

在Flex和网桥模式下为本地数据桥接配置网状AP

目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[配置](#)

[网络图](#)

[将接入点添加到控制器本地数据库](#)

[用于身份验证的AAA方法列表](#)

[用于授权的AAA方法列表](#)

[网状网配置文件](#)

[AP 加入配置文件](#)

[Flex 配置文件](#)

[策略配置文件](#)

[WLAN标记](#)

[策略标签](#)

[站点标签](#)

[接入点配置](#)

[交换机端口配置](#)

[验证](#)

简介

本文档介绍如何在Flex和网桥模式下为本地客户端数据桥接（绕过RAP）配置MAP。

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)
- 思科交换机的配置

使用的组件

此示例使用轻量接入点（9124AP型号），可配置为根接入点(RAP)或网状接入点(MAP)，以便与Catalyst 9800无线LAN控制器(WLC)无缝集成。

本文档中的信息基于以下软件和硬件版本：

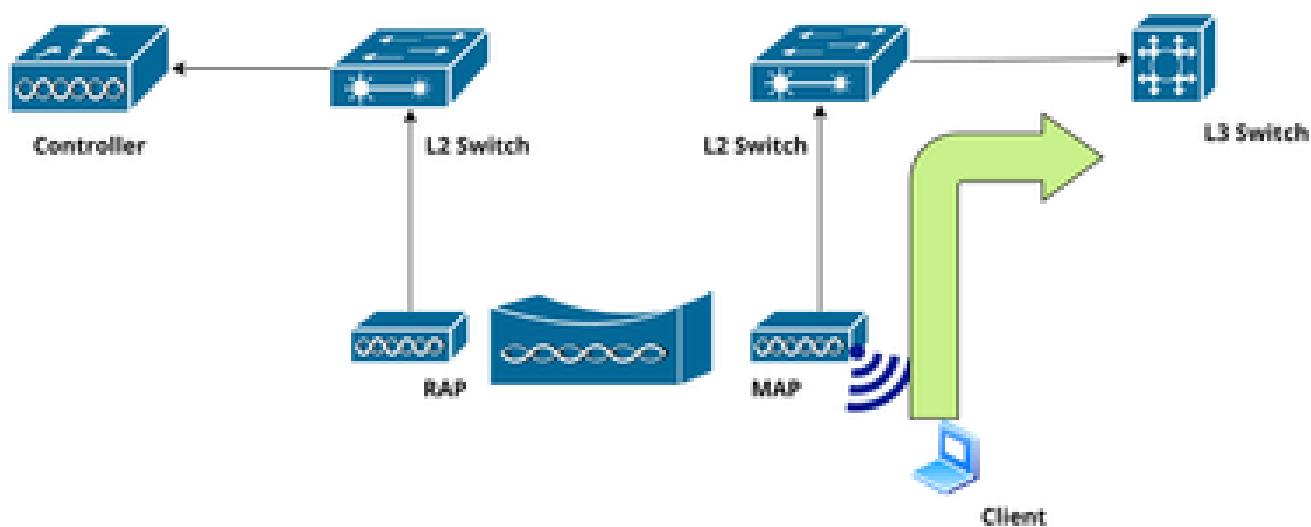
- C9800-L v17.12.5
- Cisco Catalyst 3850 交换机
- Cisco Catalyst 9124AX系列接入点

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

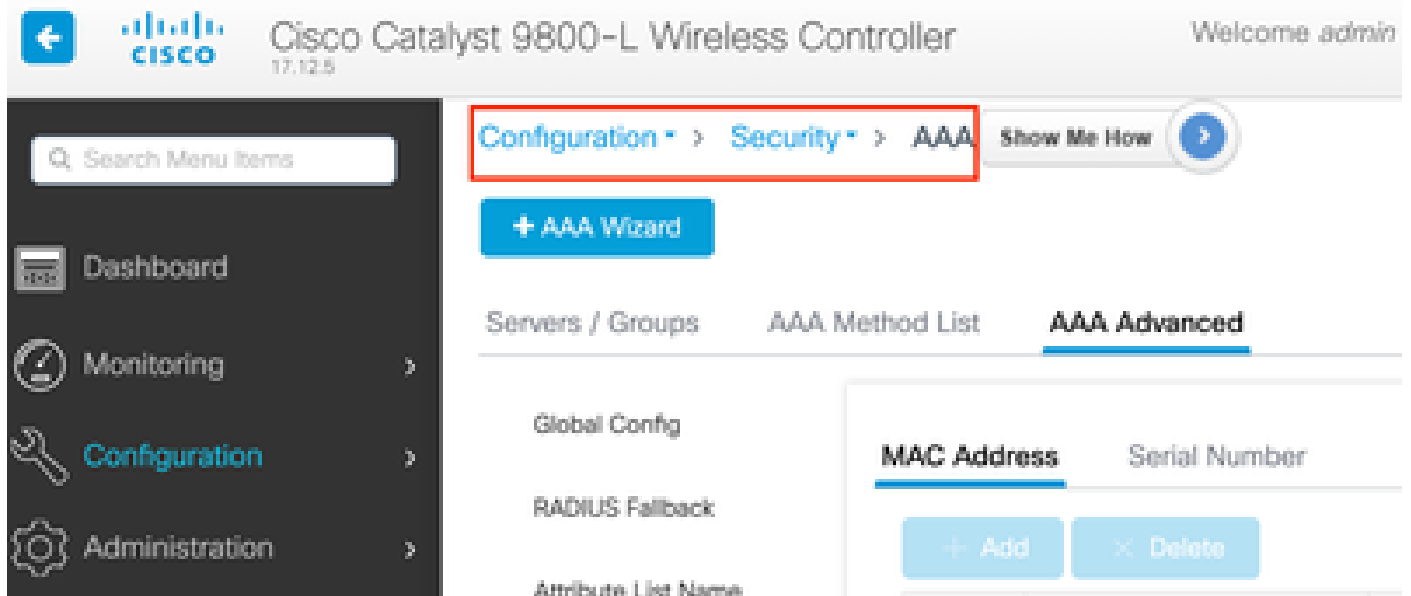
本节概述网状无线接入点(MAP)在网状网+网桥模式下运行的配置，允许绕过根无线接入点(RAP)将本地客户端数据直接桥接到上行链路交换机。

网络图

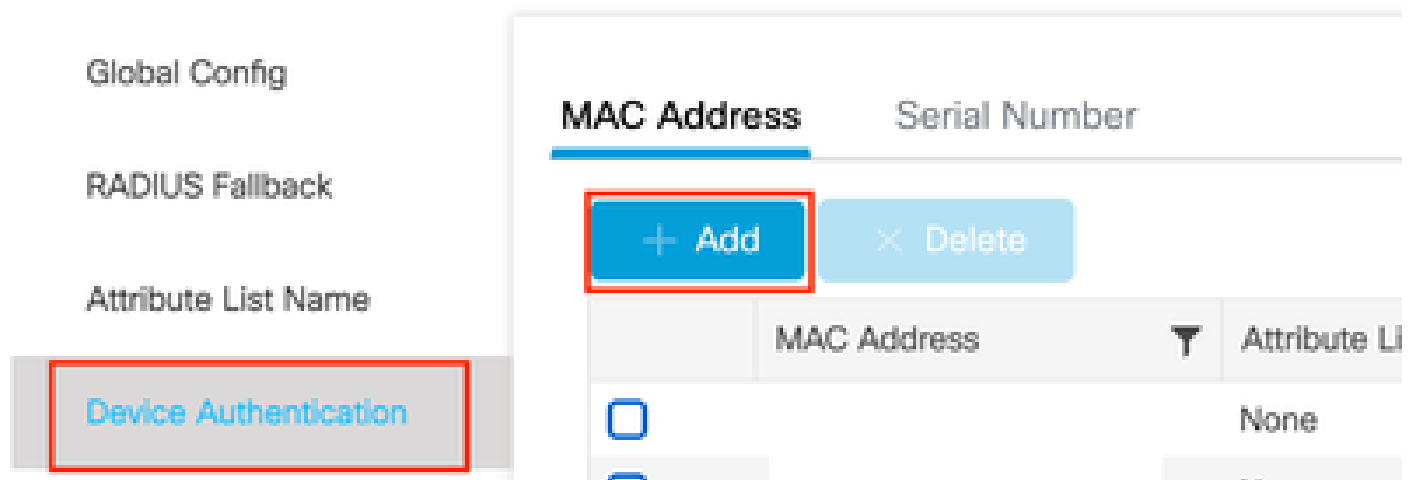


将接入点添加到控制器本地数据库

第1步:导航到Configuration > Security > AAA > AAA Advanced。



步骤2.选择Device Authenticationand selectAdd。



步骤3.键入AP的基本以太网MAC地址以加入WLC。 将Attribute List名称留空，然后选择Apply to Device。

MAC Address* 3a5f1c8e729b

Attribute List Name None

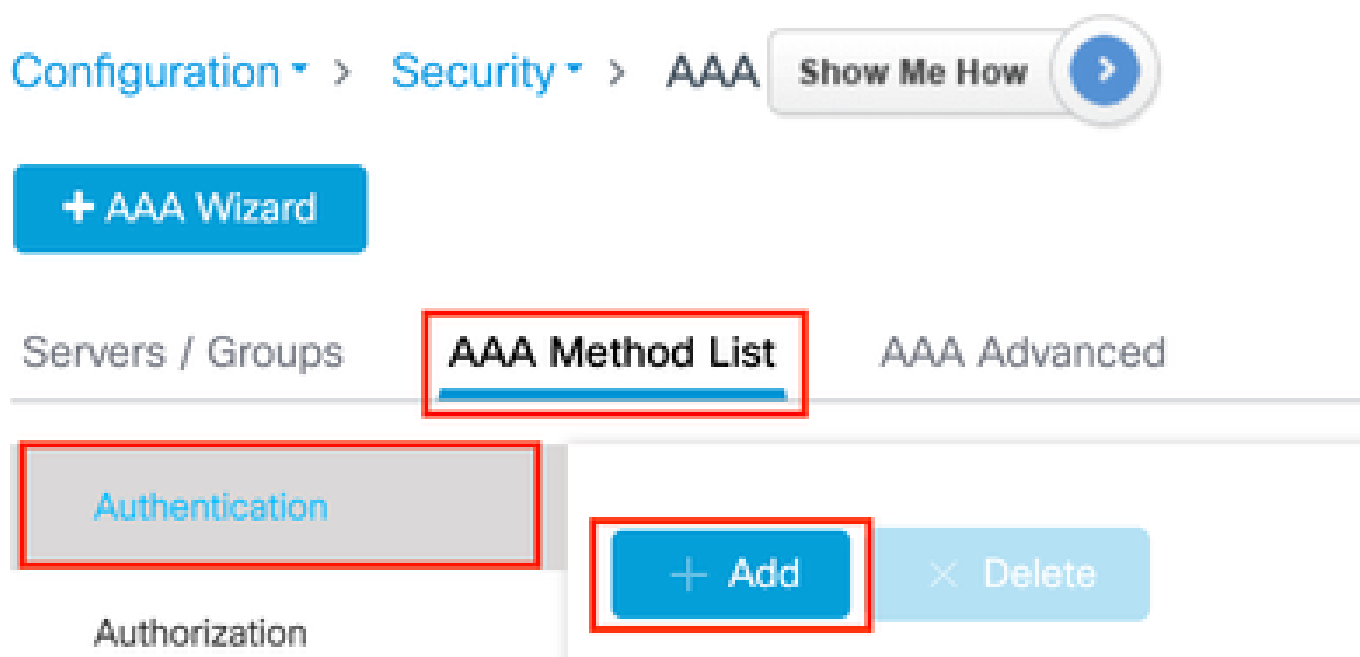
Description

WLAN Profile Name Select a value

Cancel **Apply to Device**

用于身份验证的AAA方法列表

第1步：导航到Configuration > Security > AAA > AAA Method List > Authentication并选择Add。



步骤 2：定义方法列表名称。从Type*下拉菜单中选择dot1x，然后选择group Type的local。选择Apply to Device保存配置。

Method List Name*	MESH		
Type*	dot1x		
Group Type	local		
Available Server Groups	Assigned Server Groups		
radius ldap tacacs+ HTTSGROUP ISE_DD_Group ISE_HA Test	> < > <		+ + + +

Cancel

Update & Apply to Device

用于授权的AAA方法列表

第1步：导航到Configuration > Security > AAA > AAA Method List > Authorization并选择Add。

+ AAA Wizard

Servers / Groups

AAA Method List

AAA Advanced

Authentication

Authorization

Accounting

+ Add

× Delete

	Name	Type
	default	EXEC

步骤 2：定义方法列表名称，从Type*下拉列表和local中选择credential download(本地模式)。单击Apply to Device。

Method List Name*	MESH-Authorization
Type*	credential-downlo... ⓘ
Group Type	local ⓘ
Authenticated	☐
Available Server Groups	Assigned Server Groups
radius ldap tacacs+ HTTSGROUP ISE_DD_Group ISE_HA Test	

Cancel

Update & Apply to Device

网状网配置文件

第1步：导航至Configuration > Wireless > Mesh > Profiles并选择Add。

Configuration ▾ > Wireless ▾ > Mesh

Global Config

Profiles

+ Add

× Delete

步骤 2：在General选项卡下，定义Mesh配置文件的名称和说明(可选)。

General

Advanced

Name*

MESH-Profile

Description

Enter Description

Range (Root AP to Mesh AP)

12000

Multicast Mode

In-Out ▼

IDS (Rogue/Signature Detection)

☐

第3步：在Advanced选项卡中，将Method字段设置为EAP，然后从下拉菜单中选择之前创建的Authorization和Authentication profiles。最后，启用以太网桥接复选框并选择更新和应用。

General **Advanced**

Security

Method

EAP

Authentication Method

MESH

Authorization Method

MESH-Authorizati...

Ethernet Bridging

VLAN Transparent

☐

Ethernet Bridging

☒

AP 加入配置文件

步骤 1：导航到Configuration > Tag & Profiles > AP Join > Profile，点击Add。

Configuration > Tags & Profiles > AP Join

+ Add

× Delete

Clone

AP Join Profile Name

步骤 2：定义配置文件名称和说明（可选）。

General

Client

CAPWAP

AP

Management

S

Name*

Mesh-AP-Join

Description

Enter Description

Country Code

IN

Time Zone

☒ Not Configured

☐ Use-Controller

☐ Delta from WLC

第3步：导航到AP选项卡，从Mesh Profile Name下拉列表中选择Mesh Profile，为EAP Type设置EAP-FAST，为AP Authorization Type设置CAPWAP DTLS，然后点击Apply to Device。

Edit AP Join Profile

General

Client

CAPWAP

AP

Management

Security

ICap

QoS

Geolocation

General

Power Management

Hyperlocation

AP Statistics

Power Over Ethernet

Switch Flag

☐

Power Injector State

☐

Power Injector Type

Unknown

Injector Switch MAC

0000.0000.0000

AP EAP Auth Configuration

EAP Type

EAP-FAST

AP Authorization Type

CAPWAP DTLS

Client Statistics Reporting Interval

5 GHz (sec)

90

2.4 GHz (sec)

90

Extended Module

Enable

☐

Mesh

Profile Name

MESH-Profile

Cancel

Update & Apply to Device

Flex 配置文件

第1步：Configuration > Tags & Profiles > Flex，然后点击Add。

Configuration > Tags & Profiles > Flex

+ Add

× Delete

Clone

步骤 2：定义Flex配置文件的名称。

General	Local Authentication	Policy ACL	VLAN	DNS Layer Security
Name*	Mesh-Flex		Fallback Radio Shut	
Description	Enter Description		Flex Resilient	

步骤 3：导航到vlan选项卡并配置VLAN名称和VLAN ID用于无线客户端流量的本地桥接，然后点击保存。

General	Local Authentication	Policy ACL	VLAN	DNS Layer Security								
+ Add - Delete <table border="1"> <thead> <tr> <th>VLAN Name</th> <th>ID</th> <th>Ingress ACL</th> <th>Egress ACL</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10</td> <td></td> <td></td> </tr> </tbody> </table> VLAN Name* Bridge-VLAN VLAN ID* 100 ACL ☒ Unidirectional ☐ Bidirectional Ingress ACL Select ACL Egress ACL Select ACL Save Cancel					VLAN Name	ID	Ingress ACL	Egress ACL	0	10		
VLAN Name	ID	Ingress ACL	Egress ACL									
0	10											

Cancel

Update & Apply to Device

策略配置文件

步骤 1：导航到Configuration > Tags & Profiles > Policy，然后点击Add。

Configuration ▾ > Tags & Profiles ▾ > Policy

+ Add

× Delete

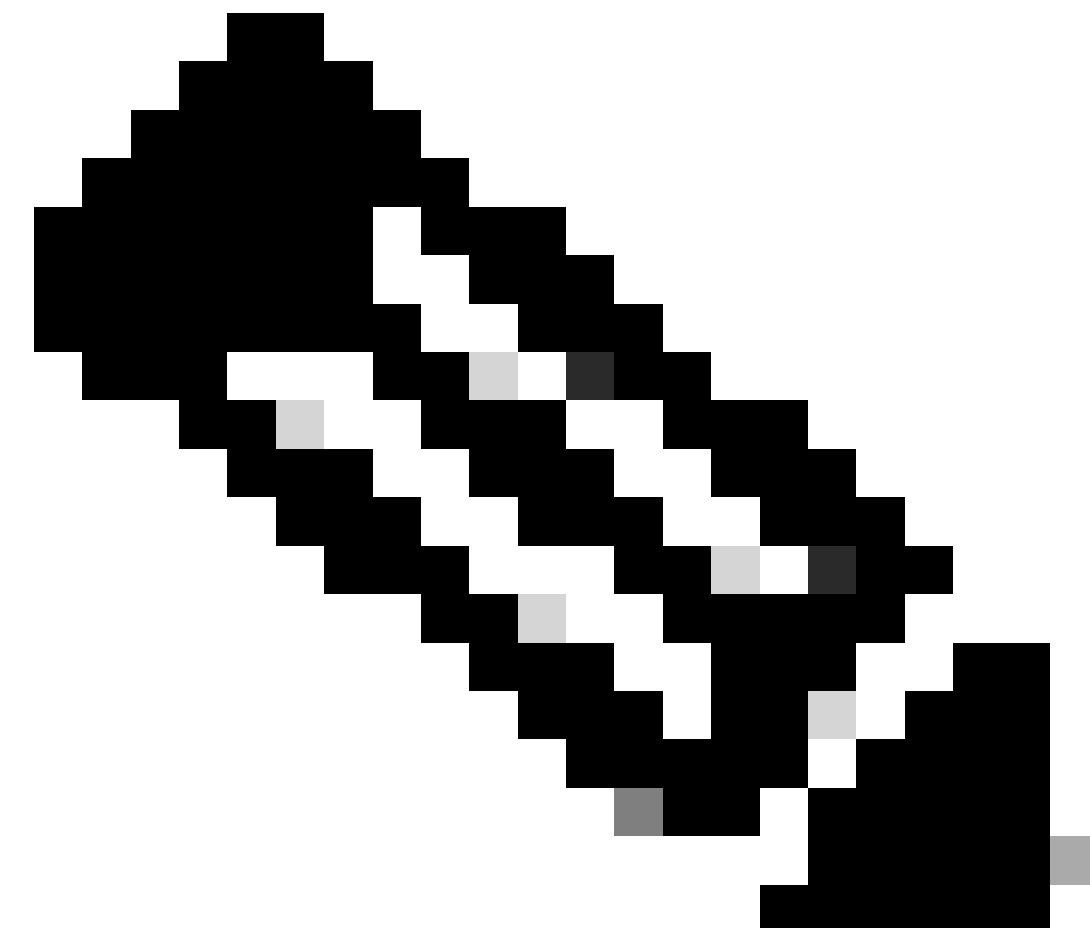
Clone

Admin
Status ▾

Associated
Policy Tags ⓘ ▾

Policy Profile Name

步骤 2：在General选项卡下，定义配置文件名称，将Status设置为Enabled,Disable Central Switching。



注意：要启用客户端流量的本地桥接，必须禁用中央交换。根据SSID配置，可根据需要启用或禁用其他选项。

General

Access Policies

QoS and AWC

Mobility

Advanced

Name*

Bridge-Policy

Description

Enter Description

Status

ENABLED

Passive Client

DISABLED

IP MAC Binding

ENABLED

Encrypted Traffic Analytics

DISABLED

CTS Policy

Inline Tagging

☐

SGACL Enforcement

☐

Default SGT

2-65519

WLAN Switching Policy

Central Switching

DISABLED

Central Authentication

ENABLED

Central DHCP

DISABLED

Flex NAT/PAT

DISABLED

Cancel

Update & Apply to Device

第3步：配置AP Flex配置文件的VLAN选项卡下指定的VLAN，然后单击Update & Apply。

General
Access Policies
QoS and AVC
Mobility
Advanced

RADIUS Profiling
☐

HTTP TLV Caching
☐

DHCP TLV Caching
☐

WLAN Local Profiling

Global State of Device Classification
Enabled ⓘ

Local Subscriber Policy Name
 ⓘ

VLAN

VLAN/VLAN Group
 ⓘ

Multicast VLAN

WLAN ACL

IPv4 ACL
 ⓘ

IPv6 ACL
 ⓘ

URL Filters

Pre Auth
 ⓘ

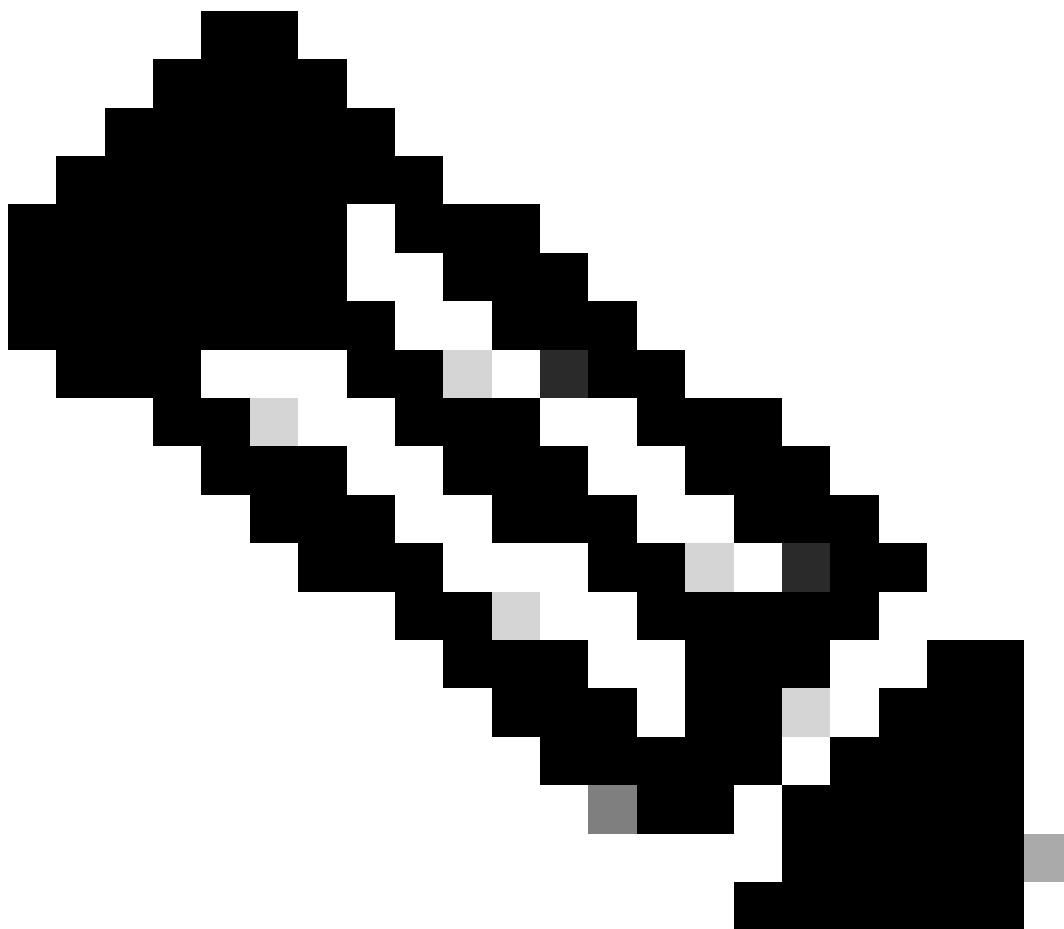
Post Auth
 ⓘ

WLAN标记

步骤 1：导航到Configuration > Tags & Profiles > WLANs并选择Add。

步骤 2：在General选项卡下，配置Profile name、SSID并将状态设置为enabled。

步骤 3：选择Security选项卡Enable WAP+WPA2并配置预共享密钥。



注意：SSID配置完全取决于您的要求。在本示例中，配置了一个基于PSK的SSID。

General

Security

Advanced

Add To Policy Tags

Profile Name*

Bridge

R

SSID*

Bridge-SSID

WLAN ID*

6

6

St

Status

ENABLED



Broadcast SSID

ENABLED



5

St

Add Policy Tag

Name*

Mesh-Policy-Tag

Description

Enter Description

WLAN-POLICY Maps: 0

+ Add

× Delete

WLAN Profile

Policy Profile

10

No items to display

Map WLAN and Policy

WLAN Profile*

Bridge

Policy Profile*

Bridge-Policy

×

✓

> RLAN-POLICY Maps: 0

Cancel

Apply to Device

站点标签

步骤 1：导航到Configuration > Tags & Profiles > Tags > Site，然后单击Add。

Configuration > Tags & Profiles > Tags

Policy

Site

RF

AP

+ Add

× Delete

Clone

第2步：配置标记名称，禁用启用本地站点选项，并将AP加入配置文件和Flex配置文件相关联。

Edit Site Tag

Name*

Mesh-Site-Tag

Description

Enter Description

AP Join Profile

Mesh-AP-Join

Flex Profile

Mesh-Flex

Fabric Control Plane Name

Enable Local Site

Load* ⓘ

Cancel

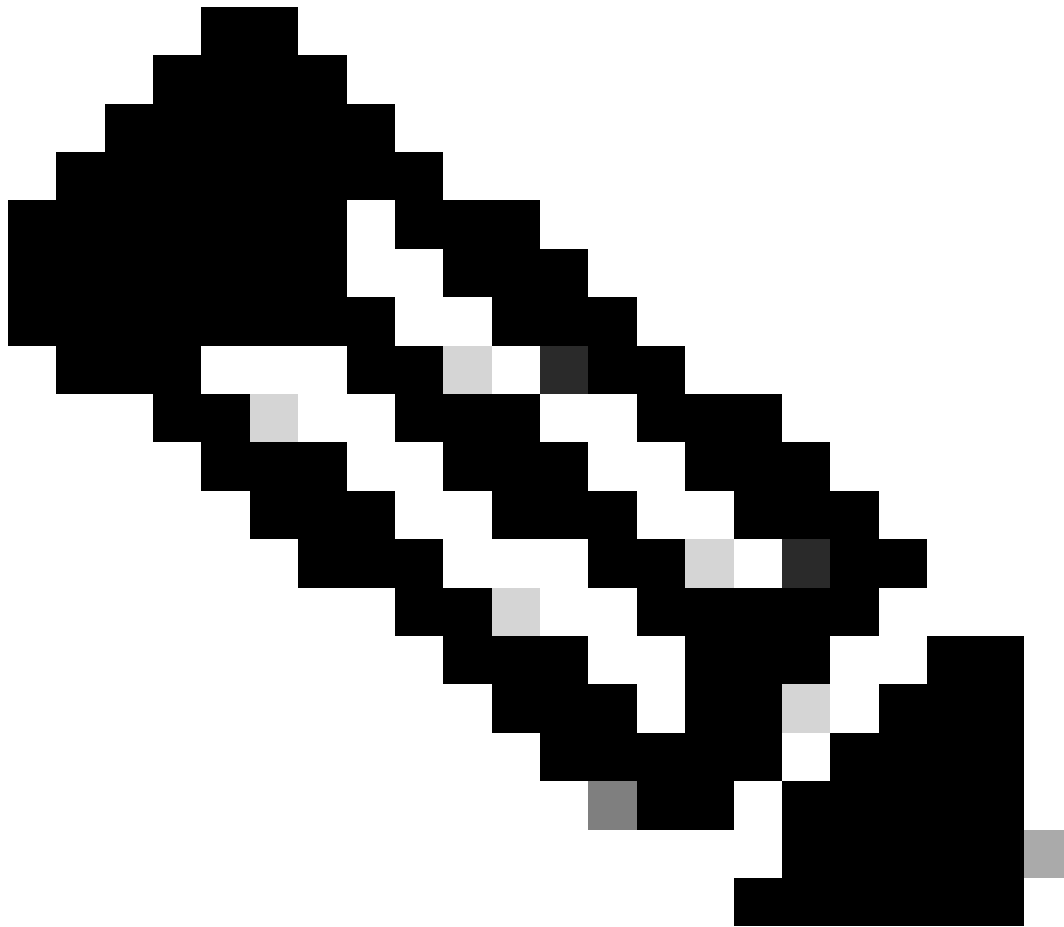
Update & Apply to Device

接入点配置

本案例研究假设接入点(AP)首先以本地模式连接到无线局域网控制器(WLC)，然后转换为Flex+Bridge模式。

步骤 1：导航到配置 > 无线 > 接入点，然后选择AP。

步骤 2：将Site Tag和Policy Tag分配给接入点(AP)。



注意：接入点(AP)重新启动，在Flex+Bridge模式下与控制器建立连接，Mesh选项卡可用。

General		Tags	
AP Name*	AP34B8.8314.A204	 Changing Tags will cause the AP to momentarily lose association with the Controller. Writing Tag Config to AP is not allowed while changing Tags.	
Location*	default location		
Base Radio MAC	34b8.83fd.05a0		
Ethernet MAC	34b8.8314.a204	Policy	Mesh-Policy-Tag 
Admin Status	ENABLED 	Site	Mesh-Site-Tag 

步骤 3：在Mesh选项卡下，选择要根的角色

Edit AP

General

Interfaces

High Availability

Inventory

Geolocation

Mesh

Advanced

Support Bundle

General

Ethernet Port Configuration

Block Child

☐

Daisy Chaining

☐

Daisy Chaining strict-RAP

☐

Preferred Parent MAC

0000.0000.0000

Role

Root

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

Port

0

Mode

access

VLAN ID*

0

Remove PSK

步骤 4：对指定用作网状AP的接入点(AP)重复步骤1和2，使其在Flex+Bridge模式下联机。导航到 Mesh选项卡并将角色配置为 Mesh。

步骤 5：网状无线接入点连接到端口0上的交换机，配置为中继模式，且AP的VLAN设置为本地 VLAN。确保允许的VLAN包括在Flex配置文件中指定的客户端VLAN。

步骤 6：单击Update and Apply。

General

Interfaces

High Availability

Inventory

Geolocation

Mesh

Advanced

Support Bundle

General

Ethernet Port Configuration

Block Child

☐

Daisy Chaining

☐

Daisy Chaining strict-RAP

☐

Preferred Parent MAC

0000.0000.0000

Role

Mesh

Remove PSK

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

Port

0

Mode

trunk

Native VLAN ID*

2074

Allowed VLAN IDs

100

交换机端口配置

```

interface GigabitEthernet1/0/4
switchport trunk allowed vlan 100
switchport mode trunk
end

```

验证

网状AP与根AP关联：

```

#show wireless mesh ap summary
AP Name AP Model BVI MAC BGN AP Role
-----
AP34B8.8314.A204 C9124AXI-ROW 34b8.8314.a204 Default Root AP
APC828.E536.D47C C9124AXI-ROW c828.e536.d47c Default Mesh AP
Number of Flex+Bridge APs : 2
Number of Flex+Bridge RAPs : 1
Number of Flex+Bridge MAPs : 1

```

```

#show wireless mesh ap tree
=====
AP Name [Hop Ctr,Link SNR,BG Name,Channel,Pref Parent,Chan Util,Clients]
=====
[Sector 1]
-----
AP34B8.8314.A204 [0, 0, Default, (36,40), 0000.0000.0000, 5%, 0]
|-APC828.E536.D47C [1, 68, Default, (36,40), 0000.0000.0000, 6%, 0]

Number of Bridge APs : 2
Number of RAPs : 1
Number of MAPs : 1

```

网状AP上的客户端关联：

```

#show flexconnect client
Flexconnect Clients:
mac radio vap aid state encr aaa-vlan aaa-ac1 aaa-ipv6-ac1 assoc auth switching key-method roam key-pro
52:95:C7:EE:B7:E5 0 0 1 FWD AES_CCM128 none none none Local Central Local Other regular No Yes No 0

#show controllers dot11Radio 0 client
mac radio vap aid state encr Maxrate Assoc Cap is_wgb_wired wgb_mac_addr
52:95:C7:EE:B7:E5 0 0 1 FWD AES_CCM128 MCS92SS HE HE false 00:00:00:00:00:00

#show flexconnect client aaa-override
Flexconnect Clients:
mac vlan qos ac1 ipv6-ac1 vlan-name avgdtlds avgrtdtlds bstdtlds bstrtdtlds avgdtus avgrtdtus bstdtus bstrt
52:95:C7:EE:B7:E5 none none none none Bridge-VLAN 0 0 0 0 0 0 0 0

```

来自网状无线接入点(MAP)的流量会绕过根无线接入点(RAP)，直接桥接到上行链路交换机：

<#root>

DHCP:

May 30 04:25:21 APC828.E536.D47C kernel: [*05/30/2025 04:25:21.2883] [62081:607119] [APC828.E536.D47C]

[U:C] DHCP_REQUEST : TransId 0x3bcb0a7b

May 30 04:25:21 APC828.E536.D47C kernel: [*05/30/2025 04:25:21.2884] chatter: dhcp_req_local_sw_nonat: 1

May 30 04:25:21 APC828.E536.D47C kernel: [*05/30/2025 04:25:21.2885] [62081:607245] [APC828.E536.D47C]

[U:C] DHCP_REQUEST : TransId 0x3bcb0a7b

May 30 04:25:21 APC828.E536.D47C kernel: [*05/30/2025 04:25:21.2885] chatter: dhcp_reply_nonat: 17485791

May 30 04:25:21 APC828.E536.D47C kernel: [*05/30/2025 04:25:21.2943] [62081:613080] [APC828.E536.D47C]

[D:C] DHCP_ACK : TransId 0x3bcb0a7b

May 30 04:25:21 APC828.E536.D47C kernel: [*05/30/2025 04:25:21.2943] [62081:613123] [APC828.E536.D47C]

[D:W] DHCP_ACK : TransId 0x3bcb0a7b

ARP:

May 30 04:31:44 APC828.E536.D47C kernel: [*05/30/2025 04:31:44.0572] [62464:537183] [APC828.E536.D47C]

[U:W] ARP_QUERY : Sender 100.0.0.2 TargIp 100.0.0.1

May 30 04:31:44 APC828.E536.D47C kernel: [*05/30/2025 04:31:44.0572] [62464:537219] [APC828.E536.D47C]

[U:C] ARP_QUERY : Sender 100.0.0.2 TargIp 100.0.0.1

May 30 04:31:44 APC828.E536.D47C kernel: [*05/30/2025 04:31:44.0573] chatter: ethertype_cl1: 1748579504.

May 30 04:31:44 APC828.E536.D47C kernel: [*05/30/2025 04:31:44.0628] [62464:542842] [APC828.E536.D47C]

[D:C] ARP_REPLY : Sender 100.0.0.1 HwAddr c4:44:a0:a2:61:d1

May 30 04:31:44 APC828.E536.D47C kernel: [*05/30/2025 04:31:44.0629] chatter: fromdevs_arp_resp: arp rep

May 30 04:31:44 APC828.E536.D47C kernel: [*05/30/2025 04:31:44.0629] [62464:542971] [APC828.E536.D47C]

[D:C] ARP_REPLY : Sender 100.0.0.1 HwAddr c4:44:a0:a2:61:d1

May 30 04:31:44 APC828.E536.D47C kernel: [*05/30/2025 04:31:44.0630] [62464:543018] [APC828.E536.D47C]

[D:W] ARP_REPLY : Sender 100.0.0.1 HwAddr c4:44:a0:a2:61:d1

May 30 04:31:45 APC828.E536.D47C kernel: [*05/30/2025 04:31:45.4301] [62465:910100] [APC828.E536.D47C]

[D:A] ARP_REPLY : Sender 100.0.0.1 HwAddr c4:44:a0:a2:61:d1

ICMP:

May 30 04:32:09 APC828.E536.D47C kernel: [*05/30/2025 04:32:09.3059] [62489:785903] [APC828.E536.D47C]

[U:W] ICMP_ECHO : Id 39016 Seq 0

May 30 04:32:09 APC828.E536.D47C kernel: [*05/30/2025 04:32:09.3059] [62489:785938] [APC828.E536.D47C]

[U:C] ICMP_ECHO : Id 39016 Seq 0

May 30 04:32:09 APC828.E536.D47C kernel: [*05/30/2025 04:32:09.3104] [62489:790444] [APC828.E536.D47C]

[D:C] ICMP_ECHO_REPLY : Id 39016 Seq 0

May 30 04:32:09 APC828.E536.D47C kernel: [*05/30/2025 04:32:09.3105] [62489:790534] [APC828.E536.D47C]

[D:C] ICMP_ECHO_REPLY : Id 39016 Seq 0

May 30 04:32:09 APC828.E536.D47C kernel: [*05/30/2025 04:32:09.3105] [62489:790583] [APC828.E536.D47C]

[D:W] ICMP_ECHO_REPLY : Id 39016 Seq 0

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。

请注意：即使是最好的机器翻译，其准确度也不及专业翻译人员的水平。

Cisco Systems, Inc. 对于翻译的准确性不承担任何责任，并建议您总是参考英文原始文档（已提供链接）。