Configuring Policy Profile Features

Configuring AAA Override

SUMMARY STEPS

1. **configure terminal**
2. **wireless profile policy** *profile-policy*
3. **aaa-override**
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**wireless profile policy** *profile-policy* **Example:** `Device(config)# wireless profile policy test-wgb`	Configures WLAN policy profile and enters the wireless policy configuration mode.
Step 3	**aaa-override** **Example:** `Device(config-wireless-policy)# aaa-override`	Configures AAA policy override. **Note** If VLAN is not pushed from the RADIUS server, the VLAN Override feature can be disabled from the RADIUS server.
Step 4	**end**	Returns to privileged EXEC mode.

Command or Action	Purpose
Example: `Device(config-wireless-policy)# end`	Alternatively, you can also press **Ctrl-Z** to exit global configuration mode.

Configuring Override VLAN for Central Switching

SUMMARY STEPS

1. **configure terminal**
2. **vlan** *vlan-id*
3. **name** *vlan-name*
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**vlan** *vlan-id* **Example:** `Device(config)# vlan 20`	Defines VLANs that can be pushed from the RADIUS server. **Note** The valid VLAN ID ranges from 1 to 4094.
Step 3	**name** *vlan-name* **Example:** `Device(config-vlan)# name vlan_ascii`	(Optional) Changes the default name of the VLAN.
Step 4	**end** **Example:** `Device(config-vlan)# end`	Returns to privileged EXEC mode. Alternatively, you can also press **Ctrl-Z** to exit global configuration mode.

Configuring Override VLAN for Local Switching

SUMMARY STEPS

1. **configure terminal**
2. **wireless profile flex** *flex_profile_name*
3. **vlan-name** *vlan_name*
4. **vlan-id** *vlan_id*
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.

Step 2	**wireless profile flex** *flex_profile_name*
	
	Example:
	
	`Device(config)# wireless profile flex`
	`rr-xyz-flex-profile`
		Configures a Flex profile.

Step 3	**vlan-name** *vlan_name*
	
	Example:
	
	`Device(config-wireless-flex-profile)# vlan-name`
	`vlan_123`
		Defines VLANs that can be pushed from the RADIUS server.

Step 4	**vlan-id** *vlan_id*
	
	Example:
	
	`Device(config-wireless-flex-profile-vlan)# vlan-id`
	`23`
		Configures VLAN ID.
		
		The valid VLAN ID ranges from 1 to 4096.

Step 5	**end** **Example:** `Device(config-wireless-flex-profile-vlan)# end`	Returns to privileged EXEC mode. Alternatively, you can also press **Ctrl-Z** to exit global configuration mode.

Verifying VLAN Override on Layer 3 Web Authentication

To display the VLAN override after L3 authentication, use the following command:

```
Device# show wireless client mac <mac> detail
[…]
        Vlan Override after L3 Auth: True
```

To display the statistics about client, use the following command:

```
Device# show wireless stats client detail
[…]
        Total L3 VLAN Override vlan change received   : 1
        Total L3 VLAN Override disassociations sent   : 1
        Total L3 VLAN Override re-associations received  : 1
        Total L3 VLAN Override successful VLAN change   : 1
        […]
        L3 VLAN Override connection timeout                          : 0
```

Configuring DHCP for WLANS (CLI)

Configuring DHCP Scopes (CLI)

SUMMARY STEPS

1. **configure terminal**
2. **ip dhcp pool** *pool-name*
3. **network** *network-name mask-address*
4. **dns-server** *hostname*
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** Device# `configure terminal`	Enters global configuration mode.
Step 2	**ip dhcp pool** *pool-name* **Example:** (config)#`ip dhcp pool test-pool`	Configures the DHCP pool address.
Step 3	**network** *network-name mask-address* **Example:** (dhcp-config)#`network 209.165.200.224 255.255.255.0`	Specifies the network number in dotted-decimal notation and the mask address.
Step 4	**dns-server** *hostname* **Example:** (dhcp-config)#`dns-server example.com`	Specifies the DNS name server. You can specify an IP address or a hostname.
Step 5	**end** **Example:** Device(config)# `end`	Returns to privileged EXEC mode. Alternatively, you can also press **Ctrl-Z** to exit global configuration mode.

Configuring the Internal DHCP Server Under Client VLAN SVI (CLI)

Before you begin

- For wireless clients, only two DHCP servers are supported.

- To use the internal DHCP server for both wireless and wired client VLAN, an IP address must be configured under the client VLAN SVI.

- For wireless clients, the IP address of the internal DHCP server must be different from the address of the wireless client VLAN SVI (in the DHCP helper address configuration).

- For wireless clients, the internal DHCP server can be configured under the client VLAN SVI or under the wireless policy profile.

SUMMARY STEPS

1. **configure terminal**
2. **interface loopback** *interface-number*
3. **ip address** *ip-address*
4. **exit**
5. **interface vlan** *vlan-id*
6. **ip address** *ip-address*
7. **ip helper-address** *ip-address*
8. **no mop enabled**
9. **no mop sysid**
10. **exit**
11. **ip dhcp excluded-address** *ip-address*
12. **ip dhcp excluded-address** *ip-address*
13. **ip dhcp pool** *pool-name*
14. **network** *network-name mask-address*
15. **default-router** *ip-address*
16. **exit**
17. **wireless profile policy** *profile-policy*
18. **central association**
19. **central dhcp**
20. **central switching**
21. **description** *policy-proile-name*
22. **vlan** *vlan-name*
23. **no shutdown**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**interface loopback** *interface-number* **Example:** `Device(config)# interface Loopback0`	Creates a loopback interface and enters interface configuration mode.
Step 3	**ip address** *ip-address* **Example:**	Configures the IP address for the interface.

	Command or Action	Purpose
	`Device(config-if)# ip address 10.10.10.1 255.255.255.255`	
Step 4	**exit** **Example:** `Device(config-if)# exit`	Exits interface configuration mode.
Step 5	**interface vlan** *vlan-id* **Example:** `Device(config)# interface vlan 32`	Configures the VLAN ID.
Step 6	**ip address** *ip-address* **Example:** `Device(config-if)# ip address 192.168.32.100 255.255.255.0`	Configures the IP address for the interface.
Step 7	**ip helper-address** *ip-address* **Example:** `Device(config-if)# ip helper-address 10.10.10.1`	Configures the destination address for UDP broadcasts. **Note** If the IP address used in the **ip helper-address** command is an internal address of the controller an internal DHCP server is used. Otherwise, the external DHCP server is used.
Step 8	**no mop enabled** **Example:** `Device(config-if)# no mop enabled`	Disables the Maintenance Operation Protocol (MOP) for an interface.
Step 9	**no mop sysid** **Example:** `Device(config-if)# no mop sysid`	Disables the task of sending MOP periodic system ID messages.
Step 10	**exit** **Example:** `Device(config-if)# exit`	Exits interface configuration mode.
Step 11	**ip dhcp excluded-address** *ip-address* **Example:** `Device(config)# ip dhcp excluded-address 192.168.32.1`	Specifies the IP address that the DHCP server should not assign to DHCP clients.
Step 12	**ip dhcp excluded-address** *ip-address* **Example:** `Device(config)# ip dhcp excluded-address 192.168.32.100`	Specifies the IP addresses that the DHCP server should not assign to DHCP clients.
Step 13	**ip dhcp pool** *pool-name* **Example:**	Configures the DHCP pool address.

	Command or Action	**Purpose**
	Device(config)# ip dhcp pool pool-vlan32	
Step 14	**network** *network-name mask-address* **Example:** Device(dhcp-config)# network 192.168.32.0 255.255.255.0	Specifies the network number in dotted-decimal notation, along with the mask address.
Step 15	**default-router** *ip-address* **Example:** Device(dhcp-config)# default-router 192.168.32.1	Specifies the IP address of the default router for a DHCP client.
Step 16	**exit** **Example:** Device(dhcp-config)# exit	Exits DHCP configuration mode.
Step 17	**wireless profile policy** *profile-policy* **Example:** Device(config)# wireless profile policy default-policy-profile	Configures the WLAN policy profile and enters wireless policy configuration mode.
Step 18	**central association** **Example:** Device(config-wireless-policy)# central association	Configures central association for locally switched clients.
Step 19	**central dhcp** **Example:** Device(config-wireless-policy)# central dhcp	Configures the central DHCP for locally switched clients.
Step 20	**central switching** **Example:** Device(config-wireless-policy)# central switching	Configures WLAN for central switching.
Step 21	**description** *policy-proile-name* **Example:** Device(config-wireless-policy)# description "default policy profile"	Adds a description for the policy profile
Step 22	**vlan** *vlan-name* **Example:** Device(config-wireless-policy)# vlan 32	Assigns the profile policy to the VLAN.
Step 23	**no shutdown** **Example:** Device(config-wireless-policy)# no shutdown	Enables the wireless profile policy.

Configuring the Internal DHCP Server Under a Wireless Policy Profile

SUMMARY STEPS

1. **configure terminal**
2. **interface loopback** *interface-number*
3. **ip address** *ip-address*
4. **exit**
5. **interface vlan** *vlan-id*
6. **ip address** *ip-address*
7. **no mop enabled**
8. **no mop sysid**
9. **exit**
10. **ip dhcp excluded-address** *ip-address*
11. **ip dhcp pool** *pool-name*
12. **network** *network-name mask-address*
13. **default-router** *ip-address*
14. **exit**
15. **wireless profile policy** *profile-policy*
16. **central association**
17. **central switching**
18. **description** *policy-proile-name*
19. **ipv4 dhcp opt82**
20. **ipv4 dhcp opt82 ascii**
21. **ipv4 dhcp opt82 format vlan_id**
22. **ipv4 dhcp opt82 rid** *vlan_id*
23. **ipv4 dhcp server** *ip-address*
24. **vlan** *vlan-name*
25. **no shutdown**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**interface loopback** *interface-number* **Example:** `Device(config)# interface Loopback0`	Creates a loopback interface and enters interface configuration mode.

Step 3	**ip address** *ip-address*
	Example:
	`Device(config-if)# ip address 10.10.10.1`
	`255.255.255.255`
		Configures the IP address for the interface.

	Command or Action	Purpose
Step 4	**exit** **Example:** `Device(config-if)# exit`	Exits interface configuration mode.
Step 5	**interface vlan** *vlan-id* **Example:** `Device(config)# interface vlan 32`	Configures the VLAN ID.

Step 6	**ip address** *ip-address*
	
	Example:
	
	`Device(config-if)# ip address 192.168.32.100`
	`255.255.255.0`
		Configures the IP address for the interface.

Step 7	**no mop enabled** **Example:** `Device(config-if)# no mop enabled`	Disables the Maintenance Operation Protocol (MOP) for an interface.
Step 8	**no mop sysid** **Example:** `Device(config-if)# no mop sysid`	Disables the task of sending MOP periodic system ID messages.
Step 9	**exit** **Example:** `Device(config-if)# exit`	Exits interface configuration mode.

Step 10	**ip dhcp excluded-address** *ip-address*
	
	Example:
	
	`Device(config)# ip dhcp excluded-address`
	`192.168.32.100`
		Specifies the IP address that the DHCP server should not assign to DHCP clients.

Step 11	**ip dhcp pool** *pool-name* **Example:** `Device(config)# ip dhcp pool pool-vlan32`	Configures the DHCP pool address.

Step 12	**network** *network-name mask-address*
	
	Example:
	
	`Device(dhcp-config)# network 192.168.32.0`
	`255.255.255.0`
		Specifies the network number in dotted-decimal notation along with the mask address.

Step 13	**default-router** *ip-address* **Example:** `Device(dhcp-config)# default-router 192.168.32.1`	Specifies the IP address of the default router for a DHCP client.
Step 14	**exit** **Example:**	Exits DHCP configuration mode.

	Command or Action	**Purpose**
	Device(dhcp-config)# exit	
Step 15	**wireless profile policy** *profile-policy* **Example:** Device(config)# wireless profile policy default-policy-profile	Configures a WLAN policy profile and enters wireless policy configuration mode.
Step 16	**central association** **Example:** Device(config-wireless-policy)# central association	Configures central association for locally switched clients.
Step 17	**central switching** **Example:** Device(config-wireless-policy)# central switching	Configures local switching.
Step 18	**description** *policy-proile-name* **Example:** Device(config-wireless-policy)# description "default policy profile"	Adds a description for the policy profile.
Step 19	**ipv4 dhcp opt82** **Example:** Device(config-wireless-policy)# ipv4 dhcp opt82	Enables DHCP Option 82 for the wireless clients.
Step 20	**ipv4 dhcp opt82 ascii** **Example:** Device(config-wireless-policy)# ipv4 dhcp opt82 ascii	Enables ASCII on DHCP Option 82.
Step 21	**ipv4 dhcp opt82 format vlan_id** **Example:** Device(config-wireless-policy)# ipv4 dhcp opt82 format vlan32	Enables VLAN ID.
Step 22	**ipv4 dhcp opt82 rid** *vlan_id* **Example:** Device(config-wireless-policy)# ipv4 dhcp opt82 rid	Supports the addition of Cisco 2-byte Remote ID (RID) for DHCP Option 82.
Step 23	**ipv4 dhcp server** *ip-address* **Example:** Device(config-wireless-policy)# ipv4 dhcp server 10.10.10.1	Configures the WLAN's IPv4 DHCP server.
Step 24	**vlan** *vlan-name* **Example:**	Assigns the profile policy to the VLAN.

	Command or Action	Purpose
	Device(config-wireless-policy)# vlan 32	
Step 25	**no shutdown** **Example:** Device(config-wireless-policy)# no shutdown	Enables the wireless profile policy.

Configuring the Internal DHCP Server Globally (CLI)

SUMMARY STEPS

1. **configure terminal**
2. **interface loopback** *interface-num*
3. **ip address** *ip-address*
4. **exit**
5. **interface vlan***vlan-id*
6. **ip address** *ip-address*
7. **no mop enabled**
8. **no mop sysid**
9. **exit**
10. **ip dhcp-server** *ip-address*
11. **ip dhcp excluded-address** *ip-address*
12. **ip dhcp pool** *pool-name*
13. **network** *network-name mask-address*
14. **default-router** *ip-address*
15. **exit**
16. **wireless profile policy** *profile-policy*
17. **central association**
18. **central dhcp**
19. **central switching**
20. **description** *policy-proile-name*
21. **vlan** *vlan-name*
22. **no shutdown**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** Device# configure terminal	Enters global configuration mode.
Step 2	**interface loopback** *interface-num* **Example:** Device(config)# interface Loopback0	Creates a loopback interface and enters interface configuration mode.

	Command or Action	**Purpose**
Step 3	**ip address** *ip-address* **Example:** `Device(config-if)# ip address 10.10.10.1 255.255.255.255`	Configures the IP address for the interface.
Step 4	**exit** **Example:** `Device(config-if)# exit`	Exits interface configuration mode.
Step 5	**interface vlan***vlan-id* **Example:** `Device(config)# interface vlan 32`	Configures the VLAN ID.
Step 6	**ip address** *ip-address* **Example:** `Device(config-if)# ip address 192.168.32.100 255.255.255.0`	Configures the IP address for the interface.
Step 7	**no mop enabled** **Example:** `Device(config-if)# no mop enabled`	Disables the Maintenance Operation Protocol (MOP) for an interface.
Step 8	**no mop sysid** **Example:** `Device(config-if)# no mop sysid`	Disables the task of sending the MOP periodic system ID messages.
Step 9	**exit** **Example:** `Device(config-if)# exit`	Exits the interface configuration mode.
Step 10	**ip dhcp-server** *ip-address* **Example:** `Device(config)# ip dhcp-server 10.10.10.1`	Specifies the target DHCP server parameters.
Step 11	**ip dhcp excluded-address** *ip-address* **Example:** `Device(config)# ip dhcp excluded-address 192.168.32.100`	Specifies the IP address that the DHCP server should not assign to DHCP clients.
Step 12	**ip dhcp pool** *pool-name* **Example:** `Device(config)# ip dhcp pool pool-vlan32`	Configures the DHCP pool address.
Step 13	**network** *network-name mask-address* **Example:**	Specifies the network number in dotted-decimal notation along with the mask address.

	Command or Action	Purpose
	`Device(dhcp-config)# network 192.168.32.0 255.255.255.0`	
Step 14	**default-router** *ip-address* **Example:** `Device(dhcp-config)# default-router 192.168.32.1`	Specifies the IP address of the default router for a DHCP client.
Step 15	**exit** **Example:** `Device(dhcp-config)# exit`	Exits DHCP configuration mode.
Step 16	**wireless profile policy** *profile-policy* **Example:** `Device(config)# wireless profile policy default-policy-profile`	Configures a WLAN policy profile and enters wireless policy configuration mode.
Step 17	**central association** **Example:** `Device(config-wireless-policy)# central association`	Configures central association for locally switched clients.
Step 18	**central dhcp** **Example:** `Device(config-wireless-policy)# central dhcp`	Configures central DHCP for locally switched clients.
Step 19	**central switching** **Example:** `Device(config-wireless-policy)# central switching`	Configures local switching.
Step 20	**description** *policy-proile-name* **Example:** `Device(config-wireless-policy)# description "default policy profile"`	Adds a description for the policy profile.
Step 21	**vlan** *vlan-name* **Example:** `Device(config-wireless-policy)# vlan 32`	Assigns the profile policy to the VLAN.
Step 22	**no shutdown** **Example:** `Device(config-wireless-policy)# no shutdown`	Enables the profile policy.

Verifying Internal DHCP Configuration

To verify client binding, use the following command:

```
Device# show ip dhcp binding

Bindings from all pools not associated with VRF:
IP address       Client-ID/               Lease expiration        Type        State
Interface
                 Hardware address/
                 User name
192.168.32.3     0130.b49e.491a.53        Mar 23 2018 06:42 PM    Automatic   Active
Loopback0
```

To verify the DHCP relay statistics for a wireless client, use the following command:

```
Device# show wireless dhcp relay statistics

DHCP Relay Statistics
---------------------

DHCP Server IP :   10.10.10.1

Message            Count
------------------------
DHCPDISCOVER     : 1
BOOTP FORWARD    : 137
BOOTP REPLY      : 0
DHCPOFFER        : 0
DHCPREQUEST      : 54
DHCPACK          : 0
DHCPNAK          : 0
DHCPDECLINE      : 0
DHCPRELEASE      : 0
DHCPINFORM       : 82

Tx/Rx Time :
-----------
LastTxTime : 18:42:18
LastRxTime : 00:00:00

Drop Counter :
-------------
TxDropCount : 0
```

To verify the DHCP packet punt statistics in CPP, use the following command:

```
Device# show platform hardware chassis active qfp feature wireless punt statistics

CPP Wireless Punt stats:

                                App Tag     Packet Count
                                -------     ------------
          CAPWAP_PKT_TYPE_DOT11_PROBE_REQ         14442
               CAPWAP_PKT_TYPE_DOT11_MGMT            50
               CAPWAP_PKT_TYPE_DOT11_IAPP          9447
               CAPWAP_PKT_TYPE_DOT11_RFID             0
                CAPWAP_PKT_TYPE_DOT11_RRM             0
              CAPWAP_PKT_TYPE_DOT11_DOT1X             0
          CAPWAP_PKT_TYPE_CAPWAP_KEEPALIVE         2191
        CAPWAP_PKT_TYPE_MOBILITY_KEEPALIVE            0
             CAPWAP_PKT_TYPE_CAPWAP_CNTRL          7034
              CAPWAP_PKT_TYPE_CAPWAP_DATA             0
            CAPWAP_PKT_TYPE_MOBILITY_CNTRL            0
                           WLS_SMD_WEBAUTH             0
                        SISF_PKT_TYPE_ARP          5292
                       SISF_PKT_TYPE_DHCP           140
```

```
                  SISF_PKT_TYPE_DHCP6                 1213
               SISF_PKT_TYPE_IPV6_ND                  350
            SISF_PKT_TYPE_DATA_GLEAN                    44
         SISF_PKT_TYPE_DATA_GLEAN_V6                    51
             SISF_PKT_TYPE_DHCP_RELAY                  122
      CAPWAP_PKT_TYPE_CAPWAP_RESERVED                    0
```

Configuring FlexConnect DHCP-Required (CLI)

Perform the procedure given below to configure FlexConnect DHCP-Required through the CLI:

SUMMARY STEPS

1. **configure terminal**
2. **wireless profile policy** *profile-policy*
3. **ipv4 dhcp required**
4. **no shutdown**

DETAILED STEPS

	Command or Action	**Purpose**
Step 1	**configure terminal** **Example:** `Device#configure terminal`	Enters global configuration mode.
Step 2	**wireless profile policy** *profile-policy* **Example:** `Device#wireless profile policy rr-xyz-policy-1`	Configures WLAN policy profile and enters the wireless policy configuration mode.
Step 3	**ipv4 dhcp required** **Example:** `Device(config-wireless-policy)#ipv4 dhcp required`	Enables the FlexConnect DHCP-Required feature.
Step 4	**no shutdown** **Example:** `Device(config-wireless-policy)#no shutdown`	Saves the configuration.

Verifying FlexConnect DHCP-Required

- To verify the IP address learnt for a client on an IP DHCP-Required policy-enabled WLAN, use the **show wireless client summary** command:

Note The controller or AP does not learn the IP address through other means such as ARP or data gleaning, when IPv4 DHCP-Required is enabled.

```
Device# show wireless client summary
Number of Clients: 1
MAC Address          AP Name            Type  ID  State         Protocol     Method
Role
―――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――

1cXX.bXXX.59XX       APXXXX.7XXX.4XXX   WLAN  3   IP Learn      11ac         Dot1x
Local
```

- This example shows that the client IP is in the **Run** state, indicating that the client has received the IP address from DHCP:

```
Device# show wireless client summary
Number of Clients: 1
MAC Address          AP Name            Type      ID      State        Protocol
Method       Role
―――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――――

5XXX.37XX.c3XX       APXXXX.4XXX.4XXX   WLAN      3       Run          11n(5)
None         Local
```

Configuring DHCP for WLANs (GUI)

Configuring DHCP Scopes (GUI)

Step 1   Choose **Administration > DHCP Pools**.

Step 2   In the **Pools** section, click **Add** to add a new DHCP pool.

The **Create DHCP Pool** dialog box is displayed.

Step 3   In the **DHCP Pool Name** field, enter a name for the new DHCP pool.

Step 4   From the **IP Type** drop-down list, choose the IP address type.

Step 5   In the **Network** field, enter the network served by this DHCP scope. This IP address is used by the management interface with netmask applied, as configured in the **Interfaces** window.

Step 6   In the **Subnet Mask** field, enter the subnet mask assigned to all the wireless clients.

Step 7   In the **Starting ip** field, enter the starting IP address.

Step 8   In the **Ending ip** field, enter the trailing IP address.

Step 9   In the **Reserved Only** field, enable or disable it.

Step 10   From the **Lease** drop-down list, choose the lease type as either **User Defined** or **Never Expires**. If you choose User Defined, you can enter the amount of time that an IP address is granted to a client.

Step 11   To perform advanced configuration for DHCP scope, click **Advanced**.

Step 12   Check the **Enable DNS Proxy** check box to enable DNS proxy.

Step 13   In the **Default Router(s)** field, enter the IP address of the optional router or routers that connect to the device and click the + icon to add them to the list. Each router must include a DHCP forwarding agent that enables a single device to serve the clients of multiple devices.

Step 14   In the **DNS Server(s)** field, enter the IP address of the optional DNS server or servers and click the + icon to add them to the list. Each DNS server must be able to update a client's DNS entry to match the IP address assigned by the DHCP scope.

Step 15	In the **NetBios Name Server(s)** field, enter the IP address of the optional Microsoft NetBIOS name server or servers, such as Microsoft Windows Internet Naming Service (WINS) server, and click the + icon to add them to the list.
Step 16	In the **Domain** field, enter the optional domain name of the DHCP scope for use with one or more DNS servers.
Step 17	To add **DHCP** options, click **Add** in the **DHCP Options List** section. DHCP provides an internal framework for passing configuration parameters and other control information, such as DHCP options, to the clients on your network. DHCP options carry parameters as tagged data stored within protocol messages exchanged between the DHCP server and its clients.
Step 18	Enter the **DHCP** option that you want to add.
Step 19	Click **Save & Apply to Device**.

Configuring the Internal DHCP Server Under Client VLAN SVI (GUI)

Step 1	Choose **Configuration** > **Layer2** > **VLAN** > **SVI**.
Step 2	Click an SVI.
Step 3	Click the **Advanced** tab.
Step 4	Under **DHCP Relay** settings, enter the **IPV4 Helper Address**.
Step 5	Click **Update & Apply to Device**.

Configuring the Internal DHCP Server Under a Wireless Policy Profile (GUI)

Step 1	Choose **Configuration** > **Tags & Profiles** > **Policy**.
Step 2	Click a policy name.
Step 3	Click the **Advanced** tab.
Step 4	Under **DHCP** settings, check or uncheck the **IPv4 DHCP Required** check box and enter the **DHCP Server IP Address**.
Step 5	Click **Update & Apply to Device**.

Configuring the Internal DHCP Server Globally (GUI)

Step 1	Choose **Administration** > **DHCP Pools** > **Pools**.
Step 2	Click **Add**.
	The **Create DHCP Pool** window is displayed.
Step 3	Enter the **DHCP Pool Name**, **Network**, **Starting ip**, and **Ending ip**.
Step 4	From the **IP Type**, **Subnet Mask**, and **Lease** drop-down lists, choose a value.
Step 5	Click the **Reserved Only** toggle button.

Step 6   Click **Apply to Device**.

Configuring FlexConnect DHCP-Required (GUI)

Perform the steps given below to configure the FlexConnect DHCP-Required feature through the GUI:

Step 1   Choose **Configuration** > **Tags & Profiles** > **Policy**.

Step 2   On the **Policy** window, click the name of the corresponding Policy Profile.
The **Edit Policy Profile** window is displayed.

Step 3   Click the **Advanced** tab.

Step 4   In the **DHCP** section, check the **IPv4 DHCP Required** check box to enable the feature.

Step 5   Click **Update & Apply to Device**.