

Configuring Cisco URWB Operation Mode

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Configuring Cisco URWB Operation Mode

Catalyst IW9167E Access Point supports three wireless technologies on a single hardware platform, such as Cisco Catalyst Wi-Fi, Cisco URWB, and Cisco Workgroup Bridge (WGB). These access point have the flexibility to change their operating mode from Wi-Fi mode to Cisco URWB mode and vice versa.

To identify the image mode (AP mode or Cisco URWB mode) on IW9167E, the following method is used:

Determining from CLI

Determining from CLI

IW9167E supports two different OS (Cisco URWB and CAPWAP Stack) for different feature sets and data plane logic. To determine Cisco URWB mode on IW9167E use the following show command.

```
Device# show version
Cisco AP Software, (ap1g6j), C9167, RELEASE SOFTWARE
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2022 by Cisco Systems, Inc.
Compiled Thu Aug 18 01:01:29 PDT 2022
ROM: Bootstrap program is U-Boot boot loader
BOOTLDR: U-Boot boot loader Version 2022010100
APFC58. 9A16.E464 uptime is 1 days, 3 hours, 58 minutes
```

```
Last reload time : Wed Sep 7 11:17:00 UTC 2022
Last reload reason: reload command
```

If the show version displays Cisco AP Software (**ap1g6j**), it means that the image supports Cisco URWB mode.

Cisco URWB LED Pattern

The IW9167E Cisco URWB mode follow the below LED pattern during booting process (Blinking Green during a normal booting process).

Table	1:	Definition	of	Booting	LED	Pattern
-------	----	------------	----	---------	-----	---------

Events	LED State
Boot loader status sequence:	Blinking GREEN
DRAM memory test in progress	
DRAM memory test OK	
Board initialization in progress	
Initialization FLASH file system	
FLASH memory test OK	
Initializing Ethernet	
Ethernet OK	
Starting AP OS	
Initialization Successful	
To press Reset button less than 20 s	Blinking RED
To press Reset button more than 20 s	Solid RED
When Reset button is released	Blinking GREEN
Or	
Reset button is pressed more than 60 sec	

After the access point boots up, the IW9167E Cisco URWB mode follows the below LED pattern.

Table 2: Definition of Cisco URWB OS LED Pattern

AP State	LED State
General warning: Insufficient inline power	Cycling through RED, GREEN, and AMBER
Limbo (Provisioning) mode: Fallback	Chirping AMBER
Limbo (Provisioning) mode: DHCP(Dynamic Host Configuration Protocol)	AMBER

AP State	LED State
SNR(Signal to Noise Ratio) Excellent (>=25 dB)	Blinking GREEN
SNR Good (15<=X<25 dB)	Fade-in GREEN
SNR Bad (10<=X<15 dB)	Fade-in AMBER
SNR Unbearable (<10 dB)	Fade-in RED

Reset Button Settings

The following reset actions are performed in the Cisco URWB when the LED turns to blinking RED (after the boot loader gets the reset signal):

- If reset button pressed for less than 20 seconds, configuration gets cleared.
- If reset button pressed for more than 20 seconds and less than 60 seconds, factory reset triggered.
- If reset button pressed for more than 60 seconds, nothing will be cleared.

Configuring Image Conversion

To convert an IW9167E Access Point from Wi-Fi mode (CAPWAP AP) to Cisco URWB mode and vice versa follow below procedures:

1. To convert from CAPWAP to Cisco URWB enter the following CLI command. Access Point will reboot and boot with Cisco URWB mode.

configure boot mode urwb

2. To convert from Cisco URWB to CAPWAP enter the following CLI command. Access Point will reboot and boot with Cisco CAPWAP Access Point mode.

configure boot mode capwap

- **3.** To convert from CAPWAP to WGB/uWGB enter the following CLI command. configure boot mode wgb
- 4. To convert from URWB to WGB/uWGB enter the following CLI command.

configure boot mode wgb

- 5. To convert from WGB/uWGB to CAPWAP enter the following CLI command. configure boot mode capwap
- 6. To convert from WGB/uWGB to URWB enter the following CLI command.

configure boot mode urwb

Note

• Image conversion performs full factory reset (any configuration and data will be removed completely).

Instructions to Access the GUI

To access the Web UI, use the following procedures:

- 1. To access a Web UI, open the web browser and enter the following URL: https://<IP address of unit>/
- 2. After successfully open the login page, you will see the Cisco URWB IW9167EH Configurator as below.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.112 - MESH END MODE
	Login
Username:	
Enable Password:	
Show password:	1
	Login
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3. To access the configuration page, user need to use the credentials as follows: username and enable password.

Cisco URWB IW9167E Configuration from GUI

The following image shows the GUI configuration of Cisco URWB IW9167E layout.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW916 5.21.201.72 - ME	67EH Configurator SH END MODE		
Offline Offline	GENERAL MODE			
FM-QUADRO	General Mode			
GENERAL SETTINGS	Select MESH POINT mode if you are attaching an IP edg Cisco Catalyst IW9167E Heavy Duty Access Point or if yo network.	e device (i.e. network camera, encoder, etc.) to this ou are using this unit as a relay point in the mesh		
- antenna alignment and state	Mada	mesh point		
	Mode.			
advanced tools		O gateway		
ADVANCED SETTINGS		-		
advanced radio settings	Radio-off:			
static routes	I AN Para	amatare		
allowlist / blocklist	Diff at			
multicast	Local IP:	10.115.11.117		
- snmp	Loourn .			
- radius	Local Netmask:	255.255.255.0		
- ntp				
- I2tp configuration	Default Gateway:	10.115.11.1		
- vlan settings	Local Das 1:	8888		
- Fluidity	Local Dira 1.	0.0.0.0		
- misc settings	Local Dns 2:			
- smart license				
MANAGEMENT SETTINGS				
- remote access	Reset	Save		
- firmware upgrade				
- status				
- configuration settings				
- reset factory default				
- reboot				
- logout				

Committing CLI Configuration

To save the current or running configuration settings to local storage or memory, user need to type 'write' CLI command. The modified value is in the cache configuration file so after the 'write' command is entered, user must re-boot the device for the current configuration to take effect. To make the configuration effective, use the following CLI comments to write the configuration and reload the device.

```
Device# write
or
Device# wr
write or wr: commit the current configuration settings to memory.
Device# reload
reload: reload the device.
Example:
Device# write
!!! Please reboot to take effect
Device# reload
Proceed with reload? [confirm]
(enter to confirm)
```

Configuring and Verifying Regulatory Domain from CLI

To configure country code for ROW (Rest of the World) domain, use the following CLI command.

Device# configure countrycode [countrycode]

Example:

Configure countrycode GB

The above CLI will report error if configured country code is not included in ROW and wireless interface does not work properly if the user does not configure the country code.



Note

Users need to reboot the device before configuring other wireless parameters (e.g., frequency, channel width), and after configuring country code. The country code is changeable or varying only for IW9167EH-ROW.

To verify status of regulatory domain, use the following show command.

Device# show version | in Product Product/Model Number: IW9167EH-ROW

To verify status of ROW (Rest of the World) country code, use the following show command.

Device# show dot11Radio <interface> config

Example:

```
Device# show dotllRadio 1 config
......
DFS region : GB
DFS radar role : auto
Radar Detected : 0
Indoor deployment: disable
```

Configuring Regulatory Domain from GUI

Wireless interfaces do not work if user does not configure country code. Use the following procedure to configure a regulatory domain from GUI.

1. Select a Mesh Point mode if you are attaching an IP edge device to Cisco IW9167EH Access Point or if you are using this unit as a relay point in the mesh network.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW91 5.21.201.72 - ME	67EH Configurator SH END MODE
IOTOD IW Offline	GENERAL MODE	
FM-QUADRO	Genera	l Mode
GENERAL SETTINGS	Select MESH POINT mode if you are attaching an IP edg Cisco Catalyst IW9167E Heavy Duty Access Point or if y network.	ge device (i.e. network camera, encoder, etc.) to this ou are using this unit as a relay point in the mesh
- wireless radio		mesh point
- antenna alignment and stats	Mode:	mesh end
NETWORK CONTROL		O gateway
- advanced tools		0
ADVANCED SETTINGS	Radio-off:	
- advanced radio settings	Kauo-on.	
- static routes	LAN Par	ameters
- allowlist / blocklist		
- multicast	Local IP:	10.115.11.117
- snmp		
- radius	Local Netmask:	255.255.255.0
- ntp		
- I2tp configuration	Default Gateway:	10.115.11.1
- vlan settings	Local Dns 1:	8888
- Fluidity		
- misc settings	Local Dns 2:	
- smart license		
MANAGEMENT SETTINGS		
- remote access	Reset	Save
- firmware upgrade		
- status		
 configuration settings 		
- reset factory default		
- reboot		
- logout		
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2. For ROW domain, if the country code is not selected, the Web UI will display an alert toast as follows.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco	URWB IW9167EH Co 5.21.200.136 - MESH END	onfigurator MODE
IOTOD IW Cloud-Manage	Select operating country		
GENERAL SETTINGS - general mode - wireless radio - antenna alignment and stats NETWORK CONTROL - advanced tools	Please select ROW region operating immediately rebooted on confirmat be applied. ✓ Korea United Arab Emirates United Kingdom Vietnam	ng country. The device will be ion and all saved changes will Confirm	g (apex) (double apex) (backtick) dentifies your network. It MUST be ded to be operating on the same
- advanced radio settings		Radio 1 Settings	
- static routes - allowlist / blocklist - multicast - snmp	Role: Frequency (MHz):	Fluidmax Primary V	
- radius	Channel Width (MHz):	×	
- I2tp configuration		Radio 2 Settings	
- vian settings - Fluidity - misc settings - smart license MANAGEMENT SETTINGS - remote access - retuing - status - reboot - logout	Role: Frequency (MHz): Channel Width (MHz);	Disabled V	
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3. To select a country code, click the alert toast displays in the below image then the user will be redirected to Web UI wireless section for selecting country code.

I

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco	Cameroon Chile China Colombia Costa Rica	ator
IOTOD IW Offline	WIRELESS RADIO	Ecuador Egypt	
IW-MONITOR Disabled	"Shared Passphrase" is an alphan \$[dollar] =[equal] \[backslash] and the same for all the Cisco URWB (Fiji Ghana Hong Kong	(apex) "(double apex) '(backtick) Intifies your network. It MUST be
GENERAL SETTINGS - general mode - wireless radio	Shared Passphrase:	India Iraq	D
- antenna alignment and stats NETWORK CONTROL	Country: In order to establish a wireless cor	✓ Korea Kuwait	d to be operating on the same
- advanced tools ADVANCED SETTINGS	frequency.	Libya Macau	
 advanced radio settings static routes 	Role:	Malaysia Mexico	
- allowlist / blocklist - multicast	Frequency (MHz):	Morocco	
- snmp - radius	Channel Width (MHz):	Panama	
- ntp - ethernet filter	Role:	Peru Philippines	
 - I2tp configuration - vlan settings 	_	Qatar Saudi Arabia	
- Fluidity - misc settings		Singapore South Africa	
- smart license MANAGEMENT SETTINGS		Sri Lanka Taiwan	
- remote access - firmware upgrade		Thailand Trinidad	
- status - configuration settings		Tunisia Turkey	
- reser ractory default		Ukraine United Arab Emirates	
- 109046		United Kingdom Uruguay	
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4. User must click on "status" link on the left side of menu page and check operating region and country code availability in wireless setting status page.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.246.1.104 - MESH POINT MODE
IOTOD IW Offline IW-MONITOR Disabled	STATUS Device: Cisco Catalyst IW9167E Heavy Duty Access Point Name: unset
GENERAL SETTINGS - general mode - wireless radio - antenna alignment and stats	ID: 5.246.1104 Serial: KWC2702000L Operating Mode: Mesh Point Uptime: 2 min Firmware version: 8.8.1.10
NETWORK CONTROL - advanced tools ADVANCED SETTINGS - advanced radio settings	DEVICE SETTINGS IP: 10.115.11.142 Netmask: 255.255.255.0 MAC address: 40:365:84:150.168 Configured MTU: 1530
- static routes - allowlist / blocklist - snmp - radius	WIREDO Status: up Speed: 100 Mb's Duplex: full MTU: 1530 WIED1
- ntp - ethernet filter - l2tp configuration - vlan settings	Status: down WIRELESS SETTINGS Passphrase: ClacoURWB-142 Operating region: ROW Country: GB
- Fluidity - misc settings MANAGEMENT SETTINGS - remote access	Radio 1 Interface: enabled Mode: fxed infrastructure Frequency: 5500 MHz Channei: 100
- firmware upgrade - status - configuration settings - reset factory default	Channel Width: 80 MHz Current to power level: 1 Antenna gain: os selected Antenna aumber: 2 Bedrán Motor semanía
- reboot - logout	Naciona Intel Contegit: 3 km Naciona Interface: (disabled Node: fixed infrastructure
	Frequency: 5500 MHz Channel: 100 Channel Width: 80 MHz Current fv nowen- 64: Rem 0 2023 Clace and/or Its affiliates. All rights reserved.

5. To establish a wireless connection between Cisco URWB units, set a same operating frequency in radio units. "Shared Passphrase" must be the same for all the Cisco URWB units belonging to the same network.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco 5.	URWB IW9167EH Configurator 21.201.88 - MESH POINT MODE	
IOTOD IW Offline	WIRELESS RADIO		
IW-MONITOR Disabled	Wireless Settings		
GENERAL SETTINGS - general mode	"Shared Pasphrase" is an alphanumeric string or special characters excluding "(apex) "(double apex) "(backtick) §jolala" = fequal) [backtalan) and whilespace (e.g. "nysecurecament") that indentifies your network. It MUST be the same for all the Close UMPV units backings" be assen retwork.		
- wireless radio	Shared Passphrase:	CiscoURWB	
- antenna alignment and stats	In order to establish a wireless connection between Cisco URWB units, they need to be operating on the same		
advanced tools	trequency.	D. H. (0.11)	
		Radio 1 Settings	
- advanced radio settings	Role:	Fixed	
- static routes			
- allowlist / blocklist	Frequency (MHz):	5260	
- snmp	Channel Width (MHz):	20	
- radius	onannor maar (mriz).		
- ntp		Radio 2 Settings	
- ethernet filter	Role:	Fixed	
- I2tp configuration			
- vlan settings	Frequency (MHz):	5180	
- Fluidity			
- misc settings	Channel Width (MHz):	80	
MANAGEMENT SETTINGS			
- remote access		Poset Seve	
- firmware upgrade		Reset	
- status			
- configuration settings			
- reset factory default			
logout			

6. The below image shows the configuration of regularity domain from GUI.



Configuring IOT-OD and Offline Mode from CLI

IOT-OD (IoT Operations Dashboard) is the cloud management portal, and the device is connected to the online cloud through the internet. In offline mode the device is configured in local mode by CLI and web UI, and it is not connected to the cloud.

When the device is configured in offline mode, the user can choose following options.

- configure the device manually using CLI and web UI.
- configure the device on IOTOD cloud service and select the configuration file exported from IOD-OD industrial wireless and upload the configuration file by using upload configuration button at the end of IOT-IW management page.

To activate or deactivate IOTOD-IW (IOT Industrial Wireless) configuration capability, use the following CLI command.

Device# configure iotod-iw {offline | online}

online - set up IOTOD IW mode to online. The device can be managed from the IOTOD IW cloud server (if it is connected to the Internet).

offline - set up IOTOD IW mode to offline. (The device is disconnected from IOTOD-IW and must be manually configured using the CLI, or its offline Configurator interface.)

Configuring IOT-OD IW from GUI

The following image shows the GUI page of IOT-OD IW management.

IOTOD IW Conf	iguration Mod	e
Provisioning: initial radio configuration phase. Th Centralized Web Interface (<u>IOTOD Industrial Wirel</u> connection is successful or manually if Offline con	e radio MUST be l <mark>ess US</mark> , <u>IOTOD Ir</u> figuration is sele	configured using the dustrial Wireless EU) if cted.
Offline Configuration: it supports local paramete upload of a single file downloaded from IOTOD IW Industrial Wireless US, IOTOD Industrial Wireless I	r changes throug section in IOTOD U).	h the radio Web UI / CLI or Industrial Wireless (<u>IOTOD</u>
Online Cloud-Managed Configuration: the radio Interface (IOTOD IW section in <u>IOTOD Industrial W</u> connected to the Internet and can access IOTOD I only.	can be configure fireless US or IOT W Cloud Server. I	d from the Centralized Web <u>DD Industrial Wireless EU</u>) if it Radio Web UI and CLI are read-
Online Cloud-Mana	ged	• Offline
UPLOAD IOTOD IW CONFIGURATION	I FILE	
Upload Confi	guration File	
	Browco	No file selected
Select configuration file exported from IOTOD Industrial Wireless:	Browse	
Select configuration file exported from IOTOD Industrial Wireless: Last configuration ID	34	
Select configuration file exported from IOTOD Industrial Wireless: Last configuration ID	34	

Configuring Cisco URWB Operation Mode