Configure and Validate Workgroup Bridge (WGB) Configurations

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Introduction

This document describes the procedure to configure workgroup bridge (WGB) on a Cisco access point (AP) and to validate the configurations.

Prerequisites

Components Used

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

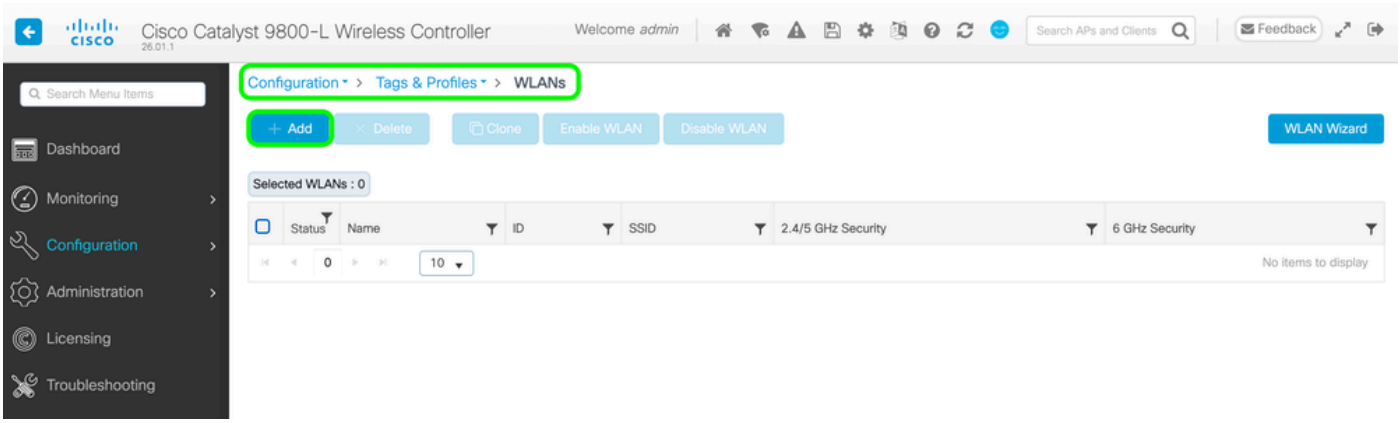
Configure

Network Diagram

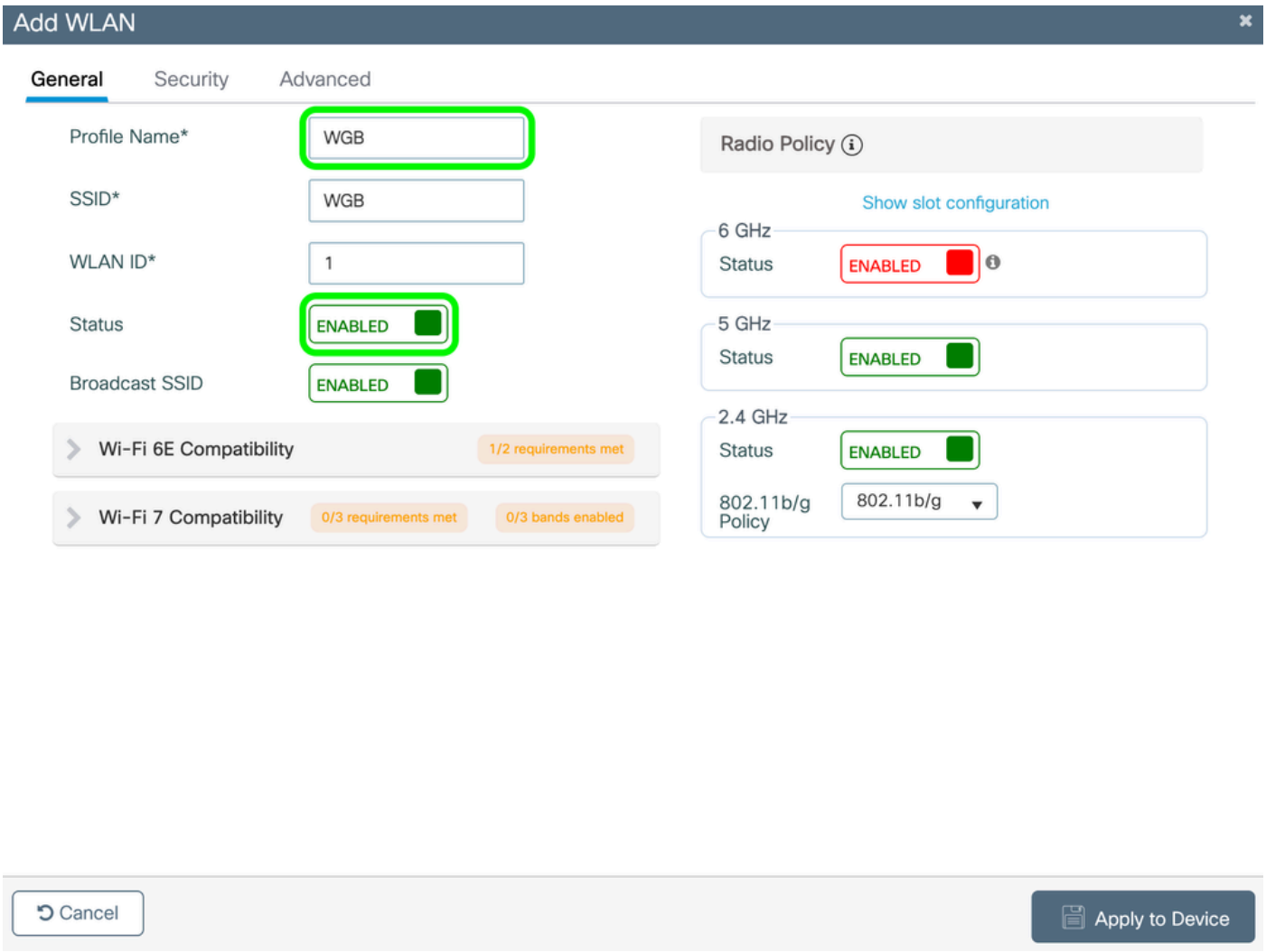
Configurations

Step 1. Configure a WLAN on the WLC to be used for the WGB.

On the WLC navigate to **Configuration > Tags & Profiles > WLANs > click + Add** as shown in the image.

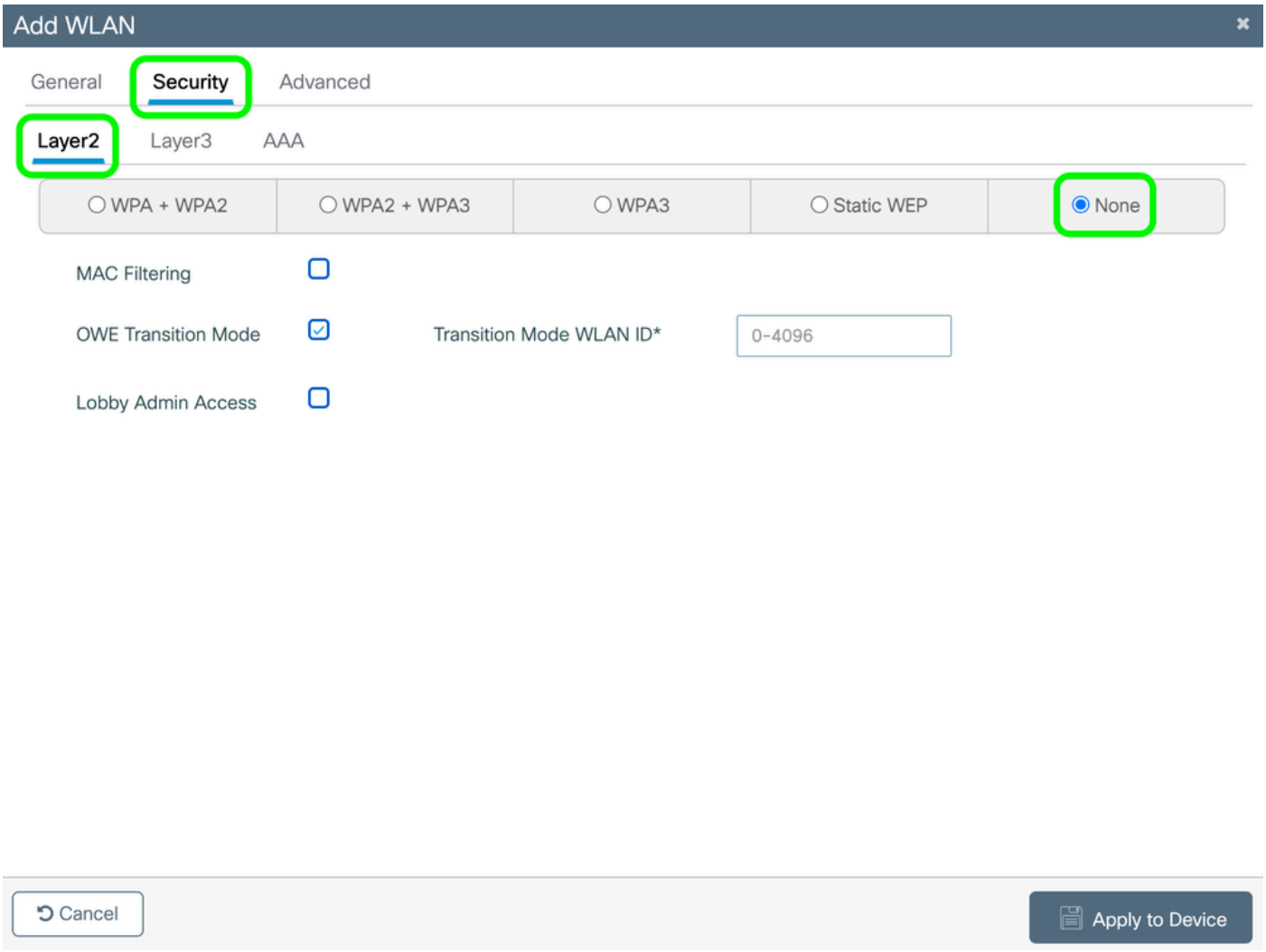


Give a name to your WLAN and make sure it is enabled.

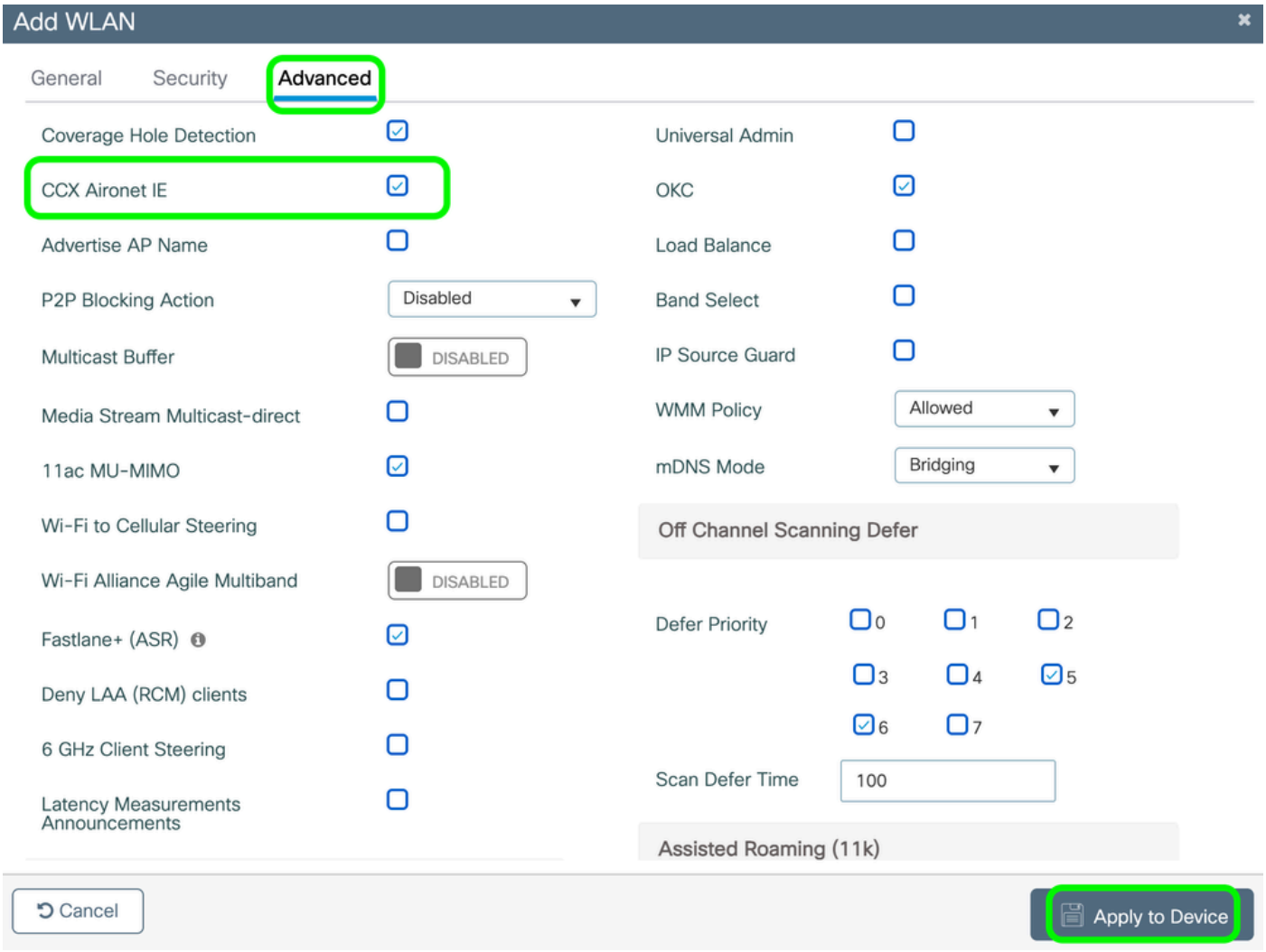


Navigate to **Security** tab and select the desired security settings for the created WGB SSID. For the purpose of this document an open SSID was created. Nevertheless, other security options can be created as well.

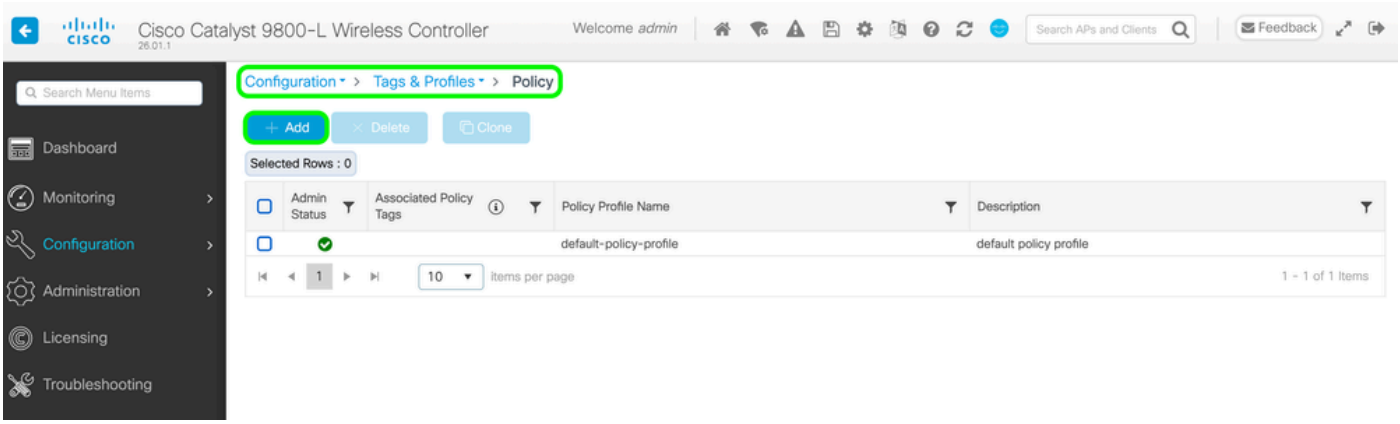
Warning: Please ensure that the security settings match between the SSID on the WLC and the WGB AP SSID-profile (this profile is configured later in the document on the WGB AP).



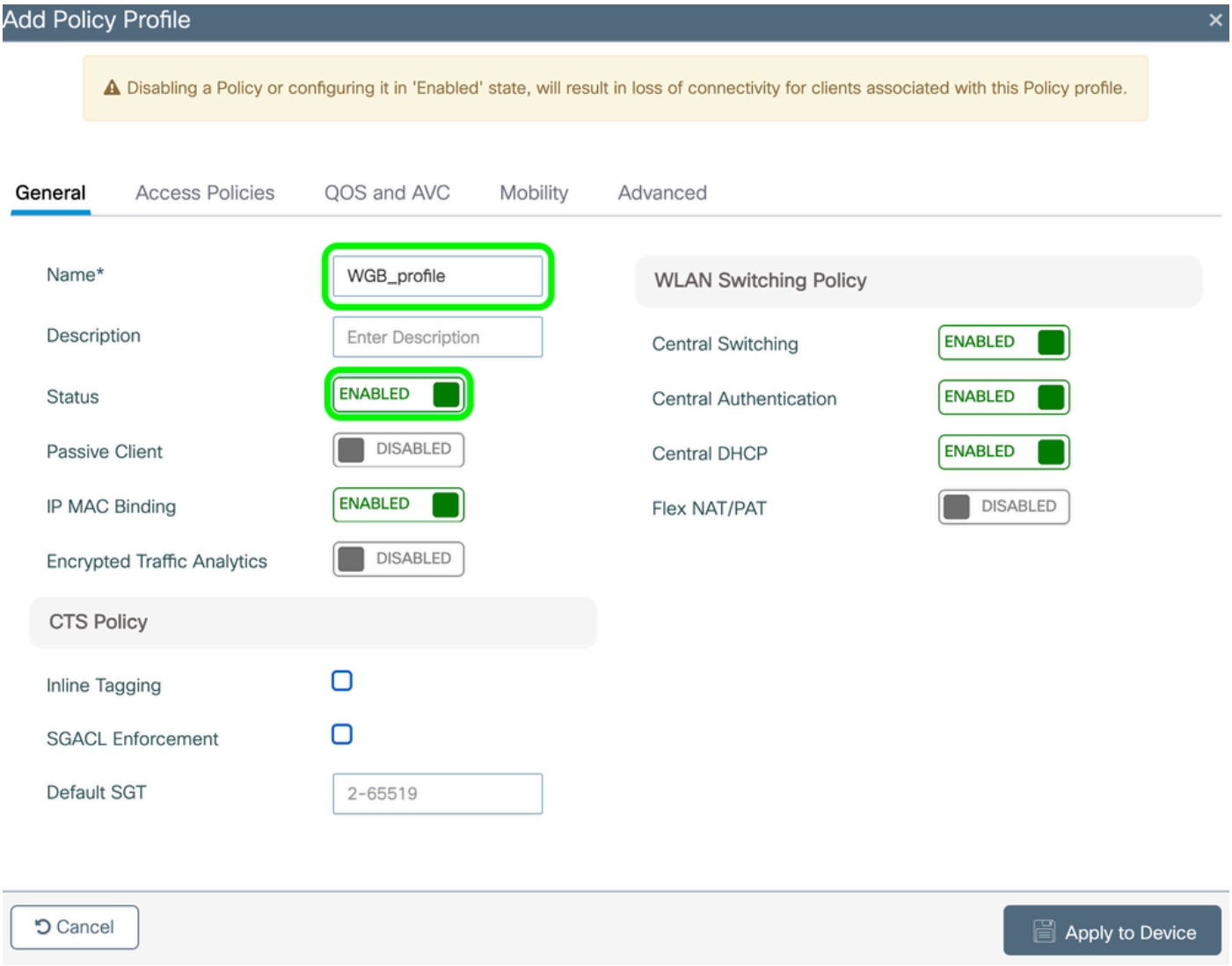
Go to the **Advanced** tab and make sure the **CCX Aironet IE** is enabled. Then click **Apply to Device**.



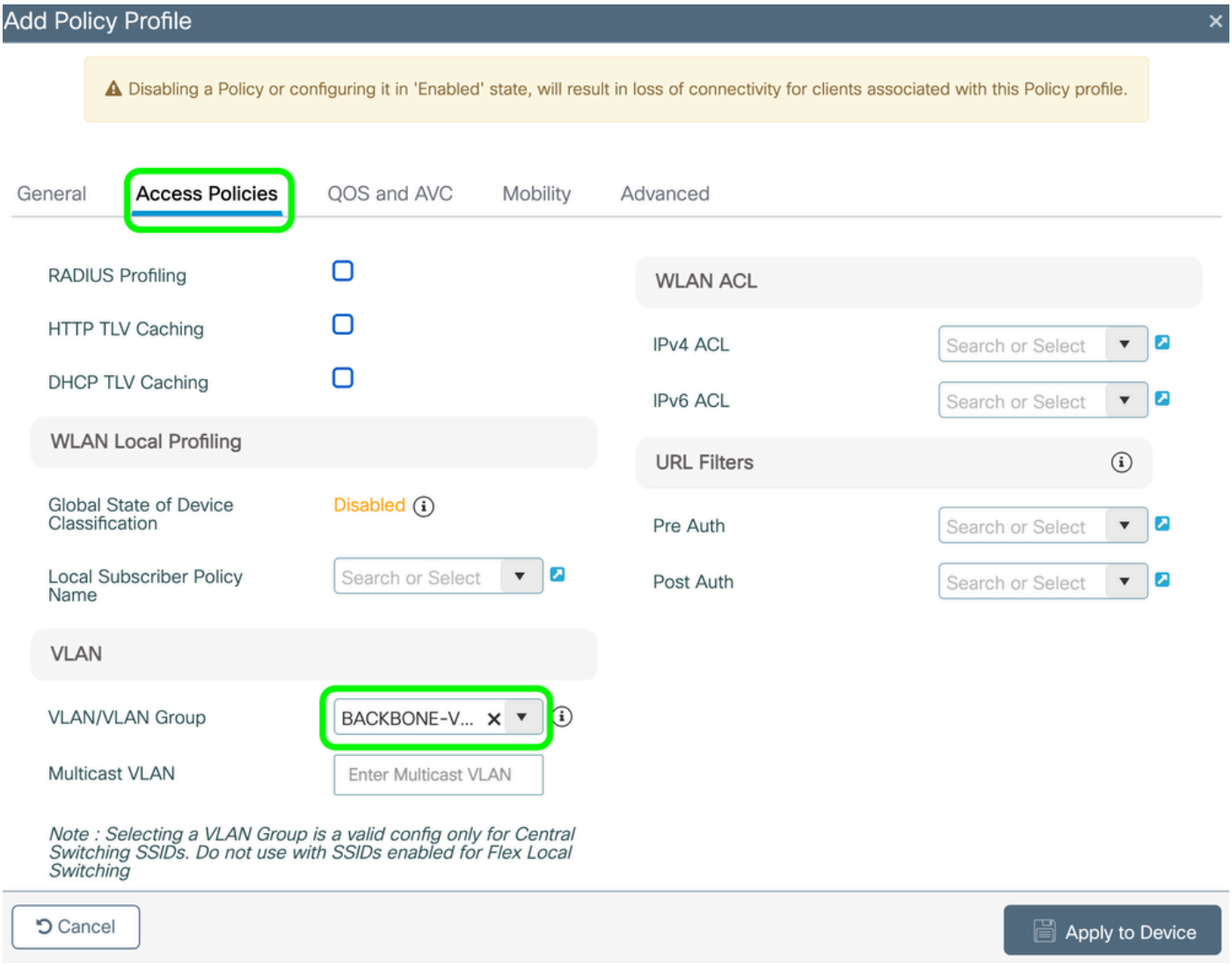
After the WLAN Profile is created, create a Policy Profile for that WLAN. For that, navigate to **Configuration > Tags & Profiles > Policy > click + Add**.



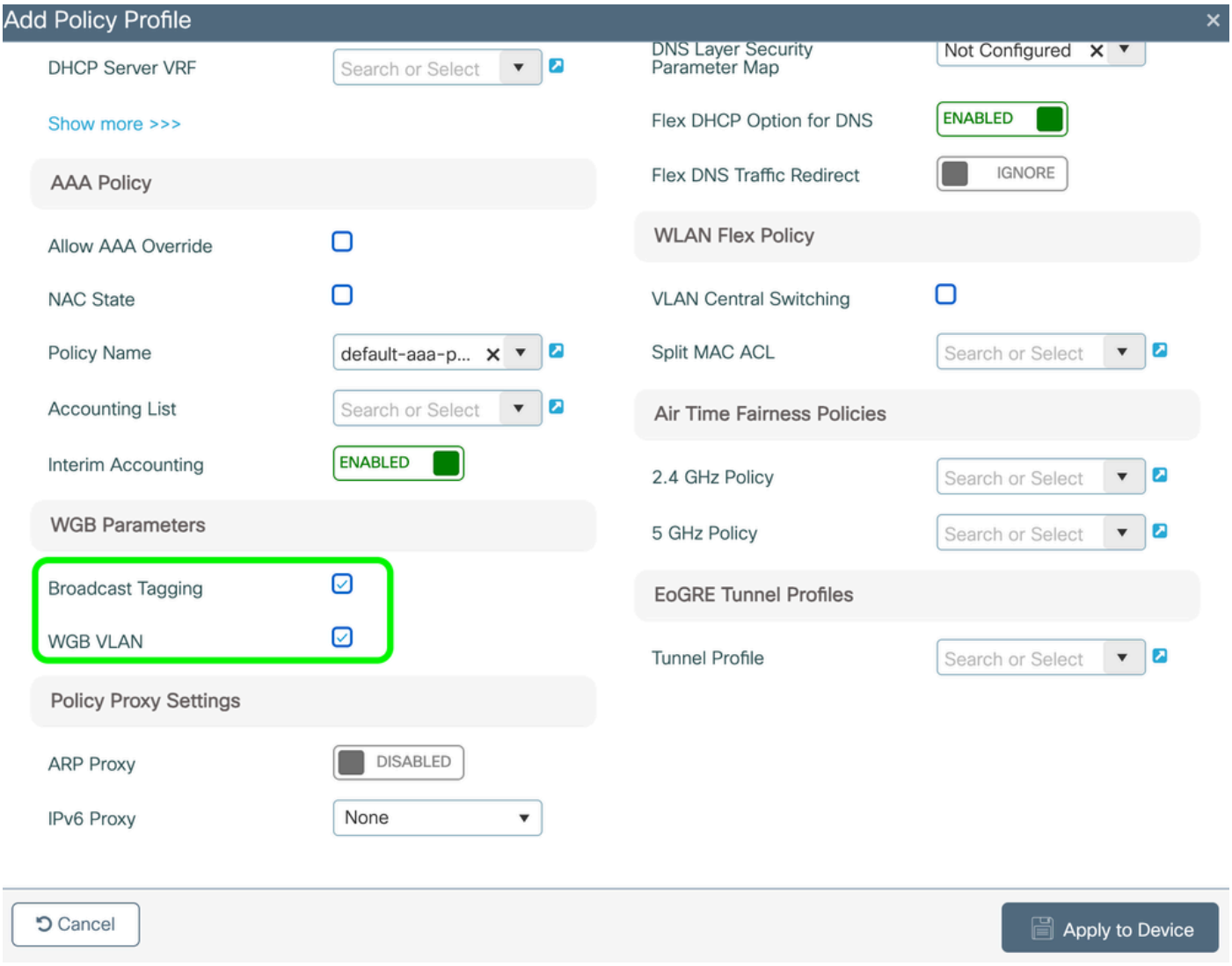
Enter a name for the policy profile in the **General** tab and ensure the policy profile is enabled.



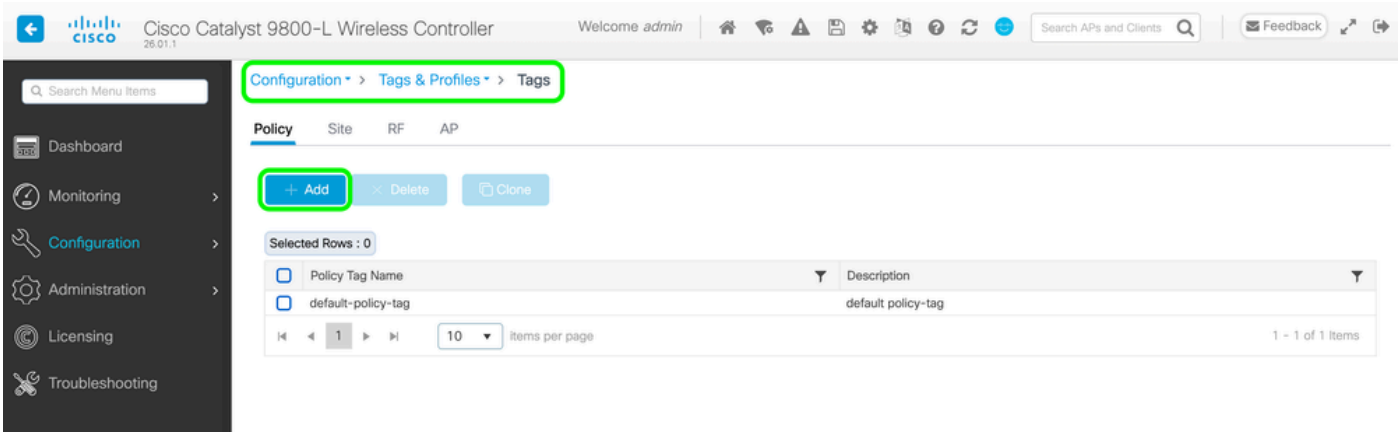
Navigate to **Access Policies** tab and assign a VLAN to your Policy Profile.



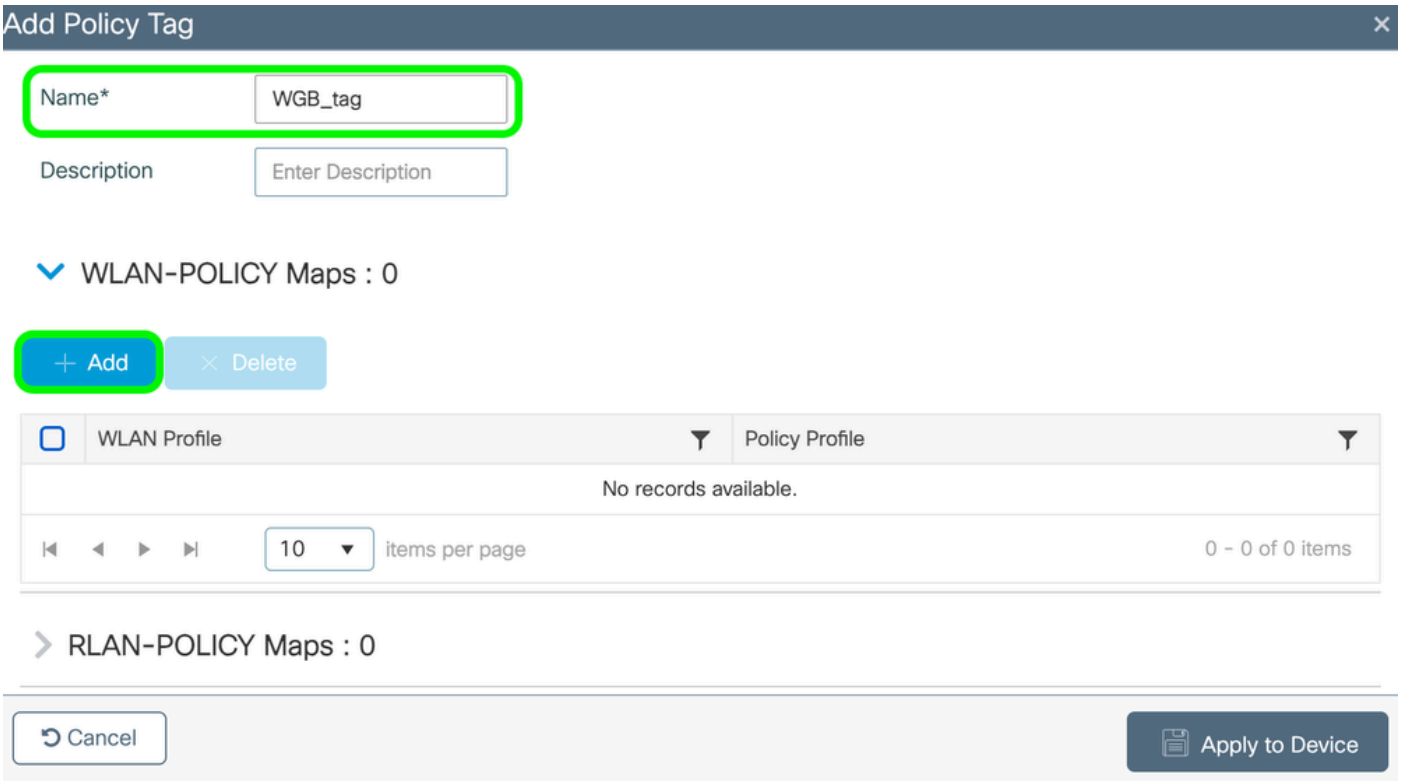
Navigate to **Advanced** tab, scroll down to the **WGB Parameters** section and select **Broadcast Tagging** and **WGB VLAN** options. Then click **Apply to Device**.



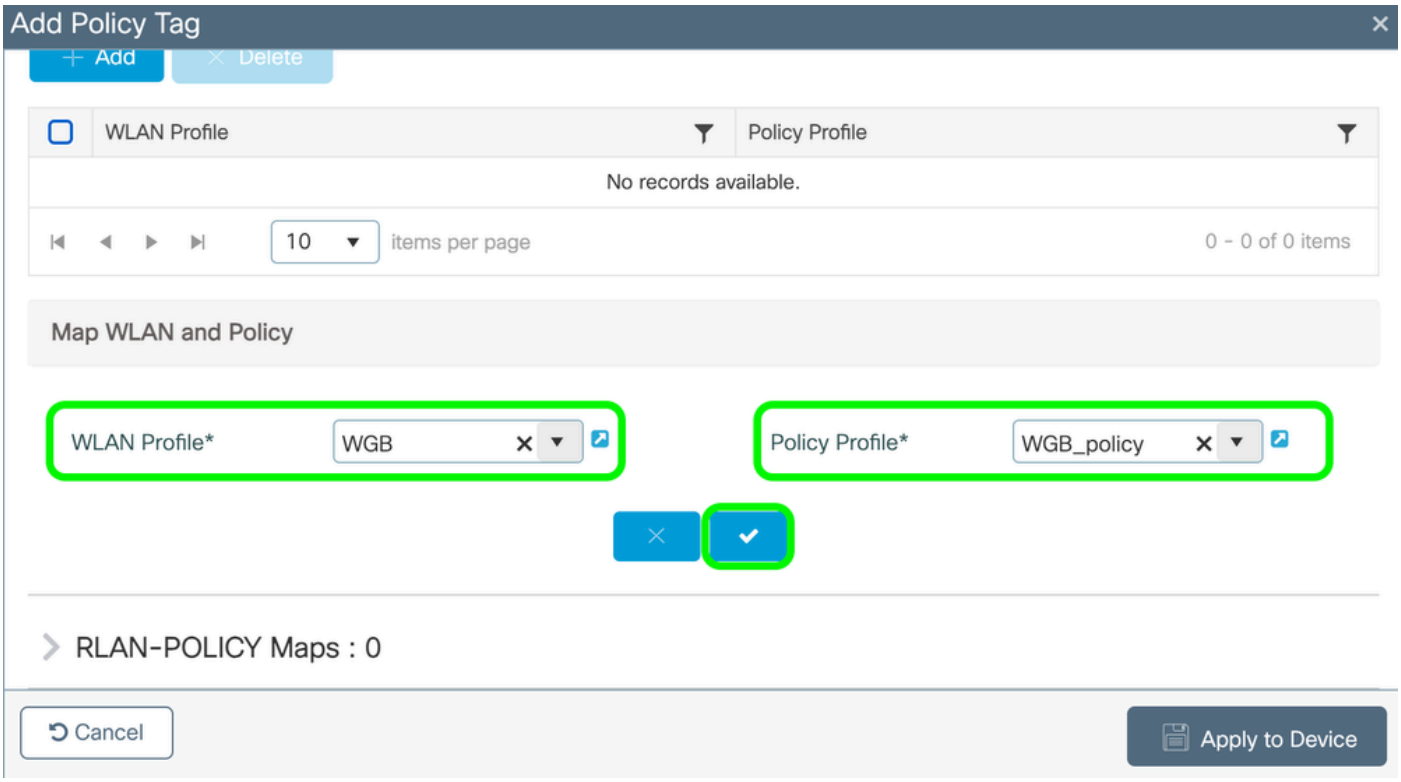
After that, map the policy profile to the WLAN profile. Navigate to **Configuration > Tags & Profiles > Tags > click + Add**.



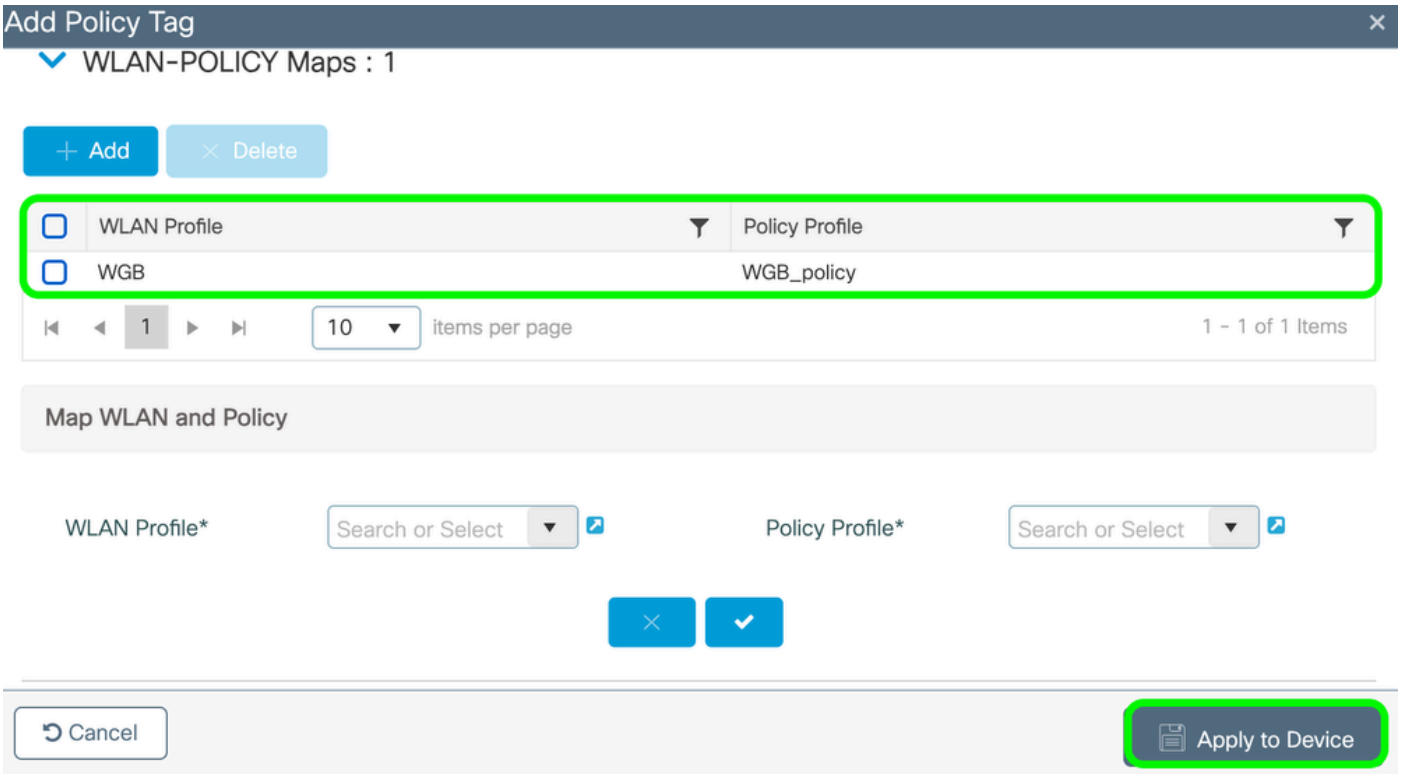
Enter a name for the policy tag. Then click **+ Add**.



Scroll down to **Map WLAN and Policy** section and select the earlier created WLAN policy profiles. Then click ✓.



After ensuring that the mapping was added to the table, click **Apply to Device**.



Step 2. Configure an AP in WGB mode.

Convert the AP from CAPWAP to WGB type.

```
WGB_AP#ap-type workgroup-bridge
```

Configure an IP address for the WGB AP.

For a DHCP IP address:

```
WGB_AP#configure ap address ipv4 dhcp
```

For a static IP address:

```
WGB_AP#configure ap address ipv4 static <ip-address> <netmask> <gateway-ip-address>
```

Configure an SSID-profile on the WGB AP.

```
WGB_AP#configure ssid-profile <ssid-profile-name> ssid <radio-SSID> authentication <eap/opem/owe/psk/sa
```

Attach the SSID-profile to a radio interface.

```
WGB_AP#configure dot11Radio <radio-interface-number> mode wgb ssid-profile <configured-ssid-profile-nam
```

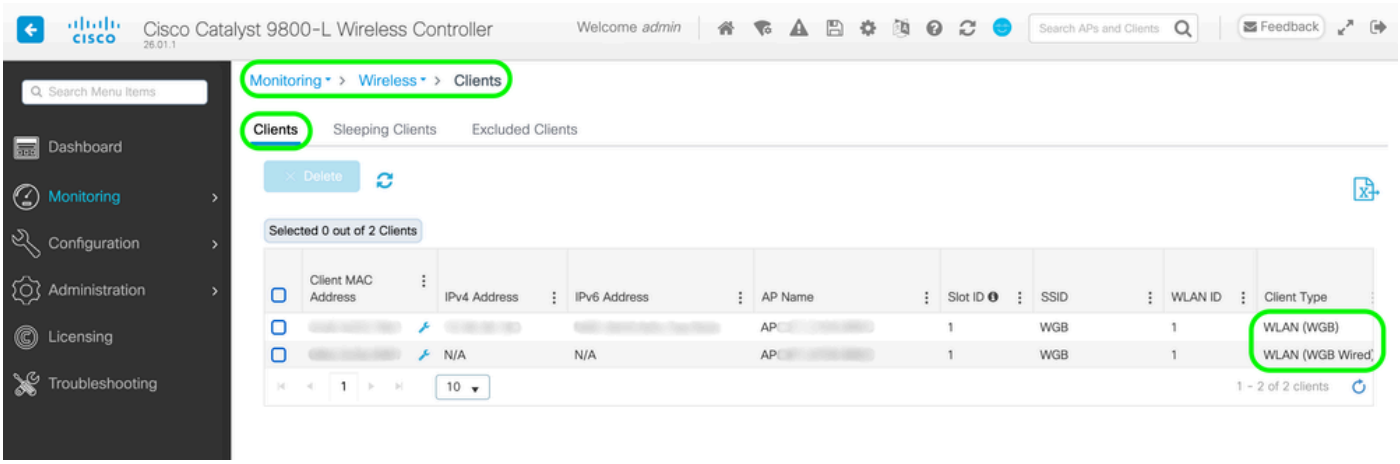
Enable the configured radio on the WGB AP.

```
WGB_AP#configure dot11Radio 1 enable
```

After that, the WGB AP connects to the root AP. It is possible to verify from the WLC that the configuration was successful.

On the WLC the WGB AP is seen as a connected wireless client. In the same table the wired clients that are connected through the WGB AP are seen as well.

Example:



Tip: Before proceeding with the configurations on the WGB AP ensure that the AP has a country code configured on it (can be verified with the command "show controllers dot11Radio"), for example:

```
WGB_AP#show controllers dot11Radio 1
wifi1 Link encap:Ethernet HWaddr XX:XX:XX:XX:XX:XX
BROADCAST MULTICAST MTU:1500 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:2699
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
```

```
Radio Info Summary:
============================
Radio: 5.0GHz
Carrier Set: (-E) Belgium ( BE)
```

Tip: If the country code is not configured, convert the AP to CAPWAP mode, join it to a WLC and ensure that the country code is configured. After that, convert the AP to the WGB mode and proceed with the configurations.

Verify

You can use these commands to verify the current configurations.

On the WGB AP:

#show wgb ssid

Successful configuration output example:

```
Configured SSIDs details:
SSID-Profile               SSID               Authentication               DTIM
=============================================================================
WGB_ssid_profile           "WGB"                OPEN                          1
```

#show wgb dot11 associations

Successful configuration output example:

```
Uplink Radio ID : 1
Uplink Radio MAC : XX:XX:XX:XX:XX:XX
SSID Name : WGB
Connected Duration : 0 hours, 2 minutes, 14 seconds
Parent AP Name : APXXXX.XXXX.XXXX
Parent AP MAC : XX:XX:XX:XX:XX:XX
Uplink State : CONNECTED
Auth Type : OPEN
Dot11 type : 11ax
Channel : 112
Bandwidth : 40 MHz
Current Datarate (Tx/Rx) : 309/195 Mbps
Max Datarate : 1147 Mbps
RSSI : 65
IP : XX.XX.XX.XXX/24
Default Gateway : XX.XX.XX.XXX
```

```
IPV6 : ::/128
Assoc timeout : 5000 Msec
Auth timeout : 5000 Msec
Dhcp timeout : 60 Sec
Country-code : BE
```

#show wgb event all

Troubleshoot

Collect debugs

On the WGB AP:

After applying the configurations, if the WGB AP is not connecting to the root AP, enable the debug to obtain more details on the reason of the failure:

#debug wgb uplink all

Example of a successful connection output:

```
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.0356] DOT11_UPLINK_EV: Scan Started ON SLOT 1
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.0357] DOT11_UPLINK_EV: Uplink state changed [DOT11_
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.0358] DOT11_UPLINK_EV: Set BH root port(hop 00:00:0
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.0358] DOT11_UPLINK_SCAN: Uplink Scan Started in Dot
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.0362] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.0632]  Radio configuration has been saved successfu
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.0633]
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.1492] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.2895] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.4298] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.4933] DOT11_UPLINK_SCAN:[*06/19/2026 13:17:00.6489]
[*06/19/2026 13:17:00.6494] DOT11_UPLINK_EV: parent_rssi: -65, configured low rssi: -70
 Rcvd Beacon from XX:XX:XX:XX:XX:XX channel 112  Time 36143
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.4934] DOT11_UPLINK_SCAN: Received Beacon and going
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.4934] DOT11_UPLINK_SCAN: Sending probe request on
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.4934] WGB Classifier: Dot11UplinkClassifier: Downst
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.4935] WGB Classifier: Dot11UplinkClassifier: Tx ser
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.4952] DOT11_UPLINK_SCAN: Rcvd Probe Response from X
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.4952] DOT11_UPLINK_SCAN: WGB_SCAN_STATUS: Received
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.5266] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.6657] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.8046] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:39 WGB_AP kernel: [*06/19/2026 12:57:39.9436] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.0827] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.2218] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.3609] DOT11_UPLINK_SCAN: Enable passive scan on cha
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4983] DOT11_UPLINK_SCAN: End of channel list
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4984] DOT11_UPLINK_SCAN: An AP responded, try to as
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4984] DOT11_UPLINK_SCAN: Uplink Scan stopped in Dot
```

```
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4984] DOT11_UPLINK_SCAN: Choosing best AP
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4985] DOT11_UPLINK_SCAN: Selected best AP :  XX:XX
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4985] DOT11_UPLINK_SCAN: Best AP : XX:XX:XX:XX:XX:X
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4985] DOT11_UPLINK_SCAN: HD IE not present!
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4986] DOT11_UPLINK_SCAN: WME capable 1
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4986] DOT11_UPLINK_SCAN: Scan done.Starting Authen
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4987] DOT11_UPLINK_EV: Uplink state changed [DOT11_
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4988] DOT11_UPLINK_EV: Set BH root port(hop 00:00:0
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.4995] DOT11_UPLINK_EV: existing channel 140, target
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5001] DOT11_UPLINK_EV: existing channel 140, target
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5168] DOT11_UPLINK_CONFIG: get tx_pow_lvl 1 by txpo
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5433] DOT11_UPLINK_EV: Channel event on slot 1 chan
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5541] DOT11_UPLINK_EV: Channel event on slot 1 chan
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5655] DOT11_UPLINK_EV: Handling auth delay for chan
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5718] DOT11_UPLINK_CONFIG: get tx_pow_lvl 1 by txpo
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5719] DOT11_UPLINK_EV: Starting Connection (uplink)
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5719] WGB_UPLINK_SEC: New roamed parent : XX:XX:XX
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5719] WGB_UPLINK_SEC: WPAS process does not exist f
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5719] DOT11_UPLINK_EV: Uplink state changed [DOT11_
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5721] WGB Classifier: Dot11UplinkClassifier: Downst
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5721] WGB Classifier: Dot11UplinkClassifier: Tx ser
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5723] DOT11_UPLINK_EV: Auth request sent!
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5753] DOT11_UPLINK_EV: Channel event on slot 1 chan
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5753] DOT11_UPLINK_EV: Channel 112 set response fro
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5764] DOT11_UPLINK_EV: Channel event on slot 1 chan
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.5765] DOT11_UPLINK_EV: Channel 112 set response fro
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6035] WGB Classifier: Dot11UplinkClassifier: Rx ser
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6036] DOT11_UPLINK_EV: Auth Response (uplink)addr1
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6036] DOT11_UPLINK_EV: Uplink state changed [DOT11_
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6038] DOT11_UPLINK_EV: Assoc. Req. addr1[XX:XX:XX:X
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6038] DOT11_UPLINK_EV: set_ht_cap_ie_fields: Addin
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6038] DOT11_UPLINK_EV: set_vht_cap_ie_fields: Addi
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6038] DOT11_UPLINK_EV: VhtCapInfo=865069494
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6039] DOT11_UPLINK_EV: set_he_cap_ie_fields: Addin
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6039] DOT11_UPLINK_EV: set_he_cap_ie_fields: Setti
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6039] DOT11_UPLINK_EV: Added system name :  in asso
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6039] DOT11_UPLINK_EV: Added static IP address : XX
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6040] WGB Classifier: Dot11UplinkClassifier: Downst
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6040] WGB Classifier: Dot11UplinkClassifier: Tx ser
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6041] DOT11_UPLINK_EV: Sent Assoc. Req. (uplink)add
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6100] WGB Classifier: Dot11UplinkClassifier: Rx ser
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6101] DOT11_UPLINK_EV: Assoc Response (uplink)addr
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6102] DOT11_UPLINK_EV: Uplink state changed [DOT11_
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6108] DOT11_UPLINK_EV: Set BH root port(hop XX:XX:X
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6118] wlan: [10239:I:ANY] ieee80211_ucfg_setparam_
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6124] DOT11_UPLINK_EV: Set BH root port(hop XX:XX:X
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6130] DOT11_UPLINK_EV: Static IP address configure
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6131] DOT11_UPLINK_EV: Uplink state changed [DOT11_
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6241] route: SIOCADDRT: File exists
Jun 19 12:57:40 WGB_AP odhcp6c[186731]: in timer_init.
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6761] odhcp6c[186731]: in timer_init.
Jun 19 12:57:40 WGB_AP odhcp6c[186735]: (re)starting transaction on srcr2
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6782] DOT11_UPLINK_EV: Odhcp6c process started
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6784] DOT11-UPLINK_ESTABLISHED: Interface Dot11Radi
Jun 19 12:57:40 WGB_AP kernel: [*06/19/2026 12:57:40.6786] DOT11_UPLINK_EV: Peer assoc event received f
Jun 19 12:57:41 WGB_AP odhcp6c[186735]: Starting SOLICIT transaction (timeout 4294967295s, max rc 0)
Jun 19 12:57:41 WGB_AP odhcp6c[186735]: odhcp6c_update_entry state = 16, valid = 1800, preferred = 1800
Jun 19 12:57:41 WGB_AP odhcp6c[186735]: odhcp6c_update_entry state = 16, valid = 2592000, preferred = 60
Jun 19 12:57:41 WGB_AP odhcp6c[186735]: odhcp6c_update_entry state = 17, valid = 2592000, preferred = 60
Jun 19 12:57:43 WGB_AP kernel: [*06/19/2026 12:57:43.6386] ip6_port srcr2, ip6local XXXX::XXXX:XXXX:XXX
Jun 19 12:58:00 WGB_AP kernel: [*06/19/2026 12:58:00.6134] DOT11_UPLINK_EV: Calling RSSI get for XX:XX:X
Jun 19 12:58:00 WGB_AP kernel: [*06/19/2026 12:58:00.6138] DOT11_UPLINK_EV: parent_rssi: -63, configure
```

```
Jun 19 12:58:20 WGB_AP kernel: [*06/19/2026 12:58:20.6140] DOT11_UPLINK_EV: Calling RSSI get for XX:XX:
Jun 19 12:58:20 WGB_AP kernel: [*06/19/2026 12:58:20.6145] DOT11_UPLINK_EV: parent_rssi: -63, configure
Jun 19 12:58:40 WGB_AP kernel: [*06/19/2026 12:58:40.6147] DOT11_UPLINK_EV: Calling RSSI get for XX:XX:
Jun 19 12:58:40 WGB_AP kernel: [*06/19/2026 12:58:40.6152] DOT11_UPLINK_EV: parent_rssi: -64, configure
Jun 19 12:59:00 WGB_AP kernel: [*06/19/2026 12:59:00.6154] DOT11_UPLINK_EV: Calling RSSI get for XX:XX:
Jun 19 12:59:00 WGB_AP kernel: [*06/19/2026 12:59:00.6158] DOT11_UPLINK_EV: parent_rssi: -64, configure
Jun 19 12:59:20 WGB_AP kernel: [*06/19/2026 12:59:20.6161] DOT11_UPLINK_EV: Calling RSSI get for XX:XX:
```