



## AP as a Beacon

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## AP as a Beacon

You can configure your access point (AP) to act as a beacon (AP beacons) by enabling BLE on it.

IoT Service categorizes APs according to their configurations as the following:

- **Disabled:** APs with BLE disabled. These APs are not scanning or transmitting.
- **Scan Mode:** AP beacons that are only scanning.
- **Transmit Mode:** AP beacons configured in one of the beacon transmit profiles. You can configure up to five iBeacons in this mode.
  - The MAC address advertised in the iBeacon payload is derived from the radio MAC address of the AP. (iBeacon MAC address).
  - The MAC address advertised in the Eddystone payload is the default MAC address of the AP's BLE chip, which is preset by the chip vendor.
- **Dual Mode:** AP beacons that are transmitting and scanning. You can configure only one iBeacon in this mode.
  - The MAC address advertised in this mode is the default MAC address of the AP's BLE chip, which is preset by the chip vendor (For both Eddystone and iBeacon single advertisement profiles)
- **Needs Config Change:** AP's that have an error in configuration. You can configure these APs in Scan Mode, Dual Mode, or the Transmit Mode.

You can configure an AP Beacon in one of the following transmit modes.

- iBeacon
- Eddystone UID

- Eddystone URL

You can also see all the APs irrespective of their configurations under **All Profiles**.

**Figure 1: Various Profiles of AP Beacons**

The screenshot shows the Cisco Spaces dashboard. The left navigation pane includes: Dashboard, Home, Location Hierarchy, Integrations, Monitor, Admin Management, IoT Services, and Setup. The main content area is titled 'All Campuses' and shows a summary of AP beacon profiles:

Profile Type	Count
All Profiles	3
AP Sensors	2
iBeacon	0
Eddystone UID	0
Eddystone URL	0
Scan Mode	3
Dual Mode	0

Below the summary, there is a table listing individual APs:

Mac Address	AP Name	Label	BLE	AP Model	Profile Type	Label	Location	BLE Firmware Version	AP Beacon
68:7d:b4:0f:66:e0	AP687D.B40C.1E00		Enabled	CS1360-B	Scan		DNA Spaces IoT Dev Test--Building 10--Main Floor	3.2.4	Feb 1st, 2024
1c:d1:a0:65:c3:40	AP64F1.4782.8868		Enabled	CS115A00-B	Scan		DNA Spaces IoT Dev Test--Building 10--Main Floor	2.7.21	
1c:d1:a0:79:8e:a0	AP64F1.4783.31D4		Enabled	CS115A00-B	Scan		DNA Spaces IoT Dev Test--Building 10--Main Floor	2.7.21	

You can also enable telemetry on the AP beacon and collect sensor information.

## iBeacon Transmit Mode

A single AP can support up to five iBeacons in the transmit mode. Each iBeacon has a unique address derived from the base radio MAC address of the AP.

Use Cisco Spaces to configure an iBeacon's payload.

Following are some terms related to iBeacons:

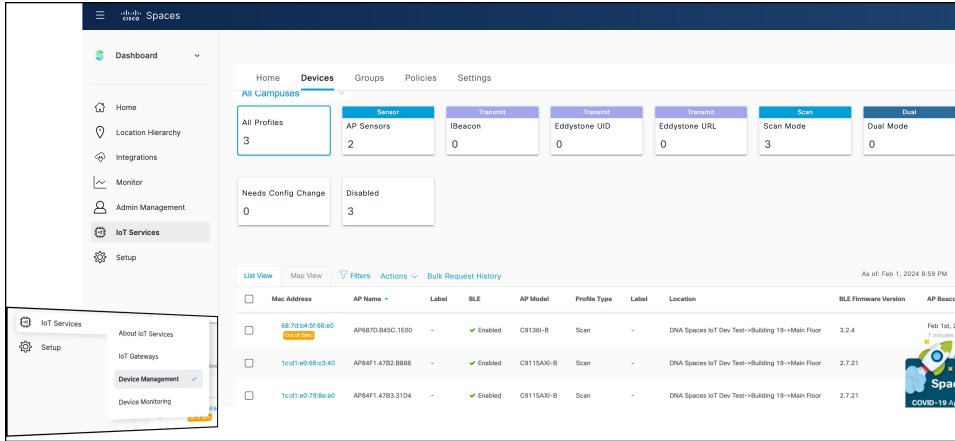
- **Transmit mode:** Mode that allows nearby devices to pick up an iBeacon's broadcasting (or 'advertising') signals.
- **Advertisement payload:** Data broadcast by an iBeacon. The advertisement payload contains information relevant to the iBeacon's purpose, such as the iBeacon's location. Use Cisco Spaces to configure this payload.
- **iBeacon MAC address:** Unique identifier of an iBeacon on the network that helps other devices recognize and differentiate one iBeacon from another. This address is part of the iBeacons' advertisement payload. The AP uses the AP's own base radio MAC address to derive this unique address. The address is derived by adding a predefined address block value to the last byte of the base radio MAC address and decrementing this value by the beacon ID.

## Configure AP as a Beacon in Scan Mode

You can configure an AP as a beacon in the scan mode.

- Step 1** In the Cisco Spaces dashboard left-navigation pane, click **IoT Service > Device Management > Devices**, and then click **AP Beacons**.

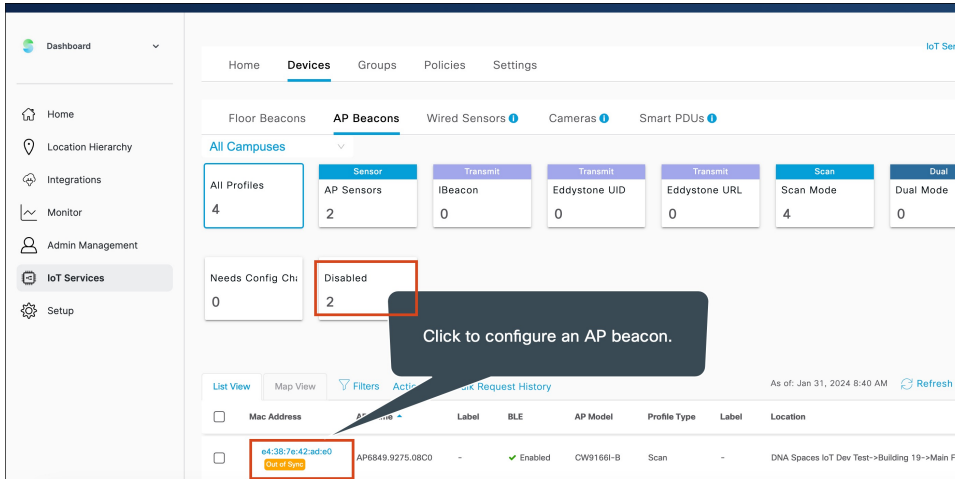
Figure 2: List of AP Beacons



Step 2

Click the **Disabled** tab, if the count is greater than zero. Click the MAC address of one of the listed APs to open a detailed view.

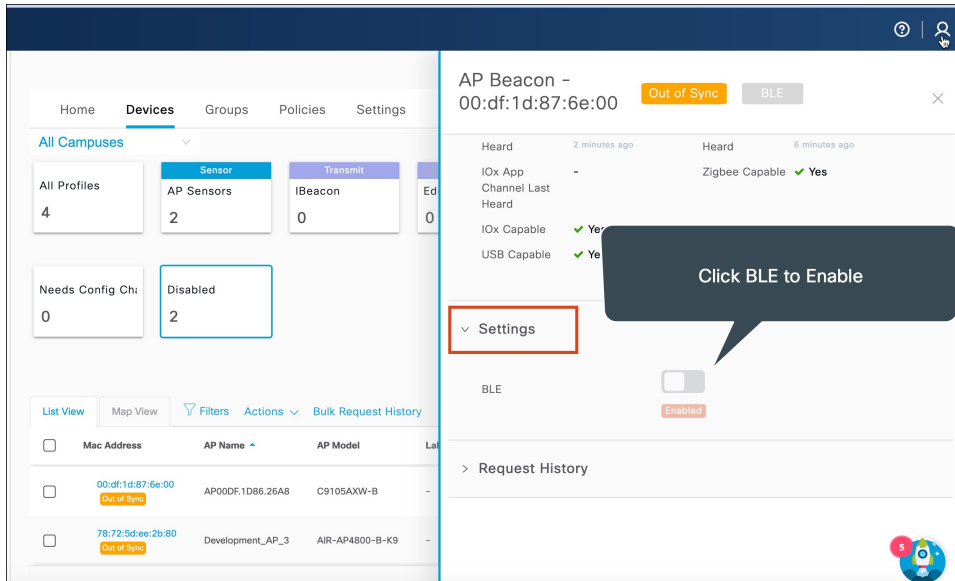
Figure 3: Select an AP to Configure



Step 3

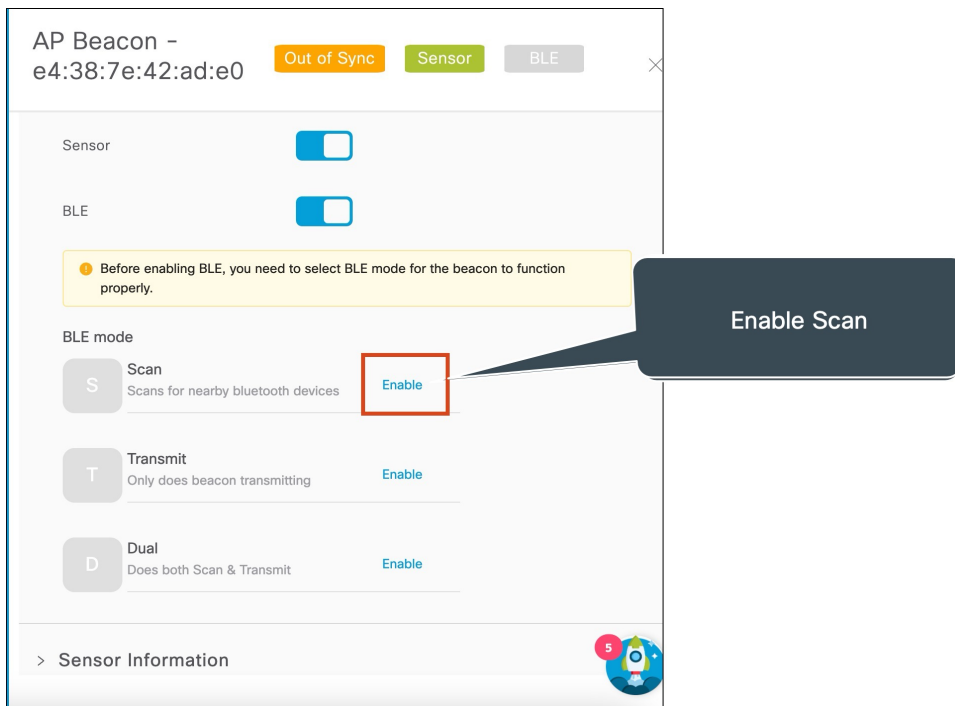
In the **Settings** area, click **BLE**.

Figure 4: Enable BLE



**Step 4** In the **BLE mode** area for the **Scan** option, click **Enable**.

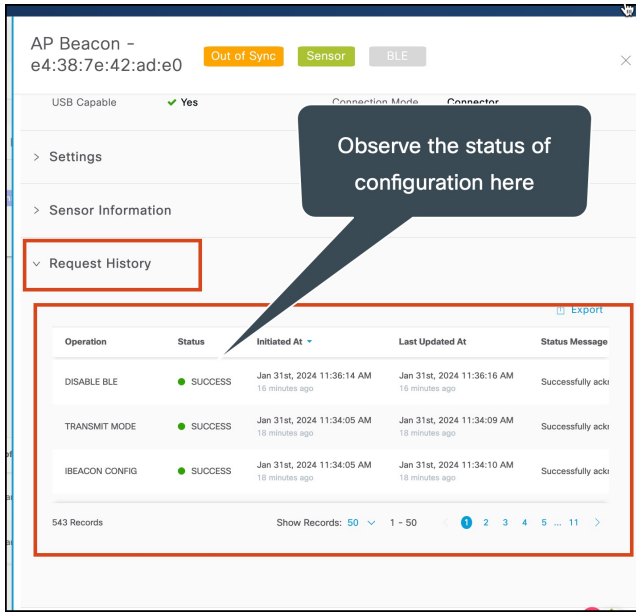
Figure 5: Enable Scan Mode



AP is enabled as a beacon in **Scan** mode. You can observe the AP under the **Scan** tab.

**Step 5** From the **Request History** area, observe the status of the configuration change you requested. On the **AP Beacons** page, notice that the AP now has an **Out of Sync** message beside it. This message disappears once the configuration requested is complete.

Figure 6: Configuration Status

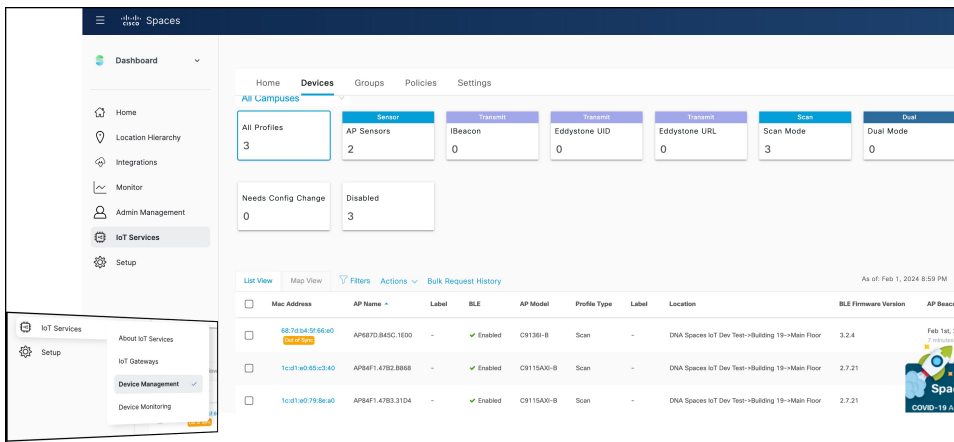


# Configure AP as a Beacon in Transmit Mode

You can configure an AP as a beacon in transmit mode.

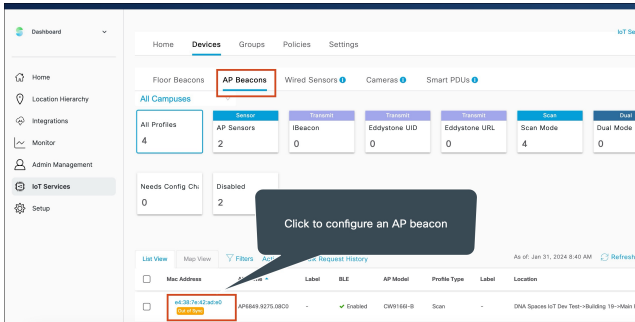
**Step 1** In the Cisco Spaces dashboard left-navigation pane, click **IoT Service > Device Management > Devices**, and then click **AP Beacons**.

Figure 7: List of AP Beacons



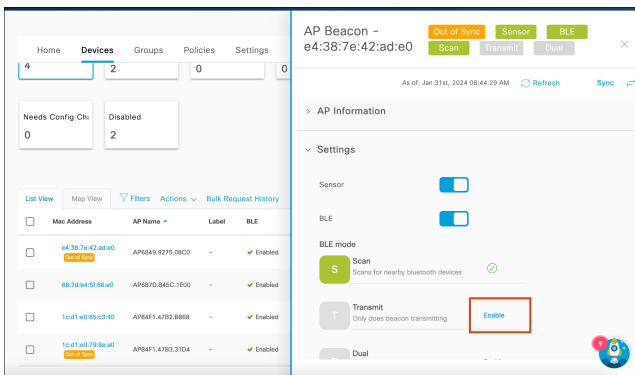
**Step 2** Click the **AP Beacons** tab. Click the MAC address of one of the listed APs to open a detailed view.

Figure 8: Select an AP to Configure



**Step 3** In the **BLE mode** area for the **Transmit** option, click **Enable**.

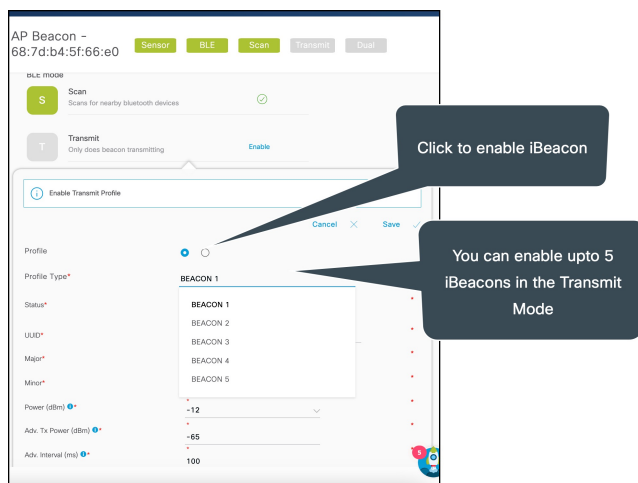
Figure 9: Enable BLE



**Step 4** In the **Enable Transmit Profile** area, you can configure this beacon in two modes. Do one of the following:

- Check the first checkbox to enable iBeacon. From the **Profile Type** drop-down, choose one of the beacons. Configure the remaining values for the iBeacon's payload.

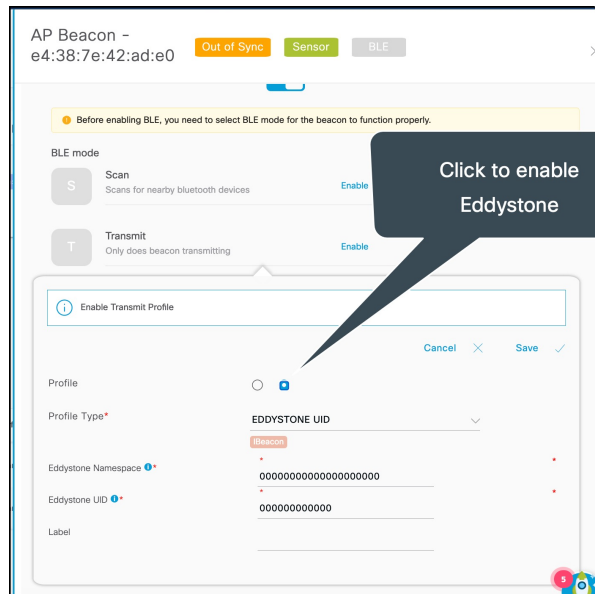
Figure 10: Configuring an AP as an iBeacon



**Note** APs can support up to five iBeacons in the **Transmit** mode. For more information, see [iBeacon Transmit Mode, on page 2](#)

- Select the second checkbox to enable Eddystone. Configure the values for the Eddystone payload.

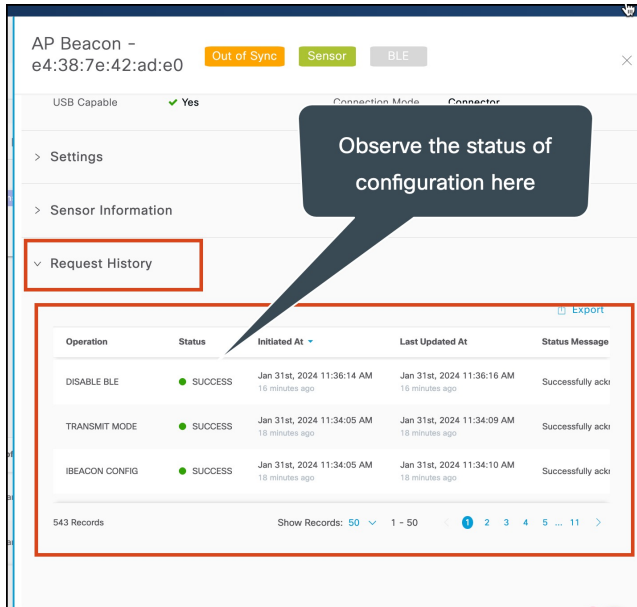
**Figure 11: Configure an AP Beacon as an Eddystone**



AP is enabled as a beacon in **Transmit** mode. You can observe the AP under the **Transmit** tab.

- Step 5** From the **Request History** area, observe the status of the configuration change you requested. On the **AP Beacons** page, notice that the AP now has an **Out of Sync** message beside it. This message disappears once the configuration requested is complete.

Figure 12: Configuration Status

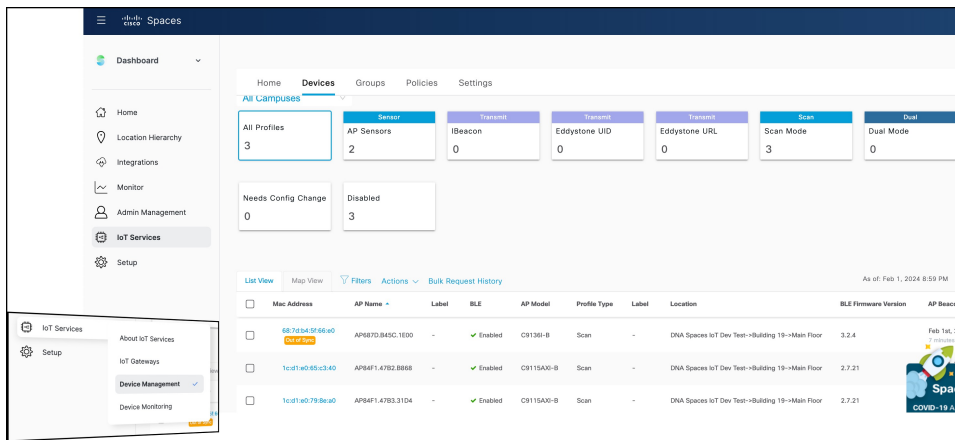


## Configure AP as a Beacon in Dual Mode

You can configure an AP as a beacon in dual mode.

**Step 1** In the Cisco Spaces dashboard left-navigation pane, click **IoT Service > Device Management > Devices**, and then click **AP Beacons**.

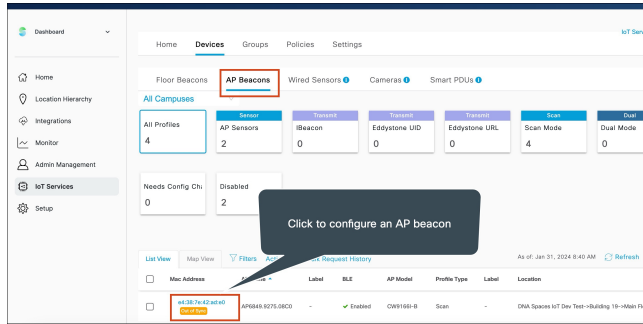
Figure 13: List of AP Beacons



**Step 2** Click the **AP Beacons** tab. Click the MAC address of one of the listed APs to open a detailed view.



Figure 14: Select an AP to Configure

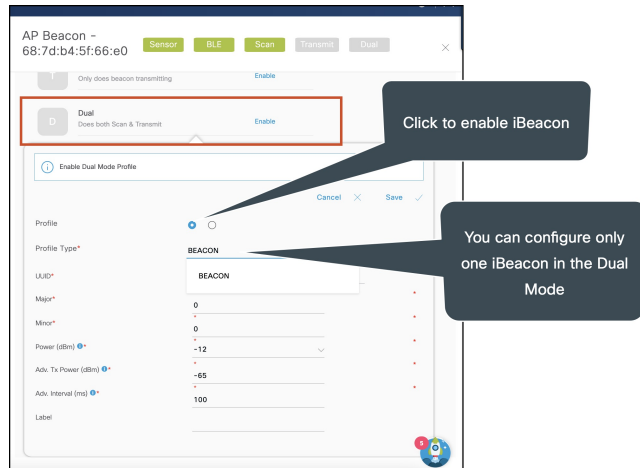


**Step 3** In the **BLE mode** area for the **Dual** option, click **Enable**.

**Step 4** In the **Enable Transmit Profile** area, you can configure this beacon in two modes. Do one of the following:

- Check the first checkbox to enable iBeacon. Configure the remaining values for the iBeacon's payload.

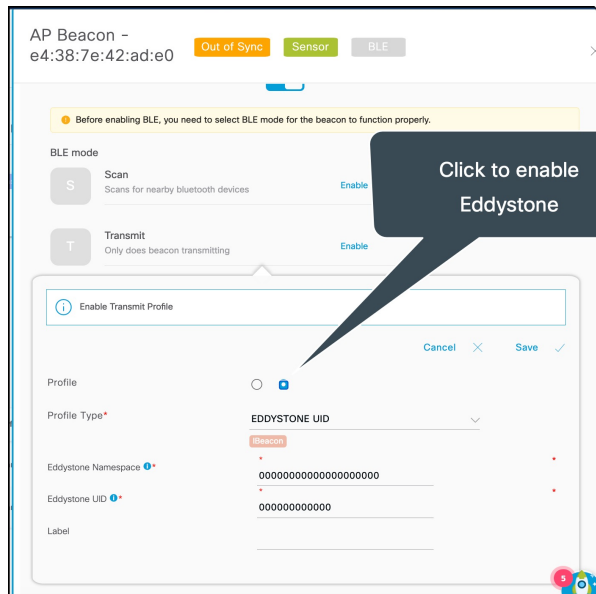
Figure 15: Configuring an AP as an iBeacon



**Note** APs can support only one iBeacon in the **Dual** mode. For more information, see [iBeacon Transmit Mode, on page 2](#)

- Select the second checkbox to enable Eddystone. Configure the values for the Eddystone payload.

Figure 16: Configure an AP Beacon as an Eddystone



AP is enabled as a beacon in **Dual** mode. You can observe the AP under the **Dual** tab.

**Step 5**

From the **Request History** area, observe the status of the configuration change you requested. On the **AP Beacons** page, notice that the AP now has an **Out of Sync** message beside it. This message disappears once the configuration requested is complete.