



Configuring IPv6 WLAN Security

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Prerequisites for IPv6 WLAN Security

A client VLAN must be mapped to the WLAN configured on the switch

Restrictions for IPv6 WLAN Security

RADIUS Server Support

- If multiple RADIUS servers are configured for redundancy, the user database must be identical in all the servers for the backup to work properly.

Radius ACS Support

- You must configure RADIUS on both your Cisco Secure Access Control Server (ACS) and your switch
- RADIUS is supported on Cisco Secure ACS version 3.2 and later releases.

Information About IPv6 WLAN Security

Information About RADIUS

Remote Authentication Dial-In User Service (RADIUS) is a client/server protocol that provides centralized security for users attempting to gain management access to a network. It serves as a back-end database similar to Local EAP and provides authentication and accounting services.

- **Authentication**—The process of verifying users when they attempt to log into the switch

Users must enter a valid username and password for the switch to authenticate users to the RADIUS server. If multiple databases are configured, then specify the sequence in which the backend database must be tried.

- **Accounting**— The process of recording user actions and changes.

Whenever a user successfully executes an action, the RADIUS accounting server logs the changed attributes, the user ID of the person who made the change, the remote host where the user is logged in, the date and time when the command was executed, the authorization level of the user, and a description of the action performed and the values provided. If the RADIUS accounting server is unreachable, the users can continue their sessions uninterrupted.

User Datagram Protocol— RADIUS uses User Datagram Protocol (UDP) for its transport. It maintains a database and listens on UDP port 1812 for incoming authentication requests and UDP port 1813 for incoming accounting requests. The switch, which requires access control, acts as the client and requests AAA services from the server. The traffic between the switch and the server is encrypted by an algorithm defined in the protocol and a shared secret key configured on both devices.

Configures multiple RADIUS accounting and authentication servers. For example, you can have one central RADIUS authentication server but several RADIUS accounting servers in different regions. If you configure multiple servers of the same type and the first one fails or becomes unreachable, the controller automatically tries the second one, then the third one if necessary, and so on.

When RADIUS method is configured for the WLAN, the switch will use the RADIUS method configured for the WLAN. When the WLAN is configured to use local EAP, the RADIUS method configured on the WLAN points to Local. The WLAN must also be configured with the name of the local EAP profile to use.

If no RADIUS method is configured in the WLAN, the switch will use the default RADIUS method defined in global mode.

Information About Local EAP

Local EAP is an authentication method that allows users and wireless clients to be authenticated locally. It is designed for use in remote offices that maintain connectivity to wireless clients when the back-end system is disrupted or the external authentication server goes down. When you enable local EAP, the switch serves as the authentication server and the local user database, which removes dependence on an external authentication server. Local EAP retrieves user credentials from the local user database or the LDAP back-end database to authenticate users. Local EAP supports LEAP, EAP-FAST, EAP-TLS, PEAPv0/MSCHAPv2, and PEAPv1/GTC authentication between the controller and wireless clients.

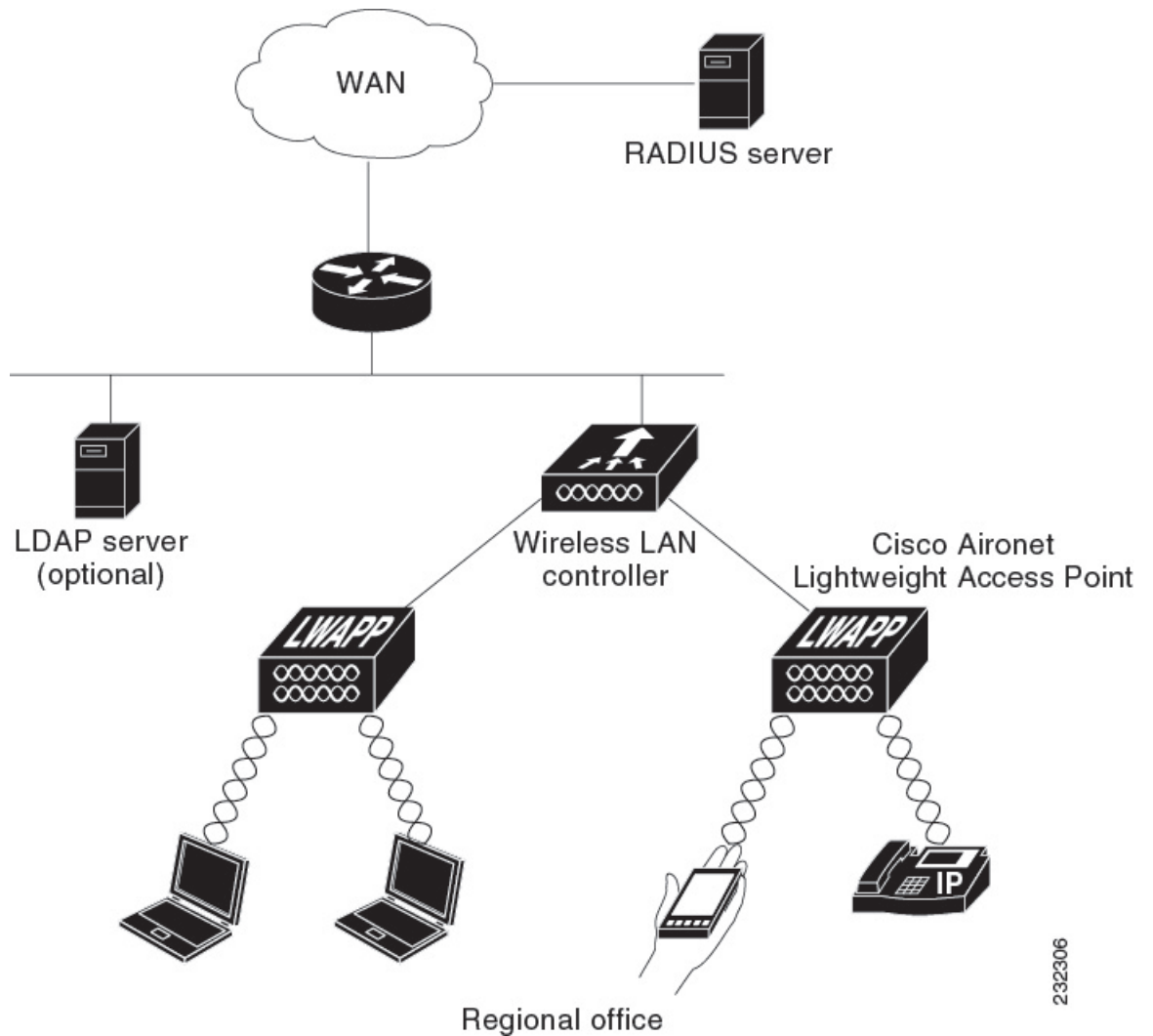


Note The LDAP back-end database supports these local EAP methods: EAP-TLS, EAP-FAST/GTC, and PEAPv1/GTC. LEAP, EAP-FAST/MSCHAPv2, and PEAPv0. MSCHAPv2 is supported only if the LDAP server is set up to return a clear-text password.



Note Switch support Local EAP authentication against external LDAP databases such as Microsoft Active Directory and Novell's eDirectory. For more information about configuring the controller for Local EAP authentication against Novell's eDirectory, see the Configure Unified Wireless Network for Authentication Against Novell's eDirectory Database whitepaper.

Figure 1: Local EAP Example



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Related Topics[Creating a Local User, on page 4](#)[Creating an Client VLAN and Interface, on page 5](#)[Configuring a EAP Profile, on page 6](#)[Creating a Client VLAN, on page 19](#)[Creating 802.1x WLAN Using an External RADIUS Server, on page 21](#)

How to Configure IPv6 WLAN Security

Configuring Local Authentication

Creating a Local User

SUMMARY STEPS

1. **configure terminal**
2. **username aaa_test**
3. **password 0 aaa_test**
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# configure terminal	Enters global command mode.
Step 2	username aaa_test Example: Switch(config)# username aaa_test	Creates a username.
Step 3	password 0 aaa_test Example: Switch(config)# usernameaaa_test password 0 aaa_test	Assigns a password for the username.
Step 4	end Example: Switch(config)# end	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit the global configuration mode.

```
Switch# configure terminal
Switch(config)# username aaa_test password 0 aaa_test
Switch(config)# end
```

Related Topics

[Information About IPv6 WLAN Security, on page 2](#)

Creating an Client VLAN and Interface

SUMMARY STEPS

1. **configure terminal**
2. **vlan**
3. **exit**
4. **interface vlan vlan_ID**
5. **ip address**
6. **ipv6 address**
7. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# configure terminal	Enters global command mode.
Step 2	vlan Example: Switch(config)# vlan 137	Creates a VLAN.
Step 3	exit Example: Switch (config-vlan)# exit	Exits VLAN configuration mode.
Step 4	interface vlan vlan_ID Example: Switch (config)# interface vlan 137	Associates the VLAN to an interface.
Step 5	ip address Example: Switch(config-if)# ip address 10.7.137.10 255.255.255.0	Assigns an IP address to the VLAN interface.

	Command or Action	Purpose
Step 6	ipv6 address Example: Switch(config-if)#ipv6 address 2001:db8::20:1/64	Assigns an IPv6 address to the VLAN interface.
Step 7	end Example: Switch(config)# end	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit the global configuration mode.

```
Switch# configure terminal
Switch(config)# vlan 137
Switch(config-vlan)#exit
Switch(config)#interface vlan 137
Switch(config-if)#ip address 10.7.137.10 255.255.255.0
Switch(config-if)#ipv6 address 2001:db8::20:1/64
Switch(config-if)#end
```

Related Topics

[Information About IPv6 WLAN Security, on page 2](#)

Configuring a EAP Profile

SUMMARY STEPS

1. **eap profile name**
2. **method leap**
3. **method tls**
4. **method peap**
5. **method mschapv2**
6. **method md5**
7. **method gtc**
8. **method fast profile my-fast**
9. **description my_localeap profile**
10. **exit**
11. **eap method fast profilemyFast**
12. **authority-id [identity|information]**
13. **local-key 0 key-name**
14. **pac-password 0 password**
15. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	eap profile name Example: Switch(config)# eap profile wcm_eap_prof	Creates a EAP profile.
Step 2	method leap Example: Switch(config-eap-profile)# method leap	Configures EAP-LEAP method on the profile.
Step 3	method tls Example: Switch(config-eap-profile)# method tls	Configures EAP-TLS method on the profile.
Step 4	method peap Example: Switch(config-eap-profile)# method peap	Configures PEAP method on the profile.
Step 5	method mschapv2 Example: Switch(config-eap-profile)# method mschapv2	Configures EAP-MSCHAPV2 method on the profile.
Step 6	method md5 Example: Switch(config-eap-profile)# method md5	Configures EAP-MD5 method on the profile.
Step 7	method gtc Example: Switch(config-eap-profile)# method gtc	Configures EAP-GTC method on the profile.
Step 8	method fast profile my-fast Example: Switch(config-eap-profile)# eap method fast profile my-fast Switch (config-eap-profile)#description my_local eap profile	Creates a EAP profile named my-fast.
Step 9	description my_localeap profile Example: Switch (config-eap-profile)#description my_local eap profile	Provides a description for the local profile.
Step 10	exit Example: Switch (config-eap-profile)# exit	Exits the eap-profile configuration mode.

	Command or Action	Purpose
Step 11	eap method fast profile myFast Example: Switch (config)# eap method fast profile myFast	Configures the EAP method profile.
Step 12	authority-id [identity information] Example: Switch(config-eap-method-profile)# authority-id identity my_identity Switch(config-eap-method-profile)#authority-id information my_information	Configure the authority ID and information for the EAP method profile.
Step 13	local-key 0 key-name Example: Switch(config-eap-method-profile)# local-key 0 test	Configures the local server key.
Step 14	pac-password 0 password Example: Switch(config-eap-method-profile)# pac-password 0 test	Configures the PAC password for manual PAC provisioning.
Step 15	end Example: Switch(config)# end	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit the global configuration mode.

```
Switch(config)#eap profile wcm_eap_prof
Switch(config-eap-profile)#method leap
Switch(config-eap-profile)#method tls
Switch(config-eap-profile)#method peap
Switch(config-eap-profile)#method mschapv2
Switch(config-eap-profile)#method md5
Switch(config-eap-profile)#method gtc
Switch(config-eap-profile)#eap method fast profile my-fast
Switch (config-eap-profile)#description my_local eap profile
Switch(config-eap-profile)# exit
Switch (config)# eap method fast profile myFast
Switch(config-eap-method-profile)#authority-id identity my_identity
Switch(config-eap-method-profile)#authority-id information my_information
Switch(config-eap-method-profile)#local-key 0 test
Switch(config-eap-method-profile)#pac-password 0 test
Switch(config-eap-method-profile)# end
```

Related Topics

[Information About IPv6 WLAN Security, on page 2](#)

Creating a Local Authentication Model

SUMMARY STEPS

1. **aaa new-model**
2. **authentication dot1x default local**
3. **dot1x method_list local**
4. **aaa authentication dot1x dot1x_name local**
5. **aaa authorization credential-download name local**
6. **aaa local authentication auth-name authorization authorization-name**
7. **session ID**
8. **dot1x system-auth-control**

DETAILED STEPS

	Command or Action	Purpose
Step 1	aaa new-model Example: Switch(config)# aaa new-model	Creates a AAA authentication model.
Step 2	authentication dot1x default local Example: Switch(config)# aaa authentication dot1x default local	Implies that the dot1x must use the default local RADIUS when no other method is found.
Step 3	dot1x method_list local Example: Switch(config)# aaa authentication dot1x wcm_local local	Assigns the local authentication for wcm_local method list.
Step 4	aaa authentication dot1x dot1x_name local Example: Switch(config)# aaa authentication dot1x aaa_auth local	Configures the local authentication for the dot1x method.
Step 5	aaa authorization credential-download name local Example: Switch(config)# aaa authorization credential-download wcm_author local	Configures local database to download EAP credentials from Local/RADIUS/LDAP.
Step 6	aaa local authentication auth-name authorization authorization-name Example: Switch(config)# aaa local authentication wcm_local authorization wcm_author	Selects local authentication and authorization.

	Command or Action	Purpose
Step 7	session ID Example: Switch(config)# aaa session-id common	Configures a session ID for AAA.
Step 8	dot1x system-auth-control Example: Switch(config)# dot1x system-auth-control	Enables dot.1x system authentication control.

```
Switch(config)# aaa new-model
Switch(config)# aaa authentication dot1x default local
Switch(config)# aaa authentication dot1x wcm-local local
Switch(config)# aaa authentication dot1x aaa_auth local
Switch(config)# aaa authorization credential-download wcm_author local
Switch(config)# aaa local authentication wcm_local authorization wcm_author
Switch(config)# aaa session-id common
Switch(config)# dot1x system-auth-control
```

Creating a Client WLAN



Note

This example uses 802.1x with dynamic WEP. You can use any other security mechanism supported by the wireless client and configurable on the switch

SUMMARY STEPS

1. **configure terminal**
2. **wlan wlan name <identifier> SSID**
3. **broadcast-ssid**
4. **no security wpa**
5. **security dot1x**
6. **security dot1x authentication-list wcm-local**
7. **local-auth wcm_eap_prof**
8. **client vlan 137**
9. **no shutdown**
10. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# configure terminal	Enters global command mode.
Step 2	wlan wlan name <identifier> SSID Example: Switch(config)# wlan wlanProfileName 1 ngwcSSID	Creates a WLAN.
Step 3	broadcast-ssid Example: Switch(config-wlan)# broadcast-ssid	Configures to broadcast the SSID on a WLAN.
Step 4	no security wpa Example: Switch(config-wlan)# no security wpa	Disables the wpa for WLAN to enable 802.1x.
Step 5	security dot1x Example: Switch(config-wlan)# security dot1x	Configures the 802.1x encryption security for the WLAN.
Step 6	security dot1x authentication-list wcm-local Example: Switch(config-wlan)# security dot1x authentication-list wcm-local	Configures the server group mapping to the WLAN for dot1x authentication.
Step 7	local-auth wcm_eap_prof Example: Switch (config-wlan)# local-auth wcm_eap_profile	Configures the eap profile on the WLAN for local authentication.
Step 8	client vlan 137 Example: Switch(config-wlan)# client vlan 137	Associates the VLAN to a WLAN.
Step 9	no shutdown Example: Switch(config-wlan)# no shutdown	Enables the WLAN.
Step 10	end Example: Switch(config)# end	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit the global configuration mode.

```
Switch# config terminal
Switch(config)#wlan wlanProfileName 1 ngwcSSID
Switch(config-wlan)#broadcast-ssid
Switch(config-wlan)#no security wpa
Switch(config-wlan)#security dot1x
Switch(config-wlan)#security dot1x authentication-list wcm-local
Switch (config-wlan)# local-auth wcm_eap_prof
Switch(config-wlan)#client vlan 137
Switch(config-wlan)#no shutdown
Switch(config-wlan)#end
Switch#
```

Related Topics

[Creating Client VLAN for WPA2+AES, on page 13](#)

Configuring Local Authentication with WPA2+AES

SUMMARY STEPS

1. **configure terminal**
2. **aaa new model**
3. **dot1x system-auth-control**
4. **aaa authentication dot1x default local**
5. **aaa local authorization credential-download default local**
6. **aaa local authentication default authorization default**
7. **eap profile wcm_eap_profile**
8. **method leap**
9. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# configure terminal	Enters global command mode.
Step 2	aaa new model Example: Switch(config)# aaa new-model	Creates a AAA authentication model.
Step 3	dot1x system-auth-control Example: Switch(config)# dot1x system-auth-control	Enables dot1x system authentication control.

	Command or Action	Purpose
Step 4	aaa authentication dot1x default local Example: Switch(config)# aaa authentication dot1x default local	Configures the local authentication for the default dot1x method.
Step 5	aaa local authorization credential-download default local Example: Switch(config)# aaa authorization credential-download default local	Configures default database to download EAP credentials from local server.
Step 6	aaa local authentication default authorization default Example: Switch(config)# aaa local authentication default authorization default	Selects the default local authentication and authorization.
Step 7	eap profile wcm_eap_profile Example: Switch(config)# eap profile wcm_eap_profile	Creates an EAP profile.
Step 8	method leap Example: Switch(config)# method leap	Configures EAP-LEAP method on the profile.
Step 9	end Example: Switch(config)# end	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit the global configuration mode.

```

Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# dot1x system-auth-control
Switch(config)# aaa authentication dot1x default local
Switch(config)# aaa authorization credential-download default local
Switch(config)# aaa local authentication default authorization default
Switch(config)# eap profile wcm_eap_profile
Switch(config)# method leap
Switch(config)# end

```

Creating Client VLAN for WPA2+AES

Create a VLAN for the WPA2+AES type of local authentication. This VLAN is later mapped to a WLAN.

SUMMARY STEPS

1. **configure terminal**
2. **vlan** vlan_ID
3. **exit**
4. **interface** vlan vlan_ID
5. **ip address**
6. **ipv6 address**
7. **exit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# configure terminal	Enters global command mode.
Step 2	vlan vlan_ID Example: Switch (config)# vlan 105	Creates a VLAN.
Step 3	exit Example: Switch (config-vlan)# exit	Exits from the VLAN mode.
Step 4	interface vlan vlan_ID Example: Switch(config)# interface vlan 105	Associates the VLAN to the interface.
Step 5	ip address Example: Switch(config-if)# ip address 10.8.105.10 255.255.255.0	Assigns IP address to the VLAN interface.
Step 6	ipv6 address Example: Switch(config-if)# ipv6 address 2001:db8::10:1/64	Assigns IPv6 address to the VLAN interface.
Step 7	exit Example: Switch (config-if)# exit	Exits from the interface mode.

```
Switch# configure terminal
Switch(config)# vlan105
Switch (config-vlan)# exit
Switch (config)# interface vlan 105
Switch(config-if)#ip address 10.8.105.10 255.255.255.0
Switch(config-if)#ipv6 address 2001:db8::10:1/64
Switch(config-if)#exit
Switch(config)#
```

Related Topics

[Creating a Client WLAN , on page 10](#)

Creating WLAN for WPA2+AES

Create a WLAN and map it to the client VLAN created for WPA2+AES.

SUMMARY STEPS

1. **configure terminal**
2. **wlan wpa2-aes-wlan 1 wpa2-aes-wlan**
3. **client vlan 105**
4. **local-auth wcm_eap_profile**
5. **security dot1x authentication-list default**
6. **no shutdown**
7. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# configure terminal	Enters global command mode.
Step 2	wlan wpa2-aes-wlan 1 wpa2-aes-wlan Example: Switch(config)# wlan wpa2-aes-wlan 1 wpa2-aes-wlan Switch(config-wlan)#	Creates a WLAN.
Step 3	client vlan 105 Example: Switch(config-wlan)# client vlan 105 Switch(config-wlan)#	Maps the WLAN to the client VLAN.

	Command or Action	Purpose
Step 4	local-auth wcm_eap_profile Example: Switch(config-wlan)#local-auth wcm_eap_profile	Creates and sets the EAP profile on the WLAN.
Step 5	security dot1x authentication-list default Example: Switch(config-wlan)#security dot1x authentication-list default	Uses the default dot1x authentication list.
Step 6	no shutdown Example: Switch(config-wlan)#no shutdown Switch(config-wlan)#	Enables the WLAN.
Step 7	end Example: Switch(config)# end	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit global configuration mode.

```

Switch# configure terminal
Switch(config)#wlan wpa2-aes-wlan 1 wpa2-aes-wlan
Switch(config-wlan)#client vlan 105
Switch(config-wlan)#local-auth wcm_eap_profile
Switch(config-wlan)#security dot1x authentication-list default
Switch(config-wlan)#no shutdown
Switch(config-wlan)# exit

```

Configuring External RADIUS Server

Configuring RADIUS Authentication Server Host

SUMMARY STEPS

1. **configure terminal**
2. **radius server One**
3. **address ipv4 address auth-portauth_port_number acct-port acct_port_number**
4. **address ipv6 address auth-portauth_port_number acct-port acct_port_number**
5. **key 0cisco**
- 6.

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# configure terminal	Enters global command mode.
Step 2	radius server One Example: Switch (config)# radius server One	Creates a radius server.
Step 3	address ipv4 address auth-port auth_port_number acct-port acct_port_number Example: Switch (config-radius-server)# address ipv4 10.10.10.10 auth-port 1812 acct-port 1813	Configures the IPv4 address for the radius server.
Step 4	address ipv6 address auth-port auth_port_number acct-port acct_port_number Example: Switch (config-radius-server)# address ipv6 2001:db8::25:2 auth-port 1812 acct-port 1813	Configures the IPv6 address for the radius server.
Step 5	key 0 cisco Example: Switch (config-radius-server)# key 0 cisco	exit
Step 6	Example: Switch (config-radius-server)# exit	Exits from the radius server mode.

```
Switch# configure terminal
Switch (config)# radius server One
Switch (config-radius-server)# address ipv4 10.10.10.10 auth-port 1812 acct-port 1813
Switch (config-radius-server)# address ipv6 2001:db8::25:2 auth-port 1812 acct-port 1813
Switch (config-radius-server)# key 0 cisco
Switch (config-radius-server)#exit
```

Related Topics

[Configuring RADIUS Authentication Server Group](#) , on page 18

Configuring RADIUS Authentication Server Group

SUMMARY STEPS

1. **configure terminal**
2. **aaa new-model**
3. **aaa group server radius wcm_rad**
4. **server <ip address>auth-port1812acct-port1813**
5. **aaa authentication dot1x method_list group wcm_rad**
6. **dot1x system-auth-control**
7. **aaa session-idcommon**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# configure terminal	Enters global command mode.
Step 2	aaa new-model Example: Switch(config)#aaa new-model	Creates a AAA authentication model.
Step 3	aaa group server radius wcm_rad Example: Switch(config)# aaa group server radius wcm_rad Switch(config-sg-radius)#	Creates an radius server-group.
Step 4	server <ip address>auth-port1812acct-port1813 Example: Switch(config-sg-radius)# server One auth-port 1812 acct-port 1813 Switch(config-sg-radius)# server Two auth-port 1812 acct-port 1813 Switch(config-sg-radius)# server Three auth-port 1812 acct-port 1813	Adds servers to the radius group created in Step 3. Configures the UDP port for RADIUS accounting server and authentication server.
Step 5	aaa authentication dot1x method_list group wcm_rad Example: Switch(config)# aaa authentication dot1x method_list group wcm_rad	Maps the method list to the radius group.
Step 6	dot1x system-auth-control Example: Switch(config)# dot1x system-auth-control	Enables the system authorization control for the radius group.

	Command or Action	Purpose
Step 7	aaa session-id common Example: Switch(config)# aaa session-id common	Ensures that all session IDs information sent out, from the radius group, for a given call are identical.

```
Switch# configure terminal
Switch(config)# aaa new-model
Switch(config)# aaa group server radius wcm_rad
Switch(config-sg-radius)# server One auth-port 1812 acct-port 1813
Switch(config-sg-radius)# server Two auth-port 1812 acct-port 1813
Switch(config-sg-radius)# server Three auth-port 1812 acct-port 1813
Switch(config)# aaa authentication dot1x method_list group wcm_rad
Switch(config)# dot1x system-auth-control
Switch(config)# aaa session-id common
Switch(config)#
```

Related Topics

[Configuring RADIUS Authentication Server Host , on page 16](#)

Creating a Client VLAN

SUMMARY STEPS

1. **configure terminal**
2. **vlan 137**
3. **exit**
4. **interface vlan 137**
5. **ip address 10.7.137.10 255.255.255.0**
6. **ipv6 address 2001:db8::30:1/64**
7. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# configure terminal	Enters global command mode.
Step 2	vlan 137 Example: Switch(config)# vlan 137	Creates a VLAN and associate it to the interface.

	Command or Action	Purpose
Step 3	exit Example: Switch (config-vlan)# exit	Exits from the VLAN mode.
Step 4	interface vlan 137 Example: Switch (config)# interface vlan 137	Assigns a VLAN to an interface.
Step 5	ip address 10.7.137.10 255.255.255.0 Example: Switch(config-if)# ip address 10.7.137.10 255.255.255.0	Assigns an IPv4 address to the VLAN interface.
Step 6	ipv6 address 2001:db8::30:1/64 Example: Switch(config-if)# ipv6 address 2001:db8::30:1/64	Assigns an IPv6 address to the VLAN interface.
Step 7	end Example: Switch(config)# end	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit global configuration mode.

```
Switch# configure terminal
Switch(config)# vlan137
Switch(config-vlan)# exit
Switch(config)# interface vlan137
Switch(config-if)# ip address 10.7.137.10 255.255.255.0
Switch(config-if)# ipv6 address 2001:db8::30:1/64
Switch(config-if)# end
```

Related Topics

[Information About IPv6 WLAN Security, on page 2](#)

[Creating 802.1x WLAN Using an External RADIUS Server, on page 21](#)

Creating 802.1x WLAN Using an External RADIUS Server

SUMMARY STEPS

1. **configure terminal**
2. **wlan ngwc-lx<ssid>ngwc-lx**
3. **broadcast-ssid**
4. **no security wpa**
5. **security dot1x**
6. **security dot1x authentication-list wcm-rad**
7. **client vlan 137**
8. **no shutdown**
9. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	configure terminal Example: Switch# <code>configure terminal</code>	Enters global command mode.
Step 2	wlan ngwc-lx<ssid>ngwc-lx Example: Switch(config)# <code>wlan ngwc_8021x 2 ngwc_8021x</code>	Creates a new WLAN for 802.1x authentication.
Step 3	broadcast-ssid Example: Switch(config-wlan)# <code>broadcast-ssid</code>	Configures to broadcast the SSID on WLAN.
Step 4	no security wpa Example: Switch(config-wlan)# <code>no security wpa</code>	Disables the WPA for WLAN to enable 802.1x.
Step 5	security dot1x Example: Switch(config-wlan)# <code>security dot1x</code>	Configures the 802.1x encryption security for the WLAN.
Step 6	security dot1x authentication-list wcm-rad Example: Switch(config-wlan)# <code>security dot1x authentication-list wcm-rad</code>	Configures the server group mapping to the WLAN for dot1x authentication.

	Command or Action	Purpose
Step 7	client vlan 137 Example: Switch(config-wlan)# client vlan 137	Associates the VLAN to a WLAN.
Step 8	no shutdown Example: Switch(config-wlan)# no shutdown	Enables the WLAN.
Step 9	end Example: Switch(config)# end	Returns to privileged EXEC mode. Alternatively, you can also press Ctrl-Z to exit the global configuration mode.

```
Switch# configure terminal
Switch(config)# wlan ngwc_8021x 2 ngwc_8021x
Switch(config-wlan)# broadcast-ssid
Switch(config-wlan)# no security wpa
Switch(config-wlan)# security dot1x
Switch(config-wlan)# security dot1x authentication-list wcm-rad
Switch(config-wlan)# client vlan 137
Switch(config-wlan)# no shutdown
Switch(config-wlan)# end
```

Related Topics

[Creating a Client VLAN, on page 19](#)

[Information About IPv6 WLAN Security, on page 2](#)

Additional References

Related Documents

Related Topic	Document Title
IPv6 command reference	<i>IPv6 Command Reference (Catalyst 3650 Switches)</i>
WLAN command reference	<i>WLAN Command Reference, Cisco IOS XE Release 3SE (Catalyst 3650 Switches)</i>
WLAN configuration	<i>WLAN Configuration Guide, Cisco IOS XE Release 3SE (Catalyst 3650 Switches)</i>

Error Message Decoder

Description	Link
To help you research and resolve system error messages in this release, use the Error Message Decoder tool.	https://www.cisco.com/cgi-bin/Support/Errordecoder/index.cgi

MIBs

MIB	MIBs Link
All supported MIBs for this release.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	http://www.cisco.com/support

Feature Information for IPv6 WLAN Security

This table lists the features in this module and provides links to specific configuration information:

Feature	Release	Modification
IPv6 WLAN Security Functionality	Cisco IOS XE 3.3SE	This feature was introduced.

