



## Integrate Cisco CMX for Wireless Maps

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## About Cisco Connected Mobile Experiences Integration

Catalyst Center supports the integration of on-premises Cisco Connected Mobile Experiences (CMX) for wireless maps. With the CMX integration, you can get the exact location of your wireless clients, rogue access points and interferers on the floor map within the Catalyst Center user interface.

Depending on your requirements, you can create CMX settings either at the global level or at the site, building, or floor level. For a small enterprise, you can assign CMX at the global level, which is the parent node. All children inherit their settings from the parent node. For a medium enterprise, you can assign CMX at the building level, and for a large enterprise, you can assign CMX at the floor level.



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**Note** CMX should be anonymized for security purposes.

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## Add a User for the Cisco CMX API Server

Before adding a Cisco CMX instance to Catalyst Center Network Settings, you must add a user for the Cisco CMX API server.

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**Step 1** SSH to Cisco CMX using a cmxadmin account. Enter the following command:

```
ssh -l cmxadmin (cmx-ip-address)
```

**Step 2** Start the Cisco CMX API server. Enter the following command:

```
# cmxos apiserver start
```

**Example**

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

```
[root@server]# cmxos apiserver start
Starting CMX API Server...
```

**Step 3** Add a user for the Cisco CMX API server. Enter the following command:

```
cmxos apiserver user add
```

At the password prompt, use the same password as the Cisco CMX web admin user password.

**Example**

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

```
[root@server]# 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
```

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**What to do next**

Create Cisco CMX settings in Catalyst Center. See [Create Cisco CMX Settings, on page 2](#).

## Create Cisco CMX Settings

**Before you begin**

- Make sure that CMX is configured with a valid SSL/TLS certificate. See the [CMX 10.5 SSL certificate installation procedure](#).
- Add a Cisco CMX API user. See [Add a User for the Cisco CMX API Server, on page 1](#).

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**Step 1** From the top-left corner, click the menu icon and choose **System > Settings**.

**Step 2** From the **External Services** section, click **Cisco Spaces/CMX Servers**.

The **Cisco Spaces/CMX Servers** window opens.

**Step 3** From the **CMX Servers** table, click **Add**.

**Step 4** Complete the fields in the **Add CMX Server** slide-in pane:

- **IP Address:** Enter the valid IP address of the CMX web GUI.
- **Username:** Enter the CMX web GUI username.

**Note** To assign a CMX server to a site, building, or floor, you must have Write permission on **Network Hierarchy**. For more information, see the "Catalyst Center User Role and Permissions" section in the [Cisco Catalyst Center Administrator Guide](#).

- **Password:** Enter the password credentials.

**Note** Make sure that CMX is reachable.

**Step 5** Click **Add**.

The connection status is shown in three stages as follows:

- **Initiating Connection:** Verifies connectivity to the server.
- **Establishing Trust:** Establishes trust to the CMX server. The CMX server must have a valid SSL/TLS certificate configured to establish trust. If the certificate is not yet stored in Catalyst Center Trusted Certificates, you will be prompted to **Accept** the certificate to continue.
- **Connecting CMX Server:** Validates the user credentials provided.

**Step 6** To assign a CMX server to a site, building, or a floor, click the menu icon and choose **Design > Network Settings**.**Step 7** Click the **Wireless** tab.**Step 8** From the left hierarchy tree, choose either **Global** or the required area, building, or floor.**Step 9** Click **Cisco Spaces/CMX Servers**.**Step 10** In the **Cisco Spaces/CMX Servers** section, from the **Location Settings** drop-down list, choose the CMX server.**Step 11** Click **Save**.

The **Create CMX Settings** window opens.

After the CMX is added, if you make any changes to the floor on the **Network Hierarchy** page, the changes are synchronized automatically with the CMX.

When the CMX is synced, Catalyst Center starts querying the CMX for the client location and displays the location on the floor map.

**Step 12** From the floor map, you can do the following:

- View the location of the client, which is shown as a blue dot.
- Hover your cursor over an AP. A dialog box is displayed with **Info**, **Rx Neighbor**, and **Clients** tabs. Click each tab for more information. Click **Device 360** to open the Device 360 window and view issues. Click an issue to see the location of the issue and the location of the client device.
- Click an AP to open a side bar with details about the AP.
- Perform real-time client tracking when Intelligent Capture and CMX are integrated.

**Step 13** If the CMX was down when you made changes, you must synchronize manually. To do so, on the **Network Hierarchy** window, hover your cursor over the ellipsis **•••** next to the building or floor on which you made the changes in the left hierarchy tree, and then choose **Sync: Cisco Spaces/CMX Servers** to push the changes manually.**Step 14** To edit the CMX server details or delete a CMX server, do the following:

- a) From the top-left corner, click the menu icon and choose **System > Settings**.
  - b) From the **External Services** section, click **Cisco Spaces/CMX Servers**.
  - c) Select the CMX server that you want to edit, make any changes, and click **Update**.
  - d) Select the CMX server that you want to delete and click **Delete**.
  - e) Click **OK** to confirm the deletion.
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# Troubleshoot Cisco CMX

## CMX Authentication Failure

- Check if you are able to log in to the CMX web UI with the credentials that you provided at the time of CMX settings creation on Catalyst Center.
- Check if you are able to log in to the CMX console using SSH.
- Check if you are able to exercise CMX REST APIs using the API Documentation link on the CMX UI.

## Clients Do not Appear on the Floor Map

- Check if the Cisco Wireless Controller on the particular floor is configured with CMX and is active.
- Check if the CMX UI shows clients on the floor map.
- Use the Catalyst Center Maps API to list the clients on the floor: 

```
curl -k -u <user>:<password> -X GET /api/v1/dna-maps-service/domains/<floor group id>/clients?associated=true
```