



Cisco Spaces Connect for IoT Services Online Help

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CHAPTER 1

Using the Web User Interface

- [Using the Web User Interface, on page 1](#)
- [Initial Configuration Workflow of IoT Orchestrator, on page 3](#)

Using the Web User Interface

The Web user interface (Web UI) provides network administrators with a single solution to monitor, optimize, and troubleshoot IoT Orchestrator application.

System Requirements for the Web User Interface

You can access the application from a client web browser. Ensure that the following web client requirements are met:

- **Hardware:** An Apple Mac (OS version 10.9.5 or a later version) or Microsoft Windows (OS version 7 or a later version) laptop or desktop compatible with one of the following tested and supported browsers:
 - Google Chrome 59 or a later version
 - Microsoft Edge 40 or a later version
 - Mozilla Firefox 60 or a later version
 - Apple Safari 10 or a later version
- **Display resolution:** We recommend that you set the screen resolution to 1280 x 800 or higher. For best user experience, view the browser at 100% resolution. The lines may break if you enter a resolution greater than 100%.




Note For Windows browser:

- You can view the browser at 100% resolution when the display scale is 125%.
 - You can view the browser at 80% resolution when the display scale is 100%.
-

Using the Toolbar

The application pages contain the following static global toolbar at the top right:

Table 1: Using the Toolbar Icon

| Icon | Description |
|---|-------------------------|
|  | Logs out of the system. |

Using the Navigation Menu

The Web user interface allows you to perform the following tasks from the navigation pane:

Table 2: Using the Navigation Menu

| Navigation Menu | Description |
|-----------------------|--|
| Dashboard | View dashboard gives you a snapshot of the following: <ul style="list-style-type: none"> • Access points connected and disconnected from the IoT Orchestrator application. • IoT radio operational status (Up or Down) of connected Access points from the IoT Orchestrator application. • IoT radio mode in scan, transmit, and dual modes. • IoT devices in connected, disconnected, and onboarded states. • Last heard application represents the timestamp when the IoT Orchestrator received a last request from the Onboard, Control, and Data application. • Displays the top 10 Access Points with the most advertisements. • CPU statistics • Memory statistics |
| Inventory | View the AP and BLE inventories. |
| Configuration | Configure your IoT Orchestrator application using Transmit or Scan. |
| Serviceability | View the connected AP logs, IoT Orchestrator application logs, and available BLE logs. |
| KPI | View the metrics for AP, BLE, and IoT Orchestrator application. |

| Navigation Menu | Description |
|---------------------------|---|
| Administrator | Perform system administration activity for the following: <ul style="list-style-type: none"> • Connect the controller to the IoT Orchestrator application using 9800 WLC configuration. • Register private, public, and trust root key using Certificate Management. • Enter credentials of your application and their canonical names using Generate Certificates. <p>Note The external application IDs must match with the canonical names for onboarding, control, and data applications to communicate with the IoT Orchestrator application.</p> <ul style="list-style-type: none"> • (Or) Register the external application IDs using Generate Keys. • View the registered applications • Manage user account. |
| Topic Subscription | View the device and data application topics. |

Initial Configuration Workflow of IoT Orchestrator

The initial configuration workflow of IoT Orchestrator is as follows:

1. Day 0 WebUI Wizard for IoT Orchestrator Application. For information, see the *Cisco Spaces Connect for IoT Services Configuration Guide*.
2. Changing your Username and Password. For information, see the *Cisco Spaces Connect for IoT Services Configuration Guide*.
3. Configuring IoT Orchestrator Application.

- [Connecting IoT Orchestrator with Cisco Catalyst 9800 Wireless Controller](#)

Once the above configuration is successful, the APs connected to the controller is also connected to the IoT Orchestrator. You will be able to view the Connected APs in the [Monitoring the Access Points Inventory](#) page.

- Generate Keys or Generate Certificates

- If you want to use the Key-based authentication, you need not upload any certificates to the IoT Orchestrator. For more information, see the [Generating Keys to Register External Applications](#) and register the Application IDs.
- If you want to use the Certificate-based authentication, you will need to upload certificates to the IoT Orchestrator. For more information, see the [Uploading Server Certificates](#). After

uploading the server certificates, see the [Generating Certificates to Register External Applications](#) and register the Application IDs.

This way, you will be able to send the System Cross-domain Identity Management (SCIM) or Non-IP Control (NIPC) requests to the IoT Orchestrator.



CHAPTER 2

Understanding the Dashboard

- [Understanding the Dashboard, on page 5](#)

Understanding the Dashboard

The Dashboard displays a snapshot of the overall status and statistics for your IoT Orchestrator application. The dashboard displays the following dashlets:

Access Points

Displays the number of APs that are connected and disconnected from the IoT Orchestrator application.

Access Points IoT Radio Operational Status

Displays the operational status of the IoT radio APs that are Up and Down.

IoT Radio Mode

Displays the number of APs in Scan, Transmit, or Dual modes.

IoT Devices

Displays the statistics of connected, disconnected, and onboarded IoT devices.

Last Heard Application

Displays the time stamp of requests received by Onboard, Control, and Data applications.

Top 10 Access Points

Displays the top 10 APs with the most advertisements and number of advertisements as well.

Utilization

Displays the CPU, memory, and disk usage on the processors on each core in system, idle, and user states. Select the drop-down to view the CPU, memory, and disk usage for the following duration:

- 1 minute

- 5 minutes
- 30 minutes

Hover over the circular representation to view the system, idle, and user percentage.

CPU Usage

Displays the chart and graphical representation of the memory usage in user and idle states.

Hover over the chart to view the used space percentage.



CHAPTER 3

Inventory

- [Monitoring the Access Points Inventory, on page 7](#)
- [Monitoring the BLE Inventory, on page 11](#)

Monitoring the Access Points Inventory

Choose **Inventory > Access Point** to view AP name, AP MAC address, AP platform, AP IP address, status, last heard, BLE MAC address, BLE connections, and radio status details.


The **AP Inventory** page contains the following options at the top left:

Table 3: Option and Description

| Options | Description |
|-----------------------------|--|
| Total: Number | When you click the Number , you get to view APs connected and disconnected from the IoT Orchestrator application. Hover to view the description for the field. |
| Connected: Number | When you click the Number , you get to view the APs connected to the IoT Orchestrator application. Hover to view the description for the field. |
| Disconnected: Number | When you click the Number , you get to view the APs disconnected from the IoT Orchestrator application. Hover to view the description for the field. |

The **AP Inventory** page contains the following icons:

Table 4: Icons

| Icons | Description |
|---|--|
|  | Exports the AP inventory details in .csv format. |

| Icons | Description |
|-----------------------|--|
| show drop-down | Select the show drop-down to view the following options: <ul style="list-style-type: none"> • show 10- Select the show 10 check box to view AP inventory details for 10 APs. • show 25- Select the show 25 check box to view AP inventory details for 25 APs. • show 50- Select the show 50 check box to view AP inventory details for 50 APs. • show 100- Select the show 100 check box to view AP inventory details for 100 APs. • show 500- Select the show 500 check box to view AP inventory details for 500 APs. |
| select all | Select the check box to change the already configured Transmit Config, Scan Config, and BLE radio of the AP. For information, see Configuring the AP MAC section. |
| AP VERSION | Displays the version of the AP. |
| WLC IP ADDRESS | Displays the IP address of the controller. |
| Search icon | Use the search option to search for a specific AP name or AP MAC. |

The **AP Inventory** page displays the following parameters:

Table 5: AP Inventory Parameter Details

| Parameter | Description |
|-----------------|---|
| AP Name | The name of the AP. |
| AP MAC Address | The MAC address of the AP. |
| AP Platform | The platform detail of the AP. |
| AP IP Address | The IP address of the AP. |
| Status | The status of the AP. |
| Last Heard | The time stamp when the AP received the last advertisement from the device. |
| BLE MAC Address | The MAC address of the APs IoT radio. |
| BLE Connections | The number of BLE connections. |

| Parameter | Description |
|--------------|---|
| Radio Status | <p>The status of the AP radio.</p> <p>Note</p> <ul style="list-style-type: none"> • When the Radio Status parameter is Down and when you click the AP Name or AP MAC parameter, you get to view the AP details and Delete icon. For more information about Delete, see the Deleting an AP Device section. • When the Radio Status parameter is Up and when you click the AP Name or AP MAC parameter, you get to view the AP details and Configure icon. <p>Click Configure icon displays the Configure pop-up window. For more information about Configure, see the Configuring the AP MAC section.</p> |

Viewing AP Details

To view the details of an AP, click the **AP Name** or **AP MAC** parameter.

Table 6: AP Details

| Parameter | Description |
|------------------------|--|
| AP Name | The name of the AP. |
| AP Radio Mac Address | The MAC address of the AP radio. |
| AP IP Address | The IP address of the AP. |
| AP Ethernet Mac | The ethernet MAC address of the AP. |
| AP status | The status of the AP. |
| AP Version | The version of the AP. |
| AP PID | The PID detail of the AP. |
| AP Platform | The platform version of the AP. |
| WLC IP Address | The IP address of the controller. |
| AP Flap Reason | The reason for the AP flap. |
| AP Last Heard | The time stamp when the last keepalive passed between AP and IoT Orchestrator. |
| Active BLE connections | The active BLE connections. |

| Parameter | Description |
|------------------------|---|
| Max BLE Clients | The maximum BLE clients. |
| BLE Mac Address | The MAC address of the APs IoT radio. |
| BLE Firmware Version | The firmware version of the BLE device. |
| Configured Tx Policy | The configured transmit policy. |
| Configured Scan Policy | The configured scan policy. |

Configuring the AP MAC

On the **Inventory > Access Point** page, select the **select all** check box and click **Configure**.

The **Configure** pop-up window is displayed.

- In the **AP MAC** area, you get to view the MAC address of the AP.
- Click the **Transmit Config** and **Scan Config**.

A pop-up window is displayed.

- In the **Search** bar, enter a specific ap profile name (or),
- Select an already created AP profile name.

- Click .

A pop-up window appears stating that **The AP beacon is configured**.

- Click **Ok**.

- In the **BLE Radio** area, toggle to either **On** or **Off**.



Note

- Click **On**.

A pop-up window displays stating that the **AP Beacon configured successfully + "Status :"** + **on**. Click **Ok**.

- (Or)

Click **Off**.

A pop-up window displays stating that the **AP Beacon configured successfully + "Status :"** + **off**. Click **Ok**.

Deleting an AP Device

- In the **AP Inventory** page, click any of the AP device you want to delete.
- Click **Delete**.



Note You can delete AP details only when the AP is in disconnected state.

A pop-up window is displayed asking if you want to delete the device or not.

- Click **Yes, I'm sure** to delete the device.
- (Or)
- Click **No, cancel** to retain the device.

Monitoring the BLE Inventory

Choose **Inventory > BLE Client** to view the BLE device ID, MAC address, device name, access point, RSSI, connected time, last heard time, and device state details.


The **BLE Inventory** page contains the following options at the top left:

Table 7: Options and Description

| Options | Description |
|-----------------------------|---|
| Total: Number | When you click the Number , you get to view the BLEs connected, disconnected, and onboarded in the IoT Orchestrator application. |
| Connected: Number | When you click the Number , you get to view the BLE devices connected to the IoT Orchestrator application. |
| Disconnected: Number | When you click the Number , you get to view the BLE devices disconnected from the IoT Orchestrator application. |
| Onboarded: Number | When you click the Number , you get to view the BLE devices onboarded onto the IoT Orchestrator application. |

The **BLE Inventory** page contains the following icons:

Table 8: Icons

| Icons | Description |
|---|---|
|  | Exports the BLE inventory details in .csv format. |

| Icons | Description |
|-----------------------|---|
| show drop-down | <p>Select the show drop-down to view the following options:</p> <ul style="list-style-type: none"> • show 10- Select the show 10 check box to view BLE inventory details for 10 BLEs. • show 25- Select the show 25 check box to view BLE inventory details for 25 BLEs. • show 50- Select the show 50 check box to view BLE inventory details for 50 BLEs. • show 100- Select the show 100 check box to view BLE inventory details for 100 BLEs. • show 500- Select the show 500 check box to view BLE inventory details for 500 BLEs. |
| Search icon | Use the search option to locate a specific BLE device ID or MAC address. |

The **BLE Inventory** page displays the following parameters:

Table 9: BLE Inventory Parameter Details

| Parameter | Description |
|-----------------|--|
| BLE Device ID | The BLE device ID. |
| BLE MAC Address | The MAC address of the BLE device. |
| BLE Device Name | The BLE device name. |
| Access Point | The AP associated with the BLE device. |
| RSSI | The RSSI details. |
| Connected Time | The time when the BLE device was connected. |
| Last Heard Time | The time stamp when the last advertisement of the BLE device was received in AP. |
| Device State | The state of the BLE device. |



CHAPTER 4

Configuration

- [Managing Transmit Profile for IoT Orchestrator, on page 13](#)
- [Managing Scan Profile for IoT Orchestrator, on page 14](#)

Managing Transmit Profile for IoT Orchestrator

Choose **Configuration** > **Transmit Configuration** to manage the transmit profile for IoT Orchestrator application.






1. Click  to create transmit configuration profile in IoT Orchestrator application.
For more information, see **Creating Transmit Configuration Profile in IoT Orchestrator**.
2. Use the search option to search for a specific transmit configuration profile.
3. In the **Transmit Configuration** page, you get to view the following parameters:

Table 10: Transmit Configuration Profile Parameters

| Parameter | Description |
|---------------------------|--|
| Configuration Name | Displays the configuration name. For more information, see Viewing Transmit Configuration Profile . |
| Configuration Type | Displays the selected configuration type. |
| Action | Displays the following icons:  —To get a copy of an already existing transmit configuration profile.  —To update an already created transmit configuration profile.  —To delete the transmit configuration profile. |

Managing Scan Profile for IoT Orchestrator

Choose **Configuration** > **Scan Configuration** to manage the scan profile for IoT Orchestrator application.

1. Click  to create scan configuration profile in IoT Orchestrator application.
2. Enter the configuration name.
3. Select **On** or **Off** from the **Drop random private mac** radio-button.



Note If you select **ON**, the AP sends the BLE scan results with random MAC address.




4. From the **Enable** area, select either true or false.



Note If you select **true**, the random MAC address is enabled.

5. Click **Confirm**.
A pop-up is displayed stating that the **configuration is saved successfully**. Click **Ok**
6. Use the search option to search for a specific scan configuration profile.
7. In the **Scan Configuration** page, you get to view the following parameters:

Table 11: Scan Configuration Profile Parameters

| Parameter | Description |
|--------------------------------|---|
| Configuration Name | Displays the configuration name. |
| Drop Random Private MAC | Displays true or false. |
| Enable | Displays true or false. |
| Action | Displays the following icons:  —To get a copy of an already existing scan configuration profile.  —To update an already created scan configuration profile.  —To delete the scan configuration profile. |



CHAPTER 5

Serviceability

- [Viewing and Downloading Access Point Logs, on page 15](#)
- [Orchestrator Logs, on page 17](#)
- [Viewing and Downloading Radio Active Logs, on page 18](#)


Viewing and Downloading Access Point Logs


Procedure

Step 1 Choose **Serviceability** > **Access Point Logs** > **View & Download**.

The **AP Logs** page is displayed.



Step 2 In the **Connected AP's** area, you can view the following:

| Parameter | Description |
|--------------|--|
| Active | Displays the number of active APs. |
| AP Inventory | Click AP Inventory to view the AP Inventory page. For more information, see the Monitoring the Access Points Inventory, on page 7 . |
| Search bar | Enter an AP name to view the AP. |
| List of APs | Select the AP radio button and perform the following:  <ol style="list-style-type: none">Click Get Logs to download a specific AP log. A pop-up window is displayed stating that the Log is saved successfully.Click Ok. |

| Parameter | Description |
|-----------|--|
| | <ul style="list-style-type: none"> •  a. Click Set Log Level. A pop-up window is displayed for that specific AP. b. From the Select Log Level field, select one of the following radio buttons: <ul style="list-style-type: none"> • ERROR • WARN • INFO • DEBUG c. Click Confirm to change the log level of the AP. |

Step 3








In the **Saved Logs** area, you can view the following:

| Parameter | Description |
|-------------|--|
| Available | Displays the number of saved logs for AP. |
| Search bar | Enter an AP name to view the AP. |
| List of APs | <p>Select the AP radio button and perform the following:</p> <ul style="list-style-type: none"> •  a. Click Show Logs to view logs for a specific AP. A pop-up window is displayed with the log detail. b. Click OK. <ul style="list-style-type: none"> • —Click Download to download the log for the selected AP to your laptop. |

Orchestrator Logs

Viewing and Downloading Orchestrator Logs

Procedure

- Step 1** Choose **Serviceability > Orchestrator Logs > View & Download**.
The **Orchestrator Logs** page is displayed.
- Step 2** In the **No of latest offline logs to display** field, enter the number of logs you would like to view.
Note You can select lines from 100 to 5000 for the number of latest offline logs to display.
- Step 3** Click  to view the logs.
- Step 4** Click  to delete the value entered in **Step 2**.
- Step 5** Click  to refresh the page.
- Step 6** Click  to download the latest offline Orchestrator logs to your system.
- Step 7** Click  to download all the latest offline Orchestrator logs to the laptop.
- Step 8** Click  to view the live Orchestrator logs.
A new window opens up to display the live Orchestrator logs.
- In the **Live Logs** area, you get to view the live Orchestrator logs.
 - Click the **Clear** icon to clear the populating live logs.
 - Click the **Download** icon to download the live logs.
 - Click  to start the live logs.
Note Click **Stop** to halt the live logs.
A pop-up window is displayed stating that the **Live Logs Stopped**.
Click **Ok**.
-

Setting Log Levels

Procedure

-
- Step 1** Choose **Serviceability > Orchestrator Logs > Log Settings**.
The **Log Settings** page is displayed.
- Step 2** From the **Enable Logs** area, choose **Notifications**, **Onboarded Advertisements**, or **Non-onboarded advertisements**.
- Step 3** Select one of the following log levels for the enabled logs:
- **Info**
 - **Error**
 - **Warning**
 - **Debug**
 - **Trace**
- Step 4** Click **Submit** to set the log levels.
-

Viewing and Downloading Radio Active Logs

Procedure




-
- Step 1** Choose **Serviceability > Radio Active Logs**.
The **Radio Active Logs** page is displayed.

- Step 2** In the **Available BLE's** area, you can view the following:

| Parameter | Description |
|--------------|---|
| Onboarded | Displays the number of onboarded BLEs. |
| Search bar | Enter the name of the BLE device and press Enter to view the BLE device, if available. |
| List of BLEs | Select the BLE radio button and perform the following: <ul style="list-style-type: none"> • Click the Add icon to add a new BLE device. A pop-up window is displayed stating that the device is added or device already exists, if the BLE device is available. |

| Parameter | Description |
|-----------|--|
| | <p>Note By default, the number of BLE devices that support RadioActive tracing is 5.</p> <ul style="list-style-type: none"> • Click Ok. |

Step 3 In the right-hand side area, you can view the following parameters:

| Parameter | Description |
|------------|---|
| Device ID | Displays the device ID of the BLE device. |
| Device MAC | Displays the MAC address of the BLE device. |
| Status | Displays the status of the BLE device. |
| Action | <p>You can perform the following actions:</p> <ul style="list-style-type: none"> •  —Click the Start icon to start the Radio Active logs for the BLE device. •  —Click the Download icon to download the Radio Active logs for the BLE device. •  —Click the Delete icon to delete the BLE device. <p>A pop-up window is displayed stating the following:</p> <p>Are you sure you want to delete this device?</p> <p>Click the Yes, I'm sure to delete the BLE device.</p> <p>(Or) Click the No, cancel to retain the BLE device.</p> |



CHAPTER 6

KPI

- [Viewing Access Point and BLE Metrics, on page 21](#)
- [Viewing Orchestrator Metrics, on page 25](#)

Viewing Access Point and BLE Metrics

Procedure

Step 1 Choose **KPI > Access Point**.
The **AP and BLE Metrics** page is displayed.

Step 2 In the **AP Metrics** area, you can view the following:

| Parameter | Description | | | | | | |
|--------------|---|-----------|-------------|--------|----------------------------|------------|--------------------------------|
| Active | Displays the number of active APs. | | | | | | |
| AP Inventory | Click AP Inventory to view the AP Inventory page. For more information, see the Monitoring the Access Points Inventory, on page 7 . | | | | | | |
| Search bar | Enter an AP name and press Enter to view the AP. | | | | | | |
| List of APs | Select the AP radio button and perform the following: <ul style="list-style-type: none"> • Click the View icon to view the AP metrics. The AP Metrics window is displayed with the following parameters: <table border="1" data-bbox="1015 1600 1528 1831"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>AP Mac</td> <td>The MAC address of the AP.</td> </tr> <tr> <td>Start time</td> <td>The start time of the metrics.</td> </tr> </tbody> </table> | Parameter | Description | AP Mac | The MAC address of the AP. | Start time | The start time of the metrics. |
| Parameter | Description | | | | | | |
| AP Mac | The MAC address of the AP. | | | | | | |
| Start time | The start time of the metrics. | | | | | | |

| Parameter | Description | |
|-----------|------------------------------|---|
| | Parameter | Description |
| | Message time | The message time of the metrics. |
| | Total Requests | The count of the requests received by the AP. |
| | Total Responses | The count of the responses received by the AP. |
| | Connect Requests | The count of the connect requests. |
| | Connect Responses Success | The count of the successful connect responses. |
| | Connect Responses Failure | The count of the failed connect responses. |
| | Disconnect Requests | The count of the disconnect requests. |
| | Disconnect Responses Success | The count of the successful disconnect responses. |
| | Disconnect Responses Failure | The count of the failed disconnect responses. |
| | Read Requests | The count of the read requests. |
| | Read Responses Success | The count of the successful read responses. |
| | Read Responses Failure | The count of the failed read responses. |
| | Write Requests | The count of the write requests. |
| | Write Responses Success | The count of the successful write responses. |
| | Write Responses Failure | The count of the failed write responses. |

| Parameter | Description | | | | | | | | | | | | | | |
|--------------------------|---|-----------|-------------|-----------------|-----------------------------------|--------------------------|---|--------------------------|---|---------------|------------------------------------|--------------|--------------------------------|------------------|---|
| | <table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Notify Requests</td> <td>The count of the notify requests.</td> </tr> <tr> <td>Notify Responses Success</td> <td>The count of the successful notify responses.</td> </tr> <tr> <td>Notify Responses Failure</td> <td>The count of the failed notify responses.</td> </tr> <tr> <td>Connect drops</td> <td>The count of the connection drops.</td> </tr> <tr> <td>Scan Results</td> <td>The count of the scan results.</td> </tr> <tr> <td>Unknown Requests</td> <td>The count of the unknown requests received.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Click OK. | Parameter | Description | Notify Requests | The count of the notify requests. | Notify Responses Success | The count of the successful notify responses. | Notify Responses Failure | The count of the failed notify responses. | Connect drops | The count of the connection drops. | Scan Results | The count of the scan results. | Unknown Requests | The count of the unknown requests received. |
| Parameter | Description | | | | | | | | | | | | | | |
| Notify Requests | The count of the notify requests. | | | | | | | | | | | | | | |
| Notify Responses Success | The count of the successful notify responses. | | | | | | | | | | | | | | |
| Notify Responses Failure | The count of the failed notify responses. | | | | | | | | | | | | | | |
| Connect drops | The count of the connection drops. | | | | | | | | | | | | | | |
| Scan Results | The count of the scan results. | | | | | | | | | | | | | | |
| Unknown Requests | The count of the unknown requests received. | | | | | | | | | | | | | | |

Step 3 In the **BLE Metrics** area, you can view the following:

| Parameter | Description | | | | |
|----------------|---|-----------|-------------|----------------|--|
| Active | Displays the number of active BLE devices. | | | | |
| BLE Inventory | Click BLE Inventory to view the BLE Inventory page. For more information, see the Monitoring the BLE Inventory . | | | | |
| Search bar | Enter a BLE device name and press Enter to view the BLE device. | | | | |
| List of BLEs | <p>Select the BLE radio button and perform the following:</p> <ul style="list-style-type: none"> Click the View icon to view the BLE metrics. <p>The BLE Metrics window is displayed with the following parameters:</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Total Requests</td> <td>The count of the total requests received by the BLE.</td> </tr> </tbody> </table> | Parameter | Description | Total Requests | The count of the total requests received by the BLE. |
| Parameter | Description | | | | |
| Total Requests | The count of the total requests received by the BLE. | | | | |

| Parameter | Description | |
|-----------|------------------------------|---|
| | Parameter | Description |
| | Total Responses | The count of the total responses received by the BLE. |
| | Total Response Success | The count of the total successful response. |
| | Total Response Failure | The count of the total failed response. |
| | Connect Requests | The count of connect requests. |
| | Connect Responses Success | The count of the successful connect responses. |
| | Connect Responses Failure | The count of the failed connect responses. |
| | Disconnect Requests | The count of disconnect requests. |
| | Disconnect Responses Success | The count of the successful disconnect responses. |
| | Disconnect Responses Failure | The count of the failed disconnect responses. |
| | Read Requests | The count of the read requests. |
| | Read Responses Success | The count of the successful read responses. |
| | Read Responses Failure | The count of the failed read responses. |
| | Write Requests | The count of the write requests. |
| | Write Responses Success | The count of the successful write responses. |
| | Write Responses Failure | The count of the failed write responses. |

| Parameter | Description | |
|-----------|-------------------------------------|---|
| | Parameter | Description |
| | Service Discovery Requests | The count of service discovery requests. |
| | Service Discovery Success | The count of successful service discovery. |
| | Service Discovery Failure | The count of failed service discovery. |
| | Notification Requests | The count of notification requests. |
| | Notification Responses Success | The count of successful notification responses. |
| | Notification Responses Failure | The count of failed notification responses. |
| | Stop Notification Requests | The count of notification requests that were stopped. |
| | Stop Notification Responses Success | The count of successful notification responses that were stopped. |
| | Stop Notification Responses Failure | The count of failed notification responses that were stopped. |

• Click **OK**.

Viewing Orchestrator Metrics

Before you begin

On the **KPI > Orchestrator** page, you can view **Orchestrator Metrics** details in the following sections:

To view the overall Orchestrator metrics detail, click the **Total** section.

| Parameter | Description |
|------------------------------|--|
| Total WebUI Requests | The total number of WebUI requests. |
| Total WebUI Response Success | The total number of successful WebUI response. |

| Parameter | Description |
|------------------------------|--|
| Total WebUI Response Failure | The total number of failed WebUI response. |
| Total BLE Requests | The total number of BLE requests. |
| Total BLE Response Success | The total number of successful BLE response. |
| Total BLE Response Failure | The total number of failed BLE response. |
| Total Requests | The total number of requests. |
| Total Response Success | The total number of successful response. |
| Total Response Failure | The total number of failed response. |

To view the application metrics detail, click the **APP** section.

| Parameter | Description |
|-------------------------------------|--|
| Total WebUI Requests | The total number of WebUI requests. |
| Total Requests | The total number of requests. |
| Total Response Success | The total number of successful response. |
| Total Response Failure | The total number of failed response. |
| Onboard Requests | The total number of onboard requests. |
| Onboard Response Success | The total number of successful onboard response. |
| Onboard Response Failure | The total number of failed onboard response. |
| Control App Requests | The total number of control application requests. |
| Control App Responses | The total number of control application requests. |
| Onboard App Requests | The total number of onboard application requests. |
| Onboard App Responses | The total number of onboard application responses. |
| Control App Request | The total number of control application request. |
| Control App Success Response | The total number of successful control application response. |
| Control App Failure Response | The total number of failed control application response. |
| Gateway Disconnection Count | The total number of gateway disconnection. |
| Onboarding Gateway Request | The total number of onboarding gateway request. |
| Onboarding Gateway Success Response | The total number of successful onboarding gateway response. |

| Parameter | Description |
|-------------------------------------|---|
| Onboarding Gateway Failure Response | The total number of failed onboarding gateway response. |
| Gateway MQTT Messages | The total number of gateway MQTT messages. |
| Disconnection Count | The total number of disconnects. |

To view the BLE metrics detail, click the **BLE** section.

| Parameter | Description |
|-----------------------------|---|
| Total BLE Requests | The total number of BLE requests. |
| Total BLE Response Success | The total number of successful BLE response. |
| Total BLE Response Failure | The total number of failed BLE response. |
| Connect Requests | The total number of connect requests. |
| Connect Response Success | The total number of successful connect response. |
| Connect Response Failure | The total number of failed connect response. |
| Disconnect Requests | The total number of disconnect requests. |
| Disconnect Response Success | The total number of successful disconnect response. |
| Disconnect Response Failure | The total number of failed disconnect response. |
| Read Requests | The total number of read requests. |
| Read Response Success | The total number of successful read response. |
| Read Response Failure | The total number of failed read response. |
| Write Requests | The total number of write requests. |
| Write Response Success | The total number of successful write response. |
| Write Response Failure | The total number of failed write response. |
| Notify Requests | The total number of notify requests. |
| Notify Response Success | The total number of successful notify response. |
| Notify Response Failure | The total number of failed notify response. |
| Bulk Requests | The total number of bulk requests. |
| Bulk Response Success | The total number of successful bulk response. |
| Bulk Response Failure | The total number of failed bulk response. |

To view the AP information metrics, click the **AP Info** section.

| Parameter | Description |
|-------------------------------------|---|
| Scan Results | The total number of scan results. |
| Max AP Connected | The total number of APs connected. |
| Live AP Connections | The total number of live AP connections. |
| AP Disconnection Count | The total number of AP disconnects. |
| AP Reconnection Count | The total number of AP reconnects. |
| Connection Lost | The total number of lost connections. |
| Connection Re-established Same AP | The total number of re-established connection in same APs. |
| Connection Re-established Diff AP | The total number of re-established connection in different APs. |
| Connection Re-established Fail | The total number of failed re-established connection. |
| Gateway Disconnection Count | The total number of gateway disconnection. |
| Onboarding Gateway Request | The total number of onboarding gateway request. |
| Onboarding Gateway Success Response | The total number of onboarding gateway success response. |
| Onboarding Gateway Failure Response | The total number of onboarding gateway failed response. |
| Gateway MQTT Messages | The total number of gateway MQTT messages. |
| Control App Request | The total number of control application request. |
| Control App Success Response | The total number of successful control application response. |
| Control App Failure Response | The total number of failed control application response. |

To view other metrics, click the **Others** section.

| Parameter | Description |
|---------------------------|--|
| Notify Lost | The total number of lost notifications. |
| Unknown Requests | The total number of unknown requests. |
| Max BLE Clients Seen | The maximum number of BLE clients seen. |
| Min BLE Clients Seen | The minimum number of BLE clients seen. |
| Max BLE Clients Connected | The maximum number of connected BLE clients. |

| Parameter | Description |
|------------------------------|---|
| Min BLE Clients Connected | The minimum number of connected BLE clients. |
| NrAP Max Client | The maximum number of NrAP client. |
| Client Primary AP Selected | The total number of selected primary AP client. |
| Client Secondary AP Selected | The total number of selected secondary AP client. |
| Client Tertiary AP Selected | The total number of selected tertiary AP client. |
| Client Mobility Count | The total number of client mobility. |
| Client Move AP Count | The total number of moved AP clients. |
| NrAP BLE Beacons | The total number of NrAP BLE beacons. |

Procedure

Step 1 Choose **KPI > Access Point**.

The **AP and BLE Metrics** page is displayed.

Step 2 In the **AP Metrics** area, you can view the following:

| Parameter | Description | | | | | | | | |
|--------------|---|-----------|-------------|--------|----------------------------|------------|--------------------------------|--------------|----------------------------------|
| Active | Displays the number of active APs. | | | | | | | | |
| AP Inventory | Click AP Inventory to view the AP Inventory page. For more information, see the Monitoring the Access Points Inventory, on page 7 . | | | | | | | | |
| Search bar | Enter an AP name and press Enter to view the AP. | | | | | | | | |
| List of APs | Select the AP radio button and perform the following: <ul style="list-style-type: none"> Click the View icon to view the AP metrics. <p>The AP Metrics window is displayed with the following parameters:</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>AP Mac</td> <td>The MAC address of the AP.</td> </tr> <tr> <td>Start time</td> <td>The start time of the metrics.</td> </tr> <tr> <td>Message time</td> <td>The message time of the metrics.</td> </tr> </tbody> </table> | Parameter | Description | AP Mac | The MAC address of the AP. | Start time | The start time of the metrics. | Message time | The message time of the metrics. |
| Parameter | Description | | | | | | | | |
| AP Mac | The MAC address of the AP. | | | | | | | | |
| Start time | The start time of the metrics. | | | | | | | | |
| Message time | The message time of the metrics. | | | | | | | | |

| Parameter | Description | |
|-----------|------------------------------|---|
| | Parameter | Description |
| | Total Requests | The count of the requests received by the AP. |
| | Total Responses | The count of the responses received by the AP. |
| | Connect Requests | The count of the connect requests. |
| | Connect Responses Success | The count of the successful connect responses. |
| | Connect Responses Failure | The count of the failed connect responses. |
| | Disconnect Requests | The count of the disconnect requests. |
| | Disconnect Responses Success | The count of the successful disconnect responses. |
| | Disconnect Responses Failure | The count of the failed disconnect responses. |
| | Read Requests | The count of the read requests. |
| | Read Responses Success | The count of the successful read responses. |
| | Read Responses Failure | The count of the failed read responses. |
| | Write Requests | The count of the write requests. |
| | Write Responses Success | The count of the successful write responses. |
| | Write Responses Failure | The count of the failed write responses. |
| | Notify Requests | The count of the notify requests. |

| Parameter | Description | | | | | | | | | | | | | |
|--------------------------|---|-----------|-------------|--------------------------|---|--------------------------|---|---------------|------------------------------------|--------------|--------------------------------|------------------|---|--|
| | <table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Notify Responses Success</td> <td>The count of the successful notify responses.</td> </tr> <tr> <td>Notify Responses Failure</td> <td>The count of the failed notify responses.</td> </tr> <tr> <td>Connect drops</td> <td>The count of the connection drops.</td> </tr> <tr> <td>Scan Results</td> <td>The count of the scan results.</td> </tr> <tr> <td>Unknown Requests</td> <td>The count of the unknown requests received.</td> </tr> </tbody> </table> | Parameter | Description | Notify Responses Success | The count of the successful notify responses. | Notify Responses Failure | The count of the failed notify responses. | Connect drops | The count of the connection drops. | Scan Results | The count of the scan results. | Unknown Requests | The count of the unknown requests received. | |
| Parameter | Description | | | | | | | | | | | | | |
| Notify Responses Success | The count of the successful notify responses. | | | | | | | | | | | | | |
| Notify Responses Failure | The count of the failed notify responses. | | | | | | | | | | | | | |
| Connect drops | The count of the connection drops. | | | | | | | | | | | | | |
| Scan Results | The count of the scan results. | | | | | | | | | | | | | |
| Unknown Requests | The count of the unknown requests received. | | | | | | | | | | | | | |
| | <ul style="list-style-type: none"> Click OK. | | | | | | | | | | | | | |

Step 3 In the **BLE Metrics** area, you can view the following:

| Parameter | Description | | | | | | |
|-----------------|--|-----------|-------------|----------------|--|-----------------|---|
| Active | Displays the number of active BLE devices. | | | | | | |
| BLE Inventory | Click BLE Inventory to view the BLE Inventory page. For more information, see the Monitoring the BLE Inventory . | | | | | | |
| Search bar | Enter a BLE device name and press Enter to view the BLE device. | | | | | | |
| List of BLEs | <p>Select the BLE radio button and perform the following:</p> <ul style="list-style-type: none"> Click the View icon to view the BLE metrics. <p>The BLE Metrics window is displayed with the following parameters:</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Total Requests</td> <td>The count of the total requests received by the BLE.</td> </tr> <tr> <td>Total Responses</td> <td>The count of the total responses received by the BLE.</td> </tr> </tbody> </table> | Parameter | Description | Total Requests | The count of the total requests received by the BLE. | Total Responses | The count of the total responses received by the BLE. |
| Parameter | Description | | | | | | |
| Total Requests | The count of the total requests received by the BLE. | | | | | | |
| Total Responses | The count of the total responses received by the BLE. | | | | | | |

| Parameter | Description | |
|-----------|------------------------------|---|
| | Parameter | Description |
| | Total Response Success | The count of the total successful response. |
| | Total Response Failure | The count of the total failed response. |
| | Connect Requests | The count of connect requests. |
| | Connect Responses Success | The count of the successful connect responses. |
| | Connect Responses Failure | The count of the failed connect responses. |
| | Disconnect Requests | The count of disconnect requests. |
| | Disconnect Responses Success | The count of the successful disconnect responses. |
| | Disconnect Responses Failure | The count of the failed disconnect responses. |
| | Read Requests | The count of the read requests. |
| | Read Responses Success | The count of the successful read responses. |
| | Read Responses Failure | The count of the failed read responses. |
| | Write Requests | The count of the write requests. |
| | Write Responses Success | The count of the successful write responses. |
| | Write Responses Failure | The count of the failed write responses. |
| | Service Discovery Requests | The count of service discovery requests. |

| Parameter | Description | |
|--|-------------------------------------|---|
| | Parameter | Description |
| | Service Discovery Success | The count of successful service discovery. |
| | Service Discovery Failure | The count of failed service discovery. |
| | Notification Requests | The count of notification requests. |
| | Notification Responses Success | The count of successful notification responses. |
| | Notification Responses Failure | The count of failed notification responses. |
| | Stop Notification Requests | The count of notification requests that were stopped. |
| | Stop Notification Responses Success | The count of successful notification responses that were stopped. |
| | Stop Notification Responses Failure | The count of failed notification responses that were stopped. |
| <ul style="list-style-type: none"> • Click OK. | | |



CHAPTER 7

Administrator

- [Monitoring Registered Applications, on page 35](#)
- [Generating Keys to Register External Applications, on page 36](#)
- [Generating Certificates to Register External Applications, on page 36](#)
- [Connecting IoT Orchestrator with Cisco Catalyst 9800 Wireless Controller, on page 37](#)
- [Uploading Server Certificates, on page 38](#)
- [Managing Users, on page 39](#)

Monitoring Registered Applications

Choose **Administrator > App Registration > Show Registered Apps** page to view information about the registered applications.

| Parameter | Description |
|---------------------|--|
| Application ID | The ID of the application. |
| Application Type | The type of the application. |
| Authentication Type | The type of the authentication. The external data applications support two types of authentication: <ul style="list-style-type: none">• Using API Key• Using Certificate |
| Key | The key assigned to the registered application. |
| Certificate | The certificate assigned to the registered application. |

| Parameter | Description |
|-----------|--|
| Action | <p>Displays the following icon:</p> <ul style="list-style-type: none"> • Delete—Click Delete. <p>A pop-up window with the following message is displayed:</p> <p><i>"Are you sure you want to delete this Application Id?"</i></p> <p>Click Yes, I'm sure to delete the registered application. If not, click No, cancel.</p> |

Generating Keys to Register External Applications

Choose **Administrator > App Registration > Generate Keys** page to register the onboarding, control, and data receiver applications. This way, the external applications can send BLE requests to the IoT Orchestrator.

1. In the **Enter you app ID to register** area, enter the IDs for onboard, control, and data receiver application.

Here, onboard application can be onboardApp. Control application can be controlApp. Data Receiver application can be dataReceiverApp.

2. Click **Submit**.

A pop-up window is displayed with the following message:

Key generated successfully.

Click **Ok**.

Generating Certificates to Register External Applications

Choose **Administrator > App Registration > Generate Certificates** page to register the onboarding, control, and data receiver application IDs and their respective Certificate Canonical Name (CN).



Note When you send a SCIM or NIPC requests with onboard or control application IDs, this ID needs to match with the CN of the client certificate.

1. In the **Enter you app ID to register** area, enter the IDs of onboarding, control, and data receiver application.
2. Enter a canonical name (CN) for the certificate.
3. Click **Submit**.

A pop-up window is displayed with the following message:

Certificate generated successfully.

Click **Ok**.



Note For information on registered applications, see [Monitoring Registered Applications, on page 35](#).

Connecting IoT Orchestrator with Cisco Catalyst 9800 Wireless Controller

Choose **Administrator > Cisco Catalyst 9800 Wireless Controller** page to connect the IoT Orchestrator with the Cisco Catalyst 9800 Wireless Controller.

The **Configure Cisco Catalyst 9800 Wireless Controller** page is displayed.

In the **Connect with Cisco Catalyst 9800 Wireless Controller** area, perform the following:



Note In the right corner of the page, you get to view the following banner, if you controller is not configured with the IoT Orchestrator:

Not Configured

1. In the **Controller Username** field, enter the username of the controller.
2. In the **Controller Wireless Management Interface IP** field, enter the IP address of the controller.
3. In the **Controller Login Password** field, enter the password of the controller.
4. In the **Controller Enable Password** field, enter the enable password of the controller.
5. Click **Submit**.

A pop-up window is displayed with the following message:

The Connection establishment with eWLC Controller is SUCCESS.

Click **Ok**.

The controller is now connected to the IoT Orchestrator.

Configuring the Controller

On the **Active Controller** page, you can view the following parameters:

| Parameter | Description |
|--------------------------|--|
| Controller Name | The controller name |
| Controller IP Address | The IP address of the controller. |
| Controller Status | The status of the controller. |
| Time Since Configuration | The time stamp when the controller was configured. |

| Parameter | Description |
|-----------|---|
| Configure | Click Configure to change the configuration of the already existing controller. For information, see the Changing the Controller Configuration section. |

Changing the Controller Configuration

On the **Active Controller** page, click **Configure** and perform the following:



Note In the right corner of the page, you get to view the following banner, if you controller is configured with the IoT Orchestrator:

Active

1. In the **User Name** field, enter the user name of the controller.
2. In the **Login Password** field, enter the password of the controller.
3. In the **Enable Password** field, enter the enable password of the controller.
4. Click **Change Configuration** to change the controller details.

Uploading Server Certificates

Choose **Administrator > Certificate Management** page to upload server certificates.

The **Upload Certificates** page is displayed.

1. In the **Server Identity** area, perform the following:
 - a. In the **Add your private key** field, click **Choose file** to browse to the private key file.
 - b. In the **Add your public key** field, click **Choose file** to browse to the public key file.
2. Select the **Auth using Certificates** check box to authenticate using certificates.
3. In the **Client Identity** area, click **Choose file** to browse to the trustroot key file.
4. Click **Submit** to upload certificates.

**Note**

- If you browse and upload valid certificates, a green pop-up success message window is displayed with the following message:

The HTTPS Server is created.

Click **Ok**.

- If you browse and upload invalid certificates (when the key and certificate file does not match, or when the validity of the certificate or key expires), a red pop-up error message window is displayed with the following message:

Invalid private cert: <certificate_file_name>

Click **Ok**.

Managing Users

On the **Administrator > User Account** page, you can view the already created users. Additionally you can create a new user and edit and delete an existing user.

Adding Users

On the **Manage Users** page, click **Add User**.

1. In the **Add User** window, enter the username, password, and confirm password for the user.
2. Click **Add User**.

A pop-up window is displayed with the following message:

User created successfully

Click **Ok**.

Viewing Created Users

On the **Manage Users** page, you get to view the following parameters:

Table 12: User Parameters

| Parameter | Description |
|-----------|---------------------------------------|
| User Name | The name of the user. |
| Role | The role of the user (admin or user). |

| Parameter | Description |
|---------------|---|
| Action | <p>Displays the following icons:</p> <ul style="list-style-type: none">• Edit—Click Edit and perform the following:<ol style="list-style-type: none">1. Enter the current password.2. Enter the new password.3. Re-enter the password.4. Click Add User to change the credentials for the user.• Delete—Click Delete. <p>A pop-up window is displayed with the following message:</p> <p><i>Are you sure you want to delete this user?</i></p> <p>Click Yes, I'm sure to delete the user. (Or)</p> <p>Click No, cancel to retain the user.</p> |



CHAPTER 8

Topic Subscription

- [Managing Devices to Topics, on page 41](#)
- [Managing Data Application IDs to Registered Topics, on page 42](#)

Managing Devices to Topics

Choose **Topic Inventory** > **Device Topics** to view details of the external devices and its associated topics.

You can view the following parameters:

| Parameter | Description |
|-------------------|--|
| show drop-down | Select the show drop-down to view the following options: <ul style="list-style-type: none">• show 10- Select the show 10 check box to view Device Topic details for 10 devices.• show 25- Select the show 25 check box to view Device Topic details for 25 devices.• show 50- Select the show 50 check box to view Device Topic details for 50 devices.• show 100- Select the show 100 check box to view Device Topic details for 100 devices.• show 500- Select the show 500 check box to view Device Topic details for 500 devices. |
| Search icon | Use the search option to locate a specific device mapped to a topic. |
| Subscription Type | The type of subscription. |
| Device ID | The device ID. |
| Service ID | The service ID. |
| Characteristic ID | The characteristic ID. |

| Parameter | Description |
|-----------|--|
| Topics | The topics associated with the device. |

Managing Data Application IDs to Registered Topics

Choose **Topic Inventory > Data App Topics** to view details of the external data application IDs and its associated registered topics.

You can view the following parameters:

| Parameter | Description |
|-----------------------|--|
| show drop-down | Select the show drop-down to view the following options: <ul style="list-style-type: none"> • show 10- Select the show 10 check box to view 10 data application IDs and its associated topic data. • show 25- Select the show 25 check box to view 25 data application IDs and its associated topic data. • show 50- Select the show 50 check box to view 50 data application IDs and its associated topic data. • show 100- Select the show 100 check box to view 100 data application IDs and its associated topic data. • show 500- Select the show 500 check box to view 500 data application IDs and its associated topic data. |
| Search icon | Use the search option to locate a specific data application ID. |
| Data App | The data application ID. |
| Topic Data | The registered topics. <p>Note The registered topics are used to retrieve the notifications or advertisements data from the BLE device.</p> |