specification...
*****
+-----+-----+-----+-----+
| Check | expected | actual | Result |
+-----+-----+-----+-----+
| memory | 8GB | 25GB | ? |
+-----+-----+-----+-----+
| cpu | 4 | 8 | ? |
+-----+-----+-----+-----+
| disk | 50GB | 51GB | ? |
+-----+-----+-----+-----+
| hostname | rfc compliant hostname | cmx-vmdev146 | ? |
+-----+-----+-----+-----+
```

# cmxos date

To show current date information for the system, use the **cmxos date** command.

## cmxos date

### Command Default

None.

### Command Modes

CMX admin user

### Command History

Release	Modification
Cisco CMX Release 10.6.1	This command was introduced.

### Usage Guidelines

Run this command to see the current time and status of the system.

### Example

The following example shows how to display current date information for the system:

```
[cmxadmin@cmx]# cmxos date
Current Date                = Mon Mar 25 12:15:48 PDT 2019
Current UTC Date           = Mon Mar 25 19:15:48 UTC 2019
NTP Server                  = *10.22.243.5
Offset: Time difference between server and client = -0.969
Delay: Round trip between server and client      = 0.924
Jitter: Difference between two samples          = 1.070
```

# cmxos encryptdisk

To encrypt CMX data on the /opt partition, use the **cmxos encryptdisk** command.

## cmxos encryptdisk

**Command Default** Encryption is not enabled.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.5	This command was introduced.

**Usage Guidelines** Use this command when your security protocol requires encryption of CMX data. For more information about this task, refer to Cisco CMX Configuration Guide, release 10.6.

When FIPS or UCAPL authentication mode is enabled, access to the command line through PuTTY or other standard SSH clients is restricted. In these cases, we recommend that you connect directly from a console, or use the VMWare vSphere console.



**Note** We recommend that you enable encryption at installation, or as soon as possible afterward. The encryption process requires time proportional to the amount of data present on the /opt partition.



**Important** Encryption cannot be disabled or undone. It requires someone with root access credentials to manually enter the encrypted disk passphrase from the command line each time the device is rebooted or powered up.

## Example

The following example show how to enable encryption after CMX installation:

```
[cmxadmin@cmx]# cmxos encryptdisk
Have you closed all SSH sessions to this CMX? [y/N]:y
Are you sure you want to encrypt the /opt partition of the disk ? [y/N]:y

Checking disk space requirements for backing up /opt folder...
Looks Good.

Proceed with stopping all CMX services? [y/N]:y

Backing up /opt folder into /var ...
tar backup done.
Press Enter key to enter rescue mode and begin the encryption.

Press Enter.

Shredding /opt ...
Shread: List of deleted folders
Shread: List of deleted folders
```

Shread: *List of deleted folders*

...

Formatting /opt ...

You will be prompted to set a passphrase for encrypted disk /opt.  
Choose a passphrase, Enter and Verify it.

Note:

On every boot / power up, you will be prompted for this passphrase.  
System will continue only if this passphrase is correct.

WARNING!

=====

This will overwrite data on /opt irrevocably.  
Are you sure? (Type uppercase yes): **YES**

**Enter a passphrase.**

Enter passphrase:  
Verify passphrase:  
Command successful.

Opening /opt ...  
Enter passphrase for /opt:  
Encryption of /opt is complete.

System will reboot now.  
Upon (every) restart, when prompted to enter passphrase for /opt partition,  
enter the passphrase you just set.

Press Enter to continue with reboot

**Press Enter.**

Please enter passphrase for disk opt on /opt!:

# cmxos etchosts

To configure etc hosts, use the **cmxos etchosts** command.

## cmxos etchosts

**Syntax Description** This command has no arguments or keywords.

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.2	This command was introduced.

**Usage Guidelines** This command will run and returns no status.

## Examples

```
[cmxadmin@cmx]# cmxos etchosts
[cmxadmin@server]# cmxos etchosts --help
Usage: __main__.py etchosts [OPTIONS]
    Configure /etc/hosts properly
Options:
  --help  Show this message and exit.
```

# cmxos firstboot

To set up the Cisco Connected Mobile Experiences (Cisco CMX) again, use the **cmxos firstboot** command.

**cmxos firstboot**

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Usage Guidelines**

This command should be run at the root user level. You can use the --force option to force a fresh configuration if the device is already configured.

## Examples

The following example shows how to set up Cisco CMX again:

```
[cmxadmin@cmx]# cmxos firstboot  
Not first boot....Exiting...
```

# cmxos fixhaproxy

To verify the HA proxy permissions on Cisco Connected Mobile Experiences (Cisco CMX), use the **cmxos fixhaproxy** command.

**cmxos fixhaproxy**

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Usage Guidelines**

This command should be run at the root user level.

## Examples

The following example shows how to verify HA proxy permissions:

```
[cmxadmin@cmx]# cmxos fixhaproxy  
Raising haproxy setcap...
```

# cmxos health

To check the health of a Cisco CMX system, use the **cmxos health** command.

```
cmxos health {filedescriptors | ntp}
```

## Syntax Description

**filedescriptors** Checks the CMX file descriptors for issues.

**ntp** Checks the CMX NTP systems for issues.

## Command Default

None.

## Command Modes

CMX admin user

## Command History

Release	Modification
Cisco CMX Release 10.5	This command was modified.
Cisco CMX Release 10.2	This command was introduced.

## Usage Guidelines

The **cmxos health filedescriptors** command returns the total number of open file descriptors. The **cmxos health ntp** command returns the status of the CMX Network Time Protocol (NTP) systems.

## Examples

The following example shows how to check the health of a Cisco CMX system:

```
[cmxadmin@cmx]# cmxos health filedescriptors
2195 total file descriptors open
```

```
[cmxadmin@server]# cmxos health ntp
NTP Synchronization error:
unsynchronised
  time server re-starting
  polling server every 8 s
```

# cmxos inventory

To show full inventory of a node, use the **cmxos inventory** command.

**cmxos inventory**

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Command History**

Release	Modification
Cisco CMX Release 10.2	This command was introduced.

## Examples

The following example shows how to view the inventory details:

```
[cmxadmin@cmx]# cmxos inventory
UDI: AIR-MSE-3365-K9 Serial Number - FCH1904V055

State of the RAID array: Healthy and working normally
Capacity of the RAID array: 1.088 TB
Type of disks in RAID array: Spinning Disk Drive
All chassis fans operating normally
One of the power supplies in the chassis has failed or it has not been installed/connected
Disk Capacity: 1.0T
Disk space used: 33.2G
Memory installed: 63.00G
CPUs installed: 20
CPU Type: Intel(R) Xeon(R) CPU E5-2650 v3 @ 2.30GHz
Server uptime: 6 Hours, 59 Minutes, 44 Seconds
Server boot time: Mon, 27 Mar 2017 16:44:36
Number of server reboots: 1
```

# cmxos kill

To kill services, use the **cmxos kill** command.

**cmxos kill silent**

<b>Syntax Description</b>	<b>--silent</b> Silently kills services without confirmation.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Cisco CMX Release 10.2</td><td>This command was introduced.</td></tr></tbody></table>	Release	Modification	Cisco CMX Release 10.2	This command was introduced.
Release	Modification				
Cisco CMX Release 10.2	This command was introduced.				

## Examples

The following example shows how to kill CMX services:

```
[cmxadmin@cmx]# cmxos kill
This command will force kill all CMX processes, for dev use only
Do you want to continue?:
```

# cmxos monit

To manage the monitoring of Cisco CMX services, use the **cmxos monit** command.

**cmxos monit** {**configure** | **start** | **stop** | **wipe**}

Syntax Description	
<b>configure</b>	Configures the default monitor settings.
<b>start</b>	Enables monitored services.
<b>stop</b>	Enables monitored services.
<b>wipe</b>	Deletes the default monitoring settings.
	<b>Note</b> To reset to the default monitoring settings, use the <b>cmxos monit configure</b> command

**Command Default** Disabled.

**Command Modes** CMX admin user

Command History	Release	Modification
	Release 10.2.0	This command was introduced.

## Example

The following example shows how to display the monitoring settings:

```
[cmxadmin@cmx]# cmxos monit configure
Deleting all monit configurations....
Configuring monit mail settings...
Configuring monit OS settings...
Configuring monit CMX services settings...
```

The following example shows how to enable monitoring of Cisco CMX services:

```
[cmxadmin@cmx]# cmxos monit start
Starting monit:
```

## cmxos ntp

To configure authenticated and un-authenticated Network Time Protocol (NTP) servers on CMX, use the **cmxos ntp** command.

```
cmxos ntp{auth | {password | servers} | clear | restart | type}
```

Syntax Description		
<b>auth password</b>		Configures local authentication password.
<b>auth servers</b>		Configures Authenticate NTP Servers.
<b>clear</b>		Clears the NTP server configuration.
<b>restart</b>		Restarts the NTP services.
<b>status</b>		Displays the NTP server status.
<b>type</b>		Configure NTP authentication type.

**Command Default** By default, no NTP servers are configured.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6	This command was introduced.

The following example shows how to set authenticate NTP server(s) using **cmxos ntp type** command.

```
[cmxadmin@cmx]# cmxos ntp type
Current NTP Type = <Not Set>
Select NTP Type [1] Unauthenticated, [2] Authenticated or [3] Skip [3]: 2

Changing the NTP Type = Authenticated
Enter local password:
Repeat for confirmation:
Password changed and host key/cert file generated successfully.

Enter hostname / IP for NTP Server #1 (blank to skip) []: 1.2.3.4
Please enter complete path of exported IFF (encrypted) key file: /tmp/iffkey
Checking if server 1.2.3.4 is reachable ...
OK
Key file successfully saved as ntpkey_iffkey_ntpserver.3747444855
NTP Server added successfully

Enter hostname / IP for NTP Server #2 (blank to skip) []:
NTP Service restarted successfully
```

## cmxos openports

To open ports, based on a node rule, use the **cmxos openports** command.

```
cmxos openports { analytics | location | database }
```

---

**Syntax Description**

---

**analytics** Adds a 10-GB swap space to a node.

---

**location** Configures the network and operating system parameters.

---

**database** Sets up the Cisco Connected Mobile Experiences (Cisco CMX) database again.

---

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Usage Guidelines**

This command should be run at the root user level.

### Examples

The following example shows how to open ports based on a node:

```
[cmxadmin@cmx]# cmxos openports analytics  
Opened port 6541  
Opened port 6542  
Successfully opened all ports. Saving iptables info...
```

# cmxos patch

To install, remove or view patch for CMX system, use the **cmxos patch** command.

**cmxos patch install filename list remove filename removeall**

## Syntax Description

<b>install filename</b>	Installs a new patch for CMX system.
<b>list</b>	Displays the list of currently installed patches
<b>remove filename</b>	Removes the specified patch.
<b>removeall</b>	Removes all installed patches from the CMX system.

## Command Default

None

## Command Modes

CMX admin user

## Command History

Release	Modification
Cisco CMX Release 10.6	This command was introduced.

## Usage Guidelines

Cisco CMX has a restricted shell to prevent a user from updating the Cisco CMX image. A patch upgrade is now required to modify and update Cisco CMX. Patch files are RPM files specifically signed for installation on Cisco CMX. The patch file name has a .cmxp extension.

## Example

The following example shows how to install a patch:

```
[cmxadmin@cmx]# cmxos patch install
Please enter the patch file name: patch-10.0.x.cmxp

** Checking patch file integrity

Patch file integrity passed.

** Extract patch file contents.
Verifying patch signature.
Verification signature output: Verified OK

Patch file verification successful for /home/cmxadmin/cmx-test-patch-10.6.0.cmxp.

** Installing patch RPM: /opt/image/patches/cmx-test-patch-10.6.0-1.x86_64.rpm extracted
from patch file: /home/cmxadmin/cmx-test-patch-10.6.0.cmxp

** Patch installed successfully

** Patch completed successfully.
```

# cmxos reboot

To reboot the system, use the **cmxos reboot** command.

**cmxos reboot** {**force** | **silent** | **failover**}

Syntax Description	force	Option to force an immediate reboot.
	<b>silent</b>	Option to silently reboot without prompting.
	<b>failover</b>	Failover to the secondary before reboot and only if high availability enabled.

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6.1	This command was introduced.

**Usage Guidelines** Run this command if you need to reboot the system. The limited shell prevents the reboot otherwise.

## Example

The following example shows how to reboot the system:

```
[cmxadmin@cmx]# cmxos reboot
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!! CONFIRM REBOOT !!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Are you sure you want to reboot?:y
```

# cmxos reconfigure

To change network configuration information after deployment, use the **cmxos reconfigure** command.

## cmxos reconfigure

### Command Default

None

### Command Modes

CMX admin user

### Usage Guidelines

This command, which should be run at the root user level, also allows you to change the IP address, netmask, default gateway, and DNS server information. Changing the hostname through command line is not supported. Use the **cmxos reconfigure** command to change a hostname, IP address, or any of the network parameters.

NTP server and timezone/date configurations are also executed by running this command.



### Note

Do not execute the **cmxos reconfigure** command when Cisco CMX services are not installed. This will prevent execution failures.

## Examples

The following example shows how to reconfigure the network after Cisco CMX installation:

```
[cmxadmin@cmx]# cmxos reconfigure
This command will wipe all system metrics data when the configuration is changed
Do you want to continue?: yes
Please enter hostname [cisco-cmx-centos7-test0]:
Please enter IP address [192.0.2.1]:
Please enter netmask [255.255.255.0]:
Please enter gateway [192.0.2.2]:
Please enter DNS server [192.0.2.3]:
Please enter search domain name [example.com]:
Are the network settings correct?: yes
Stopping keepalived service
Verify keepalived service has been stopped
Successfully stopped the keepalived service.
Starting keepalived service
ERROR: Failed to start keepalived service.
*****
Configuring NTP Server...
*****
Please enter the NTP server name (blank for no NTP server) [ntp.esl.cisco.com]:
Setting ntp server ntp.esl.cisco.com
*****
Configuring Timezone and date...
*****
Please identify a location so that time zone rules can be set correctly.
Please select a continent or ocean.
  1) Africa
  2) Americas
  3) Antarctica
  4) Arctic Ocean
  5) Asia
  6) Atlantic Ocean
```

```

7) Australia
8) Europe
9) Indian Ocean
10) Pacific Ocean
11) none - I want to specify the time zone using the Posix TZ format.
#? 10

```

Please select a country.

```

1) Chile
2) Cook Islands
3) Ecuador
4) Fiji
5) French Polynesia
6) Guam
7) Kiribati
8) Marshall Islands
9) Micronesia
10) Nauru
11) New Caledonia
12) New Zealand
13) Niue
14) Norfolk Island
15) Northern Mariana Islands
16) Palau
17) Papua New Guinea
18) Pitcairn
19) Samoa (American)
20) Samoa (western)
21) Solomon Islands
22) Tokelau
23) Tonga
24) Tuvalu
25) United States
26) US minor outlying islands
27) Vanuatu
28) Wallis & Futuna
#? 25

```

Please select one of the following time zone regions.

```

1) Eastern (most areas)
2) Eastern - MI (most areas)
3) Eastern - KY (Louisville area)
4) Eastern - KY (Wayne)
5) Eastern - IN (most areas)
6) Eastern - IN (Da, Du, K, Mn)
7) Eastern - IN (Pulaski)
8) Eastern - IN (Crawford)
9) Eastern - IN (Pike)
10) Eastern - IN (Switzerland)
11) Central (most areas)
12) Central - IN (Perry)
13) Central - IN (Starke)
14) Central - MI (Wisconsin border)
15) Central - ND (Oliver)
16) Central - ND (Morton rural)
17) Central - ND (Mercer)
18) Mountain (most areas)
19) Mountain - ID (south); OR (east)
20) MST - Arizona (except Navajo)
21) Pacific
22) Alaska (most areas)
23) Alaska - Juneau area
24) Alaska - Sitka area
25) Alaska - Annette Island
26) Alaska - Yakutat
27) Alaska (west)
28) Aleutian Islands
29) Hawaii
#? 21

```

The following information has been given:

```

United States
Pacific

```

```

Therefore TZ='America/Los_Angeles' will be used.
Local time is now:      Mon May 21 08:25:39 PDT 2018.
Universal Time is now: Mon May 21 15:25:39 UTC 2018.
Is the above information OK?

```

```

1) Yes
2) No
#? 1

```

The Timezone selected is America/Los\_Angeles

The current time is Mon May 21 08:25:40 PDT 2018

```

Enter Date (YYYY-mm-dd hh:mm:ss) (blank to sync with ntp): []:
*** No changes were detected

```



---

**Note** This command opens the Device Configuration window, where you can take the appropriate action, that is reconfigure the device or the DNS.

---

# cmxos rediscleanup

To remove data from all the redis ports, use the **cmxos rediscleanup** command.

## cmxos rediscleanup

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6.1	This command was introduced.

**Usage Guidelines** When you run this command, data entires from all redis cache ports will be removed. This may result in permanent loss of data for CMX services such as Connect.

We recommend that you use this command when the memory usage of redis instances are high. For example, qlesspy service uses redis instance 6378 and when the 6378 instance reaches memory full, qlesspy service will not start. To recover from this situation, run the **cmxos rediscleanup** command. You need not restart any services after running this command.

### Example

The following example shows how to remove data from all redis ports:

```
[cmxadmin@cmx]# cmxos rediscleanup
Output of redis cleanup for port 6378 - OK

Output of redis cleanup for port 6379 - OK

Output of redis cleanup for port 6380 - OK

Output of redis cleanup for port 6381 - OK

Output of redis cleanup for port 6382 - OK

Output of redis cleanup for port 6383 - OK

Output of redis cleanup for port 6384 - OK

Output of redis cleanup for port 6385 - OK
```

## cmxos restore

To restore a node, use the **cmxos restore** command.

```
cmxos restore {file | path | i | ignore_version | ignore_licenses | help}
```

Syntax Description		
<b>--file PATH</b>	Path where the restore file is located.	
<b>--path DIRECTORY</b>	Path where the restore file will be created.	
<b>-i, --include_only TEXT</b>	Restore selected parts only. Options are database, cache, cassandra, influxdb, consul, floormaps, licenses, setup, connectimages.	
<b>--ignore_version</b>	Skip version check during restore.	
<b>--ignore_licenses</b>	Skip restoring Cisco CMX licenses contained in the backup bundle and retain local licenses.	
<b>--HELP</b>	Shows the help content.	

**Command Default** None.

**Command Modes** CMX admin user

**Usage Guidelines** By default, this command performs restoration of all services excluding the InfluxDB data service. If you want to restore InfluxDB data, explicitly enter the InfluxDB service name along with other services by using *--include\_only* while running the command.

### Examples

The following example shows how to restore a node:

```
[cmxadmin@cmx]# cmxos restore
Please enter the backup file path: /tmp/cmx_backup_cmx-vmdev117_2015_03_10_17_43.tar.gz
[17:44:12] Preparing for restore...
[17:44:12] Untarring backup file...
[17:44:13] Stopping all services...
[17:44:16] Restoring Database...
Restarting database...
[17:44:26] Restoring Cache...
Stopping cache_6379...
Restarting cache_6379...
Stopping cache_6381...
Restarting cache_6381...
Stopping cache_6380...
Restarting cache_6380...
[17:44:55] Restoring Cassandra...
Stopping Cassandra...
Restarting Cassandra...
.....
[17:45:19] Restoring Influxdb...
[17:45:19] Restoring consul...
[17:45:19] Restoring floormaps...
[17:45:19] Running Post Restore Tasks...
[17:45:19] Migrating Schemas...
```

```
[17:45:19] Migrating Cassandra schemas...  
[17:45:20] Restarting all services...  
[17:45:23] Done
```

# cmxos shutdown

To halt the system, use the **cmxos shutdown** command.

**cmxos shutdown** {**force** | **silent** | **failover**}

Syntax Description	force	Option to force an immediate halt.
	<b>silent</b>	Option to silently halt without prompting.
	<b>failover</b>	Failover to the secondary before halt and only if high availability enabled.

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.6.1	This command was introduced.

**Usage Guidelines** Run this command for a graceful shutdown of the system. Because of the limited shell command restriction you cannot run this command otherwise.

## Example

The following example shows how to shutdown the system:

```
[cmxadmin@cmx]# cmxos shutdown
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!! CONFIRM HALT !!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Are you sure you want to shutdown?:
```

# cmxos sslcert

To replace default haproxy certificate, use the **cmxos sslcert** command.

**cmxos sslcert**

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Command History**

---

<b>Release</b>	<b>Modification</b>
Cisco CMX Release 10.2	This command was introduced.

---

## cmxos sysproxy

To enable an outbound proxy on your Cisco CMX server, use the **cmxos sysproxy** command.

**cmxos sysproxy** {**clear** | **disable** | **enable** | **no\_proxy** | **proxy** | **show** | **ftp\_proxy** | **http\_proxy** | **https\_proxy**}

Syntax Description	clear	Remove the proxy settings.
	<b>disable</b>	Disables the use of the proxy settings.
	<b>enable</b>	Enables the use of the proxy settings.
	<b>no_proxy</b>	Sets the no_proxy environment variable.
	<b>proxy</b>	Sets the proxy environment variables for http_proxy, https_proxy, ftp_or proxy.
	<b>show</b>	Displays the proxy settings.
	<b>ftp_proxy</b>	Sets the ftp proxy.
	<b>http_proxy</b>	Sets the http proxy.
	<b>https_proxy</b>	Sets the https proxy.

**Command Default** Proxy is disabled.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.3.1	This command was introduced.

**Usage Guidelines** This command supersedes the information from this post: <https://communities.cisco.com/docs/DOC-70904>.

Use this command for environments where an outbound proxy is required on the Cisco CMX server. For example, if you happen to be in a secure internal network where even outbound traffic via HTTPS requires that it move through a proxy server.

If you set the **proxy** setting on the Cisco CMX server, make sure to use the **no\_proxy** setting on the attached controllers to avoid interference with the NMSP Network Mobility Services Protocol (NMSP).

If you change the Cisco CMX proxy settings, you must restart Cisco CMX for the change to take effect. Use the **cmxctl restart** command to restart Cisco CMX.

### Example

The following example shows how to set a proxy on the Cisco CMX server, and then verify the change and restart Cisco CMX:

```
[cmxadmin@cmx]# cmxos sysproxy proxy https://proxy-wsa.esl.cisco.com:80

[cmxadmin@cmx]# cmxos sysproxy show
USE_PROXY=1
```

```
PROXY_URL=http://proxy-wsa.esl.cisco.com:80
NO_PROXY_LIST=""
[cmxadmin@cmx]# cmxctl restart
```

The following example shows how to enable a proxy on the Cisco CMX server, and then verify the change and restart Cisco CMX:

```
[cmxadmin@cmx]# cmxos sysproxy enable

[cmxadmin@cmx]# cmxos sysproxy show
USE_PROXY=1
PROXY_URL=http://proxy-wsa.esl.cisco.com:80
NO_PROXY_LIST=""
[cmxadmin@cmx]# cmxctl restart
```

The following example shows how to disable a proxy on the Cisco CMX server, and then verify the change and restart Cisco CMX:

```
[cmxadmin@cmx]# cmxos sysproxy disable

[cmxadmin@cmx]# cmxos sysproxy show
USE_PROXY=0
PROXY_URL=http://proxy-wsa.esl.cisco.com:80
NO_PROXY_LIST=""
[cmxadmin@cmx]# cmxctl restart
```

The following example shows how to clear proxy settings, and then verify the change and restart Cisco CMX:

```
[cmxadmin@cmx]# cmxos sysproxy clear
[cmxadmin@cmx]# cmxos sysproxy show
USE_PROXY=0
PROXY_URL=""
NO_PROXY_LIST=""
[cmxadmin@cmx]# cmxctl restart
```

# cmxos techsupport

To collect technical support information, use the **cmxos techsupport** command.

```
cmxos techsupport { all | cmx | location | map | network | services | system }
```

## Syntax Description

<b>all</b>	Collect all technical support information
<b>cmx</b>	Collect CMX information
<b>location</b>	Collect location support information
<b>map</b>	Collect map support information
<b>network</b>	Collect network information
<b>services</b>	Collect CMX services information.
<b>system</b>	Collect system information
<b>silent</b>	Silently run with prompting

## Command Default

None.

## Command Modes

CMX admin user

## Usage Guidelines

This command will return all CLI command outputs helpful for debugging.

## Command History

Release	Modification
Cisco CMX Release 10.3	This command was introduced.

# cmxos techsupport dump

To dump all technical support information, use the **cmxos techsupport dump** command.

## **cmxos techsupport dump**

---

**Command Default**      None.

---

**Command Modes**      CMX admin user

---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.3	This command was introduced.

---

# cmxos upgrade

To upgrade Cisco Connected Mobile Experiences (Cisco CMX) with a new Red Hat Package Manager (RPM) or package, use the **cmxos upgrade** command.

## cmxos upgrade

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Usage Guidelines**

This command should be run at the root user level. The CLI accepts either a local file or an HTTP URL. This command works only when you have a later version than the existing one to upgrade.

## Examples

The following example shows how to upgrade the Cisco CMX using RPM or package:

```
[cmxadmin@cmx]# cmxos upgrade
The nodeagent service is not running.
Agent is not running, starting it now.
Starting nodeagent Process...
Stopping nodeagent Process...
Done
Successfully shutdown nodeagent Process.
Stopping consul Process...
Successfully shutdown consul Process.
Stopping qlesspyworker Process...
Successfully shutdown qlesspyworker Process.
Stopping cassandra Process...
Successfully shutdown cassandra Process.
Stopping iodocs Process...
The iodocs service is not running.
Stopping redis6383 Process...
Successfully shutdown redis6383 Process.
Stopping redis6380 Process...
Successfully shutdown redis6380 Process.
Stopping redis6381 Process...
Successfully shutdown redis6381 Process.
Stopping influxdb Process...
The influxdb service is not running.
Stopping collectd Process...
The collectd service is not running.
Stopping confd Process...
The confd service is not running.
Stopping redis6379 Process...
Successfully shutdown redis6379 Process.
Stopping redis6378 Process...
Successfully shutdown redis6378 Process.
Stopping haproxy Process...
Stopping postgres Process...
Successfully shutdown postgres Process.
Stopping analytics Process...
The analytics service is not running.
Stopping location Process...
The location service is not running.
Stopping configuration Process...
The configuration service is not running.
```

```
Stopping halo Process...  
The halo service is not running.  
Stopping matlabengine Process...  
The matlabengine service is not running.  
Stopping nmsplb Process...  
The nmsplb service is not running.  
Shutting down
```

# cmxos vacuumdb

To run the full vacuum command on the postgres database running within Cisco CMX, use the **cmxos vacuumdb** command.

## **cmxos vacuumdb**

---

**Command Default**

None.

---

**Command Modes**

CMX admin user

---

**Command History**

<b>Release</b>	<b>Modification</b>
Cisco CMX Release 10.4	This command was introduced.

---

**Usage Guidelines**

This command internally runs the 'vacuumdb -vfa' on the postgres DB. This command is an advanced command and should not be regularly used by the customer. In case of the postgres DB taking up too much disk space, this command may be run to compact the DB.

## cmxos verify

To verify the virtual machine configuration, use the **cmxos verify** command.

**cmxos verify**

---

### Command Default

None.

---

### Command Modes

CMX admin user

### Examples

The following example shows how to verify the virtual machine configuration:

```
[cmxadmin@cmx]# cmxos verify
+-----+-----+-----+-----+
| Check | expected | actual | Result |
+=====+=====+=====+=====+
| memory | 8GB | 25GB | ? |
+-----+-----+-----+-----+
| cpu | 4 | 8 | ? |
+-----+-----+-----+-----+
| disk | 50GB | 51GB | ? |
+-----+-----+-----+-----+
| hostname | rfc compliant hostname | cmx-vmdev146 | ? |
+-----+-----+-----+-----+
```

# cmxos wipeoutdisk

To wipeout CMX data, use the **cmxos wipeoutdisk** command.

## cmxos wipeoutdisk

### Command Default

None.

### Command Modes

CMX admin user

### Command History

Release	Modification
Cisco CMX Release 10.6	This command was introduced.

### Usage Guidelines

This command is available only when the FIPS/UCAPL mode is enabled. After the command execution is complete, it will delete everything on the disk and make system unusable and it will not even boot normally.

When FIPS or UCAPL authentication mode is enabled, access to the command line through PuTTY or other standard SSH clients is restricted. In these cases, we recommend that you connect directly from a console, or use the VMWare vSphere console.

### Example

The following example shows how to wipeout CMX data:

```
[cmxadmin@cmx]# cmxos wipeoutdisk
WARNING: This command will wipe out the entire disk.
It will remove entire CMX installation along with all the existing data.
Once completed, this box will not be useable.
Do you want to continue? [y/N]: y
Have you closed all SSH sessions to this CMX? [y/N]: y
WARNING: This is your last chance.
If you want to take backup, please exit now.
You can take backup and transfer it to some other machine.
When execute this command again.
Do you want to continue with disk wipeout? [y/N]: y_
Stopping the CMX services

nonit.service is not a native service, redirecting to /sbin/chkconfig.
cuting /sbin/chkconfig min it off
Stopping nodeagent Process...

cuting shutdown
```





## Cisco CMX High Availability Commands

---

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# cmxha info

To view Cisco CMX high availability (HA) information, such as version, IP addresses, and so on, use the **cmxha info** command.

## cmxha info

**Syntax Description** This command has no arguments or keywords.

**Command Default** None

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.3	This command was introduced.

**Usage Guidelines** This command should be run at the cmxadmin level.

## Examples

The following example shows how to print Cisco CMX HA information:

```
[cmxadmin@cmx]# cmxha info
Version                : 10.3.0-599
Current Server Time    : Fri Mar 24 02:31:31 2017
State                  : Primary Not Configured
State Description      : Primary has not been configured with a secondary
State Last Updated Time : Mon Nov 7 13:42:39 2016
Keepalived State       : Stopped
Keepalived Updated Time : Mon Nov 7 13:42:39 2016
Role                   : PRIMARY
Primary IP Address     : 192.0.2.1
Secondary IP Address   :
Use Virtual IP Address : True
Virtual IP Address     :
Failover Type          : Automatic Failover
Email Notify Address   :
----- Primary WLC Auth -----
MAC Address            :
SHA1 Key               :
SHA2 Key               :
----- Secondary WLC Auth -----
MAC Address            :
SHA1 Key               :
SHA2 Key               :
----- System Information -----
Total Memory           : 25.0 GB
Total Disk              : 157.0 GB
Number of CPUs         : 8
----- Version Information -----
Redis Version          : 2.8.6
Postgres Version       : 9.3.11
Cassandra Version      : 2.1.13
```

# cmxha config

To configure Cisco CMX high availability (HA), use the **cmxha config** command.

**cmxha config** {**disable** | **enable** | **modify** | {*email failover*} | **test** | {*email*}}

Syntax Description		
<b>disable</b>		Disables CMX HA configuration.
<b>enable</b>		Enables CMX HA configuration.
<b>modify</b>		Modifies CMX HA configuration.
<i>email</i>		Enter the email address.
<i>failover</i>		Enter the failover type as either <b>Manual</b> or <b>Automatic</b> .
<b>test</b>		Tests the CMX HA configuration.
<i>email</i>		Sends a test email with current email settings.

**Command Default** None.

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.3	This command was introduced.

**Usage Guidelines** This command should be run at the cmxadmin level.

## Examples

The following example shows how to enable CMX HA:

```
[cmxadmin@cmx]# cmxha config enable
Are you sure you wish to enable high availability? [y/N]: y
Please enter secondary IP address: 192.0.2.1
Please enter the cmxadmin user password for secondary:
Do you wish to use a virtual IP address? [y/N]: y
Please enter the virtual IP address: 192.0.2.2
Please enter failover type [manual|automatic]: automatic
Please enter an email address(es) for notifications (Use space, comma or semicolon to
separate): email@cisco.com
Attempting to configure high availability with server: 192.0.2.1
Configuring primary server for HA
Configuring secondary server for HA
.....
Synchronizing Postgres data from primary to secondary
.....
Synchronizing Cassandra data from primary to secondary
.....
Syncing primary files to secondary
Successfully started high availability. Primary is syncing with secondary.
```

# cmxha secondary

To convert the system to a secondary server and display Cisco CMX high availability (HA) information, use the **cmxha secondary** command.

```
cmxha secondary
{ convert | info }
```

<b>Syntax Description</b>	<b>convert</b> Converts the system to a secondary server.
	<b>info</b> Displays CMX HA information.
<b>Command Default</b>	None
<b>Command Modes</b>	CMX admin user
<b>Command History</b>	<b>Release</b>
	<b>Modification</b>
	Cisco CMX Release 10.3 This command was introduced.

**Usage Guidelines** This command should be run at the cmxadmin level. This command will retrieve the current information from the secondary server. If the current server is the primary server, this command will query the remote secondary server. If the current server is the secondary server, the local information is displayed. Use this command to display the server status in order to understand the remote status of the server.

## Examples

The following example shows how to view secondary server information:

```
[cmxadmin@cmx]# cmxha secondary info
Version                : 10.3.0-600
Current Server Time    : Sun Apr  2 23:21:07 2017
State                  : Secondary Not Configured
State Description      : Secondary has not been configured with a primary
State Last Updated Time : Thu Mar 30 21:58:25 2017
Keepalived State       : Stopped
Keepalived Updated Time : Thu Mar 30 21:58:25 2017
Role                   : SECONDARY
Primary IP Address     :
Secondary IP Address   : 192.0.2.1
Use Virtual IP Address : True
Virtual IP Address     :
Failover Type          : Automatic Failover
Email Notify Address   :
----- Primary WLC Auth -----
MAC Address            :
SHA1 Key               :
SHA2 Key               :
----- Secondary WLC Auth -----
MAC Address            :
SHA1 Key               :
SHA2 Key               :
----- System Information -----
Total Memory           : 25.0 GB
```

```
Total Disk           : 156.0 GB
Number of CPUs       : 8
----- Version Information -----
Redis Version        : 2.8.6
Postgres Version     : 9.3.11
Cassandra Version    : 2.1.13
```

## cmxha events

To view Cisco CMX high availability (HA) events, use the **cmxha events** command.

### cmxha events

**Syntax Description** This command has no arguments or keywords.

**Command Default** None

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.3	This command was introduced.

**Usage Guidelines** This command should be run at the cmxadmin level.

### Example

The following example shows how to view CMX HA events:

```
[cmxadmin@cmx]# cmxha events
Time                               State                               Description
-----
Fri Dec  2 01:15:02 2016 Primary Configure Invoked Attempting to initialize primary server
Fri Dec  2 01:15:17 2016 Primary Syncing Primary Syncing
Wed Dec 14 03:19:53 2016 Primary Initialize Attempting to initialize primary server
Wed Dec 14 03:24:56 2016 Primary Syncing Primary Syncing
Wed Dec 14 03:34:38 2016 Primary Active Primary is actively synchronizing with
secondary server
Wed Dec 14 03:34:38 2016 Primary Active Successfully enabled high availability.
Primary is sync
Wed Dec 14 04:00:02 2016 Primary Active Service check failed for master. Attempt
to restart ser
Wed Dec 14 04:02:01 2016 Primary Active Service check succeeded for master after
agent restart
Tue Dec 20 04:50:12 2016 Primary Disable Invoked Attempting to disable high availability
Tue Dec 20 04:52:13 2016 Primary Disable Invoked Successfully disabled high availability.
```

# cmxha failover

To fail over to the secondary server, use the **cmxha failover** command.

## **cmxha failover**

<b>Syntax Description</b>	This command has no arguments or keywords.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	CMX admin user
----------------------	----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.3	This command was introduced.

<b>Usage Guidelines</b>	The command prompts for confirmation and then initiates the failover to the secondary server.
-------------------------	---

## **Example**

The following example shows how to initiate the failover to the secondary server:

```
[cmxadmin@cmx]# cmxha failover
Are you sure you wish to failover to the secondary? [y/N]: y
Starting failover from primary to secondary server: 192.0.2.250
Syncing primary files to secondary
Configuring secondary server for Failover
Configuring primary server for Failover
Failover to secondary server has completed successfully
```

# cmxha failback

To fail back to the primary server, use the **cmxha failback** command.

## **cmxha failback**

<b>Syntax Description</b>	This command has no arguments or keywords.
---------------------------	--

<b>Command Default</b>	None.
------------------------	-------

<b>Command Modes</b>	CMX admin user
----------------------	----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.3	This command was introduced.

<b>Usage Guidelines</b>	The command prompts for confirmation and then initiates the failback to the primary server. We recommend that you run this command from the web UI. Note that this command requires a considerable amount of time for execution.
-------------------------	--

## **Example**

The following example shows how to initiate the failback to the primary server:

```
[cmxadmin@cmx]# cmxha failback
Are you sure you wish to failback to the primary? [y/N]: y
Starting to failback to primary server from secondary server: 192.0.2.250
Starting to synchronize data from secondary to primary server
.....
Completed synchronization of data from secondary to primary server
Starting to synchronize data from primary to secondary server
.....
Completed failback to primary server
```

# cmxha primary

To convert the system to a primary server and display CMX high availability (HA) information, use the **cmxha primary** command.

```
cmxha primary
{ convert | info }
```

Syntax Description	
<b>convert</b>	Converts the system to a primary server.
<b>info</b>	Displays the CMX HA information.

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	CMX admin user
----------------------	----------------

Command History	Release	Modification
	Cisco CMX Release 10.3	This command was introduced.

<b>Usage Guidelines</b>	This command should be run at the cmxadmin level. This command will retrieve the current information from the primary server. If the current server is a secondary server, this command will query the remote primary server. If the current server is the primary server, the local information is displayed. Use this command to display the server status in order to understand the remote status of the server.
-------------------------	--

## Example

The following example shows how to convert the system to a primary server:

```
[cmxadmin@cmx]# cmxha primary convert
This command should be run when HA is disabled and not configured. Are you sure you wish
to convert the system to a primary? [y/N]: y
Starting all services. This may take a while..
Started all services
Successfully completed primary convert
```

# cmxha diag

To collect Cisco CMX high availability (HA) diagnostic information, use the **cmxha diag** command.

**cmxha diag collect**

<b>Syntax Description</b>	<b>collect</b> Collects logs and diagnostic information from the primary and secondary servers.				
<b>Command Default</b>	None				
<b>Command Modes</b>	CMX admin user				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco CMX Release 10.3</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Cisco CMX Release 10.3	This command was introduced.
Release	Modification				
Cisco CMX Release 10.3	This command was introduced.				
<b>Usage Guidelines</b>	This command should be run at the cmxadmin level.				

## Example

The following example shows how to collect CMX HA diagnostic information:

```
[cmxadmin@cmx]# cmxha diag collect
Please enter a description for the diagnostic collection: collect
Collected local diagnostic files into file:
/opt/cmx/srv/cmx-ha-diags/cmx_ha_diag_192.0.2.1_2017-04-02.tar.gz
[cmxadmin@CMX-LowEnd-2 ~]$
```

## cmxha filesync

To synchronize files between the primary server and the secondary server, use the **cmxha filesync** command.

**cmxha filesync replicate**

---

**Syntax Description**

**replicate** Replicates files to the secondary server.

---

---

**Command Default**

None

---

**Command Modes**

CMX admin user

---

**Command History**

Release	Modification
Cisco CMX Release 10.3	This command was introduced.

---

---

**Usage Guidelines**

This command should be run at the cmxadmin level. We recommend that you run this command with Cisco TAC assistance.

## cmxha init

To configure high availability (HA) at startup, use the **cmxha init** command.

**cmxha init**

<b>Syntax Description</b>	This command has no arguments or keywords.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	CMX admin user
----------------------	----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco CMX Release 10.3	This command was introduced.

<b>Usage Guidelines</b>	This command should be run at the cmxadmin level. We recommend that you run this command with Cisco TAC assistance.
-------------------------	---

# cmxha logging

To change or view the logging level of Cisco CMX high availability (HA), use the **cmxha logging** command.

```
cmxha logging {config { debug | info } | status }
```

## Syntax Description

**config** Changes the logging level of CMX HA.

**debug** Sets the logging level to debug.

**info** Sets the logging level to info.

**status** Shows the current logging level.

## Command Default

None

## Command Modes

CMX admin user

## Command History

Release	Modification
Cisco CMX Release 10.3	This command was introduced.

## Usage Guidelines

This command should be run at the cmxadmin level. We recommend that you run this command with Cisco TAC assistance.

## Examples

The following example shows how to view the CMX HA logging level:

```
[cmxadmin@cmx]# cmxha logging config info
```

```
Completed changing logging level to info
```

# cmxha splitbrain

To manage the Cisco CMX high availability (HA) split-brain scenario, use the **cmxha splitbrain** command.

```
cmxha splitbrain
{ info | use-primary | use-secondary }
```

Syntax Description	info	Displays information about the CMX HA split-brain scenario.
	<b>use-primary</b>	Uses the primary server in the split-brain scenario.
	<b>use-secondary</b>	Uses the secondary server in the split-brain scenario.

**Command Default** None

**Command Modes** CMX admin user

Command History	Release	Modification
	Cisco CMX Release 10.3	This command was introduced.

**Usage Guidelines** This command should be run at the cmxadmin level.

## Examples

The following example shows how to view CMX HA split-brain scenario information:

```
[cmxadmin@cmx]# cmxha splitbrain info
System is not in split-brain state currently
```

# cmxha web

To enable or disable the high availability (HA) web services, use the **cmxha web** command.

```
cmxha web
{ disable | enable | status }
```

## Syntax Description

**disable** Disables the HA web service.

**enable** Enables the HA web service.

**status** Shows the status of the HA web services.

## Command Default

None

## Command Modes

CMX admin user

## Command History

Release	Modification
Cisco CMX Release 10.3	This command was introduced.

## Usage Guidelines

This command should be run at the cmxadmin level. We recommend that you run this command with Cisco TAC assistance.

## Examples

The following example shows how to view web service status:

```
cmxadmin@cmx]# cmxha web status
Web service enabled      : True
Web service running     : True
```





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