

Radio Antenna Settings

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Radio antenna settings

Radio antenna settings are configuration parameters that

- manage antenna port assignments and gain values for wireless access point radios
- support multiple antenna options including self-identifying antennas (SIA), and
- enable CLI commands to control antenna port and gain management for different radio modes.

Antenna configuration details

The antenna configuration varies by Catalyst model:

- **Catalyst IW9167E**: Supports eight external antennas with eight N-type female connectors to support multiple antenna options. The antenna ports 1, 4, and 5 can support self-identifying antennas (SIA). Radio 1 connects to ports 1 to 4, and Radio 2 connects to ports 5 to 8.
- **Catalyst IW9165E**: Supports four external antennas with Reverse-polarity SMA (RP-SMA) (f) connectors. Radio 1 connects to antenna ports 1 and 2, Radio 2 connects to antenna ports 3 and 4, and antenna ports 1 and 3 can support SIA antennas.
- **Catalyst IW9165D**: Has a built-in directional antenna and supports two external antennas with N-type (f) connectors. Radio 1 connects to the internal antenna. Radio 2 connects to antenna ports 1 and 3. Antenna port 3 can support SIA antenna.

For more information on antennas, see Antennas and Radios.

The following sections allow you to manage antenna port and gain on each antenna for different Radio mode.

Configure antenna gain

This task sets the maximum antenna gain value to optimize wireless performance on the dot11radio interface.

You can configure antenna gain using either an integer value (1-19 dBi) or by setting it to UNSELECTED for automatic configuration. When set to UNSELECTED, the background process automatically configures the minimum supported antenna gain.

Procedure

Configure the antenna gain on the dot11radio interface.

Example:

```
Device# configure dot11radio <interface> antenna gain <gain>
gain:
<1-19> antenna gain in dBi
WORD UNSELECTED
Device# write
```

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

Note
Once the SIA is connected, gain sets automatically without any input.

Configure transmit and receive antennas

This task configures antenna transmission chains to optimize wireless communication performance and signal coverage.

Antenna configuration is essential for establishing proper wireless communication links. Different antenna chain configurations provide varying levels of signal strength and coverage patterns.

Procedure

Configure the antenna transmission chain using the following CLI command format:

Example:

```
Device# configure dot11radio <interface> antenna < A >
configure antenna chains (A) in use as follows
a-antenna - configure dot11 antenna a
ab-antenna - configure dot11 antenna ab
abcd-antenna - configure dot11 antenna abcd
Device# write
```

Note
Catalyst IW9165 does not support abcd-antenna mode.

Configure transmission power

Set the maximum transmission power level on a wireless interface to control signal strength and coverage.

You can configure transmission power manually by specifying a level from 1-8, or use AUTO to let the background process automatically configure the maximum allowed power level.

Before you begin

Follow these steps to configure transmission power:

Procedure

Set the maximum transmission power level.

Example:

```
Device# configure dot11radio <interface> txpower-level <level>
txpower level:
<1-8> tx power level value
WORD AUTO
Device# write
```

For AUTO, the background process automatically configures the maximum allowed power level.

Note
Eight is the lowest power level, and one is the highest power level.

Validate URWB individual antenna RSSI values

This task allows you to view the RSSI value measured for each antenna separately on the Catalyst IW9167E, IW9165E, and IW9165D access points. Multiple RSSI values enable you to monitor the signal strength received separately by each antenna on their radio interface. This information helps identify possible issues with individual antennas or cables.

Cisco UIW Release 17.15.1 introduces the URWB Individual Antenna Received Signal Strength Indicator (RSSI) feature for the Catalyst IW9167E, IW9165E, and IW9165D access points. This feature allows you to view the RSSI value measured for each antenna separately. Multiple RSSI values enable you to monitor the signal strength received separately by each antenna on their radio interface.

For example, with the Catalyst IW9167E's four antennas per radio, you can now check the RSSI for each of the four antennas individually. This detailed information is valuable for troubleshooting. It helps identify possible issues with individual antennas or cables. By examining the RSSI for each radio chain, you can determine if a specific antenna is malfunctioning, or if its performance varies from that of the others.

Table 1: Radio chain to antenna port mapping

Access Point	Radio Interface	Radio Chain	Antenna Port
IW9167EH	1	[A,B,C,D]	[4, 3,2,1]
	2	[A,B,C,D]	[5,6,7,8]
IW9165E	1	[A,B]	[1,2]
	2	[A,B]	[3,4]

Access Point	Radio Interface	Radio Chain	Antenna Port
IW9165D	2	[A,B]	[1,3]

Procedure

To validate the RSSI of individual antenna on an AP, use this command:

```
Device# show dot11Radio <n> wifistats rssi
```

Replace <n> with the appropriate radio number

Example:

```
Device#show dot11Radio 1 wifistats rssi
FC:58:9A:15:E4:D2
       MeshID 5.21.201.204 via R1
       rssi [-70, -69, -70, -71]
FC:58:9A:15:B9:12
       MeshID 5.21.200.80 via R1
       rssi [-70, -69, -70, -71]
```