

使用Catalyst 9800系列無線LAN控制器配置CMX連線並對其進行故障排除

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簡介

本文提供將Catalyst 9800無線LAN控制器新增至連線行動體驗(CMX)的步驟，包括對NMSP通道開啟的驗證和疑難排解。當通過聯結器或CMX內部繫結使用DNA Spaces時，本文檔也非常有用。

必要條件

需求

本檔案假設您已完成9800 WLC和CMX的基本設定和網路連線，且僅說明將WLC新增到CMX。

您需要在9800 WLC和CMX之間打16113連線埠TCP 22(SSH)和NMSP(NMSP)。

採用元件

執行16.12的Cat9800

運行10.6.x的CMX

設定

網路圖表

組態

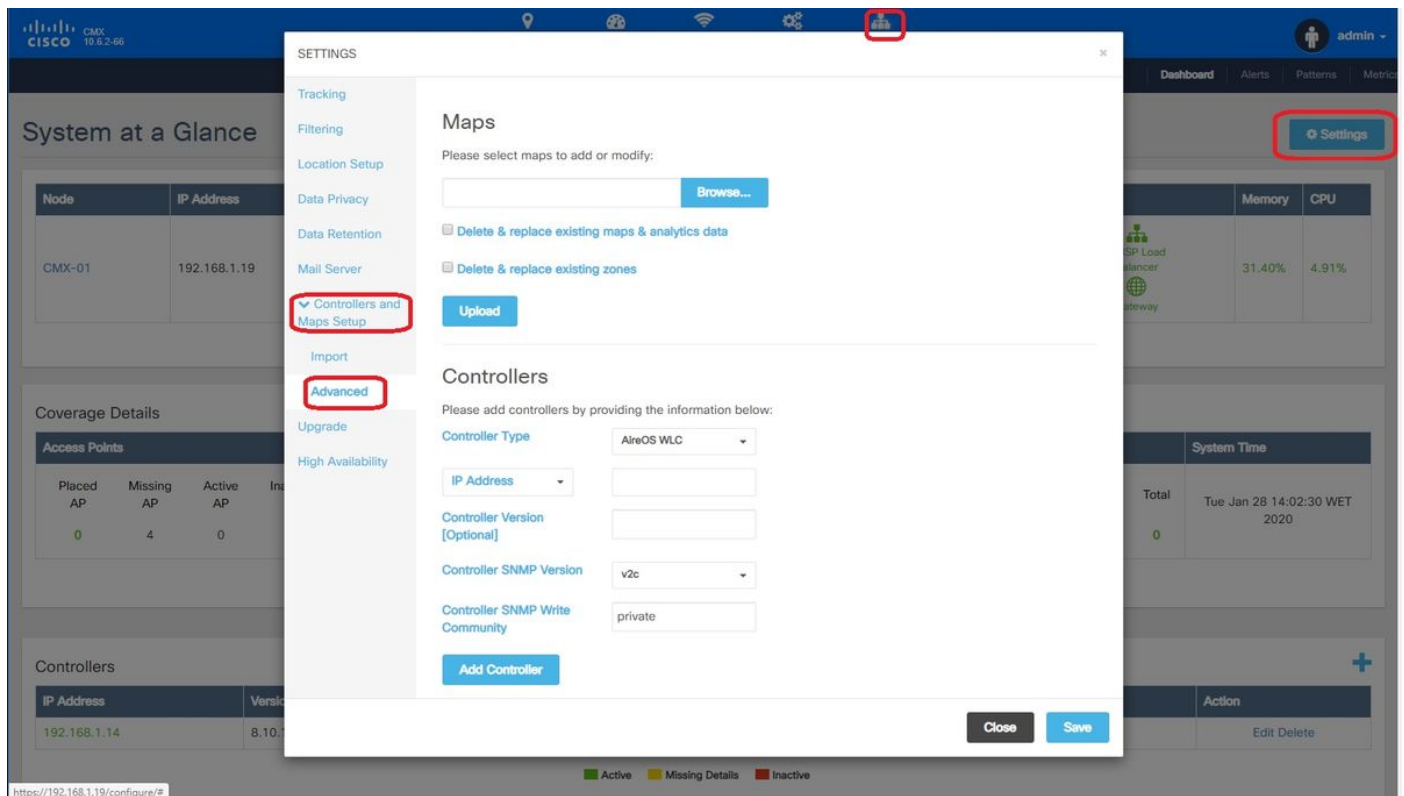
步驟1.注意Wireless Management ip地址和特權15使用者名稱和密碼以及使能口令或使能加密口令（如果適用）。

CLI:

```
# show run | inc username
# show run | inc enable
# show wireless interface summar
```

步驟2.在CMX上，若要新增無線LAN控制器，請導覽至System > Settings > Controllers and Maps Setup，按一下Advanced。

您將獲得一個彈出式嚮導（如果此時尚未完成該嚮導）或實際設定頁面。下面將說明這兩種情況：



The screenshot shows the Cisco CMX Settings interface. The 'Settings' menu is open, and the 'Controllers and Maps Setup' option is selected. The 'Advanced' option is highlighted. The 'Maps' section is visible, and the 'Controllers' section is also visible, showing fields for Controller Type, IP Address, Controller Version, Controller SNMP Version, and Controller SNMP Write Community.

Node	IP Address
CMX-01	192.168.1.19

Placed AP	Missing AP	Active AP
0	4	0

IP Address	Version
192.168.1.14	8.10.0

步驟3.在「Controller Type」下拉式清單中選擇Catalyst(IOS-XE)WLC(在10.6.1上，下拉式清單顯示Unified WLC for Cat9800 WLC)。

SETTINGS ×

Tracking
Filtering
Location Setup
Data Privacy
Data Retention
Mail Server
▼ Controllers and Maps Setup
Import
Advanced
Upgrade
High Availability

Maps

Please select maps to add or modify:

[Browse...](#)

Delete & replace existing maps & analytics data

Delete & replace existing zones

[Upload](#)

Controllers

Please add controllers by providing the information below:

Controller Type

Controller Version [Optional]

Controller SNMP Version

Controller SNMP Write Community

[Add Controller](#)

[Close](#) [Save](#)

步驟4.提供Cat9800 WLC IP位址、Priv 15使用者名稱、密碼和啟用密碼，以允許CMX組態存取Cat9800 WLC。CMX將使用SSH連線（因此需要在兩台裝置之間開啟SSH埠）來連線到9800並配置NMSP隧道。選擇「Add Controller」，然後選擇「Close」彈出視窗。

Tracking

Filtering

Location Setup

Data Privacy

Data Retention

Mail Server

 v Controllers and
Maps Setup

Import

Advanced

Upgrade

High Availability

Maps

Please select maps to add or modify:

 Delete & replace existing maps & analytics data

 Delete & replace existing zones

Controllers

Please add controllers by providing the information below:

Controller Type	Catalyst (IOS-XE) WLC ▾
IP Address ▾	192.168.1.15
Controller Version [Optional]	<input type="text"/>
Username	admin
Password
Enable Password



CMX會自動將這些配置推送到Cat9800 WLC並建立NMSP隧道

```
# nmsp enable
# aaa new-model
# aaa session-id common # aaa authorization credential-download wcm_loc_serv_cert local
# aaa attribute list cmx<mac>
# username <CMX mac address> mac aaa attribute list cmx_<mac>
# attribute type password <CMX key hash>
# netconf-yang
```

驗證

驗證NMSP隧道是否處於活動狀態，並從9800角度傳輸資料：

```
9800#show nmsp status
NMSP Status
-----
```

CMX IP Address

Active

Tx Echo Resp

Rx Echo Req

Tx Data

Rx

Data Transport

10.48.71.119 Active 16279 16279 7 80
TLS

從System頁面底部的CMX角度驗證相同的通道狀態：

The screenshot shows the Cisco CMX System page. The top navigation bar includes 'DETECT & LOCATE', 'ANALYTICS', 'CONNECT', 'MANAGE', and 'SYSTEM'. The main content area is titled 'System at a Glance' and contains three sections:

- System at a Glance:** A table showing the status of the system. The table has columns for Node, IP Address, Node Type, Services, Memory, and CPU. The data row shows Node: NicoCMX1, IP Address: 10.48.71.119, Node Type: Low-End, Services: Configuration, Location, Analytics, Connect, Database, Cache, Hyper Location, Location Heatmap Engine, NMSP Load Balancer, Gateway, Memory: 22.60%, CPU: 9.00%. A legend below indicates Healthy (green), Warning (yellow), and Critical (red).
- Coverage Details:** A table showing coverage details. The table has columns for Access Points, Map Elements, Active Devices, and System Time. The data row shows Placed AP: 2, Missing AP: 0, Active AP: 0, Inactive AP: 2, Campus: 2, Building: 1, Floor: 1, Zone: 0, Total: 4, Associated Client: 0, Probing Client: 0, RFID Tag: 0, BLE Tag: 0, Interferer: 0, Rogue AP: 0, Rogue Client: 0, Total: 0, System Time: Fri Aug 09 11:47:58 CEST 2019. A legend below indicates Healthy (green), Warning (yellow), and Critical (red).
- Controllers:** A table showing controller details. The table has columns for IP Address, Version, Bytes In, Bytes Out, First Heard, Last Heard, and Action. The data row shows IP Address: 10.48.71.120, Version: 16.12.1.0, Bytes In: 207 KB, Bytes Out: 208 KB, First Heard: 08/06/19, 3:56 pm, Last Heard: 1s ago, Action: Edit Delete. A legend below indicates Active (green) and Inactive (red).

驗證時間同步

最佳作法是將CMX和WLC指向同一個網路時間協定(NTP)伺服器。

在9800 CLI中，執行命令：

```
(config)#ntp server <IP address of NTP>
```

在CMX中更改NTP伺服器的IP地址：

步驟1.以cmxadmin身份登入命令列

步驟2.檢查NTP與cmxos運行狀況的NTP同步

步驟3. 如果要重新配置NTP伺服器，可以使用cmxos ntp clear，然後使用cmxos ntp type。

步驟4.在NTP伺服器與CMX同步後，運行命令cmxctl restart重新啟動CMX服務並切換回cmxadmin用戶。

驗證金鑰雜湊

將WLC新增到CMX，然後CMX將其金鑰雜湊新增到WLC組態時，此程式會自動執行。但是您可以驗證這一點，或者在出現問題時手動新增。

CMX輸入的命令如下：

```
(config)#username <CMX mac> mac aaa attribute list cmx_<CMX MAC>
(config)# attribute type password <CMX key hash>
```

要瞭解CMX上的SHA2金鑰是什麼，請使用：

```
cmxctl config authinfo get
```

驗證介面

NMSP將僅從設定為「無線管理介面」的介面傳送（在9800-CL上，預設情況下為Gig2）。用作服務埠的介面（裝置為gig0/0或9800-CL為Gig1）不會傳送NMSP流量。

顯示命令

您可以驗證9800 WLC上的NSMP層級已訂閱的服務

```
9800#show nmsp subscription detail
CMX IP address: 10.48.71.119
Service          Subservice
-----
RSSI              Tags, Mobile Station,
Spectrum
Info              Mobile Station,
Statistics        Tags, Mobile Station,
AP Info           Subscription
```

您可以獲取NMSP隧道統計資訊

```
9800#show nmsp statistics summary
NMSP Global Counters
-----
Number of restarts           : 0

SSL Statistics
-----
Total amount of verifications : 0
Verification failures         : 0
Verification success          : 0
Amount of connections created : 1
Amount of connections closed  : 0
Total amount of accept attempts : 1
Failures in accept            : 0
Amount of successful accepts   : 1
Amount of failed registrations : 0

AAA Statistics
-----
Total amount of AAA requests   : 1
Failed to send requests        : 0
Requests sent to AAA           : 1
Responses from AAA             : 1
Responses from AAA to validate : 1
Responses validate error       : 0
Responses validate success     : 1
```

```

9800#show nmsp statistics connection
NMSP Connection Counters
-----
CMX IP Address: 10.48.71.119, Status: Active
State:
Connections          : 1
Disconnections       : 0
Rx Data Frames       : 81
Tx Data Frames       : 7
Unsupported messages : 0
Rx Message Counters:
  ID  Name                               Count
-----
  1   Echo Request                       16316
  7   Capability Notification             2
 13   Measurement Request                 2
 16   Information Request                 69
 20   Statistics Request                  2
 30   Service Subscribe Request           2
 74   BLE Floor Beacon Scan Request       4
Tx Message Counters:
  ID  Name                               Count
-----
  2   Echo Response                       16316
  7   Capability Notification              1
 14   Measurement Response                 2
 21   Statistics Response                  2
 31   Service Subscribe Response           2

```

疑難排解

調試

從16.12及更高版本開始使用放射性跟蹤可以完成NMSP隧道建立的調試日誌。

```
#debug wireless ip <CMX ip> monitor-time x
```

此命令將為前面提到的CMX ip地址啟用x分鐘的調試。檔案將在bootflash:/中建立，並遵循字首「ra_trace_IP_x.x.x_...」。它將包含與NMSP調試相關的所有整理日誌。

要檢視eWLC終端上的即時調試，請輸入命令：

```
#monitor log process nmspd level debug
```

要停止即時調試，請輸入CTRL+C。

封包擷取

使用ACL在eWLC上收集封包擷取，僅過濾eWLC和CMX ip之間的流量。eWLC ip 192.168.1.15和CMX ip 192.168.1.19示例：

```
eWLC-9800-01#conf t
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
eWLC-9800-01(config)#ip access-list extended CMX
eWLC-9800-01(config-ext-nacl)#permit ip host 192.168.1.15 host 192.168.1.19
eWLC-9800-01(config-ext-nacl)#permit ip host 192.168.1.19 host 192.168.1.15
eWLC-9800-01(config-ext-nacl)#end
eWLC-9800-01#monitor capture CMX access-list CMX interface gigabitEthernet 2 both start
eWLC-9800-01#
Jan 30 11:53:22.535: %BUFCAP-6-ENABLE: Capture Point CMX enabled.
...
eWLC-9800-01#monitor capture CMX stop
Stopped capture point : CMX
eWLC-9800-01#
Jan 30 11:59:04.949: %BUFCAP-6-DISABLE: Capture Point CMX disabled.

eWLC-9800-01#monitor capture CMX export bootflash:/cmxCapture.pcap
```

然後，您可以通過CLI或在Troubleshooting > Packet Capture > Export中的GUI下載捕獲。或通過Administration > Management > File manager > bootflash:。

參考

[9800上的無線調試和日誌收集](#)