在带有C9124接入点的嵌入式无线控制器上配置 带有以太网桥接的点对点网状链路

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简介

本文档介绍如何在带有C9124接入点的嵌入式无线控制器(eWC)上配置带有以太网桥接的P2P网状 链路。

先决条件

要求

Cisco 建议您了解以下主题:

- 思科无线局域网控制器(WLC) 9800。
- Cisco Catalyst接入点(AP)。
- Catalyst接入点上的嵌入式无线控制器。
- 网状技术。

使用的组件

本文档中的信息基于以下软件和硬件版本:

- EWC IOS® XE 17.12.2。
- 2个AP C9124。
- 2个馈电器AIR-PWRINJ-60RGD1。
- 2台交换机;
- •2台笔记本电脑;
- 1个AP C9115。

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。

背景信息

以太网桥接

网状网络解决方案是思科统一无线网络解决方案的一部分,可让两个或多个思科网状无线接入点 (以下称为网状无线接入点)通过一个或多个无线跳点相互通信,以加入多个LAN或扩展WiFi覆盖 。

Cisco MAP通过网状网络解决方案中部署的任何思科无线LAN控制器进行配置、监控和操作。

支持的网状网络解决方案部署为以下三种常见类型之一:

- 点对点部署
- 点对多点部署
- 网状部署

本文档重点介绍如何在同一交换机上配置点对点网状网部署和以太网桥接。

在点对点网状网部署中,网状无线接入点为无线客户端提供无线接入和回传,并可同时支持一个 LAN和终端到远程以太网设备或其他以太网LAN的桥接。



有关每种部署类型的详细信息,请参阅<u>Cisco Catalyst 9800系列无线控制器的网状网部署指南</u>。

Cisco Catalyst 9124系列室外网状AP是一种无线设备,专用于无线客户端访问和点对点桥接、点对 多点桥接和点对多点网状无线连接。

室外接入点是一种可以安装在墙壁或突出物、屋顶桅杆或者路灯桅杆上的独立单元。

您可以在以下网状网角色之一中运行C9124:

- 屋顶接入点 (RAP)
- 网状无线接入点(MAP)

RAP通过有线方式连接到思科无线局域网控制器。它们使用回传无线接口与附近的MAP通信。 RAP是任何桥接或网状网络的父节点,并将网桥或网状网络连接到有线网络,因此任何桥接或网状 网段只能有一个RAP。

MAP没有到思科无线局域网控制器的有线连接。它们可以是完全无线的并且支持与其他MAP或 RAP通信的客户端,或者可用于连接外围设备或有线网络。

Catalyst接入点上的嵌入式无线控制器

Catalyst接入点上的思科嵌入式无线控制器(EWC)是集成到Cisco Catalyst 9100接入点的基于软件的 控制器。

在Cisco EWC网络中,运行无线控制器功能的接入点(AP)被指定为活动AP。

由此活动AP管理的其它接入点称为从属AP。

活动EWC有两个角色:

● 充当无线LAN控制器(WLC)并对其进行管理和控制。从属AP作为轻型接入点运行,为客户端提供 服务。

● 它充当接入点以便为客户端提供服务。

有关AP上EWC的产品概述,请访问<u>Catalyst接入点上的思科嵌入式无线控制器数据表</u>。

要了解如何在网络上部署EWC,请访问<u>Catalyst接入点上的思科嵌入式无线控制器(EWC)白皮书</u>。

本文档重点介绍C9124作为EWC,并假设EWC模式下已有AP 9124。

配置

网络图

此网络中的所有设备都位于192.168.100.0/24子网内,但位于VLAN 101且子网为 192.168.101.0/25的笔记本电脑除外。

EWC AP (WLC)的管理接口未标记,并且交换机端口上的本地VLAN设置为VLAN 100。

AP9124_RAP具有eWC和根接入点(RAP)角色,而AP9124_MAP则具有MAP角色。

在本实验中,AP C9115也放置在MAP的后面,以展示我们可以让AP通过网状链路加入WLC。

此表包含网络中所有设备的IP地址:

注意:标记管理接口可能会导致AP加入内部WLC进程出现问题。如果您决定标记管理接口 ,请确保相应地配置有线基础设施部分。

设备	IP Address
默认网关	VLAN 100上的静态地址:192.168.100.1
笔记本电脑1	VLAN 101上的DHCP
笔记本电脑2	VLAN 101上的DHCP
Switch1(DHCP服务器)	VLAN 100 SVI:静态VLAN 100:192.168.100.1(DHCP服务器)
Switch1(DHCP服务器)	VLAN 101 SVI:VLAN 101上的静态 :192.168.101.1(DHCP服务器)
交换机2	VLAN 100 SVI:VLAN 100上的DHCP
交换机2	VLAN 101 SVI:VLAN 101上的DHCP
9124EWC	VLAN 100上的静态:192.168.100.40
AP9124_RAP	VLAN 100上的DHCP
AP9124_MAP	VLAN 100上的DHCP
AP9115	VLAN 100上的DHCP



网络图



注意:C9124 AP使用AIR-PWRINJ-60RGD1以及<u>Cisco Catalyst 9124AX系列室外接入点硬</u> 件安装指南中的准则供电。

配置

本文档假设已经存在运行EWC的AP 9124,根据<u>Catalyst接入点(EWC)上的思科嵌入式无线控制器</u> 完成<u>了</u>初始部署。

有关转换过程的其他提示和诀窍,请查看将Catalyst 9100接入点转换为嵌入式无线控制器文档。

交换机配置

以下是交换机的相关配置。

连接AP的交换机端口处于中继模式,本地VLAN设置为100并允许VLAN 101。

在暂存AP期间,您需要将MAP配置为MAP,因此您需要使AP通过以太网加入eWC。此处我们使用

Switch1端口G1/0/2暂存MAP。试运行后,MAP将移动到Switch2。

连接笔记本电脑的交换机端口配置为VLAN 101的接入端口。

交换机1:

```
ip dhcp excluded-address 192.168.101.1 192.168.101.10
ip dhcp excluded-address 192.168.100.1 192.168.100.10
1
ip dhcp pool AP_VLAN100
network 192.168.100.0 255.255.255.0
default-router 192.168.100.1
dns-server 192.168.1.254
I
ip dhcp pool VLAN101
network 192.168.101.0 255.255.255.0
default-router 192.168.101.1
dns-server 192.168.1.254
Т
interface GigabitEthernet1/0/1
 description AP9124_RAP (EWC)
 switchport trunk native vlan 100
 switchport trunk allowed vlan 100,101
 switchport mode trunk
 end
interface GigabitEthernet1/0/2
 description AP9124_MAP_Staging
 switchport trunk native vlan 100
 switchport trunk allowed vlan 100,101
 switchport mode trunk
 end
interface GigabitEthernet1/0/8
 description laptop1
 switchport access vlan 101
 switchport mode access
 spanning-tree portfast edge
 end
```

交换机2:

```
interface GigabitEthernet0/1
description AP9124_MAP
switchport trunk native vlan 100
switchport trunk allowed vlan 100,101
switchport mode trunk
end
interface GigabitEthernet0/8
description laptop2
switchport access vlan 101
switchport mode access
spanning-tree portfast edge
end
interface GigabitEthernet0/1
description AP9115
```

```
switchport trunk native vlan 100
switchport trunk allowed vlan 100,101
switchport mode trunk
end
```

EWC和RAP配置

配置EWC AP的Day0后,嵌入式AP需要加入自身。

1. 将根AP和网状AP的以太网MAC地址添加到设备身份验证。转至Configuration > Security > AAA > AAA Advanced > Device Authentication,单击+Add:

Q Search Menu Items	Configuration * > Security * > AA	Configuration * > Security * > AAA										
ashboard	+ AAA Wizard											
Monitoring >	Servers / Groups AAA Method List AAA Advanced											
Configuration	Global Config	MAC Address	s Serial Number									
O Administration	RADIUS Fallback	+ Add	× Delete		Po Select Fi	le		① Lupk	ad File			
C Licensing	Attribute List Name		MAC Address	T	Attribute List Name	Ŧ	Description	٦	WLAN Profile	Ŧ		
	Device Authentication		3c5731c5ac2c		None		MeshAP-RootAP					
X Troubleshooting	AP Policy	0	3c5731c5a9f8		None		MeshAP-MAP					
	Password Policy	H 4	1 > ∺ 10 •							1 - 2 of 2 items		
	AAA Interface											

设备身份验证中的MAC地址

CLI命令

```
9124EWC(config)#username 3c5731c5ac2c mac description MeshAP-RootAP
9124EWC(config)#username 3c5731c5a9f8 mac description MeshAP-MAP
```

从AP CLI运行"show controllers wired 0"命令可确认以太网MAC地址。根AP示例:

AP3C57.31C5.AC2C#show controllers wired 0 wired0 Link encap:Ethernet HWaddr 3C:57:31:C5:AC:2C

使用命令wireless ewc-ap ap shell username x可以完成基础AP shell的访问,如下所示:

9124EWC#wireless ewc-ap ap shell username admin [...] admin@192.168.255.253's password: AP3C57.31C5.AC2C>en Password: AP3C57.31C5.AC2C# AP3C57.31C5.AC2C#logout Connection to 192.168.255.253 closed. 9124EWC#



注意:此命令相当于之前在 Mobility Express 控制器中可用的 apciscoshell。 如果在AP配置文件中未指定AP管理用户名和口令,请使用默认用户名Cisco和口令Cisco。

2. 添加身份验证和授权方法:

Q Search Menu Items	Configuration * > Security * > A	АА		
Dashboard	+ AAA Wizard			
Monitoring	Servers / Groups AAA Method	List AAA Advanced Quick Setup: AAA Authentio	cation	×
	Authentication	Method List Name*	MESH_Authentication	
	Authorization	Type*	dot1x v (i)	
C Licensing	Accounting	Group Type	local v	
X Troubleshooting		Available Server Groups	Assigned Server Groups	
		radius A Idap tacacs+		
		v	< × ×	
		Cancel	₽	ply to Device

身份验证方法列表

٩	Search Menu Items		Configuration * > S	ecurity* > AA	A						
			+ AAA Wizard								
G		>	Servers / Groups	AAA Method L	Quick Setup: AAA Aut	horizatio	on				×
z		>	Authentication		Method List Name*		MESH_Authorization]			
ත		>			Type*		credential-download 👻	í			22
Ô			Accounting		Group Type		ocal 🔻	i			
~					Authenticated)				
8					Available Server Groups		Assigned Se	erver Groups			
					Idap tacacs+		>			×	
							>				
						Ψ.	«		Ψ.	ž	
					D Cancel						y to Device

授权方法列表

CLI命令

9124EWC(config)#aaa authentication dot1x MESH_Authentication local 9124EWC(config)#aaa authorization credential-download MESH_Authorization local

3. 转至配置 > 无线 > 网状。由于本文档中的设置需要以太网桥接,请启用以太网桥接允许BPDU:

Q. Search Menu Items	Configuration * > Wireless * > Mesh											
Dashboard	Global Config Profiles											
Monitoring >	General			Alarm		🖹 Apply						
Configuration	Ethernet Bridging Allow BPDU	Ø		Max Hop Count	4							
Administration	Subset Channel Sync Backhaul	D		Recommended Max Children for MAP	10							
C Licensing	Extended UNII B Domain Channels	o		Recommended Max Children for RAP Parent Change Count	3							
	RRM	0		Low Link SNR (dB)	12							
	Security	U		High Link SNR (dB)	60							
Wulk Me Through >	PSK Provisioning	D		Association Count	10							
	Default PSK	O										

以太网桥接允许BPDU

CLI命令

9124EWC(config)#wireless mesh ethernet-bridging allow-bdpu



注意:默认情况下,网状AP不通过网状链路转发BPDU。

如果两个站点之间没有任何冗余链路,则不需要此链路。

如果有冗余链路,则需要允许BPDU。如果不这样做,就有可能在网络中形成STP环路。

4. 配置default-mesh-profile,在其中选择先前配置的AAA身份验证和授权方法。单击并编辑default-mesh-profile。

转到高级选项卡并选择身份验证和授权方法。启用选项Ethernet Briding。

Q. Search Menu Items	Configuration * > Wireless * > Mesh	Edit Mesh Profile			×				
Dashboard	Global Config Profiles	Changes in the configuration for Security Mode, BGN, Client-Access, and Range will reload associated APs, except Primary AP Primary AP requires controller save and reload for the changes to take effect. Controller can be reloaded from 'Administration -> Management -> Backup & Restore -> Reload'							
Configuration	Number of Profiles : 1 Name Y Bridge Group Name	General Advanced		5 GHz Band Backhaul					
 (⊙) Administration → (©) Licensing 	default-mesh-profile	Method Authentication Method	EAP •	Rate Types 2.4 GHz Band Backhaul	auto 🔹				
X Troubleshooting		Authorization Method Ethernet Bridging	MESH_Authorizati 🗸 💈	Rate Types Fast Roaming	auto 🔻				
Walk Me Through 3		VLAN Transparent Ethernet Bridging	0	Fast Teardown	0				
		Bridge Group							
		Bridge Group Name Strict Match	Enter Name						
		T Cancel			T Update & Apply to Device				

编辑default-map-profile

CLI命令

```
9124EWC(config)#wireless profile mesh default-mesh-profile
9124EWC(config-wireless-mesh-profile)#description "default mesh profile"
9124EWC(config-wireless-mesh-profile)#ethernet-bridging
9124EWC(config-wireless-mesh-profile)#ethernet-vlan-transparent
9124EWC(config-wireless-mesh-profile)#method authentication MESH_Authentication
9124EWC(config-wireless-mesh-profile)#method authorization MESH_Authentication
```

选项VLAN Transparent的特殊标注:

此功能确定网状无线接入点如何处理以太网桥接流量的VLAN标记:

- 如果启用了VLAN Transparent,则不会处理VLAN标记,并且数据包会桥接为无标记数据包。
 。 启用VLAN透明模式时,不需要配置以太网端口。以太网端口传递有标记帧和无标记帧 ,而不解释这些帧。
- 如果VLAN透明模式已禁用,则根据端口上的VLAN配置(中继、接入或正常模式)处理所有数据包。
 - 如果以太网端口设置为中继模式,则必须配置以太网VLAN标记。



提示:要使用AP VLAN标记,必须取消选中VLAN Transparent复选框。

如果不使用VLAN标记,则表示RAP和MAP位于在Trunk端口上配置的本地VLAN上。在这种情况下,如果希望MAP后的其他设备位于本地VLAN(此处为VLAN 100)上,则需要启用VLAN透明。

5. 内部AP加入EWC,您可以使用"show ap summary"命令验证AP加入状态:

9124EWC#show ap summary Number of APs: 1									
CC = Country Code RD = Regulatory Domain									
AP Name	Slot	s AP Model	Ethernet MAC	Radio MAC	сс	RD	IP Address	State	Location
AP3C57.31C5.AC2C	2	C9124AXI-B	3c57.31c5.ac2c	4ca6.4d23.aee0	US	-B	192.168.100.11	Registered	default location

show ap summary

您还可以看到通过GUI加入的AP,其中AP显示为Flex+Bridge模式。为方便起见,您可以立即更改 AP的名称。在此设置中,使用的名称是AP9124_RAP:

Q. Search Menu Items	Configuration * > Wireless * > Access F	Points	Edit AP				
ashboard	 All Access Points 	General Interfaces Inventory Geolocation Mesh Advanced General Tags					
Monitoring >		Current Active	AP Name*	AP3C57.31C5.AC2C	Policy	default-policy-tag 👻	
🖏 Configuration		Location*	default location	Site	default-site-tag 👻 💈		
() Administration >			Base Radio MAC	4ca6.4d23.aee0	RF	default-rf-tag 👻 🗹	
C Licensing	Total APs : 1	Admin :	Ethernet MAC	3c57.31c5.ac2c	Write Tag Config to AP	0	
	: AP Model : :	Slots Status Up Time	Admin Status	ENABLED	Version		
	1C5.AC2C 🔥 😹 C9124AXI-B :	2 O days 1 h mins 37 sec	AP Mode	Flex+Bridge 👻	Primary Software Version	17.12.2.35	
	H ≪ 1 > H 10 ¥		Operation Status	Registered	Predownloaded Status	None	

AP一般详细信息

您可以编辑地理位置,然后在Mesh选项卡中,确保其Role配置为Root AP,并且Ethernet Port Configuration设置为trunk并配置相应的VLAN ID:

O Search Menu Items	Configuration * > Wireless * > Access Points	Edit AP 2					×		
Dashboard	 All Access Points 		General Interfaces	Inventory	Geolocation	Mesh Advanced			Î
Monitoring >		Current Active	Block Child	0		0 Etherni	et Bridging on the asso	ciated Mesh Profile should be enabled	Ш
Configuration		AP3C57.31C5.AC2C	Daisy Chaining	0		to configu	re this section succes	stully	Ш
() Administration	Turi (Dec.)		Daisy Chaining strict- RAP	0		Port		0	Ш
C Licensing		Admin :	Preferred Parent MAC	0000.0000.0000		Mode		normal	Ш
X Troubleshooting	: AP Model : Slots	Status Up Time O days 1 h mins 37 sed	Role	Root	•				Ш
	4 H ≤ 1 > H 10 ▼		Remove PSK	圃					
Walk Me Through 2	> 5 GHz Radios		Backhaul						Ш
	> 2.4 GHz Radios		Radio Type and Slot o AP	can be changed only f	or a Root				
	Dual-Band Radios		Backhaul Radio Type	5ghz	•				
	> Country		Backhaul Slot ID	1	•				
	> LSC Provision		Rate Types	auto	•				-
	> AP Certificate Policy		Cancel					Update & Apply to Device	<u>,</u>

网状角色根

Edit AP							×
General Interfaces	Inventory	Geolocation	Mesh	Advanced			A
General			Ethernet P	Port Configuration			
Block Child Daisy Chaining			 Ethern to config 	et Bridging on the asso ure this section succes	ociated Mesh Profile ssfully	e should be enabled	
Daisy Chaining strict- RAP	D		Port		0	•	I
Preferred Parent MAC	0000.0000.0000		Mode		trunk	▼	
Role	Root	•	Native VI	LAN ID*	100		
			Allowed	VLAN IDs	101		
Remove PSK	圃						
Backhaul							I
Radio Type and Slot of AP	can be changed only f	or a Root					
Backhaul Radio Type	5ghz	•					
Backhaul Slot ID	1	•					
Rate Types	auto	•					•
Cancel					🗄 Ur	odate & Apply to Devi	ce

以太网端口配置

配置MAP

现在是加入9124 MAP的时候了。

1. 将MAP AP连接到Switch1进行试运行。AP加入EWC并在AP列表中显示。将其名称更改为类似于 AP9124_MAP的名称,并在Mesh选项卡中将其配置为Mesh Role。点击Update & Apply to Device:

Search Menu Items	Configuration * > Wireless * > Access Points	1	Edit AP				×
Dashboard	✓ All Access Points		General Interfaces	Inventory	Geolocation	Mesh Advanced Ethernet Port Configuration	
Monitoring		Current Active	Block Child Daisy Chaining	0		Ethernet Bridging on the assoc to configure this section success	lated Mesh Profile should be enabled fully
Administration	Total APs : 2		Daisy Chaining strict- RAP	0		Port	0 v
C Licensing	AP Name : AP Model AP9124_MAP	i Slots i Admin i Status	Preferred Parent MAC	0000.0000.0000	•	Native VLAN ID*	100
	AP9124_RAP ALM C9124AXI-B 2		Remove PSK			Allowed VLAN IDs	101
			Backhaul				
	> 5 GHz Radios		Backhaul Radio Type	5ghz	Ŧ		
	> 2.4 GHz Radios		Backhaul Slot ID	1	v		
	> Dual-Band Radios		Rate Types	auto	•		
	> Country						
	LSC Provision		Cancel				Update & Apply to Device

映射配置

2. 从Switch1断开AP连接并根据网络图连接到Switch2。MAP通过无线接口通过RAP加入EWC。



注意:由于AP通过馈电器供电,AP不会关闭,并且由于设置是在受控环境中,因此交换机 2在物理上非常接近,我们只需将电缆从一台交换机移到另一台交换机即可。

您可以将控制台电缆连接到AP,并通过控制台查看结果。下面是看到的一些重要消息。



注意:从版本17.12.1开始,802.11AX AP的默认控制台波特率从9600 bps更改为115200 bps。

MAP失去与EWC的连接:

AP9124_MAP#	
-------------	--

[*01/11/2024	14:08:23.0214]	chatter: Device wiredO notify state change link D
[*01/11/2024	14:08:28.1474]	Re-Tx Count=1, Max Re-Tx Value=5, SendSeqNum=83,
[*01/11/2024	14:08:28.1474]	
[*01/11/2024	14:08:31.1485]	Re-Tx Count=2, Max Re-Tx Value=5, SendSeqNum=83,
[*01/11/2024	14:08:31.1486]	
[*01/11/2024	14:08:33.4214]	chatter: Device wired0 notify state change link U
[*01/11/2024	14:08:34.1495]	Re-Tx Count=3, Max Re-Tx Value=5, SendSeqNum=83,
L*01/11/2024	14:08:34.1495	
	14:08:37.1505	Re-Tx Count=4, Max Re-Tx Value=5, SendSeqNum=84, 1
[*01/11/2024]	14:08:37.1505	
[*01/11/2024]	14:08:40.1515	Re-Ix Count=5, Max Re-Ix Value=5, SendSeqNum=84, I
[*01/11/2024	14:08:40.1515]	

[*01/11/2024 14:08:43.1524] Max retransmission count exceeded, going back to [
[...]
[*01/11/2024 14:08:48.1537] CRIT-MeshWiredAdj[0][3C:57:31:C5:A9:F8]: Blocklist
[*01/11/2024 14:08:48.1538] CRIT-MeshWiredAdj[0][3C:57:31:C5:A9:F8]: Remove as
[*01/11/2024 14:08:48.1539] CRIT-MeshLink: Link Down Block Root port Mac: 3C:!
[*01/11/2024 14:08:48.1542] CRIT-MeshWiredBackhaul[0]: Remove as uplink

MAP通过无线进入发现模式,并通过无线回传在信道36上找到RAP,找到EWC并加入该信道:

[*01/11/2024 14:08:51.3893] CRIT-MeshRadioBackhaul[1]: Set as uplink [*01/11/2024 14:08:51.3894] CRIT-MeshAwppAdj[1][4C:A6:4D:23:AE:F1]: Set as Par [*01/11/2024 14:08:51.3915] wlan: [0:I:CMN_MLME] mlme_ext_vap_down: VAP (mon0) [*01/11/2024 14:08:51.3926] wlan: [0:I:CMN_MLME] mlme_ext_vap_down: VAP (apbh [*01/11/2024 14:08:51.4045] wlan: [0:I:CMN_MLME] mlme_ext_vap_up: VAP (apbhr0) [*01/11/2024 14:08:51.4053] wlan: [0:I:CMN_MLME] mlme_ext_vap_up: VAP (mon0) [*01/11/2024 14:08:53.3898] CRIT-MeshLink: Set Root port Mac: 4C:A6:4D:23:AE: [*01/11/2024 14:08:53.3904] Mesh Reconfiguring DHCP. [*01/11/2024 14:08:53.8680] DOT11_UPLINK_EV: wgb_uplink_set_port_authorized: ([*01/11/2024 14:08:53.9232] CRIT-MeshSecurity: Mesh Security successful auther |...| [*01/11/2024 14:09:48.4388] Discovery Response from 192.168.100.40 [*01/11/2024 14:09:59.0000] Started wait dtls timer (60 sec) [*01/11/2024 14:09:59.0106] [*01/11/2024 14:09:59.0106] CAPWAP State: DTLS Setup [*01/11/2024 14:09:59.0987] dtls_verify_server_cert: Controller certificate vertificate ve [*01/11/2024 14:09:59.8466] [*01/11/2024 14:09:59.8466] CAPWAP State: Join [*01/11/2024 14:09:59.8769] Sending Join request to 192.168.100.40 through point [*01/11/2024 14:10:04.7842] Sending Join request to 192.168.100.40 through point [*01/11/2024 14:10:04.7953] Join Response from 192.168.100.40, packet size 139 [...] [*01/11/2024 14:10:06.6919] CAPWAP State: Run [*01/11/2024 14:10:06.8506] AP has joined controller 9124EWC [*01/11/2024 14:10:06.8848] Flexconnect Switching to Connected Mode! [...]

MAP现在通过RAP加入EWC。

现在,AP C9115可以获取VLAN 100上的IP地址,然后加入EWC:



警告:请记住,VLAN 100是交换机端口中继本地VLAN。为了使来自VLAN 100中的AP的 流量到达VLAN 100中的WLC,网状链路必须启用VLAN Transparent。此操作在网状配置 文件以太网桥接部分完成。

[*01/19/2024	11:40:55.0710]	ethernet_port wired0, ip 192.168.100.14, netmask
[*01/19/2024	11:40:58.2070]	
[*01/19/2024	11:40:58.2070	CAPWAP State: Init
[*01/19/2024	11:40:58.2150	
[*01/19/2024	11:40:58.2150	CAPWAP State: Discovery
[*01/19/2024	11:40:58.2400	Discovery Request sent to 192.168.100.40, discove
[*01/19/2024	11:40:58.2530]	Discovery Request sent to 255.255.255.255, discov
[*] 01/19/2024	11:40:58.2600	
[*] 01/19/2024	11:40:58.2600	CAPWAP State: Discovery
[*] 01/19/2024	11:40:58.2670	Discovery Response from 192.168.100.40
[¯] *01/19/2024	11:40:58.2670	Found Configured MWAR '9124EWC' (respIdx 1).
[*01/19/2024	15:13:56.0000	Started wait dtls timer (60 sec)
Ī*01/19/2024	15:13:56.0070	
Ī*01/19/2024	15:13:56.0070	CAPWAP State: DTLS Setup
Ī)	-	·

<pre>[*01/19/2024</pre>	15:13:56.1660]	dtls_verify_server_cert: Controller certificate ve
Ī*01/19/2024	15:13:56.9000	sudi99 request check and load: Use HARSA SUDI cert
Ī*01/19/2024	15:13:57.2980	
Ī*01/19/2024	15:13:57.2980	CAPWAP State: Join
Ī*01/19/2024	15:13:57.3170	shared_setenv
[*01/19/2024	15:13:57.8620	Sending Join request to 192.168.100.40 through por
[*01/19/2024	15:14:02.8070	Sending Join request to 192.168.100.40 through por
[*01/19/2024	15:14:02.8200	Join Response from 192.168.100.40, packet size 139
[*01/19/2024	15:14:02.8200]	AC accepted previous sent request with result code
[*01/19/2024	15:14:03.3700]	Received wlcType 2, timer 30
[*01/19/2024	15:14:03.4440]	
[*01/19/2024	15:14:03.4440]	CAPWAP State: Image Data
[*01/19/2024	15:14:03.4440]	AP image version 17.12.2.35 backup 17.9.4.27, Cont
[*01/19/2024	15:14:03.4440]	Version is the same, do not need update.
[*01/19/2024	15:14:03.4880]	status 'upgrade.sh: Script called with args:[NO_U
[*01/19/2024	15:14:03.5330]	do NO_UPGRADE, part2 is active part
[*01/19/2024	15:14:03.5520]	
[*01/19/2024	15:14:03.5520]	CAPWAP State: Configure
[*01/19/2024	15:14:03.5600]	Telnet is not supported by AP, should not encode t
[*01/19/2024	15:14:03.6880]	Radio [1] Administrative state DISABLED change to
[*01/19/2024	15:14:03.6890]	Radio [0] Administrative state DISABLED change to
[*01/19/2024	15:14:03.8670]	
[*01/19/2024	15:14:03.8670]	CAPWAP State: Run
L*01/19/2024	15:14:03.9290]	AP has joined controller 9124EWC
L*01/19/2024	15:14:03.9310]	Flexconnect Switching to Connected Mode!

由于这是EWC AP,因此它只包含与其自己的型号对应的AP映像(此处的C9124运行ap1g6a)。当 您加入不同的AP型号时,就会出现非同构网络。

在这些情况下,如果AP的版本不同,则它需要下载相同的版本,因此,请确保您具有有效的 TFTP/SFTP服务器和位置,以及已在EWC > Administration > Software Management中配置的 AP映像:

c	iscoSWImages > Images > 9800 >	C9800-AP-universalk	9.17.12.02		
	↑↓ Sort ~ 🔳 View ~ ···				
	Name	Date modified	Туре	Size	
1	✓ A long time ago				
	controller_version.info	11/14/2023 2:11 PM	INFO File	1 KB	
	🥁 readme.txt	11/14/2023 2:11 PM	Notepad++ Docu	1 KB	
	C9800-AP-iosxe-wlc.bin	11/14/2023 2:11 PM	BIN File	303,222 KB	
•	version.info	11/14/2023 1:51 PM	INFO File	1 KB	
	ap1g8 Type: INFO File	11/14/2023 1:51 PM	File	67,010 KB	
	ap3g3 Sizes 11 Bytes Date modified: 11	11/14/2023 1:51 PM	File	55,880 KB	
	ap1g6	11/14/2023 1:51 PM	File	67,840 KB	
	ap1g6a	11/14/2023 1:51 PM	File	84,200 KB	
ļ	ap1g7	11/14/2023 1:51 PM	File	73,400 KB	
	ap1g4	11/14/2023 1:51 PM	File	38,720 KB	
	ap1g5	11/14/2023 1:51 PM	File	36,640 KB	

TFTP服务器及AP镜像文件夹



AP映像

AP显示在AP列表中,您可以分配PolicyTag:

Cisco Embed	Ided Wireless Co	ntroller on C	atalyst A	ccess Poir	nts		Welcome admin	* * 4 8 0 0	Search APs and Cl	ients Q
Q Search Menu Items	Configuration * > W	lireless* > Ac	cess Point	3			Edit AP			
							General Interfaces	Inventory Geolocation	ICap Advanced	
Dashboard	 All Access Press 	oints					General		Tags	
Monitoring >				Cu	rrent Activ	ve	AP Name*	AP9115	Policy	LocalSWTag 👻 💈
Configuration					AP9124_RAP		Location*	default location	Site	default-site-tag 👻
(O) Administration							Base Radio MAC	1cd1.e079.66e0	RF	default-rf-tag
C Licensing	Total APs : 3						Ethernet MAC	84f1.47b3.2cdc	Write Tag Config to AP	0
	AP Name	E AP Mo	odel	: Slots	Admin : Status	Up Time	Admin Status		Version	
Con Houseshooting	AP9115	<u>њы</u> С9115	SAXE-B	2	۲	0 days 0 hr mins 36 secs	AP Mode	Flex	Primary Software Version	17.12.2.35
	AP9124_MAP	▲ ▲ C9124	4AXI-B	2	•	8 days 6 hrs : mins 37 secs	Operation Status	Registered	Predownloaded Status	Predownloading
	AP9124_RAP	₼ ₩ C9124	4AXI-B	2	۲	mins 40 secs	Fabric Status	Disabled	Predownloaded Version	0.0.0.0
Walk Me Through >	8 3 1 >	н 10 🔻					CleanAir NSI Key		Next Retry Time	0
							LED Settings		Boot Version	1.1.2.4
	5 GHz Radios	5					LED State		INC Lineinn	17 10 0 06

包含9115详细信息的AP列表



AP操作视图

验证

您能通过GUI看到网状树,如果使用命令"show wireless mesh ap tree",该网状树也会提供CLI的输 出。在GUI中,转到Monitoring > Wireless > Mesh:

Q. Search Menu Items	Monitoring * > Wireless * > Mesh				
🚃 Dashboard	AP Convergence				
Monitoring >	Global Stats				
	Number of Bridge APs	0	Number of Flex+Bridge APs	2	
Configuration	Number of RAPs	0	Number of Flex+Bridge RAPs	1	
	Number of MAPs	0	Number of Flex+Bridge MAPs	1	
	Tree				
C Licensing					
Walk Me Through >	AP Name [Hop Ctr,Link SNR,BG Name,Channel [Sector 1] 	<pre>.Pref Parent,Chan Util,Clients] 0.0000, 3%, 0] 00.0000.0000, 3%, 0] rnet Connected Mesh AP.</pre>			

网状AP树

在RAP和MAP上,您可以使用命令"show mesh backhaul"验证网状回程:

AP9124_RAP#show mesh backhaul Wired Backhaul: 0 [3C:57:31:C5:AC:2C] idx Cost Uplink InterfaceType 0 16 TRUE WIRED Mesh Wired Adjacency Info Flags: Parent(P), Child(C), Reachable(R), CapwapUp(W), BlockListed(B) Authenticated(A) Address Cost RawCost BlistCount Flags: P C R W B A Reject reason 3C:57:31:C5:AC:2C 16 16 0 T/F: T F T T F T Filtered
Wired Backbaul: 1 [30:57:31:05:40:20]
idx Cost Uplink InterfaceType
1 Invalid FALSE WIRED
Mesh Wired Adjacency Info
Address Cost RawCost RistCount Flags: P C R W R A Reject reason
3C:57:31:C5:AC:2C 16 16 0 T/F: F F F F F F F Filtered
Radio Backhaul: 0 [4C:A6:4D:23:AE:F1]
2 INTITAL ACCESS UP Tovalid FAISE FAISE TRUE FAISE FAISE ALLOWED RADIO
No Radio Adjacency Exists
Dadia Backbault 1 (40.46.40.02.46.61)
idx State Role RadioState Cost Uplink Downlink Access ShutDown ChildrenAllowed BlockChildState InterfaceType
3 MAINT DOWNLINK UP Invalid FALSE TRUE FALSE FALSE TRUE ALLOWED RADIO
Mesh AWPP Radio adjacency info
<pre>Flags: Parent(P), Child(C), Neighbor(N), Reachable(R), CapwapUp(W), BlockListed(B), Authenticated(A), HTCapable(H), VHTCapable(V) OldParent(O), PErson(C)</pre>
Address Cost RawCost LinkCost ReportedCost Snr BCount Ch Width Ben Flags: P.O.C.N.R.W.R.A.H.V.S.Reject reason
4C:A6:4D:23:9D:51 Invalid Invalid 0 0 76 0 36 20 MHz - (T/F): F F T F T F T F T F T F -

RAP show mesh backhaul

AP9124_MAP#show mesh backhaul Wired Backhaul: 0 [3C:57:31:C5:A9:F8] idx Cost Uplink InterfaceType 0 Invalid FALSE WIRED Mesh Wired Adjacency Info Flags: Parent(P), Child(C), Reachable(R), CapwapUp(W), BlockListed(B) Authenticated(A) Address Cost RawCost BlistCount Flags: P C R W B A Reject reason T/F: F F T F T T Blocklisted: GW UNREACHABLE 3C:57:31:C5:A9:F8 16 16 32 Wired Backhaul: 1 [3C:57:31:C5:A9:F8] idx Cost Uplink InterfaceType 1 Invalid FALSE WIRED Mesh Wired Adjacency Info Flags: Parent(P), Child(C), Reachable(R), CapwapUp(W), BlockListed(B) Authenticated(A) Address Cost RawCost BlistCount Flags: P C R W B A Reject reason 3C:57:31:C5:A9:F8 16 16 0 T/F: F F F F F F F Filtered Radio Backhaul: 0 [4C:A6:4D:23:9D:51] idx State Role RadioState Cost Uplink Downlink Access ShutDown ChildrenAllowed BlockChildState InterfaceType 2 INITIAL ACCESS UP Invalid FALSE FALSE TRUE FALSE FALSE ALLOWED RADIO No Radio Adjacency Exists Radio Backhaul: 1 [4C:A6:4D:23:9D:51] Hops to Root: 1 idx State Role RadioState Cost Uplink Downlink Access ShutDown ChildrenAllowed BlockChildState InterfaceType 3 MAINT UPLINK UP 217 TRUE TRUE FALSE FALSE TRUE ALLOWED RADIO Mesh AWPP Radio adjacency info Flags: Parent(P), Child(C), Neighbor(N), Reachable(R), CapwapUp(W), BlockListed(B), Authenticated(A), HTCapable(H), VHTCapable(V) OldParent(0), BGScan(S) Cost RawCost LinkCost ReportedCost Snr BCount Ch Width Bgn Flags: P O C N R W B A H V S Reject reason Address 4C:A6:4D:23:AE:F1 217 272 256 16 70 0 36 20 MHz - (T/F): T F F T T T F T T T F -

AP9124_MAP#!

MAP show mesh backhaul

您可以在AP端验证网状VLAN中继配置:

AP9124_RAP#show mesh ethernet vlan config static Static (Stored) ethernet VLAN Configuration

Ethernet Interface: 0 Interface Mode: TRUNK Native Vlan: 100 Allowed Vlan: 101,

Ethernet Interface: 1 Interface Mode: ACCESS Native Vlan: 0 Allowed Vlan: Ethernet Interface: 2 Interface Mode: ACCESS Native Vlan: 0 Allowed Vlan:

连接到Switch2的Laptop2收到了来自VLAN 101的IP地址:



放置在Switch1上的Laptop1收到来自VLAN 101的IP地址:

Ethernet adapter Ethernet 6_White:

Connection-spect	ific DNS	Suffix .	:
Link-local IPv6	Address		. : fe80::d1d6:f607:ff02:4217%18
IPv4 Address			. : 192.168.101.13
Subnet Mask			. : 255.255.255.0
Default Gateway			. : 192.168.101.1

C:\Users\tantunes>ping 192.168.101.12 -i 192.168.101.13

Pinging 192.168.101.12 with 32 bytes of data: Reply from 192.168.101.12: bytes=32 time=5ms TTL=128 Reply from 192.168.101.12: bytes=32 time=5ms TTL=128 Reply from 192.168.101.12: bytes=32 time=7ms TTL=128 Reply from 192.168.101.12: bytes=32 time=5ms TTL=128

Ping statistics for 192.168.101.12: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 5ms, Maximum = 7ms, Average = 5ms



注意:请注意,要在Windows设备之间测试ICMP,您需要在系统防火墙上允许ICMP。默 认情况下,Windows设备会在系统防火墙中阻止ICMP。

用于验证以太网桥接的另一个简单测试是两台交换机上都有用于VLAN 101的SVI,并且将Switch2 SVI设置为DHCP。用于VLAN 101的Switch2 SVI从VLAN 101获取IP地址,您可以对Switch 1 VLAN 101 SVI执行VLAN 101连接检查:

<#root>

Switch2#show ip int br Interface IP-Address OK? Method Status Protocol Vlan1 unassigned YES NVRAM up down Vlan100 192.168.100.61 YES DHCP up up

Vlan101 192.168.101.11 YES DHCP up up

GigabitEthernet0/1 unassigned YES unset up up

[...] Switch2# Switch2#ping 192.168.101.1 source 192.168.101.11 Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 192.168.101.1, timeout is 2 seconds: Packet sent with a source address of 192.168.101.11 !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 3/4/7 ms Switch2#

<#root>

Switch1#sh ip int br Interface IP-Address OK? Method Status Protocol Vlan1 192.168.1.11 YES NVRAM up up Vlan100 192.168.100.1 YES NVRAM up up

Vlan101 192.168.101.1 YES NVRAM up up

GigabitEthernet1/0/1 unassigned YES unset up up [...] Switch1#ping 192.168.101.11 source 192.168.101.1 Type escape sequence to abort. Sending 5, 100-byte ICMP Echos to 192.168.101.11, timeout is 2 seconds: Packet sent with a source address of 192.168.101.1 !!!!! Success rate is 100 percent (5/5), round-trip min/avg/max = 4/6/8 ms Switch1#

Q Search Menu Items		Configuration * > Wireless * > Access Points														
Dashboard		 All Access 	s Points													
Monitoring	> >					Current Active Current Standby Preferred Active AP9124_RAP Not Applicable AP9124_RAP								Active		
O Administration	>	Total APs : 3	3													
		AP Name	:	AP Model	:	Slots	:	Admin Status	Up Time	:	IP Address	Base Radio MAC	:	Ethernet MAC	÷	AP Mode
Troubleshooting		AP9115	山田	C9115AXE-B		2		۲	0 days 0 h mins 30 s	nrs 35 ecs	192.168.100.14	1cd1.e079.66e0		84f1.47b3.2cdc		Flex
		AP9124_MAP	香風	C9124AXI-B		2		٢	0 days 0 h mins 59 s	ecs	192.168.100.12	4ca6.4d23.9d40		3c57.31c5.a9f8		Flex+Bridge
		AP9124_RAP		2		۲	0 days 2 hrs 46 192.168.100.11 4ca6.4d23.aee0 3c57.							Flex+Bridge		

本地模式AP C9115也加入EWC:

AP 9115已加入EWC

已创建3个映射到策略配置文件的WLAN(开放式、PSK和dot1x),并在访问策略中定义了VLAN 101:



AP9115运行配置

无线客户端可以连接到WLAN:

Q Search Meru berre	Monitori	ng* > Wireless	• >	Clients													
Deshboard	Clients	Sleeping Cile	101	Excluded Cile	rits.												
(2) Monitoring >	- ×																
R. Configuration	Select	ed 0 out of 2 Clients															
Administration ,	0	Client MRC Address	T	Pv4 T Address	IPv6 Address	AP Name	T	Set D	т	550 1		CAN I	т	Client Type	٣	State	1
Å	0	9294.403a-(572	ø	192,168,101,14	Not 1004-007 Note 572	APRILS				0,040	4			WLAN		Ref.	
C coming	0	acc.3434216c	¢	192.168.101.15	M01acce3483634216c	AP9015		٩.,		PSK, MLA	6 6			96,499		Ref.	

故障排除

本节提供了有用的命令和一些提示、技巧和建议。

有用的命令

在RAP/MAP上:

AP9124_RAP#show mesh	
adjacency	MESH Adjacency
backhaul	MESH backhaul
bgscan	MESH Background Scanning
channel	MESH channels
client-debug-filter	MESH client debugging filter set
config	MESH config paramenter
convergence	MESH convergence info
dfs	MESH dfs information
dhcp	Flex-mesh Internal DHCP Server
ethernet	show mesh ethernet bridging
forwarding	MESH Forwarding
history	MESH history of events
least-congested-scan	Mesh least congested channel scan
linktest	MESH linktest stats
nat	Flex-mesh NAT/PAT
res	MESH RES info
security	MESH Security Show
stats	MESH stats
status	MESH status
stp	MESH daisychain STP info
timers	MESH Adjacency timers

show mesh

AP9124_RAP#debug	mesh
adjacency	MESH adjacency debugs
ap-link	MESH link debugs
bg-scan	Mesh background scanning debugs
channel	MESH channel debugs
clear	RESET all MESH debugs
client	Debug mesh clients
convergence	MESH convergence debugs
dhcp	MESH Internal DHCP debugs
dump-pkts	Dump mesh packets
events	MESH events
filter	MESH debug filter
forward-mcast	Mesh forwarding mcast debugs
forward-table	Mesh forwarding table debugs
history	MESH history of events
level	Enable different mesh debug levels
linktest	Mesh linktest debugs
nat	Mesh NAT debugs
path-control	MESH path-control debugs
port-control	MESH port-control debugs
security	MESH security debugs
stp	MESH daisychain STP debugs
wpa_supplicant	Mesh WPA_SUPPLICANT debugs
wstp	MESH WSTP debugs

RAP/MAP调试网状选项

在WLC上:

9124EWC#show wireless mesh ?	
airtime-fairness	Shows Mesh AP Airtime Fairness information
ap	Shows mesh AP related information
cac	Shows Mesh AP cac related information
config	Show mesh configurations
convergence	Show mesh convergence details.
ethernet	Show wireless mesh ethernet
neighbor	Show neighbors of all connected mesh Aps
persistent-ssid-broadcast	Shows Mesh AP persistent ssid broadcast
	information
rrm .	Show wireless mesh rrm information

show wireless mesh

要在WLC上进行调试,最佳起点是将RadioActive跟踪与MAP/RAP的MAC地址配合使用。

示例1:RAP从MAP接收邻接关系并成功进行身份验证

<#root>

```
AP9124_RAP#show debug
mesh:
adjacent packet debugging is enabled
event debugging is enabled
mesh linktest debug debugging is enabled
Jan 16 14:47:01 AP9124_RAP kernel: [*01/16/2024 14:47:01.9559] EVENT-MeshRadio
Jan 16 14:47:01 AP9124_RAP kernel: [*01/16/2024 14:47:01.9559] EVENT-MeshAwpp/
Jan 16 14:47:01 AP9124_RAP kernel: [*01/16/2024 14:47:01.9560] EVENT-MeshAwpp/
Jan 16 14:47:01 AP9124_RAP kernel: [*01/16/2024 14:47:01.9570] CLSM[4C:A6:4D:2
Jan 16 14:47:04 AP9124_RAP kernel:
                                   [*01/16/2024 14:47:04.9588] EVENT-MeshRadio
Jan 16 14:47:04 AP9124_RAP kernel: [*01/16/2024 14:47:04.9592] EVENT-MeshLink
Jan 16 14:47:04 AP9124_RAP kernel: [*01/16/2024 14:47:04.9600] EVENT-MeshSecu
Jan 16 14:47:05 AP9124_RAP kernel:
                                   [*01/16/2024 14:47:05.1008] EVENT-MeshSecur
Jan 16 14:47:05 AP9124_RAP kernel:
                                  [*01/16/2024 14:47:05.1011] EVENT-MeshSecu
Jan 16 14:47:06 AP9124_RAP kernel: [*01/16/2024 14:47:06.1172] EVENT-MeshSecu
Jan 16 14:47:06 AP9124_RAP kernel:
                                   [*01/16/2024 14:47:06.1173] EVENT-MeshSecu
                                  [*01/16/2024 14:47:06.1173] EVENT-MeshSecu
Jan 16 14:47:06 AP9124_RAP kernel:
Jan 16 14:47:06 AP9124_RAP kernel: [*01/16/2024 14:47:06.2033] EVENT-MeshSecu
                                   [*01/16/2024 14:47:06.2139] EVENT-MeshSecu
Jan 16 14:47:06 AP9124_RAP kernel:
Jan 16 14:47:06 AP9124_RAP kernel: [*01/16/2024 14:47:06.2139] EVENT-MeshSecu
Jan 16 14:47:06 AP9124_RAP kernel: [*01/16/2024 14:47:06.2143] EVENT-MeshSecu
Jan 16 14:47:06 AP9124_RAP kernel: [*01/16/2024 14:47:06.2143] EVENT-MeshSecur
Jan 16 14:47:06 AP9124 RAP kernel: [*01/16/2024 14:47:06.2143] EVENT-MeshLink:
Jan 16 14:47:06 AP9124 RAP kernel: [*01/16/2024 14:47:06.2143] EVENT-MeshLink:
```

Jan 16 14:47:06 AP9124_RAP kernel: [*01/16/2024 14:47:06.2144] EVENT-MeshLink Jan 16 14:47:06 AP9124 RAP kernel: [*01/16/2024 14:47:06.2146] EVENT-MeshAwppA

Jan 16 14:47:06 AP9124_RAP kernel: [*01/16/2024 14:47:06.2147] EVENT-MeshAwpp/ Jan 16 14:47:06 AP9124_RAP kernel: [*01/16/2024 14:47:06.2151] EVENT-MeshAwpp/ Jan 16 14:47:06 AP9124_RAP kernel: [*01/16/2024 14:47:06.2151] EVENT-MeshAwpp/ Jan 16 14:47:19 AP9124_RAP kernel: [*01/16/2024 14:47:19.3576] EVENT-MeshRadic Jan 16 14:47:19 AP9124_RAP kernel: [*01/16/2024 14:47:19.3577] EVENT-MeshRadic Jan 16 14:47:19 AP9124_RAP kernel: [*01/16/2024 14:47:19.3577] EVENT-MeshRadic

示例2:MAP Mac地址未添加到WLC或添加不正确

<#root>

Jan	16	14:52:13	AP9124_RAP	kernel:	[*01/16/2024	14:52:13.6402]	INFO-MeshRadio
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7407]	INFO-MeshRadio
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7408]	EVENT-MeshRadio
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7409]	INFO-MeshRadio
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7411]	EVENT-MeshLink
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7419]	EVENT-MeshSecu
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7583]	EVENT-MeshSecu
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7586]	EVENT-MeshSecu
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7586]	EVENT-MeshSecur
Jan	16	14.52.15		karnali	F*01 /16 /2024	14.52.15 7620]	TNEO MachPadia
Jan	16	14.52.15 14.52.15	AF9124 AF	kornol:	[*01/10/2024]	14.52.15.7020 14.52.15.7020	TNEO_MoshPadio
Jan	16	14.52.15 14.52.15	AF 9124 AF	kornol:	[01/10/2024]	14.52.15.7020 14.52.15.7020	TNEO_MoshAwppA
Jan	16	14.52.15 14.52.15	AD0124 $AD0$	kornol:	[*01/16/2024	14.52.15.7021 11.52.15.7021	$1 \times 10^{-10} \times 10^{-$
Jan	16	14.52.15 14.52.15	$\Delta PQ124$ RAP	kornol.	[*01/16/2024]	14.52.15.7021	$TNEO-Mosh\Deltawnn\Delta$
lan	16	14.52.15 14.52.15	$\Delta P 9 1 2 4 R \Delta P$	kernel:	[*01/16/2024]	14.52.15.7021	TNFO-MeshAwppA
lan	16	14.52.15	ΔP9124 RΔP	kernel:	[*01/16/2024]	14.52.15.7021	TNFO-MeshAwnnA
Jan	16^{10}	14:52:15	AP9124 RAP	kernel:	[*01/16/2024]	14:52:15.76221	0xff 0xff 0xff
Jan	16	14:52:15	AP9124 RAP	kernel:	[*01/16/2024	14:52:15.76221	TNFO-MeshAwppA
Jan	16	14:52:15	AP9124 RAP	kernel:	[*01/16/2024	14:52:15.76221	TNFO-MeshAwppA
Jan	16^{-1}	14:52:15	AP9124 RAP	kernel:	[*01/16/2024	14:52:15.76221	0xaa 0xff 0x00
Jan	16	14:52:15	AP9124 RAP	kernel:	[*01/16/2024	14:52:15.76221	INFO-MeshAwppA
Jan	16	14:52:15	AP9124 RAP	kernel:	[*01/16/2024	14:52:15.76231	INFO-MeshAwppA
Jan	16	14:52:15	AP9124_RAP	kernel:	r*01/16/2024	14:52:15.7623	0xaa 0xff 0xaa
Jan	16	14:52:15	AP9124_RAP	kernel:	Ī*01/16/2024	14:52:15.7623	INFO-MeshRadio
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7636	EVENT-MeshRadio
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7637]	INFO-MeshRadio
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7642]	EVENT-MeshLink:
Jan	16	14:52:15	AP9124_RAP	kernel:	[*01/16/2024	14:52:15.7642]	EVENT-MeshSecu

<#root>

Jan Jan Jan Jan Jan Jan Jan	16 16 16 16 16 16 16	14:48:58 14:48:59 14:48:59 14:48:59 14:48:59 14:49:00 14:49:00 14:49:00	AP9124_RAP AP9124_RAP AP9124_RAP AP9124_RAP AP9124_RAP AP9124_RAP AP9124_RAP AP9124_RAP	<pre>kernel: kernel: kernel: kernel: kernel: kernel: kernel: kernel:</pre>	[*01/16/2024 [*01/16/2024 [*01/16/2024 [*01/16/2024 [*01/16/2024 [*01/16/2024 [*01/16/2024 [*01/16/2024	14:48:58.9929] 14:48:59.2889] 14:48:59.7894] 14:48:59.9931] 14:48:59.9932] 14:49:00.2891] 14:49:00.7891] 14:49:00.9937]	INFO-MeshRadiol INFO-MeshAwppAd INFO-MeshAwppAd INFO-MeshRadiol INFO-MeshRadiol INFO-MeshAwppAd INFO-MeshAwppAd INFO-MeshAwppAd
Jan	16	14:49:00	AP9124_RAP AP9124_RAP	kernel:	[*01/16/2024	14:49:00.9938]	INFO-MeshAwppA
Jan	16	14:49:25	AP9124_RAP	kernel:	[*01/16/2024	14:49:25.5480]	EVENT-MeshAwppA
Jan	16	14:49:25	AP9124_RAP	kernel:	[*01/16/2024	14:49:25.5481]	EVENT-MeshRadio
Jan	16	14:49:25	AP9124_RAP	kernel:	[*01/16/2024	14:49:25.5481]	EVENT-MeshRadic
Jan	16	14:49:25	AP9124_RAP	kernel:	[*01/16/2024	14:49:25.5488]	EVENT-MeshRadic
Jan	16	14:49:25	AP9124_RAP	kernel:	[*01/16/2024	14:49:25.5489]	INFO-MeshRadio
Jan	16	14:49:25	AP9124_RAP	kernel:	[*01/16/2024	14:49:25.5501]	EVENT-MeshRadic
Jan	16	14:49:25	AP9124_RAP	kernel:	[*01/16/2024	14:49:25.5501]	EVENT-MeshAdj[1
Jan Jan	16 16	14:49:25 14:49:25	AP9124_RAP AP9124_RAP	kernel: kernel:	[*01/16/2024 [*01/16/2024	14:49:25.5502] 14:49:25.5511]	EVENT-MeshRadio EVENT-MeshLink

提示、技巧和建议

- 通过在线路将MAP和RAP升级到相同的映像版本,我们避免通过空中下载映像(这在"脏"RF环境中可能会出现问题)。
- 强烈建议在现场部署之前,在受控环境中测试设置。
- 如果在两端测试与windows笔记本电脑之间的以太网桥接,请注意,要在Windows设备之间测试ICMP,您需要在系统防火墙上允许ICMP。默认情况下,Windows设备会在系统防火墙中阻止ICMP。
- 如果使用带有外部天线的AP,请务必参考部署指南,检查哪些天线兼容,以及应该插入哪个端口。
- 为了通过网状链路桥接来自不同VLAN的流量,需要禁用VLAN透明功能。
- 请考虑在AP本地放置系统日志服务器,因为它可以提供调试信息,否则只能通过控制台连接 使用。

参考

<u>Catalyst接入点产品手册中的思科嵌入式无线控制器</u>

Catalyst接入点上的思科嵌入式无线控制器(EWC)白皮书

在Mobility Express AP上配置带有以太网桥接的点对点网状链路

关于此翻译

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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。

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