# 使用本地RADIUS伺服器在自治AP上配置WDS

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## 簡介

本檔案介紹如何在使用本地RADIUS伺服器的自主存取點(AP)設定上設定無線網域服務(WDS)。本 文檔重點介紹通過新GUI進行的配置,但也提供了命令列介面(CLI)配置。

## 必要條件

## 需求

思科建議您瞭解自治AP上的基本GUI和CLI配置。

## 採用元件

本文中的資訊係根據以下軟體和硬體版本:

• 自治AP IOS<sup>®</sup>軟體版本15.2(4)JA1上的Cisco 3602e系列存取點;此裝置將充當WDS AP和本地

RADIUS伺服器。

• 自治AP IOS軟體版本15.2(4)JA1上的Cisco 2602i系列接入點;此裝置將充當WDS客戶端AP。 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。如果您的網路正在作用,請確保您已瞭解任何指令可能造成的影響。

## 設定

附註:使用<u>命令查詢工具(</u>僅供<u>已註冊</u>客戶使用)可獲取本節中使用的命令的更多資訊。

### GUI配置

#### 建立SSID

以下過程介紹了如何建立新的服務集識別符號(SSID)。

1. 導航到Security > SSID Manager, 然後按一下NEW以建立新的SSID。

uluilu cisco	HOME NETWORK ASSOCIATION WIRELESS SECURITY SERVICES MANAGEMENT	SOFTWARE EVENT LOG	
Security Admin Access Encryption Manager SSID Manager Server Manager	Hostname MAIB3602e Security: Global SSID Monager SSID Properties Current SSID Liet		
AP Authentication Intrusion Detection Local RADIUS Server Advance Security	eNEN'>	SSID: VIDSEAU VLAN: <none Deckup 1: Bockup 2: Biockup 2:</none 	Define VLANs
		Band-Select: Eand Interface: Z Rodio Z Radio	i Select 0-602.11N <sup>2-48Hz</sup> 1-602.11N <sup>SSHa</sup>
		Helwark ID:	(0-4036)

2. 為可擴展身份驗證協定(EAP)身份驗證配置SSID。

Client Authentication Settings		
Methods Accepted:		
Øpen Authentication:	< NO ADDITION>	
Web Authentication	< NO ADDITION> with MAC Authentication	
Shared Authentication:	with MAC Authentication and EAP with MAC Authentication or EAP	
Network EAP:	<pre><no addition=""></no></pre>	
Server Priorities:		
EAP Authentication Servers		MAC Authentication Servers
Use Defaults Define Defaults		Use Defaults Define Defaults
Customize		Customize
Priority 1: < NONE > 💌		Priority 1: < NONE >
Priority 2: < NONE > v		Priority 2. < NONE > 💌
Priority 3:		Priority 3: < NONE > -

3. 設定所需的加密級別。在本示例中,使用Wi-Fi保護訪問2(WPA2)。

Client Authenticated Key Management								
Key Management:	Mandistory 💌	ССКМ	Enable WPA V4Pav2  V4Pav2 V4Pav4 V4Pav4					
WPA Pre-shared Key:			ASCI      Hexadecinal					
11w Configuration:	Optional  Required							
11w Association-comeback:	1000 (1000-20000)							
11w Saquery-retry:	100 (100-500)							

- 4. 按一下「Apply」以儲存設定。
- 5. 導覽至Security > Encryption Manager,然後選擇所需的加密密碼方法。

Security	RADIO0-802.11N	12.4GHZ	RADIO1-802.11N <sup>5GHZ</sup>
Admin Access Encryption Manager	Hostname MAIB2602i		
SSID Manager	Security: Encryption Man	ager - Radio0-802.11N <sup>2.4GHz</sup>	
Server Manager	Encryption Modes		
Intrusion Detection Local RADIUS Server	None		
Advance Security	WEP Encryption	Optional 👻	Cisco Compliant TKIP Features: 🦳 Enable Me
			Enable Per
	Oipher	WEP 128 bit WEP 128 bit	-
	Encryption Keys	TKIP	
		CKIP-CMIC TKIP + WEP 128 bit TKIP + WEP 40 bit AES COMP	t Key
		AES COMP + TKIP + WEF En AES COMP + TKIP + WEF Encryption Key 4:	P 128 bit P 40 bit

### WDS AP上的本地RADIUS伺服器配置

以下過程介紹如何在WDS AP上配置本地RADIUS伺服器:

1. 導覽至**Security > Server Manager**,將WDS AP Bridge Virtual Interface(BVI)IP新增為本地 RADIUS,然後新增共用密碼。

Corporate Servers				
Current Server List				
RADIUS •				
C ANTIN S	IP Version:	₱ IPV4 ○ IPV6		
S NEW P Local-Radius	Server Name:	Local-Radius		
	Server:	10.106.54.146	(Hostname or IP Address)	
	Shared Secret:			
Delete	Authentication Port (optional):	1812 (0-65536)		
	Accounting Port (aptionally	1813 (0.65536)		
	recommender our (obronaut)	(04000)		Apply Cancel

2. 導覽至Security > Local Radius Server > General Set-Up索引標籤。定義要使用的EAP協定。 在本示例中,啟用輕型可擴展身份驗證協定(LEAP)身份驗證。

uluili. cisco	HOME NETWORK ASSOCIATIO	N WIRELESS SECURITY	SERVICES MANAGEMENT	SOFTWARE	EVENT FOR	Saye Configuration (Eng.) Logout (
Security Admin Access	I STATISTICS Hostneme MAIB-WDS-AP	)î	GENERAL SET-UP	Ĩ.	EAP-FAST SET-UP MAIB-WDS AP uptime is 1	0 hours, 42 minutes
Encryption Manager SSID Manager Server Manager	Security: Local RADIUS Ser Local Radius Server Authe	rer - General Set-Up				
AP Authentication Intrusion Detection Local RADIUS Server	Enable Authentication Pro	tocols:	E EAP FAST			
Advance Security			E MAC			Apply Cancel

3. 還可以在同一頁上新增網路訪問伺服器(NAS)IP和客戶端使用者名稱/密碼憑據。WDS AP上的本地RADIUS配置已完成。

Network Access Servers (AAA Clients)					
Current Network Access Servers					
< NEW > 10.106.54.146	Network Access \$	erver: 10	.106.54.146	(P Address)	
	Shared Secret:			1	
Dulate					Apply Concel
Individual Users					
Current Users					
<new> WDSClent1</new>	Username:				
	Password: Confirm Password:		■ Text © NT Hast	)	
Doleta	Group Name:	< NONE > •	_		
		EI MAC Authentication C	ny		Apply Cancel

### WDS客戶端AP上的本地RADIUS伺服器配置

下圖顯示如何將WDS AP的IP地址配置為RADIUS伺服器:

Corporate Servers				
Current Server List				
RADIUS -				
	IP Version:	PV4 0 PV6		
< NEW > WDS-Redius	Server Name:	WDS-Radius		
	Server:	10.106.54.146	(Hostname or IP Address)	
	Shared Secret:	•••••		
Delete	Authentication Port (optional):	1812 (0-65536)		
	Accounting Port (optional):	1813 (0-65536)		
				Apply Cancel

兩個AP現在都配置了SSID以進行LEAP身份驗證,並且WDS伺服器充當本地RADIUS。對外部 RADIUS使用相同步驟;只有RADIUS伺服器IP會更改。

### 在WDS AP上啟用WDS

以下過程介紹了如何在WDS AP上啟用WDS:

- 1. 導覽至Wireless > WDS > General Set-Up頁籤,然後啟用Use this AP as Wireless Domain Services覈取方塊。這將啟用AP上的WDS服務。
- 2. 在具有多個WDS AP的網路中,使用Wireless Domain Services Priority選項定義主WDS和備 份WDS。值範圍為1-255,其中255是最高優先順序。

uluulu cisco	HOME NETWORK ASSOCIATION WIRELESS SECURITY SERVICES MANAGEMENT SOFTWARE EVENT LOG	Sage Configuration Eng Logout Befre
Wireless Services	UNDS STATUS	
AP	Hostname MAIB.WDS.AP MAIB.WDS.AP uptime is 9 hos	rs, 59 minutes
	Wireless Services: WDS/WNM - General Set-Up WDS - Wireless Domain Services - Global Properties	
	Use this AP as Wireless Domain Services Wireless Domain Services Priority: 204 (1-255)	
	Use Local MAC List for Client Authentication	
	WNM - Wireless Network Manager - Global Configuration	
	Configure Wireless Network Manager Wireless Network Manager Address: DEABLED (IP Address or Hostname)	
		Apply Cancel

3. 導航到同一頁上的Server Groups頁籤。建立一個基礎結構伺服器組清單,所有WDS客戶端 AP都將對其進行身份驗證。您可以使用WDS AP上的本地RADIUS伺服器來實現此目的。由於 已經新增了該檔案,因此它會顯示在下拉選單中。

uluilu cisco	HOME NETWORK ASSOCIATION W	NULISS SICURITY	SURVICES MANAGEMENT	SOFTWARE D	VENT LOG	Saya Configuration   Bing   Legout   B
Wireless Services	WDS STATUS	Ĭ.	GENERAL SET-UP	1	SERVER GROUP'S	<u></u>
AP WDS	Hostname MAIB-WDS-AP				MAIB-WDS-AP uptime is 1	hours, 3 minutes
	Wireless Services: WDS - Server (	Groups				
	Server Group List		Server Group Name:	Infrastructure		
			Group Server Prioritie	s: Defre Seriera		
		Delote	Priority 1: Local-F Priority 2: <non Priority 3: <non< td=""><td>ladius • L&gt; • E&gt; •</td><td></td><td></td></non<></non 	ladius • L> • E> •		
	Use Group For: Infrastructure Authentication	]				

- 4. 啟用單選按鈕Use Group For:Infrastructure Authentication,然後按一下Apply以儲存設定。
- 5. WDS AP使用者名稱和密碼可以新增到本地RADIUS伺服器清單中。

#### 在WDS客戶端AP上啟用WDS

以下過程介紹了如何在WDS客戶端AP上啟用WDS:

導覽至Wireless > AP,然後啟用Participate in SWAN Infrastructure覈取方塊。SWAN代表結構化無線感知網路。

cisco	HOME NETWORK ASSOCIATION WIRELESS SECURITY SERV	REES MANAGEMENT SOFTWARE EVENTLOG
Wireless Services	Hostname MAIB-WDS-Client	MAIB-WDS-Client uptime is 10 hours, 50 minutes
WDS	Wireless Services: AP	
	Participate in SWAN intrastructure:	● Enace ○ Disace
	WD5 Discovery:	Auto Discovery     Specified Discovery: 10.106.54.146 (IP Address)
	Username: Password:	W09Glent1
	Confirm Password: Authentication Methods Profile:	< NONE >Define Authentication Methods Profiles
		Apply Gancel

2. WDS客戶端AP可以自動發現WDS AP。或者,您可以在**Specified Discovery**(指定發現)文本框中手動輸入用於客戶端註冊的WDS AP的IP地址。

您還可以新增WDS客戶端使用者名稱和密碼,以便對WDS AP上配置的本地RADIUS伺服器進 行身份驗證。

## CLI配置

#### WDS AP

#### 以下是WDS AP的配置示例:

```
Current configuration : 2832 bytes
!
! Last configuration change at 05:54:08 UTC Fri Apr 26 2013
version 15.2
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
!
hostname MAIB-WDS-AP
1
1
logging rate-limit console 9
enable secret 5 $1$EdDD$dG47yIKn86GCqmKjFf1Sy0
1
aaa new-model
1
1
aaa group server radius rad_eap
server name Local-Radius
!
aaa group server radius Infrastructure
server name Local-Radius
1
aaa authentication login eap_methods group rad_eap
aaa authentication login method_Infrastructure group Infrastructure
aaa authorization exec default local
Ţ
Ţ
```

```
!
1
1
aaa session-id common
no ip routing
no ip cef
!
1
1
1
dot11 syslog
!
dot11 ssid WDS-EAP
authentication open eap eap_methods
authentication network-eap eap_methods
authentication key-management wpa version 2
guest-mode
!
!
dot11 guest
1
!
!
username Cisco password 7 13261E010803
username My3602 privilege 15 password 7 10430810111F00025D56797F65
1
1
bridge irb
!
!
1
interface Dot11Radio0
no ip address
no ip route-cache
!
encryption mode ciphers aes-ccm
!
ssid WDS-EAP
1
antenna gain 0
stbc
station-role root
bridge-group 1
bridge-group 1 subscriber-loop-control
bridge-group 1 spanning-disabled
bridge-group 1 block-unknown-source
no bridge-group 1 source-learning
no bridge-group 1 unicast-flooding
1
interface Dot11Radio1
no ip address
no ip route-cache
!
encryption mode ciphers aes-ccm
!
ssid WDS-EAP
1
antenna gain 0
peakdetect
dfs band 3 block
stbc
channel dfs
station-role root
bridge-group 1
```

```
bridge-group 1 subscriber-loop-control
bridge-group 1 spanning-disabled
bridge-group 1 block-unknown-source
no bridge-group 1 source-learning
no bridge-group 1 unicast-flooding
1
interface GigabitEthernet0
no ip address
no ip route-cache
duplex auto
speed auto
bridge-group 1
bridge-group 1 spanning-disabled
no bridge-group 1 source-learning
interface BVI1
ip address 10.106.54.146 255.255.255.192
no ip route-cache
ipv6 address dhcp
ipv6 address autoconfig
ipv6 enable
1
ip forward-protocol nd
ip http server
no ip http secure-server
ip http help-path http://www.cisco.com/warp/public/779/smbiz/prodconfig/help/eag
ip radius source-interface BVI1
1
1
radius-server local
no authentication eapfast
no authentication mac
nas 10.106.54.146 key 7 045802150C2E1D1C5A
user WDSClient1 nthash 7
072E776E682F4D5D35345B5A227E78050D6413004A57452024017B0803712B224A
1
radius-server attribute 32 include-in-access-reg format %h
radius-server vsa send accounting
1
radius server Local-Radius
address ipv4 10.106.54.146 auth-port 1812 acct-port 1813
key 7 060506324F41584B56
1
bridge 1 route ip
!
1
wlccp authentication-server infrastructure method_Infrastructure
wlccp wds priority 254 interface BVI1
1
line con 0
line vty 0 4
transport input all
1
end
```

#### WDS客戶端AP

以下是WDS客戶端AP的配置示例:

```
! Last configuration change at 00:33:17 UTC Wed May 22 2013
version 15.2
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
1
hostname MAIB-WDS-Client
1
1
logging rate-limit console 9
enable secret 5 $1$vx/M$qP6DY30TGiXmjvUDvKKjk/
Ţ
aaa new-model
!
!
aaa group server radius rad_eap
server name WDS-Radius
1
aaa authentication login eap_methods group rad_eap
aaa authorization exec default local
1
1
1
1
!
aaa session-id common
no ip routing
no ip cef
!
1
1
1
dot11 syslog
1
dot11 ssid WDS-EAP
authentication open eap eap_methods
authentication network-eap eap_methods
authentication key-management wpa version 2
guest-mode
!
1
dot11 guest
1
eap profile WDS-AP
method leap
1
1
1
username Cisco password 7 062506324F41
username My2602 privilege 15 password 7 09414F000D0D051B5A5E577E6A
!
1
bridge irb
!
1
!
interface Dot11Radio0
no ip address
no ip route-cache
!
encryption mode ciphers aes-ccm
!
ssid WDS-EAP
```

```
antenna gain 0
stbc
station-role root
bridge-group 1
bridge-group 1 subscriber-loop-control
bridge-group 1 spanning-disabled
bridge-group 1 block-unknown-source
no bridge-group 1 source-learning
no bridge-group 1 unicast-flooding
1
interface Dot11Radio1
no ip address
no ip route-cache
encryption mode ciphers aes-ccm
1
ssid WDS-EAP
1
antenna gain 0
peakdetect
dfs band 3 block
stbc
channel dfs
station-role root
bridge-group 1
bridge-group 1 subscriber-loop-control
bridge-group 1 spanning-disabled
bridge-group 1 block-unknown-source
no bridge-group 1 source-learning
no bridge-group 1 unicast-flooding
1
interface GigabitEthernet0
no ip address
no ip route-cache
duplex auto
speed auto
bridge-group 1
bridge-group 1 spanning-disabled
no bridge-group 1 source-learning
1
interface BVI1
ip address 10.106.54.136 255.255.255.192
no ip route-cache
ipv6 address dhcp
ipv6 address autoconfig
ipv6 enable
1
ip forward-protocol nd
ip http server
no ip http secure-server
ip http help-path http://www.cisco.com/warp/public/779/smbiz/prodconfig/help/eag
ip radius source-interface BVI1
!
!
radius-server attribute 32 include-in-access-req format %h
radius-server vsa send accounting
radius server WDS-Radius
address ipv4 10.106.54.146 auth-port 1812 acct-port 1813
key 7 110A1016141D5A5E57
1
bridge 1 route ip
1
```

1

```
!
wlccp ap username WDSClient1 password 7 070C285F4D06485744
wlccp ap wds ip address 10.106.54.146
!
line con 0
line vty 0 4
transport input all
!
end
```

## 驗證

使用本節內容,確認您的組態是否正常運作。設定完成後,WDS客戶端AP應該能夠註冊到WDS AP。

在WDS AP上,WDS狀態顯示為已註冊。

ſ	WDS STATUS		GENERAL SE		ET-UP		SERVER GROUPS			
	Hostname MAIB-WDS AP				MAIB-WDS-AP	uptime is 10 hours,	16 minutes			
	Wireless Services: WDS - Wire	eless D	omain Services - Status							
	WDS Information					e e e e e e e e e e e				
	MAC Address IPv6 Address IPv6 Address Priority State									
	bc16.6516.62c4		10.106.54.146		=		254		Administratively S	tandAlone - ACTIVE
	WDS Registration									
	APs: 1				Mobile Nodes: 0					
	AP Information									
	Hostname		MAC Address		IPv4 Address		IPv6 Address		CDP Neighbor	State
	MAIB-WDS-Client		f872.ea24.40e6				2		BGL14-TACLAB	REGISTERED
	Mobile Node Information									
	MAC Address	IP Ad	dress	State			SSID	VLAN ID	BSSID	
	Wireless Network Manager Information									
	IP Address	Authentication Status								

### 在WDS客戶端AP上,WDS的狀態為Infrastructure。

Hostname MAIB-WDS-Client			MAIB WDS-Client uptime is 10 hours, 57 minutes	
Wireless Services Summary				
WDS MAC Address	WDS IP Address	IN Authenticator	MN Authenticator	State
bc16.6516.62c4		10.105.54.146	10.105.54.146	Infrastructure

附註:<u>輸出直譯器工具(僅供已註冊</u>客戶使用)支援某些show命令。使用輸出直譯器工具來檢視 show命令輸出的分析。

## WDS AP上的CLI驗證輸出

以下過程顯示如何驗證WDS AP配置:

HOSTNAME MAC-ADDR IP-ADDR IPV6-ADDR STATE MAIB-WDS-Client f872.ea24.40e6 10.106.54.136 :: REGISTERED

MAIB-WDS-AP#sh wlccp wds statistics

WDS Statistics for last 10:34:13: Current AP count: 1 Current MN count: 0 AAA Auth Attempt count: 2 AAA Auth Success count: 2 AAA Auth Failure count: 0 MAC Spoofing Block count: 0 Roaming without AAA Auth count: 0 Roaming with full AAA Auth count: 0 Fast Secured Roaming count: 0 MSC Failure count: 0 MSC Failure count: 0 MIC Failure count: 0 RN Mismatch count: 0

## WDS客戶端AP上的CLI驗證輸出

以下過程顯示如何驗證WDS客戶端AP配置:

MAIB-WDS-Client#sh wlccp ap

WDS = bc16.6516.62c4, IP: 10.106.54.146 , IPV6: :: state = wlccp\_ap\_st\_registered IN Authenticator = IP: 10.106.54.146 IPV6: :: MN Authenticator = IP: 10.106.54.146 IPv6::

## 疑難排解

目前尚無適用於此組態的具體疑難排解資訊。