Configuring WLANs

Configuring WLANs Through the CLI

Creating and Enabling WLANs (CLI)

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **wlan** *profile-name wlan-id* [*ssid*]
4. **no shutdown**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters the global configuration mode.
Step 3	**wlan** *profile-name wlan-id* [*ssid*] **Example:** `Device(config)# wlan mywlan 34 mywlan-ssid`	Specifies the WLAN name and ID: • For the *profile-name* argument, enter the profile name. The range is from 1 to 32 alphanumeric characters. • For the *wlan-id*argument, enter the WLAN ID. The range is from 1 to 512.

	Command or Action	Purpose
		• For the *ssid*argument, enter the Service Set Identifier (SSID) for this WLAN. If the SSID is not specified, the WLAN profile name is set as the SSID. **Note** • You can create an SSID using the GUI or CLI. However, we recommend that you use CLI to create SSID. • The configured WLAN is disabled by default.
Step 4	**no shutdown** **Example:** `Device(config-wlan)# no shutdown`	Enables the WLAN.
Step 5	**end** **Example:** `Device(config)# end`	Exits global configuration mode and returns to privileged EXEC mode.

Disabling and Deleting WLANs (CLI)

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **wlan** *profile-name*
4. **shutdown**
5. **exit**
6. **no wlan** *wlan-name wlan-id ssid*
7. **show wlan summary**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**wlan** *profile-name* **Example:**	Enters WLAN configuration mode.

	Command or Action	Purpose
	`Device(config)# wlan mywlan-ssid`	• The *profile-name* argument is the profile name of the configured WLAN.
Step 4	**shutdown** **Example:** `Device(config-wlan)# shutdown`	Disables the WLAN.
Step 5	**exit** **Example:** `Device(config-wlan)# exit`	Exits WLAN configuration mode and returns to global configuration mode.
Step 6	**no wlan** *wlan-name wlan-id ssid* **Example:** `Device(config)# no wlan mywlan-ssid`	Deletes the WLAN.
Step 7	**show wlan summary** **Example:** `Device# show wlan summary`	Displays the list of all WLANs configured on the device.

Configuring General WLAN Properties (CLI)

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **wlan** *profile-name*
4. **shutdown**
5. **broadcast-ssid**
6. **radio** {**dot11a** | **dot11ag** | **dot11bg** | **dot11ag**}
7. **media-stream multicast-direct**
8. **assisted-roaming** {**dual-list** | **neighbor-list** | **prediction**}
9. **band-select**
10. **bss-transition**
11. **bssmaxidle** [**protected-mode**]
12. **device-analytics** [**export**]
13. **dms**
14. **dot11ax**
15. **dtim dot11** {**24ghs** | **5ghz** } *DTIM-period*
16. **ignore-rsn-ie-len**
17. **ipv6 traffic-filter web** *ipv6-acl-name*
18. **load-balance**
19. **local-auth** *EAP-profile*
20. **no shutdown**

21. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**wlan** *profile-name* **Example:** `Device(config)# wlan test4`	Enters WLAN configuration mode. The *profile-name* is the profile name of the configured WLAN.
Step 4	**shutdown** **Example:** `Device(config-wlan)# shutdown`	Disables the WLAN.
Step 5	**broadcast-ssid** **Example:** `Device(config-wlan)# broadcast-ssid`	Broadcasts the SSID for this WLAN.
Step 6	**radio** {**dot11a** | **dot11ag** | **dot11bg** | **dot11ag**} **Example:** `Device(config-wlan)# radio dot11g`	Configures the WLAN on all radio bands. • **dot11a**: Configures the WLAN on only 802.11a radio bands. • **dot11g**: Configures the WLAN on 802.11ag radio bands. • **dot11bg**: Configures the WLAN on only 802.11b/g radio bands (only 802.11b if 802.11g is disabled). • **dot11ag**: Configures the wireless LAN on 802.11g radio bands only.
Step 7	**media-stream multicast-direct** **Example:** `Device(config-wlan)# media-stream multicast-direct`	Enables multicast VLANs on the WLAN.
Step 8	**assisted-roaming** {**dual-list** | **neighbor-list** | **prediction**} **Example:** `Device(config-wlan)# assisted-roaming neighbor-list`	Configures the 802.11k neighbor-list support on the WLAN.

	Command or Action	Purpose
Step 9	**band-select** **Example:** `Device(config-wlan)# band-select`	Allows band selection on the WLAN.
Step 10	**bss-transition** **Example:** `Device(config-wlan)# bss-transition`	Configures 802.11v Basic Service Set (BSS) transition per WLAN.
Step 11	**bssmaxidle** [**protected-mode**] **Example:** `Device(config-wlan)# bssmaxidle protected-mode`	Configures protected mode for BSS maximum idle processing per WLAN.
Step 12	**device-analytics** [**export**] **Example:** `Device(config-wlan)# device-analytics export`	Configures device-analytics export on the WLAN.
Step 13	**dms** **Example:** `Device(config-wlan)# dms`	Configures Directed Multicast Service (DMS) processing per WLAN.
Step 14	**dot11ax** **Example:** `Device(config-wlan)# dot11ax`	Configures 802.11ax on the WLAN.
Step 15	**dtim dot11** {**24ghs** | **5ghz** } *DTIM-period* **Example:** `Device(config-wlan)# bssmaxidle protected-mode`	Sets the Delivery Traffic Indication Map (DTIM) period for the 802.11a radio for the WLAN.
Step 16	**ignore-rsn-ie-len** **Example:** `Device(config-wlan)# ignore-rsn-ie-len`	Skips the Robust Security Network (RSN) Information Element (IE) length validation during key exchange.
Step 17	**ipv6 traffic-filter web** *ipv6-acl-name* **Example:** `Device(config-wlan)# ipv6 traffic-filter web ipv6-acl-1`	Specifies the IPv6 WLAN web access list.
Step 18	**load-balance** **Example:** `Device(config-wlan)# load-balance`	Allows load balancing on the WLAN.
Step 19	**local-auth** *EAP-profile* **Example:** `Device(config-wlan)# local-auth eap-profile1`	Sets the Extensible Authentication Protocol (EAP) profile on the WLAN.

	Command or Action	Purpose
Step 20	**no shutdown** **Example:** `Device(config-wlan)# no shutdown`	Enables the WLAN.
Step 21	**end** **Example:** `Device(config-wlan)# end`	Exits WLAN configuration mode and returns to privileged EXEC mode.

Configuring Advanced WLAN Properties (CLI)

SUMMARY STEPS

1. **configure terminal**
2. **wlan** *profile-name*
3. **chd**
4. **ccx aironet-iesupport**
5. **client association limit** {*clients-per-wlan* | **ap** *clients-per-ap-per-wlan* | **radio***clients-per-ap-radio--per-wlan*}
6. **ip access-group web** *acl-name*
7. **peer-blocking** [**allow-private-groupdrop** | **forward-upstream**]
8. **channel-scan** {**defer-priority 0-7** | **defer-time 0 - 6000**}
9. **mac-filtering** [*authorization-list* **authorization-override**]
10. **mbo**
11. **mdns-sd-interface** {**drop** | **gateway**}
12. **mu-mimo**
13. **multicast buffer** *multicast-buffers*
14. **roamed-voice-client re-anchor**
15. **scan-report** {**association** | **roam**}
16. **scheduler asr**
17. **static-ip tunneling**
18. **tfs**
19. **uapsd compliant-client**
20. **universal-ap-admin**
21. **wifi-direct policy** {**allow** | **not-allow** | **xconnect-not-allow**}
22. **wifi-to-cellular**
23. **wmm** {**allowed** | **require**}
24. **wnm-sleep-mode**
25. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**wlan** *profile-name* **Example:** `Device(config)# wlan test4`	Enters WLAN configuration submode. The *profile-name* is the profile name of the configured WLAN.
Step 3	**chd** **Example:** `Device(config-wlan)# chd`	Enables coverage hole detection for this WLAN.
Step 4	**ccx aironet-iesupport** **Example:** `Device(config-wlan)# ccx aironet-iesupport`	Enables support for Aironet IEs for this WLAN.
Step 5	**client association limit** {*clients-per-wlan* | **ap** *clients-per-ap-per-wlan* | **radio***clients-per-ap-radio--per-wlan*} **Example:** `Device(config-wlan)# client association limit ap 400`	Sets the maximum number of clients, clients per AP, or clients per AP radio that can be configured on a WLAN.
Step 6	**ip access-group web** *acl-name* **Example:** `Device(config-wlan)# ip access-group web test-acl-name`	Configures the IPv4 WLAN web ACL. The variable *acl-name* specifies the user-defined IPv4 ACL name.
Step 7	**peer-blocking** [**allow-private-groupdrop** | **forward-upstream**] **Example:** `Device(config-wlan)# peer-blocking drop`	Configures peer to peer blocking parameters. The keywords are as follows: • **allow-private-group**: Enables peer-to-peer blocking on the Allow Private Group action. • **drop**: Enables peer-to-peer blocking on the drop action. • **forward-upstream**: No action is taken and forwards packets to the upstream. **Note** The **forward-upstream** option is not supported for Flex local switching. Traffic is dropped even if this option is configured. Also, peer to peer blocking for local switching SSIDs are available only for the clients on the same AP.

	Command or Action	Purpose
Step 8	**channel-scan** {**defer-priority 0-7** | **defer-time 0 - 6000**} **Example:** `Device(config-wlan)# channel-scan defer-priority 6`	Sets the channel scan defer priority and defer time. • **defer-priority**: Specifies the priority markings for packets that can defer off-channel scanning. The range is from 0 to 7. The default is 3. • **defer-time**: Deferral time in milliseconds. The range is from 0 to 6000. The default is 100.
Step 9	**mac-filtering** [*authorization-list* **authorization-override**] **Example:** `Device(config-wlan)# mac-flitering mac-list1 authorization-override`	Sets the override-authorization list for MAC filtering.
Step 10	**mbo** **Example:** `Device(config-wlan)# mbo`	Configures Wi-Fi Alliance Agile Multiband (MBO) support on the WLAN.
Step 11	**mdns-sd-interface** {**drop** | **gateway**} **Example:** `Device(config-wlan)# mdns-sd-interface gateway`	Enables multicast Domain Name System (mDNS) gateway for the WLAN.
Step 12	**mu-mimo** **Example:** `Device(config-wlan)# mu-mimo`	Configures 802.11ac Multi-User Multiple Input Multiple Output (MU-MIMO) on the WLAN.
Step 13	**multicast buffer** *multicast-buffers* **Example:** `Device(config-wlan)# multicast buffer 56`	Configures multicast buffer tuning for 802.11a radio for the WLAN.
Step 14	**roamed-voice-client re-anchor** **Example:** `Device(config-wlan)# multicast buffer 56`	Configures the re-anchor policy for roaming voice clients.
Step 15	**scan-report** {**association** | **roam**} **Example:** `Device(config-wlan)# scan-report association`	Enables scan report (beacon measurement) requests when clients get associated.
Step 16	**scheduler asr** **Example:** `Device(config-wlan)# scheduler asr`	Configures advanced scheduling-request handling on the WLAN.
Step 17	**static-ip tunneling** **Example:** `Device(config-wlan)# static-ip tunneling`	Configures static IP client-tunneling support on the WLAN.

	Command or Action	Purpose
Step 18	**tfs** **Example:** `Device(config-wlan)# tfs`	Configure TFS processing on the WLAN.
Step 19	**uapsd compliant-client** **Example:** `Device(config-wlan)# uapsd compliant-client`	Configures Wi-Fi MultiMedia (WMM) Unscheduled automatic power save delivery (U-APSD) compliant-client support for the WLAN.
Step 20	**universal-ap-admin** **Example:** `Device(config-wlan)# universal-ap-admin`	Enables universal AP on the WLAN.
Step 21	**wifi-direct policy** {**allow** | **not-allow** | **xconnect-not-allow**} **Example:** `Device(config-wlan)# wifi-direct policy allow`	Allows Wi-Fi direct clients to associate unconditionally with the WLAN.
Step 22	**wifi-to-cellular** **Example:** `Device(config-wlan)# wifi-to-cellular`	Configures Wi-Fi-to-cellular steering on the WLAN.
Step 23	**wmm** {**allowed** | **require**} **Example:** `Device(config-wlan)# wmm allowed`	Allows WMM on the WLAN.
Step 24	**wnm-sleep-mode** **Example:** `Device(config-wlan)# wnm-sleep-mode`	Configures Wireless Network Management (WNM) sleep mode on the WLAN.
Step 25	**end** **Example:** `Device(config-wlan)# end`	Exits WLAN configuration mode and returns to privileged EXEC mode.

Verifying WLAN Properties (CLI)

To verify the WLAN properties based on the WLAN ID, use the following `show` command:

```
Device# show wlan id wlan-id
```

To verify the WLAN properties based on the WLAN name, use the following `show` command:

```
Device# show wlan name wlan-name
```

To verify the WLAN properties of all the configured WLANs, use the following `show` command:

```
Device# show wlan all
```

To verify the summary of all WLANs, use the following `show` command:

```
Device# show wlan summary
```

To verify the running configuration of a WLAN based on the WLAN name, use the following `show` command:

```
Device# show running-config wlan wlan-name
```

To verify the running configuration of all WLANs, use the following `show` command:

```
Device# show running-config wlan
```

Configuring WLANs Through the GUI

Creating WLANs (GUI)

Step 1 In the **Configuration** > **Tags & Profiles** > **WLANs** page, click **Add**.

The **Add WLAN** window is displayed.

Step 2 Under the **General** tab and **Profile Name** field, enter the name of the WLAN. The name can be ASCII characters from 32 to 126, without leading and trailing spaces.

Step 3 Click **Save & Apply to Device**.

Deleting WLANs (GUI)

Step 1 In the **Configuration** > **Tags & Profiles** > **WLANs** page, check the checkbox adjacent to the WLAN you want to delete.

To delete multiple WLANs, select multiple WLANs checkboxes.

Step 2 Click **Delete**.

Step 3 Click **Yes** on the confirmation window to delete the WLAN.

Disabling WLANs (GUI)

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

Step 2 In the **WLANs** window, click the WLAN name.

Step 3 In the **Edit WLAN** window, set the **Status** toggle button as **DISABLED**.

Step 4 Click **Update & Apply to Device**.

Configuring Advanced WLAN Properties (GUI)

Before you begin

Ensure that you have configured an AP Join Profile prior to configuring the primary and backup controllers.

Step 1 Choose **Configuration** > **Wireless** > **WLANs** > **Wireless Networks**.

Step 2 In the **Wireless Networks** window, click **Add**.

Step 3 Under the **Advanced** tab, check the **Coverage Hole Detection** check box.

Step 4 Check the **Aironet IE** check box to enable Aironet IE on the WLAN.

Step 5 Check the **Diagnostic Channel** check box to enable diagnostic channel on the WLAN.

Step 6 From the **P2P Blocking Action** drop-down list, choose the required value.

Step 7 Set the **Multicast Buffer** toggle button as enabled or diabled.

Step 8 Check the **Media Stream Multicast-Direct** check box to enable the feature.

Step 9 In the **Max Client Connections** section, specify the maximumui number of client connections for the following:

- In the **Per WLAN** field, enter a value. The valid range is between 0 and 10000.
- In the **Per AP Per WLAN** field, enter a value. The valid range is between 0 and 400.
- In the **Per AP Radio Per WLAN** field, enter a value. The valid range is between 0 and 200.

Step 10 In the **11v BSS Transition Support** section, perform the following configuration tasks:

a) Check the BSS Transition check box to enable 802.11v BSS Transition support.
b) In the **Disassociation Imminent** field, enter a value. The valid range is between 0 and 3000.
c) In the **Optimized Roaming Disassociation Timer** field, enter a value. The valid range is between 0 and 40.
d) Select the check box to enable the following:

- BSS Max Idle Service
- BSS Max Idle Protected
- Disassociation Imminent Service
- Directed Multicast Service
- Universal Admin
- Load Balance
- Band Select
- IP Source Guard

Step 11 From the **WMM Policy** drop-down list, choose the policy as Allowed, Disabled, or Required. By default, the WMM policy is Allowed.

Step 12 In the **Off Channel Scanning Defer** section, choose the appropriate **Defer Priority** values and then specify the required Scan Defer Time value in milliseconds.

Step 13 In the **Assisted Roaming (11k)** section, choose the appropriate status for the following:

- Prediction Optimization

- Neighbor List
- Dual-Band Neighbor List

Step 14 In the **DTIM Period (in beacon intervals)** section, specify a value for 802.11a/n and 802.11b/g/n radios. The valid range is from 1 to 255.

Step 15 Click **Save & Apply to Device**.