



## AP as a Gateway

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## Access Point as a BLE Gateway

Depending on the type of Cisco access points (AP), you can configure an AP as one of the following types of Bluetooth Low Energy (BLE) gateways:

- **Base BLE Gateway:** The Base BLE gateway is a type of AP that you can configure in different modes (Transmit, Scan, or Dual).
- **Advanced BLE Gateway:** The advanced BLE gateway is an AP that is installed with an IoX Application. Using the installed IoX Application, you can configure floor beacons on the Cisco-partnered Device Manager website.

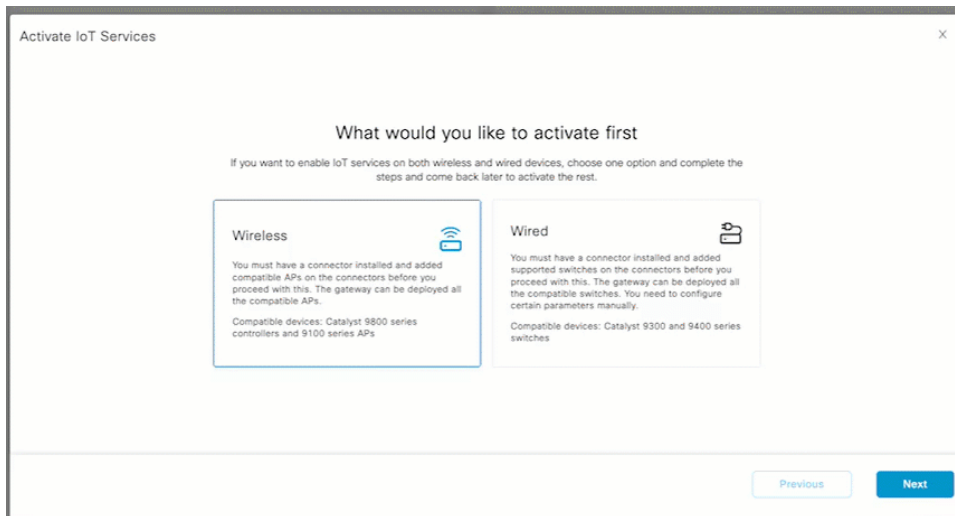
You can configure this AP (which is now a base or advanced gateway) in **Scan** mode, **Transmit** mode, or **Dual** mode. In the **Transmit** mode or **Dual** mode the AP can broadcast iBeacon, Eddystone URL, and Eddystone UID profiles.

In the **Scan** mode, the AP can scan the vicinity for other BLE devices. Using gRPC on the AP, the AP sends the scanned data to Cisco Spaces: Connector. The AP can also receive telemetry data from floor beacons. The IoT Service dashboard decodes and displays this information.

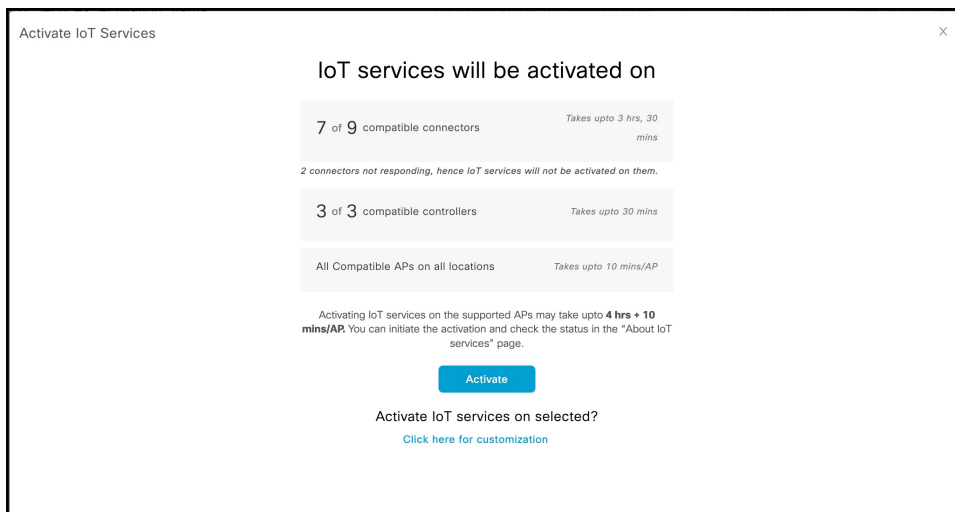
## Configure an AP as a Bluetooth Low Energy (BLE) Gateway

This task enables an access point (AP) to act as a BLE gateway. For more information, see [Access Point as a Gateway](#).

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- Step 1** From the Cisco Spaces dashboard, navigate to **IoT Service > IoT Gateways > AP Gateway**.
  - Step 2** Click **Add New Gateways**.
  - Step 3** In the **Activate IoT Services** window that is displayed, choose **Wireless**.

**Figure 1: Activate IoT Service (Wireless)**

You can see the list of all devices on which IoT service (wireless) can be activated, along with the activation time.

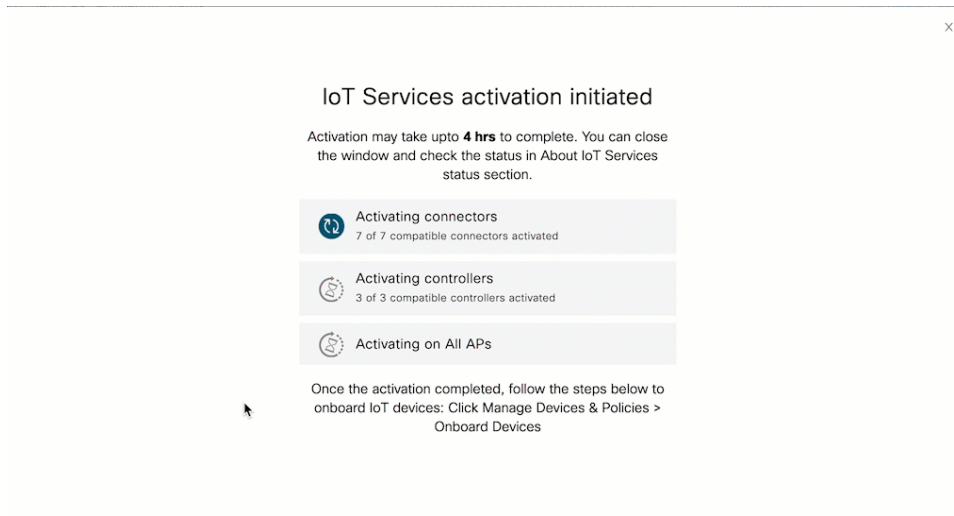
**Figure 2: List of Supported Devices**

**Step 4** To activate IoT service (wireless) on all devices on your network, in the **IoT services will be activated on** window, click **Activate**.

This activation of IoT service (wireless) automates the following tasks:

- Enables IoT streams on the connector
- Enables the wireless controller stream
- Configures APs as a Bluetooth Low Energy (BLE) gateway (this includes turning on the BLE radio, BLE scanning, and deploying the BLE gateway app)

**Figure 3: Activate IoT Service (Wireless) on all devices**



**Step 5**

To activate IoT service (wireless) only on specific devices of your network, do the following:

- a) Choose one or more connectors to activate IoT service (wireless).
- b) To activate the wireless gateway, click **Activate Wireless**.
- c) In the **Deploy Wireless Gateway** window, select the APs on which you want to activate IoT service (wireless).

**Figure 4: Activate IoT Service (Wireless) on Preferred Devices**

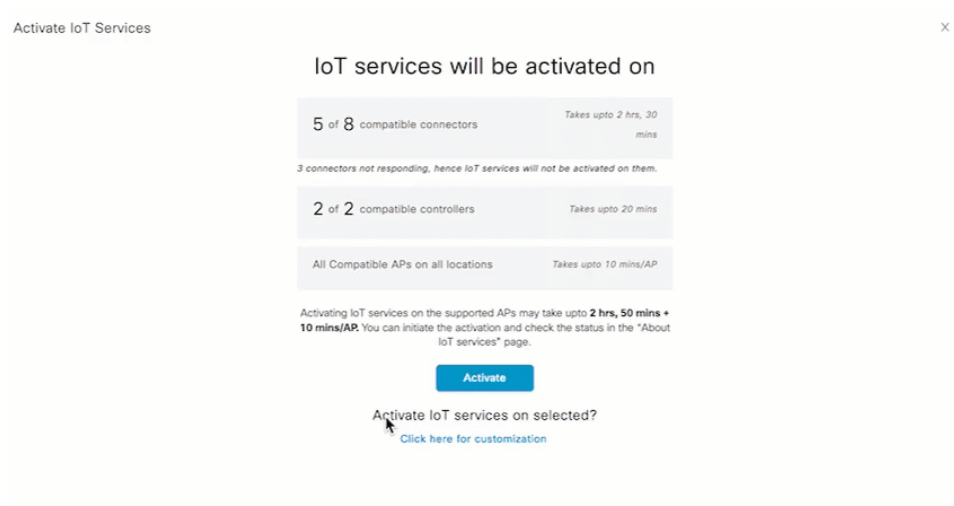
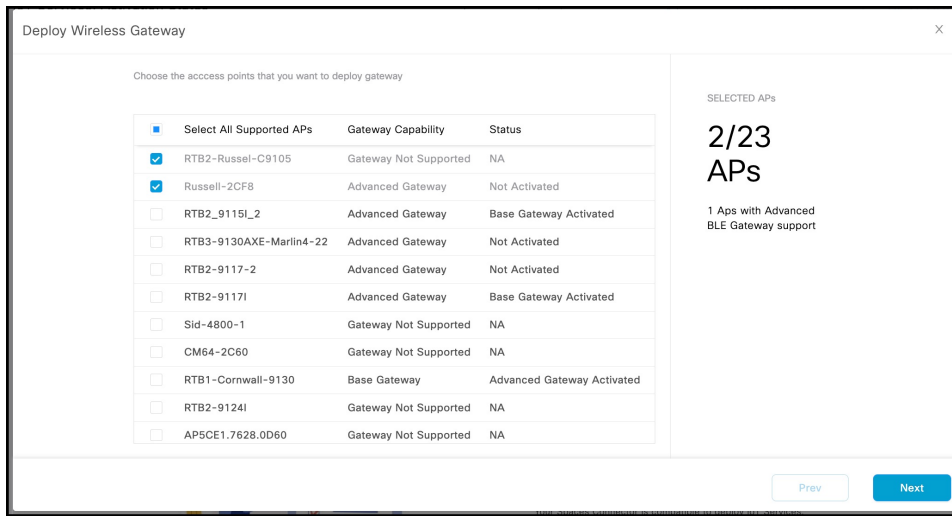


Figure 5: Activate IoT Service (Wireless) on Preferred Devices



### What to do next

Once the activation completed, you can onboard the IoT Service (Wireless) devices. Click **Manage Devices & Policies > Onboard Devices**.

## Uninstall or Upgrade an IOx Application on an Advanced Gateway

You can uninstall or upgrade IOx applications on advanced gateways. The Cisco Spaces: BLE Management is one such application.

### Before you begin

Ensure that you have configured an access point (AP) as an advanced gateway.

- Step 1** From the Cisco Spaces dashboard, navigate to **IoT Service > IoT Gateways > AP Gateways** and click **All APs**.
- Step 2** Click the MAC address of the AP to open the detailed **AP** page.
- Step 3** In the **App Management** section, you can see the applications available for un-installation or upgrade. Do one of the following:
  - To uninstall, click the uninstall icon near Cisco Spaces: BLE Management.
  - To upgrade, check if a version is available for upgrade near the Cisco Spaces: BLE Management and click it.
  - To upload tech-support files to the connector, click the gear icon.

Figure 6: Uninstall or Upgrade Cisco Spaces: BLE Management

The screenshot displays the IoT Gateway management interface. On the left, a sidebar shows 'IoT Services' with 'IoT Gateways' selected. The main area shows 'AP Gateways (10)' and 'All APs (10)'. A table lists APs with columns for Mac Address, Floor Beacon Channel Status, and IOx App Channel Status. The first AP's Mac Address, '04:eb:40:9f:b0:00', is highlighted with a red box. On the right, a detailed view of an AP shows various attributes and an 'App Management' section. A red callout bubble points to a download icon in the 'App Management' section, with the text 'Click to install application'.

BLE MODE	SCAN	BLE TYPE	base
BLE Firmware version	2.7.16	Location	System Campus->Building 19->Cisco DNA Customer Lab
Ethernet Mac	04:eb:40:9e:29:34	Floor Beacon Channel Last Heard	Sep 22nd, 2021 03:36:50 PM <small>a few seconds ago</small>
AP Beacon Channel Last Heard	Sep 22nd, 2021 03:02:48 PM <small>34 minutes ago</small>	IOx App Channel Last Heard	-
Zigbee Capable	✓ Yes	IOx Capable	✓ Yes
BLE Capable	✓ Yes	USB Capable	✓ Yes

**App Management**

Available Apps

BLE Cisco DNA Spaces BLE Management App Upgrade to v1.2.7  
Enable configuration of BLE radio within compatible access points

Click to install application

*Figure 7: Uninstall Cisco Spaces: BLE Management*

A gear icon appears beside the application that allows you to upload log files to connector. You can also download these files to assist a technical support team.

*Figure 8: Technical Support Log Files*

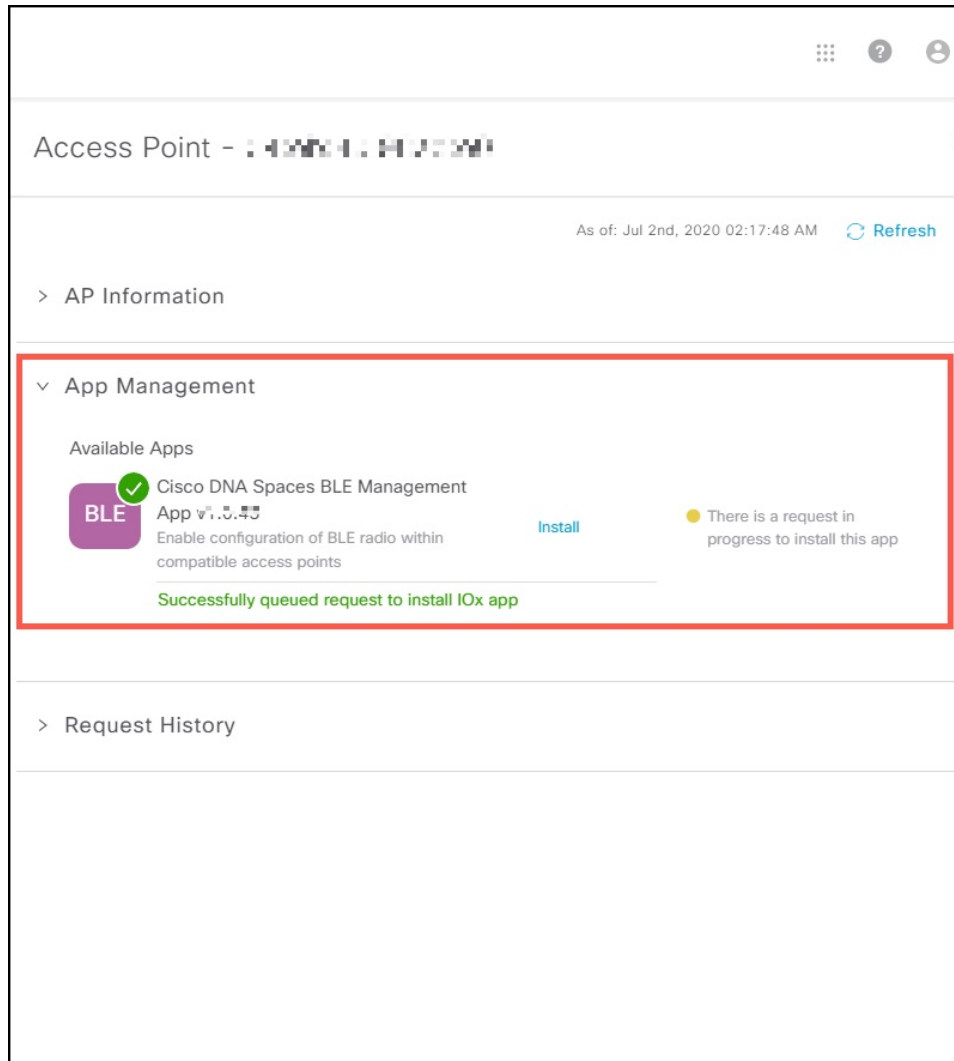


**Step 4** Enter the credentials needed for authentication on the AP.

**Note** The authentication request to the APs includes these credentials, after which IoT Service does not retain these credentials.

The AP which is the advanced gateway receives these change requests. You can observe the progress on the displayed page.

**Figure 9: App Management: Progress of Uninstall or Upgrade**



You can also check the status of deployment by clicking **Request History**.

Figure 10: Uninstall or Upgrade Status in the Request History Area

The screenshot displays the 'App Management' section of a web interface. Under 'Installed Apps', there is an entry for 'Cisco DNA Spaces BLE Management' with a description: 'Enable configuration of BLE radio within compatible access points'. Below this, the 'Request History' section is expanded, showing a table of operations. The table has four columns: 'Operation', 'Status', 'Number of Retries', and 'Initiated At'. Three rows are visible, showing operations like 'IBEACON CONFIG', 'TRANSMIT MODE', and 'IOX TECH SUPPORT' with their respective statuses (IN PROGRESS or SUCCESS) and initiation times.

Operation	Status	Number of Retries	Initiated At
IBEACON CONFIG	IN PROGRESS	0	Sep 14th, 2020 04:26:00 PM a day ago
TRANSMIT MODE	IN PROGRESS	0	Sep 14th, 2020 04:25:58 PM a day ago
IOX TECH SUPPORT	SUCCESS	0	Sep 4th, 2020 07:21:44 AM 11 days ago

The **Status** column shows the status of Uninstall or Upgrade on each AP.

- **SUCCESS**: Uninstall or Upgrade of application on the AP was a success.
- **FAILURE**: Uninstall or Upgrade of application on the AP was a failure.
- **IN PROGRESS**: Uninstall or Upgrade of application on the AP is still in progress.

You can also check the status of AP gateway deployment by clicking the **Deployment status** icon in the top-right corner of the dashboard (in the **AP Gateways** page). Here you can see the deployment status of a base or advanced gateway at a more detailed level. You can see whether the gateway is enabled, whether it is in the scan or transmit mode, whether configurations are being pushed on to the gateway, or if the gateway is capable, or the status of IOX installation. Unlike bulk history, here you can view the details of an individual AP gateway. If the gateway deployment fails, the reasons are listed here.

Figure 11: Deployment Status

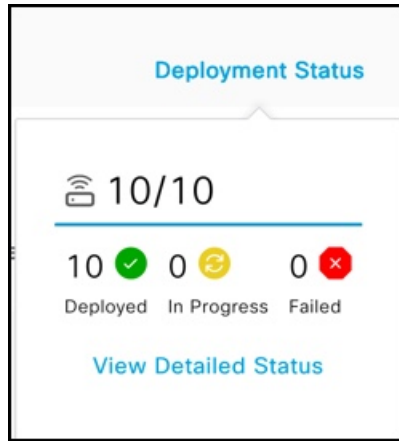


Figure 12: Deployment Status

**Deployment Status**

10/10 Completed 10 0

As of: May 21, 2021 2:53 PM [Refresh](#)

AP Name	Location	Deployed At	OS Version	Mode	Deployment Status
AP_07.28E4	System Campus->Building 19->Cisco DNA Customer Lab	Feb 25th, 2021 04:41:59 AM <small>3 months ago</small>	17.3.3.26	Advanced	SUCCESS
AP_09.28EC	System Campus->Building 19->Cisco DNA Customer Lab	Jan 21st, 2021 01:02:40 AM <small>4 months ago</small>	17.3.3.26	Advanced	SUCCESS
AP_06.28CC	System Campus->Building 19->Cisco DNA Customer Lab	Jan 21st, 2021 01:02:40 AM <small>4 months ago</small>	17.3.3.26	Advanced	SUCCESS
AP_05.2934	System Campus->Building 19->Cisco DNA Customer Lab	Jan 21st, 2021 01:02:40 AM <small>4 months ago</small>	17.3.3.26	Advanced	SUCCESS
AP_04.2938	System Campus->Building 19->Cisco DNA Customer Lab	Jan 21st, 2021 01:02:40 AM <small>4 months ago</small>	17.3.3.26	Advanced	SUCCESS

