

配置DNA空间和Mobility Express Direct Connect并排除故障

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简介

本文档介绍

背景信息

与基于AireOS的常规无线局域网控制器一样，在802.11ac Wave 2接入点(2800、3800、4800、1542、1562、1850、11上运行的思科移动快捷版(ME)815)可通过3种方式连接到DNA空间云：

- 直接连接
- 通过DNA空间连接器
- 通过思科CMX内部设备或VM

从Mobility Express 8.3版开始，支持与DNA空间集成。本文将仅介绍Direct Connect的设置和故障排除。

重要信息：仅建议部署最多50个客户端时使用直接连接。对于任何较大的，请使用DNA空间连接器。

要求

先决条件

使用的组件

- Mobility Express映像8.10。
- 1542年无线接入点
- DNA空间云

本文中概述的步骤假设ME已部署，并且具有工作的Web界面和SSH。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

配置

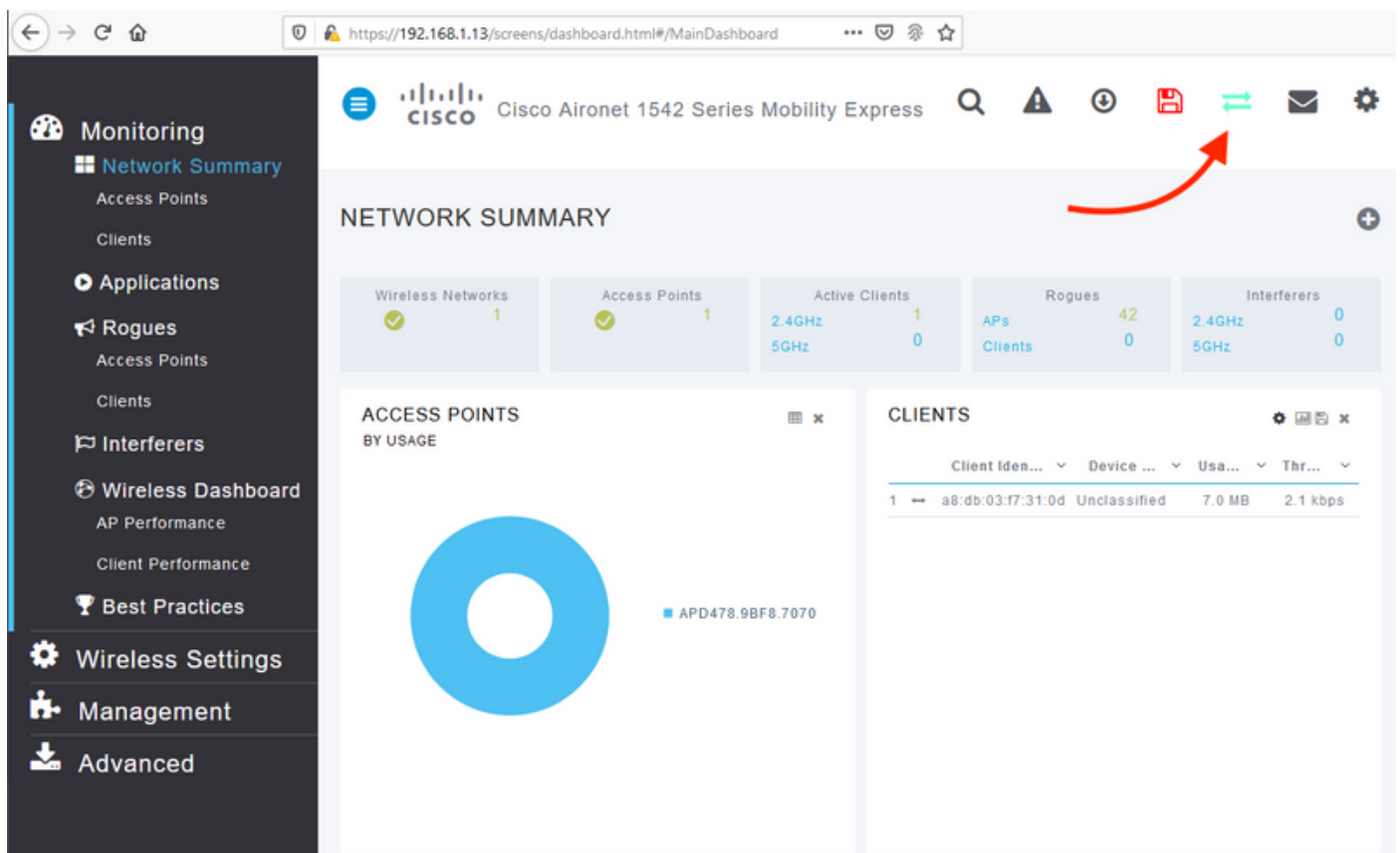
移动性快捷解决方案

DNA空间云节点和ME正在通过HTTPS协议（端口443）进行通信。在此测试设置中，在1542 AP上运行的ME已置于具有完全互联网访问权限的NAT之后。

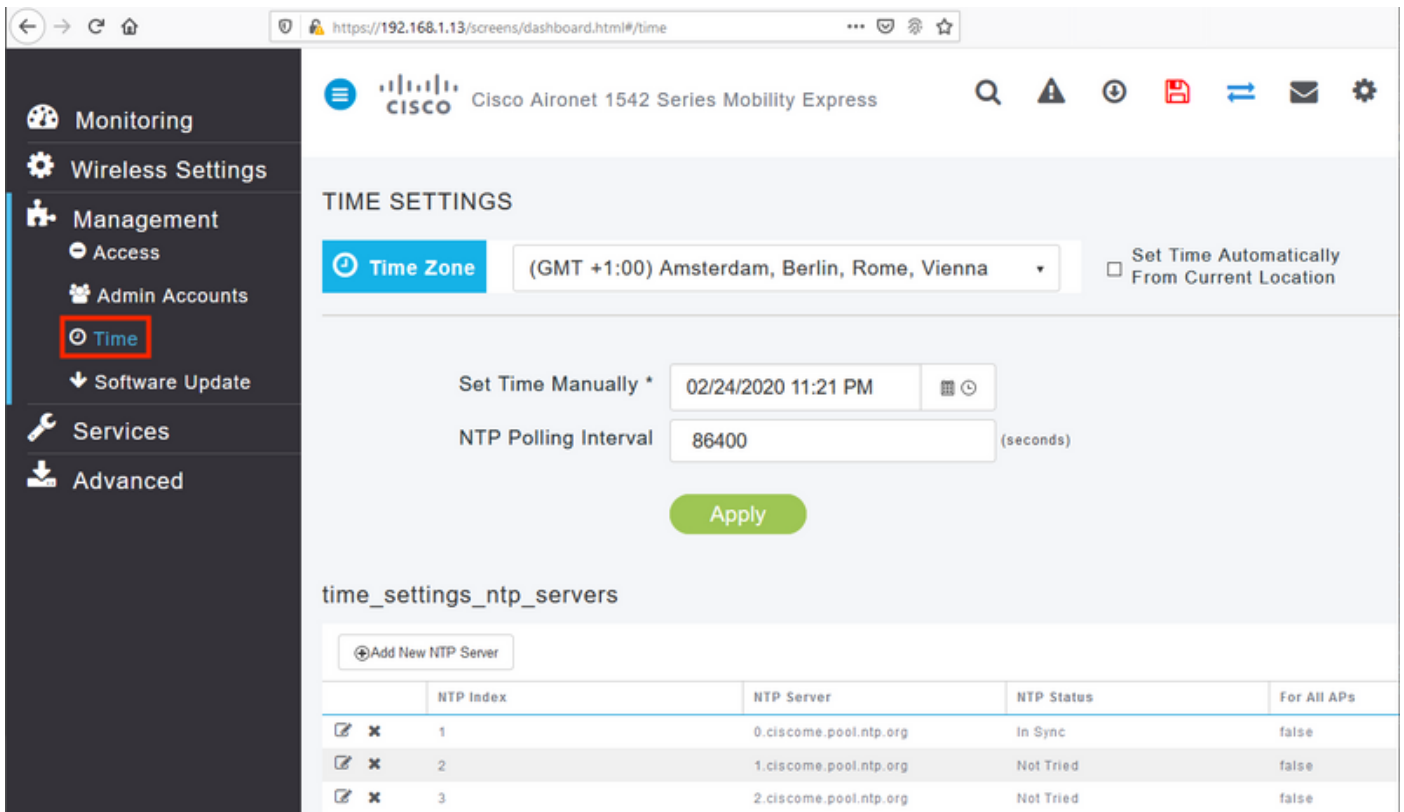
通过Web界面进行配置

在Mobility Express控制器可以连接到DNA空间之前，需要设置NTP和DNS服务器，并且至少连接一个AP。与其他基于AireOS的控制器不同，Mobility Express不要求安装DigiSign根证书（在撰写本文时）。

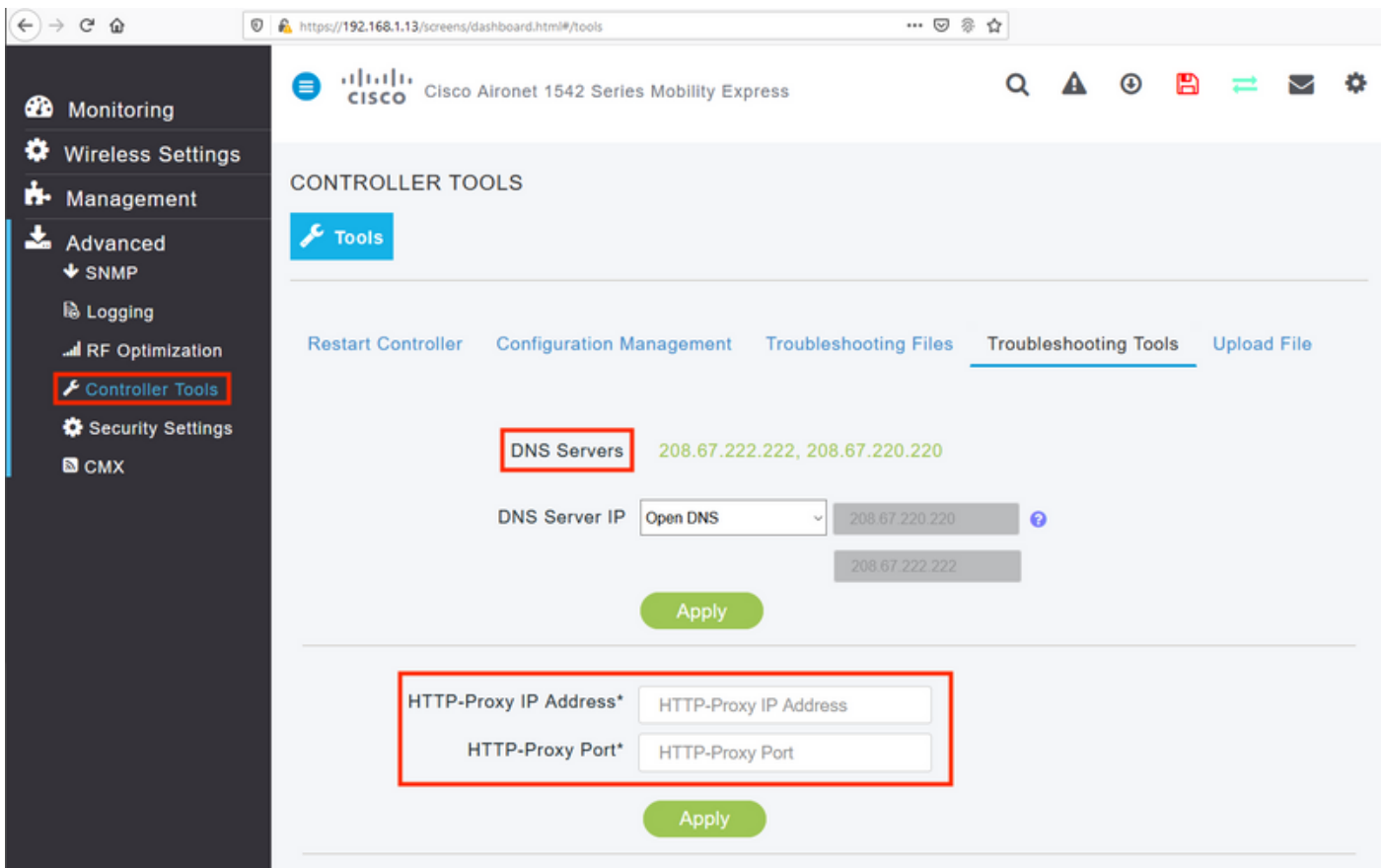
访问Mobility Express Web界面，在右上角单击2个绿色箭头以启用Expert模式。专家模式将解锁某些隐藏选项：



导航至**Management > Time**，并确保WLC与NTP同步。默认情况下，EWC已预配置为使用 `ciscome.pool.ntp.org` NTP服务器：



导航至 **Advanced > Controller Tools > Troubleshooting Tools**，并验证是否已添加DNS服务器。默认情况下，ME已预配置为使用Open DNS服务器。HTTP代理地址和端口可以在同一页上输入：



在 **Wireless Settings > Access Points** 下，验证至少已加入一个AP。此AP可以是ME运行的AP：

The screenshot shows the Cisco Aironet 1542 Series Mobility Express web interface. The left sidebar contains navigation options: Monitoring, Wireless Settings (with sub-items WLANs, Access Points, Access Points Groups, WLAN Users, Guest WLANs, and DHCP Server), Management, and Advanced. The 'Access Points' item is highlighted with a red box. The main content area is titled 'ACCESS POINTS ADMINISTRATION' and shows a count of 1 access point. Below this, there are buttons for 'Global AP Configuration', 'Convert to ME', and 'Convert to CAPWAP'. A table lists the access point details:

	Select	Manage	Type	Location	Name	IP Address	AP Mac	Up Time	AP Model
<input checked="" type="checkbox"/>	<input type="checkbox"/>		ME Capable	default location	APD478.9BF8.7070	192.168.1.185	d4:78:9b:f8:70:70	0 days, 00 h 27 ...	AIR-AP1542I-E-K9

At the bottom, there is a pagination control showing '10 items per page' and '1 - 1 of 1 items'.

在DNA空间云上，登录并导航至**Setup > Wireless Networks > Connect WLC/Catalyst 9800 Directly**，然后单击**View Token**：

Connect your wireless network

Connect WLC/Catalyst 9800 Directly

Connect WLC/Catalyst 9800 Directly is an easy way to get your wireless network connected to Cisco DNA Spaces. No need to upgrade Wireless LAN Controllers or reconfigure your wireless network.

1 Install Root Certificate

You can install the certificate from WLC CLI
[View root certificate](#)

2 Configure Token in WLC

Configure the token in WLC to establish the connection.

14 Total controller(s)

[View Token](#)

3 Import Controllers into Location Hierarchy

Once the controllers are connected, you can import them into location hierarchy

1 controller(s)
imported to location
hierarchy

[Import Controllers](#)

Need Help?

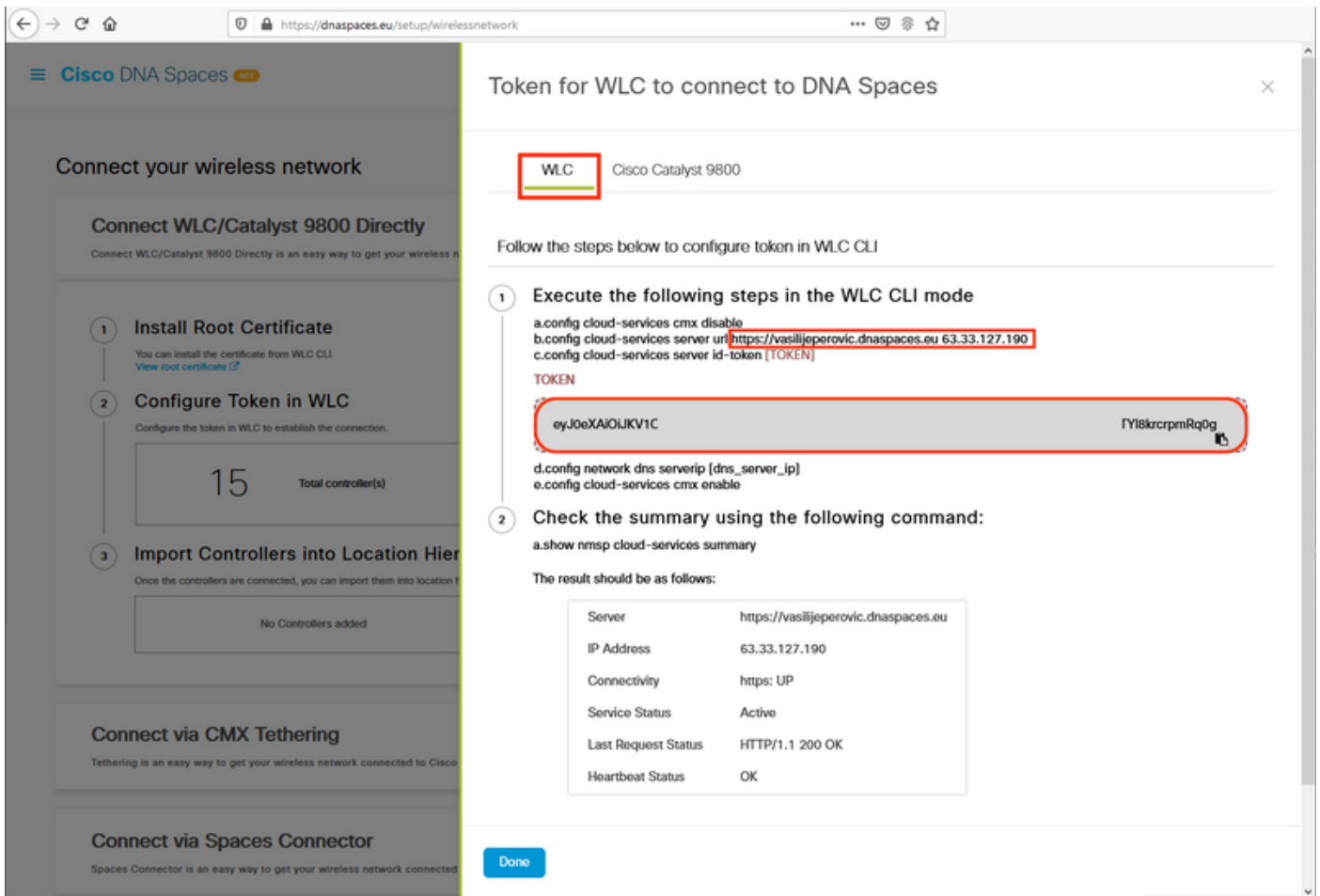
Access the below links to view detailed help.

[View Configuration Steps](#)

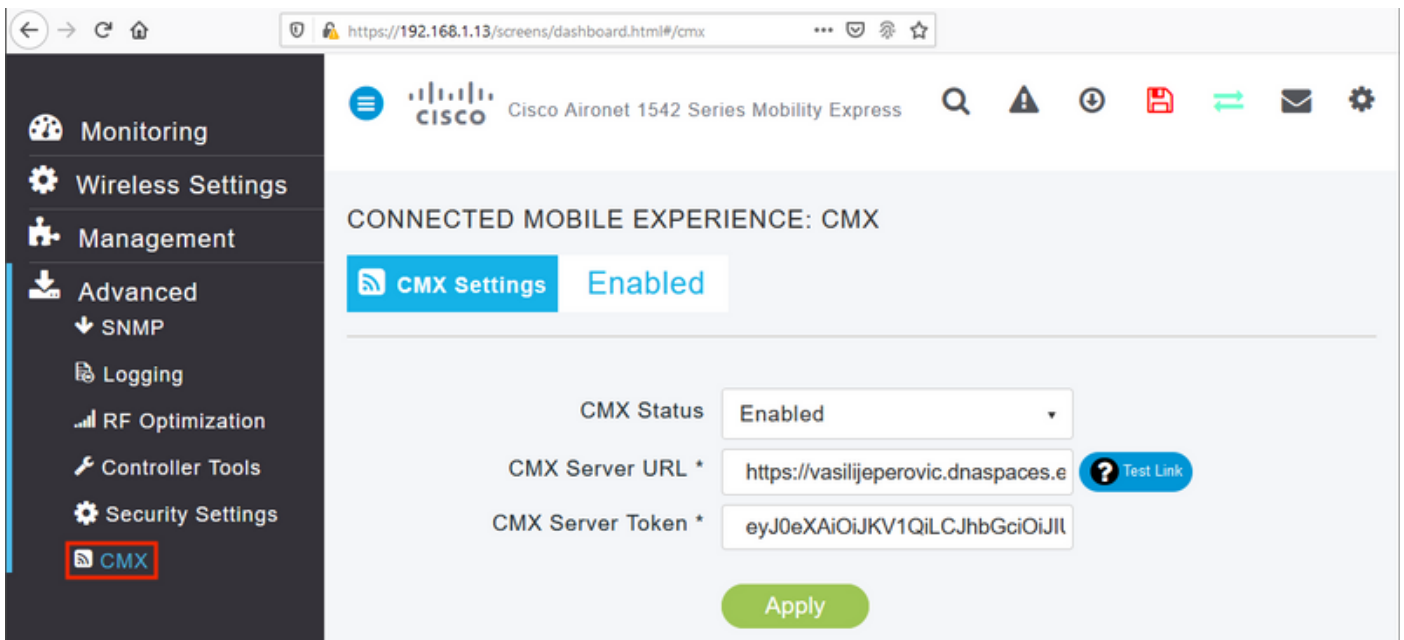
[System Requirements](#)

[Frequently Asked Questions](#)

复制令牌和URL:



在ME Web界面中，在Advanced > CMX下，粘贴URL和Authentication Token:



要验证连接是否已建立，请单击“测试链接”按钮。如果连接已建立，则按钮将更改为“Link Up:(链路打开:)”



跳过下一章，转到“将控制器导入位置层次结构”。

通过CLI进行配置

验证NTP是否已配置并同步：

```
(ME) >show time

Time..... Mon Feb 24 23:38:13 2020

Timezone delta..... 0:0
Timezone location..... (GMT +1:00) Amsterdam, Berlin, Rome, Vienna

NTP Servers
NTP Version..... 3
NTP Polling Interval..... 86400

Index NTP Key Index      NTP Server                Status      NTP Msg Auth Status
-----
 1 0          0.ciscome.pool.ntp.org    In Sync     AUTH DISABLED
 2 0          1.ciscome.pool.ntp.org    Not Tried  AUTH DISABLED
 3 0          2.ciscome.pool.ntp.org    Not Tried  AUTH DISABLED
```

可以使用config time ntp server <index> <ip_address>命令添加新的NTP服务器。

验证DNS服务器是否已配置：

```
(ME) >show network summary

RF-Network Name..... ME
DNS Server IP1..... 192.168.1.1
DNS Server IP2..... 208.67.222.222
DNS Server IP3..... 208.67.220.220
```

可以使用config network dns serverip <ip_addr>命令添加新的DNS服务器。

要确认AP已加入，请执行以下操作：

```
(ME) >show ap summary

Number of APs..... 1

Global AP User Name..... admin
Global AP Dot1x User Name..... Not Configured
Global AP Dot1x EAP Method..... EAP-FAST

* prefix indicates Cisco Internal AP

AP Name          Slots  AP Model          Ethernet MAC          Location          Country
IP Address      Clients DSE Location
-----
*APD478.9BF8.7070  2      AIR-AP1542I-E-K9  d4:78:9b:f8:70:70    default location    BE
192.168.1.185    0      [0 ,0 ,0 ]
```

如前所述，访问DNA空间云，导航至Setup > Wireless Networks > Connect WLC/Catalyst 9800

Directly, 然后单击View Token:

Connect your wireless network

Connect WLC/Catalyst 9800 Directly

Connect WLC/Catalyst 9800 Directly is an easy way to get your wireless network connected to Cisco DNA Spaces. No need to upgrade Wireless LAN Controllers or reconfigure your wireless network.

- 1 Install Root Certificate**
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- 2 Configure Token in WLC**
Configure the token in WLC to establish the connection.

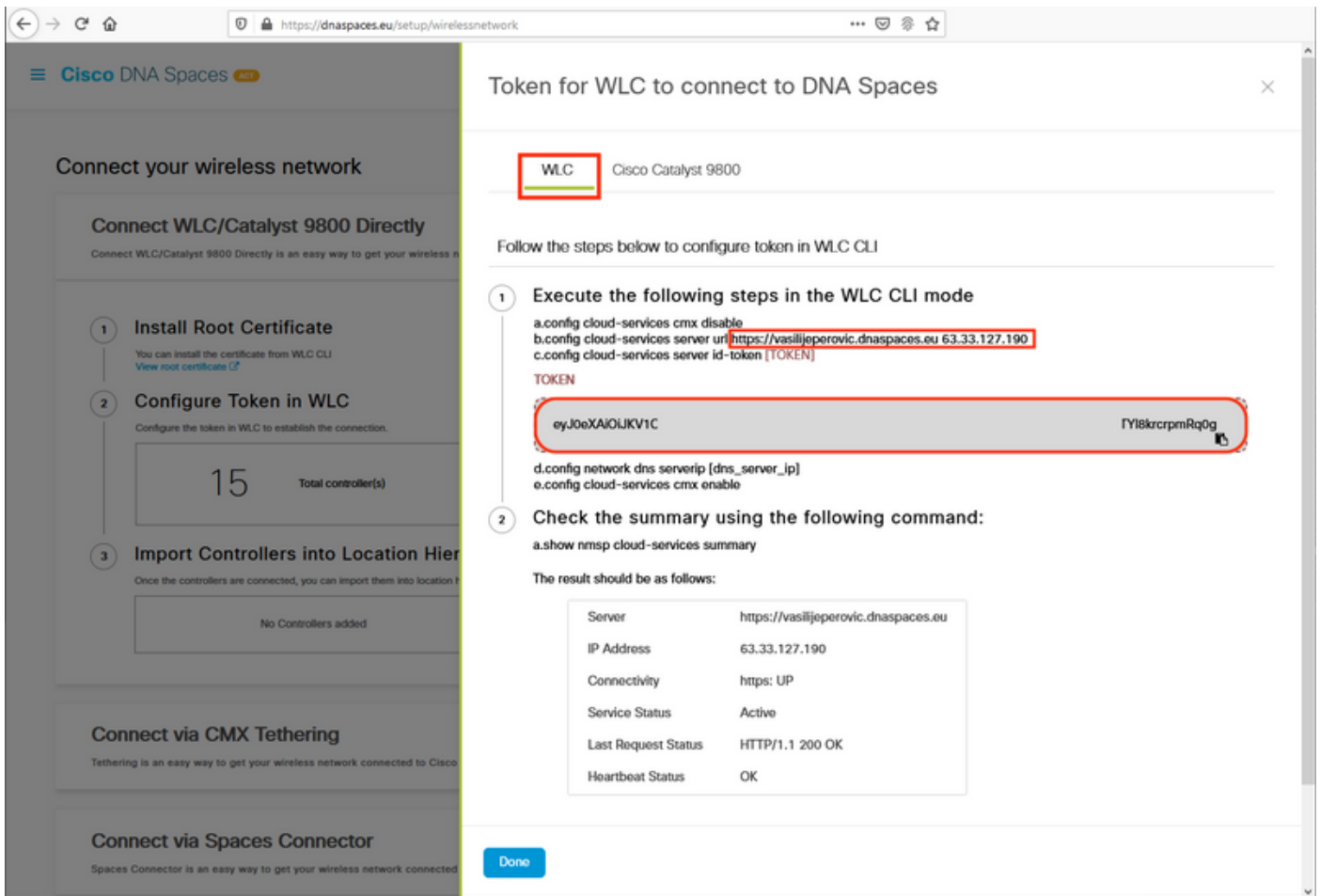
14 Total controller(s) | [View Token](#)
- 3 Import Controllers into Location Hierarchy**
Once the controllers are connected, you can import them into location hierarchy

1 controller(s) imported to location hierarchy | [Import Controllers](#)

Need Help?
Access the below links to view detailed help.

- [View Configuration Steps](#)
- [System Requirements](#)
- [Frequently Asked Questions](#)

复制令牌和URL:



运行以下命令：

```
(ME) >config cloud-services cmx disable
(ME) >config cloud-services server url [URL]
(ME) >config cloud-services server id-token [TOKEN]
(ME) >config cloud-services cmx enable
```

要验证与DNA空间云的连接是否已成功建立，请运行：

CMX Service

```
Server ..... https://vasilijeperovic.dnaspaces.eu
IP Address..... 63.33.127.190
Connectivity..... https: UP
Service Status ..... Active
Last Request Status..... HTTP/1.1 200 OK

Heartbeat Status ..... OK
Payload Compression type ..... gzip
```

将控制器导入位置层次结构

其余配置将在DNA空间中完成。在Setup > Wireless Networks > Connect WLC/Catalyst 9800 Directly下，单击Import Controllers。

Connect WLC/Catalyst 9800 Directly

Connect WLC/Catalyst 9800 Directly is an easy way to get your wireless network connected to Cisco DNA Spaces. No need to upgrade Wireless LAN Controllers or reconfigure your wireless network.

- 1 Install Root Certificate**
You can install the certificate from WLC CLI
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- 2 Configure Token in WLC**
Configure the token in WLC to establish the connection.
14 Total controller(s) [View Token](#)
- 3 Import Controllers into Location Hierarchy**
Once the controllers are connected, you can import them into location hierarchy
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选中您的帐户名称旁边的单选按钮，然后点击“下一步”。如果已添加了一些位置，它们将显示在以下列表中：

Import Controllers

Where do you want to import this Controller

Choose a location that you want to import this controller.

Search Locations

TestLocation

Next

查找控制器IP地址，选中控制器IP地址旁的复选框，然后按下一步：



由于尚未添加其他位置，只需单击“完成”：



系统将弹出提示，提示ME已成功导入位置层次结构：



Controller successfully
imported to location
hierarchy!

Total controllers added : 1
Total number of APs : 1
Total number of Locations : 0

Would you like to organize your location
hierarchy

Yes, take me to location hierarchy

No, Continue with Setup

既然EWC已成功连接到云，您就可以开始使用所有其他DNA空间功能。

验证

当前没有可用于此配置的验证过程。

故障排除

本节提供可用于排除配置故障的信息。

在Mobility Express上进行调试非常有限，在撰写本文时，对于与云的连接失败的原因，没有提供太多的见解。缺少NTP服务器、DNS未解析DNA空间域名和防火墙阻止HTTPS流量都将产生相同的调试和显示输出：

(ME) >**show cloud-services cmx summary**

CMX Service

```
Server ..... https://vasilijeperovic.dnaspaces.eu
IP Address..... 0.0.0.0
Service Status ..... Down
Connectivity..... https: Failed to establish connection
Time remaining for next Retry..... 5 Seconds
```

如果与云的连接失败，Mobility Express将每30秒重试一次以建立它。要启用调试，只需运行：

(ME) >**debug nmsp all enable**

*emWeb: Jul 01 00:20:52.836: Started http trace logging to file /var/log/debug/wlc-debug-captures.txt

对于丢失的NTP服务器、DNS未解析DNA空间域名和防火墙阻止HTTPS流量，调试输出将再次相同。因此，始终建议在AP交换机端口上执行数据包捕获。

以下是因未配置NTP而导致连接失败的示例：

(ME) >**debug nmsp all enable**

Debugging session started on Jul 01 00:20:52.839 for WLC AIR-AP1542I-E-K9 Version :8.10.112.0
SN :FGL2324B02P Hostname ME

*nmspTxServerTask: Jul 01 00:21:05.408: Received Message LOCP_HTTPS_SERVICE_UPDATE
*nmspTxServerTask: Jul 01 00:21:05.408: Received CMX service command CMX_SERVICE_LINK_CHECK,
Buffer Length 1292

*nmspTxServerTask: Jul 01 00:21:05.408: **connection failed. Attempt 1**

*nmspTxServerTask: Jul 01 00:21:05.409: **Configured Domain:**vasilijeperovic.dnaspaces.eu

*nmspTxServerTask: Jul 01 00:21:05.409: Connect to data.dnaspaces.eu/networkdata, Tenent Id
vasilijeperovic

*nmspTxServerTask: Jul 01 00:21:05.409: Keep Alive

Url:https://data.dnaspaces.eu/api/config/v1/nmspconfig/192.168.1.13

*nmspTxServerTask: Jul 01 00:21:05.409: **Initating cmx-cloud connetion. port 443**, token
eyJ0eXAiOiJKV1Q[information-omitted]I8krcrpmRq0g

*nmspTxServerTask: Jul 01 00:21:05.409: [CTX:0] Tx handles in use 0, free 1

*nmspTxServerTask: Jul 01 00:21:05.411: [CTX:1] Tx handles in use 0, free 32

*nmspTxServerTask: Jul 01 00:21:05.411: Http connection URL

https://data.dnaspaces.eu/networkdata?jwttoken=eyJ0eXAiOiJKV1Q[information-omitted]I8krcrpmRq0g

*nmspTxServerTask: Jul 01 00:21:05.411: **Sending Echo Req in start.** Refresh Handle =**Yes**

*nmspTxServerTask: Jul 01 00:21:05.411: Https Control path handle may be refreshed.

*nmspMxServerTask: Jul 01 00:21:05.413: Async Perform done on 1 messages

成功连接的示例：

(ME) >**debug nmsp all enable**

Debugging session started on Feb 25 01:13:04.913 for WLC AIR-AP1542I-E-K9 Version :8.10.112.0
SN :FGL2324B02P Hostname ME

*emWeb: Feb 25 01:13:10.138: **Init cmx-cloud config: Already initialized**

*emWeb: Feb 25 01:13:10.138: **Starting connection retry timer**

*emWeb: Feb 25 01:13:10.138: Posting Service Request 50 to Tx service

*nmspTxServerTask: Feb 25 01:13:10.212: Received Message LOCP_HTTPS_SERVICE_UPDATE

*nmspTxServerTask: Feb 25 01:13:10.213: Received CMX service command CMX_SERVICE_START, Buffer
Length 1292

*nmspTxServerTask: Feb 25 01:13:10.213: **Configured Domain:**vasilijeperovic.dnaspaces.eu

*nmspTxServerTask: Feb 25 01:13:10.213: Connect to data.dnaspaces.eu/networkdata, Tenant Id vasilijeperovic
*nmspTxServerTask: Feb 25 01:13:10.213: Keep Alive
Url:https://data.dnaspaces.eu/api/config/v1/nmspconfig/192.168.1.13
*nmspTxServerTask: Feb 25 01:13:10.213: **Initating cmx-cloud connetion. port 443**, token eyJ0eXAiOiJKV1Q[information-omitted]I8krcrpmRq0g
*nmspTxServerTask: Feb 25 01:13:10.216: [CTX:1] Tx handles in use 0, free 32
*nmspTxServerTask: Feb 25 01:13:10.216: Http connection URL
https://data.dnaspaces.eu/networkdata?jwttoken=eeyJ0eXAiOiJKV1Q[information-omitted]I8krcrpmRq0g
*nmspTxServerTask: Feb 25 01:13:10.216: **Sending Echo Req in start**. Refresh Handle =No
*nmspMxServerTask: Feb 25 01:13:10.217: Async Perform done on 1 messages
*nmspMxServerTask: Feb 25 01:13:10.446: Received: 17 bytes header

*nmspMxServerTask: Feb 25 01:13:10.446: **Rx Header HTTP/1.1 200 OK**

*nmspMxServerTask: Feb 25 01:13:10.446: 00000000: 48 54 54 50 2f 31 2e 31 20 32 30 30 20 4f 4b 0d HTTP/1.1.200.OK.
*nmspMxServerTask: Feb 25 01:13:10.446: 00000010: 0a
.
*nmspMxServerTask: Feb 25 01:13:10.446: **Received Heartbeat response on connection [0]**

*nmspMxServerTask: Feb 25 01:13:10.446: **Stopping connection retry timer**
*nmspMxServerTask: Feb 25 01:13:10.446: **connection succeeded. server IP 63.33.127.190**

关于此翻译

思科采用人工翻译与机器翻译相结合的方式将此文档翻译成不同语言，希望全球的用户都能通过各自的语言得到支持性的内容。

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