Cisco Connected Mobile Experiences Cloud

Cisco Connected Mobile Experiences (CMX) communicates with the Cisco wireless controller using the Network Mobility Services Protocol (NMSP), which runs over a connection-oriented (TLS) transport. This transport provides a secure 2-way connectivity and is convenient when both the controller and CMX are on-premise and there is direct IP connectivity between them.

Cisco CMX Cloud is a cloud-delivered version of the on-premise CMX. To access Cisco CMX Cloud services, HTTPS is used as a transport protocol.

Configuring Cisco CMX Cloud

Follow the procedure given below to configure CMX Cloud:

Before you begin

- **Configure DNS**—To resolve fully qualified domain names used by NMSP cloud-services, configure a **DNS** using the **ip name-server** *server_address* configuration command as shown in Step 2.

- **Import 3rd party root CAs**—The controller verifies the peer and the host based on the certificate that is sent by the CMX when a connection is established. However, root CAs are not preinstalled on the controller. You have to import a set of root CAs trusted by Cisco to the trustpool of the crypto PKI by using the **crypto pki trustpool import url <url>** configuration command as shown in Step 3.

- A successful registration to Cisco Spaces is required to enable **server url** and **server token** parameters configuration which is needed to complete this setup.

Procedure

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.

	Command or Action	Purpose
Step 2	**ip name-server** *namesvr-ip-addr* **Example:** `Device(config)#ip name-server 10.10.10.205`	Configures the DNS on the controller to resolve the FQDN names used by the NMSP cloud-services.
Step 3	**crypto pki trustpool import url** *url* **Example:** `Device(config)#crypto pki trustpool import url http://www.cisco.com/security/pki/trs/ios.p7b`	Imports the 3rd party root CA. The controller verifies the peer using the imported certificate.
Step 4	**[no] nmsp cloud-services server url** *url* **Example:** `Device(config)# nmsp cloud-services server url https://cisco.com`	Configures the URL used for cloud services. Use the **no** form of the command to delete the server url from the configuration.
Step 5	**[no] nmsp cloud-services server token** *token* **Example:** `Device(config)# nmsp cloud-services server token test`	Configures the authentication token for the NMSP cloud service. Use the **no** form of the command to delete the server token from the configuration.
Step 6	**[no] nmsp cloud-services http-proxy** *proxy-server port* **Example:** `Device(config)# nmsp cloud-services http-proxy 10.0.0.1 10`	(Optional) Configures HTTP proxy details for the NMSP cloud service. Use the **no** form of the command to disable the use of a HTTP proxy.
Step 7	**[no] nmsp cloud-services enable** **Example:** `Device(config)# nmsp cloud-services enable`	Enables NMSP cloud services. Use the **no** form of the command to disable the feature.

Verifying Cisco CMX Cloud Configuration

Use the following commands to verify the CMX Cloud configuration.

To view the status of active NMSP connections, use the following command:

```
Device# show nmsp status

MSE IP Address   Tx Echo Resp  Rx Echo Req   Tx Data    Rx Data   Transport
-------------------------------------------------------------------------
9.9.71.78        0             0             1          1         TLS
64.103.36.133    0             0             1230       2391      HTTPs
```

To view the NMSP cloud service status, use the following command:

```
Device# show nmsp cloud-services summary

CMX Cloud-Services Status
```

```
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   Server:                              https://yenth8.cmxcisco.com
   IP Address:                          64.103.36.133
   Cmx Service:                         Enabled
   Connectivity:                        https: UP
   Service Status:                      Active
   Last Request Status:                 HTTP/1.1 200 OK
   Heartbeat Status:                    OK
```

To view the NMSP cloud service statistics, use the following command:

```
Device# show nmsp cloud-services statistics

CMX Cloud-Services Statistics
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   Tx DataFrames:                              3213
   Rx DataFrames:                              1606
   Tx HeartBeat Req:                           31785
   Heartbeat Timeout:                          0
   Rx Subscr Req:                              2868
   Tx DataBytes:                               10069
   Rx DataBytes:                               37752
   Tx HeartBeat Fail:                          2
   Tx Data Fail:                               0
   Tx Conn Fail:                               0
```

To view the mobility services summary, use the following command:

```
Device# show nmsp subscription summary

Mobility Services Subscribed:
Index Server IP Services
----- --------- --------
1 209.165.200.225 RSSI, Info, Statistics, AP Monitor, AP Info
2 209.165.200.225 RSSI, Statistics, AP Info
```