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Cisco Catalyst IW9167E Heavy Duty Access Point Cisco Ultra-Reliable Wireless Backhaul Software Configuration Guide, 17.11.1

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CHAPTER

Overview of Cisco URWB Catalyst IW9167E Heavy Duty Access Point

The Cisco Catalyst IW9167E Heavy Duty Access Point provides reliable wireless connectivity for mission-critical applications in a state-of-the art platform to deliver a network that is more reliable and secure, with higher throughput, more capacity, and less device interference. The IW9167E is Cisco's first outdoor Wi-Fi 6E ready Access Point supporting tri-radio and tri-band (2.4/5/6 GHz bands). The IW9167E can operate in Cisco Catalyst Wi-Fi (CAPWAP) mode or Cisco Ultra-Reliable Wireless Backhaul (Cisco URWB) mode and Cisco URWB software on IW9167E designed to support the Cisco style parser. This document covers configuration of Cisco URWB mode specific to the IW9167EH Access Point.

- Configuring the Access Point for the First Time, on page 1
- Using the Command-Line Interface, on page 1
- Connecting to the Access Point Console Port, on page 1

Configuring the Access Point for the First Time

This section describes how to configure basic settings on the wireless device for the first time. You can configure all the settings described in this section using the CLI, but it might be simplest to browse to the wireless device web-browser interface to complete the initial configuration and then use the CLI to enter additional settings for a more detailed configuration.

Using the Command-Line Interface

Use Secure Shell (SSH) to access the CLI. SSH provides a secure, remote connection to networking devices. The SSH software package provides secure login sessions by encrypting the entire session. SSH features strong cryptographic authentication, strong encryption, and integrity protection.

Connecting to the Access Point Console Port

To configure the access point locally (without connecting to a wired LAN), connect the computer to the access point's console port using a DB-9 to RJ-45 serial cable and to open the CLI by connecting to the access point's console port, follow these steps:

- 1. Connect a nine-pin, female DB-9 to RJ-45 serial cable to the RJ-45 serial port on the access point and to the COM port on a computer.
- 2. Set up a terminal emulator to communicate with the access point. In the terminal emulator, use the following settings:

Parameter	Value
Baud rate	115200 bps
Data	Eight bits
Parity	No
Stop	One stop bit
Flow Control	No

3. There are two available command-prompt modes: standard command prompt (>) and privileged command prompt (#). When logged in for the first time, it directs you to standard command prompt (>) mode to execute unprivileged commands.

To access privileged command-prompt (#) mode, enter the enable command (abbreviated as en) and enter the enable password (the privilege mode login password is different from the standard login password).

Use these default credentials to log in:

- Username: Cisco
- · Password: Cisco



Note Once the initial configuration completes, ensure to remove the serial cable from the access point.



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:]
	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 IW9167EH Configurator 5.21.201.72 - MESH END MODE			
OTOD IW Offline	GENERAL MODE			
FM-QUADRO	Genera	I Mode		
GENERAL SETTINGS general mode	Select MESH POINT mode if you are attaching an IP edge device (i.e. retwork camera, encoder, etc.) to this Cisco Catalyst W9167E Heavy Duty Access Point or if you are using this unit as a relay point in the mesh network.			
- wireless radio		o mesh point		
 antenna alignment and stats 	Mode:	O mesh end		
NETWORK CONTROL		⊖ gateway		
		_		
ADVANCED SETTINGS	Radio-off:			
- advanced radio settings				
	LAN Para	ameters		
- multicast	Level ID:	10 115 11 117		
- municast	Local IP:	10.115.11.117		
radiue	Local Netmask:	255,255,255,0		
- nto				
12tp configuration	Default Gateway:	10.115.11.1		
vian settings				
- Fluidity	Local Dns 1:	8.8.8.8		
misc settings	Local Day 2:			
- smart license	Local Dila 2.			
MANAGEMENT SETTINGS				
- remote access	Reset	Save		
- firmware upgrade		Curr		
- 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.

or Device# wr write or wr: commit the current configuration settings to memory. Device# reload reload: reload the device.

Device# write

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 IW9167EH Configurator 5.21.201.72 - MESH END MODE			
IOTOD IW Offline	GENERAL MODE			
FM-QUADRO	General Mode			
GENERAL SETTINGS	Select MESH POINT mode if you are attaching an IP edge device (i.e. network camera, encoder, etc.) to this Cisco Catalyst IW9167E Heavy Duty Access Point or if you are using this unit as a relay point in the mesh network.			
- general mode		mesh point		
- antenna alignment and stats	Mode:	mesh end		
NETWORK CONTROL				
- advanced tools		() galona,		
ADVANCED SETTINGS	Padia off:			
- advanced radio settings	Kaulo-bil.			
- static routes	LAN Par	ameters		
- allowlist / blocklist				
- multicast	Local IP:	10.115.11.117		
- snmp				
- radius	Local Netmask:	255.255.255.0		
- ntp	Default Cateway	10 115 11 1		
- I2tp configuration	Delaut Gateway.	10.113.11.1		
- vlan settings	Local Dns 1:	8.8.8.8		
- Fluidity				
- misc settings	Local Dns 2:			
- smart license				
MANAGEMENT SETTINGS				
- remote access	Reset	Save		
- firmware upgrade				
- status				
- configuration settings				
- reset factory default				
- logout				
- 108000				
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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 Configurator 5.21.200.136 - MESH END MODE		
IOTOD IW Cloud-Manage	Select operating country		
GENERAL SETTINGS - general mode - wireless radio - antenna alignment and stats NETWORK CONTROL - advanced tools Anywere new Thyse	Please select ROW region operatin immediately rebooted on confirmati be applied. ✓ Korea United Arab Emirates United Kingdom Vietnam	g country. The device will be on and all saved changes w Confirm	a Japex "(double apex)" (backtick) dentifies your network. It MUST be eet to be operating on the same
- advanced radio settings		Radio 1 Settings	
- static routes - allowiist / blocklist - multicast - snmp - radius	Role: Frequency (MHz): Channel Width (MHz):	Fluidmax Primary V	
- ntp		Radio 2 Settings	
- 12tp configuration - vian settings - Fluidity - misc settings - smart license MANAGEMENT SETTINGS - remote access - remote access - 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.

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ULTRA RELIABLE WIRELESS BACKHAUL	Cisco	Cameroon Chile China Colombia Costa Rica	ator
IOTOD IW Offline	WIRELESS RADIO	Ecuador Egypt	
IW-MONITOR Disabled FM-QUADRO	"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	
- 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	inequency.	Libya Macau	
- advanced radio settings - static routes	Role:	Malaysia Mexico	
- anownet / blockiest - multicast - snmp	Channel Width (MHz):	Morocco Pakistan	
- radius - ntp		Panama Peru	
- ethernet filter - l2tp configuration	Role:	Philippines Qatar	
- vlan settings - Fluidity - misc settings		Saudi Arabia Singapore	
- smart license MANAGEMENT SETTINGS		South Anica Sri Lanka Taiwan	
- remote access - firmware upgrade		Thailand Trinidad	
- status - configuration settings - reset factory default		Tunisia Turkey	
- reboot - logout		Ukraine United Arab Emirates	
	© 2023 Cisco and/or its affili	United Kingdom Uruguay Vietnam	

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: 40:365:84:150.1168 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 Passphrase" is an alphanu \$[dollar] =[equal] \[backslash] and w the same for all the Cisco URWB ur	meric string or special characters excluding "[apex] "[double apex] "[backlick] hitespace (e.g. "mysecurecamnet") that indentifies your network. It MUST be its belonging to the same network.
- wireless radio	Shared Passphrase:	CiscoURWB
- antenna alignment and stats	In order to establish a wireless conr	ection 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 (minz).	
- 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 Strong Password (after first login) from CLI

When the device is turned to offline mode, it is required to set a strong password for the device after the first login. To configure a strong password from the CLI, the username and password should follow the procedures listed below:

- The username length is between 1 and 32 characters.
- The password length should be from 8 to 120 characters.
- The password must contain at least one uppercase character, one lowercase character, one digit, and one punctuation mark.
- The password can contain alphanumeric characters and special characters (ASCII decimal code from 33 to 126), but the following special characters are not permitted:
 - " [double quote]
- '[single quote]
- ? [question mark]
- The password should not contain three sequential characters.
- The password cannot contain the same three characters consecutively.
- The password cannot be the same as or the reverse of the username.
- A new password cannot be the same as the current or existing password.

Example:

The default credential is,

username: Cisco password: Cisco enable password: Cisco

To reset the credential with strong password, use the following sample credentials.

```
username: demouser
password: DemoP@ssw0rd
enable password: DemoE^aP@ssw0rd
```

Example of configuring strong password from CLI.

```
Device# configure iotod-iw {offline}
```

Switching to IOTOD IW Offline mode...

Will switch from Provisioning Mode to IOTOD IW offline Mode, device need to reboot:Y/N? Y

User access verification.

[Device rebooting...]

User Access Verification: Username: Cisco Password: Cisco

After first login, Please reset credentials

Current Password:Cisco Current Enable Password:Cisco New User Name:demouser New Password:DemoP@ssw0rd Confirm New Password:DemoP@ssw0rd New Enable Password:DemoE^aP@ssw0rd Confirm New Enable Password:DemoE^aP@ssw0rd

After credentials changed, Please re-login

User access verification Username: demouser Password: DemoP@ssw0rd Device> enable Password:DemoE^aP@ssw0rd Device#



In the above example, all passwords are in plain text. This is for demo purposes (sample credential). In real case or configuration, they are hidden behind asterisks (*).

Configuring IOT-OD IW from GUI

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

IOTOD IW Conf	figuration Mode
Provisioning: initial radio configuration phase. Th Centralized Web Interface (<u>IOTOD Industrial Wire</u> connection is successful or manually if <i>Offline</i> cor	he radio MUST be configured using the eless <u>US</u> , IOTOD Industrial Wireless <u>EU</u>) if onfiguration is selected.
Offline Configuration: it supports local paramete upload of a single file downloaded from IOTOD IW Industrial Wireless US, IOTOD Industrial Wireless I	ter changes through the radio Web UI / CLI or V section in IOTOD Industrial Wireless (<u>IOTOD</u> <u>EU</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.	o can be configured from the Centralized Web <u>Wireless US</u> or I <u>OTOD Industrial Wireless EU</u>) if it IW Cloud Server. Radio Web UI and CLI are read
Online Cloud-Mana	aged Offline
UPLOAD IOTOD IW CONFIGURATION	N FILE
UPLOAD IOTOD IW CONFIGURATIO	N FILE figuration File
UPLOAD IOTOD IW CONFIGURATION Upload Conf Select configuration file exported from IOTOD Industrial Wireless:	N FILE figuration File Browse No file selected
UPLOAD IOTOD IW CONFIGURATION Upload Confi Select configuration file exported from IOTOD Industrial Wireless: Last configuration ID	IN FILE figuration File Browse No file selected
UPLOAD IOTOD IW CONFIGURATION Upload Confi Select configuration file exported from IOTOD Industrial Wireless: Last configuration ID	IN FILE figuration File Browse No file selected



Configuring Cisco URWB Radio Mode

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Configuring Cisco URWB Radio Mode

Each wireless interface can be configured to operate in a specific mode or disabled. Mode on Radio can be configured on the device will operate as a Fluidity or fixed infrastructure unit as specified by the parameter.

The following table shows the configuration of Radio mode on the device.

Table 3: Radio Mode Configuration

Radio Role	Mode on Radio*	Description
Fixed Infrastructure	fixed Fluidmax primary Fluidmax secondary	P2P mode (point to point)P2MP (point to multipoint) mode (Fluidmax), P2MP, MasterP2MP mode (Fluidmax), P2MP
Mobility AP	Fluidity	Mobility Mode

Radio Role	Mode on Radio*	Description
Mobility Client	Fluidity	Mobility Mode

Following table shows the Fluidity status and it is derived from operating mode of enabled radio interfaces.

Table 4: Operating Mode of Radio Interface

Radio 1 / Radio 2	Fixed Infrastructure	Fluidity
Fixed Infrastructure	Fluidity disabled	Fluidity enabled
Fluidity	Fluidity enabled	Fluidity enabled

Multiple and Dual radio interfaces can be used according to the following table.

Table 5: Configuration	n of Multiple	Radio interfaces
------------------------	---------------	------------------

Radio 1 / Radio 2	Fixed Infrastructure / Mesh	Mobility AP	Mobility client
Fixed Infrastructure / Mesh	ME/MP relay, P2MP (mesh)	Yes, trailer use case (Mining trailer)	Supported but no specific use case
Mobility AP	Yes, trailer use case (Mining trailer)	Standard Fluidity (multiple clients on each radio)	Not supported, use V2V or Fixed + AP
Mobility client	Supported but no specific use case	Not supported, use V2V or Fixed + AP	Standard Fluidity (multiple clients on each radio)

Configuring Radio-off Mode from CLI

To configure Radio-off mode when both radios (Fluidity and fixed) are disabled use the following CLI commands and procedure. If radio-off is specified, all the wireless interfaces will be disabled.

1. Set the device's current operating mode. Mode could be mesh end, mesh point or global gateway (L3)

Device# configure modeconfig mode {meshpoint | meshend | gateway}

2. Set the device's selected MPLS (Multi-Protocol Label Switching) OSI layer. Possible value of layer is 2 (OSI Layer-2) or 3 (OSI Layer-3).

Device# configure modeconfig mode {meshpoint | meshend | gateway}[layer {2|3}]

3. Specify radio-off mode.

Device# configure modeconfig mode { meshpoint | meshend | gateway } [layer {2|3}] [
radio-off {fluidity | fixed}]

4. End of configuration.

```
Device# (configure modeconfig mode { meshpoint | meshend | gateway } [layer {2|3}] [
radio-off {fluidity | fixed}])# end
```

Device# wr

Example:

Configure modeconfig mode meshend radio-off fluidity Configure modeconfig mode meshend radio-off fixed

Configuring Fluidity Role from CLI

To configure Fluidity role (infra or client) use the following Fluidity CLI commands and procedure.

1. Configure the Fluidity role (infrastructure or mobile)

Device# configure fluidity id

2. Configure Fluidity id mode

```
Device# configure fluidity id {mode}
Mode will be one of the following values
vehicle-auto - vehicle mode with automatic vehicle ID selection
vehicle ID - (alphanumeric) vehicle mode with manual ID.
infrastructure - infrastructure mode
wireless-relay - wireless infrastructure with no ethernet connection to the backhaul
```

3. End of configuration .

Device (configure fluidity id {mode}) # end

Device# wr

Example:

```
Device# configure fluidity id [vehicle-auto | infrastructure | vehicle-id |
wireless-relay]
```

Configuring Radio Mode for Cisco URWB from CLI

To configure Radio mode for Cisco URWB, use the following CLI commands and procedure.

The below CLI commands used to select the operating function of the wireless interface also mixed Fluidity and fixed infrastructure combinations for different interfaces are allowed.

1. Configure the wireless with radio interface number <1 or 2>.

Device# configure dot11Radio <interface>

2. Configure an operating mode for the specified interface.

Device# configure dot11Radio <interface>mode {fixed|fluidity|fluidmax}

Fluidity - This interface will operate in Fluidity mode, either as a mobility infrastructure or a vehice unit.

Fixed - This interface will operated in fixed infrastructure mode (no Fluidity).

Fluidmax - This interface will operate in Fluidmax P2MP mode. Additional parameters can be specified to configure the Fluidmax operating features (e.g., Primary/Secondary role, cluster ID).

3. Set fluidmax role for Fluidmax interface mode.

Device# configure dot11Radio <interface>mode {fixed|fluidity|fluidmax} {primary |
secondary}

Primary - set Fluidmax role to primary

Secondary - set Fluidmax role to secondary

4. End of configuration.

```
Device (configure dot11Radio <interface>mode{fixed|fluidity|fluidmax}) # end
Device# wr
```

```
Note
```

When at least one interface is set to Fluidity mode, the unit will globally operate in Fluidity mode. If all interfaces are set to fixed, Fluidity will be disabled.

Configuring AMPDU from CLI

To configure an ampdu (Aggregated MAC Protocol Data Unit) length and priority, use the following CLI commands.

Device# configure dot11radio <interface> ampdu length <length>

length: <0-255> integer number – microseconds.

Device# configure dotllradio <interface> ampdu priority {enable | disable}

enable: enable ampdu tx priority.

disable: disble ampdu tx priority.

Device# configure dot11radio <interface> ampdu priority [enable]

0: ampdu tx priority for index 0.

- 1: ampdu tx priority for index 1.
- 2: ampdu tx priority for index 2.
- 3: ampdu tx priority for index 3.
- 4: ampdu tx priority for index 4.
- 5: ampdu tx priority for index 5.
- 6: ampdu tx priority for index 6.
- 7: ampdu tx priority for index 7.

all all

Configuring Frequency from CLI

To configure an operating frequency, use the following CLI commands.

Device# configure dotl1radio <interface> frequency <frequency>

frequency: <0-7125> Operating frequency in MHz.

Configuring Maximum MCS Index from CLI

To configure maximum MCS (modulation coding scheme) index, use the following CLI commands:

Set maximum MCS index in integer or string "AUTO". For "AUTO", the background process will automatically configure the maxmcs.

Device# configure dot11radio <interface> mcs <maxmcs>

maxmcs values:

< 0-11 > Maximum mcs index 0 - 11.

WORD AUTO.



```
Note
```

The maximum MCS can be set between 0 to 9 if High Efficiency mode is disbled and maximum MCS can be set as 10 and 11 if High Efficiency mode is enabled.

Configuring Maximum NSS (Number of Spatial Streams) Index from CLI

To configure maximum NSS (Number of Spatial Streams) index, use the following CLI commands:

Set maximum spatial stream number in integer or string "AUTO".

For "AUTO", the background process will automatically configure the maxnss.

Device# configure dotl1radio <interface> spatial-stream <maxnss>

maxnss values:

< 1-4 > Maximum nss number 1 to 4.

WORD AUTO.

Configuring Rx-SOP Threshold from CLI

To configure Rx-SOP (Receiver Start of Packet) threshold, use the following CLI commands. Device# configure dotllradio <interface> rx-sop-threshold <0 - 91> Enter rx-sop- threshold (0: AUTO, VALUE: -VALUE dBi).

Configuring RTS Mode from CLI

To configure RTS (Ready to Send) mode, use the following CLI commands. To disable RTS, use the following CLI command. Device# configure dotllradio <interface> rts <disable> disable: disable rts protection. To enable RTS with threshold value, use the following CLI commands. Device# configure dotllradio <interface> rts enable <threshold> threshold: threshold range <0 - 2346>.

Configuring WMM Mode from CLI

To configure a WMM mode (wireless multimedia), use the following CLI commands. Device# configure dotllradio <interface> wmm [bk|be|vi|vo] [bk|be|vi|vo] represents the class-of-service (CoS) parameters. be: best-effort traffic queue (CS0 and CS3). bk: background traffic queue (CS1 and CS2). vi: video traffic queue (CS4 and CS5). vo: voice traffic queue (CS6 and CS7). To clear wireless stats counters, use the following CLI command. Device# configure dotllRadio <interface> wifistats <clear> clear: clear wireless stats counters.

Configuring NTP Enhancement from CLI

To configure a NTP (Network Time Protocol) server address, use the following CLI command.

Device# configure ntp server <string>

String - IP address or domain name.

Example:

Device# configure ntp server 192.168.216.201

To configure a NTP authentication, use the following CLI command.

Device# configure ntp authentication none Device# configure ntp authentication md5 <password> <keyid> Device# configure ntp authentication shal <password> <keyid>

none - disable NTP authentication md5|sha1 - authentication method.

Example:

Device# #configure ntp authentication md5 test1234 65535

Note Optional, md5 password and keyid should match NTP server's md5 password and keyid.

password must be between 8 and 20 characters.

The following special characters are not allowed: ' [apex] " [double apex] ` [backtick] \$ [dollar] = [equal] \ [backslash] # [number sign] and whitespace

To enable or disable NTP service, use the following CLI command.

Device# configure ntp { enable|disable }

To configure NTP timezone, use the following CLI command.

Device# Configure ntp timezone <string>

Example:

Device# configure ntp timezone Asia/Shanghai

To validate NTP configuration and status, use the following show commands.

```
Device# show ntp config
NTP status: enabled
NTP server: 192.168.216.201
authentication: MD5
password: test123
keyid: 5
timezone: Asia/Shanghai
```

```
Device# #show ntp (Using this command to check if device can sync up time with NTP server)
Stratum Version Last Received Delay Offset Jitter NTP server
1 4 9sec ago 1.840ms -0.845ms 0.124ms 192.168.216.201
```

Configuring NTP Enhancement from GUI

The following image shows the Web UI of NTP enhancement.

ULTRA RELIABLE	Cisco URWB IW9167EH Configurato 5.212.77.232 - MESH END MODE)r
WIRELESS BACKHAUL	NTP time is not synchronized	
IOTOD IW Offline	NTP - Network Time Protocol	
FM-QUADRO	NTP	
GENERAL SETTINGS	Enable NTP: 🗹	
- general mode	NTP server hostname: 192.168.216.201	
- wireless radio - antenna alignment and stats	NTP authentication: MD5 V	٦
NETWORK CONTROL	NTP password:	now
ADVANCED SETTINGS	Select Timezone: Asia/Shanghai	~
- advanced radio settings - static routes	WARNING: NTP time is not synchroniz	zed
- multicast		
	Reset Save	
- snmp	Heber	

Validating Radio Mode for Cisco URWB

To validate radio mode, use the following show commands.

Device# show dot11Radio <interface> config

Example:

```
Device# show dotl1Radio 1 config
Interface : enabled
Mode : fluidity
Frequency : 5785 MHz
Channel : 157
Channel width : 40 MHz
```

Device# show dot11Radio 2 config Interface : enabled Mode : fluidmax secondary Frequency : 5180 MHz Channel : 36 Channel width : 40 MHz

If need to change radio mode of vehicle AP (mobility client) to fixed or fluidmax, need to configure fluidity role as infrastructure by CLI "configure fluidity id infrastructure".

Configuring Radio-off Mode from GUI

To configure a Radio-off mode, choose a fixed or fluidity mode as shown in the below image. Select a mesh end mode if you are installing the Cisco IOT IW9167E Heavy Duty Access Point at the head end and connecting this unit to a wired network such as LAN.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW91 5.21.201.72 - ME	67EH Configurator ISH END MODE
IOTOD IW Offline	GENERAL MODE	
FM-QUADRO	Genera	I Mode
GENERAL SETTINGS	Select MESH END mode if you are installing this Cisco C end and connecting this unit to a wired network (i.e. LAN	Catalyst IW9167E Heavy Duty Access Point at the head).
- general mode		 mesh point
- antenna alignment and state	Mode:	mesh end
NETWORK CONTROL		⊖ gateway
- advanced tools		
ADVANCED SETTINGS	Radio-off:	✓ Fixed ∨
- advanced radio settings		
- static routes	LAN Par	ameters
- allowlist / blocklist		
- multicast	Local IP:	10.115.11.117
- snmp	Local Networks	255 255 255 0
- radius	Local Netmask:	255.255.255.0
- ntp	Default Gateway:	10.115.11.1
- I2tp configuration		
- vlan settings	Local Dns 1:	8.8.8.8
- Fluidity	Level Dec 2	
- misc settings	Local Dris 2.	
MANAGEMENT SETTINGS		
- remote access	Reset	Save
- firmware upgrade		
- status		
- configuration settings		
- reset factory default		
- reboot		
- logout		
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Configuring Radio Mode from GUI

To configure a radio mode from GUI, use the following procedures.

1. To establish a wireless connection the operating frequency should be same between Cisco URWB units. To configure a Radio mode from GUI, set the operating mode for specified radio (Radio1 and Radio2) interface as below diagram.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE
OTOD IW Offline	WIRELESS RADIO
FM-QUADRO	Wireless Settings
GENERAL SETTINGS	"Shared Pessphysical" is an abhorumenic string or special characters excluding Tayout [focube aper] [backtick] §Solidi - departal (backtick) in and whitespace (e.g., "myscorecament") that indentifies your network. It MUST be the same for all the Cisco URWB units belonging to the same network.
- wireless radio	Shared Passphrase: PASSWORD
• antenna alignment and stats	In order to establish a wireless connection between Cisco URWB units, they need to be operating on the same frequency.
	Radio 1 Settings
advanced radio settings	Role: Fixed V
static routes	
allowlist / blocklist	Frequency (MHz): 5180 V
multicast	
snmp	
radius	Radio 2 Settings
ntp	Peler Displied
12tp configuration	Noie. Disabled
vlan settings	
Fluidity	Reset
misc settings	
smart license	
IANAGEMENT SETTINGS	
remote access	
tirmware upgrade	
status	
reset factory default	
reboot	
langut	

2. Set Radio 1 operating mode(role) as a Fluidmax Primary with FluidMAX Cluster ID. In this case the frequency selection on the Primary will be enabled and Secondary will be disabled. Select the maximum power level (power level 1 sets the highest transmit power) and Cisco URWB transmission power control (TPC) will automatically select the optimum transmission power.



Note In Europe TPC is automatically enabled.

3. Set Radio 1 operating mode(role) as a Fluidmax Secondary with FluidMAX Cluster ID. If the FluidMAX Autoscan is enabled, the secondary units will scan the frequencies to associate with the Primary with the same Cluster ID. In this case the frequency selection on the Secondary will be disabled. Select the maximum power level (power level 1 sets the highest transmit power) and Cisco URWB transmission power control (TPC) will automatically select the optimum transmission power.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE	
IOTOD IW Offline	ADVANCED RADIO SETTINGS	
FM-QUADRO	Radio 1	
GENERAL SETTINGS	FluidMAX Management	
- general mode - wireless radio - antenna alignment and stats	Force the FluidMAX operating mode of this unit. If the operating mode is Primary/Secondary a FluidMAX Cluster ID can be set. If the FluidMAX Autoscan is enabled, the Secondary units will scan the frequencies to associate with the Primary with the same Cluster ID. In this case, the frequency selection on the Secondarys will be disabled.	
NETWORK CONTROL - advanced tools	Radio Mode: SECONDARY	
ADVANCED SETTINGS	FluidMAX Cluster ID: CiscoURWB	
- static routes	FluidMAX Autoscan: 🗹	
- multicast	Max TX Power	
- snmp - radius - ntp	Select the max power level that the radio shall use to transmit (power level 1 sets the highest transmit power). The Claco URVR TPC (Transmit Power Control) will automatically select the optimum transmission power according to the channel condition while not exceeding the MAX TX Power parameter. Note: In Europe TPC is automatically enabled.	
- I2tp configuration	Select TX Max Power: 1 \vee	
- Fluidity	Antenna Configuration	
- misc settings - smart license	Select radio 1 antenna gain and antenna number.	
MANAGEMENT SETTINGS - remote access	Select Antenna Gain: UNSELECTED	
- firmware upgrade - status	Antenna number: ab-antenna	
- configuration settings	Data Packet Encryption	
- reboot	Enable AES to cypher all wireless traffic. This setting must be the same on all the Cisco URWB units.	
- logout	Enable AES: Disabled \checkmark	
	Maximum link length	
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Note In Europe TPC is automatically enabled.

4. Choose unit role as Infrastructure when it acts as the entry point of the infrastructure for the mobile vehicles or choose unit role as Infrastructure (wireless relay) only when it used as a wireless relay agent to other infrastructure unit or choose unit role as a Vehicle when it is mobile. Choose network type set according to the general network architecture and choose flat mode if the network belongs single layer-2 broadcast domain or choose multiple subnets if the network belongs single layer-3 broadcast domain.

UITRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE
	WIRELESS RADIO
FM-QUADRO	Wireless Settings
GENERAL SETTINGS	"Shared Passphrase" is an alphanumeric string or special characters excluding "(pex) "(double apeq) "(backtick) §(cloiar) =[equal) (backtish) and writespace (e.g. "myscourceannet") that identifies your network. It MUST be the same for all the Cisco UNPR units biologing) to be same network.
- wireless radio	Shared Passphrase: PASSWORD
- antenna alignment and stats NETWORK CONTROL	In order to establish a wireless connection between Cisco URWB units, they need to be operating on the same
- advanced tools	Radio 1 Settings
ADVANCED SETTINGS - advanced radio settings	Role: Fluidity V
- static routes	Frequency (MHz): 5180
 allowlist / blocklist multicast 	
- snmp	Channel Width (MHz): 80 V
- radius	Radio 2 Settings
- I2tp configuration	Role: Disabled V
- vlan settings - Fluidity	
- misc settings	Reset
- smart license MANAGEMENT SETTINGS	
- remote access	
- firmware upgrade	
- configuration settings	
- reset factory default	
- logout	
	© 2022 Cisco and/or its affiliates. All rights reserved.
ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE
IOTOD IW Offline	FLUIDITY
FM-QUADRO	Fluidity Settings
GENERAL SETTINGS	The unit can operate in 3 modes: Infrastructure, Infrastructure (wireless relay), Vehicle. The unit must be set as Infrastructure when it acts as the entry point of the infrastructure for the mobile vehicles and the set of the formation of the set of th
- general mode	and it is connected to a wired network (backbone) which possibly includes other infrastructure nodes. In a unit must be set as infrastructure (wireless relay) ONLY when it is used as a wireless relay agent to other infrastructure units. In this operating mode, the unit MUST NOT be connected to the wired network backbone as
- antenna alignment and stats	it will use the wireless connection to relay the data coming form the mobile units. The unit must be set as Vehicle when it is mobile. Vehicle ID must be set ONLY when the unit is configured as
NETWORK CONTROL	Venicle. Specifically, Venicle ID must be a unique among all the mobile units installed on the same vehicle. Unit installed on different vehicles must use different Vehicle IDs. The Network Twoe filed must be set according to the general network architecture. Choose Flat If the mesh and
ADVANCED SETTINGS	the infrastructure networks belong to a single layer-2 broadcast domain. Use Multiple Subnets if they are organized as different layer-3 routing domains.
- advanced radio settings	Unit Role: Infrastructure
- allowlist / blocklist	Network Type: Multiple subnets >>
- multicast	The following advanced settings allow to fine-tune the performance of the system depending on the specific environment. Please do not alter this settings unless you have read the manual first and you know what you are
- radius	doing. The Handoff Logic controls the algorithm used by a mobile radio to select the best infrastructure point to connect
- ntp - I2tp configuration	to. In Normal mode, the point providing the strongest signal is selected. In Load Balancing mode, the mobile radio prefers the point which provides the best balance between signal strength and amount of traffic carried.
- vian settings	Handoff Logic: Standard 🗸
- Fluidity	
- smart license	Reset Save
MANAGEMENT SETTINGS	
- firmware upgrade	
- status	
- reset factory default	
- reboot	
- logout	
- logout	



Configuring Radio Antenna Settings

• Configuring Radio Antenna Settings, on page 27

Configuring Radio Antenna Settings

The IW9167EH supports eight external antennas with eight type-N female connectors to support multiple antenna options. Three ports numbered 1, 4, and 5 can read the information stored within self-identifying antennas (SIA). Radio 1 connects to ports 1 to 4, and Radio 2 connects to ports 5 to 8. For more information on antennas, refer to the Hardware Installation Guidehttps://www.cisco.com/c/en/us/td/docs/wireless/outdoor_industrial/iw9167/hardware/installation/b-iw9167eh-hig/m-about-iw9167e.html#Cisco_Concept.dita_ccda37ff-d976-420f-a87d-9d9683017ab3

The following CLI commands used to manage antenna port and gain on each antenna for different radio mode.

Configuring Antenna Gain

To configure an antenna gain, use the following CLI command.

Set the maximum antenna gain value in integer or string "UNSELECTED".

For "UNSELECTED", the background process will automatically configure the minimum supported antenna gain.



Note

When a self-identifying antenna (SIA) is connected, gain is set automatically without any user input...

```
Device# configure dotl1radio <interface> antenna gain <gain>
gain:
<1-19> antenna gain in dBi
WORD UNSELECTED
Device# write
```

Configuring Transmit and Receive Antennas

To configure a Transmission chain, use the following CLI command.

```
Device# configure dotllradio <interface> antenna < A > configure antenna chains (A) in use as follows a-antenna - configure dotll antenna a
```

```
ab-antenna - configure dot11 antenna ab
abcd-antenna - configure dot11 antenna abcd
Device# write
```

Configuring Transmission Power

To configure a transmission power, use the following CLI command.

Set the maximum transmission power level. For "AUTO", the background process will automatically configure to power level 1.

```
Device# configure dotl1radio <interface> txpower-level <level>
txpower level:
<1-8> tx power level value
WORD AUTO
Device# write
```



CHAPTER 🗸

Configuring and Validating Radio Channel and Bandwidth

- Configuring Operating Channel from CLI, on page 29
- Configuring Channel Bandwidth from CLI, on page 29
- Validating Operating Channel and Bandwidth from CLI, on page 30
- Configuring Radio Channel and Bandwidth from GUI, on page 30
- Configuring Fluidity from GUI, on page 31

Configuring Operating Channel from CLI

To configure operating channel, use the following CLI command.

- Configure the wireless device with radio interface number < 1 or 2 > Device# configure dot11Radio <interface>
- 2. Set the operating channel id between 1 to 256.

Device# configure dot11Radio <interface> channel <channel id>

3. End of configuration mode.

Device (configure dot11Radio <interface> channel <channel id>) # end

Example:

```
Device# configure dot11Radio [1|2] channel <1 to 256>
```

Configuring Channel Bandwidth from CLI

To configure channel bandwidth, use the following CLI commands and procedure.

1. Configure the wireless device with radio interface number <1 or 2>.

Device# configure dot11Radio <interface>

 Set channel bandwidth in MHz and currently supported bandwidth values are 20, 40, 80, 160 MHz. Radio 1 supports 20, 40 and 80 MHz bandwidths (example: configure dot11Radio 1 band-width). Radio 2 supports 20, 40, 80, and 160 MHz bandwidths (example: configure dot11Radio 2 band-width). Device# configure dot11Radio <interface> band-width [20|40|80|160]

3. End of configuration mode.

Device (configure dot11Radio <interface> band-width [20|40|80|160])# end Example: Device# configure dot11Radio [1|2] band-width [20|40|80|160]

Validating Operating Channel and Bandwidth from CLI

To validate radio channel and bandwidth, use the following show commands.

Device# show dot11Radio <interface> config

Example:

```
Device# show dotl1Radio 1 config
Interface : enabled
Mode : fluidmax secondary
Frequency : 5180 MHz
Channel : 36
Channel width : 40 MHz
```

Device# show dotl1Radio 2 config Interface : enabled Mode : fluidity Frequency : 5785 MHz Channel : 157 Channel width : 40 MHz

Configuring Radio Channel and Bandwidth from GUI

To Configure radio channel and bandwidth from GUI, set operating channel ID, radio mode as Fluidity or fixed infrastructure and set radio frequency range and bandwidth (supported bandwidth values are 20, 40, 80, 160 MHz) in MHz.

The below images show the configuration of radio channel and bandwidth.
ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.88 - MESH POINT MODE	
IOTOD IW Offline	WIRELESS RADIO	
W-MONITOR Disabled		Wireless Settings
GENERAL SETTINGS - general mode	"Shared Passphrase" is an alphanu \$[dollar] =[equal] \[backslash] and w the same for all the Cisco URWB un	meric string or special characters excluding "(apex) "(double apex) '(backti hitiespace (e.g. "mysecurecammet") that indentifies your network. It MUS1 its belonging to the same network.
- wireless radio	Shared Passohrase:	CiscoURWB
 antenna alignment and stats 	In order to establish a wireless conn	ection between Cisco LIRWB units, they need to be operating on the sam
NETWORK CONTROL	frequency.	ector between class or the units, they need to be operating on the same
- advanced tools		Radio 1 Settings
ADVANCED SETTINGS	Balai	Fixed
- advanced radio settings	1006.	1 IAGU
- static routes	Frequency (MHz):	5260
- allowlist / blocklist		
- snmp	Channel Width (MHz):	20
- radius		Radio 2 Settings
- ntp		
- enemet inter	Role:	Fixed
vian settings	Frequency (MHz):	5180
Fluidity	r requericy (writz).	3100
- misc settings	Channel Width (MHz):	80
MANAGEMENT SETTINGS		
- remote access	_	
- firmware upgrade		Reset Save
status		
configuration settings		
reset factory default		
reboot		
logout		

The below image shows the status of radio channel and bandwidth configuration and specific information of each wireless interface.

ULTRA RELIABLE WIRELESS BACKHAUL	5.21.201.88 - MESH POINT MODE
ULTRA RELIABLE WIRELESS BACKHAUL	5.21.201.88 - MESH POINT MODE
WIRELESS BACKHAUL	Serial WT142003002K
	JEHAL TT HYLUUJUULIN
	Operating Mode: Mesh Point
Office In Comme	Uptime: 4 days, 16:23 (hh:mm)
W-MONITOR Disabled	Filliware version. 6.6.1.10
	DEVICE SETTINGS
SENERAL SETTINGS	IP: 10.115.11.118
general mode	Netmask: 255.255.255.0 MAC address: 40:36-59:15:c9:58
wireless radio	Configured MTU: 1530
	WIRED0
 antenna alignment and stats 	Status: up
NETWORK CONTROL	Speed: 1000 Mb/s
- advanced tools	Duplex: full
ADVANCED SETTINGS	WIDED1
- advanced radio settings	Status: down
etatic routes	
allowlist / blocklist	Passphrase: Ciscol IBWB-118
- allowist / blockist	Operating region: B
- sninp	De lle d
· radius	Radio 1
- ntp	Mode: fixed infrastructure
- ethernet filter	Frequency: 5260 MHz
- I2to configuration	Channel: 52
- vian eattinge	Channel Width: 20 MHz
The late	Current tx power: 25 dBm
- Fluidity	Antenna gain: not selected
- misc settings	Antenna number: 2
MANAGEMENT SETTINGS	Radio Mode: csma/ca
- remote access	Maximum link length: 3 km
- firmware upgrade	Radio 2
status	Interface: disabled
configuration softings	Mode: fixed infrastructure
sonngaration solutings	Channel: 36
- reset ractory default	Channel Width: 80 MHz
- reboot	Current tx power: 19 dBm
- logout	Current tx power level: 1
	Antenna gain: not selected
	Antenna number: 2 Radio Mode: esma/ca
	Maximum link length: 3 km
	DIAGNOSTIC TOOL
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Configuring Fluidity from GUI

To configure a Fluidity mode from GUI, follow the below scenarios. Set the radio role to Fluidity, as shown in the diagram below.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco 5	URWB IW9167 .21.201.72 - MESH	EH Configurator	
OTOD IW Offline	WIRELESS RADIO			
FM-QUADRO		Wireless Se	ttings	
GENERAL SETTINGS	"Shared Passphrase" is an alphanu \$[dollar] =[equal] \[backslash] and w the same for all the Cisco URWB un	meric string or special ch hitespace (e.g. "mysecu its belonging to the sam	aracters excluding '(apex) *(double ap recamnet*) that indentifies your netwo e network.	ex] '(backtick irk. It MUST b
wireless radio	Shared Passphrase:	PASSWORD		
- antenna alignment and stats NETWORK CONTROL	In order to establish a wireless conn frequency.	ection between Cisco UI	RWB units, they need to be operating	on the same
advanced tools		Radio 1 Set	tings	
- advanced radio settings	Role:	Fluidity	\checkmark	
- static routes - allowlist / blocklist	Frequency (MHz):	5180 ~		
- multicast - snmp	Channel Width (MHz):	80 ~		
radius		Radio 2 Set	tings	
- ntp - I2tp configuration	Role:	Disabled	~	
vlan settings Fluidity misc settings		Reset	Save	
- Smart license MANAGEMENT SETTINGS				
- remote access - firmware upgrade				
status				
- configuration settings				
reset factory default				
- reboot - logout				

After setting radio role as Fluidity, make unit role as one of following mode that is infrastructure, infrastructure (wireless relay) and Vehicle. Vehicle ID must be a unique among all the mobile units installed on the same Vehicle and if unit installed on different vehicles must use different Vehicles ID's. Vehicle ID set automatically for mobile units if automatic vehicle ID enabled.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE		
OTOD IW Offline	FLUIDITY		
-M-QUADRO	Fluidity Settings		
	The unit can operate in 3 modes: Infrastructure, Infrastructure, (wireless relay), Vehicle		
SENERAL SETTINGS	The unit can operate in 5 modes: intrastructure, intrastructure (wreless relay), vencie. The unit must be set as Infrastructure when it acts as the entry point of the infrastructure for the mobile vehicles		
general mode	and it is connected to a wired network (backbone) which possibly includes other Infrastructure nodes. The unit must be set as Infrastructure (wireless relay) ONLY when it is used as a wireless relav agent to other		
wireless radio	Infrastructure units. In this operating mode, the unit MUST NOT be connected to the wired network backbone it will use the wireless connection to relax the data coming form the mobile units.	35	
antenna alignment and stats	The unit must be set as Vehicle when it is mobile. Vehicle ID must be set ONLY when the unit is configured as		
ETWORK CONTROL	venicle. specifically, Vehicle ID must be a unique among all the mobile units installed on the same vehicle. Un installed on different vehicles must use different Vehicle IDs.	e.	
advanced tools	The Network Type filed must be set according to the general network architecture. Choose Flat if the mesh an the infrastructure networks belong to a single layer-2 broadcast domain. Use Multiple Subpate if they are	ł	
ADVANCED SETTINGS	organized as different layer-3 routing domains.		
advanced radio settings	Unit Role: Vehicle V		
static routes	Automatic Vehicle ID:		
- anownst / blocklist			
snmp	Vehicle ID: 1234		
radius	Network Type: Flat		
ntp	The following advanced settings allow to fine-tune the performance of the system depending on the specific		
- I2tp configuration	environment. Hease do not alter this settings unless you have read the manual first and you know what you al doing.	0	
- vlan settings	The Handoff Logic controls the algorithm used by a mobile radio to select the best infrastructure point to conne to. In Normal mode, the point providing the strongest signal is selected. In Load Relancing mode, the mobile	ct	
Fluidity	radio prefers the point which provides the best balance between signal strength and amount of traffic carried.		
- misc settings	Handoff Logic: Standard		
- smart license			
MANAGEMENT SETTINGS			
· remote access	Reset Save		
- mmware upgrade			
- configuration settings			
- reset factory default			
- reboot			
logout			
alialia cisco	© 2022 Cisco andior its attiliates. All rights reserved.		
ULTRA RELABLE WIRELESS BACKHAUL	© 2022 Clisco and/or its atfiliates. All rights reserved. Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE		
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ILTER A RELARIE WIRELESS BACKHAUL WIRELESS BACKHAUL NOTOD IW FM-QUADRO GENERAL SETTINGS -general mode - wireless radio	0 2022 Clace and/or its atfiliates. All rights reserved. Clace URWB IW9167EH Configurator 521.201.72 - MESH END MODE FLUDITY Fludity Settings The write maximum of a mode: infrastructure (write set) of the write of	cles hit e as	
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UITA RELABLE WRELESS BACKHAUL WRELESS BACKHAUL OTOD IW Office FM-QUADRO GENERAL SETTINGS -general mode -wireless radio -atenna alignment and stats -wireless radio -atenna alignment and stats -wireless radio -atenna dignment and stats -atenna dignment and stats -wireless radio -atenna dign settings -atenna dign settings -atenna fraid settings -atenna fraid settings -atenna fraid settings -isp -12p configuration -vian settings	Casa Casa and with a still listers. All rights reserved. Casa Casa Casa Casa Casa Casa Casa Casa	cles hit are nect	
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The below GUI Fluidity configuration shows wireless interface unit role configured as infrastructure mode.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE
IOTOD IW Offline	WIRELESS RADIO
FM-QUADRO	Wireless Settings
	"Shared Passphrase" is an alphanumeric string or special characters excluding "lapex] "Idouble apex] "Iback
GENERAL SETTINGS	\$[dollar] =[equal] \[backslash] and whitespace (e.g. "mysecurecamnet") that indentifies your network. It MUS the same for all the Cisco UBWB units belonging to the same network.
- general mode	are autorited an are oracle or the units beionging to are autor network.
- wireless radio	Shared Passphrase: PASSWORD
 antenna alignment and stats 	In order to establish a wireless connection between Cisco URWB units, they need to be operating on the sa
NETWORK CONTROL	frequency.
- advanced tools	Radio 1 Settings
- advanced settings	Role: Fluidity
- advanced radio settings	
- allowlist / blocklist	Frequency (MHz): 5180 V
- multicast	
- snmp	Channel Width (MHz): 80 V
- radius	Radio 2 Settings
- ntp	
- I2tp configuration	Role: Disabled
- vlan settings	
- Fluidity	Pearl Caus
- misc settings	Reset
- smart license	
MANAGEMENT SETTINGS	
- remote access	
- firmware upgrade	
- status	
 configuration settings 	
- reset factory default	
- reboot	
-logout	© 2022 Cisco andior its affiliates. All rights reserved.
	© 2022 Cisco and/or its affiliates. All rights reserved. Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE
- logout - l C S C O. ULTRA RELABLE WIRELESS BACKHAUL	© 2022 Clicco and/or its affiliates. All rights reserved. Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE
-logout -lo	© 2022 Cisco and/or its affiliates. All rights reserved. Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE
-logout -lo	6 2022 Clisco and/or Its affiliates. All rights reserved. Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE FLUIDITY Fluidity Settings
-logout -logout LISCO. ULTRA RELARLE WRELESS BACKHALL INTOD IW FM-QUADRO	2 2022 Clice and/or its affiliates. All rights reserved. Cisco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE FLUIDITY Fluidity Settings The unit can operate in 3 modes: infrastructure, (wireless relay). Whice.
-logout -logout -logout ULTAR RELABLE WRELESS BACKHAUL DOTOD IW CMIINE FM-QUADRO GENERAL SETTINGS	© 2022 Clicco and/or its affiliates. All rights reserved. Clicco URWB IW9167EH Configurator 5.21.201.72 - MESH END MODE FLUIDITY Fluidity Settings The unit over operate in 5 modes: Infrastructure years to acid as the entry point of the infrastructure for the mode web and it is connected to a wire deviation (stackbase) within the parky interfastructure on the mode. The
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The below GUI shows, both radios must be configured as Fluidity for role vehicle. if one wireless interface is configured in fixed mode and the other one is configured in Fluidity mode then unit role vehicle cannot be selected.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.88 - MESH POINT MODE
Offline Offline	WIRELESS RADIO
W-MONITOR Disabled	Wireless Settings
CENEDAL SETTINGS	"Shared Passphrase" is an alphanumeric string or special characters excluding '[apex] "[double apex] [backl \$[dollar] =[eoual] \backslash] and whitespace (e.g. "mysecurecamnet") that indentifies your network. It MUS
- general mode	the same for all the Cisco URWB units belonging to the same network.
- wireless radio	Charad December of Cincol I DW/P
- antenna alignment and stats	Shared Passphrase: CISCOCRVVB
NETWORK CONTROL	In order to establish a wireless connection between Cisco URWB units, they need to be operating on the san frequency.
- advanced tools	Radio 1 Settings
ADVANCED SETTINGS	
- advanced radio settings	Role: Fixed V
- static routes	Frequency (MHz): 5260 V
- allowlist / blocklist	
- snmp	Channel Width (MHz): 20 V
radius	Radio 2 Settings
- nip - ethernet filter	
- enternet miter	Role: Fluidity V
- vlan settings	Frequency (MHz): 5500
- Fluidity	
- misc settings	Channel Width (MHz): 80 V
MANAGEMENT SETTINGS	
- remote access	
- firmware upgrade	Reset Save
- status	
- configuration settings	
 reset factory default 	
- reboot	
- logout	
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CHAPTER

Configuring and Validating of Point-to-Point Relay Topology

- Configuring and Validating of Point-to-Point Relay Topology, on page 37
- Configuring Point to Point Relay Topology from CLI, on page 37
- Validating Point to Point Relay Topology from CLI, on page 38

Configuring and Validating of Point-to-Point Relay Topology

Two radio interfaces on a single device (MP1) to implement a point-to-point relay topology as depicted in the picture below.

Figure 1: point to point relay topology



To configure point to point relay topology, follow the scenarios listed below

- 1. Configure ME (Mesh End) on channel 36, MP1 on channel 36 and MP2 on the default channel 149.
- 2. Continue from step 1 configuration.
- 3. Re-enable the second slot interface on MP2 (Mesh Point) and wait for 30 seconds then point-to-point relay topology implemented by two radio interfaces on a single devicet.

Configuring Point to Point Relay Topology from CLI

To configure a point-to-point relay topology use the following CLI commands.

- 1. Configure the wireless device with radio interface number <1 or 2>. Device# configure dot11Radio <interface>
- 2. Set wireless interface admin state to enable or disable mode.

Device# configure dot11Radio <interface> > {enable | disable}

3. Configure an operating mode for the specified interface (fixed or Fluidity or Fluidmax)

Device# configure dot11Radio <interface> > [enable | disable] mode { fluidity | fixed |
 fluidmax }

4. Set the operating channel for the specified interface and the operating channel id between 1 to 256

```
Device# configure dot11Radio <interface> > [enable | disable] mode [fluidity | fixed |
fluidmax] channel <channel id>
```

5. End of configuration mode.

Device (configure dot11Radio <interface> > {enable | disable} mode {fluidity | fixed |
fluidmax} channel <channel id>) #end

Example:

Device# Configure dot11Radio <2> {enable | disable} mode {fluidity} channel <36>

Example for point-to-point relay topology configuration.

ME (Mesh End) Configuration

Device# Configure dot11Radio 2 enable Device# Configure dot11Radio 2 mode fixed Device# Configure dot11Radio 2 channel 36

MP1 (Mesh Point) Configuration

Device# Configure fluidity id infrastructure Device# Configure dot11Radio 1 enable Device# Configure dot11Radio 1 mode fixed Device# Configure dot11Radio 1 channel 36 Device# Configure dot11Radio 2 enable Device# Configure dot11Radio 2 mode fixed Device# Configure dot11Radio 2 channel 149

MP2 Configuration

Device# Configure fluidity id infrastructure Device# Configure dot11Radio 1 enable Device# Configure dot11Radio 1 mode fixed Device# Configure dot11Radio 1 channel 149

Validating Point to Point Relay Topology from CLI

To validate point to point relay topology configuration, use the following show commands.

Device# show dot11Radio <interface> config

ME (Mesh End) Statistics

Device# show dotl1Radio 2 config Interface : enabled Mode : fixed infrastructure Frequency : 5180 MHz Channel : 36 Passphrase : Cisco AES encryption : enabled AES key-control : enabled

MP1 (Mesh Point) Statistics

Device# show dotllRadio 1 config Interface : enabled Mode : fixed infrastructure Frequency : 5180 MHz Channel : 36

Passphrase : Cisco AES encryption : enabled AES key-control : enabled Device# show dotl1Radio 2 config Interface : enabled Mode : fixed infrastructure Frequency : 5745 MHz Channel : 149 Passphrase : Cisco AES encryption : enabled AES key-control : enabled

MP2 Statistics

Device# show dotllRadio 1 config Interface : enabled Mode : fixed infrastructure Frequency : 5745 MHz Channel : 149 Passphrase : Cisco AES encryption : enabled



CHAPTER

Configuring and Validating Fluidmax Topology

• Configuring and Validating Fluidmax (point to multipoint) Topology, on page 41

Configuring and Validating Fluidmax (point to multipoint) Topology

Concerning fixed infrastructure, any wireless interface can be configured to operate in Fluidmax mode to implement point-to-multipoint connections. Each interface uses an independent set of Fluidmax parameters, allowing for great flexibility in the network topologies that can be implemented. As an example, the picture below illustrated explains two cascaded point to multipoint clusters where the ME (Mesh End) node uses both radios in Fluidmax Primary mode to serve several Secondary clients (MP1 (Mesh Point), MP2 and MP3) on two different frequencies. Concerning MP2, the first radio operates in Fluidmax Secondary mode to connect to the ME, while the second interface is configured as Fluidmax Primary to serve more downstream clients (MP4 and MP5).

Figure 2: Two cascaded Fluidmax Topology



Configuring Point to Multipoint Topology from CLI

To configure a Fluidmax (point to multipoint) Topology use the following commands.

Device# configure dot11Radio <interface>

Interface - <0-3> Dot11Radio interface number.

Device# configure dot11Radio <interface> {enable | disable}

Enable or disable - Set wireless interface admin state to enable or disable at runtime

Device# configure dot11Radio <interface> mode {fluidity | fixed | fluidmax } { primary |
secondary }

Mode - operating mode for the specified interface (Fluidity or fixed or Fluidmax)

Primary | secondary - Fluidmax role for the unit, either primary or secondary.

Device# configure dot11Radio <interface> channel <channel id>

Channel - Set the operating channel id <1-256>.

Device# configure dotl1Radio <interface> band-width <channel bandwidth>

Bandwidth - channel bandwidth in MHz and currently supported values are 20, 40, 80, 160.

Device#wr

Example of point to multipoint (Fluidmax) topology configuration

ME (Mesh End) Configuration

Device# Configure dotllRadio 1 enable Device# Configure dotllRadio 1 mode fluidmax primary Device# Configure dotllRadio 1 channel 36 Device# Configure dotllRadio 1 band-width 40 Device# Configure dotllRadio 2 enable Device# Configure dotllRadio 2 mode fluidmax primary Device# Configure dotllRadio 2 channel 149 Device# Configure dotllRadio 2 band-width 80

MP1 (Mesh point) Configuration

Device# Configure dot11Radio 1 enable Device# Configure dot11Radio 1 mode fluidmax secondary Device# Configure dot11Radio 1 channel 36 Device# Configure dot11Radio 1 band-width 40

MP2 Configuration

```
Device# Configure dot11Radio 1 enable
Device# Configure dot11Radio 1 mode fluidmax secondary
Device# Configure dot11Radio 1 channel 149
Device# Configure dot11Radio 1 band-width 80
Device# Configure dot11Radio 2 enable
Device# Configure dot11Radio 2 mode fluidmax primary
Device# Configure dot11Radio 2 channel 44
Device# Configure dot11Radio 2 band-width 40
```

MP3 Configuration

Device# Configure dot11Radio 1 enable Device# Configure dot11Radio 1 mode fluidmax secondary Device# Configure dot11Radio 1 channel 149 Device# Configure dot11Radio 1 band-width 80

MP4 Configuration

```
Device# Configure dot11Radio 1 enable
Device# Configure dot11Radio 1 mode fluidmax secondary
Device# Configure dot11Radio 1 channel 44
Device# Configure dot11Radio 1 band-width 40
```

MP5 Configuration

Device# Configure dotllRadio 1 enable Device# Configure dotllRadio 1 mode fluidmax secondary L

```
Device# Configure dotllRadio 1 channel 44
Device# Configure dotllRadio 1 band-width 40
```

Validating Point to Multipoint Topology from CLI

To validate the point to multipoint (Fluidmax) topology configuration use the following show command.

Device# show dot11Radio <interface> config

Example:

ME (Mesh End) radio2:

Device# show dotl1Radio 2 config Interface : enabled Mode : fluidmax primary Frequency : 5745 MHz Channel : 149 Fluidmax Configuration Tower ID : disabled Cluster ID : fluidmesh Automatic scan : enabled Automatic scan threshold : disabled

MP2 (Mesh Point):

Device# show dot11Radio 1 config Interface : enabled Mode : fluidmax secondary Frequency : 5745 MHz Channel : 149 Fluidmax Configuration Tower ID : disabled Cluster ID : fluidmesh Automatic scan : enabled Automatic scan threshold : disabled Device# show dot11Radio 2 config Interface : enabled Mode : fluidmax primary Frequency : 5220 MHz Channel : 44 Channel width : 40 Fluidmax Configuration Tower ID : 100 Cluster ID : fluidmesh Automatic scan : enabled Automatic scan threshold : disabled

MP4 radio1:

```
Device# show dotllRadio 1 config
Interface : enabled
Mode : fluidmax secondary
Frequency : 5220 MHz
Channel : 44
Fluidmax Configuration
Tower ID : disabled
Cluster ID : fluidmesh
Automatic scan : enabled
Automatic scan threshold : disabled
```



CHAPTER C

Configuring and Validating Mixed Mode (Fixed infrastructure + Fluidity) Topology

Configuring and Validating Mixed Mode (Fixed Infrastructure + Fluidity) Topology, on page 45

• Configuring Mixed Mode Topology from CLI, on page 45

Configuring and Validating Mixed Mode (Fixed Infrastructure + Fluidity) Topology

The mixed mode configuration provides flexibility of configuration on multi-radio device with different frequencies. From the below diagram, U2 is configured with one radio in fixed infrastructure and the second radio as a Fluidity AP to accept vehicle connections simultaneously. Both radio interfaces on U1 configured as fixed infra when U3 has both radio interfaces configured as fluidity. The wireless interface can also operate in Fluidmax mode without any restriction of the P2MP (Point to MultiPoint) role (Primary or Secondary) if fixed infrastructure role is suitable.

Figure 3: Mixed Mode Topologies



Configuring Mixed Mode Topology from CLI

To configure a mixed mode topology, use a following CLI commands.

Device# configure fluidity id {vehicle-auto | vehicle ID | infrastructure | wireless- relay}

Fluidity id – configure Fluidity role for device.

Vehicle-auto - vehicle mode with automatic vehicle ID selection

Vehicle ID (alphanumeric) - vehicle mode with manual ID.

Infrastructure - infrastructure mode

Wireless-relay - wireless infrastructure with no ethernet connection to the backhaul.

Device# configure dot11Radio <interface>

Interface - <0-3> dot11Radio interface number.

Device# configure dot11Radio <interface> {enable | disable}

Enable or disable - Set wireless interface admin state to enable or disable at runtime.

Device# configure dotllRadio <interface> mode {fluidity | fixed | fluidmax}

Mode - operating mode for the specified interface (Fluidity or fixed or Fluidmax).

Device# configure dot11Radio <interface> channel <channel id>

channel - Set the operating channel id <1-256>

Device# wr

Example:

U1 Configuration

```
Device# configure dotl1Radio 2 enable
Device# configure dotl1Radio 2 mode fixed
Device# configure dotl1Radio 2 channel 36
```

U2 Configuration

```
Device# configure dotllRadio 1 enable
Device# configure dotllRadio 1 mode fixed
Device# configure dotllRadio 1 channel 36
Device# configure dotllRadio 2 enable
Device# configure dotllRadio 2 mode fluidity
Device# configure dotllRadio 2 channel 149
Device# Configure fluidity id infrastructure
```

U3 Configuration

Device# Configure fluidity id vehicle-auto Device# configure dotllRadio 1 enable Device# configure dotllRadio 1 mode fluidity Device# configure dotllRadio 1 channel 149

Validating Mixed Mode Topology from CLI

To validate a mixed mode topology, use a following show commands.

Device# show dot11Radio <interface>config

U1 Statistics

```
Device# show dotllRadio 2 config
Interface : enabled
Mode : fixed infrastructure
Frequency : 5180 MHz
Channel : 36
.....
Passphrase : Cisco
AES encryption : enabled
AES key-control : enabled
```

U2 Statistics

Device# **show dotllRadio 1 config** Interface : enabled Mode : fixed infrastructure Frequency : 5180 MHz Channel : 36 Passphrase : Cisco AES encryption : enabled AES key-control : enabled Device# show dot11Radio 2 config Interface : enabled Mode : fluidity Frequency : 5745 MHz Channel : 149

Passphrase : Cisco AES encryption : enabled AES key-control : enabled

U3 Statistics

.....

Device# show dotllRadio 1 config Interface : enabled Mode : fluidity Frequency : 5745 MHz Channel : 149

Passphrase : Cisco AES encryption : enabled AES key-control : enabled

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CHAPTER

Configuring and Validating Fluidmax Fast Failover

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- Configuring Fluidmax Fast Failover from CLI, on page 49
- Validating Fluidmax Fast Failover from CLI, on page 50

Configuring and Validating Fluidmax Fast Failover

Before you configure Fluidmax fast failover, use the following pre-conditions.

- 1. Primary and backup primary node should have same configuration, it includes the same channel's parameters (frequency, channel width, etc.) as well as the Fluidmax parameters like role, cluster ID.
- 2. Fluidmax redundancy provides resilience for node-failure type of faults (eg. power loss or catastrophic hardware fault on the primary node).
- 3. Enable Fluidmax fast failover using Fluidmax CLI commands on all devices except vehicle devices.



Note IW9167E supports both Gateway + MP (Mesh Point) – MP (with same tower ID) and ME (Mesh End) – ME fast failover.

Configuring Fluidmax Fast Failover from CLI

To configure Fluidmax fast failover, use the following CLI commands.

Device# configure modeconfig mode meshpoint

Modeconfig – configure current operating mode of device. Mode could mesh end, mesh point or global gateway (L3).

Device# configure mpls fastfail status [enable | disable]

Mpls - Configure mpls data frame packets for specified device.

Fastfail - Configure the fast failover feature status (enable or disable).

Device# configure mpls fastfail timeout <0 - 65535> Fastfail timeout - Set the fast failover timeout for device failure detection. Device# configure dot11Radio [1|2] mode fluidmax [primary|secondary] Fluidmax - Set the interface in Fluidmax mode. Primary | Secondary - Fluidmax role for the unit, either primary or secondary. Device# configure dot11Radio [1|2] mode fluidmax cluster id fluidmesh cluster id - Set Fluidmax Cluster ID assigned to the interface. Device# configure dot11Radio [1|2] mode fluidmax tower [enable|disable] Tower - Enable or disable Fluidmax Tower ID for specified interface.



Note

Radio interface setting must be the same on both ME (Mesh End) point to multi point primaries.

Validating Fluidmax Fast Failover from CLI

To validate Fluidmax fast failover, use the following show commands.

```
Device# show mpls config
Device# show dot11Radio <interface> fluidmax (check Fluidmax Primary ID and working state)
```

Example:

```
Device# show mpls config
layer 2
unicast-fllod
arp-unicast:
reduce-broadcast:
cluster ID
MPLS fast failover: enabled
Node failover timeout: 100 ms
MPLS tunnels:
Idp id 381877266 debug 0 auto pw 1
```

Local gw 5.21.201.116 global gw 0.0.0.0 pwlist {}



ng and Validating High Efficien

Configuring and Validating High Efficiency (802.11 ax)

- Configuring and Validating High Efficiency, on page 51
- Configuring Global Gateway from GUI, on page 52

Configuring and Validating High Efficiency

When High Efficiency (HE) is enabled, it is backward compatible with 802.11ac. To enable or disable 802.11ax HE, the following list is supported.

- Cisco URWB HE supports 20/40/80 MHz bandwidth for slot 1.
- Cisco URWB HE supports 20/40/80/160 MHz bandwidth for slot 2.
- Cisco URWB, HE defaults setting is disabled.
- HE negotiation is only supported between devices with HE enabled.

To enable High Efficiency mode, use the following CLI commands.

```
Device# configure dotllRadio [1|2] high-efficiency enable
Device# configure dotllRadio [1|2] mcs maxmcs <mcs index in integer or string>
```



Need to configure maxmes as 11 by CLI "configure dot11Radio 1/2 mes maxmes 11" since default maxmes is 9.

To disable High Efficiency mode, use the following CLI commands:

```
Device# configure dotllRadio [1|2] high-efficiency disable default maxmcs is 9.
```

To validate High Efficiency mode, use the following show command.

```
Device# show dotllRadio 1 config
Maximum tx mcs : 9
High-Efficiency : Enabled
Maximum tx nss : 2
RTS Protection : disabled
guard-interval : 800ns
```

Device**# show dotllRadio 2 config** Maximum tx mcs : 9 High-Efficiency : Enabled Maximum tx nss : 2 RTS Protection : disabled guard-interval : 800ns Device**# show eng-stats** WLAN1 Rx: FC:58:9A:16F8:52 rate 1201 MCS 11/2 HE80/G1(800ns) ssn 48 rssi-48 received WLAN1 Tx: FC:58:9A:16F8:52 rate 1201 MCS 11/2 HE80/G1(800ns) sent 195612 failed 0 WLAN2 Rx: FC:58:9A:16F8:13 rate 1201 MCS 11/2 HE80/G1(800ns) ssn 50 rssi-46 received WLAN2 Tx: FC:58:9A:16F8:13 rate 864 MCS 11/2 HE80/G1(800ns) sent 390797 failed 1

Configuring Global Gateway from GUI

Global gateway mode automatically enforces MPLS (Multi-Protocol Label Switching) layer 3 and radio-off and radio status cannot be changed in global gateway mode. The below images show the GUI configuration of global gateway mode.

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW916 5.21.201.72 - ME	67EH Configurator SH END MODE		
OTOD IW Offline	GENERAL MODE			
FM-QUADRO	General	General Mode		
GENERAL SETTINGS	Global Gateway mode automatically enforces MPLS layer Global Gateway mode.	r 3 and radio-off. Radio status cannot be changed in		
- general mode		O mesh point		
- wireless radio	Mode:	O mesh end		
- antenna alignment and stats		o gateway		
NETWORK CONTROL		guondy		
- advanced tools				
ADVANCED SETTINGS	Radio-off:	Fluidity V		
advanced radio settings				
static routes	LAN Para	ameters		
- allowlist / blocklist	1	10 445 44 447		
multicast	Local IP:	10.115.11.117		
snmp	Local Netmask:	255.255.255.0		
radius				
12th configuration	Default Gateway:	10.115.11.1		
vian settings				
Fluidity	Local Dns 1:	8.8.8.8		
misc settings	Local Dos 2			
- smart license	2008 510 21			
MANAGEMENT SETTINGS				
remote access	Reset	Save		
firmware upgrade				
status				
configuration settings				
reset factory default				
reboot				
logout				

WIRELESS RADIO

Wireless Settings

"Shared Passphrase" is an alphanumeric string or special characters excluding '[apex] "[double apex] `[backtick] \$[dollar] =[equal] \[backslash] and whitespace (e.g. "mysecurecamnet") that indentifies your network. It MUST be the same for all the Cisco URWB units belonging to the same network.

Shared Passphrase: CiscoURWB

In order to establish a wireless connection between Cisco URWB units, they need to be operating on the same frequency.

	Radio 1	Settings	
Role:	Disabled	\checkmark	
	Radio 2	Settings	
Role:	Disabled	\sim	
	Reset	Save	

FLUIDITY

Fluidity Settings

Thuidity Settings
The unit can operate in 3 modes: Infrastructure, Infrastructure (wireless relay), Vehicle.
The unit must be set as Infrastructure (when it acts as the entry point of the infrastructure for the mobile vehicles
and it is connected to a wired network (backbone) which possibly includes other Infrastructure nodes. The unit
must be set as Infrastructure (wireless relay) ONLY when it is used as a wireless relay gent to other
Infrastructure units. In this operating mode, the unit MUST NOT be connected to the wired network backbone as
it will use the wireless connection to relay the data coming form the mobile units.
The unit must be set as Vehicle HD must be a unique among all the mobile units installed on the same vehicle. Unit
installed on different vehicles must use different Vehicle IDs.
The Network Type filed must be set ascirling layer-2 broadcast domain. Use Multiple Subnets if they are
organized as different layer-3 routing domains.

Unit Role:	Infrastructure	\sim

Network Type: Multiple subnets ~

The following advanced settings allow to fine-tune the performance of the system depending on the specific environment. Please do not alter this settings unless you have read the manual first and you know what you are

environment. Prese so not and this social so the second social so

Handoff Logic: Standard V

Reset	Save



Configuring Guard Interval for HE (High Efficiency)

• Configuring Guard Interval for HE, on page 55

Configuring Guard Interval for HE

Longer guard intervals improve link reliability for longer range outdoor deployments and this features like guard interval supports URWB stacks.

To configure a guard interval, use the following CLI commands.

Device# configure dot11Radio [interface] guard-interval [gi]

gi will be one of the following values

1600 - Configure 1600 ns guard intervasl (only in HE mode)

3200 - Configure 3200 ns guard interval (only in HE mode)

400 - Configure 400 ns guard interval (supported in HT and VHT modes)

800 - Configure 800 ns guard interval (default guard interval mode and disabled mode in HT, VHT, HE)

Example:

Device# configure dot11Radio 1 high-efficiency enable Device# configure dot11Radio 1 guard-interval 1600 Device# configure dot11Radio 1 guard-interval 3200 Device# wr

To validate a guard interval, use the following CLI commands.

Device# show dot11Radio 1 config Maximum tx mcs: 9 High-efficiency : enabled Maximum tx nss : 2 RTS protection : disabled guard-interval : 1600 ns Device# show dot11Radio 2 config

Maximum tx mcs: 9 High-efficiency : enabled Maximum tx nss : 2 RTS protection : disabled guard-interval : 3200 ns



Configuring Indoor Deployment for -E Domain

• Configuring Indoor Deployment for -E Domain, on page 57

Configuring Indoor Deployment for -E Domain

The IW9167E supports enabling indoor deployment for -E domain and user can turn on and off indoor deployment by configuration on URWB CLI.



Note

It is the responsibility of the user to ensure that the IW9167EH is indeed located indoors before toggling the indoor deployment setting. Outdoor mode can be used indoors, but indoor mode cannot be used outdoors because 5150–5350 MHz channels are indoor-only in -E countries..

Outdoor mode is always the default.

To enable indoor deployment (5 GHz reg domain changes from -E to -Ei) use the following CLI command.

Device# configure wireless indoor-deployment enable

To disable indoor deployment (5 GHz reg domain changes from -Ei to -E) use the following CLI command.

Device# configure wireless indoor-deployment disable

To verify -E indoor deployment use the following show commands.

For enabled indoor deployment

Radio : 5.0 GHz Carrier set : (-Ei) GB Base radio MAC : FC:58:9A:15:B7:C0 Supported channels: 36 40 44 48 52 56 60 64 100 104 108 112 116 120 124 128 132 136 140

For disabled indoor deployment

Device# show Dotl1Radio {1|2} config DFS region : E DFS radar role : auto Radar detected : 0 Indoor deployment : disable

Device# show controllers Dot11Radio {1|2}

Radio info summary:

Radio : 5.0 GHz Carrier set : (-E) GB Base radio MAC : FC:58:9A:15:B7:C0 Supported channels: 100 104 108 112 116 120 124 128 132 136 140



Configuring and Validating SNMP

• Configuring and Validating SNMP, on page 59

Configuring and Validating SNMP

SNMP (simple network monitoring protocol) applications used in Cisco URWB software for network management functionalities.

The following illustration shows the SNMP process. SNMP agent receives a request from SNMP client, and it passes the request to the subagent. The subagent then returns a response to the SNMP agent and the agent creates an SNMP response packet and sends the response to the remote network management station that initiated the request.

Figure 4: SNMP Process



Configuring SNMP from CLI

The following CLI commands are used for SNMP (Simple Network Monitoring Protocol) configuration.



Note

• SNMP CLI logic modified for SNMP configuration, all parameters of SNMP are required to be configured before enable SNMP feature by CLI "configure snmp enabled".

• All the related configurations of SNMP will be removed automatically when disable SNMP feature.

To enable or disable SNMP functionality use the following CLI command.

Device# configure snmp [enable | disable]

To specify the SNMP protocol version, use the following CLI command.

Device#configure snmp version {v2c | v3}

To specify the **SNMP v2c community ID** number (SNMP v2c only), use the following CLI command.

Device#configure snmp v2c community-id <length 1-64>

To specify the SNMP v3 username (SNMP v3 only), use the following CLI command.

Device#configure snmp v3 username <length 32>

To specify the **SNMP v3 user password** (SNMP v3 only), use the following CLI command. Device#configure snmp v3 password <length 8-64>

To specify the **SNMP v3 authentication** protocol (SNMP v3 only), use the following CLI command. Device#configure snmp auth-method <md5|sha>

To specify the **SNMP v3 encryption protocol** (SNMP v3 only), use the following CLI command.

Device#configure snmp encryption {des | aes | none}

Possible encryption values are des or aes. Alternatively, enter none if a v3 encryption protocol is not needed.

To specify the SNMP v3 encryption passphrase (SNMP v3 only), use the following CLI command.

Device#configure snmp secret <length 8-64>

To specify the **SNMP periodic trap** settings, use the following CLI command.

Device#configure snmp periodic-trap {enable | disable}

To specify the **notification trap period** for periodic SNMP traps, use the following CLI command.

Device#configure snmp trap-period <1-2147483647>

Notification value trap period measured in minutes.

To enable or disable SNMP event traps, use the following CLI command.

Device#configure snmp event-trap {enable | disable}

To specify the **SNMP NMS** hostname or IP address, use the following CLI command.

Device#configure snmp nms-hostname {hostname | Ip Address}

To **Disable SNMP configuration**, use the following CLI command:

Device#configure snmp disabled

SNMP is disabled and all sensitive information and credentials have been cleared. Please respecify all valid values to enable SNMP again.

Example of SNMP configuration.

CLI for SNMP v2:

Device#configure snmp v2 community-id <length 1-64> Device #configure snmp nms-hostname hostname/Ip Address Device #configure snmp trap-period <1-2147483647> Device #configure snmp periodic-trap enable/disable Device #configure snmp event-trap enable/disable Device #configure snmp version v2c Device #configure snmp enabled

CLI for SNMP v3:

Device #configure snmp nms-hostname hostname/Ip Address Device #configure snmp trap-period <1-2147483647> Device #configure snmp v3 username <length 32> Device #configure snmp v3 password <length 8-64> Device #configure snmp auth-method <md5|sha> Device #configure snmp encryption <aes|des|none> Device #configure snmp secret <length 8-64> Device #configure snmp periodic-trap enable/disable Device #configure snmp event-trap enable/disable L

Device #configure snmp version v3 Device #configure snmp enabled

Validating SNMP from CLI

To validate a SNMP, use the following show commands.

Show SNMP info:

Device# show snmp SNMP: enabled Version: **v3** Username: username Password: password Authentication method: SHA Encryption: AES Encryption Passphrase: passphrase Engine ID: 0x8000000903c0f87fe5f314 Periodic Trap: enabled Notification Period (minutes): 5 Event Trap: enabled NMS hostname: 192.168.116.11 Device# show snmp SNMP: enabled Version: **v2c** Community ID: test Periodic Trap: enabled Notification Period (minutes): 5 Event Trap: enabled NMS hostname: 192.168.116.11 Device# show system status snmpd Service Status Service Name : snmpd Loaded : loaded Active : active (running) Main ProcessID : 6437 Running Since : Mon 2022-09-19 14:45:27 UTC; 3h 34min ago Service Restart : 0

Configuring SNMP from GUI

The following images shows the configuration of SNMP from GUI

GUI for SNMP v2:

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.200.136 - MESH END MODE		
TOD IW Offline	SNMP		
-MONITOR Disabled	SN	MP	
A-QUADRO	SNMP mode:	v2c ~	
NERAL SETTINGS	Community ID:	test	
jeneral mode	Enable SNMP periodic tran		
intenna alignment and stats	Enable SNMP event trap:		
TWORK CONTROL	NMS hostname;	192,168.0,100	
VANCED SETTINGS			
dvanced radio settings	Notification period (minutes):	1	
tatic routes			
llowlist / blocklist			
nulticast	Reset	Save	
inmp			
adius			
tp			
thernet filter			
2tp configuration			
rlan settings			
luidity			
nisc settings			
mart license			
ANAGEMENT SETTINGS			
emote access			
irmware upgrade			
tatus			
onfiguration settings			
eset factory default			
aboot			
ogout			

GUI for SNMP v3:

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH 5.21.200.136 - MESH EI	Configurator ND MODE
IOTOD IW Offline	SNMP	
IW-MONITOR Disabled	SNMP	
FM-QUADRO	SNMP mode:	v3 ~
GENERAL SETTINGS	SNMP v3 username:	user
- general mode - wireless radio	SNMP v3 password:	••••••
antenna alignment and stats NETWORK CONTROL	Show SNMP v3 password:	
- advanced tools	SNMP v3 authentication proto:	SHA V
- advanced radio settings	SNMP v3 encryption:	AES 🗸
 static routes allowlist / blocklist 	SNMP v3 encryption passphrase:	•••••
- multicast	Show SNMP v3 encryption passphrase:	
- snmp	Enable SNMP periodic trap:	
- radius	Enable Shame periodic dap.	
- ntp	Enable SNMP event trap:	
- ethernet filter	Engine ID:	Currently Unavailable
- I2tp configuration		400 468 0 400
- vian settings	NMS hostname:	192.100.0.100
- Fluidity	Notification period (minutes):	1
- misc settings		
- SHIGH IICENSE		
management set lings	Reset	Save
- firmware ungrade		
- statue		
- configuration settings		
- reset factory default		
- reboot		
- logout		

Disable SNMP via GUI

FM-QUADRO	SNMP
GENERAL SETTINGS	SNMP
- general mode - wireless radio - antenna alignment and stats NETWORK CONTROL - advanced tools ADVANCED SETTINGS - advanced radio settings - static routes - allowire (blocklet	SNMP mode: Disabled V Reset Save
- multicast - snmp	⊕ 10.115.11.116
- radius - ntp - ethernet filter	SNMP is disabled and all sensitive information and credentials have been cleared. Please re-configure all valid values to enable SNMP again.
- I2tp configuration - vlan settings	ок
 Fluidity misc settings smart license 	



Configuring and Validating Key Controller (Wireless Security)

• Configuring and Validating Key Controller (Wireless Security), on page 65

Configuring and Validating Key Controller (Wireless Security)

To support wireless security to standard WPA protocols, a key rotation strategy has been implemented on IW9167E.

The key controller protocol can be described as a packet exchange between two devices, in which different stages of the process correspond to different states of each device, and the algorithm flow is controlled by a set of timers scheduled periodically to generate new PTK/GTK (Pairwise Transient Key/Group Transient Key) for packet encryption. The more often keys are updated, the less information is leaked in case of attack.

Configuring Key Controller from CLI

To configure a key controller, use the following CLI commands.

1. To enable AES (Advanced Encryption Standard) on radio use the following CLI command.

Device# configure dot11Radio <interface> crypto aes enable

2. To enable key controller use the following CLI command.

Device #configure dot11Radio <interface> crypto key-control enable

3. To enable key rotation use the following CLI command.

Device# configure dotllRadio <interface> crypto key-control key-rotation enable

4. To set key rotation timer use the following CLI command. Device# configure dot11Radio <interface> crypto key-control key-rotation 3600



Note AES disabled by default. Config should be the same on all devices.

Validating Key Controller from CLI

To validate a key controller, use the following show commands.

show key controller config:

Device# show dot11Radio X crypto

AES encryption: enabled AES key-control: enabled Key rotation: enabled Key rotation timeout: 3600(second)


Configuring and Validating Smart Licensing

- Configuring and Validating Smart Licensing from CLI, on page 67
- Configuring Smart Licensing from GUI, on page 70

Configuring and Validating Smart Licensing from CLI

Smart licensing for Cisco Catalyst IW9167E Heavy Duty Access Point support the following scenarios:

- Smart license management provides a seamless experience with the various aspects of licensing.
- License level can control the feature list by essential, advantage and premier mode.
- IOT specific seats will cache a device list in the mobility scenario and seats will reserve some license usage which is the expected maximum number of devices in the managed network.
- Smart transport mode could connect to CSSM (Cisco Smart Software Manager) directly to sync license usage.
- Airgap mode could use the downloaded file to sync with CSSM manually.
- User should configure same license level on both primary and secondary layer2 ME (Mesh End) or layer3 GGW (Global Gateway).



Note Make sure device syncs up right time from NTP (Network Time Protocol) server to establish connection with CSSM successfully.

Smart license level can control the feature list by using the following table:

License Type	Features
Essentials	Unlimited fixed infra throughput (Fluidity and pure fixed infra). 0.5 Mbps Mobility client throughput.
Advantage	50 Mbps mobility client throughput. Cisco URWB Essentials.

License Type	Features
Premier	Unlimited mobility client throughput.
	Cisco URWB Advantage.
	Cisco URWB Essentials .

To configure smart license, use the following CLI command.

Device# configure license iw-level advantage

To configure smart license device number, use the following CLI command.

Device# configure license iw-network seats 6

To configure smart license online deployment, use the following CLI command.

Device# configure license smart transport smart Device# configure license Device# configure license smart proxy address 192.168.1.1 (Optional) Device# configure license smart proxy port 3128 (Optional) Device# license smart trust idtoken <id_token_generate_from_CSSM> local Device# configure license smart usage interval 50 (Optional)

To configure smart license offline deployment, use the following CLI command.

```
Device# configure license smart transport off
Device# license smart save usage all tftp://192.168.216.201/rum_report_all.xml
Device# license smart import tftp://192.168.216.201/rum report_ack.xml
```

To configure Reset license configuration as default, use the following CLI command.

Device# license smart factory reset

(do not type "write" just reload to clear all license configuration)

To Validate smart license type, use the following show command.

```
Device# show license usage
License Authorization Status: Not Applicable
IW9167_URWB_NW_A(IW9167_URWB_NW_A);
Description: Network Advantage for Catalyst Industrial Wireless CURWB Radios
Count: 1
Version: 0.1
Status: IN USE
Export Status: NOT RESTRICTED
Feature Name: IW9167 URWB NW A
```

To Validate smart license device number, use the following show command.

```
Device# show license iw seats
```

6

To Validate smart license usage count, use the following show command.

```
Device# show license summary
Account information:
Smart account <none>
Virtual account <none>
License Usage:
License : IW9167_URWB_NW_A
Entitlement Tag : (IW9167_URWB_NW_A)
Count Status : 6 IN USE
```

Note License usage count = Max (configured license seats, active devices)

When device offline, device record paging time is 2 days.

When active devices > configured license seats, ME will try to send license usage report to CSSM every 8 days.

To Validate smart license HA (High Availability) role, use the following show command.

```
Primary ME# show license tech support
License Usage
_____
Handle 1
Measurements:
ENTITLEMENT:
Interval: 00: 15: 00
Current value: 0
Application Name: UrwbSLP
Application id: UrwbHA
Application Role: Active
Peer info:
Application Name: UrwbSLP
Application id: UrwbHA
Application Role: Standby
PID: 'nullPtr'
UDI: P: IW9167EH-B, S: KWC26330HMR
Smart Account Name: 'nullPtr'
Virtual Account Name: 'nullPtr'
Standy ME# show license tech support
License Usage
------
Handle 1
Measurements:
ENTITLEMENT:
Interval: 00: 15: 00
Current value: 0
Application Name: UrwbSLP
Application id: UrwbHA
Application Role: Standby
Peer info:
Application Name: UrwbSLP
Application id: UrwbHA
Application Role: Active
PID: 'nullPtr'
UDI: P: IW9167EH-B, S: KWC26330HLF
Smart Account Name: 'nullPtr'
Virtual Account Name: 'nullPtr'
```

To Validate smart license CSSM connection, use the following show command:

Device# show license status

....

```
Account information
Smart Account SA-IOT-Polaris As of Sep 28 2022 11: 04:03 CST
Virtual Account: CURWB
Transport:
Type: Smart
Proxy:
Address: 192.168.216.201
```

```
Port: 3128
......
Policy
Policy in use: Installed on Sep 28 2022 11: 04:03 CST
Policy name: Test policy
Reporting ACK required: no (Customer Policy)
First report requirement (days): 94 (Customer Policy)
Report on change (days): 100 (Customer Policy)
```

Configuring Smart Licensing from GUI

To configure smart licensing from the GUI, follow the below procedures.

- 1. Select the network license level for Cisco URWB stack.
- 2. The license level is bound to software features and monitored by CSSM.
- **3.** Set the network seats to consume usage for particular license level (example : Network Essentials for Radios).
- 4. To Download a usage, Save RUM (Resource Utilization Measurement) reports (license usage information) and save all RUM reports using All options. Save RUM report for the last n number of days (excluding the current day) using Days option.
- 5. To Upload CSSM Acknowledge and sync license usage, import the ACK (Acknowledge) that downloaded from CSSM on the production instance when Smart agent is in Airgap (Offline) Mode.

Following images are example for GUI configuration of smart licensing (online mode and offline mode).

ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.88 - MESH END MODE	
IOTOD IW Offline	SMART LICENSE	
IW-MONITOR Disabled	Smart License Settings	
FM-QUADRO	Select the network license level for Cisco URWB stack.	
	Set the network seats to consume usage for particular license level.	
GENERAL SETTINGS	License Level: Network Essentials for Radios \checkmark	
- wireless radio	Platform IW9165 License Seats: 0	
- antenna alignment and stats		
NETWORK CONTROL	Platform IW9167 License Seats: 0	
ADVANCED SETTINGS		
- advanced radio settings	Reset Save	
- static routes		
- allowlist / blocklist	Constant Contraction Contraction	
- snmp	Smart Agent is set to Online Mode	
- radius		
- ntp		
- etnernet filter		
- vlan settings		
- Fluidity		
- misc settings		
MANAGEMENT SETTINGS		
- remote access		
- firmware upgrade		
- status		
- reset factory default		
- reboot		
- logout		
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ULTRA RELIABLE WIRELESS BACKHAUL	Cisco URWB IW9167EH Configurator 5.21.201.88 - MESH END MODE	
OTOD IW Offline	SMART LICENSE	
W-MONITOR Disabled	Smart License Settings	
FM-QUADRO	Select the network license level for Cisco URWB stack. The license level is bound to software features and monitored by the CSSM. Set the network seats to consume usage for andicidar license level	
GENERAL SETTINGS	Lissense Level: Network Essentials for Partice X	
general mode	Liverse Lever. Indivork Essentials for Radios V	
wireless radio	Platform IW9165 License Seats: 0	
antenna alignment and stats		
ETWORK CONTROL	Platform IW9167 License Seats: 0	
advanced tools		
ADVANCED SETTINGS		
advanced radio settings	Reset Save	
static routes		
allowlist / blocklist	Smart Agent is set to Airgan(Offline) Mode	
multicast	• • • • • • • • • • • • • • • • • • •	
- snmp		
- radius	Download Usage	
- nip - ethernet filter	Save RUM reports (license usace information). Save all RUM reports using All options. Save RUM report for the	
12th configuration	last n number of days (excluding the current day) using Days option. Save all unreported RUM reports using	
vian settings	All	
Fluidity	Usage range: All	
misc settings	Davs: 1	
smart license		
ANAGEMENT SETTINGS		
remote access	Download	
firmware upgrade		
status		
configuration settings	Upload CSSM ACK	
reset factory default	Import the ACK that downloaded from CSSM on the production instance.	
reboot		

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