配置DNA空間和Mobility Express Direct Connect並對其進行故障排除

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簡介

本檔案介紹

背景資訊

與基於AireOS的常規無線LAN控制器一樣，運行在802.11ac Wave 2接入點(2800、3800、4800、1542、1562、1850、1815)上的Cisco Mobility Express(ME)可以通過三種方式連線到DNA Spaces雲：

- 直接連線
- 通過DNA空間聯結器
- 通過思科CMX內部裝置或虛擬機器

從Mobility Express 8.3版開始，支援與DNA Spaces整合。本文僅涉及Direct Connect的設定和故障排除。

重要:僅建議直接連線最多部署50個客戶端。對於較大的連線，請使用DNA空間聯結器。

需求

必要條件

採用元件

- 行動化Express映像8.10.
- 1542美聯社
- DNA空間雲

本文中概述的步驟假設已部署ME並具有有效的Web介面和SSH。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

設定

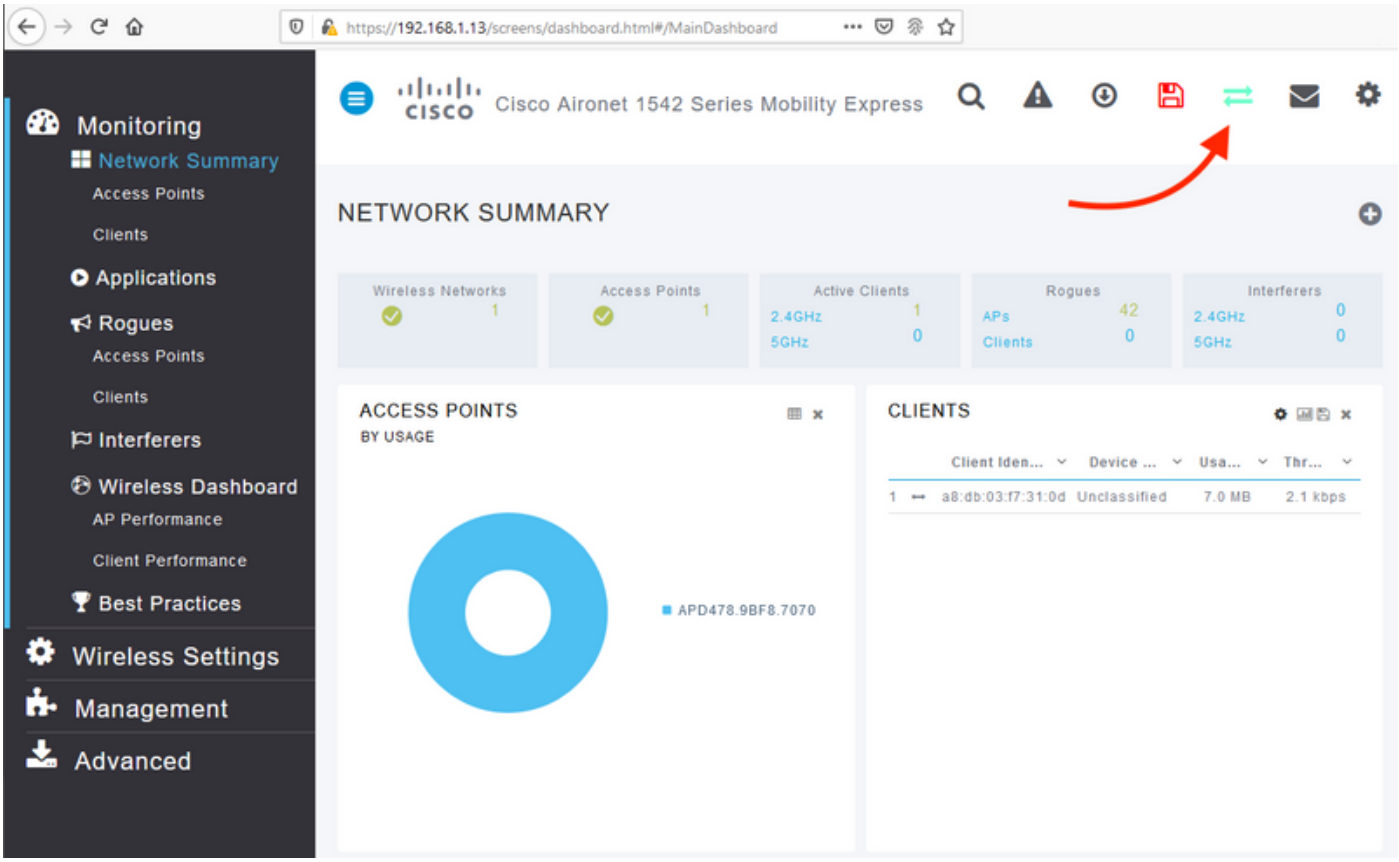
行動化Express

DNA Spaces雲節點和ME通過HTTPS協定（埠443）進行通訊。在此測試設定中，在1542 AP上運行的ME被置於具有完全網際網路訪問的NAT之後。

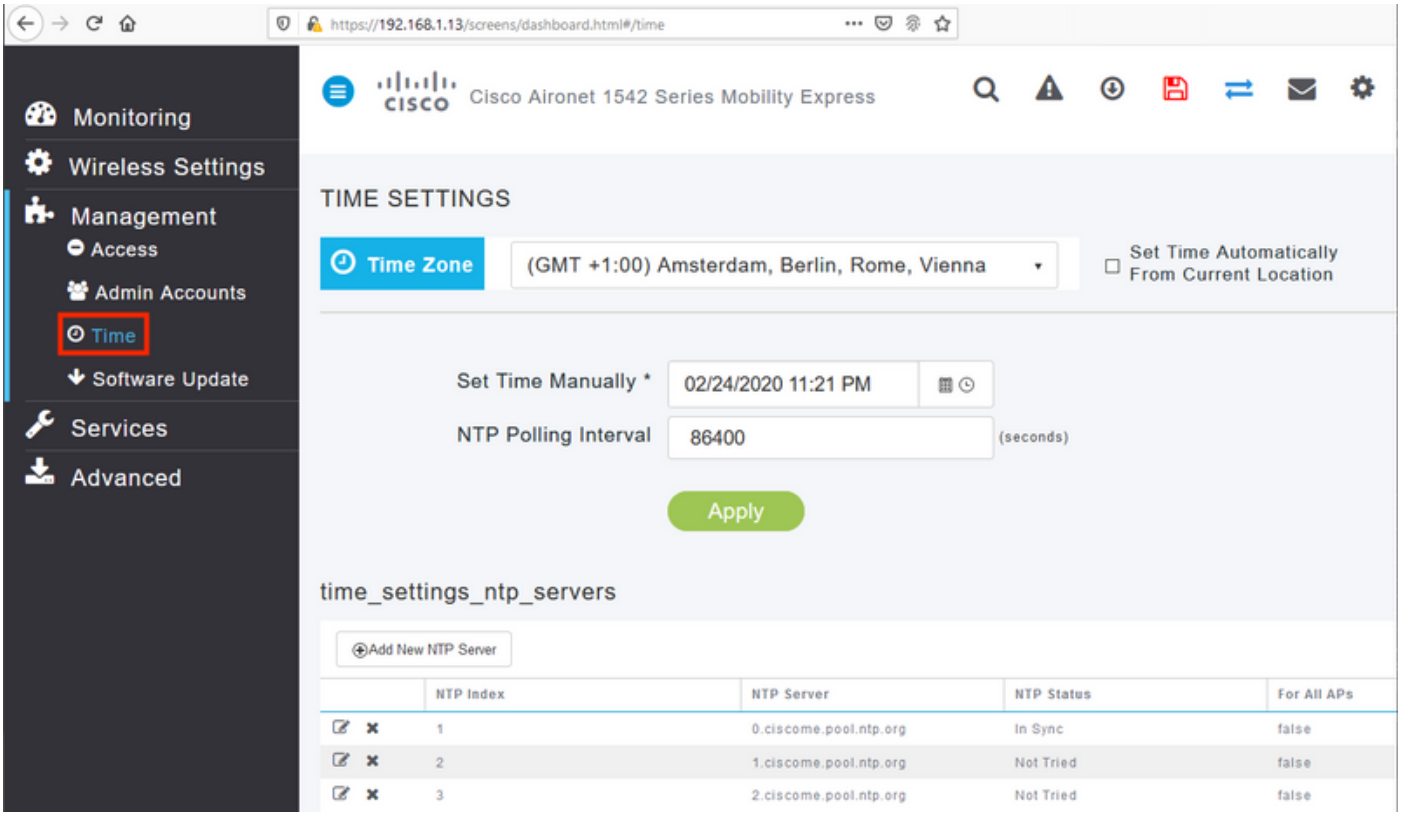
通過Web介面進行配置

在將Mobility Express控制器連線到DNA Spaces之前，需要設定NTP和DNS伺服器，並至少加入一個AP。與其他基於AireOS的控制器不同，Mobility Express不要求安裝DigiSign根證書（在撰寫本文時）。

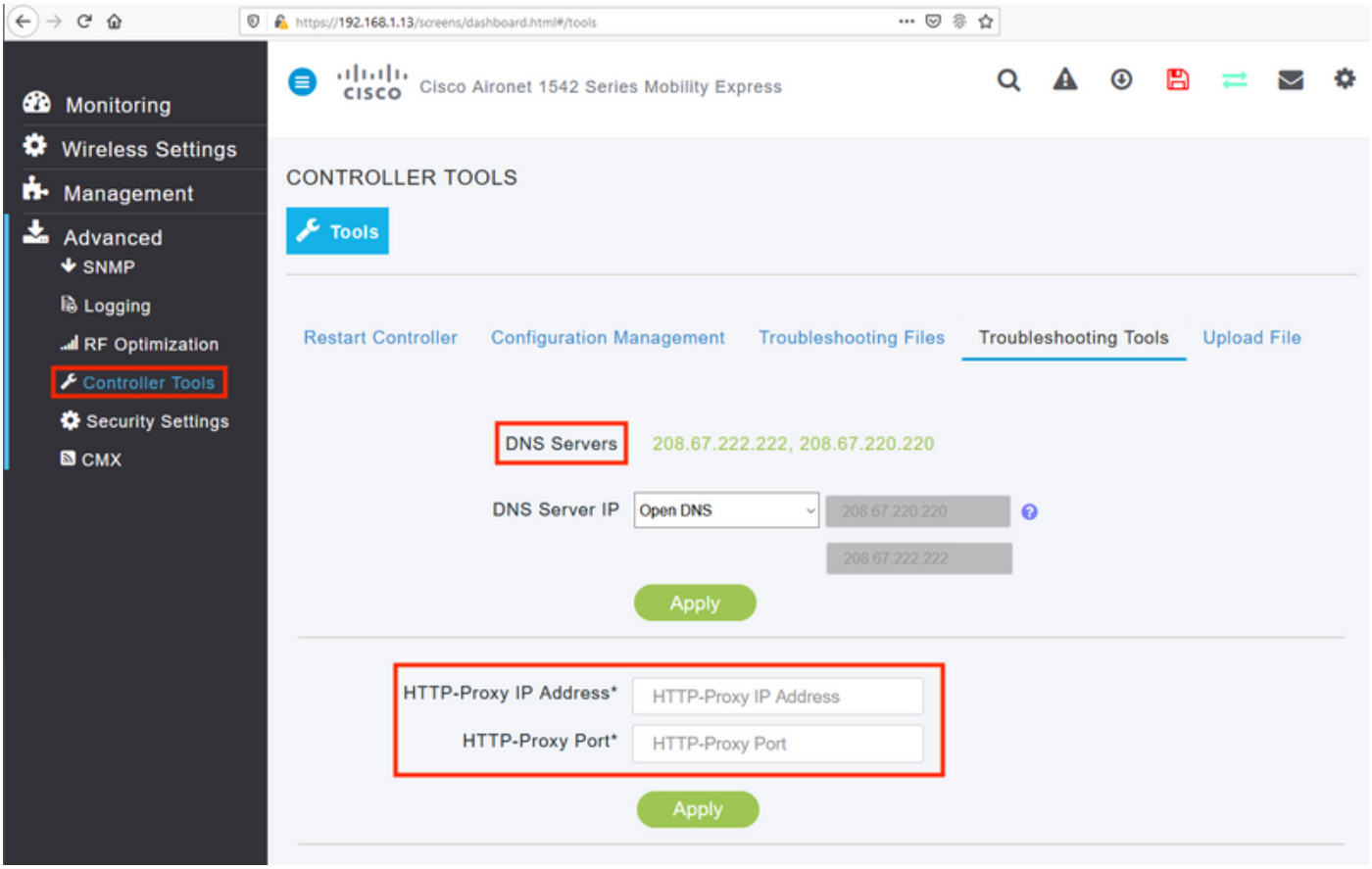
訪問Mobility Express Web介面並在右上角點選2個綠色箭頭以啟用專家模式。專家模式將解鎖一些隱藏選項：



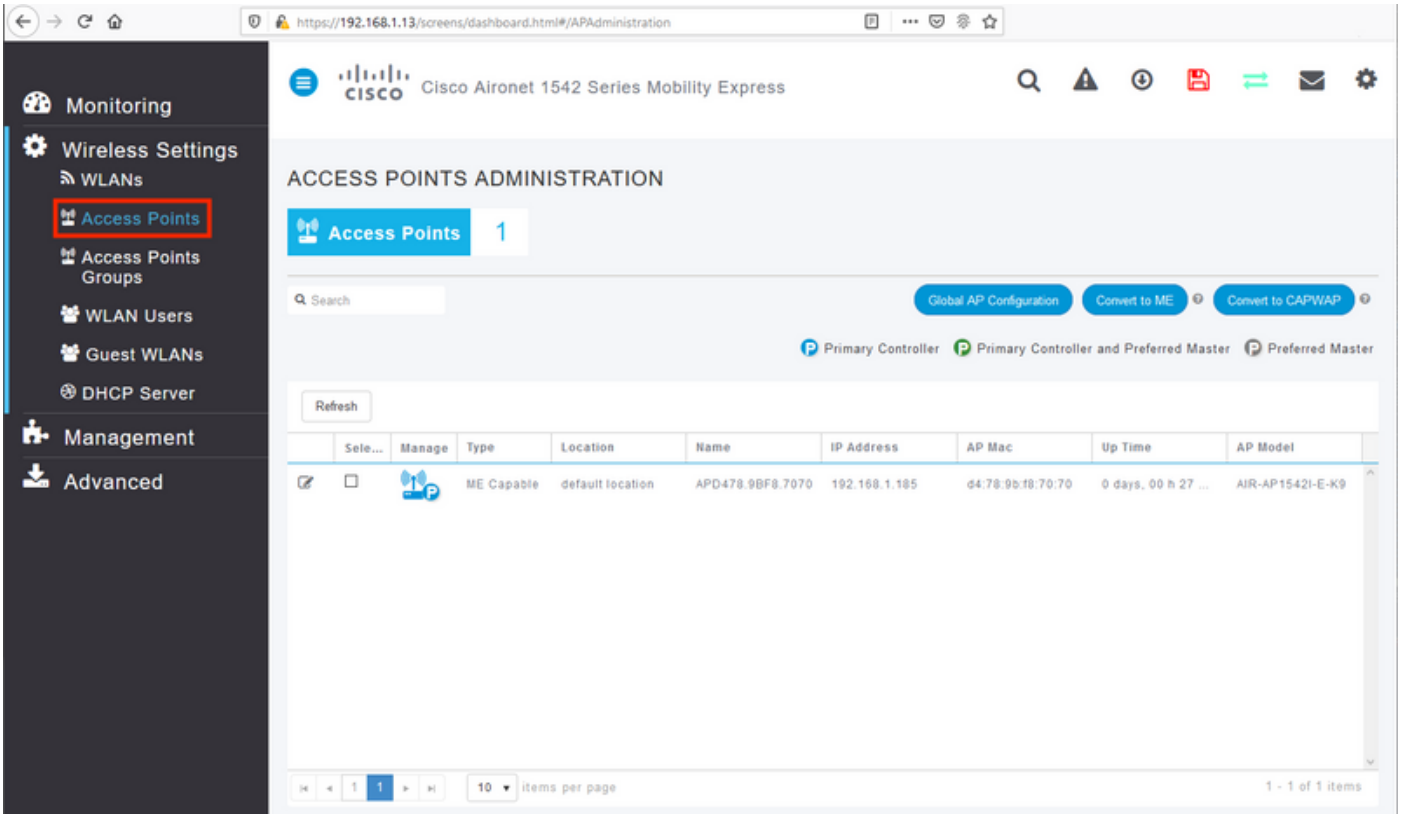
導覽至**Management > Time**，並確保WLC已與NTP同步。 預設情況下，EWC預配置為使用ciscome.pool.ntp.org NTP伺服器：



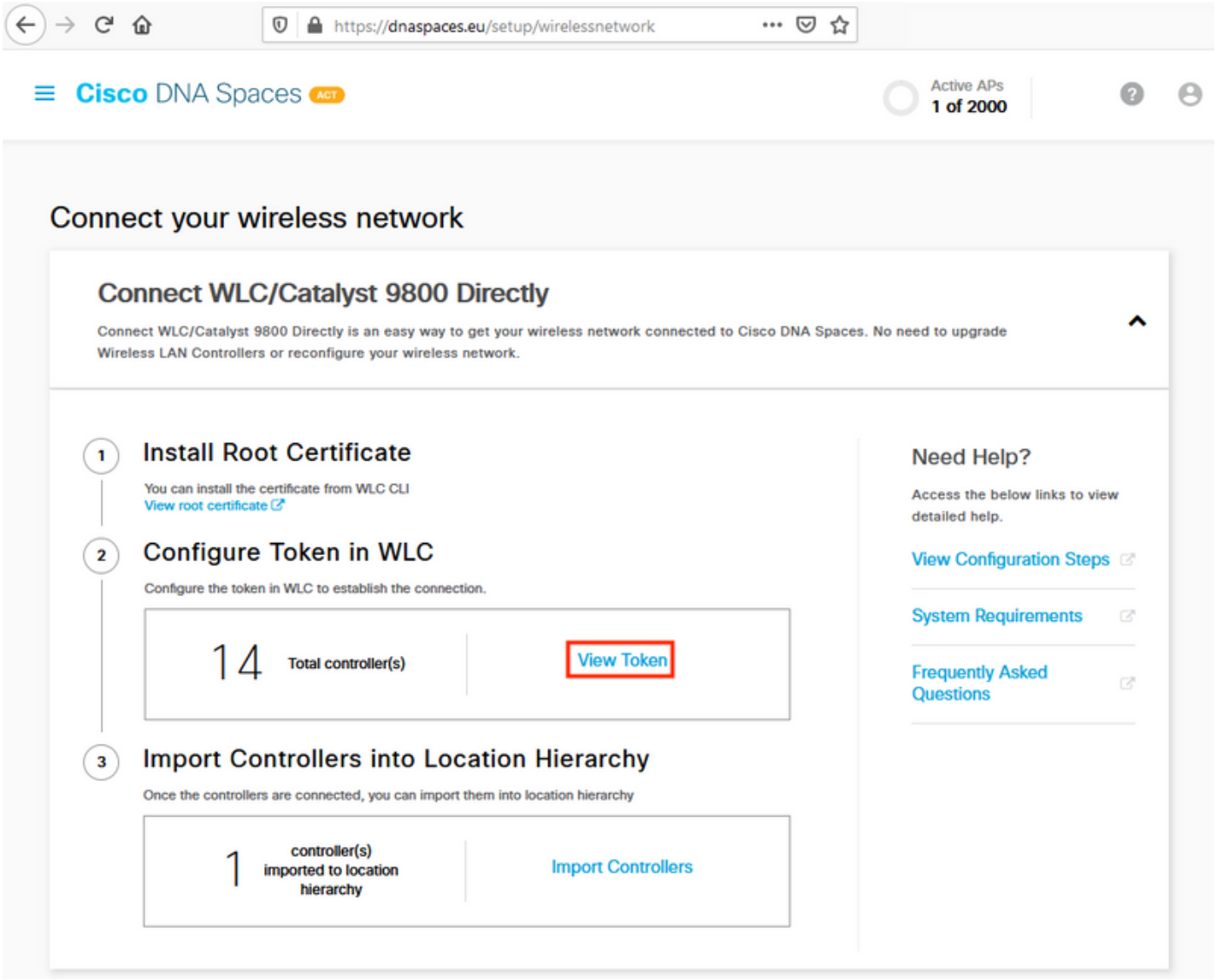
導覽至**Advanced > Controller Tools > Troubleshooting Tools**，確認已新增DNS伺服器。預設情況下，ME預配置為使用Open DNS伺服器。可以在同一頁上輸入HTTP代理地址和埠：



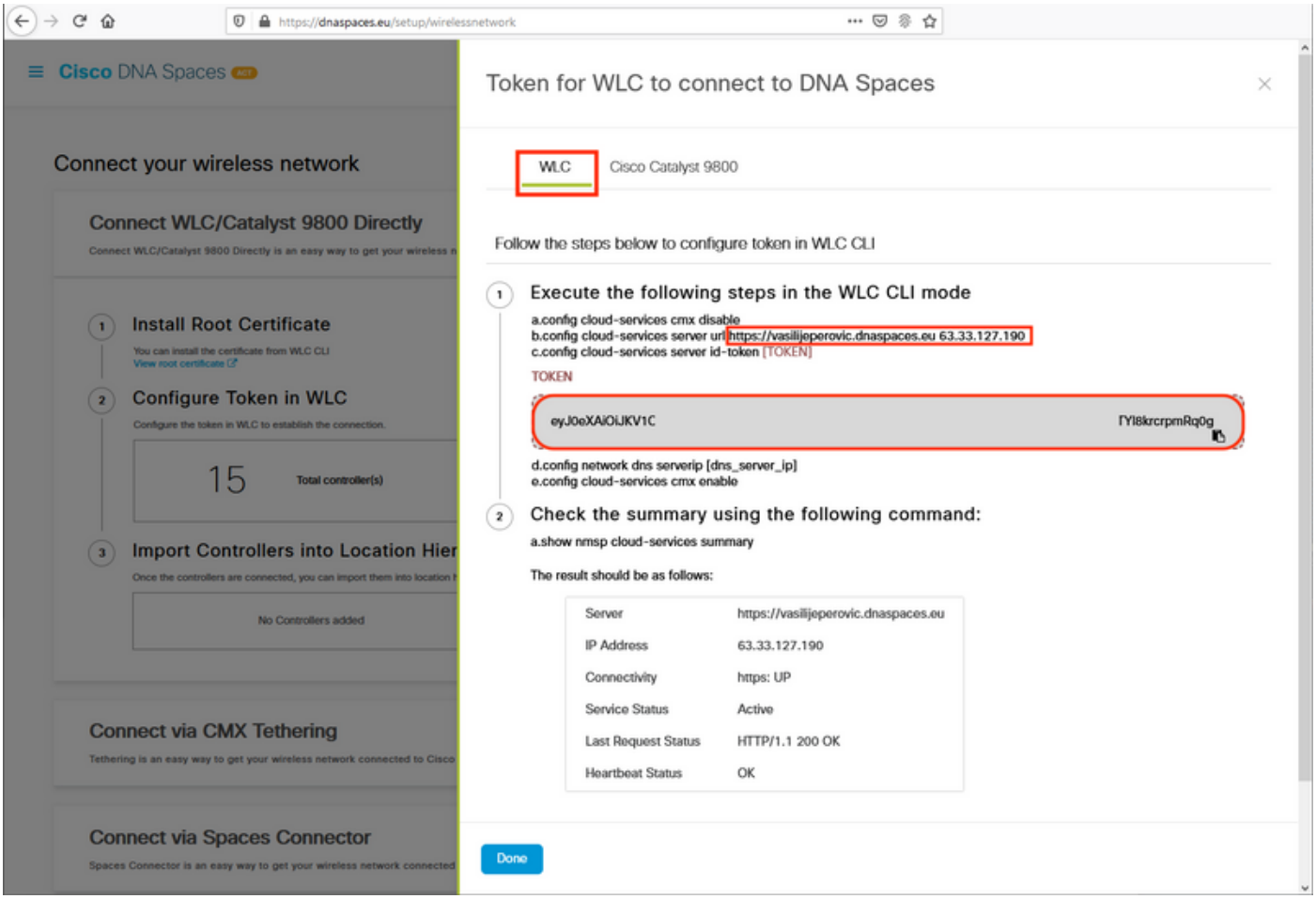
在**Wireless Settings > Access Points**下，確認至少已加入一個AP。此AP可以是運行ME的AP:



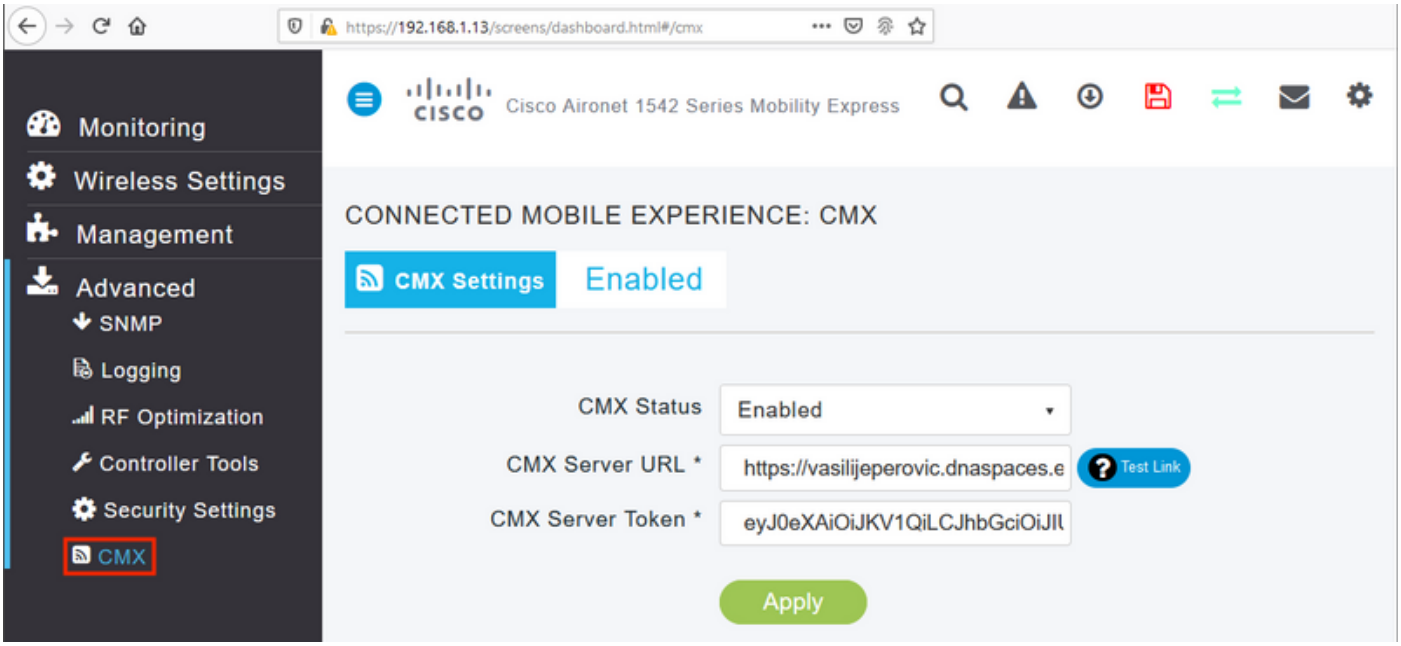
在DNA Spaces雲端上，登入並導覽至**Setup > Wireless Networks > Connect WLC/Catalyst 9800 Directly**，然後按一下**View Token**:


https://dnaspaces.eu/setup/wirelessnetwork
Cisco DNA Spaces
ACT
Active APs
1 of 2000
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

複製權杖和URL:



在ME Web介面的**Advanced > CMX**下，貼上URL和驗證權杖：



要驗證連線是否已建立，請按一下**測試連結**按鈕。如果已建立連線，按鈕將更改為**Link Up**:

跳過下一章並轉到「將控制**器匯入到位置層次**」。

通過CLI配置

驗證NTP是否已配置和同步：

```
(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>命令新增新的NTP伺服器。

驗證是否已配置DNS伺服器：

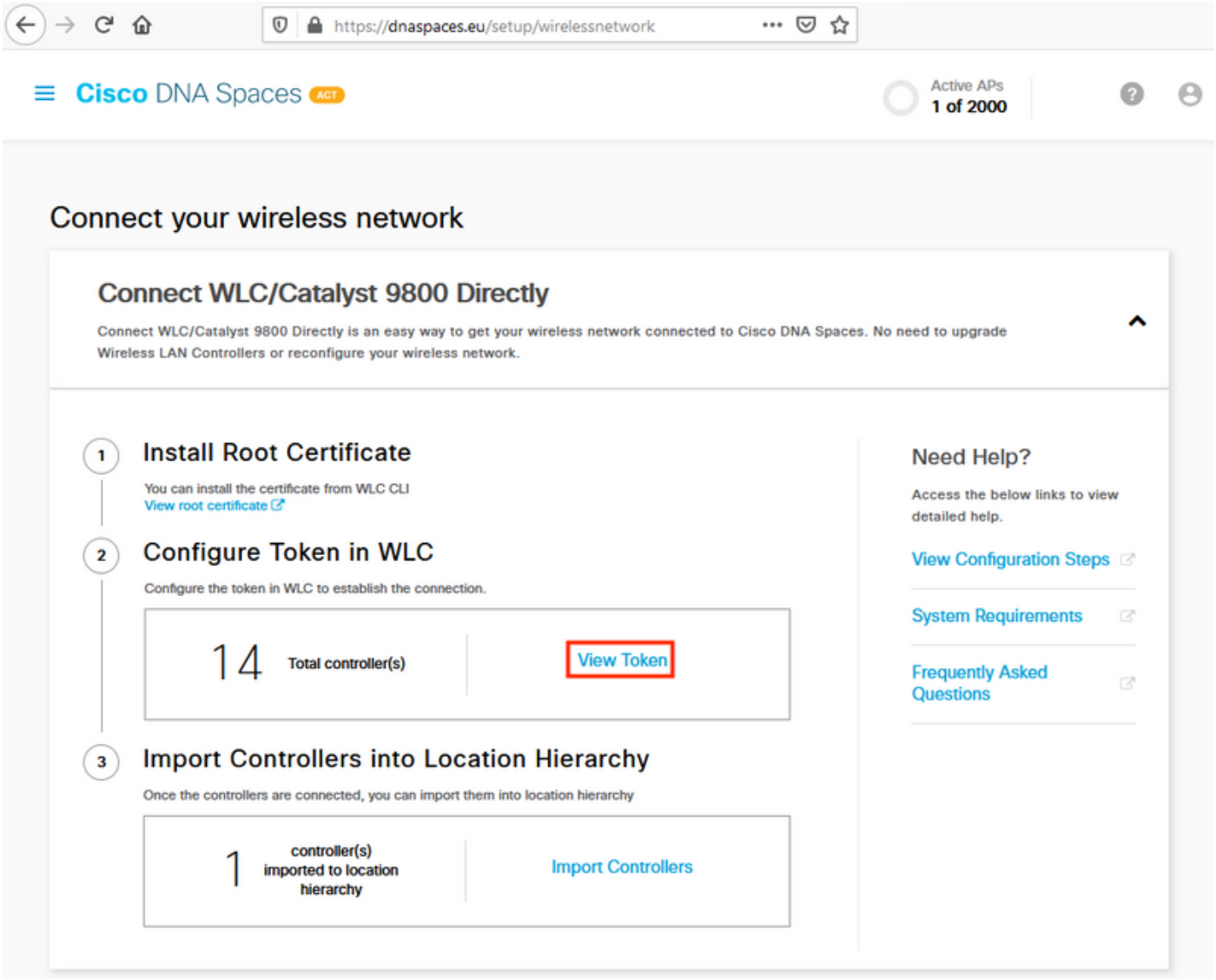
```
(ME) >show network summary

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>命令新增新的DNS伺服器。

要確認AP已加入，請執行以下操作：

```
(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，訪問DNA Spaces cloud，導航至**Setup > Wireless Networks > Connect WLC/Catalyst 9800 Directly**，然後點選**View Token**:


https://dnaspaces.eu/setup/wirelessnetwork
Cisco DNA Spaces
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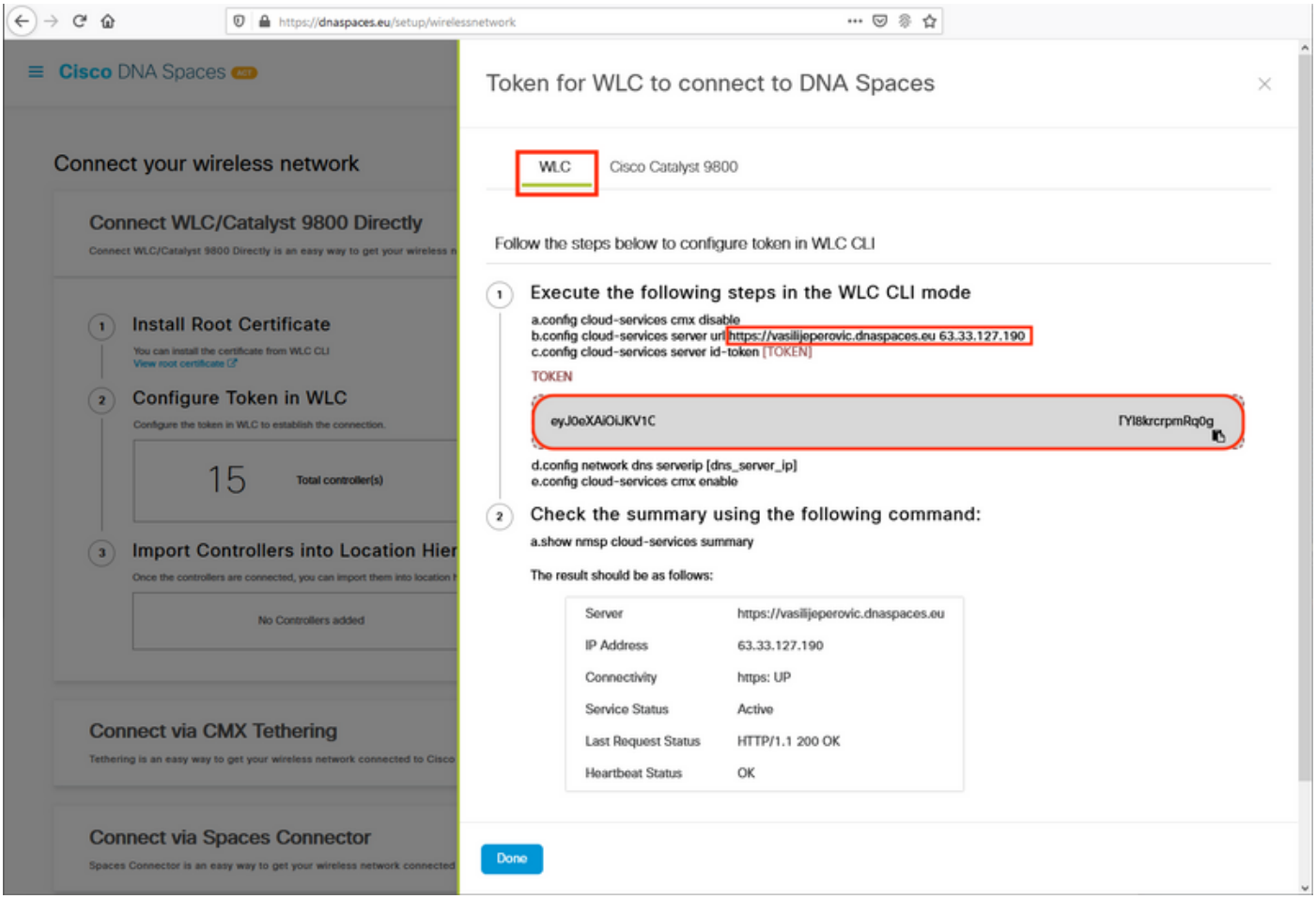
複製令牌和URL:



運行以下命令：

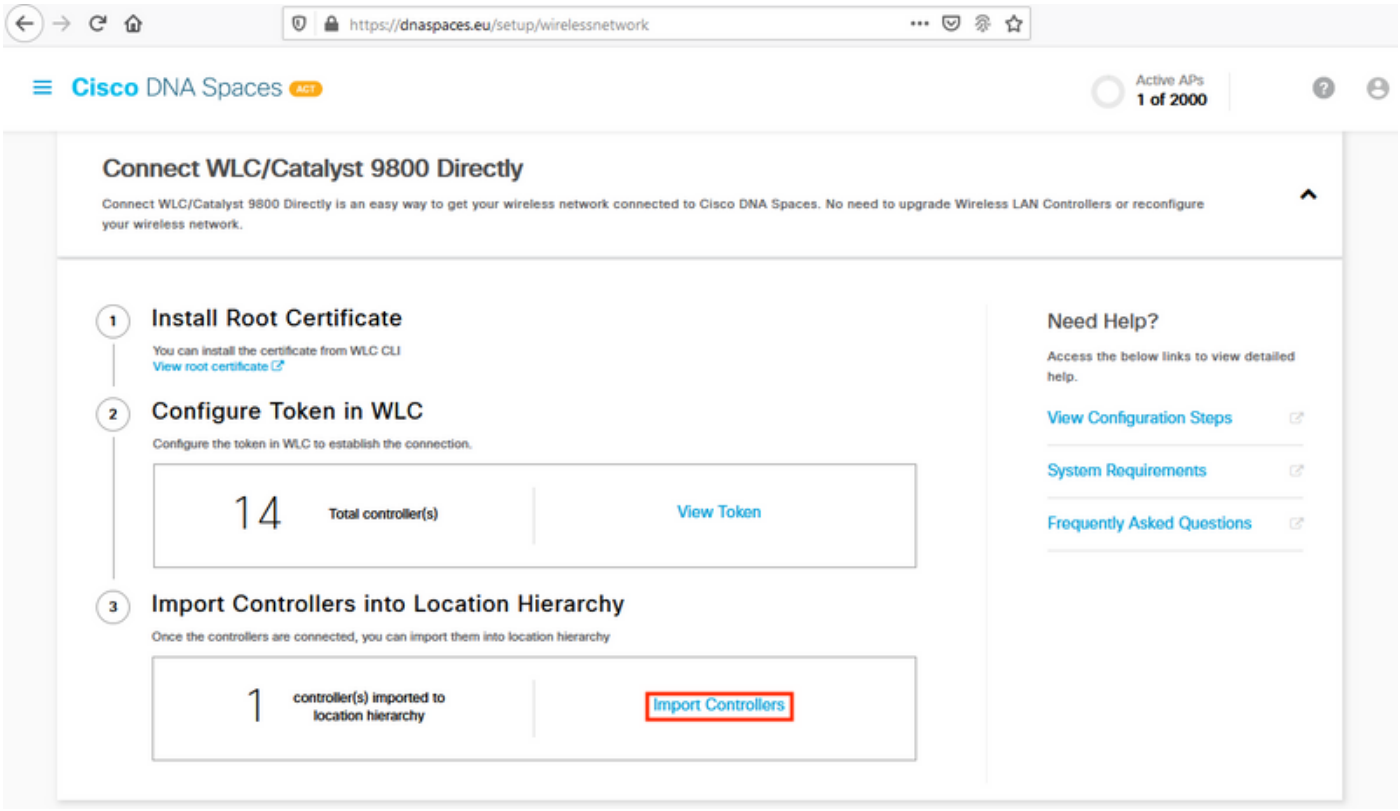
```
(ME) >config cloud-services cmx disable
(ME) >config cloud-services server url [URL]
(ME) >config cloud-services server id-token [TOKEN]
(ME) >config cloud-services cmx enable
```

要驗證是否已成功建立與DNA Spaces雲的連線，請運行：

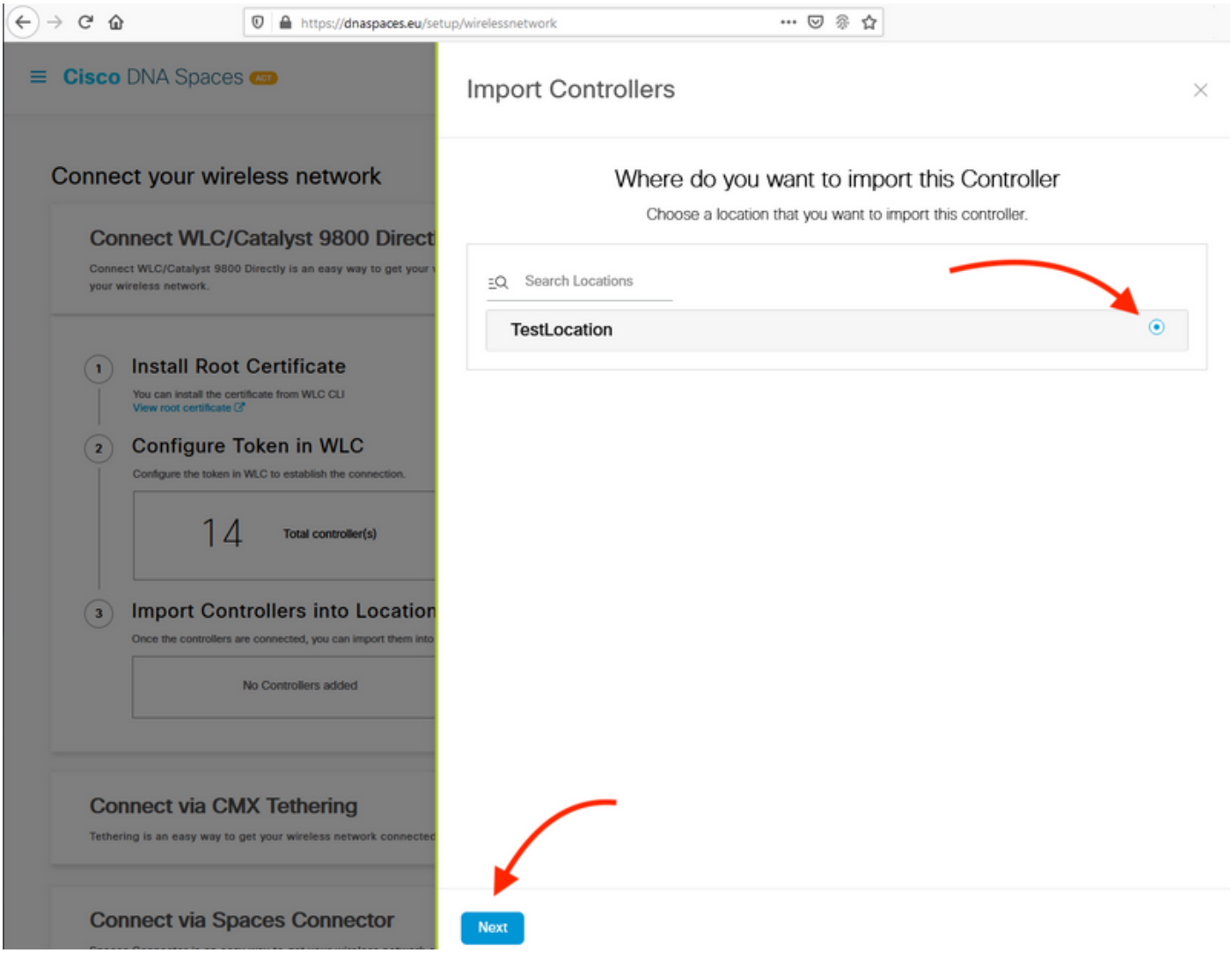
```
CMX Service

   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
```

將控制器匯入位置層次結構

其餘配置將在DNA空間中完成。在**Setup>Wireless Networks> Connect WLC/Catalyst 9800 Directly**下，按一下**Import Controllers**。



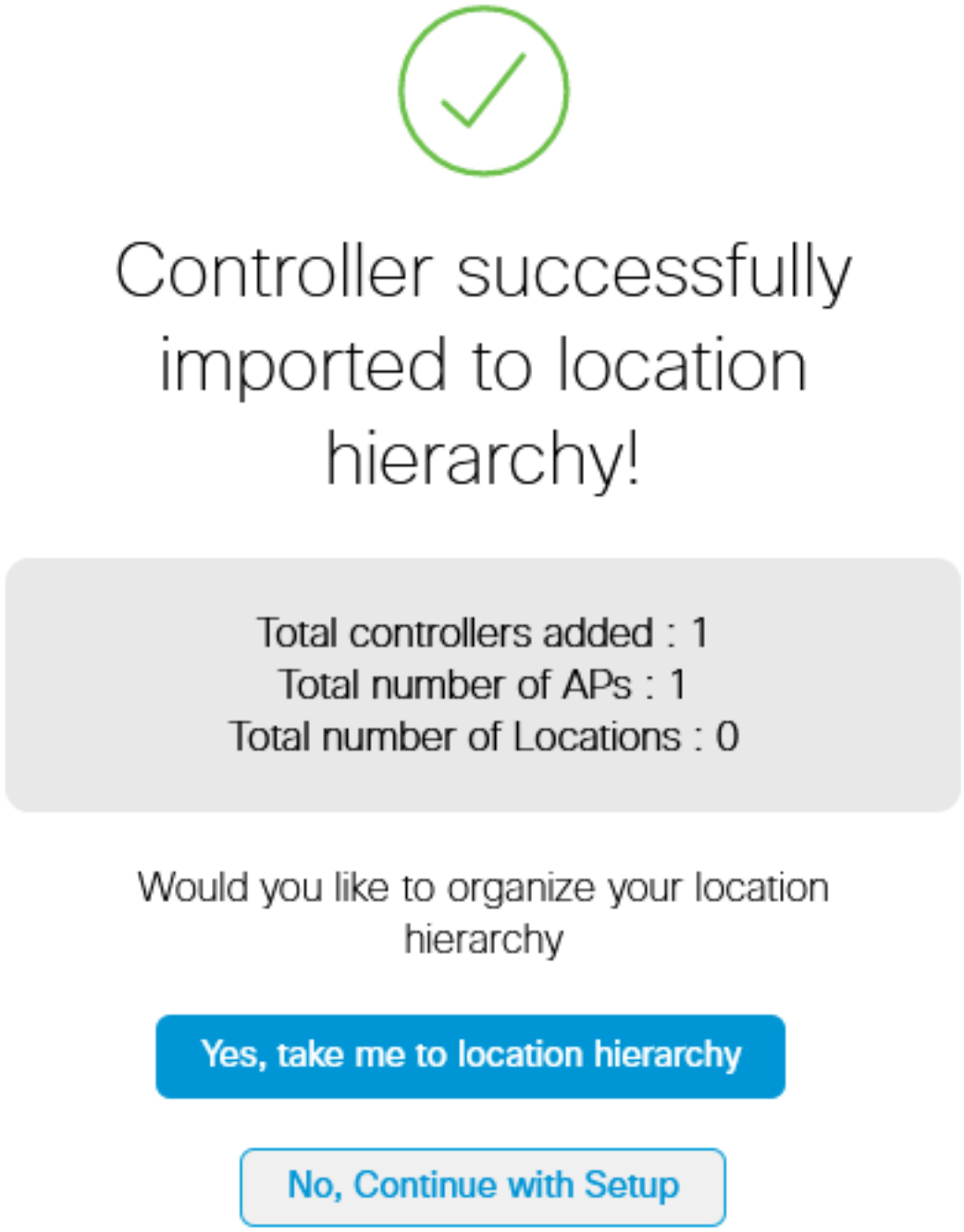
選中帳戶名稱旁邊的單選按鈕，然後按一下「下一步」。如果您已經新增了一些位置，它們將顯示在以下清單中：



找到控制器IP地址，選中其旁邊的框，然後按**下一步**:

由於尚未新增其他位置，只需按一下「完成：

系統將彈出提示ME已成功匯入到位置層次結構中：



現在EWC已成功連線到雲，您可以開始使用所有其他DNA空間功能。

驗證

目前沒有適用於此組態的驗證程序。

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

在Mobility Express上的調試非常有限，而且在撰寫本文時，不能提供有關雲連線失敗原因的深入分析。 缺少NTP伺服器、DNS未解析DNA空間域名和防火牆阻止HTTPS流量都會導致相同的調試和show輸出：

```
(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
```

如果與雲的連線失敗，Mobility Express將每30秒重試建立一次。要啟用調試，只需運行：

```
(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
```

對於缺少NTP伺服器、DNS未解析DNA空間域名和防火牆阻止HTTPS流量，調試輸出將再次相同。因此，始終建議在AP交換機埠上執行資料包捕獲。

由於未配置NTP而導致連線失敗的示例如下所示：

```
(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
```

成功連線的示例：

```
(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, Tenent 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**

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。