

在移動Express AP上配置以太網橋接的點對點網狀鏈路

目錄

[簡介](#)

[關於移動性Express](#)

[必要條件](#)

[採用元件](#)

[網路圖表](#)

[組態](#)

[交換機配置](#)

[AP的出廠重置](#)

[將輕量capwap映像下載到1542-2\(MAP\)](#)

[將支援Mobility Express的映像下載到AP 1542-1\(RAP\)](#)

[零日SSID調配](#)

[其他網狀配置](#)

[驗證](#)

[疑難排解](#)

[技巧、技巧和常見錯誤](#)

簡介

本文介紹使用Cisco Mobility Express(ME)軟體通過以太網路橋接部署點對點網狀連結的過程。

關於移動性Express

本檔案使用Cisco 1542室外存取點。 Mobility Express軟體在Flex+Bridge模式下的室內和室外AP上的網狀支援在8.10版中引入。

支援以下AP型號：

- 作為ME根AP: Cisco AireOS 1542、1562、1815s和3802s AP
- 作為網狀AP: Cisco AireOS 1542、1562、1815s、3802s AP

Mobility Express(ME)是一種替代自治AP模式和軟體的解決方案。它允許基於AireOS的無線LAN控制器(WLC)軟體精簡版在存取點本身執行。WLC和AP代碼都儲存在AP記憶體的單個分割槽中。Mobility Express部署不需要許可證檔案，也不需要許可證啟用。

一旦運行支援Mobility Express的軟體的裝置通電，「AP部分」將首先啟動。幾分鐘後，控制器部分也會初始化。一旦建立控制檯會話，支援ME的裝置將顯示WLC提示。要輸入底層AP shell，可以使用命令apciscoshell:

```
<#root>
```

```
(Cisco Controller) >
```

```
apciscoshell
```

```
!!Warning!!: You are entering ap shell. This will stop you from establishing new telnet/SSH/Web session.  
Also the existing sessions will be suspended till you exit the ap shell.  
To exit the ap shell, use 'logout'
```

```
User Access Verification
```

```
Username:
```

```
admin
```

```
Password:
```

```
*****
```

```
RAP>
```

```
logout
```

```
(Cisco Controller) >
```

必要條件

採用元件

- 2個1542D-E接入點
- 2個3560-CX思科交換機
- 2臺筆記型電腦
- 1根控制檯電纜

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。

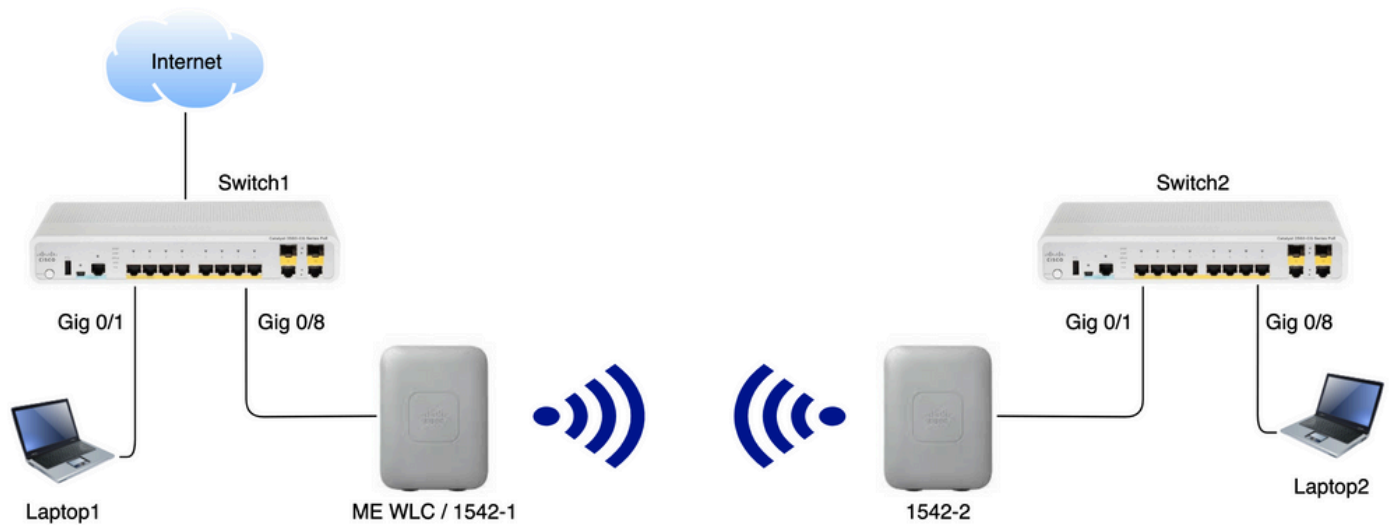
網路圖表

此網路中的所有裝置都將位於192.168.1.0/24子網內。Mobility Express AP（控制器）的管理介面未標籤，而所有埠上的本徵VLAN都是VLAN 39。AP 1542-1將充當控制器和根接入點(RAP)的角色，而AP 1542-2將充當網狀接入點(MAP)的角色。下表包含網路中所有裝置的IP地址：

注意:標籤管理介面可能導致加入內部WLC進程的AP出現問題。如果您決定標籤管理介面，請確保相應地配置有線基礎設施部分。

裝置	IP 位址
預設閘道	192.168.1.1
筆記型電腦1	192.168.1.100
筆記型電腦2	192.168.1.101

行動化Express WLC	192.168.1.200
1542-1(RAP)	192.168.1.201
1542-2 (地圖)	192.168.1.202



組態

交換機配置

筆記型電腦連線的交換機埠被配置為接入埠，VLAN設定為39:

```
<#root>
```

```
switch1
```

```
#show run interface Gig 0/1
```

```
Current configuration : 205 bytes
```

```
!
```

```
interface GigabitEthernet0/1
```

```
description Laptop1
```

```
switchport access vlan 39
```

```
switchport mode access
```

```
end
```

```
<#root>
```

```
switch2
```

```
#show run interface Gig 0/8
```

```
Current configuration : 205 bytes
```

```
!
```

```
interface GigabitEthernet0/8
```

```
description Laptop2
```

```
switchport access vlan 39
```

```
switchport mode access
```

```
end
```

AP連線的交換機埠將處於中繼模式，本徵VLAN設定為39:

```
<#root>
```

```
Switch1
```

```
#show run interface Gig 0/8
Building configuration...
!
interface GigabitEthernet0/8
  description 1542-1 (RAP)
  switchport mode trunk
  switchport trunk native vlan 39
end
```

```
<#root>
```

```
Switch2
```

```
#show run interface Gig 0/1
Building configuration...
!
interface GigabitEthernet0/1
  description 1542-1 (RAP)
  switchport mode trunk
  switchport trunk native vlan 39
end
```

AP的出廠重置

建議在開始新部署之前對AP執行出廠重置。這可以通過按AP上的模式/重置按鈕、插入電源並繼續保持電源超過20秒來完成。這可確保所有以前的配置都已清除。AP可通過控制檯連線訪問，預設使用者名稱是Cisco，密碼是Cisco（區分大小寫）。

如果某個AP已在Mobility Express中運行，則出廠重置不一定將該接入點移回輕量模式。重要步驟是確定您的AP是運行輕量級映像還是Mobility express映像。

如果您的AP是輕量型的，您可以通過下載移動性快速代碼將其轉換為Mobility Express。如果AP已處於移動性快速模式，您必須按照接入點/控制器GUI中的升級過程來更改軟體版本。

運行輕量映像的AP的show版本示例：

```
cisco AIR-AP1562I-E-K9 ARMv7 Processor rev 1 (v7l) with 1028616/605344K bytes of memory. Processor board ID FCZ2150Z099 AP
Running Image : 8.5.151.0 Primary Boot Image : 8.5.151.0 Backup Boot Image : 0.0.0.0 1 Gigabit Ethernet interfaces 2 802.11 Radios Radio
Driver version : 9.0.5.5-W8964 Radio FW version : 9.1.8.1 NSS FW version : 2.4.26
```

以下是已在Mobility Express軟體中運行的AP示例：

```
AP#show version ... AP Running Image : 8.10.185.0 Primary Boot Image : 8.10.185.0 Backup Boot Image : 8.10.185.0 ... AP Image type :
```

將輕量capwap映像下載到1542-2(MAP)

筆記型電腦1將用作TFTP伺服器。AP 1542-2最初可連線到交換機1 Gig 0/8埠，以便執行升級。在software.cisco.com上，在1542個輕量級映像下，下載與8.10.185發行版映像對應的15.3.3-JJ1(全名ap1g5-k9w8-tar.153-3.JK9.tar)。最新的輕量AP映像將始終與最新的ME版本相對應。將映像放在TFTP根資料夾中。連線控制檯電纜，使用預設憑證登入(使用者名稱是Cisco，密碼也是Cisco)。為AP分配IP地址並使用以下命令執行升級：

```
#capwap ap ip 192.168.1.202 255.255.255.0 192.168.1.1
#archive download-sw /reload tftp://192.168.1.100/ap1g5-k9w8-tar.153-3.JK9.tar
```

AP將執行升級，然後重新啟動。使用show version指令確認升級成功：

```
<#root>
```

```
MAP#
```

```
show version
```

```
.
..
AP Running Image      : 8.10.185.0
Primary Boot Image    : 8.10.185.0
Backup Boot Image     : 8.8.125.0
```

AP將從Switch 1拔下並重新插入Switch 2。

註：通過手動升級MAP的映像，我們避免在網狀鏈路建立後進行映像升級過程。

將支援Mobility Express的映像下載到AP 1542-1(RAP)

在1542 AP的Mobility Express 8.10.105版本下，我們可以看到2個可用檔案：.tar和.zip。下載.tar檔案









Aironet 1542I Outdoor Access Point

Release 8.10.185.0

[My Notifications](#)

Related Links and Documentation

[Release Notes for 8.10.185.0](#)

File Information	Release Date	Size	
Cisco 1540 Series Mobility Express Release 8.10 Software, to be used for conversion from Lightweight Access Points only.  AIR-AP1540-K9-ME-8-10-185-0.tar Advisories 	24-Mar-2023	60.80 MB	 
Cisco 1540 Series Mobility Express Release 8.10 Software. Access Point image bundle, to be used for software update and/or supported access points images.  AIR-AP1540-K9-ME-8-10-185-0.zip Advisories 	24-Mar-2023	503.27 MB	 

下載.tar檔案

與物理WLC不同，ME接入點沒有足夠的快閃記憶體來儲存所有AP映像，因此如果要將更多AP加入到Mobility Express接入點中，必須隨時訪問TFTP伺服器。如果我們手動升級AP（如本例所示），則無需執行此步驟。

要執行升級，請將控制檯連線到AP 1542-1，為其分配IP地址並執行映像升級：

```
#capwap ap ip 192.168.1.201 255.255.255.0 192.168.1.1  
#ap-type mobility-express tftp://192.16.1.100/AIR-AP1540-K9-ME-8-10-185.tar
```

升級完成後，AP重新啟動。AP啟動後不久，控制器部分也會開始啟動。我們很快看到零日調配SSID「CiscoAirProvision」被廣播。

如果您在控制檯上，可以看到CLI嚮導，但不要這樣配置AP。無線的GUI嚮導是必經之路。

零日SSID調配

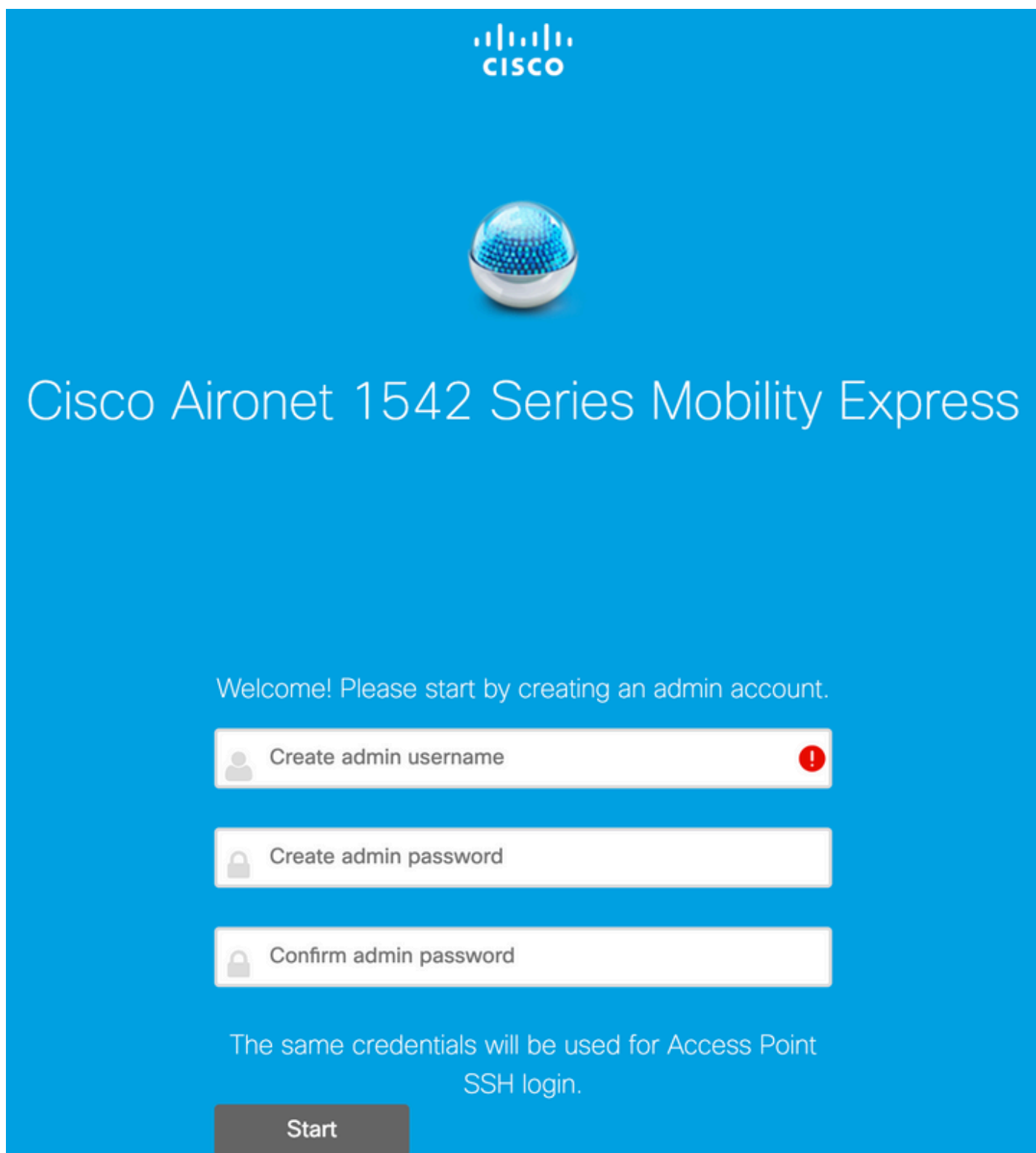
使用密碼連線到AP廣播的「CiscoAirProvision」SSID。筆記型電腦從子網192.168.1.0/24獲取IP地址。

如果您沒有看到正在廣播的SSID，仍有可能該AP處於「Mobility express CAPABLE」狀態，但並未作為mobility express運行。然後，您必須連線到AP CLI並輸入ap type mobility-express，然後AP重新啟動並廣播調配SSID。

如果需要，也可以使用「capwap ap mode local/flex-bridge」在本地模式和網狀模式之間轉換AP。

在Web瀏覽器中開啟<http://192.168.1.1>地址。此頁重定向到初始配置嚮導。通過指定管理員使用者

名稱和密碼在控制器上建立管理員帳戶，然後按一下Start(開始)。



The image shows the Cisco Aironet 1542 Series Mobility Express setup interface. At the top, the Cisco logo is displayed. Below it is a glowing blue sphere icon. The main heading reads "Cisco Aironet 1542 Series Mobility Express". A welcome message says "Welcome! Please start by creating an admin account." There are three input fields: "Create admin username" (with a red warning icon), "Create admin password", and "Confirm admin password". Below the fields, a note states "The same credentials will be used for Access Point SSH login." and a "Start" button is at the bottom.

在下一步中，通過指定值來設定控制器。

欄位名稱	說明
系統名稱	輸入Mobility Express AP的系統名稱。示例： ： MobilityExpress-WLC

國家/地區	從下拉選單中選擇一個國家/地區。
日期和時間	選擇當前日期和時間。 注意：該嚮導嘗試使用JavaScript從電腦匯入時鐘資訊（日期和時間）。強烈建議您在繼續操作之前確認時鐘設定。存取點取決於時鐘設定以加入WLC。
時區	選擇當前時區。
NTP伺服器	輸入NTP伺服器詳細資訊。
管理IP	輸入管理IP地址。注意：它必須與分配給接入點的IP不同！在本示例中，當AP獲得。201 IP時，我們在配置嚮導中分配。200。將同時使用這兩個地址。
子網路遮罩	輸入子網掩碼地址。
預設閘道	輸入預設閘道。

在此設定中，DHCP伺服器將在交換機1上運行，因此無需在ME WLC上啟用它。將「網格」選項滑至 啟用 然後按一下Next。



1 Set Up Your Controller

System Name ?

Country ?

Date & Time

Timezone ?

NTP Server ?

Enable IP Management(Management Network) ?

Management IP Address ?

Subnet Mask

Default Gateway


Mesh


Enable DHCP Server (Management Network)

在下一步中，通過指定以下欄位建立無線網路：


欄位名稱	說明
網路名稱	輸入網路名稱。
安全性	選擇 下拉選單中的WPA2個人安全型別。
密碼	指定預共用金鑰(PSK)。
確認密碼	重新輸入並確認密碼短語。

以後階段可以禁用此網路。


 Cisco Aironet 1542 Series Mobility Express


1 Set Up Your Controller 


>

2 Create Your Wireless Networks 

Employee Network

Network Name 

Security 

Passphrase 

Confirm Passphrase

在「Advanced Settings (高級設定)」頁籤中，保留 RF 引數最佳化 已禁用滑塊，然後按一下 Next (下一步)



1 Set Up Your Controller 



2 Create Your Wireless Networks



3 Advanced Setting



RF Parameter Optimization

Back

Next

確認設定後，WLC將重新啟動：



The controller has been fully configured and will restart in 60 seconds.

Next Steps:

After the controller is restarted, it will be accessible from the network by going to this URL -

<https://192.168.1.200>

1 Controller Settings

Username	admin
System Name	ME
Country	Netherlands (NL)
Date & Time	11/05/2019 10:31:39
Timezone	Amsterdam, Berlin, Rome, Vienna
NTP Server	-
Management IP Address	192.168.1.200
Management IP Subnet	255.255.255.0
Management IP Gateway	192.168.1.1
Mesh	Yes

x Controller DHCP

2 Wireless Network Settings

✓ Employee Network

Network Name	Employee
Security	WPA2 Personal
Passphrase:	*****

其他網狀配置

在建立網狀鏈路之前，需要將MAP轉換為flex-bridge模式。如果在初始配置期間啟用了mesh選項，則RAP已經處於flex-bridge模式。這可透過CLI完成：

```
<#root>
```

```
MAP#
```

```
capwap ap mode flex-bridge
```

MAP#[*11/05/2019 18:26:28.1599] AP Rebooting: Reset Reason - AP mode changed

若要使MAP top加入ME控制器，需要獲得授權。在MAP上，找到其乙太網介面的MAC地址：

```
<#root>
```

```
MAP#
```

```
show interfaces wired 0
```

```
wired0    Link encap:Ethernet  HWaddr
```

```
00:EE:AB:83:D3:20
```

```
inet addr:192.168.1.202  Bcast:192.168.1.255  Mask:255.255.255.0  
UP BROADCAST RUNNING PROMISC MULTICAST  MTU:1500  Metric:1  
RX packets:183 errors:0 dropped:11 overruns:0 frame:0  
TX packets:192 errors:0 dropped:0 overruns:0 carrier:0  
collisions:0 txqueuelen:80  
RX bytes:19362 (18.9 KiB)  TX bytes:22536 (22.0 KiB)
```

從laptop 1通過<https://192.168.1.200>訪問ME控制器Web介面。專家模式啟用後（右上角），「Wireless settings（無線設定）」下將出現網狀頁籤。在mac filtering下，新增MAP的乙太網MAC地址：

The screenshot displays the Cisco Aironet 1542 Series Mobility Express web interface. The left sidebar contains navigation options: Monitoring, Wireless Settings, WLANs, Access Points, Access Points Groups, WLAN Users, Guest WLANs, DHCP Server, Mesh (highlighted with a red box), Management, Services, and Advanced. The main content area shows 'Mesh settings' with a 'Mesh' button. Below this, there are tabs for 'General', 'Mesh RAP Downlink backhaul', 'Convergence', 'Ethernet bridging', 'Security', and 'MAC Filtering' (highlighted with a red box). The 'MAC Filtering' page includes a search bar, an 'Add MAC Address' button, a 'Refresh' button, and a table with columns for 'MAC Address', 'Type', 'Profile Name', and 'Description'. The table currently shows 'Number of Blacklist:0' and 'Number of Whitelist:0'.



Add MAC Address

MAC Address

00:EE:AB:83:D3:20

Description

MAP



Type

WhiteList



Profile Name

Any WLAN/RLAN



Apply

Cancel

註:要加入到ME WLC的處於網橋模式或靈活網橋模式的任何後續AP也需要授權

設定該設定後，應建立網狀鏈路。為了使MAP後的有線客戶端能夠通過網狀鏈路傳遞流量，需要在MAP的無線設定>接入點> MAP >網格下啟用乙太網橋接：

Cisco Aironet 1542 Series Mobility Express

ACCESS POINTS ADMINISTRATION

Access Points 1

Search

Refresh

Select	Manage	Type	Location
<input type="checkbox"/>		ME Capable	default location

10 Items per page

RAP(Active Controller)

General Controller Radio 1 (2.4 GHz) Radio 2 (5GHz) **Mesh**

AP Role: Root

Bridge Type: Outdoor

Bridge Group Name:

Strict Matching BGN:

Daisy Chaining:

Preferred Parent:

Backhaul Interface: 802.11a/n/ac

Bridge Data Rate (Mbps): auto

Install Mapping on Radio Backhaul:

Ethernet Link Status: UP

PSK Key TimeStamp: Delete PSK

Mesh RAP Downlink backhaul

5 GHz 2.4 GHz

Ethernet Bridging

State

Acti...	Interface Name	Oper Status	Mode	VLAN Id
<input type="checkbox"/>	GigabitEthernet0	UP	Access	0

1 - 1 of 1 items

Apply Cancel

如果網狀鏈路使用5GHz頻段，則可能會受到雷達訊號的影響。一旦RAP檢測到雷達事件，它將切換到另一個通道。建議啟用通道更改通知，以便RAP通知MAP將交換通道。這顯著降低了收斂時間，因為MAP無需掃描所有可用通道：

General Mesh RAP Downlink backhaul **Convergence** Ethernet bridging Security MAC Filtering

Mode: Standard

Channel Change Notification:

Background Scanning:

Apply

驗證

通過運行show mesh ap summary命令，可以驗證MAP是否已連線：

```
<#root>
```

```
(Cisco Controller) >
```

```
show mesh ap summary
```

AP Name	AP Model	BVI MAC	CERT MAC	Hop	Bridge Group Name
RAP	AIR-AP1542I-E-K9	00:fd:22:19:8c:f8	11:22:33:44:55:66	0	default
MAP	AIR-AP1542D-E-K9	00:ee:ab:83:d3:20	11:22:33:44:55:66	1	default


```
Number of Mesh APs..... 0  
Number of RAPs..... 0  
Number of MAPs..... 0  
Number of Flex+Bridge APs..... 2  
Number of Flex+Bridge RAPs..... 1  
Number of Flex+Bridge MAPs..... 1
```

為了測試鏈路是否通過流量，我們將嘗試從Laptop 1對Laptop 2執行ping:

```
<#root>
```

```
VAPEROVI:~ vaperovi$
```

```
ping 192.168.1.101
```

```
PING192.168.1.101 (192.168.1.101): 56 data bytes  
64 bytes from192.168.1.101: icmp_seq=0 ttl=64 time=5.461 ms  
64 bytes from192.168.1.101: icmp_seq=1 ttl=64 time=3.136 ms  
64 bytes from192.168.1.101: icmp_seq=2 ttl=64 time=2.875 ms
```

注意：只有網狀鏈路建立後，您才能ping通MAP或RAP IP地址。

疑難排解

在MAP/RAP上：

- 調試網狀事件

在ME WLC上：

- debug capwap events enable
- debug capwap errors enable

- debug mesh event enable

從MAP觀察到的成功連線過程的示例 (某些消息由於不相關而被編輯) :

<#root>

MAP#debug mesh events

Enabled all mesh event debugs

```
[*11/05/2019 18:28:24.5699] EVENT-MeshRadioBackhaul[1]: Sending SEEK_START to Channel Manager
[*11/05/2019 18:28:24.5699] EVENT-MeshChannelMgr[1]:
```

Starting regular seek

```
[*11/05/2019 18:28:24.5699] EVENT-MeshChannelMgr[1]: channels to be seeked: 100
[*11/05/2019 18:28:06.5499] EVENT-MeshChannelMgr[0]: start scanning on channel 1.
[*11/05/2019 18:28:06.5499] EVENT-MeshChannelMgr[1]: start scanning on channel 100.
[*11/05/2019 18:28:06.5699] EVENT-MeshRadioBackhaul[1]: Sending ADD_LINK to MeshLink
[*11/05/2019 18:28:06.5699] EVENT-MeshAwppAdj[1][D4:78:9B:7B:DF:11]: AWPP adjacency added channel(100)
[*11/05/2019 18:28:06.5699] EVENT-MeshRadioBackhaul[1]: Sending ADJ_FOUND to Channel Manager 0x64
[*11/05/2019 18:28:06.5699] EVENT-MeshChannelMgr[1]: Adj found on channel 100.
[*11/05/2019 18:28:07.2099] ipv6 gw config loop in Ac discovery
[*11/05/2019 18:28:08.5499] EVENT-MeshChannelMgr[0]: scanning timer expires.
[*11/05/2019 18:28:08.7899] EVENT-MeshChannelMgr[0]: continue scanning on channel 2.
[*11/05/2019 18:28:08.7899] EVENT-MeshChannelMgr[1]: scanning timer expires.
[*11/05/2019 18:28:09.0399] EVENT-MeshChannelMgr[1]: continue scanning on channel 104.
[*11/05/2019 18:28:09.2099] ipv6 gw config loop in Ac discovery
[*11/05/2019 18:28:10.7899] EVENT-MeshChannelMgr[0]: scanning timer expires.
[*11/05/2019 18:28:11.0199] EVENT-MeshChannelMgr[0]: continue scanning on channel 3.
[*11/05/2019 18:28:11.0399] EVENT-MeshChannelMgr[1]: scanning timer expires.
[*11/05/2019 18:28:11.2099] ipv6 gw config loop in Ac discovery
[*11/05/2019 18:28:11.3099] EVENT-MeshChannelMgr[1]: continue scanning on channel 108.
[*11/05/2019 18:28:13.0199] EVENT-MeshChannelMgr[0]: scanning timer expires.
[*11/05/2019 18:28:13.2099] ipv6 gw config loop in Ac discovery
[*11/05/2019 18:28:13.2499] EVENT-MeshChannelMgr[0]: continue scanning on channel 4.
[*11/05/2019 18:28:13.3099] EVENT-MeshChannelMgr[1]: scanning timer expires.
[*11/05/2019 18:28:13.5599] EVENT-MeshChannelMgr[1]: continue scanning on channel 112.
[*11/05/2019 18:28:15.2099] ipv6 gw config loop in Ac discovery
[*11/05/2019 18:28:15.2499] EVENT-MeshChannelMgr[0]: scanning timer expires.
[*11/05/2019 18:28:15.5099] EVENT-MeshChannelMgr[0]: continue scanning on channel 5.
[*11/05/2019 18:28:15.5599] EVENT-MeshChannelMgr[1]: scanning timer expires.
[*11/05/2019 18:28:15.8099] EVENT-MeshChannelMgr[1]: continue scanning on channel 116.
.
..
.
[*11/05/2019 18:28:35.7999] EVENT-MeshChannelMgr[1]: Mesh BH requests to switch to channel 100, width 20 MHz
[*11/05/2019 18:28:35.8199] EVENT-MeshChannelMgr[0]: abort scanning.
[*11/05/2019 18:28:35.8199] EVENT-MeshChannelMgr[0]: Set to configured channel 1, width 20 MHz
[*11/05/2019 18:28:36.6699] ipv6 gw config loop in Ac discovery
[*11/05/2019 18:28:37.5099] EVENT-MeshRadioBackhaul[1]: Sending LINK_UP to MeshLink
[*11/05/2019 18:28:37.5099] CRIT-MeshLink: Set Root port Mac: D4:78:9B:7B:DF:11 BH Id: 2 Port:54 Device:100
[*11/05/2019 18:28:37.5099] EVENT-MeshLink: Sending NOTIFY_SECURITY_LINK_UP to MeshSecurity
[*11/05/2019 18:28:37.5099] EVENT-MeshSecurity: Intermodule message NOTIFY_SECURITY_LINK_UP
[*11/05/2019 18:28:37.5099] EVENT-MeshSecurity: Start full auth to parent D4:78:9B:7B:DF:11
[*11/05/2019 18:28:37.5099] EVENT-MeshSecurity: start_auth, Parent(D4:78:9B:7B:DF:11) state changed to AUTHENTICATING
[*11/05/2019 18:28:37.5199] EVENT-MeshSecurity: Opening wpas socket
[*11/05/2019 18:28:37.5199] EVENT-MeshSecurity: start socket to WPA supplicant
[*11/05/2019 18:28:37.5199] EVENT-MeshSecurity: MeshSecurity::wpas_init my_mac=00:EE:AB:83:D3:20, user=
[*11/05/2019 18:28:38.6699] ipv6 gw config loop in Ac discovery
```

```
[*11/05/2019 18:28:40.6699] ipv6 gw config loop in Ac discovery
[*11/05/2019 18:28:40.6799] EVENT-MeshSecurity: Generating pmk r0 as child(D4:E8:80:A0:D0:B1)
[*11/05/2019 18:28:40.6899] EVENT-MeshSecurity: pmk(eap) r0 generated for D4:78:9B:7B:DF:11: 5309c9fb 0
[*11/05/2019 18:28:40.6899] EVENT-MeshSecurity: EAP authentication is done, Parent(D4:78:9B:7B:DF:11) s
[*11/05/2019 18:28:40.6899] EVENT-MeshSecurity: Child(D4:E8:80:A0:D0:B1) generating keys to Parent D4:7
[*11/05/2019 18:28:40.6899] EVENT-MeshSecurity: Processing TGR_AUTH_RSP, Parent(D4:78:9B:7B:DF:11) stat
[*11/05/2019 18:28:40.6899] CRIT-MeshSecurity: Mesh Security successful authenticating parent D4:78:9B:
[*11/05/2019 18:28:40.6899] EVENT-MeshLink: Mac: D4:78:9B:7B:DF:11 bh_id:2 auth_result: 1
[*11/05/2019 18:28:40.6899] EVENT-MeshLink: Sending NOTIFY_SECURITY_DONE to Control
[*11/05/2019 18:28:40.6899] EVENT-MeshLink: Mesh Link:Security success on parent :D4:78:9B:7B:DF:11
[*11/05/2019 18:28:40.6899] EVENT-MeshLink: Uplink Auth done: Mac: D4:78:9B:7B:DF:11 Port:54 Device:DEV
[*11/05/2019 18:28:40.6899] EVENT-MeshSecurity: Processing TGR_REASSOC_RSP, Parent(D4:78:9B:7B:DF:11)
```

state changed to STATE_RUN

```
[*11/05/2019 18:28:40.6899] EVENT-MeshAwppAdj[1][D4:78:9B:7B:DF:11]: auth_complete Result(PASS)
```

```
.
..
.
```

```
[*11/05/2019 18:28:45.6799] CAPWAP State: Discovery
[*11/05/2019 18:28:45.6799] Discovery Request sent to 192.168.1.200, discovery type STATIC_CONFIG(1)
[*11/05/2019 18:28:45.6899] Discovery Request sent to 192.168.1.200, discovery type STATIC_CONFIG(1)
[*11/05/2019 18:28:45.6899] Sent Discovery to mobility group member 1. 192.168.1.200, type 1.
[*11/05/2019 18:28:45.7099] Discovery Request sent to 255.255.255.255, discovery type UNKNOWN(0)
[*11/05/2019 18:28:46.9699] AP GW IP Address updated to 192.168.1.1
[*11/05/2019 18:28:47.3999] Flexconnect Switching to Standalone Mode!
[*11/05/2019 18:28:47.4599] EVENT-MeshLink: Sending NOTIFY_CAPWAP_COMPLETE to Control
[*11/05/2019 18:28:47.4599] EVENT-MeshControl: Capwap Complete Notification: bh:2 Result:2
[*11/05/2019 18:28:47.4599] EVENT-MeshControl: Received CAPWAP Disconnect for: bh_id(2), D4:78:9B:7B:DF:
[*11/05/2019 18:28:47.4899]
```

Discovery Response from 192.168.1.200

```
.
..
.
```

Adding Ipv4 AP manager 192.168.1.200 to least load

```
[*11/05/2019 18:28:55.1299] WLC: ME ApMgr count 1, ipTransportTried 0, prefer-mode 1, isIpv4orIpv6Stati
[*11/05/2019 18:28:55.1399] IPv4 Pref mode. Choosing AP Mgr with index 0, IP 192.168.1.200, load 1, AP
[*11/05/2019 18:28:55.1399] capwapSetTransportAddr returning: index 0, apMgrCount 0
[*11/05/2019 18:28:55.1399]
```

```
[*11/06/2019 13:23:36.0000]
[*11/06/2019 13:23:36.0000] CAPWAP State: DTLS Setup
[*11/06/2019 13:23:36.0000] DTLS connection created successfully local_ip: 192.168.1.202 local_port: 524
[*11/06/2019 13:23:36.8599] Dtls Session Established with the AC 192.168.1.200, port 5246
[*11/06/2019 13:23:36.8599]
[*11/06/2019 13:23:36.8599] CAPWAP State: Join
[*11/06/2019 13:23:36.8699] Sending Join request to 192.168.1.200 through port 5248
[*11/06/2019 13:23:36.8899] Join Response from 192.168.1.200
[*11/06/2019 13:23:36.8899] AC accepted join request with result code: 0
```

```
.
..
.
```

CAPWAP data tunnel UPDATE to forwarding SUCCEEDED

```
[*11/06/2019 13:23:37.4999] Starting Post Join timer
[*11/06/2019 13:23:37.4999]
[*11/06/2019 13:23:37.4999] CAPWAP State: Image Data
[*11/06/2019 13:23:37.5099] AP image version 8.10.105.0 backup 8.8.125.0, Controller 8.10.105.0
[*11/06/2019 13:23:37.5099] Version is the same, do not need update.
[*11/06/2019 13:23:37.6399] do NO_UPGRADE, part1 is active part
[*11/06/2019 13:23:37.6499]
[*11/06/2019 13:23:37.6499] CAPWAP State: Configure
```

```
[*11/06/2019 13:23:37.6599] DOT11_CFG[0] Radio Mode is changed from Remote Bridge to Remote Bridge
.
..
.
[*11/06/2019 13:23:38.7799] DOT11_CFG[0]: Starting radio 0
[*11/06/2019 13:23:38.7799] DOT11_CFG[1]: Starting radio 1
[*11/06/2019 13:23:38.8899] EVENT-MeshRadioBackhaul[0]: BH_RATE_AUTO
[*11/06/2019 13:23:38.8899] EVENT-MeshSecurity: Intermodule message LSC_MODE_CHANGE
[*11/06/2019 13:23:38.9099] CAPWAP data tunnel UPDATE to forwarding SUCCEEDED
[*11/06/2019 13:23:38.9999] Setting Prefer-mode IPv4
[*11/06/2019 13:23:39.0499]
[*11/06/2019 13:23:39.0499]
```

CAPWAP State: Run

```
[*11/06/2019 13:23:39.0499] EVENT-MeshCapwap: CAPWAP joined controller
[*11/06/2019 13:23:39.0599] CAPWAP moved to RUN state stopping post join timer
[*11/06/2019 13:23:39.1599] CAPWAP data tunnel ADD to forwarding SUCCEEDED
[*11/06/2019 13:23:39.2299]
```

AP has joined controller ME

```
[*11/06/2019 13:23:39.2599]
```

Flexconnect Switching to Connected Mode

!

技巧、技巧和常見錯誤

- 通過線上將MAP和RAP升級到相同的映像版本，我們避免通過無線方式下載映像（在「髒」RF環境中可能會出現問題）。
- 增加5GHz回程鏈路的通道寬度會導致低訊雜比和偽雷達檢測（主要在80MHz和160 MHz）。
- 不應通過ping MAP或RAP測試網狀鏈路連通性。一旦網狀鏈路啟動，它們將無法ping通。
- 強烈建議先在受控環境中測試設定，然後再在現場進行部署。
- 如果使用的是帶有外部天線的AP，請確保參考部署指南，檢查哪些天線是相容的，以及應該插入哪個埠。
- 為了通過網狀鏈路橋接來自不同VLAN的流量，需要禁用VLAN透明功能。
- 考慮在AP本地安裝系統日誌伺服器，因為它可以提供調試資訊，否則只能通過控制檯連線使用。

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）。