



Configuring and Validating Radio Channel and Bandwidth

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Configuring Operating Channel from CLI

To configure operating channel, use the following CLI command.

1. 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>
```

2. 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:

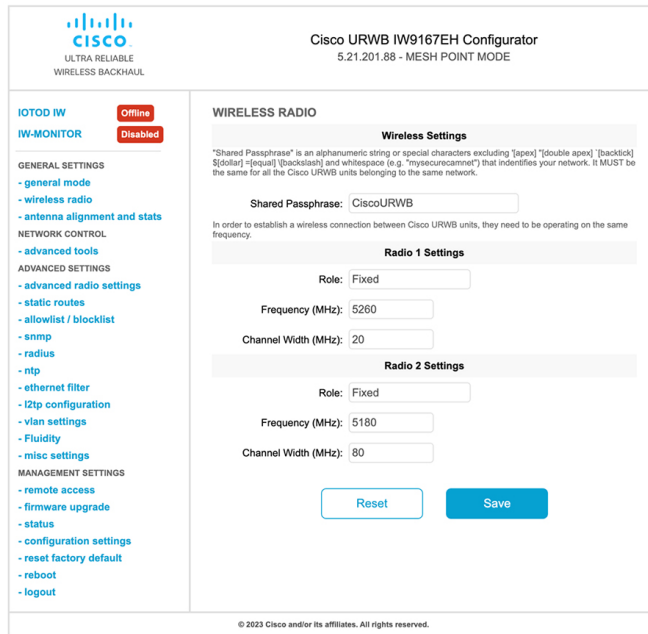
```
Device# show dot11Radio 1 config
Interface : enabled
Mode : fluidmax secondary
Frequency : 5180 MHz
Channel : 36
Channel width : 40 MHz
```

```
Device# show dot11Radio 2 config
Interface : enabled
Mode : fluidity
Frequency : 5785 MHz
Channel : 157
Channel width : 40 MHz
```

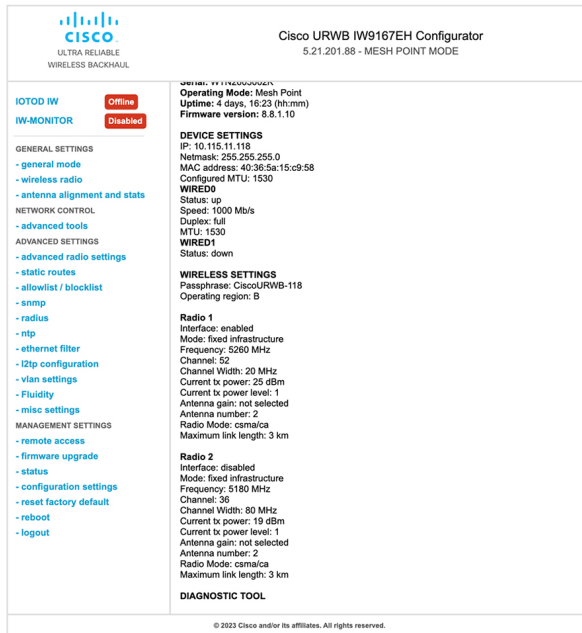
Configuring Radio Channel and Bandwidth from GUI

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.



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



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.

Cisco URWB IW9167EH Configurator
5.21.201.72 - MESH END MODE

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. "my@conncam?") that identifies your network. It MUST be the same for all the Cisco URWB units belonging to the same network.

Shared Passphrase:

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

Radio 1 Settings

Role:

Frequency (MHz):

Channel Width (MHz):

Radio 2 Settings

Role:

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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.

Cisco URWB IW9167EH Configurator
5.21.201.72 - MESH END MODE

IOTUD IW Offline
FM-QUADRO

GENERAL SETTINGS

- general mode
- wireless radio
- antenna alignment and stats

NETWORK CONTROL

- advanced tools

ADVANCED SETTINGS

- advanced radio settings
- static routes
- allowlist / blocklist
- multicast
- snmp
- radius
- ntp
- l2tp configuration
- vlan settings
- Fluidity
- misc settings
- smart license

MANAGEMENT SETTINGS

- remote access
- firmware upgrade
- status
- configuration settings
- reset factory default
- reboot
- logout

FLUIDITY

Fluidity 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 agent 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 from 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 Vehicle. Specifically, Vehicle 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 Type field must be set according to the general network architecture. Choose Flat if the mesh and the infrastructure networks belong to a single layer-2 broadcast domain. Use Multiple Subnets if they are organized as different layer-3 routing domains.

Unit Role:

Automatic Vehicle ID: Enable

Vehicle ID:

Network Type:

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 doing.
The Handoff Logic controls the algorithm used by a mobile radio to select the best infrastructure point to connect 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.

Handoff Logic:

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Cisco URWB IW9167EH Configurator
5.21.201.72 - MESH END MODE

IOTUD IW Offline
FM-QUADRO

GENERAL SETTINGS

- general mode
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NETWORK CONTROL

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ADVANCED SETTINGS

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FLUIDITY

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The unit must be set as Vehicle when it is mobile. Vehicle ID must be set ONLY when the unit is configured as Vehicle. Specifically, Vehicle 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 Type field must be set according to the general network architecture. Choose Flat if the mesh and the infrastructure networks belong to a single layer-2 broadcast domain. Use Multiple Subnets if they are organized as different layer-3 routing domains.

Unit Role:

Automatic Vehicle ID: Enable

Network Type:

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 doing.
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Handoff Logic:

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The below GUI Fluidity configuration shows wireless interface unit role configured as infrastructure mode.

Cisco URWB IW9167EH Configurator
5.21.201.72 - MESH END MODE

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., "mys@creamnet") that identifies your network. It MUST be the same for all the Cisco URWB units belonging to the same network.

Shared Passphrase:

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

Radio 1 Settings

Role:

Frequency (MHz):

Channel Width (MHz):

Radio 2 Settings

Role:

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Cisco URWB IW9167EH Configurator
5.21.201.72 - MESH END MODE

FLUIDITY

Fluidity 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 agent 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 from 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 Vehicle. Specifically, Vehicle 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 Type field must be set according to the general network architecture. Choose Flat if the mesh and the Infrastructure networks belong to a single layer-2 broadcast domain. Use Multiple Subnets if they are organized as different layer-3 routing domains.

Unit Role:


Network Type:

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 doing.
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Handoff Logic:

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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

IOTOD IW Offline

IW-MONITOR Disabled

GENERAL SETTINGS

- general mode
- wireless radio
- antenna alignment and stats

NETWORK CONTROL

- advanced tools

ADVANCED SETTINGS

- advanced radio settings
- static routes
- allowlist / blocklist
- snmp
- radius
- ntp
- ethernet filter
- l2tp configuration
- vlan settings
- Fluidity
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MANAGEMENT SETTINGS

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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. "mysecureamnet") that identifies your network. IT MUST be the same for all the Cisco URWB units belonging to the same network.

Shared Passphrase:

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

Radio 1 Settings

Role:

Frequency (MHz):

Channel Width (MHz):


Radio 2 Settings

Role:

Frequency (MHz):

Channel Width (MHz):

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ULTRA RELIABLE
WIRELESS BACKHAUL

10.115.11.118 says

Error: unit role vehicle is not compatible with radio configuration.
Both radios must be configured as fluidity for role vehicle.

IOTOD IW Offline

IW-MONITOR Disabled

GENERAL SETTINGS

- general mode
- wireless radio
- antenna alignment and stats

NETWORK CONTROL

- advanced tools

ADVANCED SETTINGS

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- static routes
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FLUIDITY

Fluidity Settings

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Unit Role:

Automatic Vehicle ID: Enable

Network Type:

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 doing.

The Handoff Logic controls the algorithm used by a mobile radio to select the best infrastructure point to connect 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.

Handoff Logic:

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