Bluetooth Low Energy

Information About Bluetooth Low Energy

Note

This feature is not related to the Indoor IoT Services feature set that is part of Cisco Spaces.

This feature describes how Access Points and Catalyst 9800 can detect BLE devices as wireless interferers using Clean Air - not the BLE radio that is available on some Access Point models. This feature is not meant to be used for BLE-based asset tracking, environmental monitoring, or tag management use cases, which are powered using Cisco Spaces.

For full feature functionality of how BLE-related use cases are delivered in the Cisco solution, refer to Cisco Spaces configuration guides for Indoor IoT services.

Bluetooth low energy (BLE) is a wireless personal area network technology aimed at enhancing location services for mobile devices. The small Bluetooth tag devices placed at strategic locations transmit universally unique identifiers (UUIDs) and, Major and Minor fields as their identity. These details are picked up by Bluetooth-enabled smartphones and devices. The location information of these devices are sent to the corresponding back-end server. Relevant advertisements and other important information are then pushed to the devices using this location-specific information.

By treating a tag device as an interferer and using the existing system capabilities, such as interference location, the tag device can be located on a map display in a wireless LAN deployment and its movement monitored. Besides this, information on missing tags can also be obtained. This feature can determine rogue and malicious tags using the unique identifier associated with each tag (or family of tags) against a predetermined allowed list from a customer. Using the management function, alerts can be displayed or emailed based on rogue tags, missing tags, or moved tags.

Limitations of BLE Feature

- The wireless infrastructure must support Cisco CleanAir.

- Supports a maximum of only 250 unique BLE beacons (cluster entries) and 1000 device entries.

- Cisco CleanAir feature is only supported on Cisco Aironet 3700 Series Access Points with Hyperlocation module RM3010. The BLE feature on Wave 2 and Wi-Fi 6 APs works in a different manner (through cloud beacon center) and is not covered by this feature.

Areas of Use

Since the BLE feature provides granular location details of devices (smart phones or bluetooth-enabled devices) that helps push context-sensitive advertising and other information to users. Possible areas of application include retail stores, museums, zoo, healthcare, fitness, security, advertising, and so on.

Enabling Bluetooth Low Energy Beacon (GUI)

Procedure

Step 1 Choose **Configuration** > **Radio Configurations** > **CleanAir** > **2.4 GHz Band** > **General**.

Step 2 Check the **Enable CleanAir** check box.

Step 3 From the **Available Interference Types** list, select and move **BLE Beacon** to the **Interference Types to Detect** list.

Step 4 Click **Apply**.

Enabling Bluetooth Low Energy Beacon

Bluetooth low energy (BLE) detection is enabled by default. Use the procedure given below to enable BLE when it is disabled.

Before you begin

- The wireless infrastructure must support Cisco CleanAir.

- Cisco CleanAir configuration and show commands are available only in Mobility Controller (MC) mode.

Procedure

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Controller# configure terminal`	Enters global configuration mode.
Step 2	[**no**] **ap dot11 24ghz cleanair device** [**ble-beacon**] **Example:** `Controller(config)# ap dot11 24ghz cleanair device ble-beacon`	Enables the BLE feature on the 802.11b network. Use the **no** form of the command to disable BLE feature on the 802.11b network.

	Command or Action	**Purpose**
Step 3	**exit** **Example:** `Controller(config)# exit`	Returns to privileged EXEC mode.

Step 4	**show ap dot11 24ghz cleanair config**
	
	Example:
	`Controller# show ap dot11 24ghz cleanair config`
	
	`Interference Device Settings:`
	`    Interference Device`
	`Reporting................ : Enabled`
	`        Bluetooth`
	`Link.......................... : Enabled`
	
	`        Microwave`
	`Oven......................... : Enabled`
	
	`        BLE`
	`Beacon............................... :`
	` Enabled`
		(Optional) Displays the BLE beacon configuration.

Step 5	**show ap dot11 24ghz cleanair device type ble-beacon**
	
	Example:
	`Controller# show ap dot11 24ghz cleanair device type ble-beacon`
	
	`DC    = Duty Cycle (%)`
	`ISI   = Interference Severity Index`
	`(1-Low Interference, 100-High`
	`Interference)`
	`RSSI  = Received Signal Strength Index`
	`(dBm)`
	`DevID = Device ID`
	
	`No   ClusterID        DevID  Type`
	`      AP Name              ISI  RSSI`
	`  DC   Channel`
	`-------------------------------------`
	`1  2c:92:80:00:00:22  0xa001 BLE Beacon`
	`    5508_3_AP3600_f839      --   -74`
	` 0    unknown`
		(Optional) Displays the BLE beacon device-type information.