

# 在Catalyst 9800无线LAN控制器上配置网状

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## 简介

本文档介绍如何将网状无线接入点(AP)连接到Catalyst 9800无线LAN控制器(WLC)的基本配置示例

## 先决条件

### 要求

Cisco 建议您了解以下主题：

- Catalyst无线9800配置型号
- LAP的配置
- 无线接入点的控制和提供(CAPWAP)
- 配置外部DHCP服务器
- 思科交换机的配置

### 使用的组件

本示例使用轻量接入点（1572AP和1542），可以将其配置为根AP(RAP)或网状AP(MAP)以加入Catalyst 9800 WLC。1542或1562接入点的操作步骤相同。RAP通过Cisco Catalyst交换机连接到Catalyst 9800 WLC。

本文档中的信息基于以下软件和硬件版本：

- C9800-CL v16.12.1
- Cisco 第2层交换机
- Cisco Aironet 1572系列轻型室外网桥接入点部分

- 适用于Flex+Bridge部分的Cisco Aironet 1542

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

### 案例研究1：网桥模式

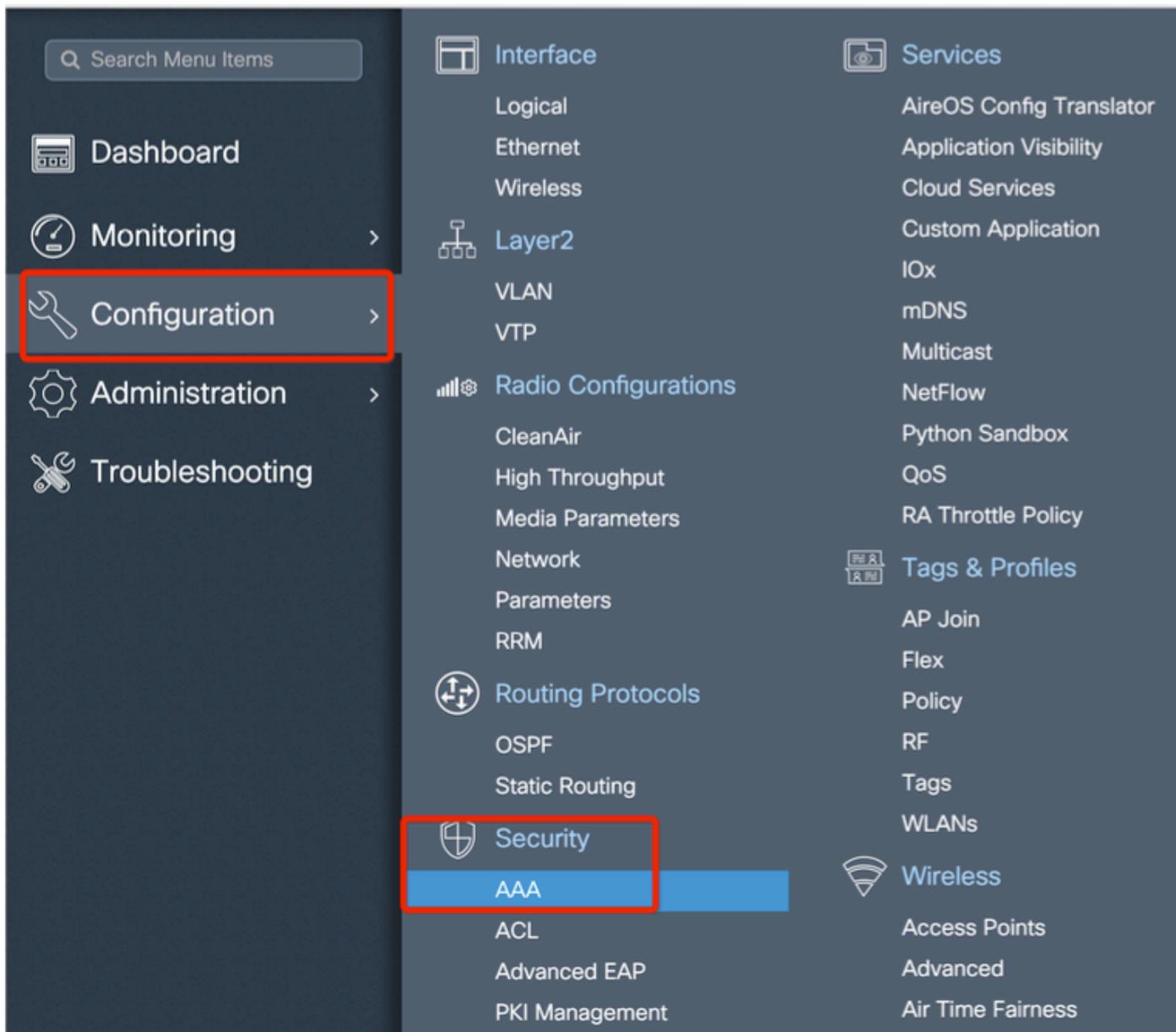
#### 配置

网状无线接入点需要经过身份验证才能加入9800控制器。本案例研究认为，您首先以本地模式将AP连接到WLC，然后将其转换为网桥(a.k.a)网状模式。

要避免分配AP加入配置文件，请使用此示例，但配置默认aaa authorization credential-download方法，以便允许任何网状AP加入控制器。

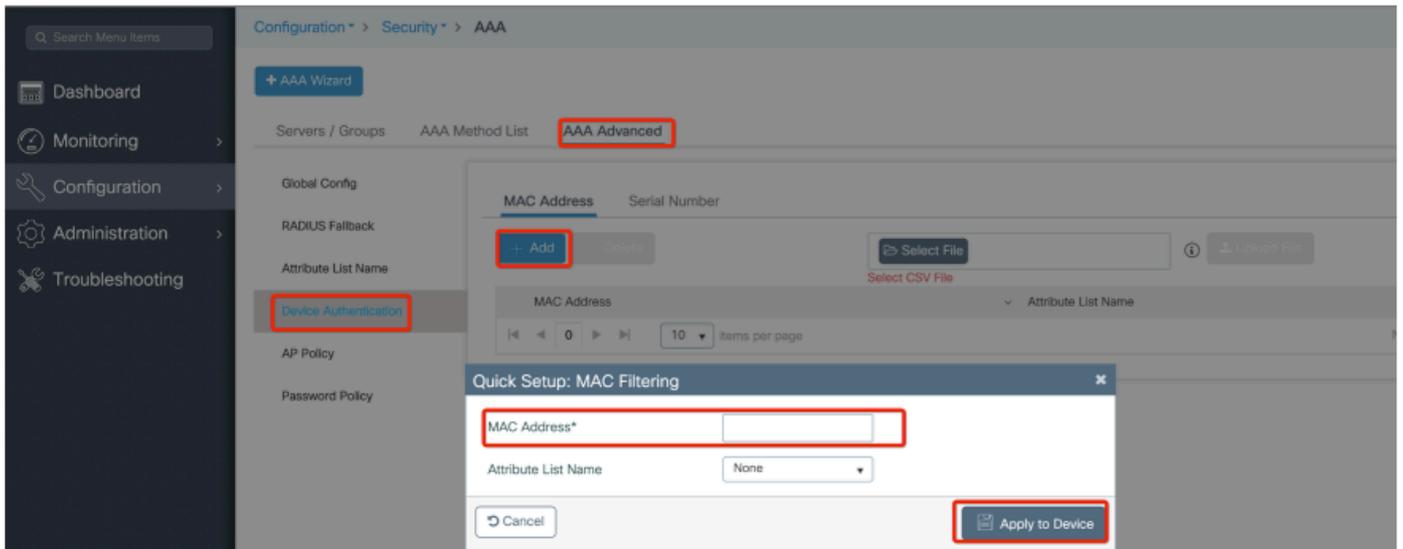
第1步：在Device Authentication下配置RAP/MAP mac地址。

转至Configuration > AAA > AAA Advanced > Device Authentication。



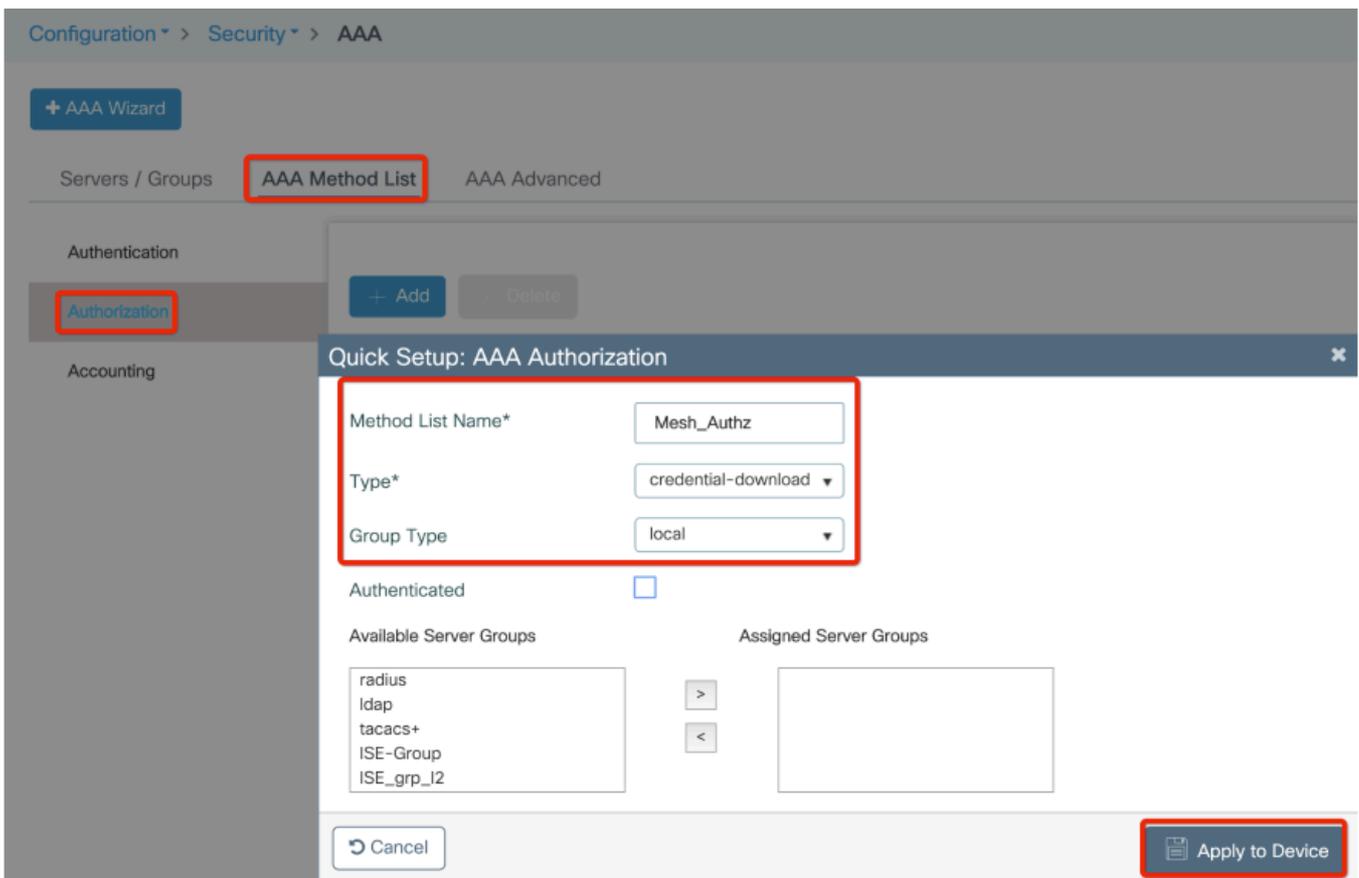
添加MAP的基本以太网MAC地址，添加时不带任何特殊字符，不带“。”或“：”

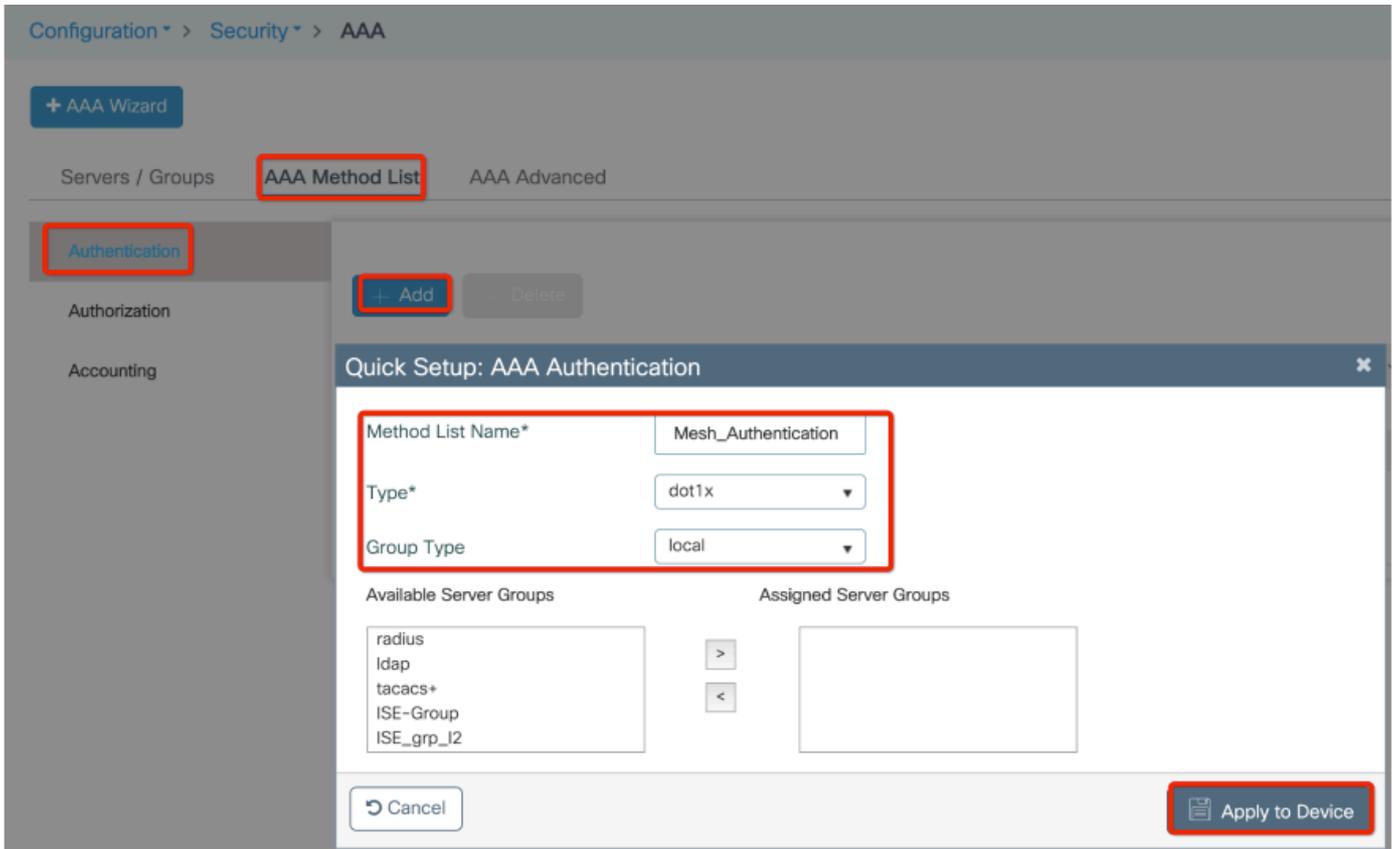
 **重要信息：**自17.3.1版本起，如果添加任何mac地址分隔符（如“。”、“：”或“ — ”），则AP无法加入。目前为此打开了2个增强功能：[Cisco Bug ID CSCvv43870](#)和[Cisco Bug ID CSCvr07920](#)。将来，9800会接受所有mac地址格式。



第2步：配置身份验证和授权方法列表。

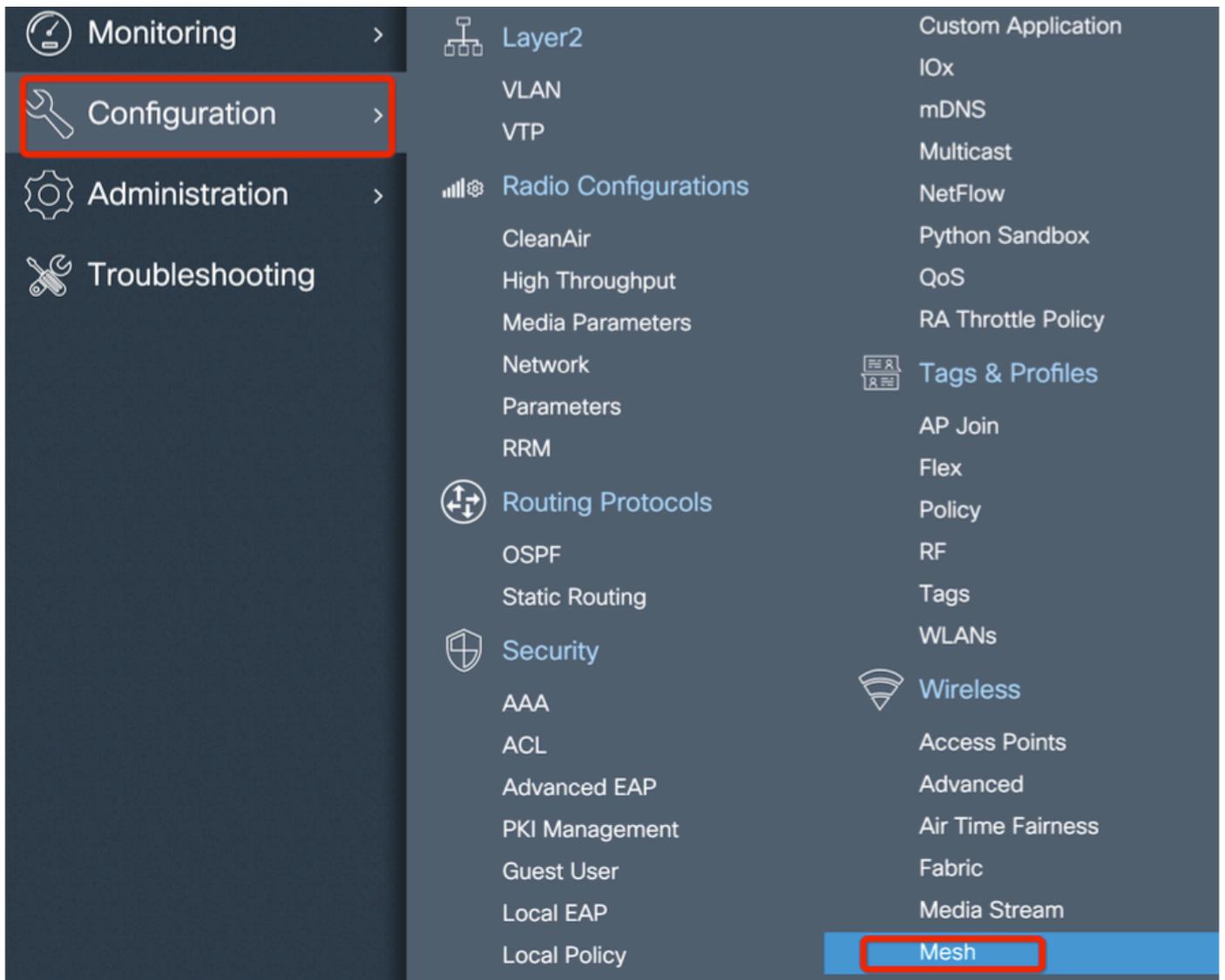
转至Configuration > Security > AAA > AAA Method list > Authentication，然后创建身份验证方法列表和授权方法列表。



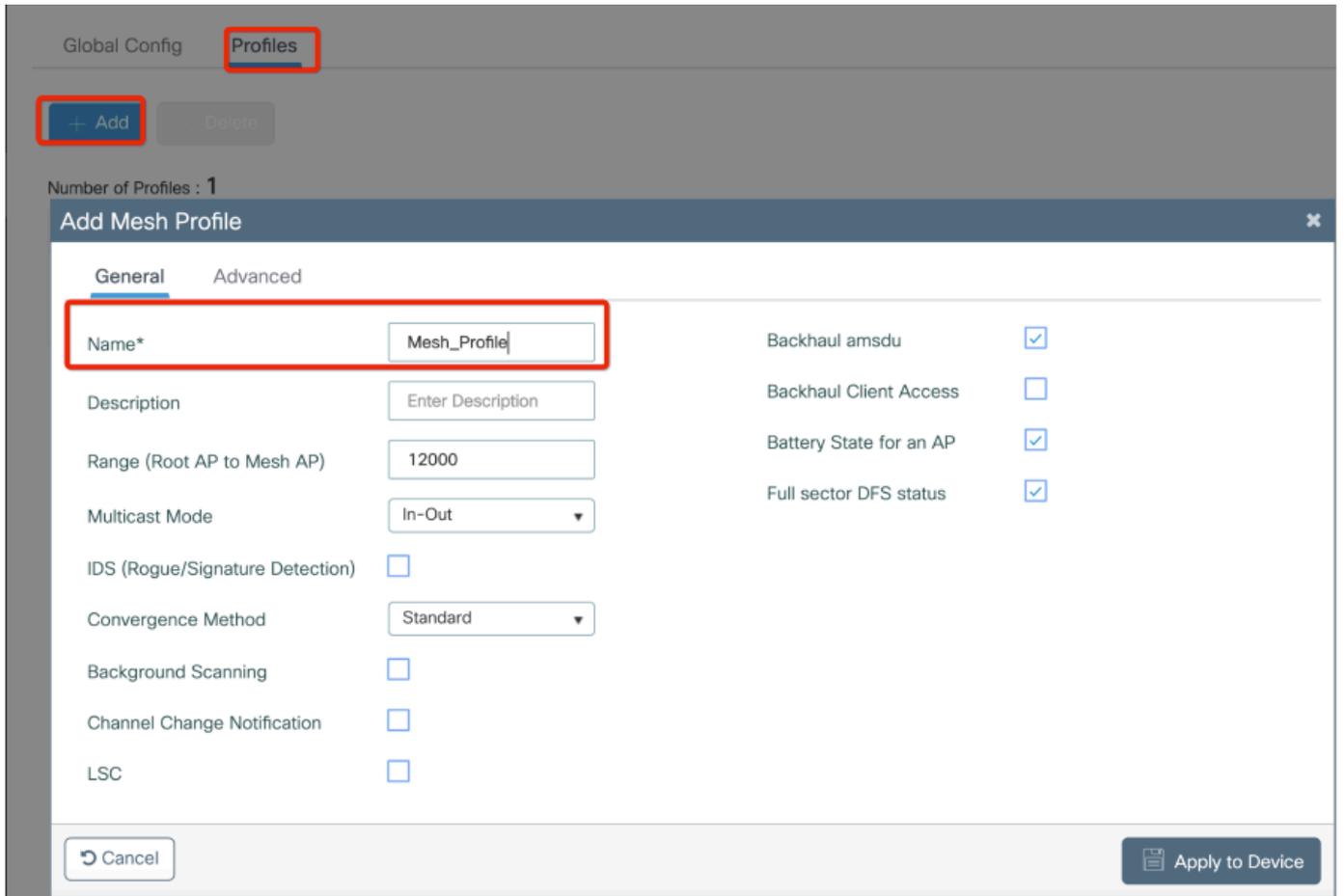


第3步：配置全局网状网参数。

转到Configuration> Mesh> Global参数。最初，我们可以将这些值保留为默认值。

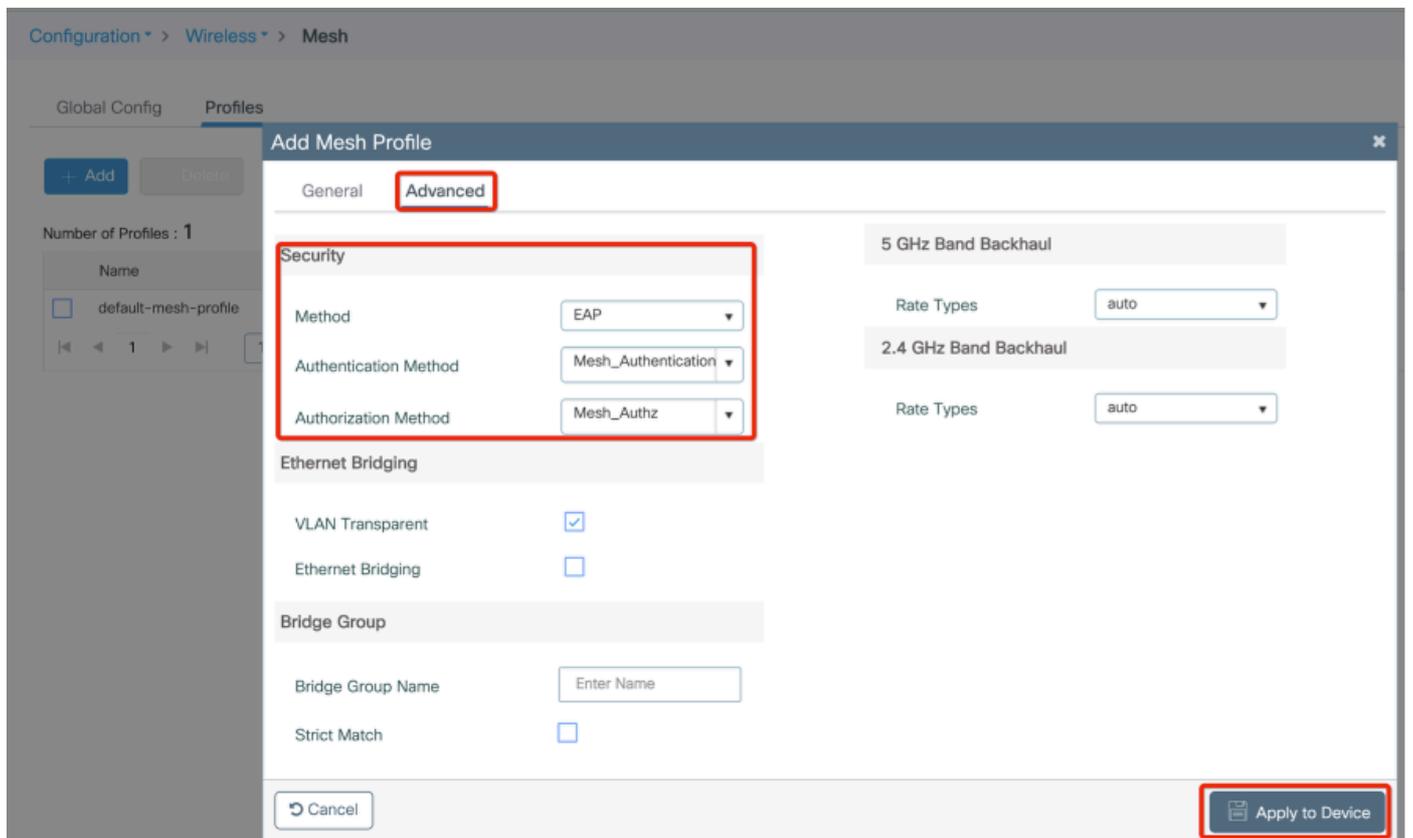


第4步：在Configuration > Mesh > Profile > +Add下创建新的网状配置文件

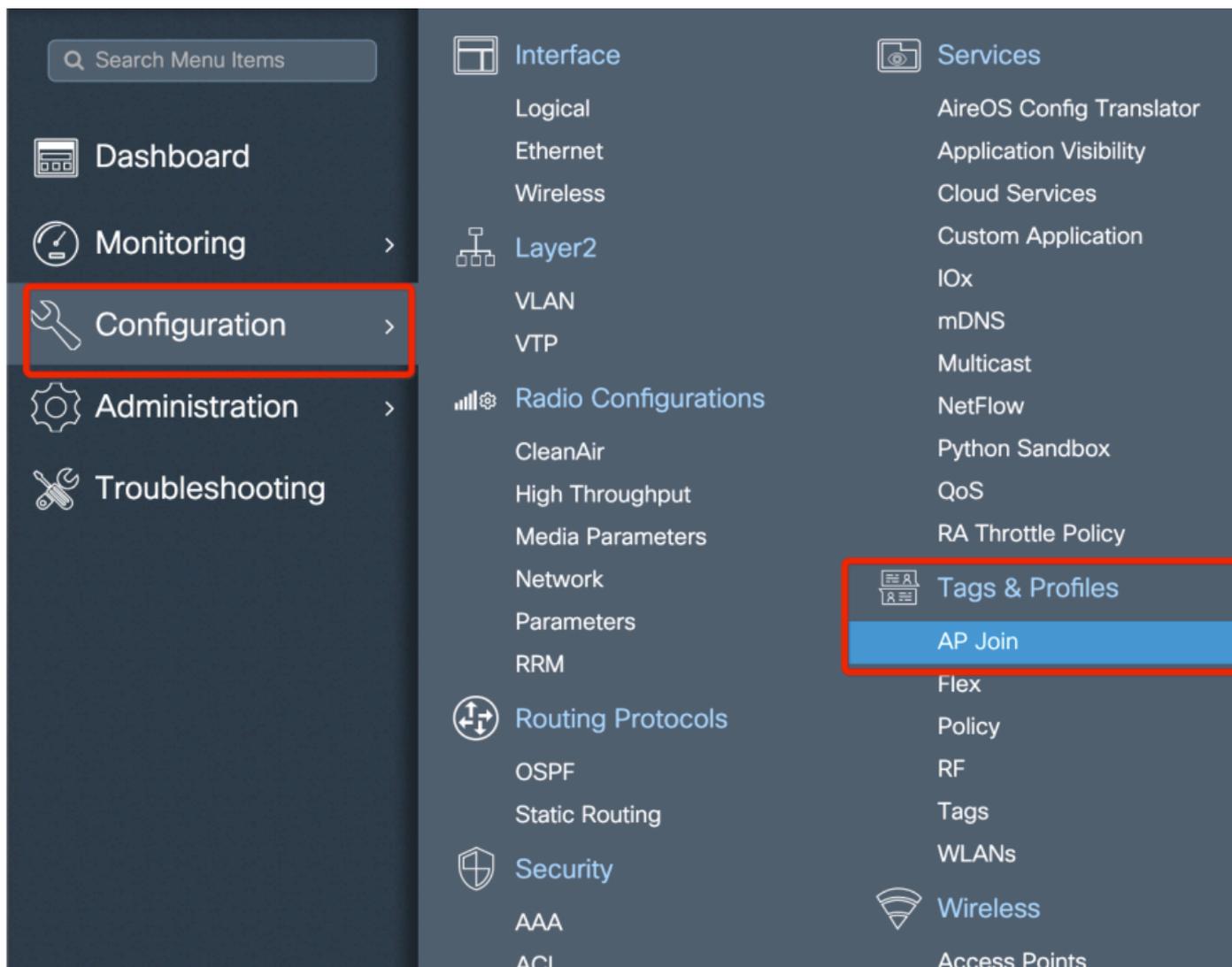


单击已创建的网格剖面，编辑网格剖面的常规和高级设置。

如图所示，我们需要将之前创建的身份验证和授权配置文件映射到Mesh配置文件



第5步：创建新的AP加入配置文件。转至Configure > Tags and Profiles: AP Join。



Configuration > Tags & Profiles > AP Join

+ Add - Delete

AP Join Profile Name	Description
<input type="checkbox"/> default-ap-profile	default ap profile

### Add AP Join Profile

General Client CAPWAP AP Management Rogue AP ICap

Name\* Mesh\_AP\_Join\_Profile

Description Enter Description

LED State

LAG Mode

NTP Server 0.0.0.0

Cancel Apply to Device

应用之前配置的网状配置文件并配置AP EAP身份验证：

AP Join Profile Name	Description
<input type="checkbox"/> default-ap-profile	default ap profile

### Add AP Join Profile

General Client CAPWAP **AP** Management Rogue AP ICap

**General** Hyperlocation BLE Packet Capture

#### Power Over Ethernet

Switch Flag

Power Injector State

Power Injector Type

Injector Switch MAC

Code

#### Client Statistics Reporting Interval

5 GHz (sec)

2.4 GHz (sec)

#### Extended Module

Enable

#### AP EAP Auth Configuration

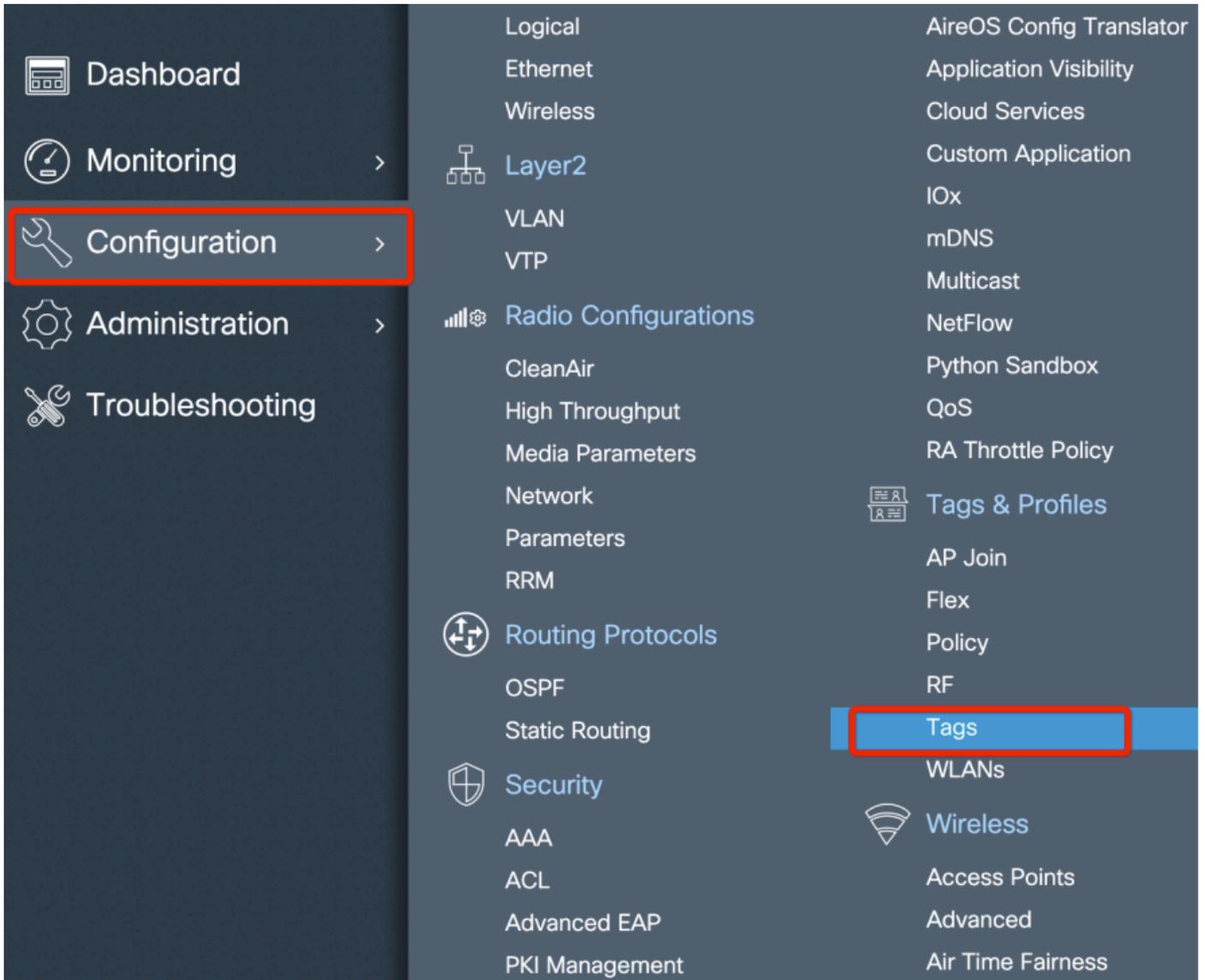
EAP Type

AP Authorization Type

#### Mesh

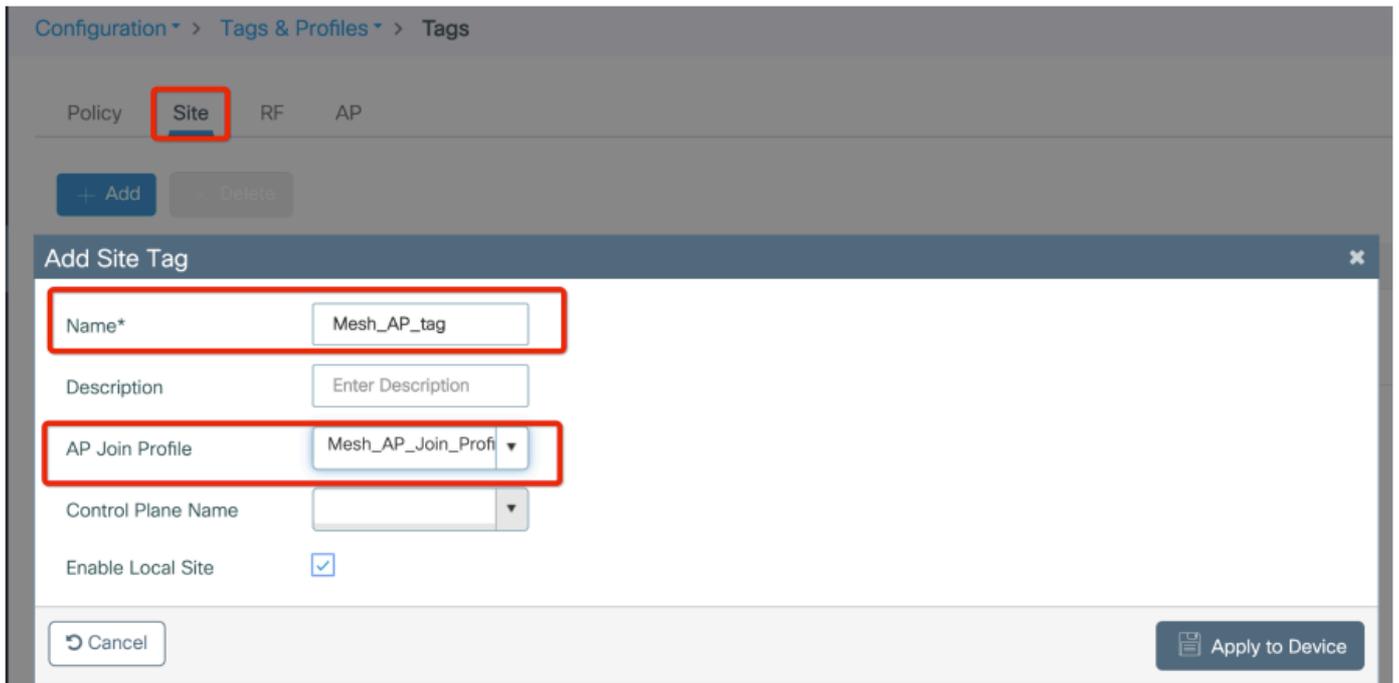
Profile Name  [Clear](#)

第6步：如图所示创建网格位置标签。



配置单击第6步中创建的Mesh location TAG对其进行配置。

转至Site选项卡，并将之前配置的Mesh AP加入配置文件应用到Site选项卡：



步骤 7.将AP转换为网桥模式。

Configuration > Wireless > Access Points

▼ All Access Points

Number of AP(s): 1

AP Name	AP Model	Slots	Admin Status	IP Address
AP2C33-110E-6B66	AIR-AP1562E-E-K9	2	✓	109.129.49.9

10 items per page

- > 5 GHz Radios
- > 2.4 GHz Radios
- > Dual-Band Radios

Edit AP

General | Interfaces | High Availability | Inventory | Mesh | Advanced | Support Bundle

General		Version	
AP Name*	AP2C33-110E-6B66	Primary Software Version	17.3.0.17
Location*	default location	Predownloaded Status	N/A
Base Radio MAC	7070.8bb4.9200	Predownloaded Version	N/A
Ethernet MAC	2c33.110e.6b66	Next Retry Time	N/A
Admin Status	ENABLED	Boot Version	1.1.2.4
AP Mode	Bridge	IOS Version	17.3.0.17
Operation Status	Monitor	Mini IOS Version	0.0.0.0
Fabric Status	Sensor	IP Config	
LED State	Sniffer		
	Bridge		
	Clear	CAPWAP Preferred Mode	IPv4

通过CLI，您可以在AP上发出此命令：

```
capwap ap mode bridge
```

AP重新启动后作为网桥模式重新加入。

步骤 8现在您可以定义AP的角色：根AP或网状AP。

当网状AP通过其尝试连接到根AP的无线电加入WLC时，根AP是与WLC具有有线连接的网络。

当网状AP无法通过其无线电找到根AP以进行调配时，可以通过其有线接口加入WLC。

All Access Points

Number of AP(s): 1

AP Name	AP Model	Slots	Admin Status	IP Address
AP2C33-110E-6B66	AIR-AP1562E-E-K9	2	<span style="color: green;">✔</span>	109.129.49.9

5 GHz Radios

2.4 GHz Radios

Dual-Band Radios

Country

LSC Provision

Edit AP
✕

General
Interfaces
High Availability
Inventory
Mesh
Advanced
Support Bundle

General

Block Child

Daisy Chaining

Daisy Chaining strict-RAP

Preferred Parent MAC

VLAN Trunking Native

Role 

Mesh  
 Root  
Mesh

Remove PSK

Backhaul

Backhaul Radio Type

Backhaul Slot ID

Rate Types

Ethernet Port Configuration

⚠ Ethernet Bridging on the associated Mesh Profile should be enabled to configure this section successfully

Port

Mode

↶ Cancel
Update & Apply to Device

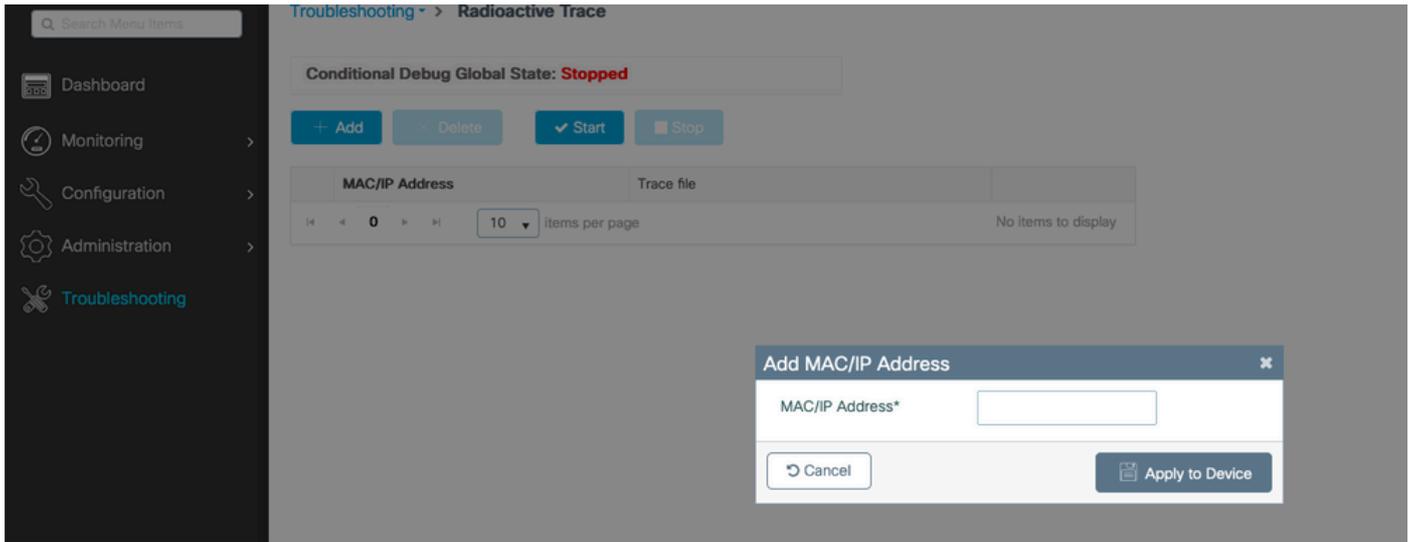
## 验证

```

aaa new-model
aaa local authentication default authorization default
!
!
aaa authentication dot1x default local
aaa authentication dot1x Mesh_Authentication local
aaa authorization network default local
aaa authorization credential-download default local
aaa authorization credential-download Mesh_Authz local
username 111122223333 mac
wireless profile mesh Mesh_Profile
  method authentication Mesh_Authentication
  method authorization Mesh_Authz
wireless profile mesh default-mesh-profile
  description "default mesh profile"
wireless tag site Mesh_AP_Tag
  ap-profile Mesh_AP_Join_Profile
ap profile Mesh_AP_Join_Profile
  hyperlocation ble-beacon 0
  hyperlocation ble-beacon 1
  hyperlocation ble-beacon 2
  hyperlocation ble-beacon 3
  hyperlocation ble-beacon 4
  mesh-profile Mesh_Profile
    
```

## 故障排除

在Troubleshoot > Radiative Trace Web UI页中，单击add，然后输入AP mac地址。



单击Start并等待AP再次尝试加入控制器。

完成后，单击Generate并选择收集日志的时间段（例如最近10或30分钟）。

单击Trace file name（跟踪文件名）从浏览器下载。

以下是AP未加入的示例，因为定义的aaa授权方法名称错误：

```
2019/11/28 13:08:38.269 {wncd_x_R0-0}{1}: [capwapac-smgr-srvr] [23388]: (info): Session-IP: 192.168.88.4
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [ewlc-infra-evq] [23388]: (info): DTLS record type: 23, appli
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [capwapac-smgr-sess] [23388]: (info): Session-IP: 192.168.88.
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [capwapac-smgr-sess] [23388]: (info): Session-IP: 192.168.88.
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [mesh-config] [23388]: (ERR): Failed to get ap PMK cache rec
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [mesh-config] [23388]: (ERR): Failed to get ap PMK cache rec
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [mesh-config] [23388]: (ERR): Failed to get ap PMK cache rec
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [apmgr-capwap-join] [23388]: (info): 00a3.8e95.6c40 Ap auth p
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [apmgr-capwap-join] [23388]: (ERR): Failed to initialize auth
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [apmgr-capwap-join] [23388]: (ERR): 00a3.8e95.6c40 Auth requ
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [apmgr-db] [23388]: (ERR): 00a3.8e95.6c40 Failed to get wtp r
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [apmgr-db] [23388]: (ERR): 00a3.8e95.6c40 Failed to get ap ta
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [capwapac-smgr-sess-fsm] [23388]: (ERR): Session-IP: 192.168.
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [capwapac-smgr-sess-fsm] [23388]: (info): Session-IP: 192.168
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [capwapac-smgr-sess-fsm] [23388]: (note): Session-IP: 192.168
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [capwapac-smgr-sess-fsm] [23388]: (note): Session-IP: 192.168
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [ewlc-dtls-sessmgr] [23388]: (info): Remote Host: 192.168.88.
2019/11/28 13:08:38.288 {wncd_x_R0-0}{1}: [ewlc-dtls-sessmgr] [23388]: (info): Remote Host: 192.168.88.
2019/11/28 13:08:38.289 {wncmgrd_R0-0}{1}: [ewlc-infra-evq] [23038]: (debug): instance :0 port:38932MAC
```

点击未加入的AP时，在Web UI控制面板中更容易看到相同内容。“Ap auth pending”是指向AP自身身份验证的提示：

Monitoring > Wireless > AP Statistics

General **Join Statistics**

Clear ClearAll

Number of AP(s): 2

Status "Is equal to" NOT JOINED x

AP Name	AP Mod
<input type="checkbox"/> AP2CF8-9B5F-7D70	C9120A
<input checked="" type="checkbox"/> NA	

10 items per page

---

**Join Statistics**

General **Statistics**

DTLS Session request received	1	Configuration requests received	0
Established DTLS session	1	Successful configuration responses sent	0
Unsuccessful DTLS session	0	Unsuccessful configuration request processing	0
Reason for last unsuccessful DTLS session	DTLS Handshake Success	Reason for last unsuccessful configuration attempt	NA
Time at last successful DTLS session	Mon, 17 Feb 2020 09:15:41 GMT	Time at last successful configuration attempt	NA
Time at last unsuccessful DTLS session	NA	Time at last unsuccessful configuration attempt	NA

**Join phase statistics**

Join requests received	1
Successful join responses sent	0
Unsuccessful join request processing	0
Reason for last unsuccessful join attempt	Ap auth pending
Time at last successful join attempt	NA
Time at last unsuccessful join attempt	NA

**Data DTLS Statistics**

DTLS Session request received	0
Established DTLS session	0
Unsuccessful DTLS session	0
Reason for last unsuccessful DTLS session	DTLS Handshake Success
Time at last successful DTLS session	NA
Time at last unsuccessful DTLS session	NA

OK

## 案例研究2:Flex +网桥

本部分重点介绍1542 AP在Flex+网桥模式下与EAP身份验证在WLC上本地完成的加入过程。

### 配置

- 步骤1:导航到配置 > 安全 > AAA > AAA高级 > 设备身份验证

Configuration > Security > AAA

1

+ AAA Wizard

Servers / Groups

AAA Method List

AAA Advanced

2

Global Config

RADIUS Fallback

Attribute List Name

Device Authentication

3

MAC Address

Serial Number

+ Add

4

× Delete

MAC Address

002cc8de2b40

- 第二步：选择Device Authentication，然后选择Add
- 第三步：键入要加入WLC的AP的基本以太网MAC地址，将Attribute List Name留空，然后选择Apply to Device

Quick Setup: MAC Filtering

MAC Address\*

ffffffffffff

1

Attribute List Name

None

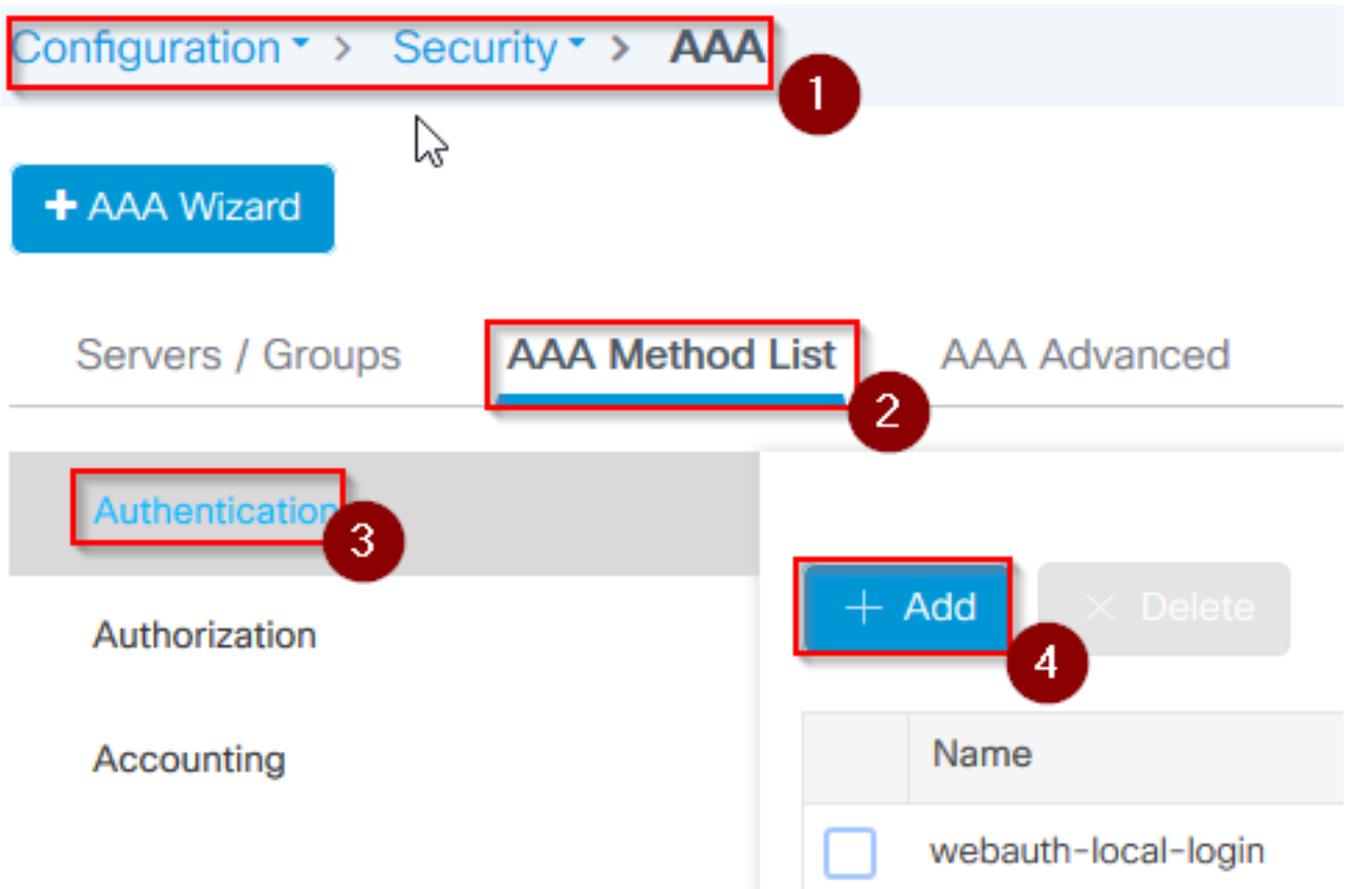
2

Cancel

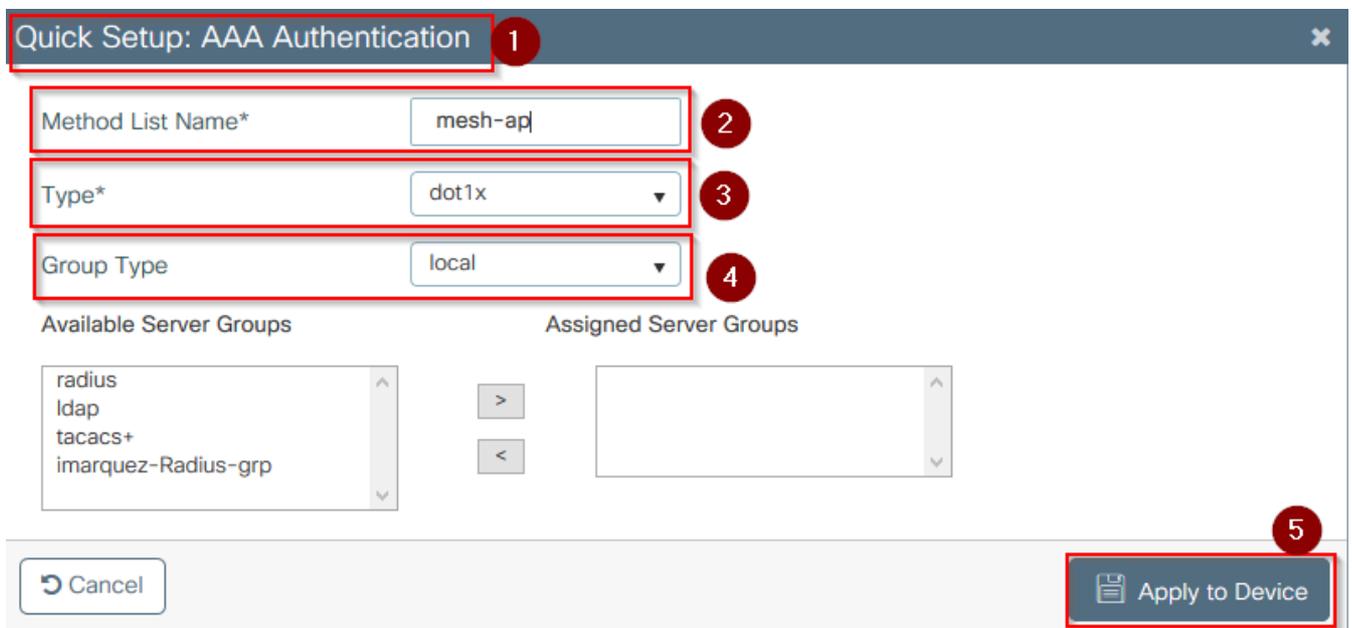
Apply to Device

3

- 第四步：导航到配置 > 安全 > AAA > AAA方法列表 > 身份验证
- 第五步：选择Add，系统将显示AAA Authentication弹出窗口



- 第六步：在Method List Name中键入名称，从Type\*下拉列表中选择802.1x，并为Group Type选择local，最后选择Apply to Device



- 步骤6b.如果您的AP直接以网桥模式加入，并且之前没有分配站点和策略标签，请重复步骤6，但使用默认方法。
- 配置指向本地的dot1x aaa身份验证方法(CLI aaa authentication dot1x default local)
- 步骤7.导航到配置 > 安全 > AAA > AAA方法列表 > 授权
- 步骤8选择Add，系统将显示AAA Authorization弹出窗口

Configuration > Security > AAA 1

+ AAA Wizard

Servers / Groups

AAA Method List 2

AAA Advanced

Authentication

Authorization 3

Accounting

+ Add 4

× Delete

Name
<input type="checkbox"/> default

- 步骤 9在Method List Name中键入名称，从Type\*下拉菜单中选择credential download，并为Group Type选择local，最后选择Apply to Device

Quick Setup: AAA Authorization

Method List Name\* mesh-ap 1

Type\* credential-download 2

Group Type local 3

Authenticated

Available Server Groups: radius, ldap, tacacs+, imarquez-Radius-grp

Assigned Server Groups

Cancel 4 Apply to Device

- 步骤9b.如果AP直接在网桥模式下加入（即它不会首先在本地模式下加入），请对默认凭证下载方法(CLI aaa authorization credential-download default local)重复步骤9
- 步骤 10导航到配置 > 无线 > 网状 > 配置文件
- 步骤 11选择Add，系统将显示Add Mesh Profile弹出窗口

Configuration ▾ > Wireless ▾ > Mesh

1

Global Config

Profiles

2

+ Add

× Delete

3

- 步骤 12在General选项卡中，设置网状配置文件的名称和说明

## Add Mesh Profile

General

Advanced

Name\*

mesh-profile|

Description

mesh-profile

- 步骤 13在Advanced选项卡下，为Method字段选择EAP
- 步骤 14选择Authorization和Authentication配置文件（在步骤6和9中定义），然后选择Apply to Device

Add Mesh Profile ✕

General **Advanced** 1

---

**Security**

Method 2 EAP

Authentication Method 3 mesh-ap

Authorization Method 4 mesh-ap|

**Ethernet Bridging**

VLAN Transparent

Ethernet Bridging

**Bridge Group**

Bridge Group Name

Strict Match

**5 GHz Band Backhaul**

Rate Types 5 auto

**2.4 GHz Band Backhaul**

Rate Types 5 auto

5 Apply to Device

Cancel

- 步骤 15 导航到配置 > 标记和配置文件 > AP 加入 > 配置文件
- 步骤 16 选择 Add，系统将显示 AP Join Profile 弹出窗口，为 AP Join 配置文件设置名称和说明

Configuration ▾ > Tags & Profiles ▾ > **AP Join** 1

+ Add 2

× Delete

	AP Join Profile Name

## Add AP Join Profile

<b>General</b>	Client	CAPWAP	AP	Management	Rogue AP	ICap
Name*	<input type="text" value="mes-ap-join"/>					
Description	<input type="text" value="mesh-ap-join"/>					
LED State	<input checked="" type="checkbox"/>					
LAG Mode	<input type="checkbox"/>					
NTP Server	<input type="text" value="0.0.0.0"/>					

- 步骤 17 导航到 AP 选项卡，从 Mesh Profile Name 下拉列表选择在步骤 12 中创建的 Mesh Profile
- 步骤 18. 确保分别为 EAP Type 和 AP Authorization Type 字段设置 EAP-FAST 和 CAPWAP DTLS
- 斯蒂奥 19. 选择应用到设备

### Add AP Join Profile

General Client CAPWAP **AP** Management Rogue AP ICap

General Hyperlocation BLE Packet Capture

<b>Power Over Ethernet</b>		<b>Client Statistics Reporting Interval</b>
Switch Flag	<input type="checkbox"/>	5 GHz (sec) <input type="text" value="90"/>
Power Injector State	<input type="checkbox"/>	2.4 GHz (sec) <input type="text" value="90"/>
Power Injector Type	<input type="text" value="Unknown"/>	<b>Extended Module</b>
Injector Switch MAC	<input type="text" value="00:00:00:00:00:00"/>	Enable <input type="checkbox"/>
Code	<input type="text"/>	<b>Mesh</b>
<b>AP EAP Auth Configuration</b>		Profile Name <input type="text" value="mesh-profile"/>
EAP Type	<input type="text" value="EAP-FAST"/>	<input type="text" value="Clear"/>
AP Authorization Type	<input type="text" value="CAPWAP DTLS"/>	

- 步骤 20. 导航到配置 > 标记和配置文件 > 标记 > 站点
- 步骤 21. 选择 Add，系统将显示 Site Tag 弹出窗口

Configuration ▾ > Tags & Profiles ▾ > Tags

1

Policy

Site

2

RF

AP

+ Add

3

× Delete

- 步骤 22. 输入站点标签的名称和说明

Add Site Tag

1

Name\*

mesh-ap-site

Description

mesh-ap-site

AP Join Profile

mesh-ap-join-profile ▾

2

- 步骤 23. 从AP Join Profile下拉列表选择在步骤16中创建的AP加入配置文件
- 步骤 24. 在Site Tag弹出窗口的底部，取消选中Enable Local Site复选框以启用Flex Profile下拉列表。
- 步骤 35. 从Flex Profile下拉列表选择要用于AP的Flex Profile

**Add Site Tag** ✕

Name\*

Description

AP Join Profile

Flex Profile  2

Control Plane Name

Enable Local Site  1

3

- 步骤 36将AP连接到网络并确保AP处于本地模式。
- 步骤 37要确保AP处于本地模式，请发出命令capwap ap ap mode local。

AP必须找到控制器，可以是L2广播、DHCP选项43、DNS解析或手动设置。

- 步骤 38AP加入WLC，确保它列在AP列表下，导航到Configuration > Wireless > Access Points > All Access Points

**Configuration > Wireless > Access Points** 1

▼ **All Access Points**

Number of AP(s): 2

AP Name	Total Slots	Admin Status	AP Model	Base Radio MAC	AP Mode	Operation Status
[blurred]	2	✓	[blurred]	[blurred]	Flex+Bridge	Registered
[blurred]	2	✓	[blurred]	[blurred]	<span style="border: 1px solid red; padding: 2px;">Local</span> <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">2</span>	Registered

- 步骤 39选择AP，系统将显示AP弹出窗口。
- 步骤 40在AP弹出窗口中的General > Tags > Site选项卡下，选择Update and Apply to Device，在步骤22中创建的Site Tag

Edit AP ✕

General 1 Interfaces    High Availability    Inventory    Mesh    Advanced

**General**

AP Name\*

Location\*

Base Radio MAC

Ethernet MAC

Admin Status ENABLED

AP Mode

Operation Status Registered

Fabric Status Disabled

LED State ENABLED

LED Brightness Level

CleanAir [NSI Key](#)

**Tags**

Policy

Site

RF

**Version**

Primary Software Version 16.12.1.139

Predownloaded Status N/A

Predownloaded Version N/A

Next Retry Time N/A

Boot Version 1.1.2.4

IOS Version 16.12.1.139

Mini IOS Version 0.0.0.0

**IP Config**

CAPWAP Preferred Mode IPv4

DHCP IPv4 Address

Static IP (IPv4/IPv6)

**Time Statistics**

Up Time 4 days 3 hrs 2 mins 6 secs

Controller Association Latency 20 secs

↶ Cancel

↶ Update & Apply to Device

- 步骤 41AP重新启动并且必须以Flex +网桥模式连接回WLC

请注意，此方法首先在本地模式（不执行dot1x身份验证）下加入AP，以应用带网状配置文件的站点标记，然后将AP切换到网桥模式。

要加入滞留在网桥（或Flex+Bridge）模式中的AP，请配置默认方法(`aaa authentication dot1x default local`和`aaa authorization cred default local`)。

然后，AP能够进行身份验证，您随后可以分配标签。

验证

确保AP模式显示为Flex + Bridge，如下图所示。

Configuration > Wireless > Access Points

## All Access Points

Number of AP(s): 2

AP Name	Total Slots	Admin Status	AP Model	Base Radio MAC	AP Mode	Operation Status
[REDACTED]	2	✓	AIR-AP1542I-A-K9	[REDACTED]	Flex+Bridge	Registered

从WLC 9800 CLI运行这些命令并查找AP模式属性。它必须列为Flex+Bridge

```
aaa authorization credential-download mesh-ap local
aaa authentication dot1x mesh-ap local
wireless profile mesh default-mesh-profile
  description "default mesh profile"
wireless tag site meshsite
  ap-profile meshapjoin
  no local-site
ap profile meshapjoin
  hyperlocation ble-beacon 0
  hyperlocation ble-beacon 1
  hyperlocation ble-beacon 2
  hyperlocation ble-beacon 3
  hyperlocation ble-beacon 4
  mesh-profile mesh-profile
```

## 故障排除

确保存在aaa authentication dot1x default local和aaa authorization cred default local命令。如果您的AP未在本地模式下预先加入，则需要这些设置。

9800主控制面板有一个显示无法加入的AP的构件。点击它可获取无法加入的AP列表：

Monitoring > Wireless > AP Statistics

General | **Join Statistics**

Clear Clear All

Number of AP(s): 2

Status "Is equal to" NOT JOINED

Status	Base Radio MAC	Ethernet MAC	AP Name	IP Address
✗	10b3.c622.5d80	2cf8.9b21.18b0	AP2CF8.9B21.18B0	87.66.46.211
✗	7070.8bb4.9200	2c33.110e.6b66	AP2C33.110E.6B66	87.66.46.211

1 - 2 of 2 Join Statistics

单击特定AP以查看未加入的原因。在本例中，我们看到身份验证问题（AP身份验证挂起），因为站点标记未分配到AP。

因此，9800未选择命名身份验证/授权方法对AP进行身份验证：

## Join Statistics ✕

General **Statistics**

### Control DTLS Statistics

DTLS Session request received	179
Established DTLS session	179
Unsuccessful DTLS session	0
Reason for last unsuccessful DTLS session	DTLS Handshake Success
Time at last successful DTLS session	Thu, 19 Dec 2019 13:03:19 GMT
Time at last unsuccessful DTLS session	NA

### Join phase statistics

Join requests received	179
Successful join responses sent	173
Unsuccessful join request processing	0
Reason for last unsuccessful join attempt	Ap auth pending
Time at last successful join attempt	Thu, 19 Dec 2019 12:36:10 GMT
Time at last unsuccessful join attempt	NA

### Configuration phase statistics

Configuration requests received	173
Successful configuration responses sent	4
Unsuccessful configuration request processing	0
Reason for last unsuccessful configuration attempt	Regulatory domain check failed
Time at last successful configuration attempt	Thu, 19 Dec 2019 12:36:10 GMT
Time at last unsuccessful configuration attempt	NA

### Data DTLS Statistics

DTLS Session request received	0
Established DTLS session	0
Unsuccessful DTLS session	0
Reason for last unsuccessful DTLS session	DTLS Handshake Success
Time at last successful DTLS session	NA
Time at last unsuccessful DTLS session	NA

有关更高级的故障排除，请转到Web UI上的Troubleshooting > Radiative Trace页。

如果输入AP MAC地址，您可以立即生成文件来获取尝试加入的AP的永远在线日志（在通知级别）。

单击Start以启用该MAC地址的高级调试。下次生成日志时，将会显示AP加入的调试级别日志。

← Cisco Catalyst 9800-CL Wireless Controller 16.12.1

Troubleshooting > Radioactive Trace

← Back to Troubleshooting Menu

Conditional Debug Global State: **Stopped**

+ Add Delete Start Stop

MAC/IP Address	Trace file	
<input type="checkbox"/> 2c33.110e.6b66	debugTrace_2c33.110e.6b66.txt	<a href="#">Generate</a>

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