CONFIGURATION GUIDE

RUCKUS IoT Controller Configuration Guide, 1.7-5.2.1-p2

Supporting IoT Controller Release 1.7-5.2.1-p2

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Document Conventions

The following table lists the text conventions that are used throughout this guide.

TABLE 1 Text Conventions

Convention	Description	Example
`monospace`	Identifies command syntax examples	`device(config)# interface ethernet 1/1/6`
bold	User interface (UI) components such as screen or page names, keyboard keys, software buttons, and field names	On the **Start** menu, click **All Programs**.
italics	Publication titles	Refer to the *RUCKUS Small Cell Release Notes* for more information.

Notes, Cautions, and Safety Warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

NOTE

A NOTE provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION

An ATTENTION statement indicates some information that you must read before continuing with the current action or task.

CAUTION

A CAUTION statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

DANGER

A DANGER statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Command Syntax Conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.

Convention	Description
italic text	Identifies a variable.
[ ]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{**x**| **y**| **z**}	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
x|**y**	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, *member*[*member*...].
\	Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Document Feedback

RUCKUS is interested in improving its documentation and welcomes your comments and suggestions.

You can email your comments to RUCKUS at #Ruckus-Docs@commscope.com.

When contacting us, include the following information:

- Document title and release number
- Document part number (on the cover page)
- Page number (if appropriate)

For example:

- RUCKUS SmartZone Upgrade Guide, Release 5.0
- Part number: 800-71850-001 Rev A
- Page 7

RUCKUS Product Documentation Resources

Visit the RUCKUS website to locate related documentation for your product and additional RUCKUS resources.

Release Notes and other user documentation are available at https://support.ruckuswireless.com/documents. You can locate the documentation by product or perform a text search. Access to Release Notes requires an active support contract and a RUCKUS Support Portal user account. Other technical documentation content is available without logging in to the RUCKUS Support Portal.

White papers, data sheets, and other product documentation are available at https://www.ruckuswireless.com.

Online Training Resources

To access a variety of online RUCKUS training modules, including free introductory courses to wireless networking essentials, site surveys, and products, visit the RUCKUS Training Portal at https://training.ruckuswireless.com.

Contacting RUCKUS Customer Services and Support

The Customer Services and Support (CSS) organization is available to provide assistance to customers with active warranties on their RUCKUS products, and customers and partners with active support contracts.

For product support information and details on contacting the Support Team, go directly to the RUCKUS Support Portal using https://support.ruckuswireless.com, or go to https://www.ruckuswireless.com and select **Support**.

What Support Do I Need?

Technical issues are usually described in terms of priority (or severity). To determine if you need to call and open a case or access the self-service resources, use the following criteria:

- Priority 1 (P1)—Critical. Network or service is down and business is impacted. No known workaround. Go to the **Open a Case** section.
- Priority 2 (P2)—High. Network or service is impacted, but not down. Business impact may be high. Workaround may be available. Go to the **Open a Case** section.
- Priority 3 (P3)—Medium. Network or service is moderately impacted, but most business remains functional. Go to the **Self-Service Resources** section.
- Priority 4 (P4)—Low. Requests for information, product documentation, or product enhancements. Go to the **Self-Service Resources** section.

Open a Case

When your entire network is down (P1), or severely impacted (P2), call the appropriate telephone number listed below to get help:

- Continental United States: 1-855-782-5871
- Canada: 1-855-782-5871
- Europe, Middle East, Africa, Central and South America, and Asia Pacific, toll-free numbers are available at https://support.ruckuswireless.com/contact-us and Live Chat is also available.
- Worldwide toll number for our support organization. Phone charges will apply: +1-650-265-0903

We suggest that you keep a physical note of the appropriate support number in case you have an entire network outage.

Self-Service Resources

The RUCKUS Support Portal at https://support.ruckuswireless.com offers a number of tools to help you to research and resolve problems with your RUCKUS products, including:

- Technical Documentation—https://support.ruckuswireless.com/documents
- Community Forums—https://forums.ruckuswireless.com/ruckuswireless/categories
- Knowledge Base Articles—https://support.ruckuswireless.com/answers
- Software Downloads and Release Notes—https://support.ruckuswireless.com/#products_grid
- Security Bulletins—https://support.ruckuswireless.com/security

Using these resources will help you to resolve some issues, and will provide TAC with additional data from your troubleshooting analysis if you still require assistance through a support case or RMA. If you still require help, open and manage your case at https://support.ruckuswireless.com/case_management.

About This Guide

- Introduction to RUCKUS IoT Controller..... 9

Introduction to RUCKUS IoT Controller

This document describes the configuration required for setting up the RUCKUS IoT Controller on the network.

This guide is intended for service operators and system administrators who are responsible for managing, configuring, and troubleshooting RUCKUS devices. Consequently, it assumes a basic working knowledge of local area networks, wireless networking, and wireless devices.

NOTE
If release notes are shipped with your product and the information there differs from the information in this guide, follow the instructions in the release notes.

What's New in This Document

TABLE 2 Summary of New Features in RUCKUS IoT Controller Release 1.7-5.2.1-p2

Feature	Description	Location
SmartThings Service	Information on how to connect the Smart Hub dongle to AP to enable the SmarThings service	Refer to Enabling the SmartThings Service on page 36 for more information.

Getting Started

- Before You Begin..... 11
- Logging In to RUCKUS IoT Controller..... 11
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Before You Begin

The RUCKUS IoT Controller must be installed on a hypervisor.

Supported Web Browsers

The RUCKUS IoT Controller is primarily accessible using a web browser.

TABLE 3 Supported Web Browser Versions

Browser	Version
Google Chrome	63.0 and later
Apple Safari	60.0 and later
Mozilla Firefox	10.1.2 and later

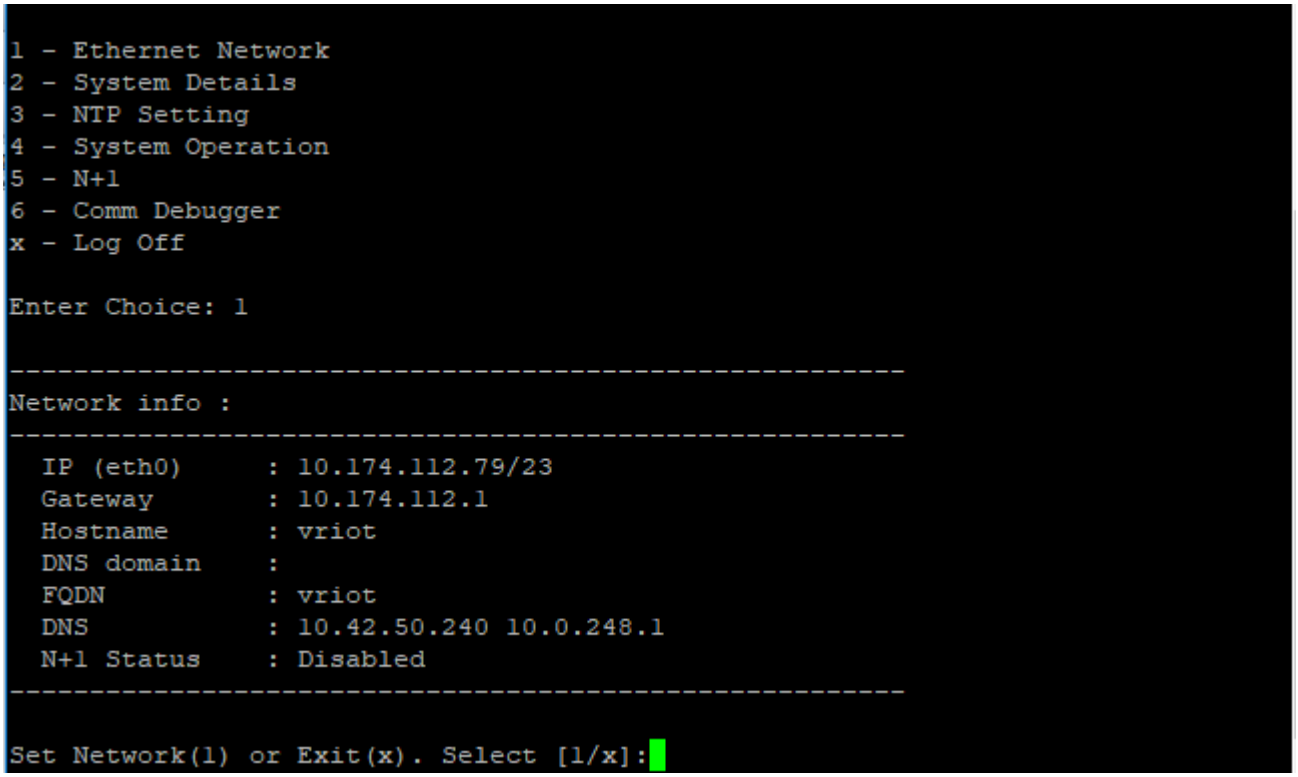
Logging In to RUCKUS IoT Controller

To manage IoT APs and devices, you must first log in to the RUCKUS IoT Controller.

1. Log in to the console of the RUCKUS IoT Controller using the username "admin" and password "admin".

2. Enter **1** in the **Enter Choice** field to get the IP address.

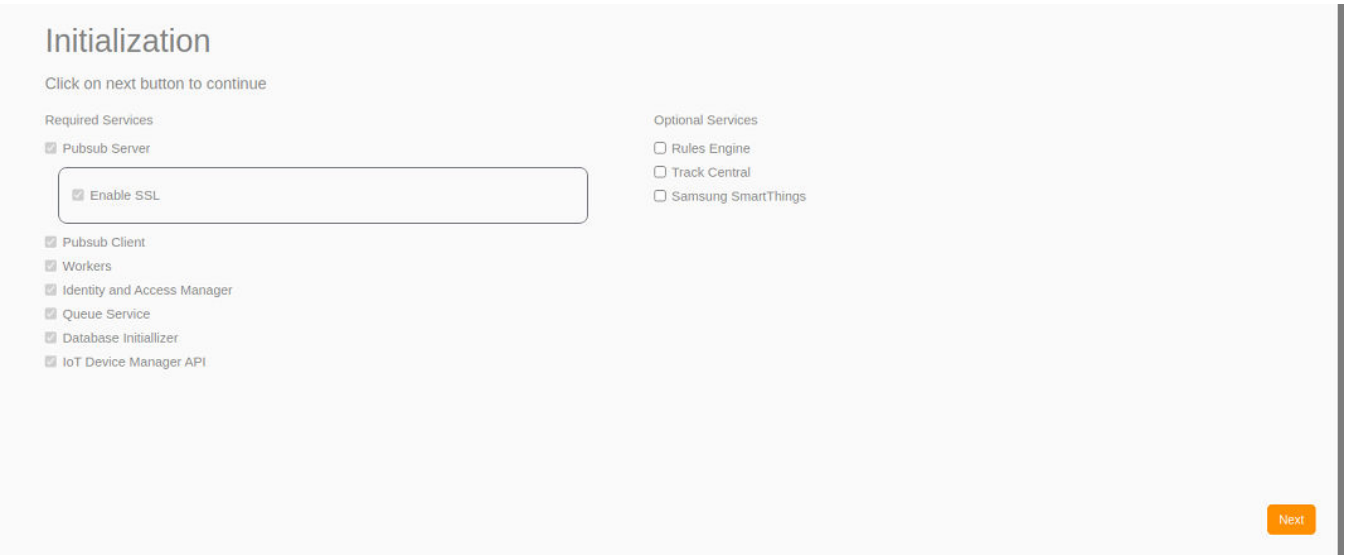
FIGURE 1 RUCKUS IoT Controller Main Menu



3. Open a web browser, enter the IP address in the address bar, and press **Enter**.

   The **Initialization** page is displayed.

   FIGURE 2 Initialization Page



The mandatory and optional services are listed on the **Initialization** page. The following services are mandatory:

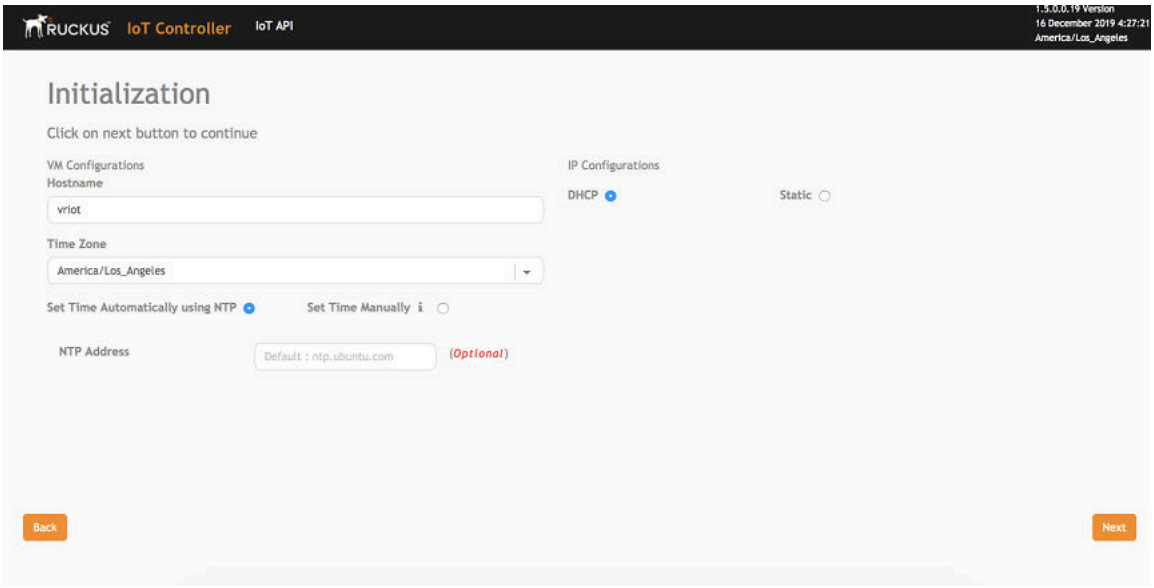
- Pubsub Server
- Pubsub Client
- Workers
- Identity and Access Manager
- Queue Service
- Database Initializer
- IoT Device Manager API
- Rules Engine
- Track Central
- Samsung SmartThings

Pubsub Server works in SSL mode.

4. Enter the **Hostname**, **Time Zone**, and select the **IP Configuration** (**DHCP** or **Static**), and click **Next** to start all the services in the RUCKUS IoT Controller.

   The RUCKUS IoT Controller services are sensitive to time synchronization. If the **NTP Sync** option is not available (such as in an isolated setup), you can select the **Set Time Manually** option to disable NTP sync.

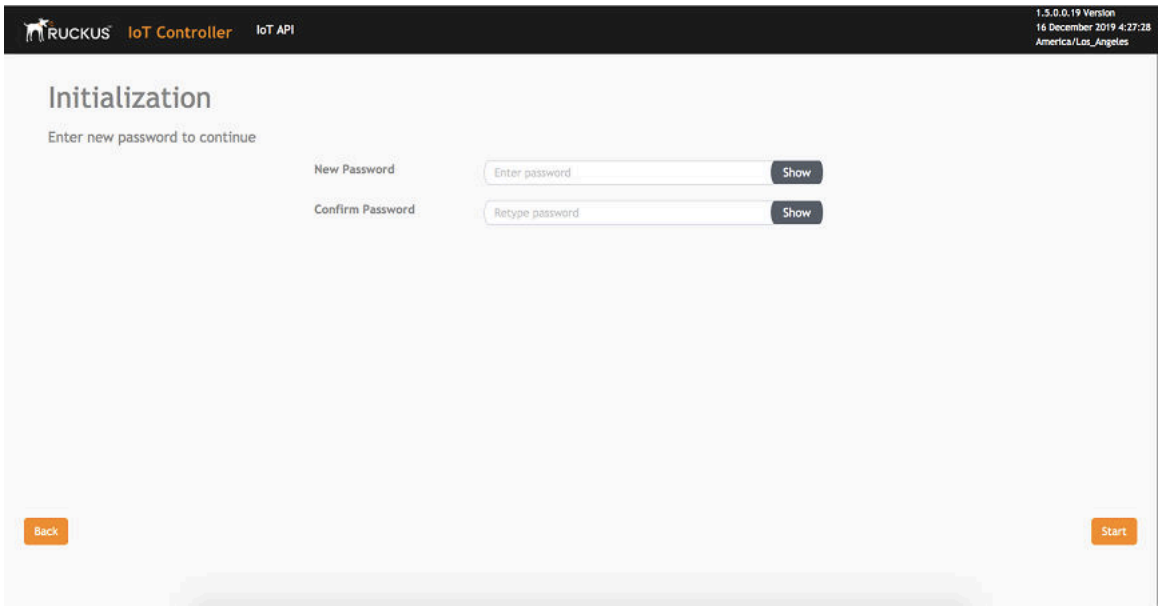
   FIGURE 3 Intialization Page After Accepting Services



NOTE
The figure shows a DHCP configuration.

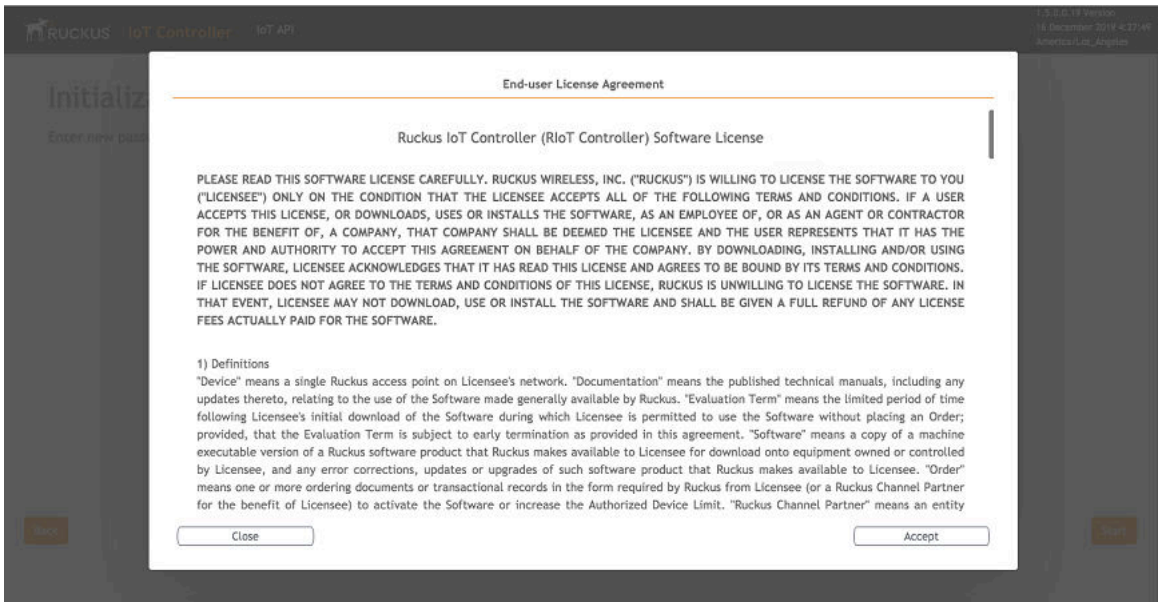
5. Enter the RUCKUS IoT Controller password in the **New Password** field. Re-enter the password in the **Confirm Password** field. The password must be a least eight characters in length and contain one uppercase letter, one lowercase letter, one digit, and one special character.

FIGURE 4 Confirming the Password



6. On the **End-user License Agreement** page, click **Accept** to accept the RUCKUS IoT Controller license.

FIGURE 5 End-user License Agreement



Getting to Know the Dashboard

The **Dashboard**, which is the first page that appears after you log in to the RUCKUS IoT Controller, offers an overall picture and status of the IoT infrastructure. The **Dashboard** shows the total number of IoT devices and IoT APs, the top IoT APs by device count, and the devices and APs by protocol.

FIGURE 6 RUCKUS IoT Controller Dashboard

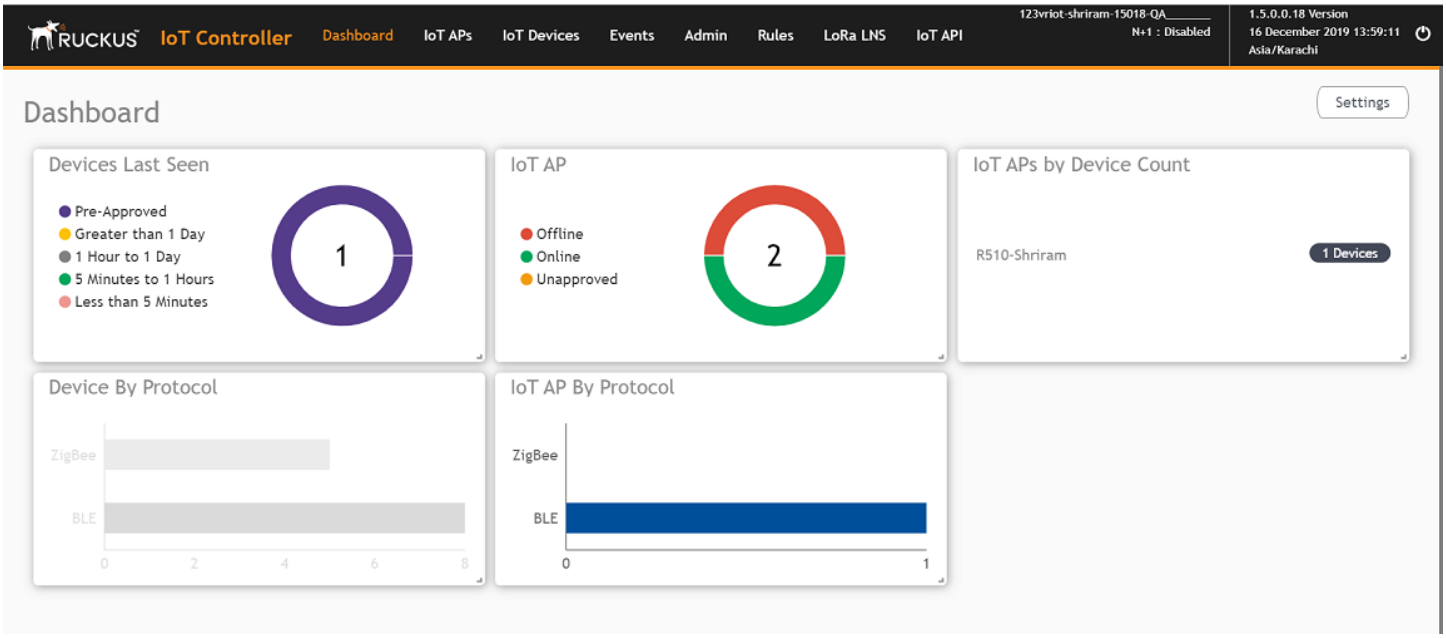
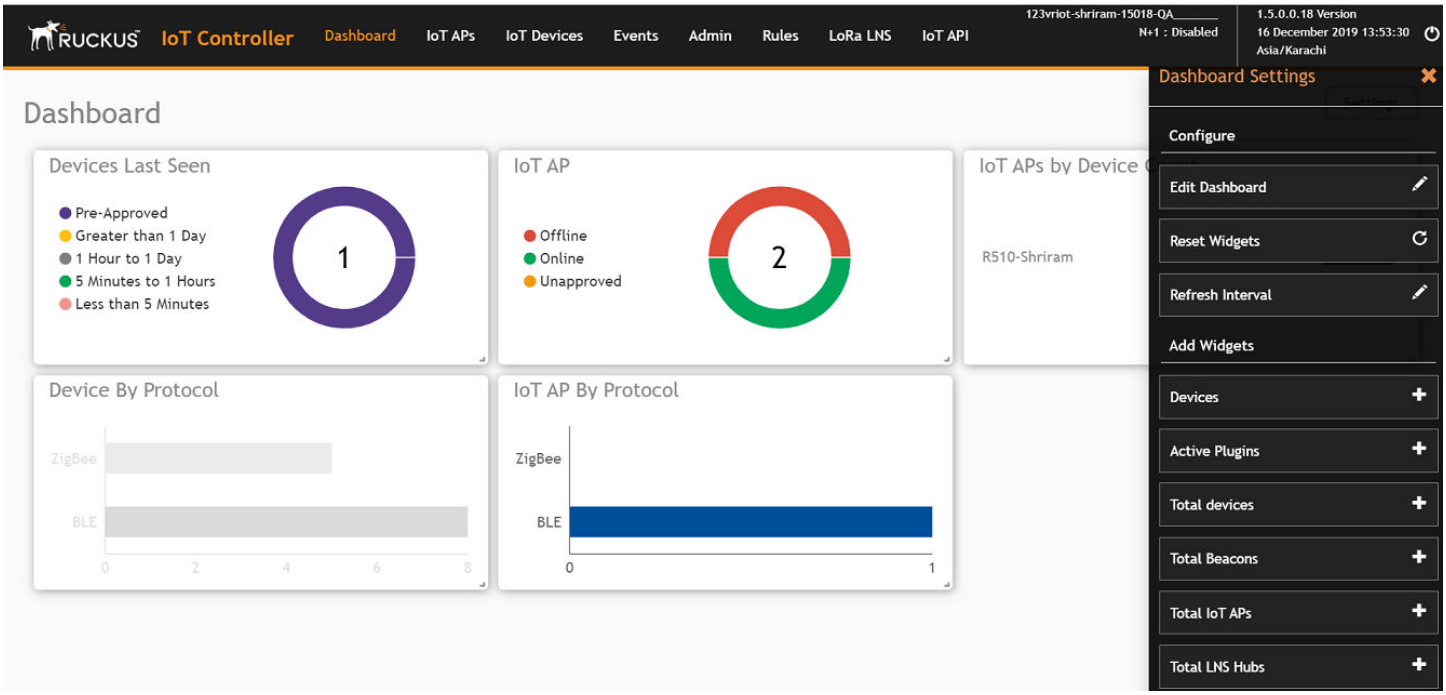


TABLE 4 Dashboard Elements

Box Name	Description
Devices Last seen	Shows the total number of devices last seen.
IoT APs By Device Count	Shows the total number of devices connected per Access Point.
Total Devices	Shows the total number of devices.
Total IoT APs	Shows the total number of Access Points.
Total Beacons	Shows the total number of Beacons.
Devices	Shows the status of devices that are connected to the RUCKUS IoT Controller.
Active Plugins	Shows the plugins that are enabled.
IoT AP	Shows the status of Access Points that are connected to the RUCKUS IoT Controller.
IoT AP By Protocol	Shows the number of APs running by the protocol being used. RUCKUS supports two protocols: BLE and Zigbee.
Device By Protocol	Shows the total number of devices connected by the protocol being used. RUCKUS supports two protocols: BLE and Zigbee.
Total LNS Hubs	Shows the total number of LoRa Network Server hubs connected to the RUCKUS IoT Controller.

To set up the **Dashboard**, click the **Settings** button. The **Dashboard Settings** menu is displayed.

FIGURE 7 Dashboard Settings



You can perform the following actions to configure the **Dashboard**.

- To edit the **Dashboard**, click **Edit Dashboard** and either move the position of the tile using the icon or delete the tile using the icon.
- To reset the widgets, click **Reset Widgets** to retrieve the widgets on the **Dashboard**.
- To reset the widget display time, click **Refresh Interval** to change the display time of the widgets on the **Dashboard**.

> **NOTE**
> The default interval is 30 seconds.

The options under **Add Widgets** allow you to add widgets to the **Dashboard**. Click **+** for **Devices**, **Active Plugins**, **Total devices**, **Total Beacons**, **Total IoT APs**, and **Total LNS Hubs** to add widgets to the **Dashboard**.

Configuring N+1

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RUCKUS IoT Controller N+1 high availability (HA) feature ensures high system availability, reliability and scalability of the controller, and also enables load balancing, backup, and failover. To configure an HA cluster, all the hosts in the cluster must have access to the same shared storage, which allows virtual machines (VMs) on a given host to fail over to another host without any downtime in the event of a failure.

Before beginning to use N+1, pay attention to the following prerequisites for configuring the primary and secondary controller:

- The primary and secondary controller must be in the same subnet and reachable.
- The primary and secondary controller must be configured with static IP addresses.
- The primary and secondary controller must be running the same version.
- The primary and secondary controller must have a synchronized date and time.
- The primary and secondary controller must have different host names.
- The secondary controller services must be started for N+1 to work.

Configuring Static Addresses for Primary and Secondary Controller

The static IP addresses of the primary and secondary controller can be configured in two ways.

1. From the RUCKUS IoT Controller main menu, select **Admin** > **VM Configurations**.
2. Set the static address of the primary and secondary controller on the **Initialization** page. Refer to Logging In to RUCKUS IoT Controller on page 11.

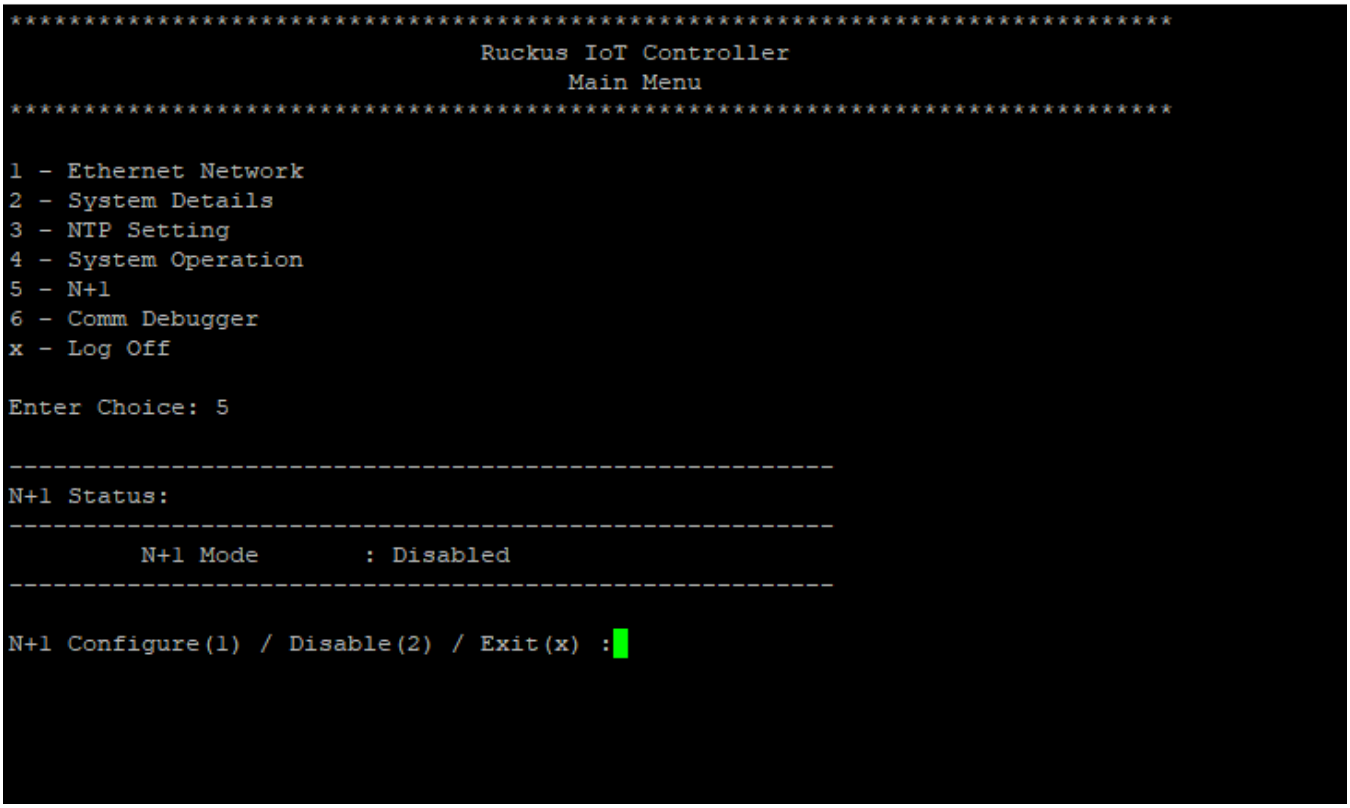
Configuring the N+1 Feature

After configuring the static IP addresses for primary and secondary controller, N+1 can be enabled by performing the following steps.

1. Log in to the console of the RUCKUS IoT Controller.

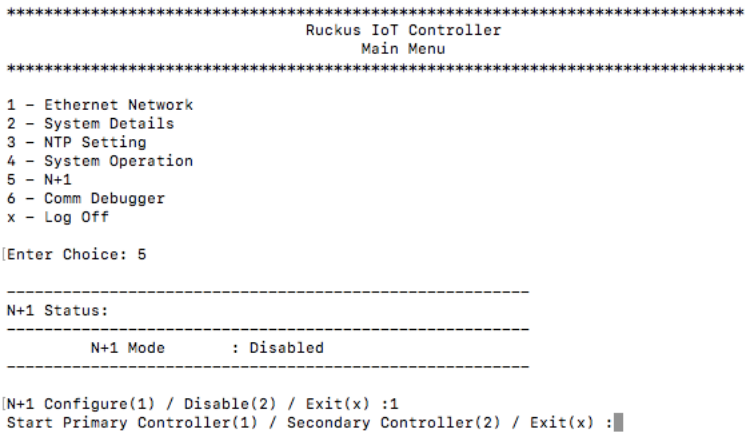
2. Enter **5** in the **Enter Choice** field.

FIGURE 8 RUCKUS IoT Controller Main Menu



3. Enter **1** to continue the configuration.

FIGURE 9 Continuing the Configuration



4. To configure the primary controller, enter **1** and type the IP address of the secondary controller in the **Enter Secondary Controller IP** field.

FIGURE 10 Configuring the Primary Controller

```
*******************************************************************************
                                Ruckus IoT Controller
                                    Main Menu
*******************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

[Enter Choice: 5

------------------------------------------------------------
N+1 Status:
------------------------------------------------------------
         N+1 Mode       : Disabled
------------------------------------------------------------

[N+1 Configure(1) / Disable(2) / Exit(x) :1
[Start Primary Controller(1) / Secondary Controller(2) / Exit(x) :1

------------------------------------------------------------
N+1 Configure:
------------------------------------------------------------
To Configure N+1 ensure following requirements:
*********************************************************
* Primary Controller and Secondary Controller should be in same subnet and reachable.
* Primary Controller and Secondary Controller should be configured with static ip address.
* Primary Controller and Secondary Controller should be running in same version.
* Primary Controller and Secondary Controller should have synchronized date/time.

   Enter Secondary Controller IP :
```

5. Type the preferred IP address in the **Enter preferred Virtual IP** field.

NOTE
The Preferred Virtual IP should not be same as primary or secondary controller IP.

FIGURE 11 Entering the Preferred Virtual IP Address

```
*******************************************************************************
                              Ruckus IoT Controller
                                   Main Menu
*******************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

[Enter Choice: 5

-------------------------------------------------------
N+1 Status:
-------------------------------------------------------
         N+1 Mode       : Disabled
-------------------------------------------------------

[N+1 Configure(1) / Disable(2) / Exit(x) :1
[Start Primary Controller(1) / Secondary Controller(2) / Exit(x) :1

-------------------------------------------------------
N+1 Configure:
-------------------------------------------------------
To Configure N+1 ensure following requirements:
*******************************************************
* Primary Controller and Secondary Controller should be in same subnet and reachable.
* Primary Controller and Secondary Controller should be configured with static ip address.
* Primary Controller and Secondary Controller should be running in same version.
* Primary Controller and Secondary Controller should have synchronized date/time.

[   Enter Secondary Controller IP :192.168.100.1
    Enter preferred Virtual IP :192.168.100.2
```

6. Enter **Y** to continue with the N+1 configuration.

FIGURE 12 Completing the Primary Controller Configuration

```
                                Ruckus IoT Controller
                                     Main Menu
*********************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

Enter Choice: 5

-----------------------------------------------------
N+1 Status:
-----------------------------------------------------
         N+1 Mode       : Disabled
-----------------------------------------------------

N+1 Configure(1) / Disable(2) / Exit(x) :1
Start Primary Controller(1) / Secondary Controller(2) / Exit(x) :1

-----------------------------------------------------
N+1 Configure:
-----------------------------------------------------
To Configure N+1 ensure following requirements:
*********************************************************
* Primary Controller and Secondary Controller should be in same subnet and reachable.
* Primary Controller and Secondary Controller should be configured with static ip address.
* Primary Controller and Secondary Controller should be running in same version.
* Primary Controller and Secondary Controller should have synchronized date/time.

   Enter Secondary Controller IP :10.174.113.177
   Enter preferred Virtual IP :10.174.113.180
   N+1 will stop all services & configurations in Secondary Controller. Enter Y/N to continue : y

         Configuring takes around 5-10 minutes. Please wait
         Primary Controller configuration started..
```

After configuring the primary controller, the configuration of secondary controller begins.

FIGURE 13 Continuing with the Secondary Controller Configuration

```
                                Ruckus IoT Controller
                                     Main Menu
********************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

Enter Choice: 5

------------------------------------------------------
N+1 Status:
------------------------------------------------------
         N+1 Mode       : Disabled
------------------------------------------------------

N+1 Configure(1) / Disable(2) / Exit(x) :1
Start Primary Controller(1) / Secondary Controller(2) / Exit(x) :1

------------------------------------------------------
N+1 Configure:
------------------------------------------------------
To Configure N+1 ensure following requirements:
**********************************************************
* Primary Controller and Secondary Controller should be in same subnet and reachable.
* Primary Controller and Secondary Controller should be configured with static ip address.
* Primary Controller and Secondary Controller should be running in same version.
* Primary Controller and Secondary Controller should have synchronized date/time.

   Enter Secondary Controller IP :10.174.113.177
   Enter preferred Virtual IP :10.174.113.180
   N+1 will stop all services & configurations in Secondary Controller. Enter Y/N to continue : y

         Configuring takes around 5-10 minutes. Please wait
         Primary Controller configuration started..
         Secondary Controller configuration started..
```

FIGURE 14 N+1 Configuration Completed

```
                                Ruckus IoT Controller
                                     Main Menu
*******************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

Enter Choice: 5

-------------------------------------------------------
N+1 Status:
-------------------------------------------------------
         N+1 Mode       : Disabled
-------------------------------------------------------

N+1 Configure(1) / Disable(2) / Exit(x) :1
Start Primary Controller(1) / Secondary Controller(2) / Exit(x) :1

-------------------------------------------------------
N+1 Configure:
-------------------------------------------------------
To Configure N+1 ensure following requirements:
*******************************************************
* Primary Controller and Secondary Controller should be in same subnet and reachable.
* Primary Controller and Secondary Controller should be configured with static ip address.
* Primary Controller and Secondary Controller should be running in same version.
* Primary Controller and Secondary Controller should have synchronized date/time.

   Enter Secondary Controller IP :10.174.113.177
   Enter preferred Virtual IP :10.174.113.180
   N+1 will stop all services & configurations in Secondary Controller. Enter Y/N to continue : y

         Configuring takes around 5-10 minutes. Please wait
         Primary Controller configuration started..
         Secondary Controller configuration started..
         Configuring N+1 completed...
-------------------------------------------------------
```

You have configured N+1 successfully.

7. To verify the IP addresses of the primary or active primary, and the secondary or active secondary, enter **5** in the **Enter Choice** field.

FIGURE 15 Verifying the IP Address of the Active Primary

```
*******************************************************************************
                                Ruckus IoT Controller
                                     Main Menu
*******************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

Enter Choice: 5

-------------------------------------------------------
N+1 Status:
-------------------------------------------------------
         N+1 Mode       : Enabled
         Virtual IP     : 10.174.113.180
         Mode           : Active Primary Controller
         My IP          : 10.174.113.173
         Secondary Controller IP        : 10.174.113.177
         ConfigSync     : Not Applicable, Controller is Active.
         Node Status    : vriot-shriram-151020-esx138(1): normal
vriot-shriram-151020-slave-es138(2): normal
-------------------------------------------------------

N+1 Configure(1) / Disable(2) / Exit(x) :
```

8. To replace the secondary controller , enter **3**.

FIGURE 16 Replacing the IP Address of Secondary Controller

```
*******************************************************************************
                                Ruckus IoT Controller
                                      Main Menu
*******************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

Enter Choice: 5

--------------------------------------------------------
N+1 Status:
--------------------------------------------------------
         N+1 Mode       : Enabled
         Virtual IP     : 10.174.113.180
         Mode           : Active Primary Controller
         My IP          : 10.174.113.173
         Secondary Controller IP        : 10.174.113.177
         ConfigSync     : Not Applicable, Controller is Active.
         Node Status    : vriot-shriram-151020-esx138(1): normal
vriot-shriram-151020-slave-es138(2): normal(offline)
--------------------------------------------------------

N+1 Configure(1) / Disable(2) / Replace Secondary Controller(3) / Exit(x) :
```

FIGURE 17 Successful Completion of Replacing the Node

```
*********************************************************************************
                                Ruckus IoT Controller
                                     Main Menu
*********************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

Enter Choice: 5

-------------------------------------------------------
N+1 Status:
-------------------------------------------------------
        N+1 Mode       : Enabled
        Virtual IP     : 10.174.113.180
        Mode           : Active Primary Controller
        My IP          : 10.174.113.173
        Secondary Controller IP        : 10.174.113.177
        ConfigSync     : Not Applicable, Controller is Active.
        Node Status    : vriot-shriram-151020-esx138(1): normal
vriot-shriram-151020-slave-es138(2): normal(offline)
-------------------------------------------------------

N+1 Configure(1) / Disable(2) / Replace Secondary Controller(3) / Exit(x) :3
-------------------------------------------------------
N+1 Replace :
-------------------------------------------------------
   Enter Secondary Controller IP to replace:10.174.113.172
Deleted nodes
```

9. To enable Forced Fallback, enter **3** and **y** to continue the configuration.

FIGURE 18 Configuring Forced Fallback

```
*******************************************************************************
                                Ruckus IoT Controller
                                      Main Menu
*******************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

Enter Choice: 5

--------------------------------------------------------
N+1 Status:
--------------------------------------------------------
         N+1 Mode       : Enabled
         Virtual IP     : 10.174.113.180
         Mode           : Active Primary Controller
         My IP          : 10.174.113.173
         Secondary Controller IP        : 10.174.113.177
         ConfigSync     : Not Applicable, Controller is Active.
         Node Status    : vriot-shriram-151020-esx138(1): normal
vriot-shriram-151020-slave-es138(2): normal(offline)
--------------------------------------------------------

N+1 Configure(1) / Disable(2) / Replace Secondary Controller(3) / Exit(x) :3
--------------------------------------------------------
N+1 Replace :
--------------------------------------------------------
   Enter Secondary Controller IP to replace:10.174.113.172
Deleted nodes
        Start replacing Secondary Controller
        Secondary Controller configuration started..
Replace node taking more time to start services
Replacing node completed
--------------------------------------------------------
```

10. To replace the primary controller, enter**3**.

FIGURE 19 Replacing the Primary Controller

```
*********************************************************************************
                                Ruckus IoT Controller
                                     Main Menu
*********************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

[Enter Choice: 5

-----------------------------------------------------------
N+1 Status:
-----------------------------------------------------------
         N+1 Mode       : Enabled
         Virtual IP     : 10.174.113.180
         Mode           : Active Secondary Controller
         My IP          : 10.174.113.172
         Primary Controller IP  : ["10.174.113.173"]
         ConfigSync     : Not Applicable, Controller is Active.
         Node Status    : vriot-shriram-151020-es15-slave2(2): normal
vriot-shriram-151020-esx138(1): normal(offline)
-----------------------------------------------------------

N+1 Configure(1) / Disable(2) / Replace Primary Controller(3) / Exit(x) :
```

11. Enter the IP address of the primary controller.

FIGURE 20 Continuing with Replacing the Primary Controller

```
**********************************************************************************************
                                  Ruckus IoT Controller
                                        Main Menu
**********************************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

Enter Choice: 5

------------------------------------------------------
N+1 Status:
------------------------------------------------------
         N+1 Mode       : Enabled
         Virtual IP     : 10.174.113.180
         Mode           : Active Secondary Controller
         My IP          : 10.174.113.172
         Primary Controller IP  : ["10.174.113.173"]
         ConfigSync     : Not Applicable, Controller is Active.
         Node Status    : vriot-shriram-151020-es15-slave2(2): normal
vriot-shriram-151020-esx138(1): normal(offline)
------------------------------------------------------

N+1 Configure(1) / Disable(2) / Replace Primary Controller(3) / Exit(x) :3
------------------------------------------------------
N+1 Replace :
------------------------------------------------------
   Enter Primary Controller IP to replace:10.174.113.177
```

Replacing the primary controller has been successfully completed.

FIGURE 21 Completion of Replacing the Primary Controller

```
*********************************************************************************
                                Ruckus IoT Controller
                                     Main Menu
*********************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

[Enter Choice: 5

-------------------------------------------------------
N+1 Status:
-------------------------------------------------------
         N+1 Mode       : Enabled
         Virtual IP     : 10.174.113.180
         Mode           : Active Secondary Controller
         My IP          : 10.174.113.172
         Primary Controller IP  : ["10.174.113.173"]
         ConfigSync     : Not Applicable, Controller is Active.
         Node Status    : vriot-shriram-151020-es15-slave2(2): normal
vriot-shriram-151020-esx138(1): normal(offline)
-------------------------------------------------------

[N+1 Configure(1) / Disable(2) / Replace Primary Controller(3) / Exit(x) :3
-------------------------------------------------------
N+1 Replace :
-------------------------------------------------------
[   Enter Primary Controller IP to replace:10.174.113.177
        Error:  N+1 is already enabled!
Deleted nodes
        Start replacing master
        Secondary Controller configuration started..
Replace node taking more time to start services
Replacing node completed
-------------------------------------------------------
```

Disabling N+1

Complete the following steps to disable N+1 configuration.

1. Log in to the console of the Primary controller IP.
2. Enter **5** in the **Enter Choice** field.

FIGURE 22 Disabling the N+1 Configuration

```
********************************************************************************
                                Ruckus IoT Controller
                                     Main Menu
********************************************************************************

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
x - Log Off

[Enter Choice: 5

------------------------------------------------------------
N+1 Status:
------------------------------------------------------------
         N+1 Mode       : Enabled
         Virtual IP     : 10.174.113.180
         Mode           : Active Primary Controller
         My IP          : 10.174.113.173
         Secondary Controller IP        : 10.174.113.172
         ConfigSync     : Not Applicable, Controller is Active.
         Node Status    : vriot-shriram-151020-es15-slave1(2): normal
vriot-shriram-151020-esx138(1): normal
------------------------------------------------------------

[N+1 Configure(1) / Disable(2) / Exit(x) :2
------------------------------------------------------------
N+1 Disable :
------------------------------------------------------------
         Secondary Controller 10.174.113.172 will be reset.
        Disable N+1 completed...
------------------------------------------------------------
```

3. Enter **2** to disable the N+1 configuration.

NOTE
After the N+1 configuration is disabled from the active primary controller, the secondary controller resets automatically.

Managing IoT Controller System Configuration

- Managing Services....35
- Activating and Editing the Plugins....46
- Changing the Password....74
- Configuring Virtual Machines....74
- Uploading Versions and Patches....75
- Backing Up Files....76
- Backing up Rules....77
- Uploading the RUCKUS IoT Controller License....78
- Change the Settings....79
- Rebooting RUCKUS IoT Controller....81
- Resetting RUCKUS IoT Controller....81

Managing Services

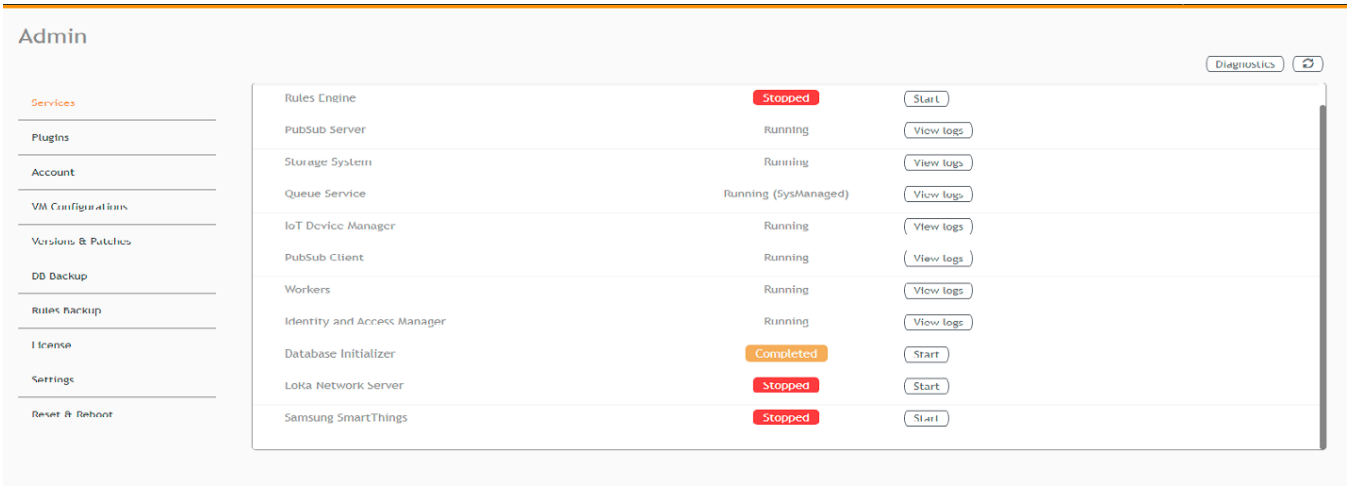
The administrator can restart or manage the mandatory and optional services.

Complete the following steps to restart or manage the services.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Services**.

FIGURE 23 Services

FIGURE 24 Maging Services Page



The currently running services and their details are displayed.

3. Select a service to edit, restart, or view logs.

Enabling the SmartThings Service

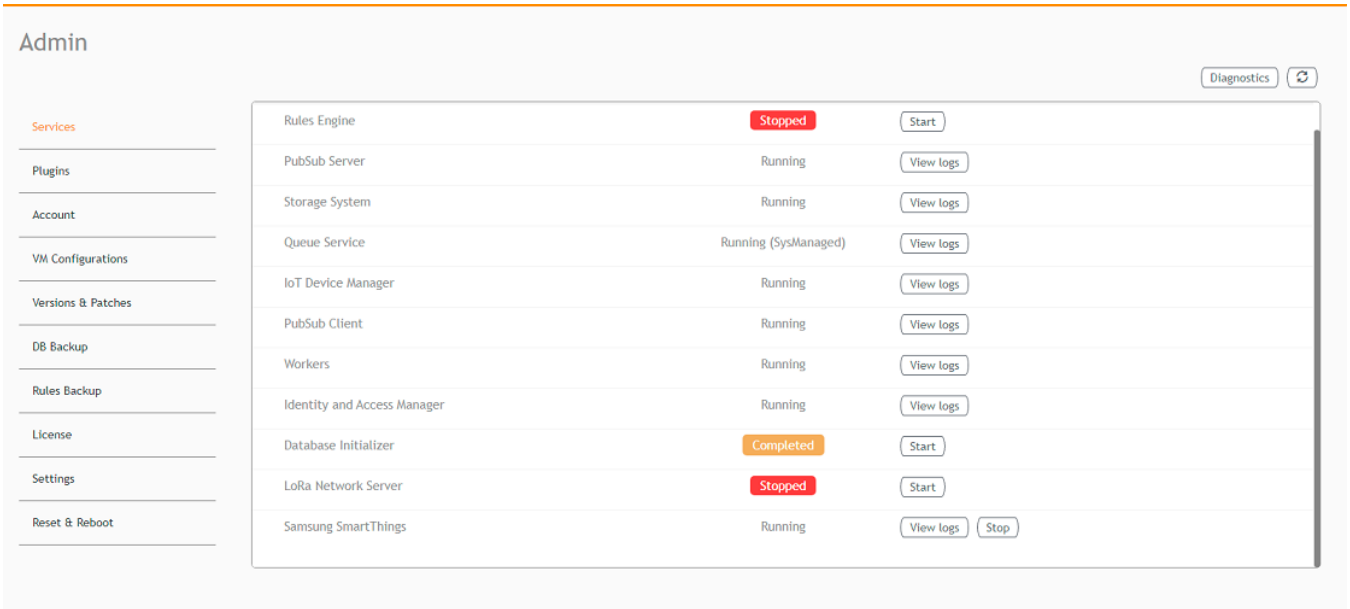
You can connect Samsung Smart hub dongle through USB port in RUCKUS AP. Samsung Smart hub dongle has two radios Zigbee and Z-wave. Samsung SmartThings Mobile app will display the configurations, status, info, device list and device status of the Smart hub.

You must perform the following steps to enable Samsung SmartThings service.

1. Click **Start** to activate the service.

   NOTE
   By default, the SmartThings service is disabled.

FIGURE 25 Starting the SmartThings Service



2. Press and hold the reset button for 10 seconds after **ST Upgrade Success** event is received in the controller **Events** page.

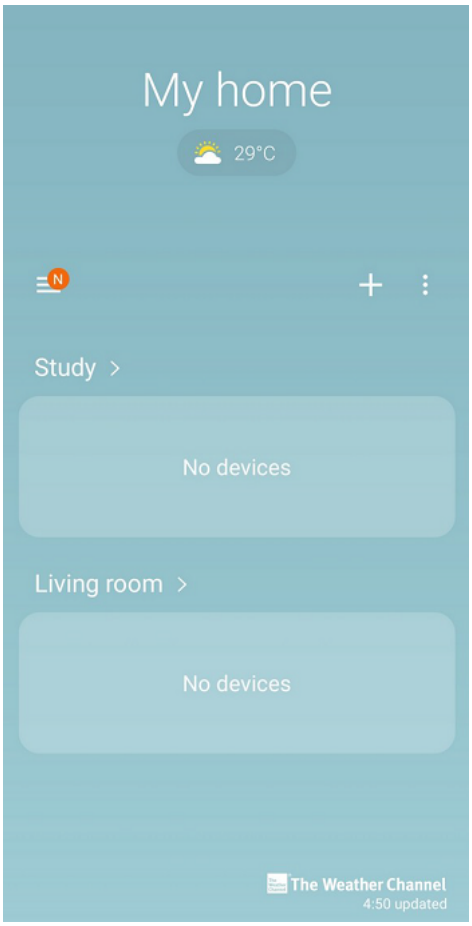
FIGURE 26 SmartThing Device

NOTE
To know more about Upgrade event refer to Viewing SmartThings Event on page 124 page.

3. Download SmartThings application and enter the login credentials.

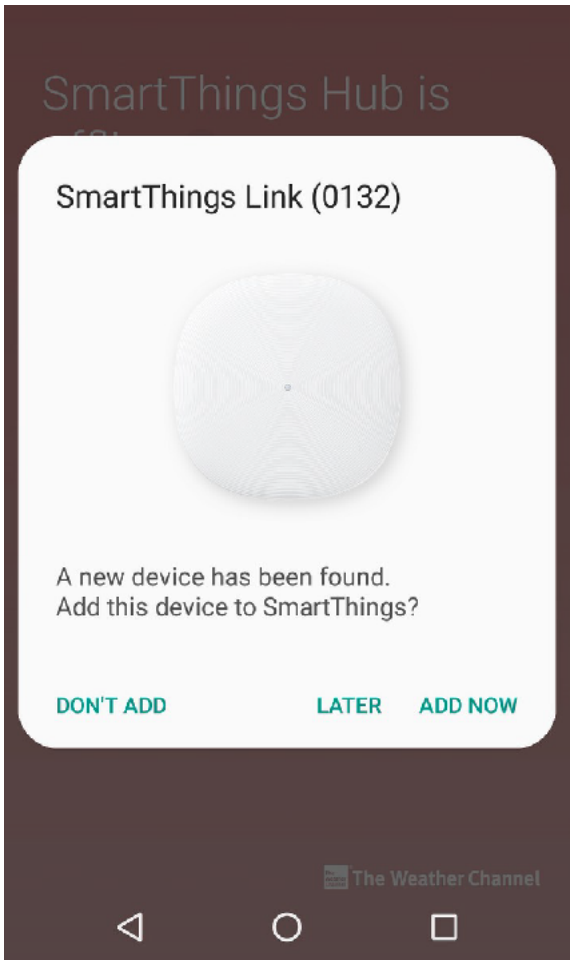
4. Connect your mobile and AP in the same network or connect the mobile to the SSID of the AP.

FIGURE 27 SmartThings User Interface



5. After connecting the device to WiFi, a popup will appear, click **ADD Now**.

FIGURE 28 Connecting to WiFi



6. If the popup fails to appears, perform the following steps.
   a) Click **Devices** and select **Scan nearby** . After few seconds you will get Smart Home Link under available devices.

FIGURE 29 Selecting a Device

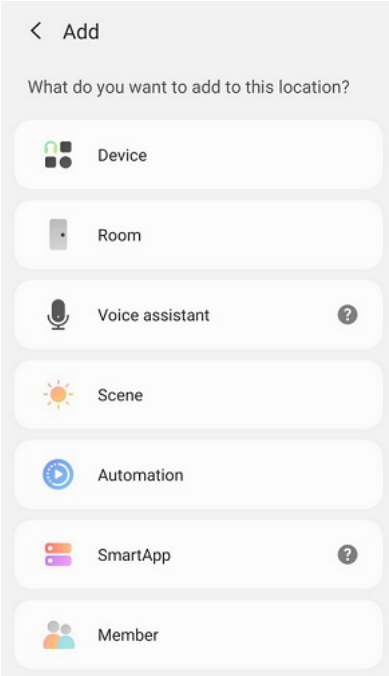
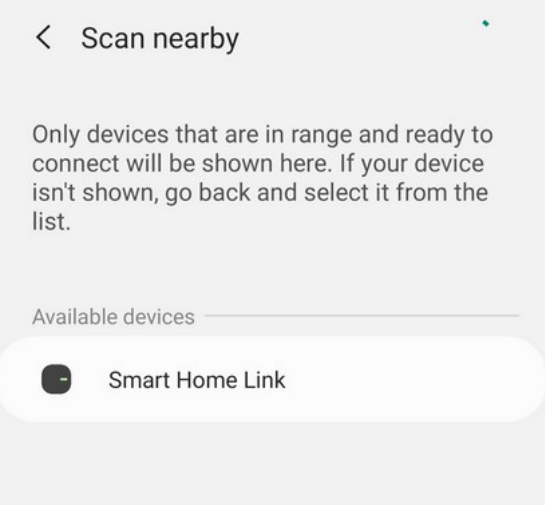


FIGURE 30 Scanning the device



   b) Click the **Smart Home Link** to continue further.
   c) Select the **Location** and the **Room** and wait until the completion is 100 percent.

FIGURE 31 Selecting Location and Room for Hub

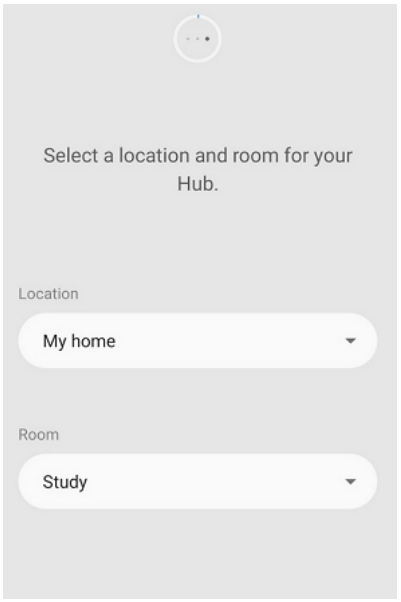
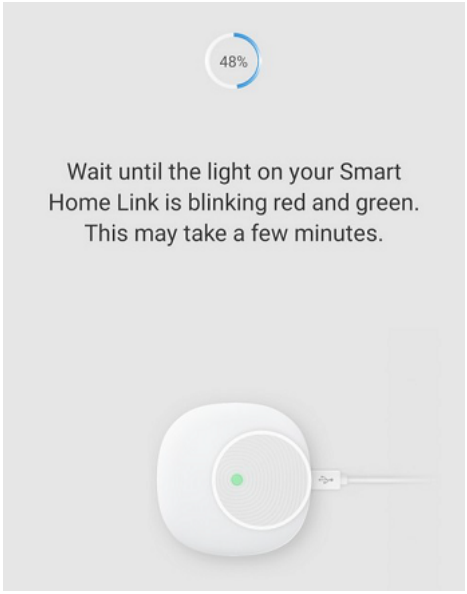


FIGURE 32 Waiting for Completion



d) After connecting successfully, rename your hub as shown below. The Hub name will apear on the Home page.

FIGURE 33 Renaming the Hub Name

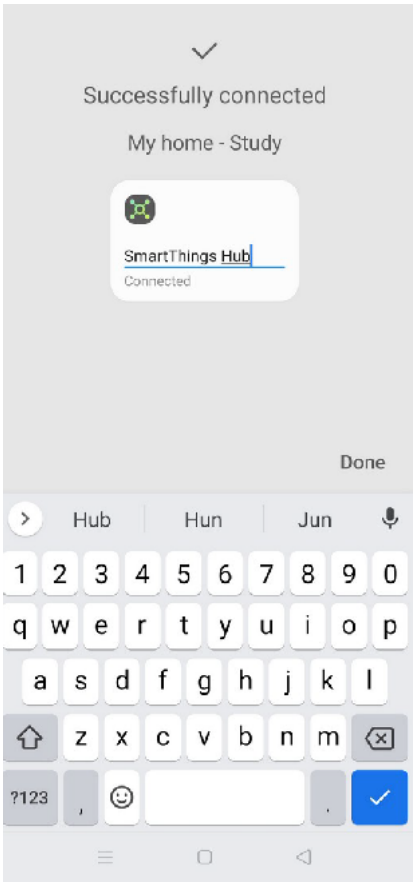
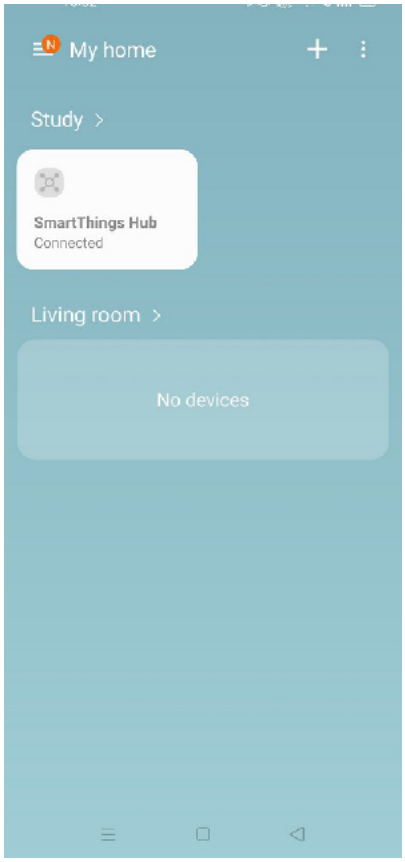
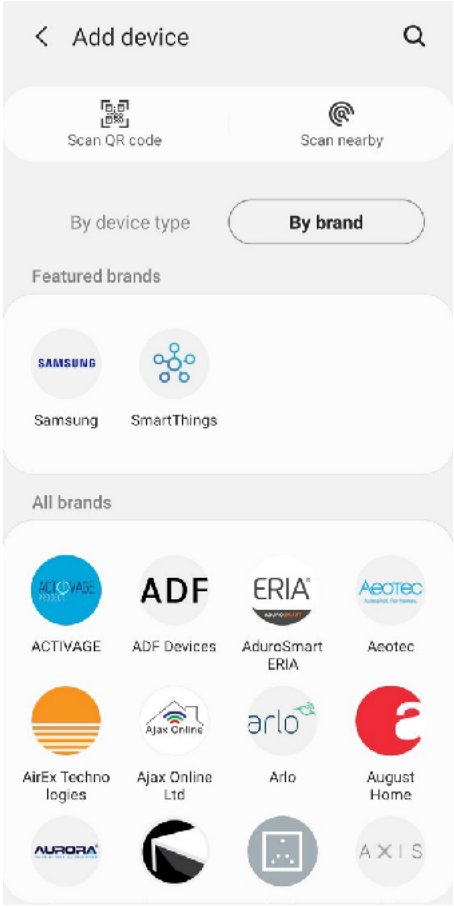


FIGURE 34 Hub Name on the Home page



7. Add SmartThings Hub to the APP.

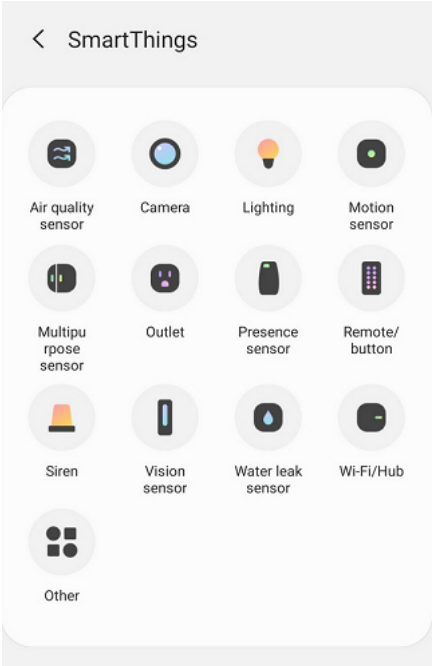
FIGURE 35 Locating the SmartThings Hub



8. Select **+** icon in the APP and go to devices page to add the device.

   NOTE
   Samsung SmartThings hub supports only zigbee/z-wave devices that are listed in add device page.

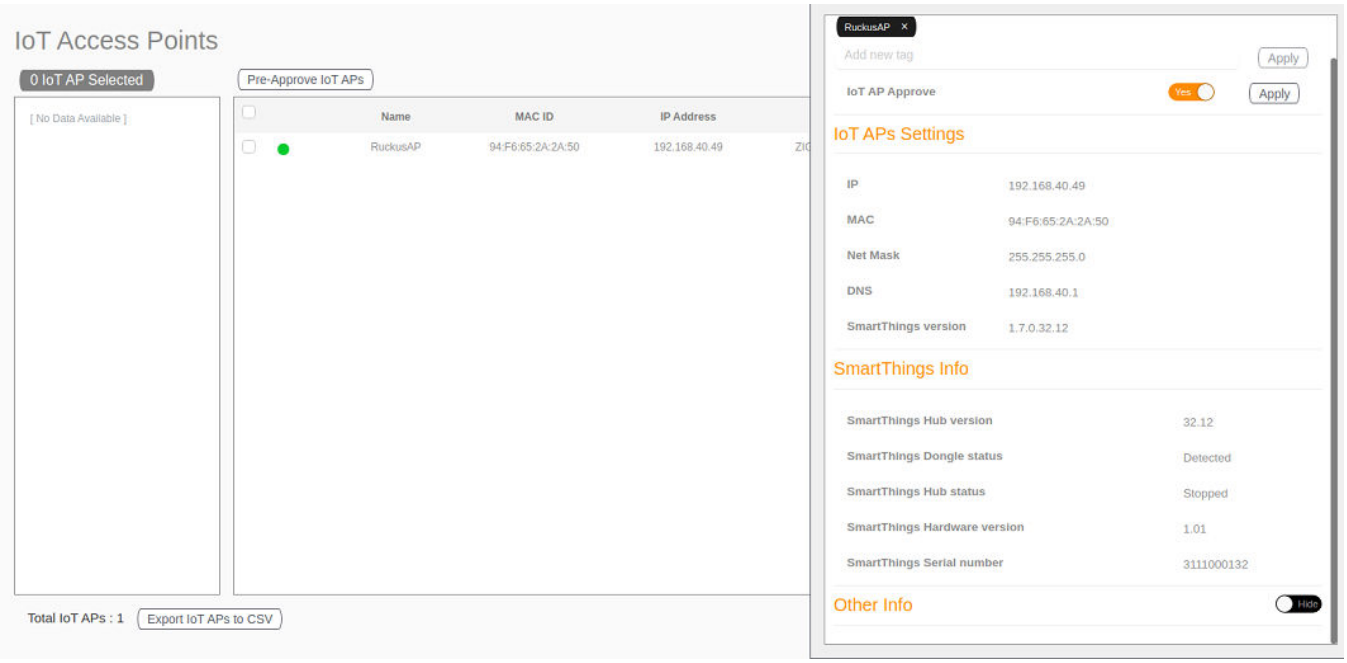
FIGURE 36 Adding Devices to Hub



9. From the main page, click **IoT APs**.

10. Select an AP from the list. The sidebar on the right side displays the SmarThings information such as **SmartThings Hub version**, **SmartThings Hub Status**, **SmartThings Dongle Status**, **SmartThings Hardware Version** and **SmartThings Serial number**.

FIGURE 37 SmartThings Info in the Right Pane



Activating and Editing the Plugins

Plugins are the external vendor connectors that can be connected to a vendor infrastructure after the successful activation of a plugin. Ruckus supports Assa Abloy locks and plugins such as Kontakt.io, iBeacon, Eddystone, Beacon as a Service, Controller Data Stream, Telkonet, and Soter.

Activating and Editing the Kontakt.io Beacons Plugin

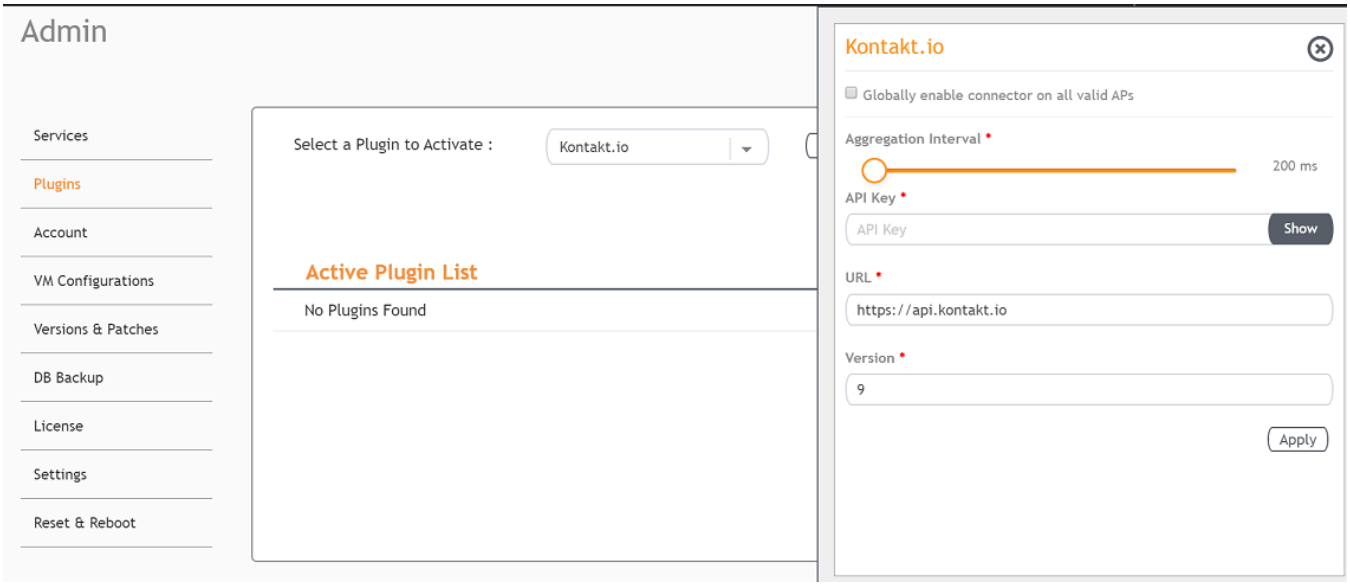
The RUCKUS IoT Controller provides support for the Kontakt.io Beacons plugin.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.

3. In the **Select a Plugin to Activate** list, select the Kontakt.io plugin and click **Activate**.

FIGURE 38 Activating the Kontakt.io Plugin



4. After the Kontakt.io plugin is activated, enter the following configuration parameters.
   a) Select **Globally enable connector on all valid APs** to add all respective IoT APs automatically. Connectors are mapped to IoT AP by adding the connector name tag to the IoT AP.

      NOTE
      If **Globally enable connector on all valid APs** is not selected, you can activate the plugin for each AP by adding a tag. Refer to Adding Tags to an AP on page 90 for more information.

   b) For **Aggregation Interval**, set the time interval between the two packets.
   c) Enter the API Key.

      The RUCKUS IoT Controller posts the beacon messages using the API Key provided. The Vendor application is responsible for authenticating the API Keys.
   d) Enter the API URL.

      The RUCKUS IoT Controller connects to the vendor/connector URL to send the beacon messages. The URL can be a DNS-resolvable, FQDN-based address.

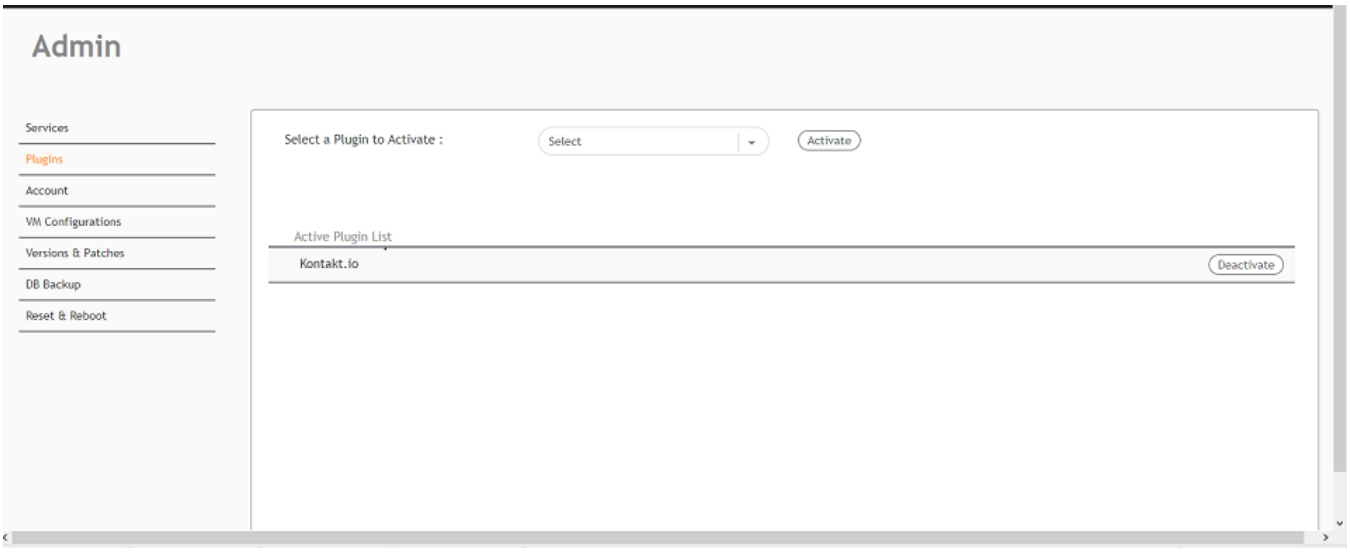
      NOTE
      The plugin supports HTTP and HTTPS modes.
   e) Enter the Version number.

      The default version number is 9.
5. Click **Apply**.

The Kontakt.io plugin is added in the **Active Plugin List**.

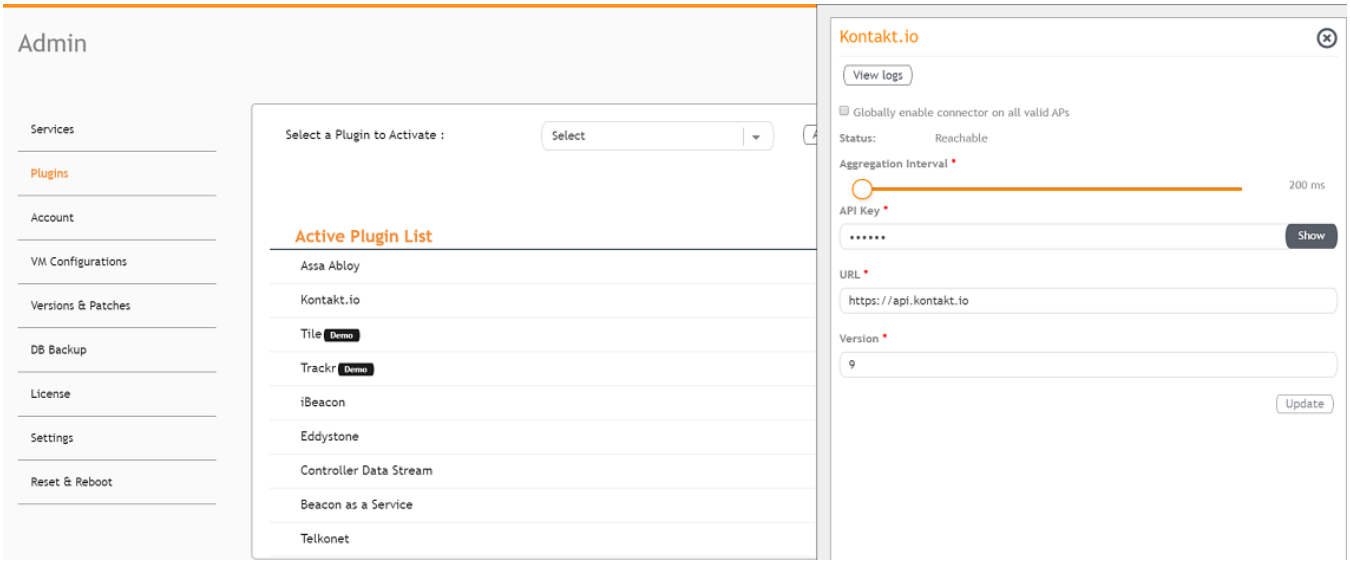
6. To deactivate the Kontakt.io plugin, select it and click **Deactivate**.

FIGURE 39 Deactivating the Kontakt.io Plugin



7. To edit the configuration of the Kontakt.io plugin, select it and click **Update**.

FIGURE 40 Updating the Configuration Parameters



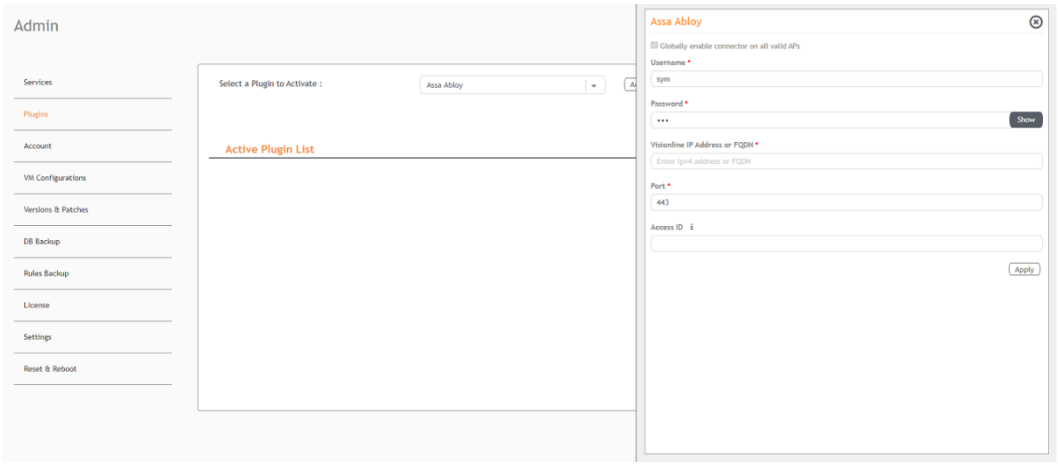
Activating and Editing the Assa Abloy Plugin

The RUCKUS IoT Controller provides support for the Assa Abloy Door Locks. The RUCKUS IoT Controller reads the packet from the IoT AP and routes the packets to the Visionline Server.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.
3. In the **Select a Plugin to Activate** list, select the Assa Abloy plugin and click **Activate**.

FIGURE 41 Activating the Assa Abloy Plugin



4. After the Assa Abloy plugin is activated, enter the following configuration parameters.
   a) Enter the **Username** used for connecting to Visionline Server.
   b) Enter the **Password** used for connecting to Visionline Server.
   c) Enter the **Visionline IP address or FQDN** .
   d) Enter the **Port**

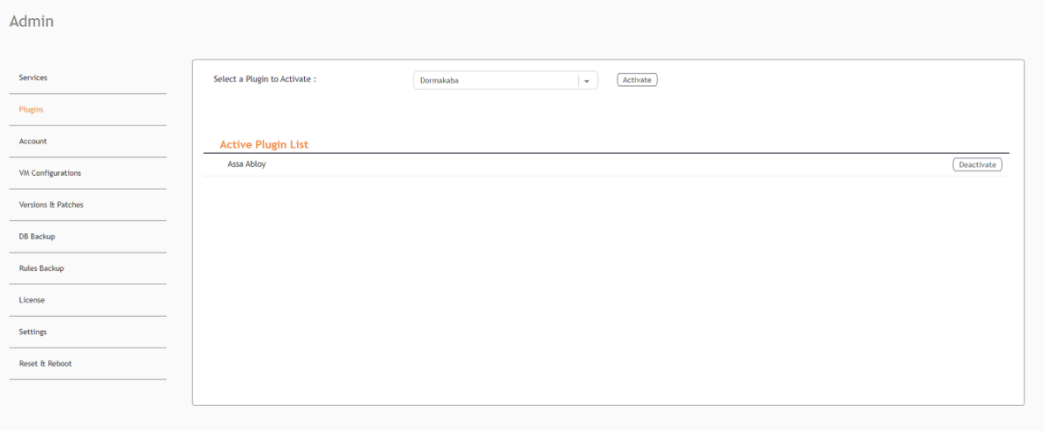
   NOTE
   By default port number is 443.

5. Click **Apply**.

   The Assa Abloy plugin is added in the **Active Plugin List**.

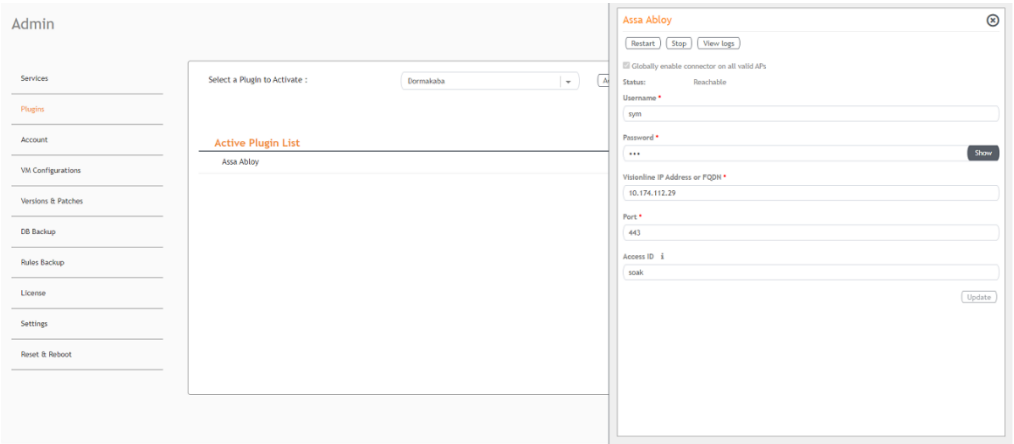
6. To deactivate the Assa Abloy plugin, select it and click **Deactivate**.

FIGURE 42 Deactivating the Assa Abloy Plugin



7. To edit the configuration of the Assa Abloy plugin, select it and click **Update**.

FIGURE 43 Updating the Configuration Parameters



Activating and Editing the Eddystone Plugin

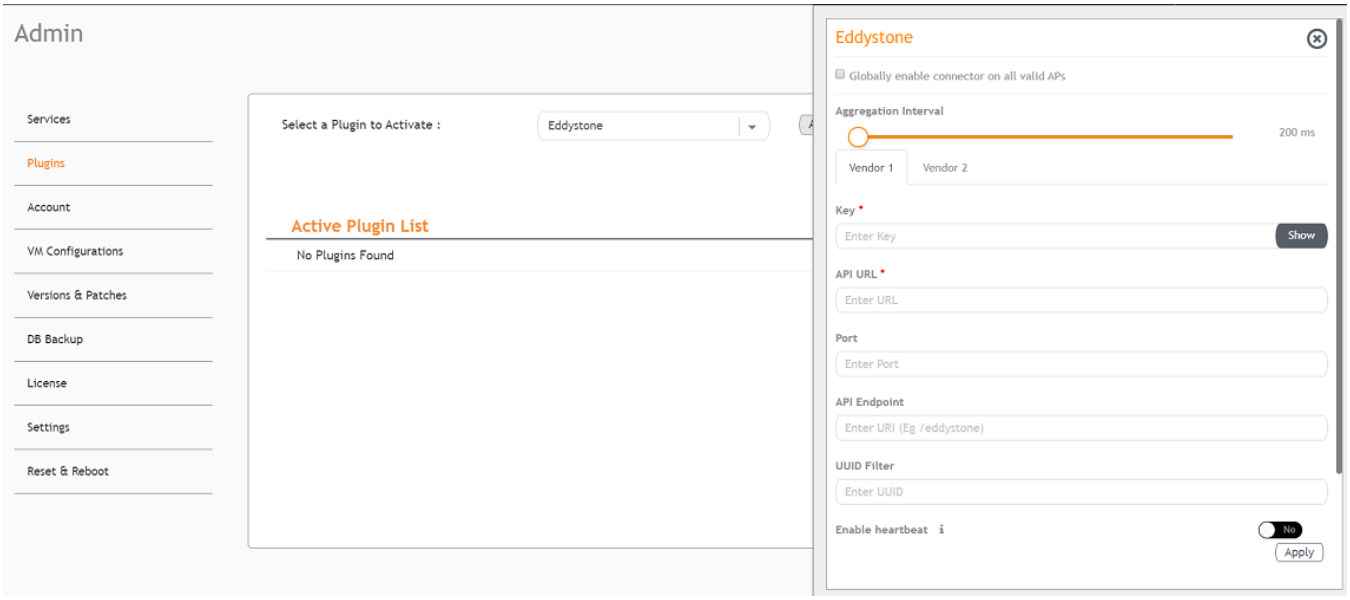
The RUCKUS IoT Controller provides support for the Bluetooth Low Energy (BLE) Eddystone plugin. The RUCKUS IoT Controller reads the packet from IoT AP, and routes the packets to the BLE beacon vendor cloud services.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.

3. In the **Select a Plugin to Activate** list, select the Eddystone plugin and click **Activate**.

FIGURE 44 Activating the Eddystone Plugin



4. After the Eddystone plugin is activated, enter the following configuration parameters.
   a) Select **Globally enable connector on all valid APs** to add all respective IoT APs automatically. Connectors are mapped to IoT AP by adding the connector name tag to the IoT AP.

      NOTE
      If **Globally enable connector on all valid APs** is not selected, you can activate the plugin for each AP by adding a tag. Refer to Adding Tags to an AP on page 90 for more information.

   b) For **Aggregation Interval**, set the time interval between the two packets.
   c) Enter the Key.

      The RUCKUS IoT Controller posts the beacon messages using the Key provided. The Vendor application is responsible for authenticating the Keys.
   d) Enter the API URL.

      The RUCKUS IoT Controller connects to the vendor/connector URL to send the beacon messages. The URL can be a DNS-resolvable, FQDN-based address.

      NOTE
      The plugin supports HTTP and HTTPS modes.
   e) Enter the Port number.

      This is the port number on which the vendor/connector web server is running.
   f) Enter the API Endpoint.

      This is the API route where the BLE beacon vendor cloud services receive the beacon payload.
   g) Enter the UUID Filter.

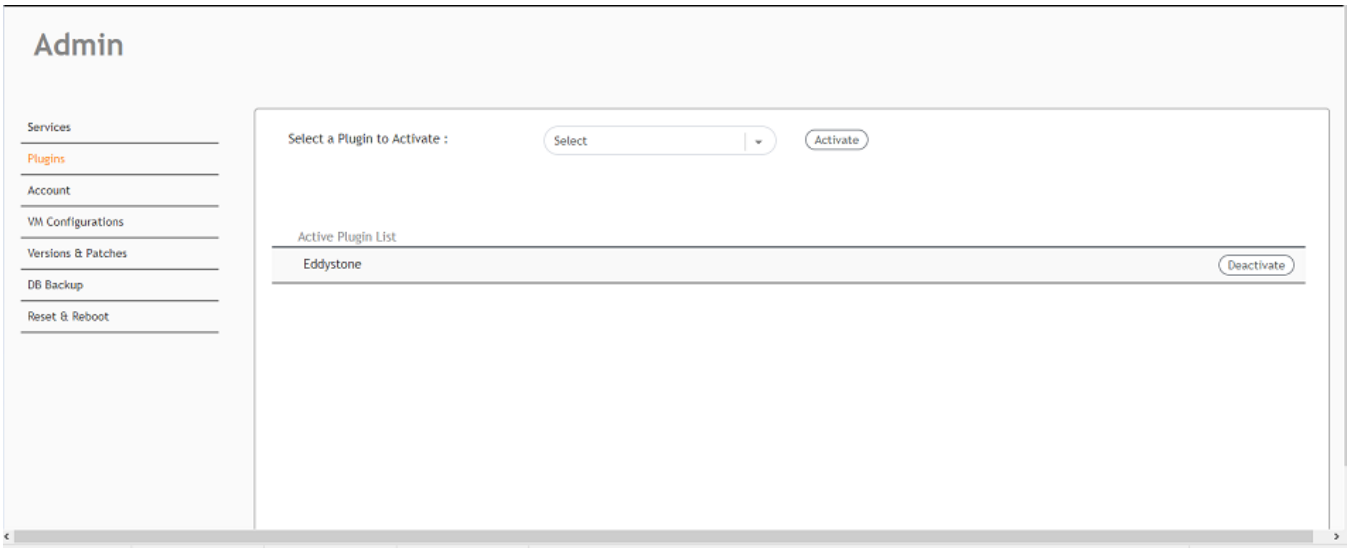
      The filter allows only the BLE ADV packets with the specified UUID to be passed on to the vendor application.
   h) Enable heartbeat.

      Enabling heartbeat allows the vendor application to receive the IoT AP status, such as online or offline.
5. Click **Apply**.

   The Eddystone plugin is added in the **Active Plugin List**.

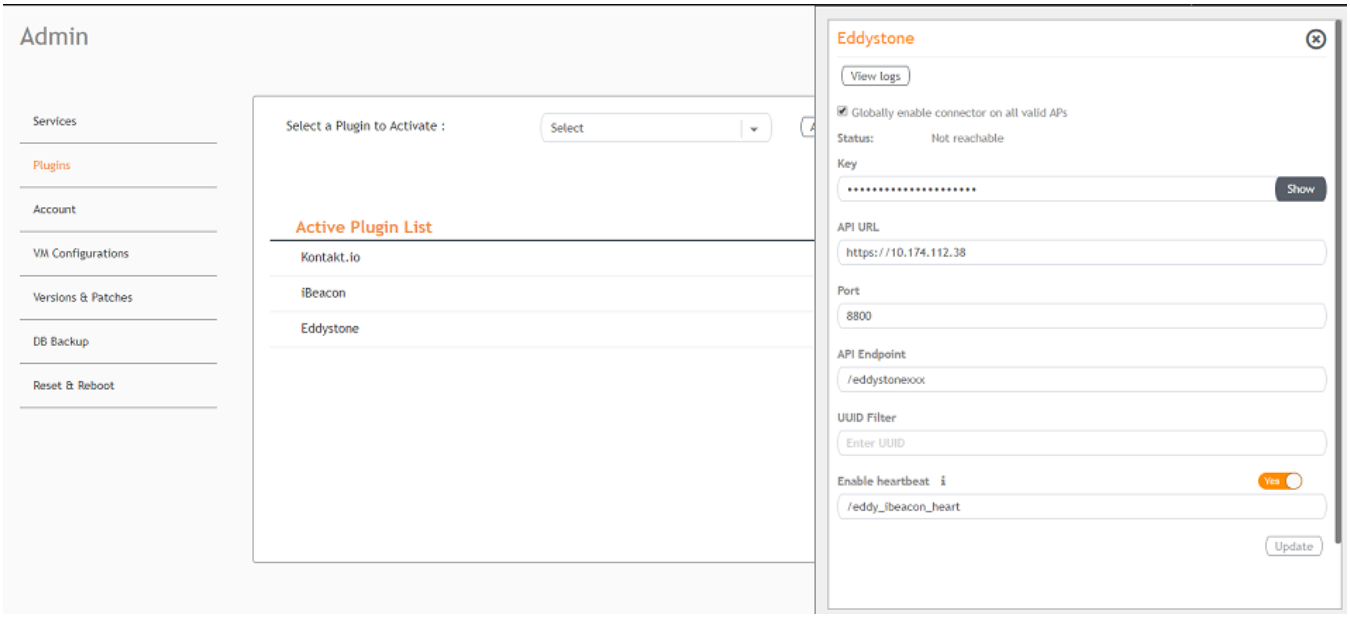
6. To deactivate the Eddystone plugin, select it and click **Deactivate**.

FIGURE 45 Deactivating the Eddystone Plugin



7. To edit the configuration of the Eddystone plugin, select it and click **Update**.

FIGURE 46 Updating the Configuration Parameters



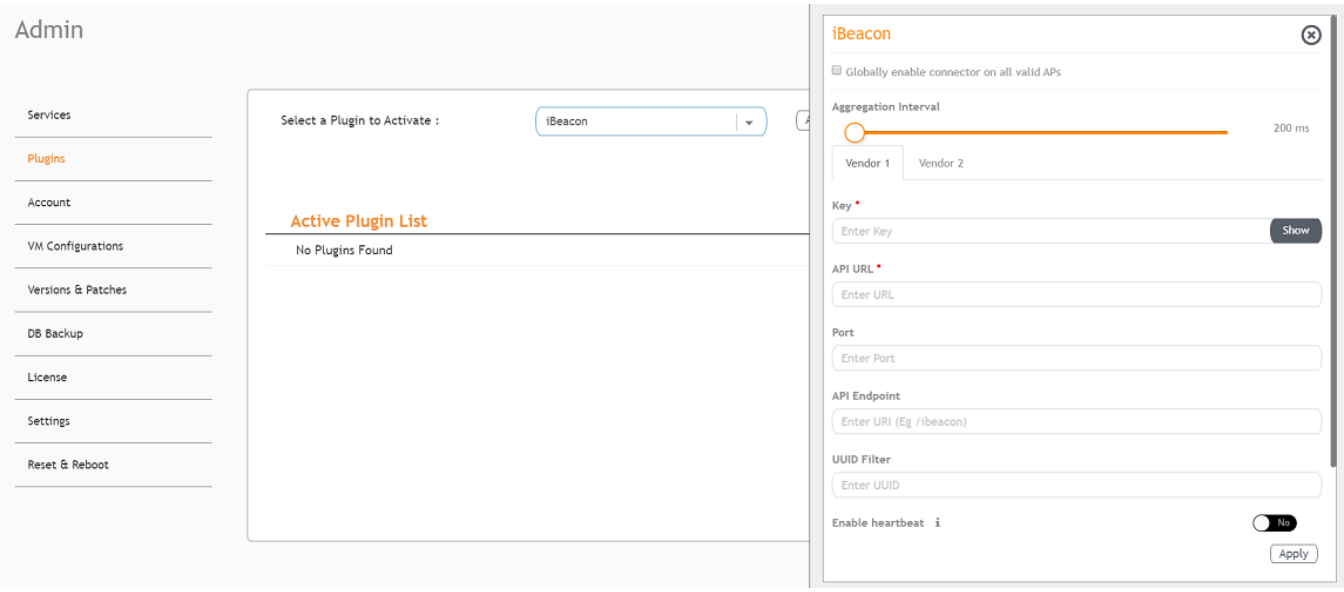
Activating and Editing the iBeacon Plugin

The RUCKUS IoT Controller provides support for the Bluetooth Low Energy (BLE) iBeacon plugin. The RUCKUS IoT Controller reads the packet from the IoT AP, and routes the packets to the BLE beacon vendor cloud services.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.
3. In the **Select a Plugin to Activate** list, select the iBeacon plugin and click **Activate**.

FIGURE 47 Activating the iBeacon Plugin



4. After the iBeacon plugin is activated, enter the following configuration parameters.
   a) Select **Globally enable connector on all valid APs** to add all respective IoT APs automatically. Connectors are mapped to IoT AP by adding the connector name tag to the IoT AP.

      NOTE
      If **Globally enable connector on all valid APs** is not selected, you can activate the plugin for each AP by adding a tag. Refer toAdding Tags to an AP on page 90 for more information.

   b) For **Aggregation Interval**, set the time interval between two packets.
   c) Enter the Key.

      The RUCKUS IoT Controller posts the beacon messages using the Key provided. The Vendor application is responsible for authenticating the Keys.
   d) Enter the API URL.

      The RUCKUS IoT Controller connects to the vendor/connector URL to send the beacon messages. The URL can be a DNS-resolvable, FQDN-based address.

      NOTE
      The plugin supports HTTP and HTTPS modes.
   e) Enter the Port number.

      This is the port number on which the vendor/connector web server is running.
   f) Enter the API Endpoint.

      This is the API route where the BLE beacon vendor cloud services receive the beacon payload.
   g) Enter the UUID Filter.

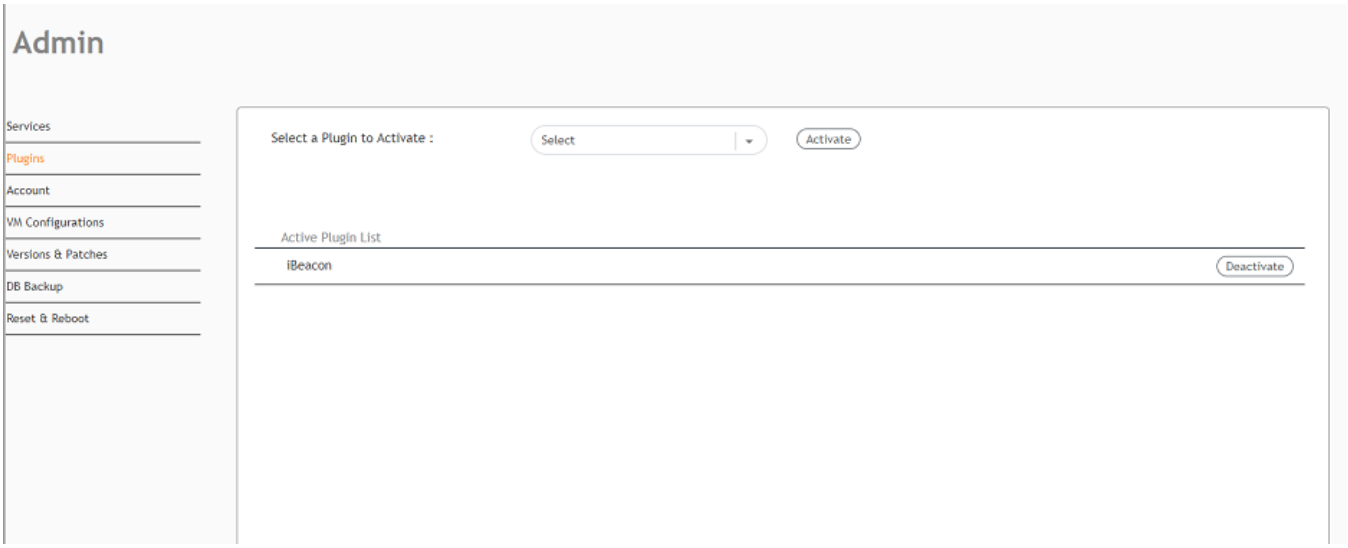
      The filter allows only the BLE ADV packets with the specified UUID to be passed on to the vendor application.
   h) Enable heartbeat.

      Enabling heartbeat allows the vendor application to receive the IoT AP status, such as online or offline.
5. Click **Apply**.

   The iBeacon plugin is added in the **Active Plugin List**.

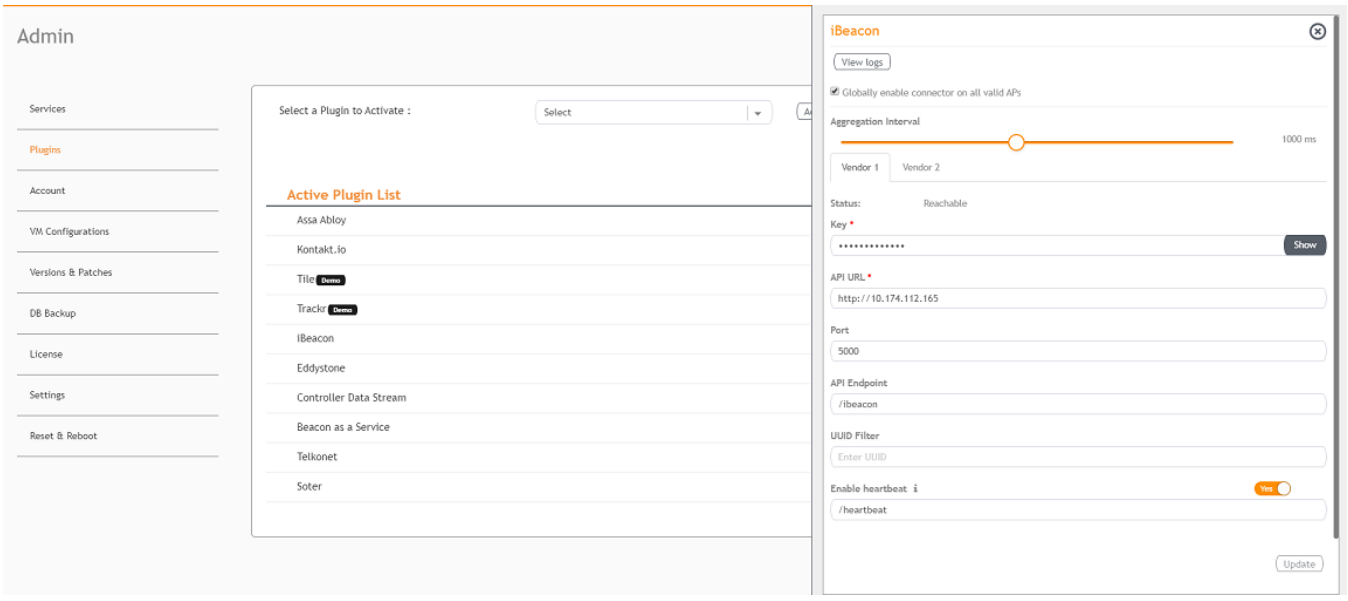
6. To deactivate the iBeacon plugin, select it and click **Deactivate**.

FIGURE 48 Deactivating the iBeacon Plugin



7. To edit the configuration of the iBeacon plugin, select it and click **Update**.

FIGURE 49 Updating the Configuration Parameters



Activating and Editing the Beacon as a Service Plugin (iBeacon, Eddystone and Custom)

The RUCKUS IoT Controller provides support for the Bluetooth Low Energy (BLE) beaconing service. An AP can begin transmitting BLE beacons (iBeacons) that can be used by the user for various cases, such as wayfinding and pushing.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.

3. In the **Select a Plugin to Activate** list, select the Beacon as a Service plugin and click **Activate**.

FIGURE 50 Activating the Beacon as a Service Plugin (iBeacon)

FIGURE 51 Activating Beacon as a Service (Eddystone)

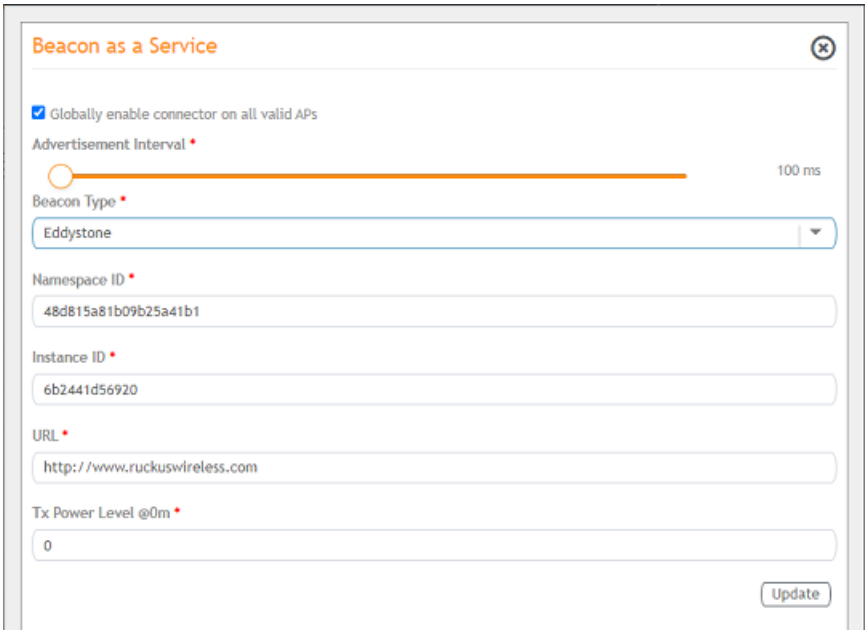
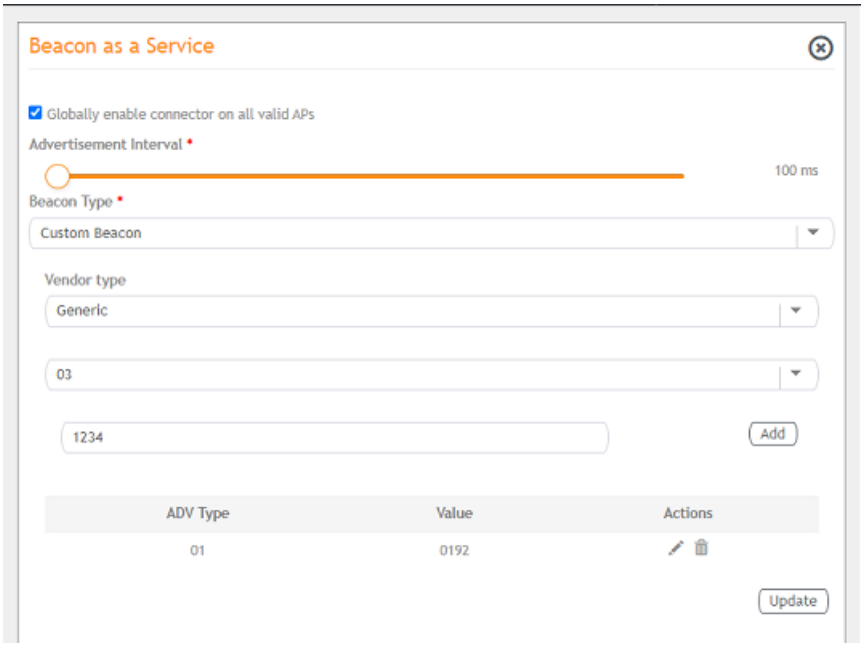


FIGURE 52 Activating Beacon as Service (Generic)



4. After the Beacon as Service plugin is activated, enter the following configuration parameters.
   a) Select **Globally enable connector on all valid APs** to add all respective IoT APs automatically. Connectors are mapped to IoT AP by adding the connector name tag to the IoT AP.

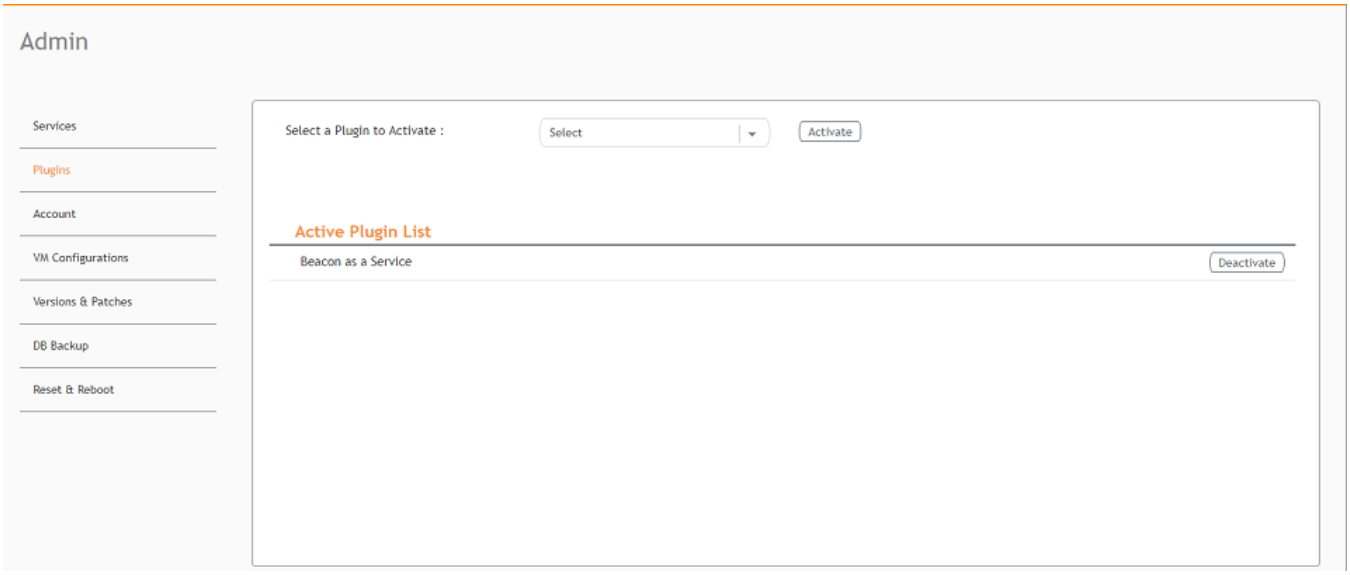
      NOTE
      If **Globally enable connector on all valid APs** is not selected, you can activate the plugin for each AP by adding a tag. Refer to Adding Tags to an AP on page 90 for more information.

   b) In the **Beacon Type** list, select the type of beacon.
   c) After selecting the type of Beacon, in the **Advertisement Type** list, select the type of advertisement.
   d) For **Advertisement Interval**, set the time interval to send the advertisement packets. The advertisement interval ranges from 100 through 1000 milliseconds. The default interval is 100 milliseconds.
5. Click **Apply**.

   The Beacon as a Service plugin is added in the **Active Plugin List**.

6. To deactivate the Beacon as a Service plugin, select it and click **Deactivate**.

FIGURE 53 Deactivating the Beacon as a Service Plugin



7. To edit the configuration of the Beacon as a Service plugin, select it and click **Update**.

FIGURE 54 Updating the Configuration Parameters (iBeacon)

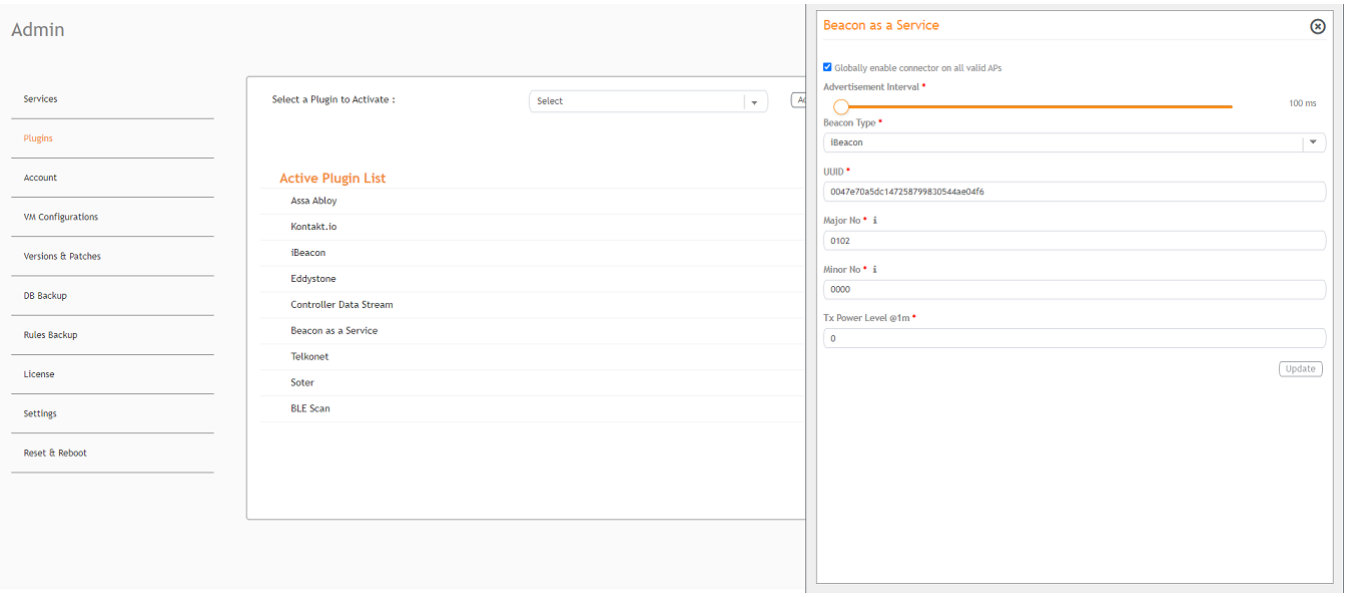


FIGURE 55 Updating Configuration parameters (Eddystone)

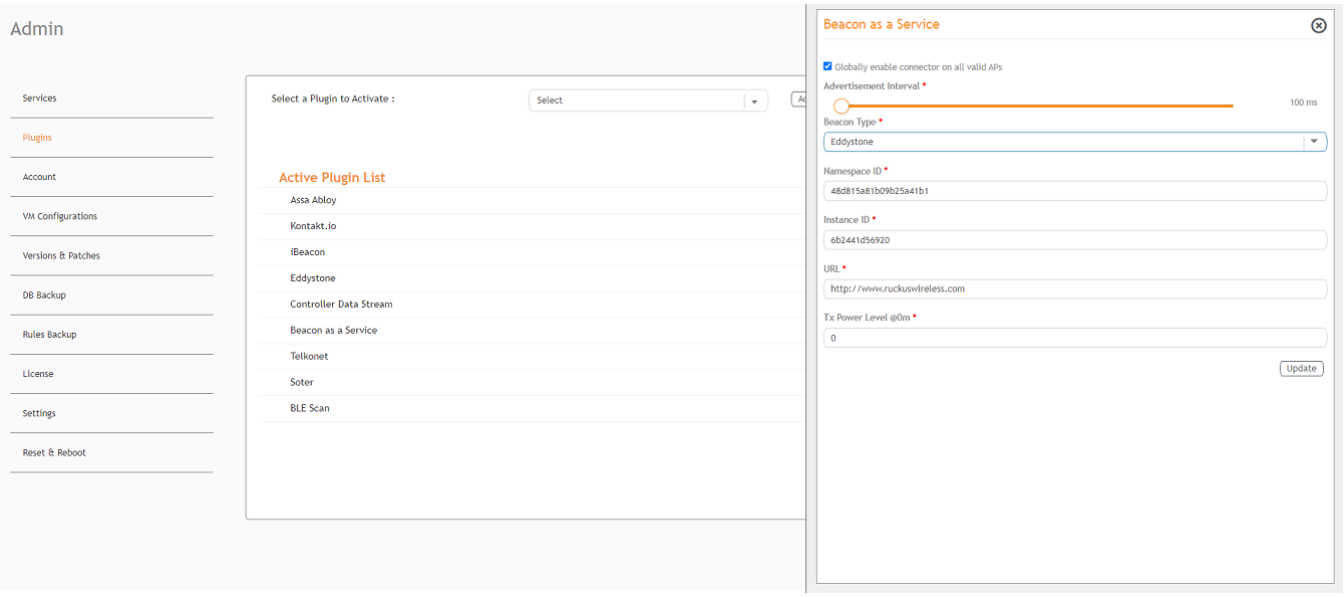
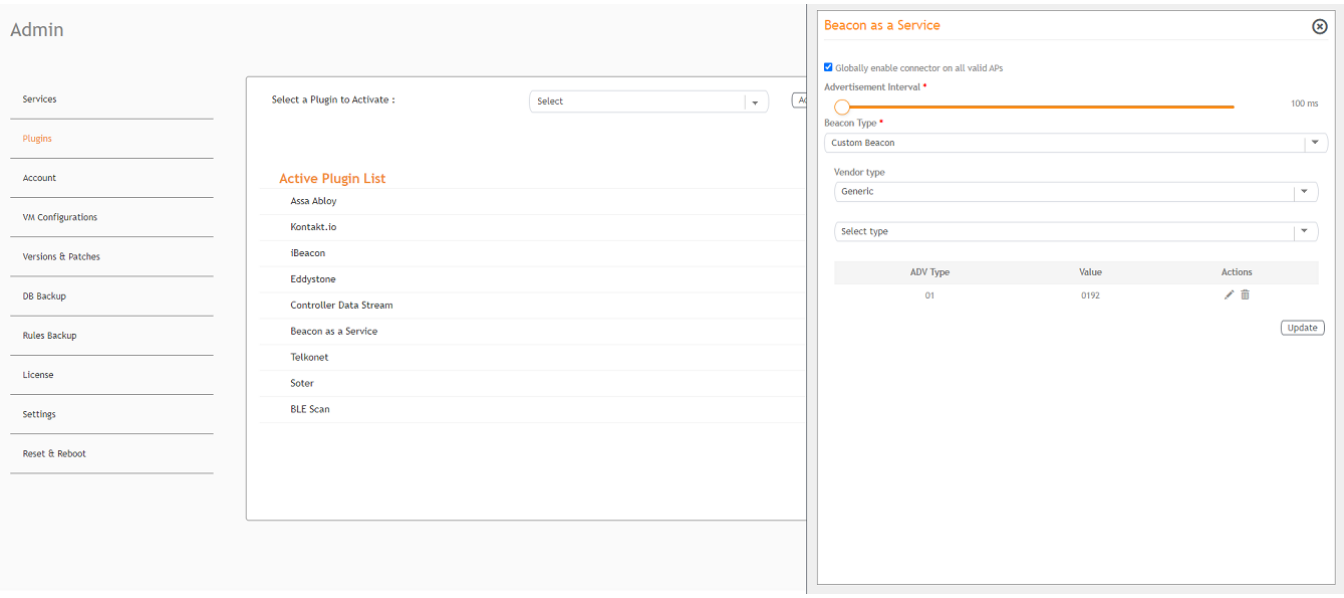


FIGURE 56 Updating Configuration Parameters (Generic)



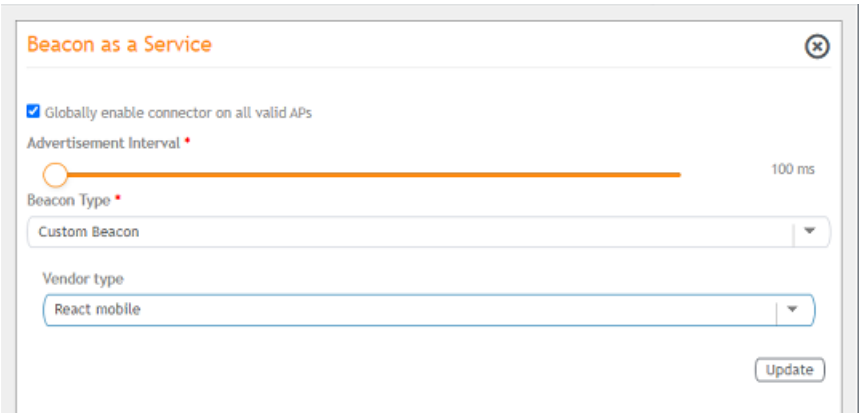
Activating and Editing the Beacon as a Service Plugin (React Mobile)

The RUCKUS IoT Controller provides support for the React Mobile beaconing service. An AP can begin transmitting BLE beacons (React) that can be used by the user for various cases, such as wayfinding and pushing.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.
3. In the **Select a Plugin to Activate** list, select the Beacon as a Service plugin and click **Activate**.

FIGURE 57 Activating Beacon as a Service (React Mobile)



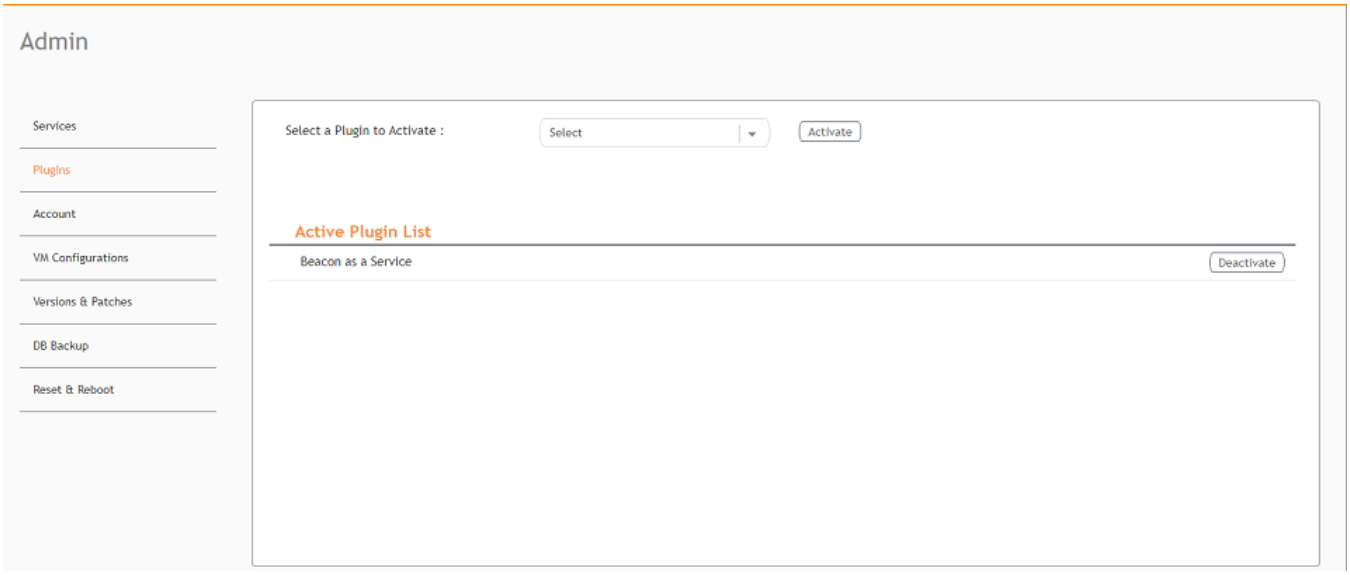
4. After the Beacon as Service plugin is activated, enter the following configuration parameters.
   a) Select **Globally enable connector on all valid APs** to add all respective IoT APs automatically. Connectors are mapped to IoT AP by adding the connector name tag to the IoT AP.

      NOTE
      If **Globally enable connector on all valid APs** is not selected, you can activate the plugin for each AP by adding a tag. Refer to Adding Tags to an AP on page 90 for more information.

   b) For **Advertisement Interval**, set the time interval to send the advertisement packets. The advertisement interval ranges from 100 through 1000 milliseconds. The default interval is 100 milliseconds.
   c) In the **Beacon Type** list, select the type of beacon as **Custom**.
   d) After selecting the type of Beacon, in the **Vendor Type** list, select the type as **React Mobile**.
5. Click **Apply**.

   The Beacon as a Service plugin is added in the **Active Plugin List**.
6. To deactivate the Beacon as a Service plugin, select it and click **Deactivate**.

FIGURE 58 Deactivating the Beacon as a Service Plugin



Activating and Editing the BLE Scan Plugin

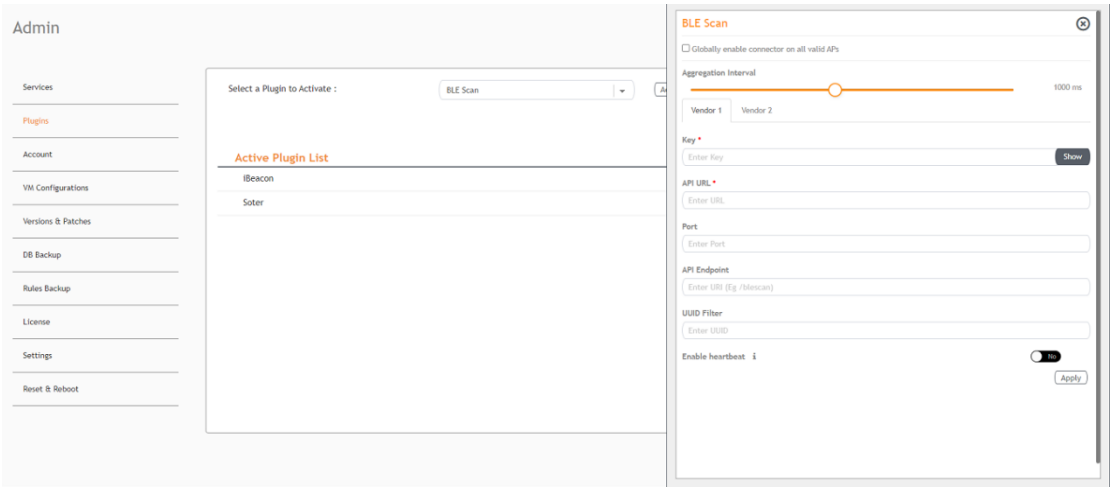
The RUCKUS IoT Controller provides support for the Bluetooth Low Energy (BLE) BLE Scan Plugin . The RUCKUS IoT Controller reads the packet from the IoT AP and routes the packets to the BLE beacon vendor cloud services.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.

3. In the **Select a Plugin to Activate** list, select the BLE Scan plugin and click **Activate**.

FIGURE 59 Activating the BLE Scan Plugin



4. After the BLE Scan plugin is activated, enter the following configuration parameters.
   a) Select **Globally enable connector on all valid APs** to add all respective IoT APs automatically. Connectors are mapped to IoT AP by adding the connector name tag to the IoT AP.

      NOTE
      If **Globally enable connector on all valid APs** is not selected, you can activate the plugin for each AP by adding a tag. Refer to Adding Tags to an AP on page 90 for more information.

   b) For **Aggregation Interval**, set the time interval between the two packets.
   c) Enter the Key.

      The RUCKUS IoT Controller posts the beacon messages using the Key provided. The Vendor application is responsible for authenticating the Keys.
   d) Enter the API URL.

      The RUCKUS IoT Controller connects to the vendor/connector URL to send the beacon messages. The URL can be a DNS-resolvable, FQDN-based address.

      NOTE
      The plugin supports HTTP and HTTPS modes.
   e) Enter the Port number.

      This is the port number on which the vendor/connector web server is running.
   f) Enter the API Endpoint.

      This is the API route where the BLE beacon vendor cloud services receive the beacon payload.
   g) Enter the UUID Filter.

      The filter allows only the BLE ADV packets with the specified UUID to be passed on to the vendor application.
   h) Enable heartbeat.

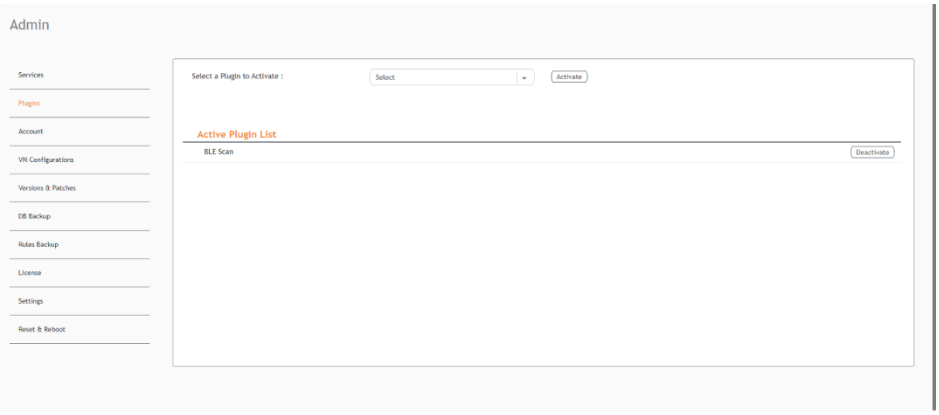
      Enabling heartbeat allows the vendor application to receive the IoT AP status, such as online or offline.

5. Click **Apply**.

   The BLE Scan plugin is added in the **Active Plugin List**.

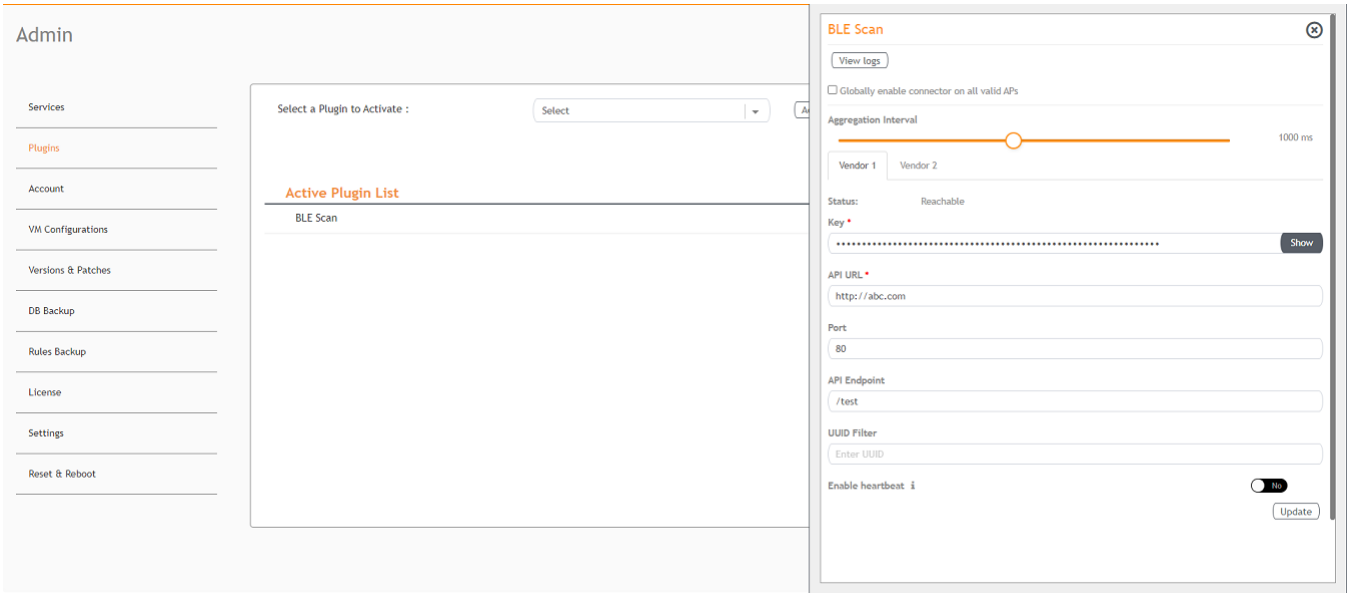
6. To deactivate the BLE Scan plugin, select it and click **Deactivate**.

FIGURE 60 Deactivating the BLE Scan Plugin



7. To edit the configuration of the BLE Scan plugin, select it and click **Update**.

FIGURE 61 Updating the Configuration Parameters



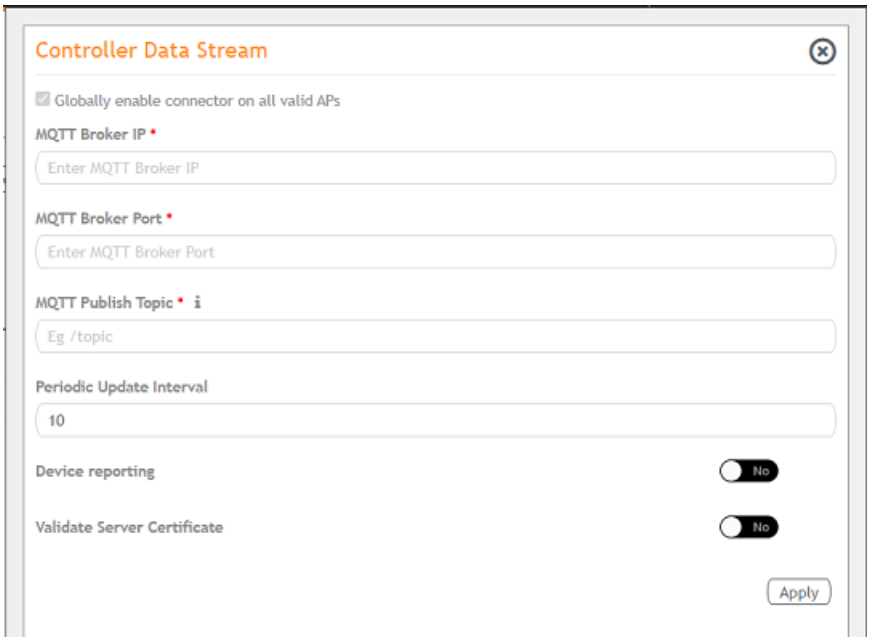
Activating and Editing the Controller Data Stream Plugin

The RUCKUS IoT Controller provides support for the Controller Data Stream plugin. The Controller Data Stream is a Message Queue Telemetry Transport (MQTT) data stream. When it is enabled, it sends IoT device-related details to the third-party MQTT endpoint (MQTT Broker). The device data stream is sent to third-party every 300 seconds.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.
3. In the **Select a Plugin to Activate** list, select the Controller Data Stream plugin and click **Activate**.

FIGURE 62 Activating the Controller Data Stream Plugin



4. After the Controller Data Stream plugin is activated, enter the following configuration parameters.
   a) Select **Globally enable connector on all valid APs** to add all respective IoT APs automatically. Connectors are mapped to IoT AP by adding the connector name tag to the IoT AP.

      NOTE
      If **Globally enable connector on all valid APs** is not selected then you can activate the plugin for each AP by adding tag. Refer Adding Tags to an AP on page 90 for more information.

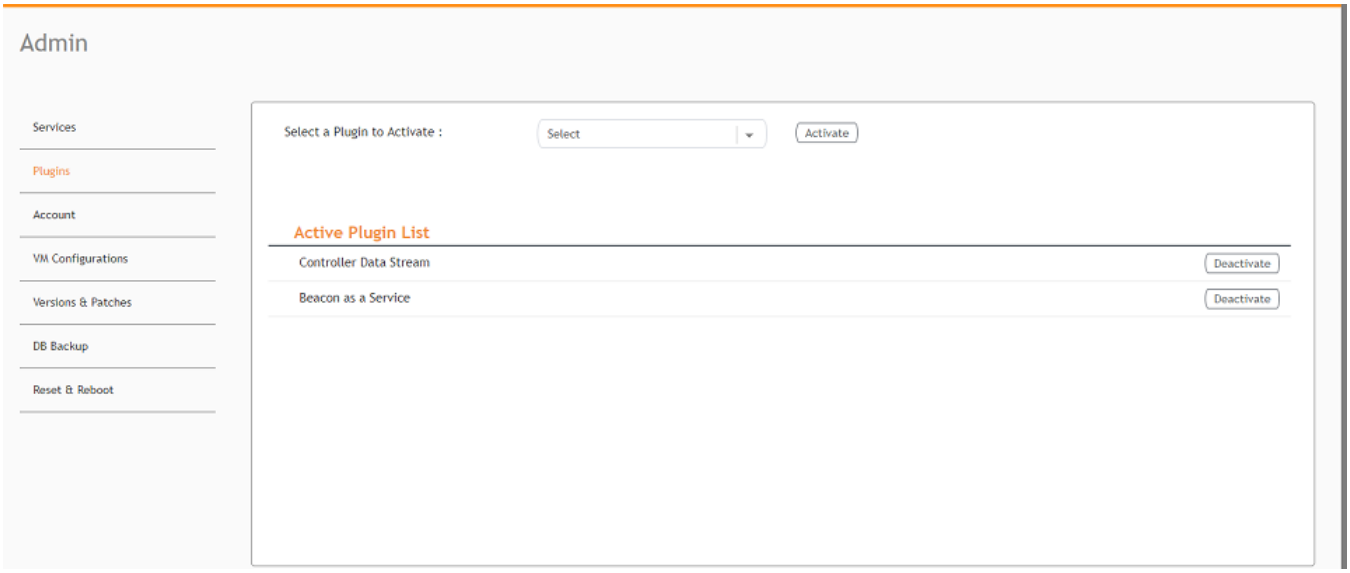
   b) In **MQTT Broker IP**, enter the IP address of your MQTT broker.
   c) In **MQTT Broker Port**, enter the network port to which you want to connect.
   d) In **MQTT Publish Topic**, enter the topic name as a simple string that is hierarchically structured with forward slashes (/) as delimiters. An MQTT client can publish messages as soon as it connects to a broker.
   e) In **Periodic Update Interval** enter the interval to receive MQTT Publish.
   f) Enable **Device Reporting** and enter the topic endpoint which will publish message whenever a device change event is received.
   g) Enable **Validate Server Certificate** to secure the connection with SSL.

5. Click **Apply**.

   The Controller Data Stream plugin is added in the **Active Plugin List**.

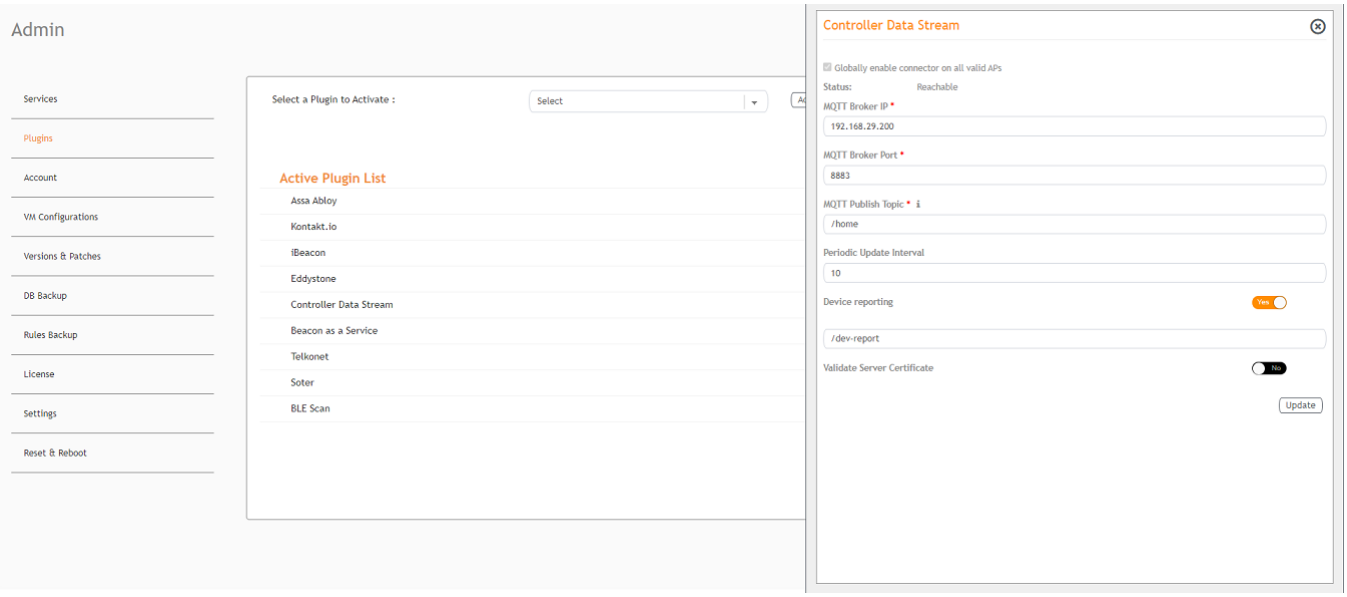
6. To deactivate the Controller Data Stream plugin, select it and click **Deactivate**.

FIGURE 63 Deactivating the Controller Data Stream Plugin



7. To edit the configuration of the Controller Data Stream, select it and click **Update**.

FIGURE 64 Updating the Configuration Parameters



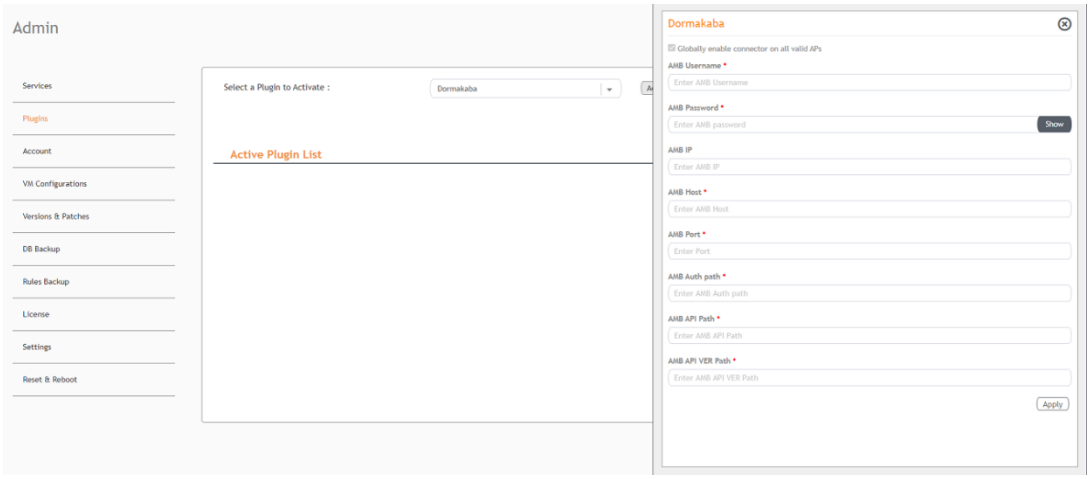
Activating and Editing the Dormakaba Plugin

The RUCKUS IoT Controller provides support for for the Dormakaba Door Locks. The RUCKUS IoT Controller reads the packet from the IoT AP and routes the packets to the Ambiance Server.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.
3. In the **Select a Plugin to Activate** list, select the Dormakaba plugin and click **Activate**.

FIGURE 65 Activating the Dormakaba Plugin



4. After the Dormakaba plugin is activated, enter the following configuration parameters.
   a) Enter the **Ambiance Username** used for connecting to Ambiance Server.
   b) Enter the **Ambiance Password** used for connecting to Ambiance Server.
   c) Enter the **Ambiance IP Address** .
   d) Enter the **Ambiance Host**.

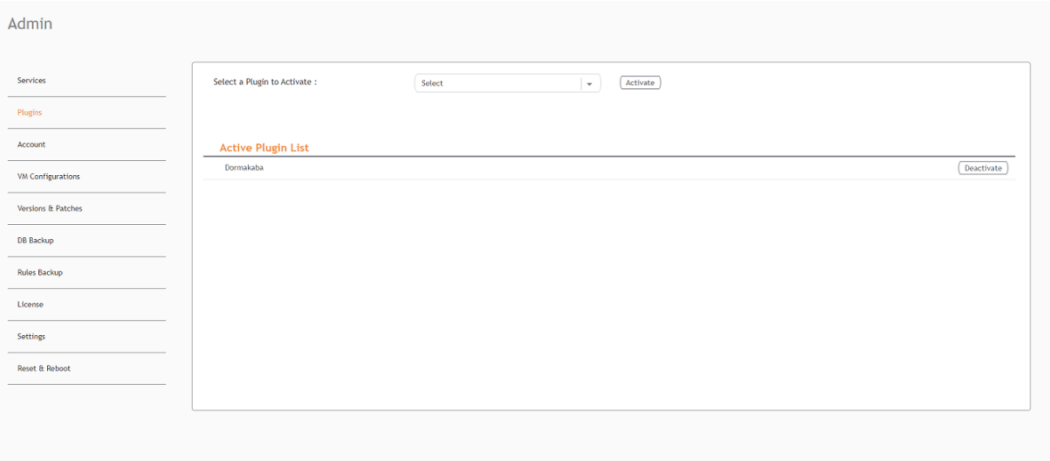
      NOTE
      The URL for Host is `http://Ambiance IP Address`

   e) Enter the **Ambiance Port**.
   f) Enter the **Ambiance Auth Path**.
   g) Enter the **Ambiance API Path**.
   h) Enter the **Ambiance API VER Path**.
5. Click **Apply**.

   The Dormakaba plugin is added in the **Active Plugin List**.

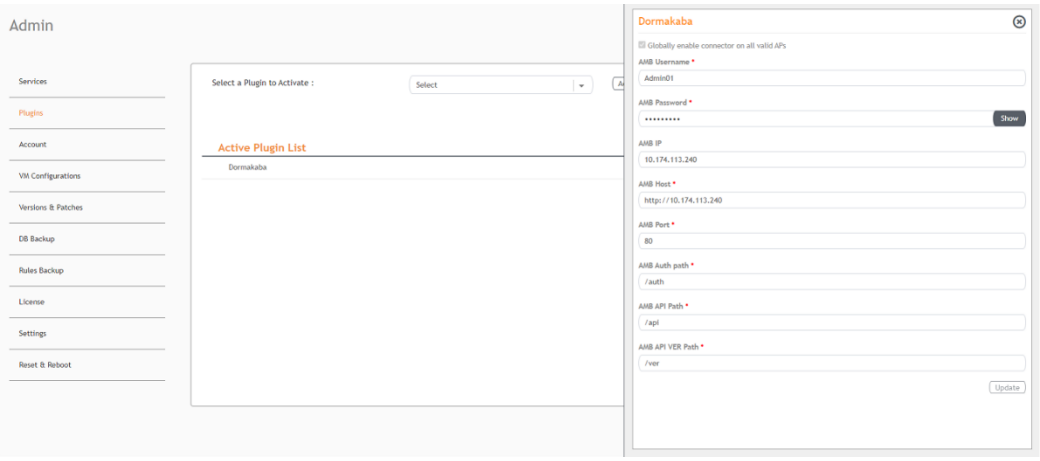
6. To deactivate the Dormakaba plugin, select it and click **Deactivate**.

FIGURE 66 Deactivating the Dormakaba Plugin



7. To edit the configuration of the Dormakaba plugin, select it and click **Update**.

FIGURE 67 Updating the Configuration Parameters



Activating and Editing the Telkonet Plugin

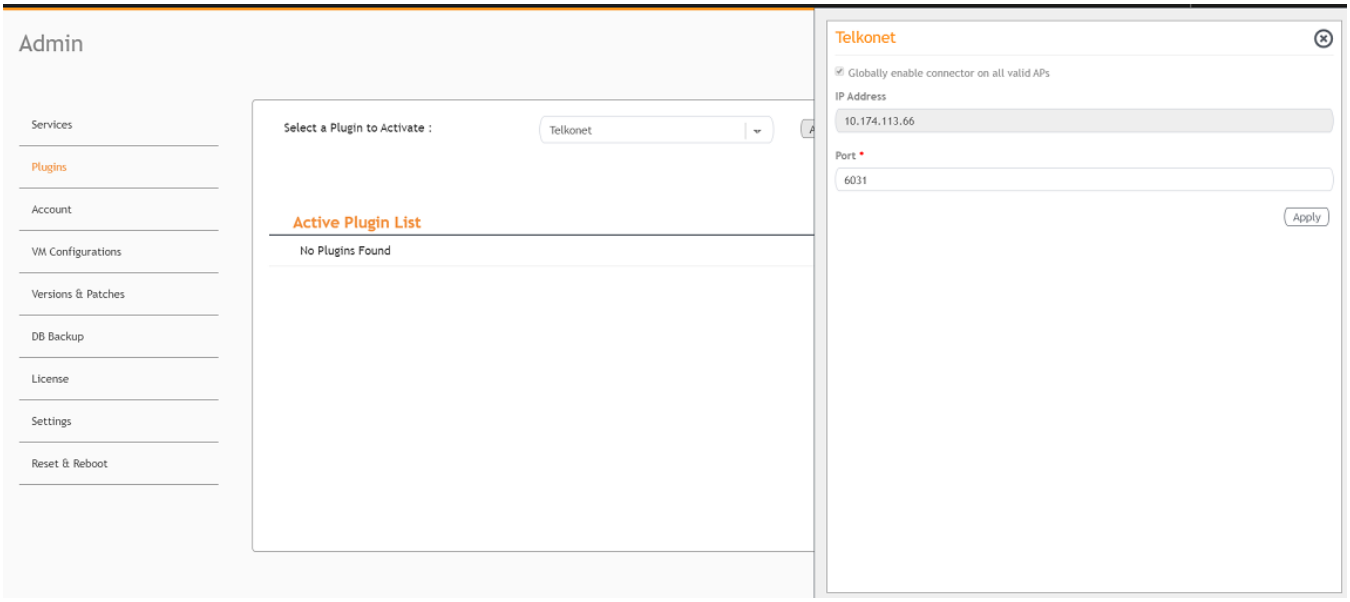
The RUCKUS IoT Controller provides support for the Telkonet devices and their respective MQTT APIs.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.

3. In the **Select a Plugin to Activate** list, select the Telkonet plugin and click **Activate**.

FIGURE 68 Activating the Telkonet Plugin



4. After the Telkonet plugin is activated, enter the following configuration parameters.
   a) Select **Globally enable connector on all valid APs** to add all respective IoT APs automatically. Connectors are mapped to IoT AP by adding the connector name tag to the IoT AP.

      NOTE
      If **Globally enable connector on all valid APs** is not selected, you can activate the plugin for each AP by adding a tag. Refer to Adding Tags to an AP on page 90 for more information.

   b) Enter the IP Address.

      This is the IP address of the Telkonet controller.

   c) Enter the Port number.

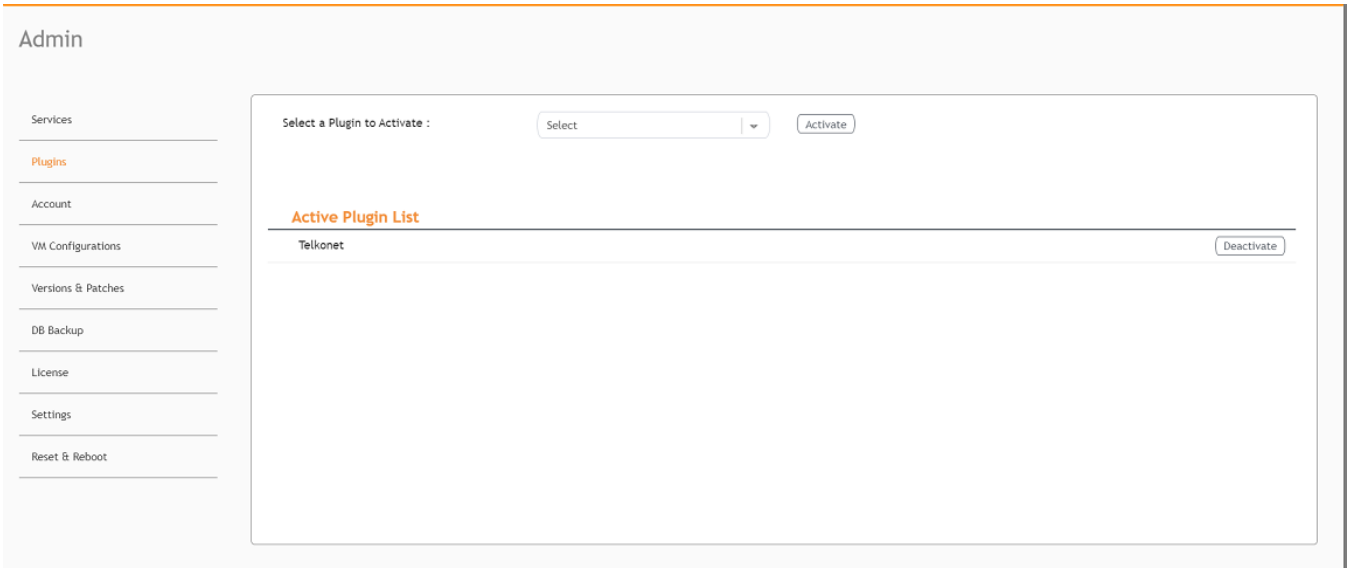
      This is the port number on which the vendor/connector web server is running.

5. Click **Apply**.

The Telkonet plugin is added in the **Active Plugin List**.

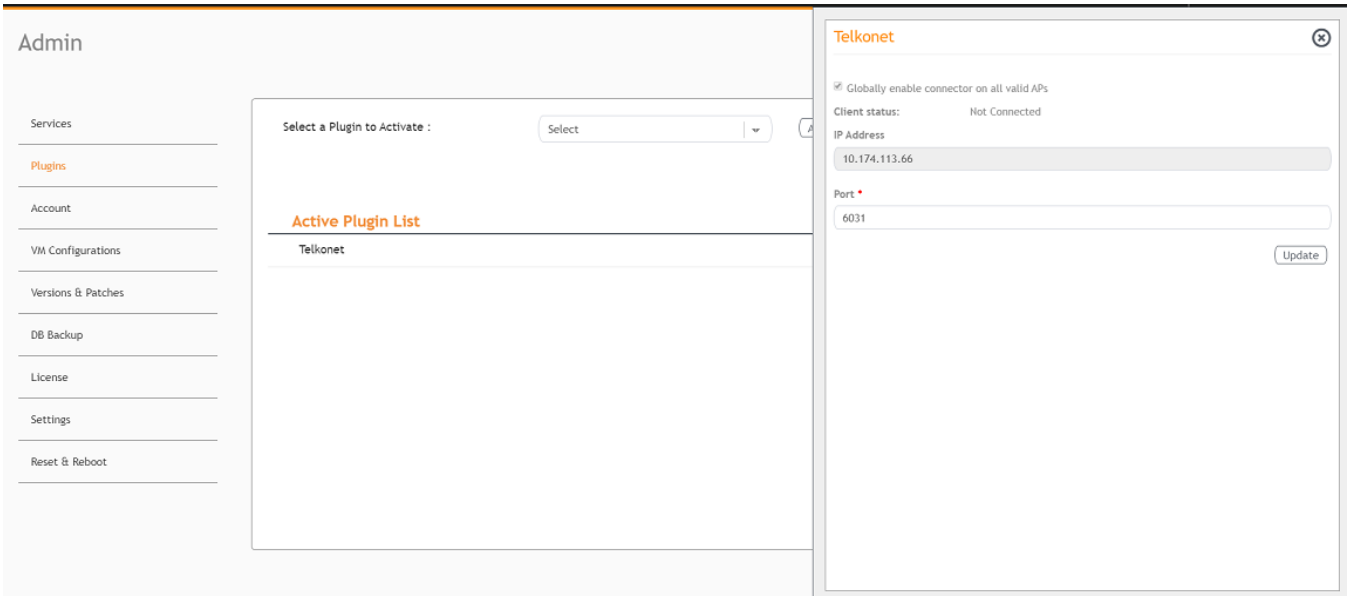
6. To deactivate the Telkonet plugin, select it and click **Deactivate**.

FIGURE 69 Deactivating the Telkonet Plugin



7. To edit the configuration of the Telkonet plugin, select it and click **Update**.

FIGURE 70 Updating the Configuration Parameters



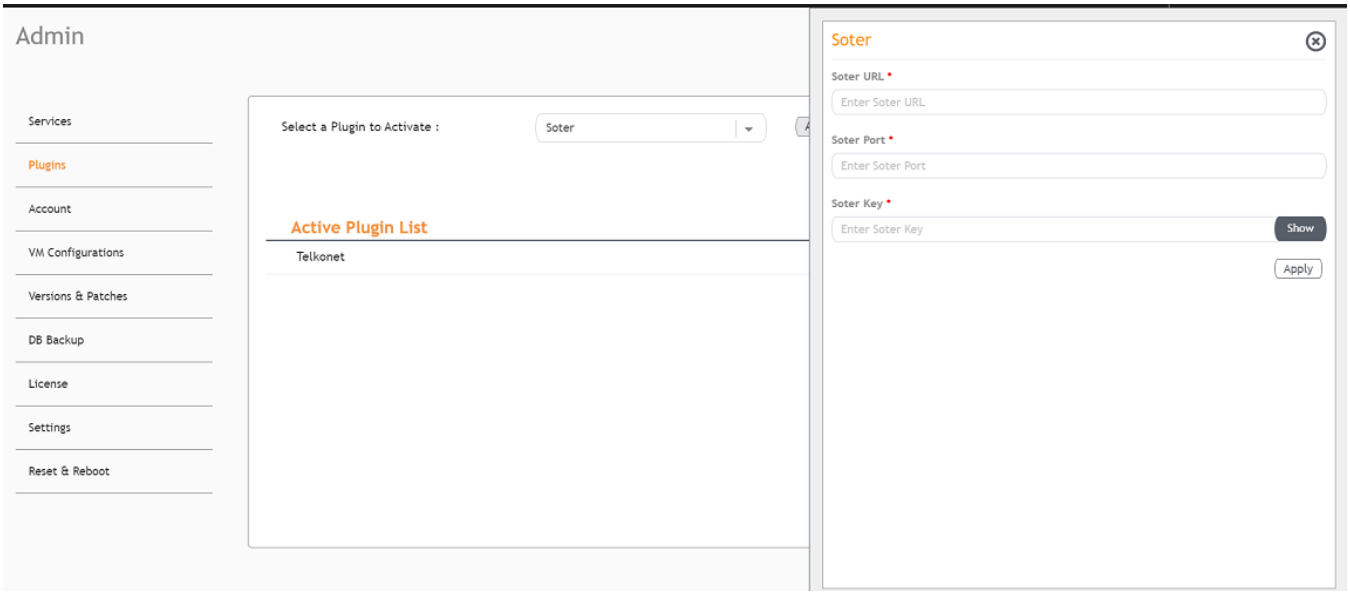
Activating and Editing the Soter Plugin

The RUCKUS IoT Controller provides support for the Soter plugin. The Soter Sensor must have IoT Controller MQTT Broker details for the Soter Sensor MQTT Client to connect and transmit data.

To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Plugins**.
3. In the **Select a Plugin to Activate** list, select the Soter plugin and click **Activate**.

FIGURE 71 Activating the Soter Plugin



4. After the Soter plugin is activated, enter the following configuration parameters.
   a) Enter the Soter URL.

      This URL is used to establish the MQTT connection between the controller and the Soter server.

   b) Enter the Port number.

      This is the port number on which the MQTT server is running.

      NOTE
      The default MQTT port is 8883.

   c) Enter the Key.

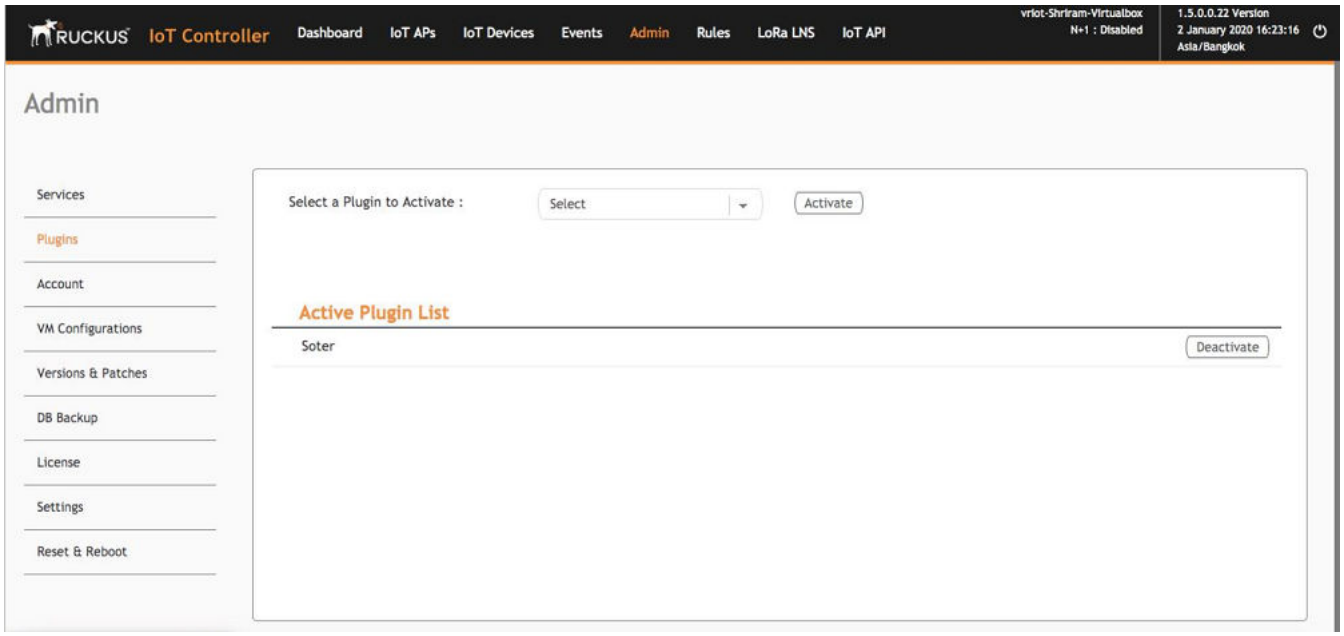
      The Vendor application is responsible for authenticating the Keys.

5. Click **Apply**.

   The Soter plugin is added in the **Active Plugin List**.

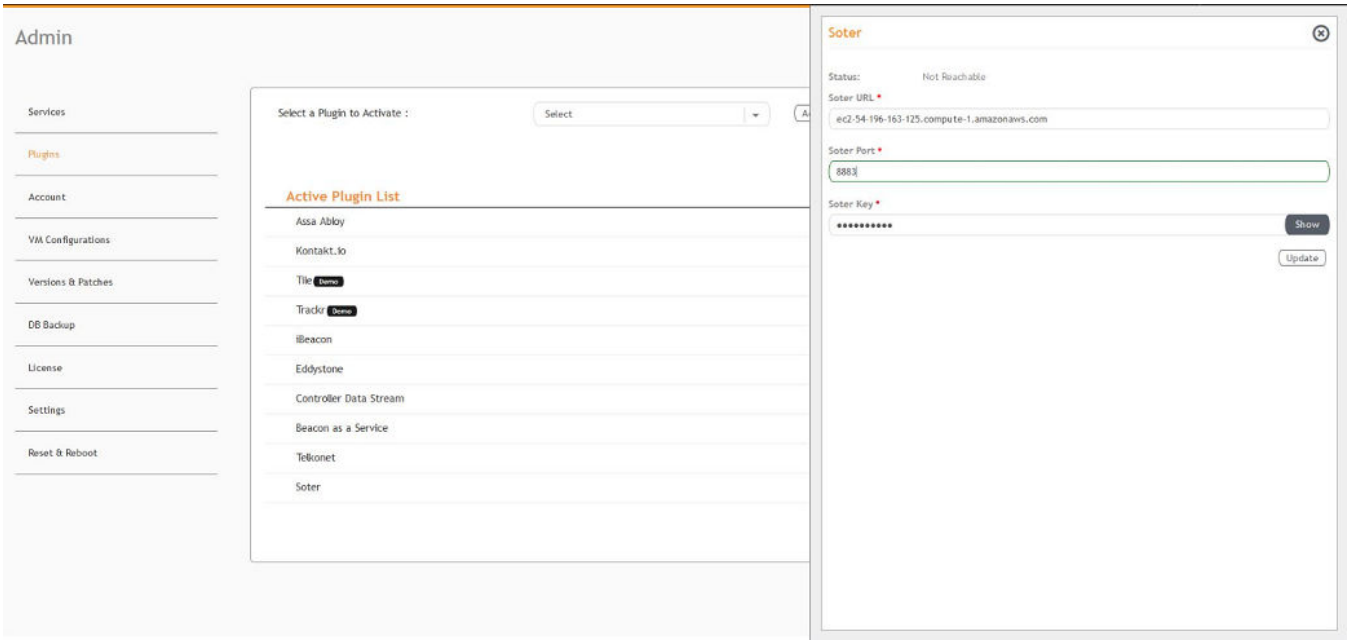
6. To deactivate the Soter plugin, select it and click **Deactivate**.

FIGURE 72 Deactivating the Soter Plugin



7. To edit the configuration of the Soter plugin, select it and click **Update**.

FIGURE 73 Updating the Configuration Parameters



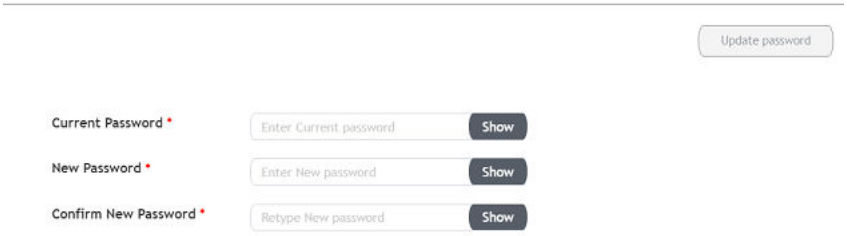
Changing the Password

A single administrator is responsible for creating a RUCKUS IoT Controller account. This administrator manages system operations.

To change the password, the administrator must perform the following steps.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Account**.

FIGURE 74 Changing the Password



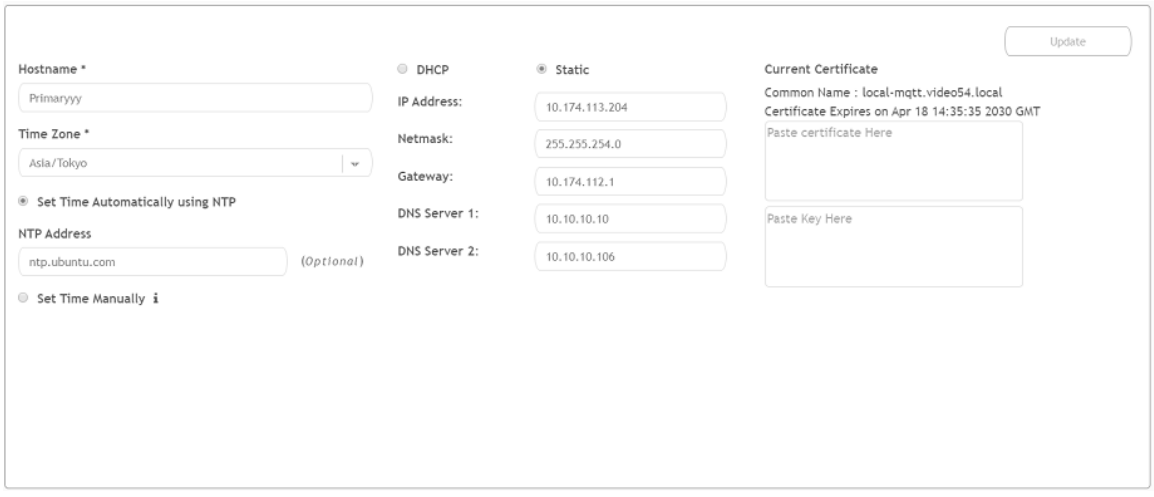
3. Change the password and click **Update password**.

Configuring Virtual Machines

Complete the following steps to configure a virtual machine (VM).

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **VM Configurations**.

FIGURE 75 Configuring a Virtual Machine



3. Complete the configuration information.
   a) In the **Hostname** field, enter the host name.
   b) In the **Time Zone** list, select the time zone.
   c) Select **Set Time Automatically using NTP** or **Set Time Manually** to set the time.
   d) Click **DHCP** or **Static** to set the RUCKUS IoT Controller configuration.

   NOTE
   The RUCKUS IoT Controller is configured with a self-signed certificate, but a proper (CA-signed) certificate can be added to the system.

4. Click **Update**.

Uploading Versions and Patches

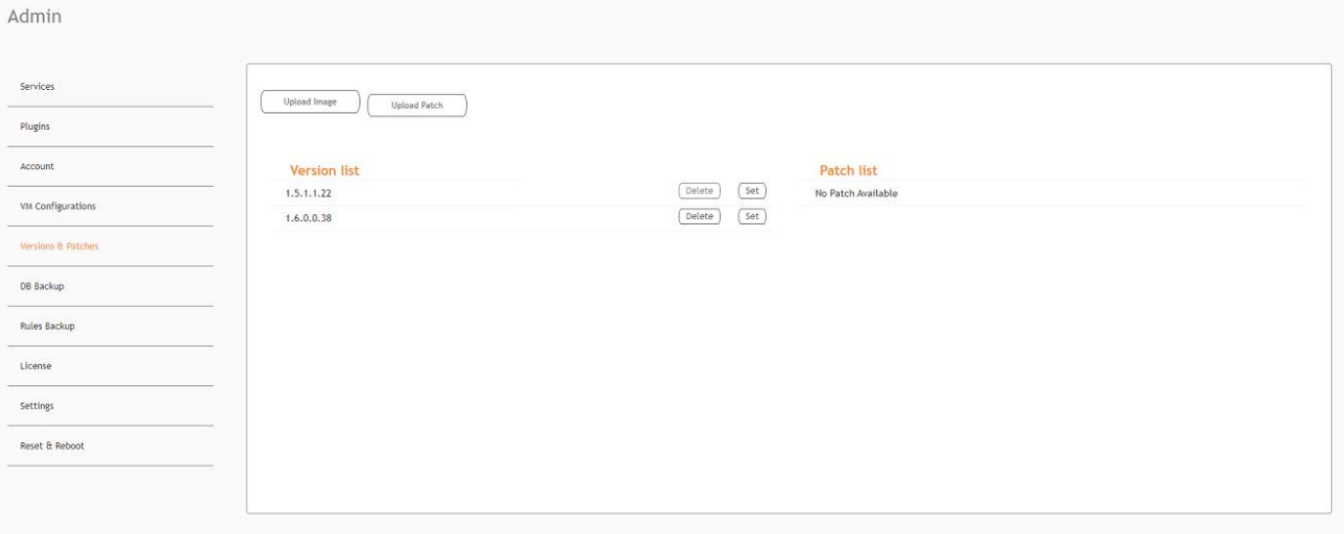
RUCKUS frequently releases updates to RUCKUS IoT Controller. The administrator normally receives any updates about new and updated software by email.

Uploading an Image

RUCKUS sends periodic notifications by email regarding new versions of the RUCKUS IoT Controller.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Version & Patches**.

FIGURE 76 Uploading an Image



3. Click **Upload Image** to upload the upgrade package.

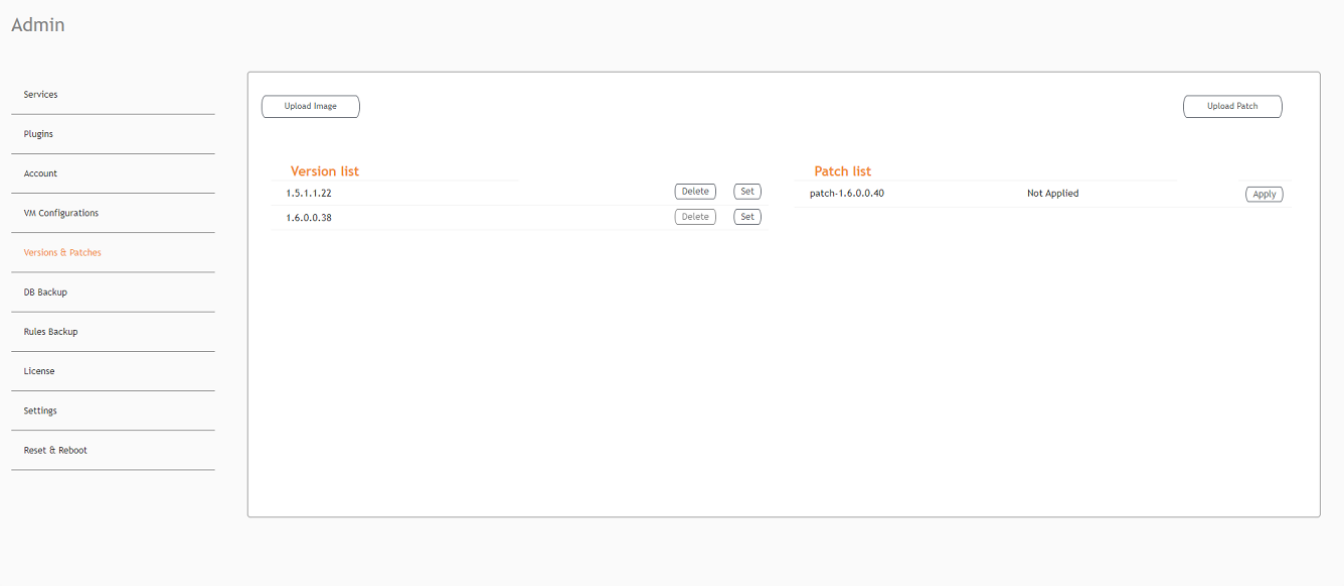
   Once uploaded, the new version is listed in the **Version list**.
4. Select the latest version to upgrade and click **Set**. To remove a version, select it and click **Delete**.

Uploading a Patch

Patches to the software can be downloaded from the RUCKUS Support portal.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Versions & Patches**.

FIGURE 77 Uploading a Patch



3. Click **Upload Patch** to upload the patch.

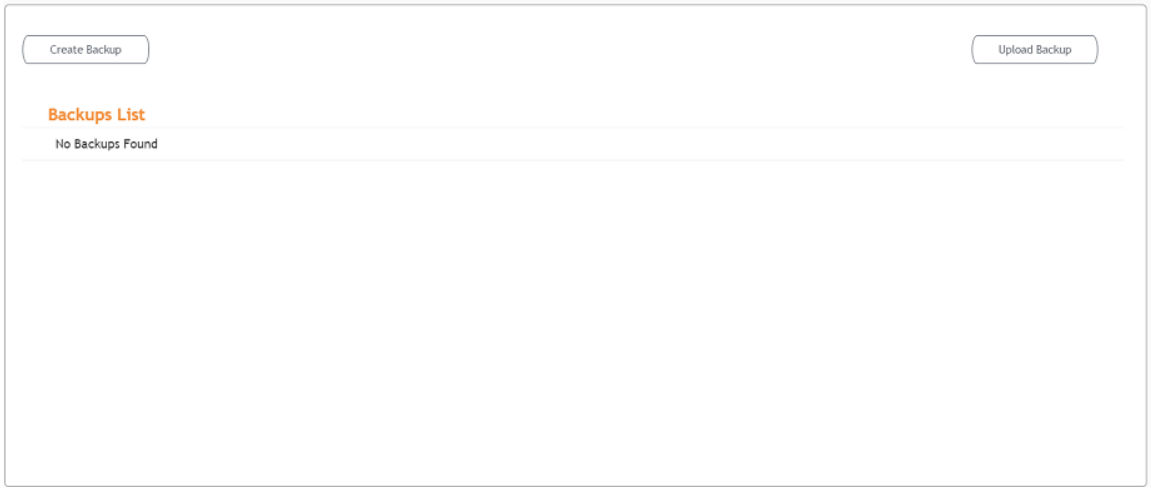
ATTENTION
You cannot revert a patch.

Backing Up Files

The RUCKUS IoT Controller allows you to back up and restore the configuration and data files. You can restore an existing configuration file on the RUCKUS IoT Controller from which it originated, or restore a configuration file from a different RUCKUS IoT Controller. Backed up files are in the tar.gz format.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **DB Backup**.

FIGURE 78 Backing Up or Restoring Files



3. Click **Create Backup now** to perform a backup manually.
4. Click **Upload Backup** to download and re-upload the backup files.

NOTE
The RUCKUS IoT Controller maintains the backups of the last five configuration files. Upon completing the backup, the network settings are reset to DHCP.

Backing up Rules

The RUCKUS IoT Controller allows you to back up and restore the static files, and node-red flows. You can restore an existing flow or file on the RUCKUS IoT Controller from which it originated, or restore a from a different RUCKUS IoT Controller. Backed up files are in the tar.gz format.

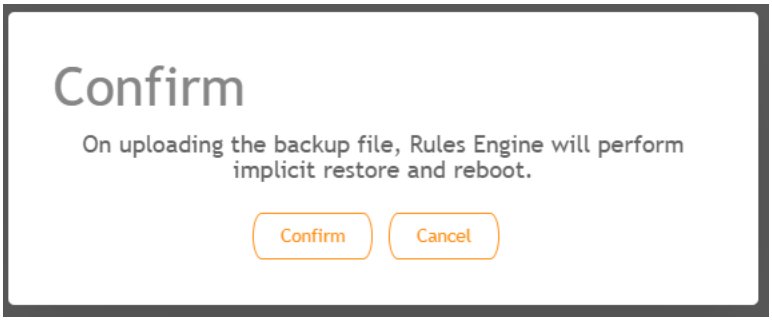
1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Rules Backup**.

FIGURE 79 Backing Up or Restoring Rules

3. Select either of the following from the drop-down, and click **Create Rules Backup**.
   - **Full Backup**: It is the back up of statics files and nodal flows.
   - **Flows Backup**: It is the back up of nodal flows.
   - **Static Files Backup**: It is the back up of static files.
4. Click **Upload Rules Backup** to upload back up.

   A dialog-box appears as below, click **Confirm**.

   FIGURE 80 Confirming Upload of Backup File



5. Click **Download** to download the backup, **Restore** to restore the backup, and **Delete** to delete the backup.

Uploading the RUCKUS IoT Controller License

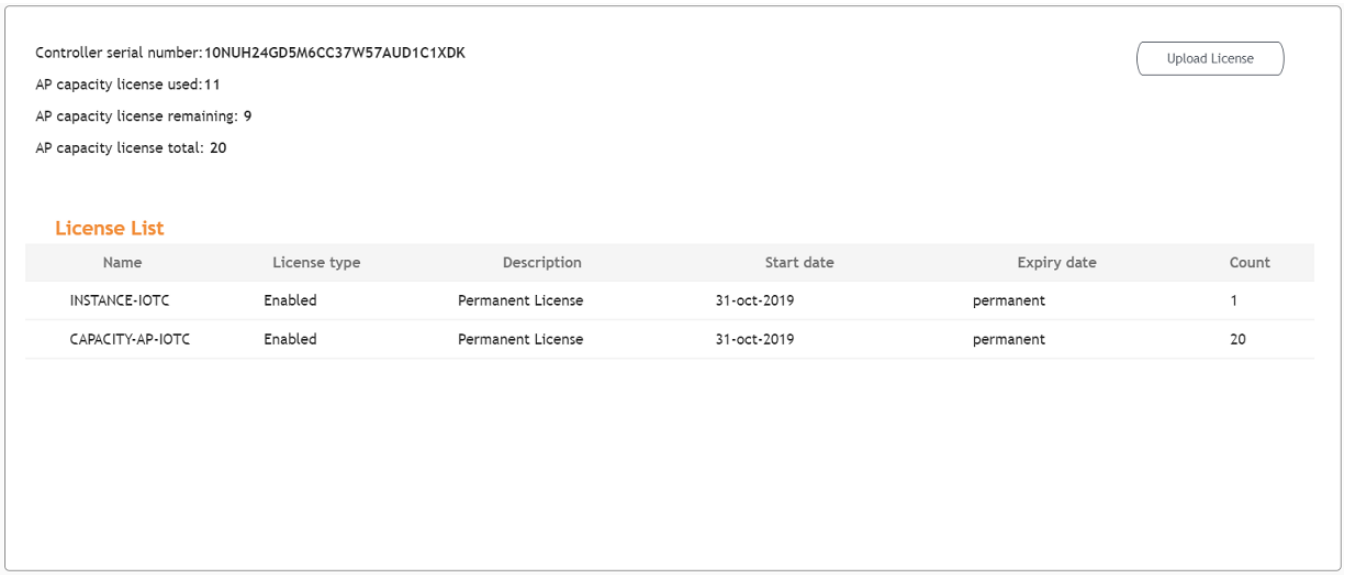
To obtain and activate the license, refer to "Activating a License" in the *RUCKUS IoT Controller Software Installation Guide.*

Complete the following steps to upload a license for the RUCKUS IoT Controller.

1. From the main menu, click **Admin**.

2. In the left navigation pane, click **License**.

FIGURE 81 Uploading a License



3. Click **Upload License** to upload the license.

   The Upload License page displays the following information:

   - Controller serial number : Displays the number of the RUCKUS IoT Controller serial number which can be used to activate the license.
   - AP capacity license used: Displays the number of licenses used by APs.
   - AP capacity licenses remaining: Displays the number of unused licenses by APs.
   - AP capacity license total : By default, the total number of licenses is 5. If you need an additional license, you must generate a license. To generate a license, refer to "Activating a License" in the *RUCKUS IoT Controller Software Installation Guide.*
   - License List: Lists the details of the license, such as **Name**, **License Type**, **Description**, **Start date**, **Expiry date** and **count**.

Change the Settings

N+1 Configuration and Hot Upgrade can be performed only when SSH is enabled.

1. From the main menu, click **Admin**.

2. In the left navigation pane, click **Settings**.

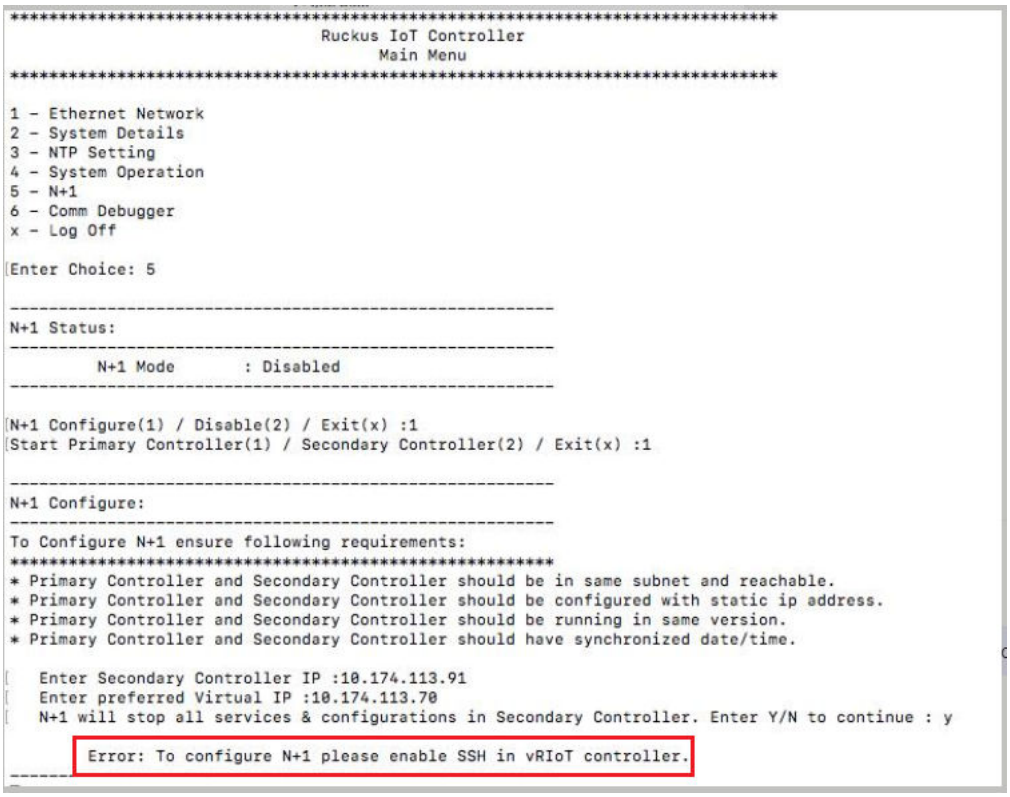
FIGURE 82 Settings Page

3. Enable **SSH**.

NOTE

If SSH is disabled, the N+1 configuration cannot be established and the following error is observed.

FIGURE 83 Showing Error on Disabling SSH



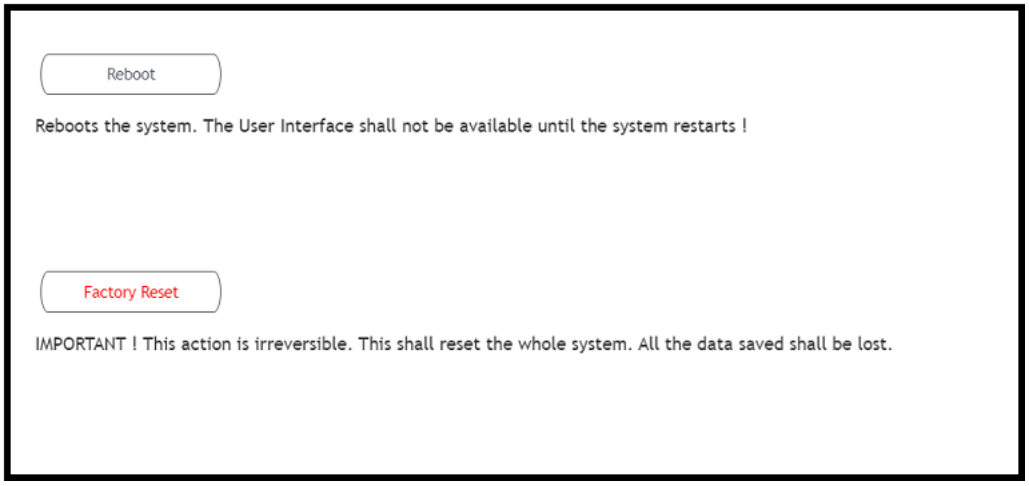
Rebooting RUCKUS IoT Controller

If the RUCKUS IoT Controller is experiencing an issue, attempt a reboot to resolve the issue.

Complete the following steps to reboot the RUCKUS IoT Controller.

1. From the main menu, click **Admin**.
2. In the left navigation pane, click **Reset & Reboot**.

FIGURE 84 Rebooting RUCKUS IoT Controller



3. Click **Reboot**.

Resetting RUCKUS IoT Controller

To remove all of the settings that are configured on the RUCKUS IoT Controller, reset it to the factory default settings.

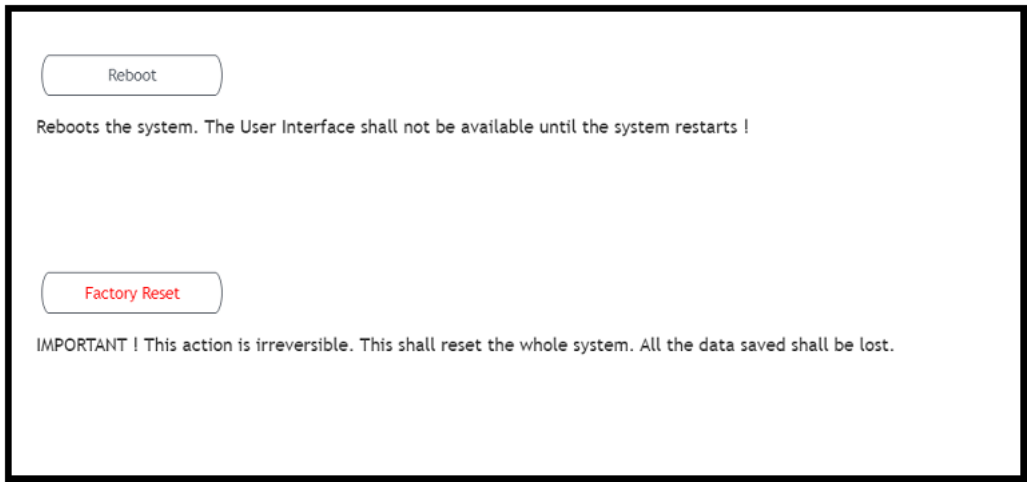
Complete the following steps to reset the RUCKUS IoT Controller to its factory default settings.

CAUTION
Performing the reset action is irreversible.

1. From the main menu, click **Admin**.

2. In the left navigation pane, click **Reset & Reboot**.

FIGURE 85 Resetting RUCKUS IoT Controller



3. Click **Factory Reset**.

Managing IoT Access Points

- IoT AP Overview 83
- Adding an IoT AP 86
- Editing an IoT AP 88
- Adding Tags to an AP 90
- Approval of IoT APs 92
- Exporting IoT APs to CSV 92

IoT AP Overview

SmartZone (SZ) holds the IoT AP firmware. You must make sure the IoT Access Point (AP) connects to SZ and downloads the appropriate IoT firmware. An IoT AP discovers SZ using discovery methods such as DHCP Option 43, Domain Name System (DNS), and Access Point Registry (APR) modes.

The RUCKUS IoT Controller displays the IoT AP hierarchy (Domain, Zone, Group) information, which is derived from the IoT AP and SmartZone connection. Therefore, it is important to ensure that the IoT AP is running the latest appropriate IoT firmware.

An IoT Access Point discovers the RUCKUS IoT Controller by using Option 43 or the RUCKUS Command Line Interface (RKSCLI). RKSCLI mode is not encouraged, and must be used only if a DHCP server is not present.

DHCP Option 43

The IoT Access Point supports Option 43 with the following suboptions:

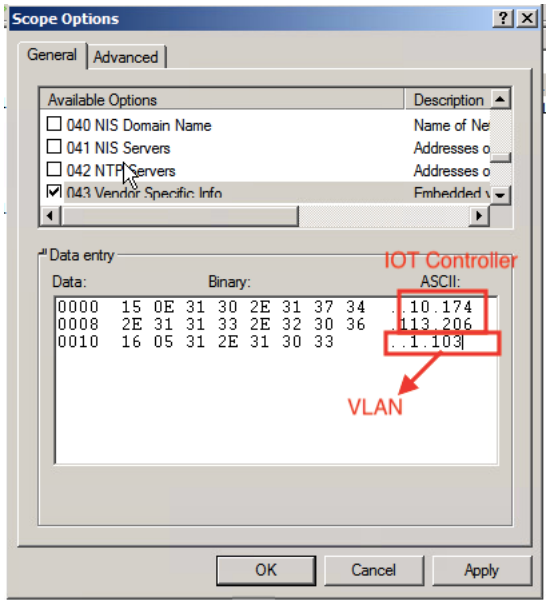
- Suboption 21: Used to configure a RUCKUS IoT Controller IPv4 address or FQDN (mandatory)
- Suboption 22: Used to set the control VLAN for IoT Control/Data traffic (optional)

Option 43 supports both binary and ASCII formats. The IoT Access Point bootup process checks for Option 43 and suboptions 06, 21 and 22. Once the application receives this information, it uses the information to connect to the controller over the Pubsub channel.

You can use the DHCP Option 43 sub-option code 06 to set the SCG/vSZ/SZ IP address in the format SubCode /Length/ (Value In Hex). For example : If the IP address is 10.24.123.4, then the hex string is as follows 06 0b 31302e32342e3132332e34.

The DHCP Option 43 sub-option code 21 and 22 is used to set the RUCKUS IoT Controller IP address.

For Example, Windows DHCP Configuration with Sub-option 21 and 22:



Linux DHCP option 43, sub option 21 configuration is as follows:

- option RKUS.scg-address "192.168.0.3"
- option RKUS.riot-address "192.168.0.2";

dhcp_opt43 configuration subopt 22- "vlan_mode.vlan_id"

- #option RKUS.iotvlan-address "0.4" -enables onlink VLAN
- #option RKUS.iotvlan-address "1.4" -enables offlink VLAN

• Offlink VLAN configuration is used when the IOT Gateway/AP and IOT controller are in different networks.

• Onlink VLAN configuration is used when the IOT Gateway/AP and IOT controller are in same network.

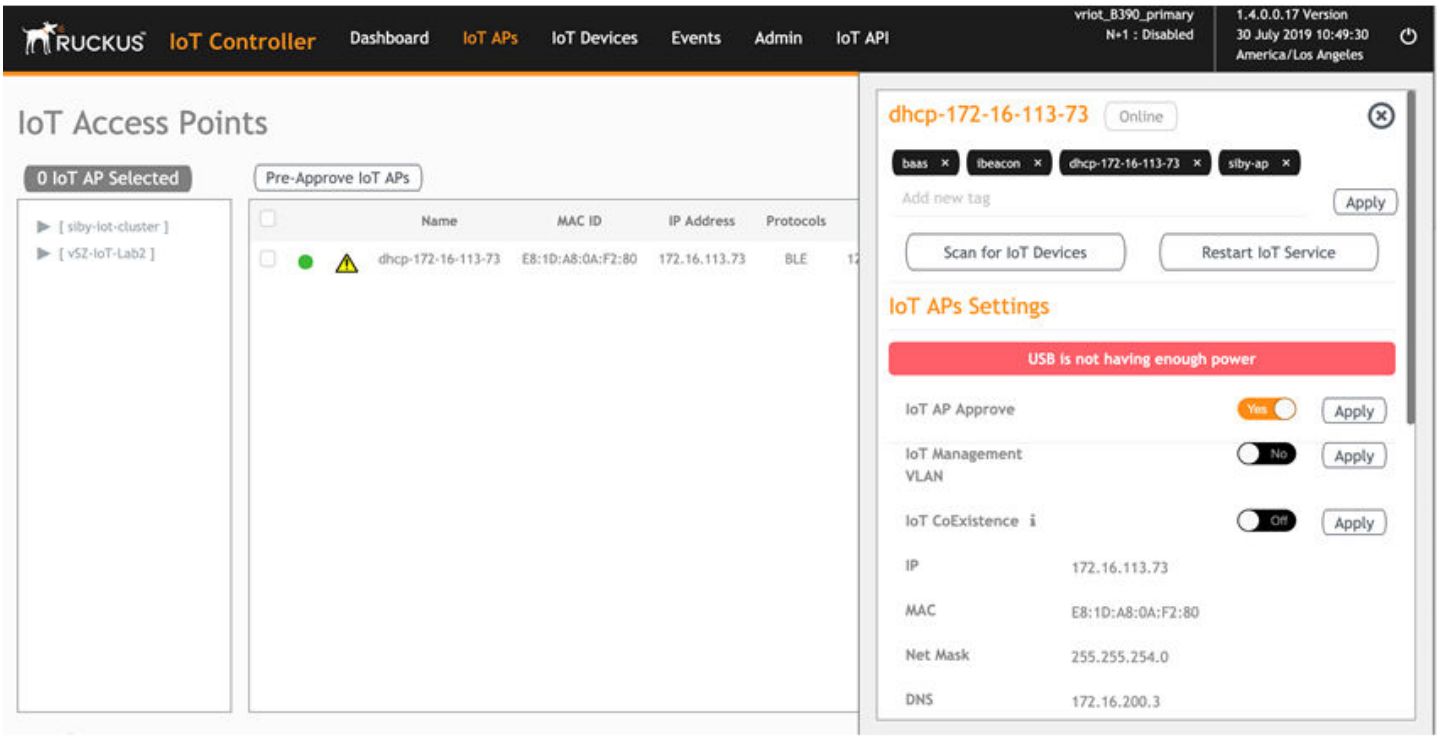
RUCKUS Command Line Interface

The **set iotg-mqtt-brokerip***RUCKUS-IoT-Controller-IP-address* command can be used to discover the RUCKUS IoT Controller.

USB Power

If an AP does not have enough USB power, it is displayed in the **IoT APs** page with the following message: `USB is not having enough power`.

FIGURE 86 Displaying a Shortage of USB Power



NOTE

If there is a shortage in USB power, you must contact the customer support team for more details.

Adding an IoT AP

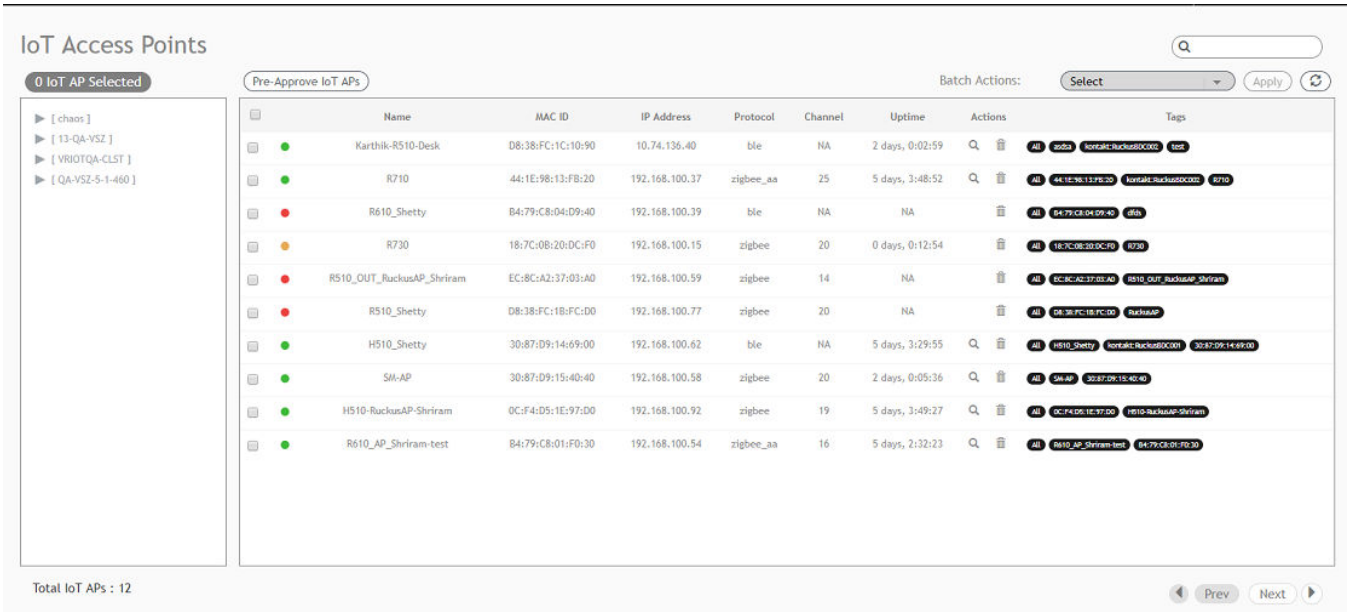
The administrator can add an IoT AP to the RUCKUS IoT Controller to manage IoT devices.

Complete the following steps to add an IoT AP to the controller.

1. From the main menu, click **IoT APs**.

   The **IoT Access Points** page is displayed.

   FIGURE 87 IoT Access Points Page

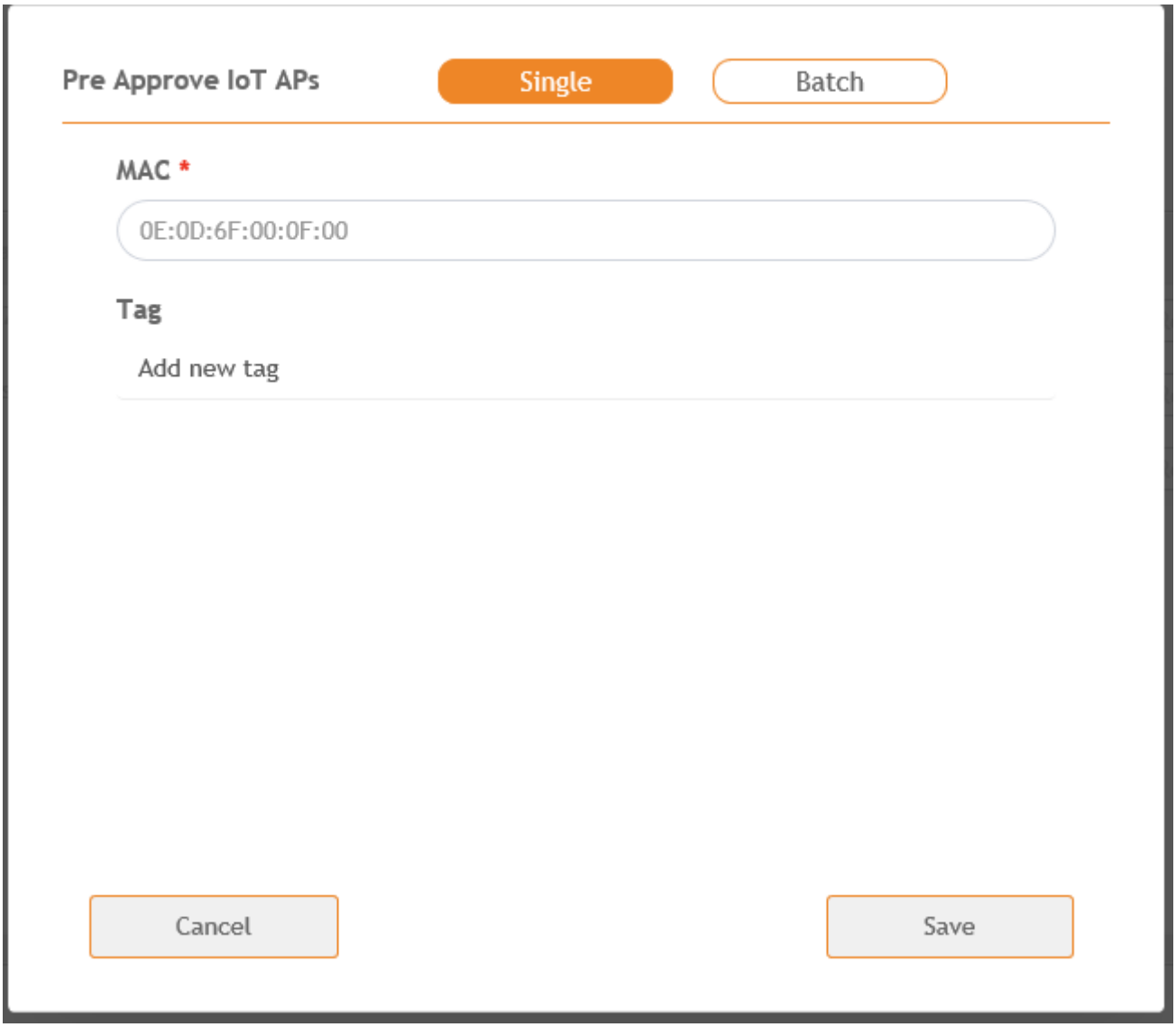


2. Click **Pre-Approve IoT APs**.

   The **Pre-Approve IoT APs** page is displayed.

3. To add a single IoT AP, click **Single**.

FIGURE 88 Adding a Single IoT AP

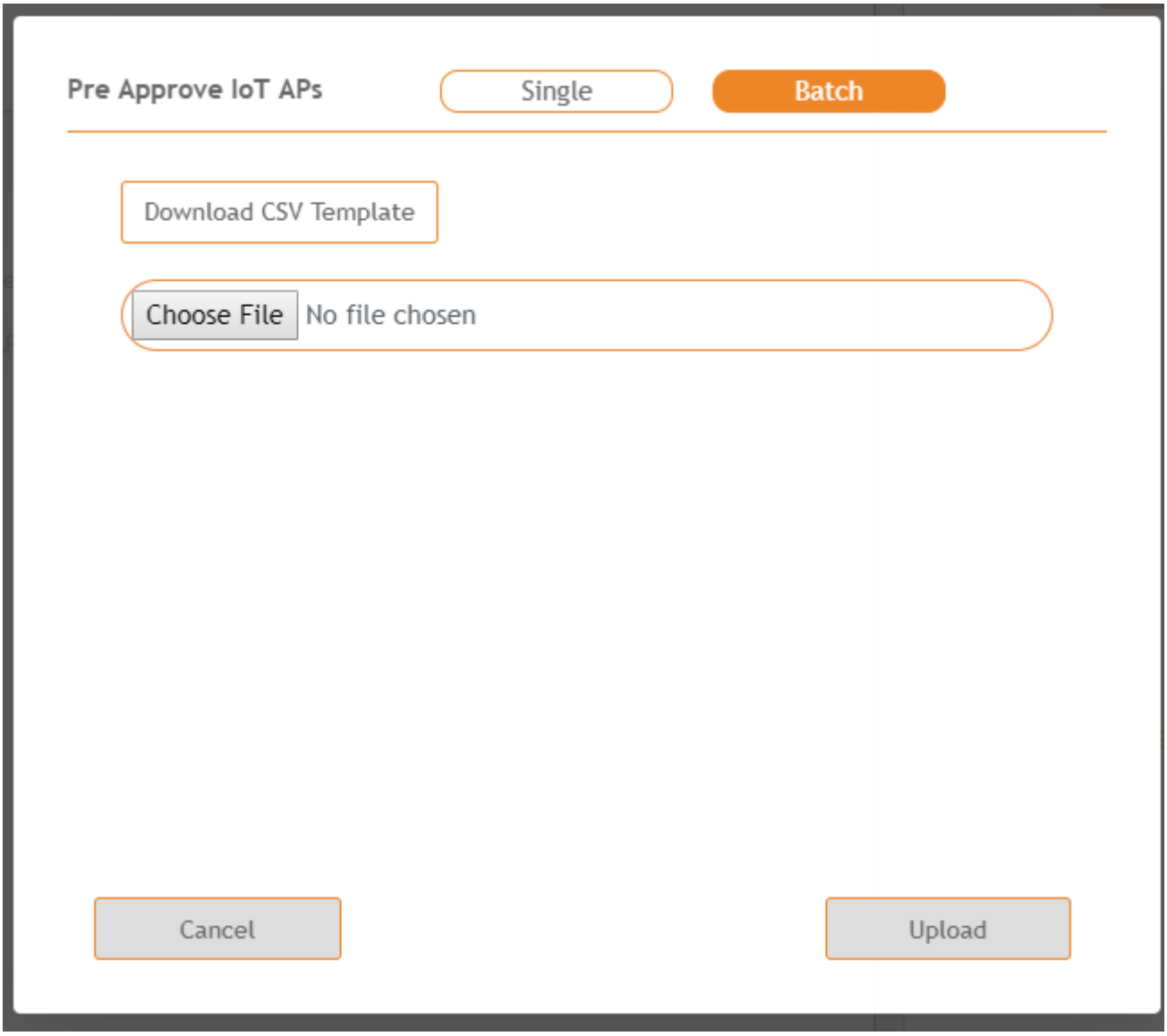


4. Enter the MAC address of the IoT AP and click **Save**.

   The IoT AP is now added to the IoT AP list.

   NOTE
   To add multiple IoT APs, click **Batch** and download the CSV template. Enter the required details in the CSV template and click **Upload**.

FIGURE 89 Adding a Batch of IoT APs



Editing an IoT AP

The administrator can edit an IoT AP to change its settings and name. Edits can be made on a single IoT AP or on IoT APs in bulk.

Single IoT Access Point Mode

You can use Single IoT Access Point Mode to edit a single IoT AP.

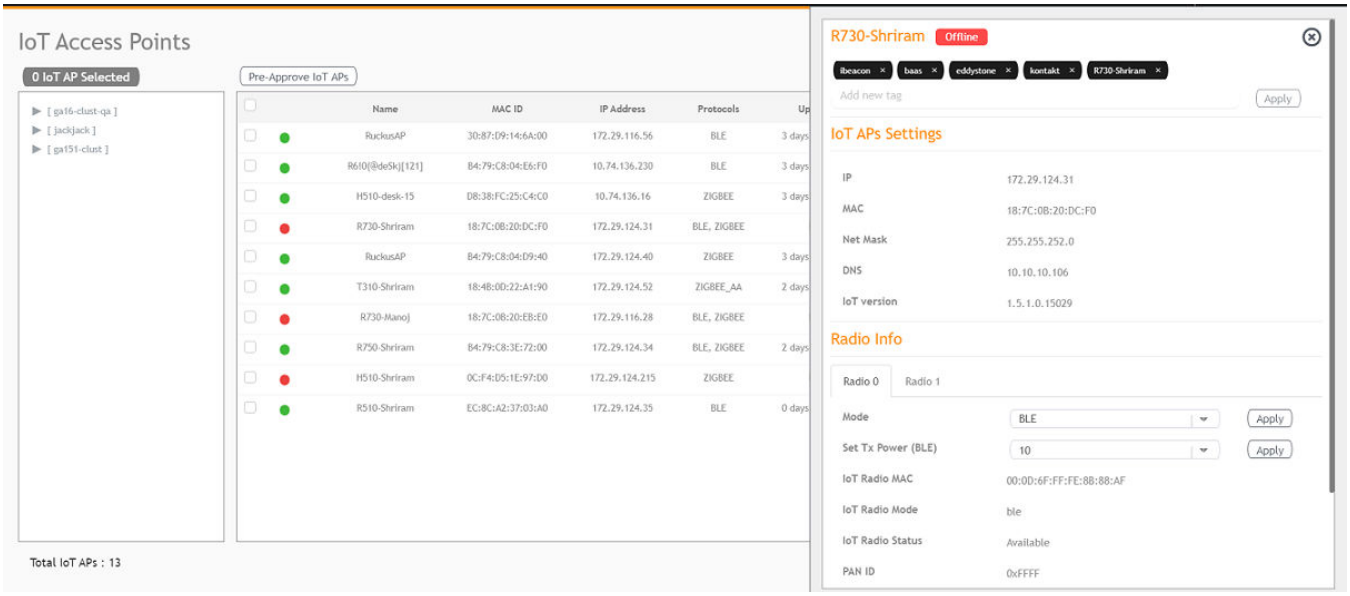
Complete the following steps to edit a single IoT AP.

1. From the main menu, click **IoT APs**.

   A list of selected IoT APs is displayed.

2. Click an IoT AP to edit.

   FIGURE 90 Single IoT AP Mode



   Existing information displays, and the following options can be edited:

   - **Add New Tag**
   - **Scan for IoT Devices**
   - **Restart IoT Service**
   - **IoT AP Approve**
   - **Mode** (Zigbee, BLE, Zigbee Assa Abloy)
   - **IoT Coexistence**
   - **Set Channel**
   - **Set TxPower**
   - **IoT Management VLAN**
   - **AP Firmware**
   - **AP Model**

   In addition, the status of the IoT AP module is available, such as network information, IoT AP module information, and properties.

3. Click **IoT Management VLAN** to configure the VLAN mode.
4. Select **ONLINK** to configure the VLAN within the same network.
5. Select **OFFLINK** to configure the VLAN within different network or different region.

Adding Tags to an AP

The AP tags are a way of grouping APs together by applying identifying tags. If the **Globally enable connector on all valid APs** is disabled when activating a plugin, complete the following steps to add tags to an AP to activate a plugin on the AP.

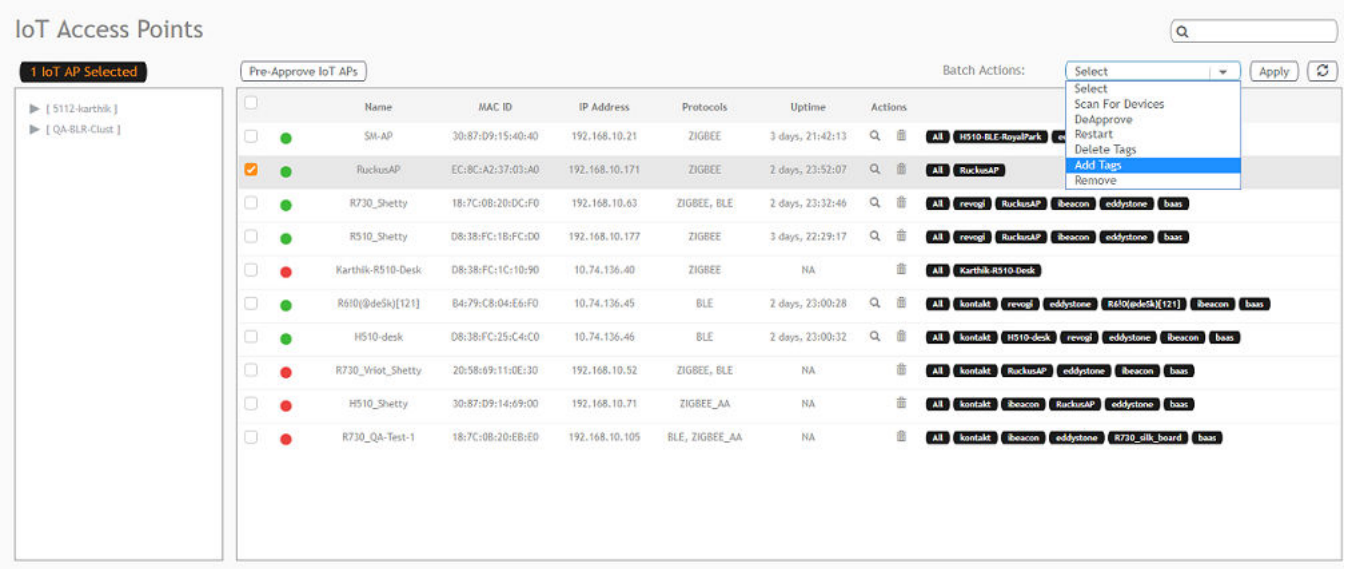
1. From the main menu, click **IoT APs**.

   A list of IoT APs is displayed.

2. Select an IoT AP.

   NOTE
   You can select one or more APs to add tags.

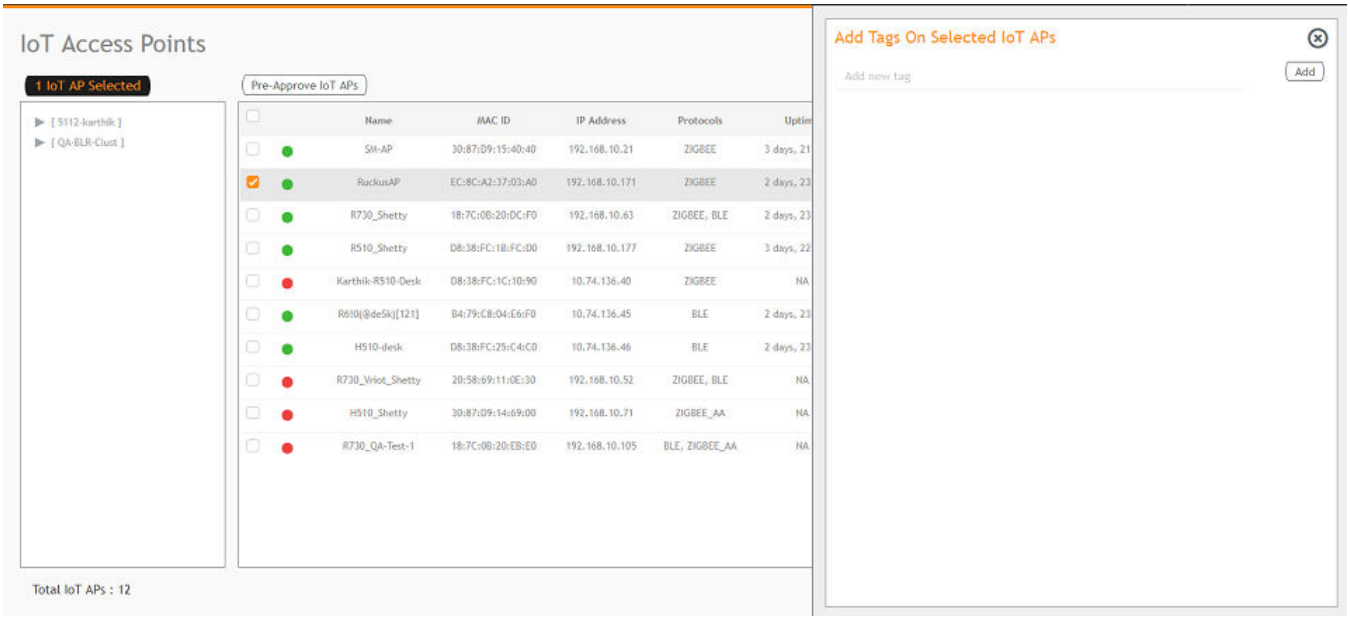
   FIGURE 91 Selecting an AP to Add Tags



3. Select **Add Tags** from the **Batch Actions** list.

4. Click **Apply**. The **Add Tags on Selected IoT APs** page is displayed. Enter the tag name in the field **Add new tag** field and click **Add**.

FIGURE 92 Adding a Tag



To activate a plugin, you must label the plugin with the respective tag name. The following table lists the plugins and corresponding tag names.

TABLE 5 Plugins and Corresponding Tag Names

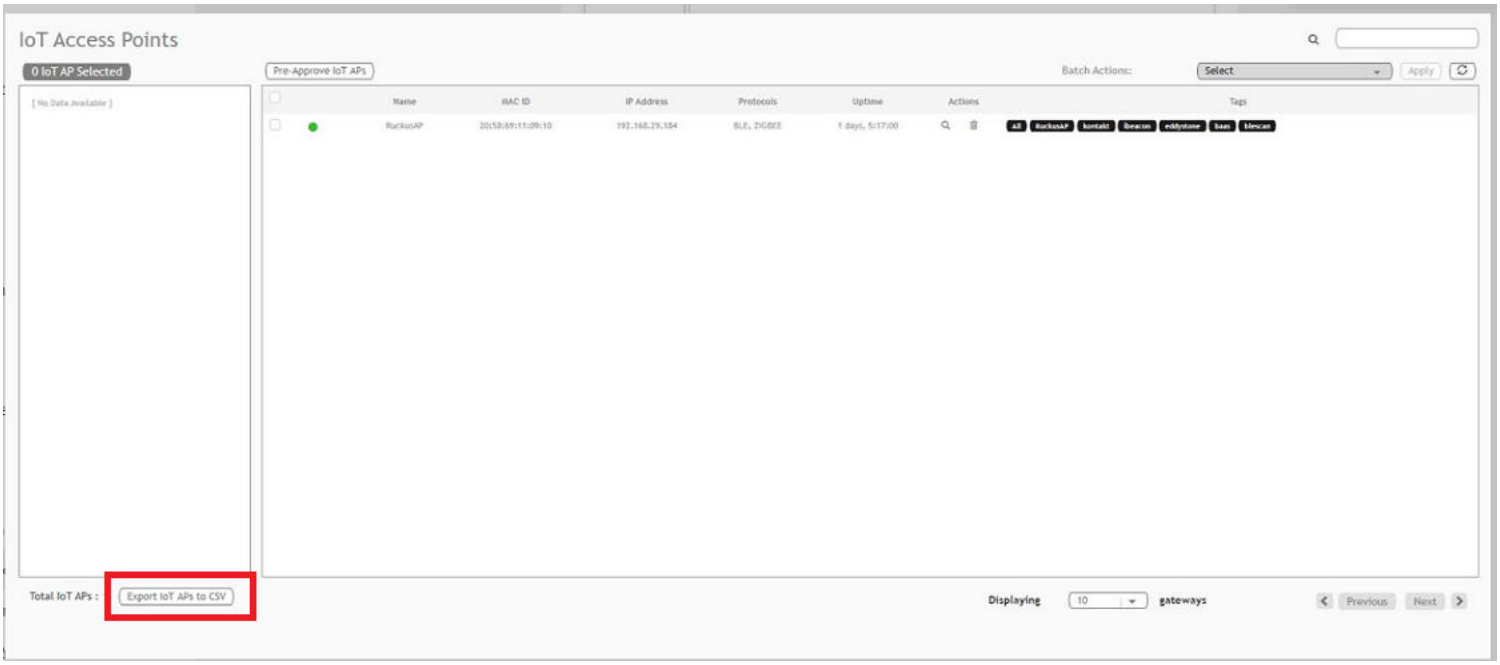
Plugin	Tag Name
Kontakt.io Beacons	kontakt
iBeacon	ibeacon
Beacon as a Service	baas
Eddystone	eddystone
BLE Scan	blescan

Approval of IoT APs

The IoT APs must be approved by the administrator. The RUCKUS I100 IoT Module is activated only for approved APs. There is an option to disapprove a previously approved AP. This operation can be performed on a single AP (using Single IoT Access Point Mode) or on multiple APs (using Bulk AP Mode).

Exporting IoT APs to CSV

You can export IoT APs to CSV by clicking **Export IoT APs to CSV**,which allows to download all the APs in the IoT APs page, and the corresponding information into a CSV format file that can be saved.



Managing Devices

- Devices Overview..... 93
- Managing OSRAM Light Bulbs..... 96
- Managing an Assa Abloy Lock..... 97
- Managing the Dormakaba Locks..... 98

Devices Overview

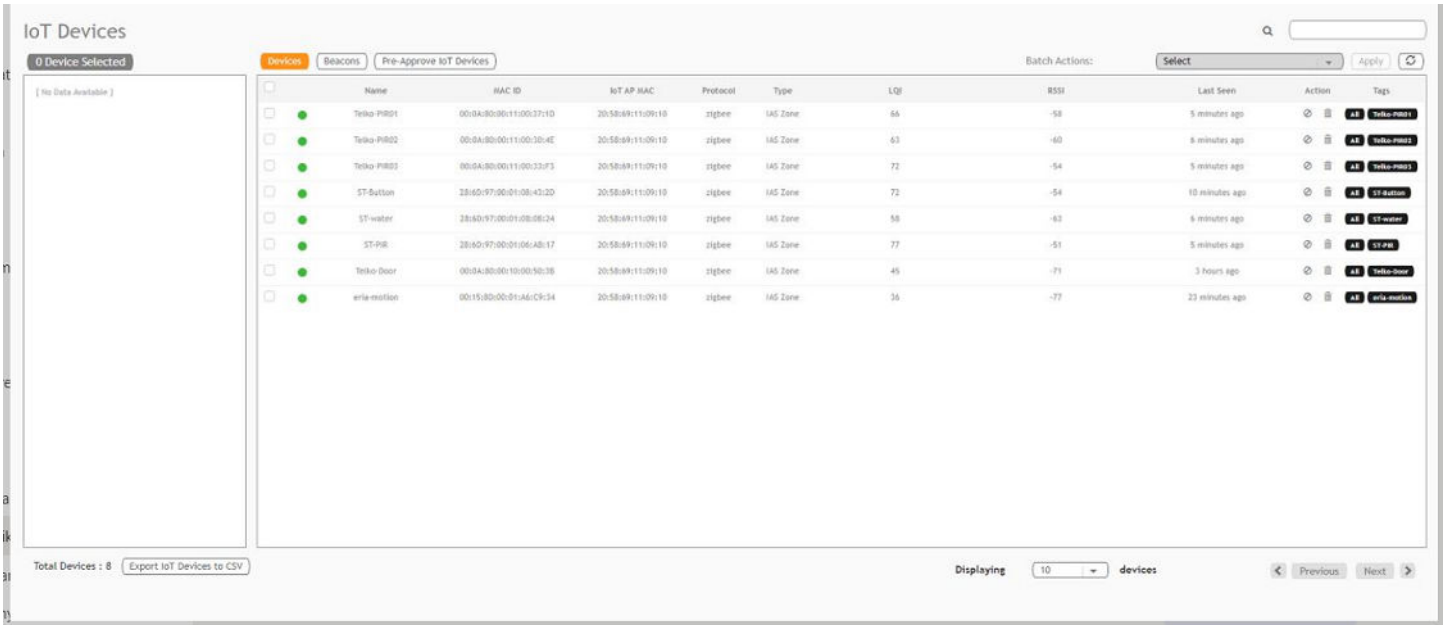
The RUCKUS IoT Controller requires explicit user approval of devices. Only an approved device can be allowed into the IoT infrastructure.

To add devices to the RUCKUS IoT Controller or to view the beacons for an AP, from the main menu, click **IoT Devices**.

The **IoT Devices** page shows the following items:

- A list of devices
- The operations on devices (such as remove, blacklist, and device-specific operations)

FIGURE 93 IoT Devices Page



The device scan operation must be performed to start the device discovery process on the gateway. Upon starting device discovery, a dialog box is displayed, as shown in the following figure.

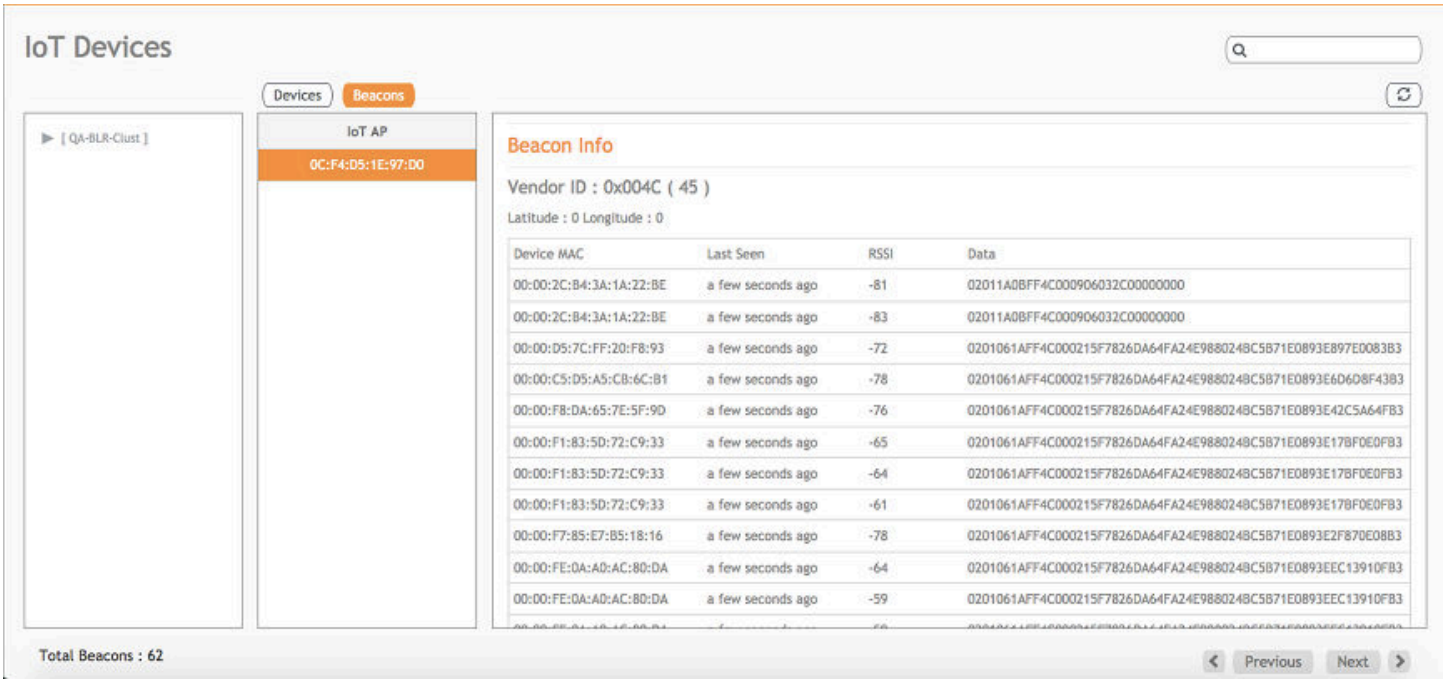
FIGURE 94 Device Discovery Dialog Box

A device gets added to the RUCKUS IoT Controller through Discover IoT Devices operations. If a device is pre-approved, the discovered device automatically joins the list of discovered devices. If the discovered device is not pre-approved, then you must select **Accept** or **Blacklist**. If the device is accepted, it joins the list of discovered devices.

FIGURE 95 Adding Device After Discovery

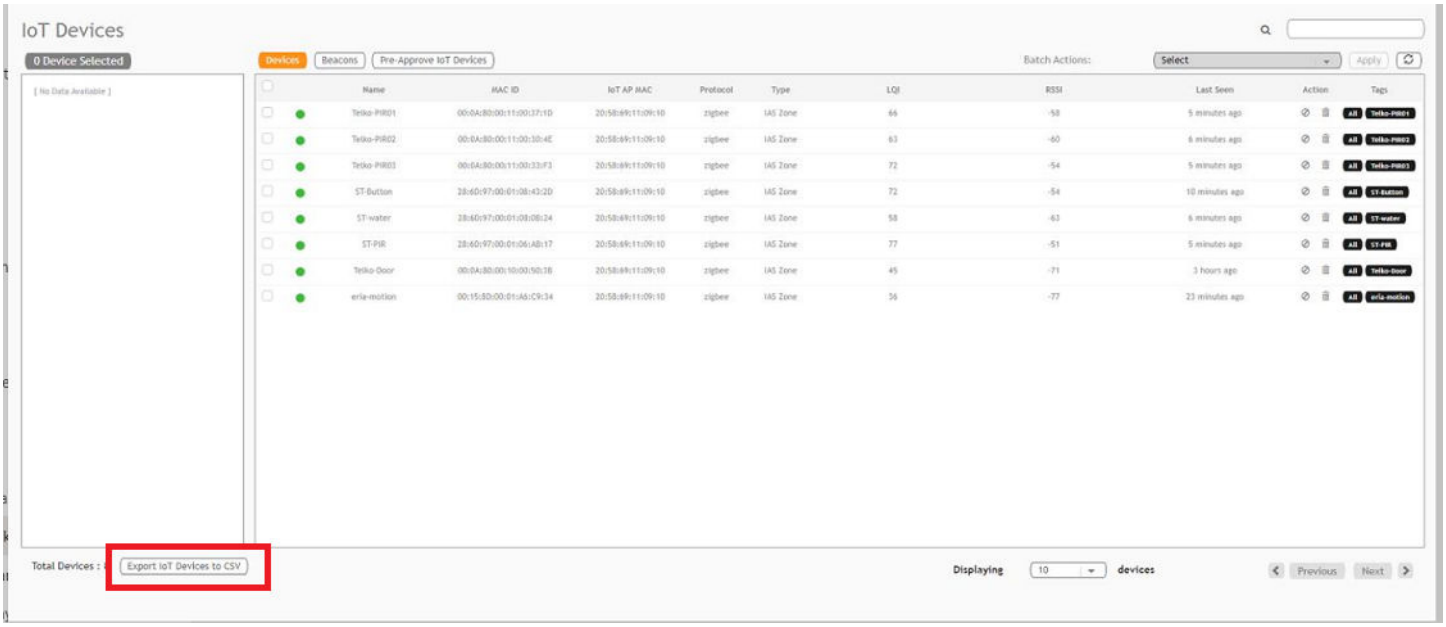
The **Beacons** page shows the list of beacons for the selected AP.

FIGURE 96 Beacons Page



The **Export IoT Devices to CSV** will allow to download all the Devices in the IoT devices page and corresponding information into a CSV format file which can be saved.

FIGURE 97 Exporting IoT Devices to CSV



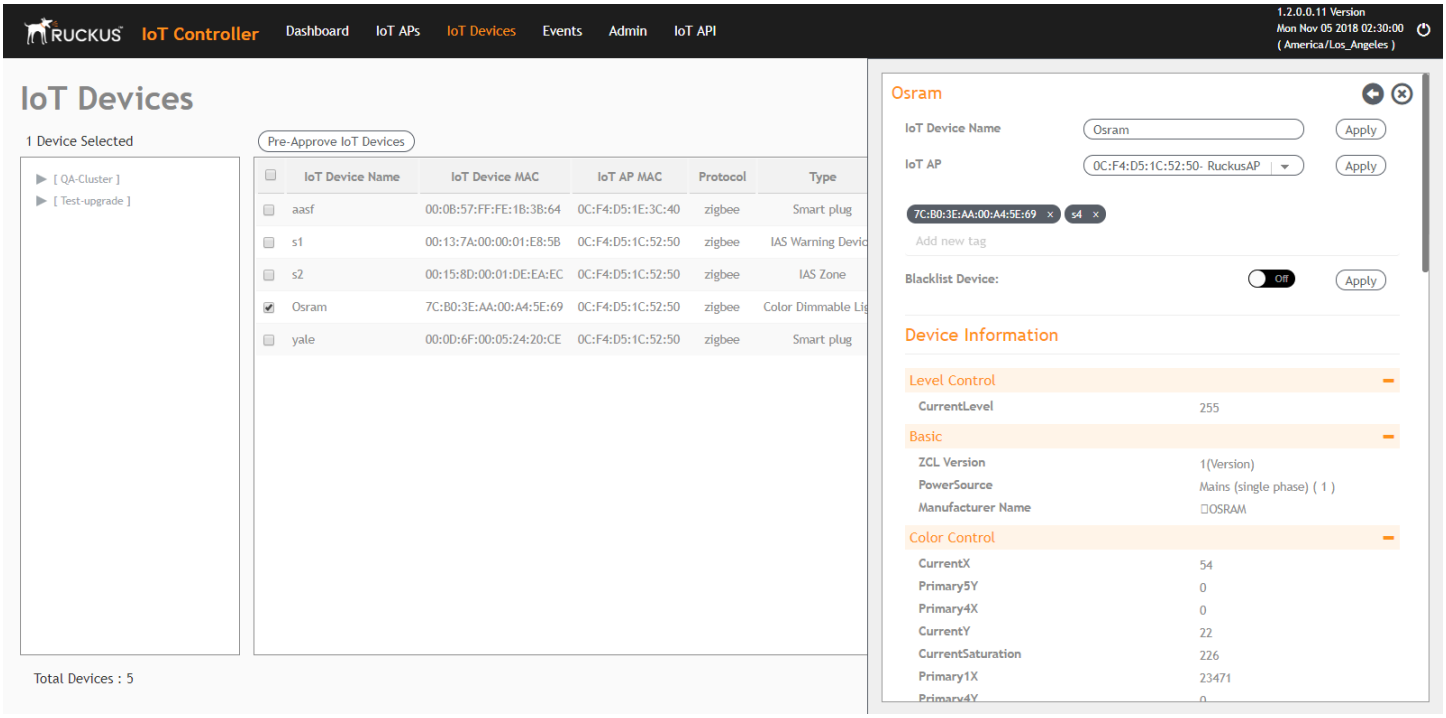
Managing OSRAM Light Bulbs

To discover OSRAM light bulbs, complete the following operations.

1. Ensure that the bulb is in the OFF state.
2. Switch on the power for five seconds.
3. Switch off the power for two seconds.
4. Repeat steps 2 and 3 five times.
5. Switch on the power.

The OSRAM light bulb on the Reset/Initiate discovery blinks blue, green, and red, and then the light bulb remains on.

FIGURE 98 Managing OSRAM Light Bulb



After clicking the device, the right pane is displayed. In this pane, you can edit device configurations and device operations. To change device configurations, set the device name in the **IoT Device Name** field, select an AP association from the **IoT AP** list, select the device tag from the **Add new tag** list, and set the device blacklist from the **BlackList Device** list. Device operations depend on the device selected.

NOTE
In the preceding figure, the device operations are on/off, color, and brightness, because the discovered device type is an OSRAM light bulb.

Managing an Assa Abloy Lock

Assa Abloy locks cannot be controlled using the RUCKUS IoT Controller. To discover an Assa Abloy lock and to add it in the RUCKUS IoT Controller, perform the following steps.

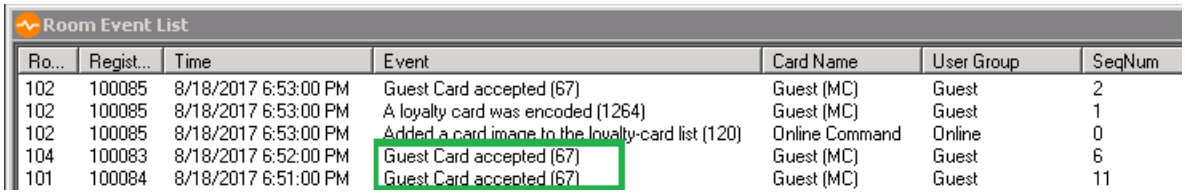
1. Swipe the AA Lock Discover Card across the lock.
2. Ensure that the LED blinks green.
3. Add the lock to the RUCKUS IoT Controller (if it is not already pre-approved).

Assa Abloy locks operate using the Visionline server. To establish the initial connection (after adding the lock) between an Assa Abloy lock and the Visionline server, perform the following steps.

1. Swipe the card (guest or staff card) in front of the lock.
2. Verify the event log from the Visionline Server Event Log to ensure that the connection is established.

NOTE
For more information, refer to the Visionline documentation for instructions on installing Visionline.

FIGURE 99 Visionline Server Event Log



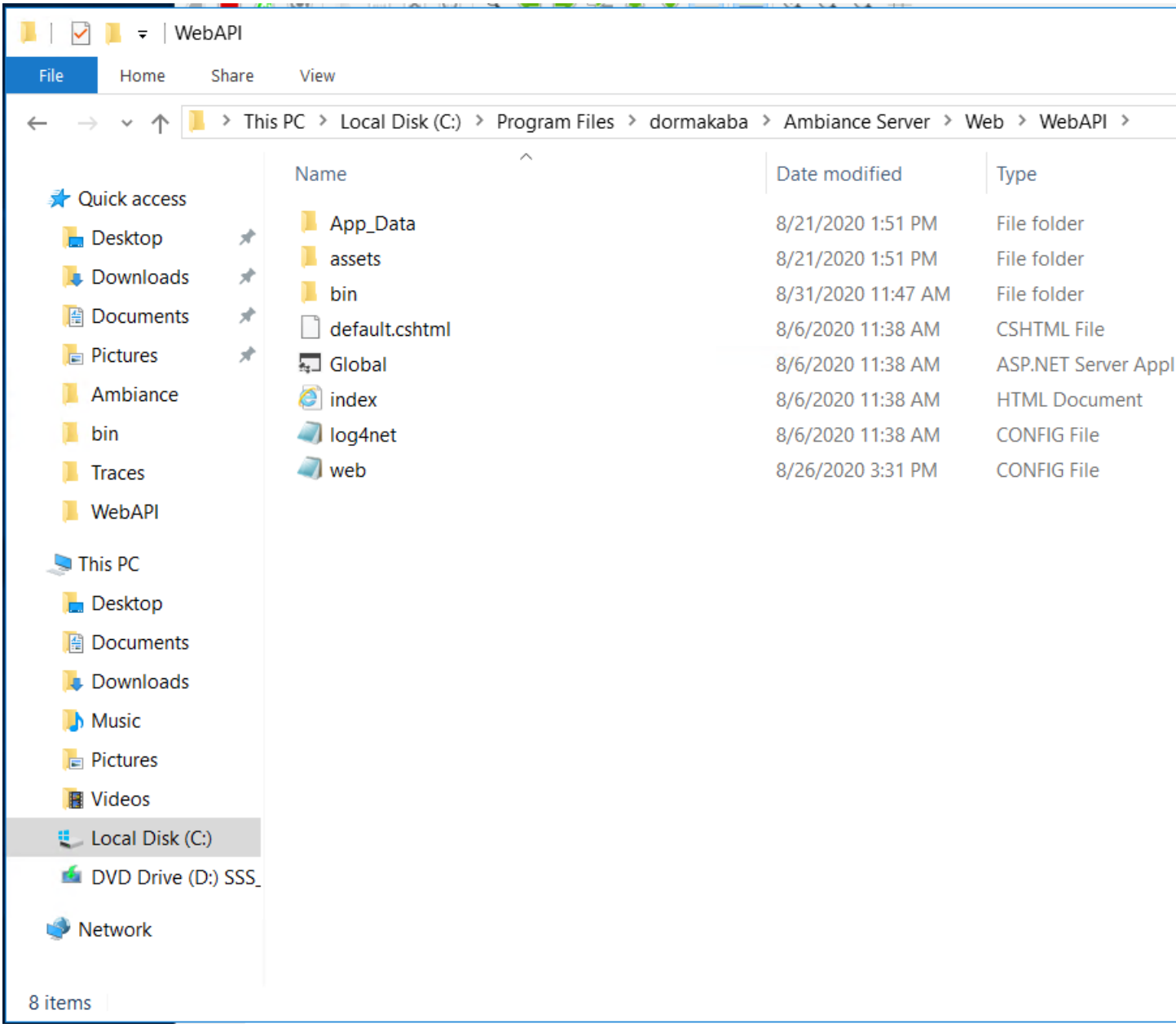
Managing the Dormakaba Locks

The communication between Ambiance Server and RUCKUS IoT Controller takes place through API Endpoints.

You must configure the IP adddress of the controller by performing the following steps.

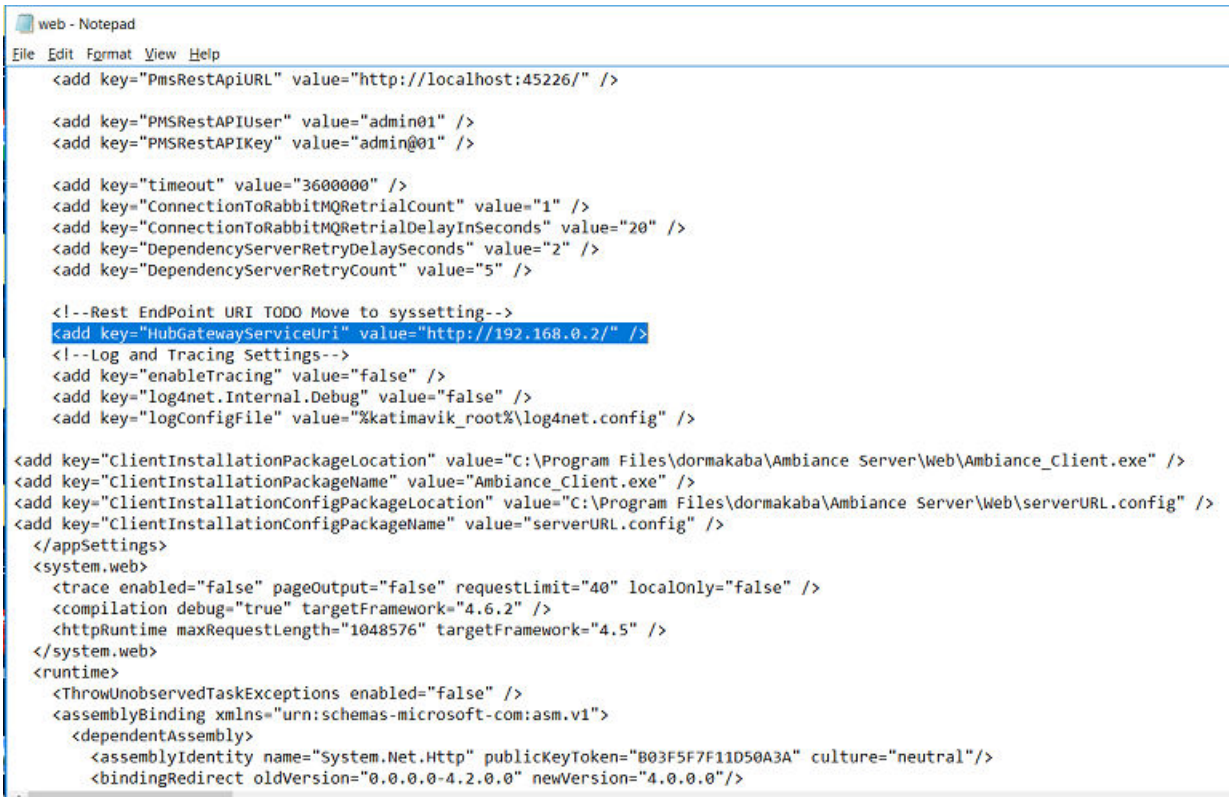
1. In the Ambiance Server, go to `C:\Program Files\dormakaba\Ambiance Server\Web\WebAPI\web.config file` and open the web.config file in notepad.

FIGURE 100 Locating the web config file



2. From the row, **HubGatewayServiceUri** value="http://10.74.136.127/", select the IP address of the controller.

FIGURE 101 Finding the IP Address



Discovering Dormakaba Lock

Dormakaba locks cannot be controlled using the RUCKUS IoT Controller. To discover a Dormakaba lock and to add it in the controller, perform the following steps.

1. Select the Gateway and start a Device Scan from Ambiance UI.

   A scan window appears in the UI.
2. Swipe the DormaKaba Pairing Card across the lock.
3. Ensure that the LED blinks.

   Dormakaba Lock details will show in the Scan Window of the contrroller.
4. Add the lock to the Ruckus IoT Controller (if it is not already pre-approved).
5. Go to **Device Management** page, select the **Gateway**, click on **Next** to Access Points in the Ambiance UI.

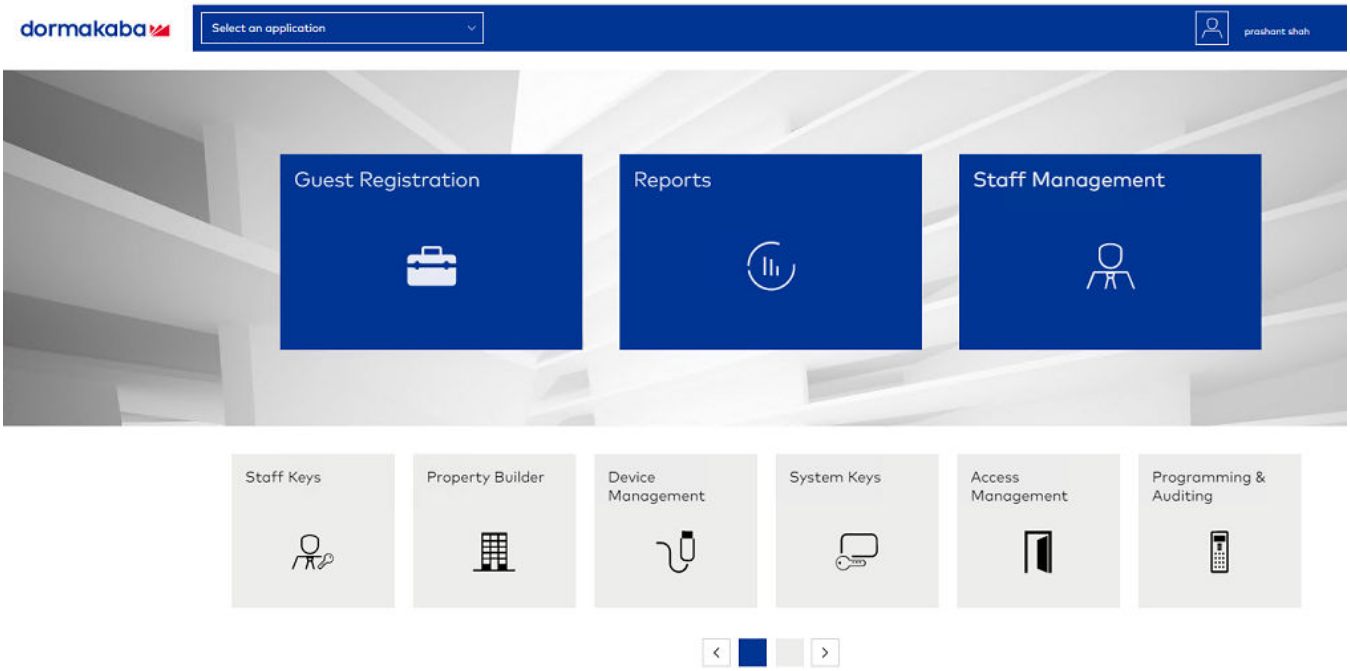
   You can now verify if the lock has established its communication with Ambiance Server.

Blocking and Unblocking Dormakaba Lock

Dormakaba locks operate using the Ambiance server. Complete the steps below to onboard lock.

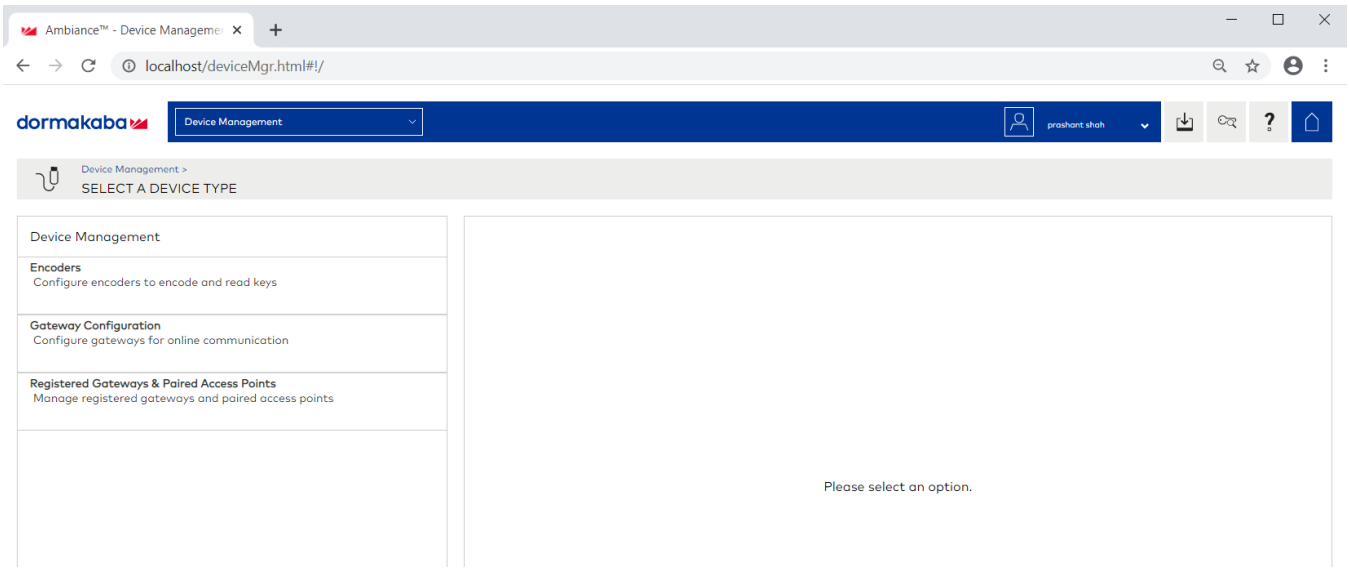
1. Login to the Ambiance Server. The default username and password is **Admin01** and **Admin@01**.

FIGURE 102 Login into Dormakaba Plugin



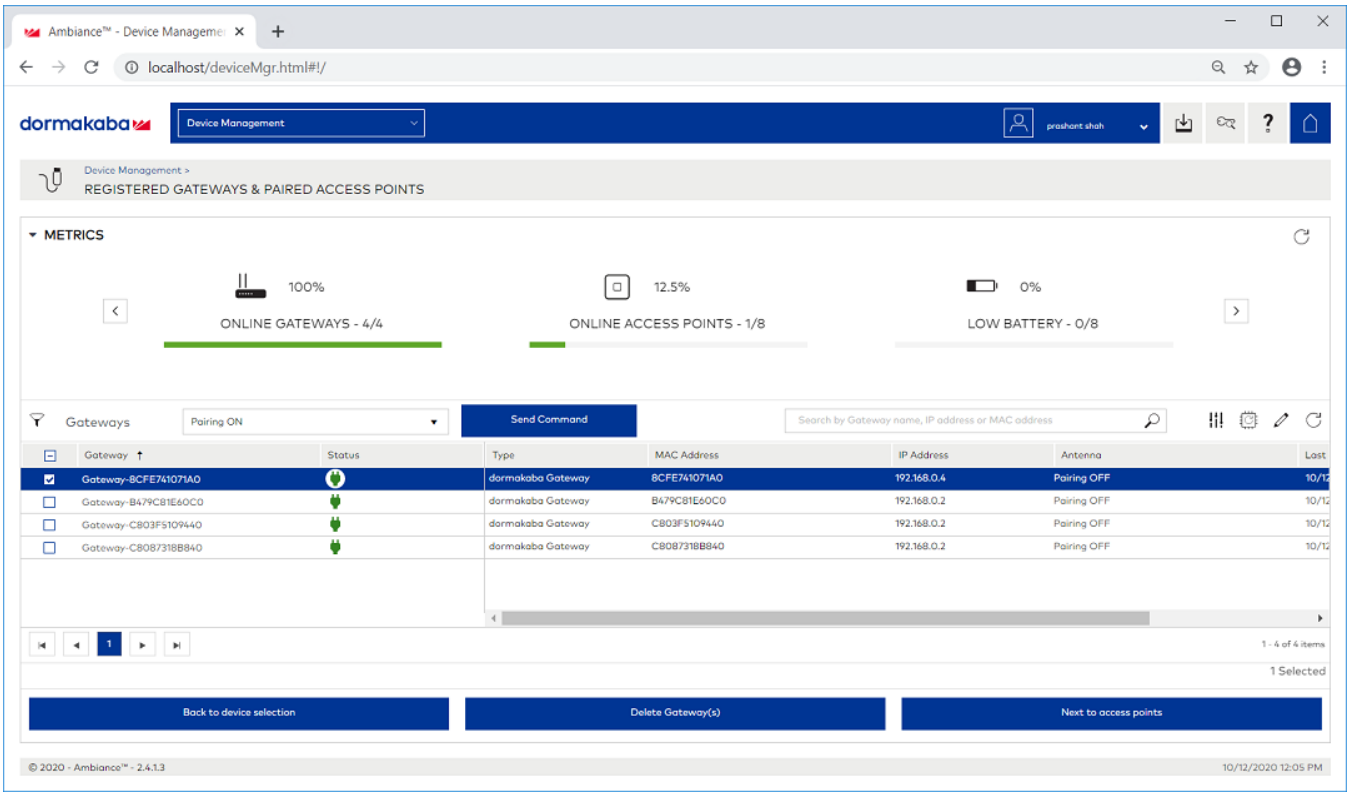
2. Click **Device Management**.

FIGURE 103 Selecting Device Management



3. Click **Register Gateways & Paired Access Points**.

FIGURE 104 Selecting Register Gateways and Paired Access points

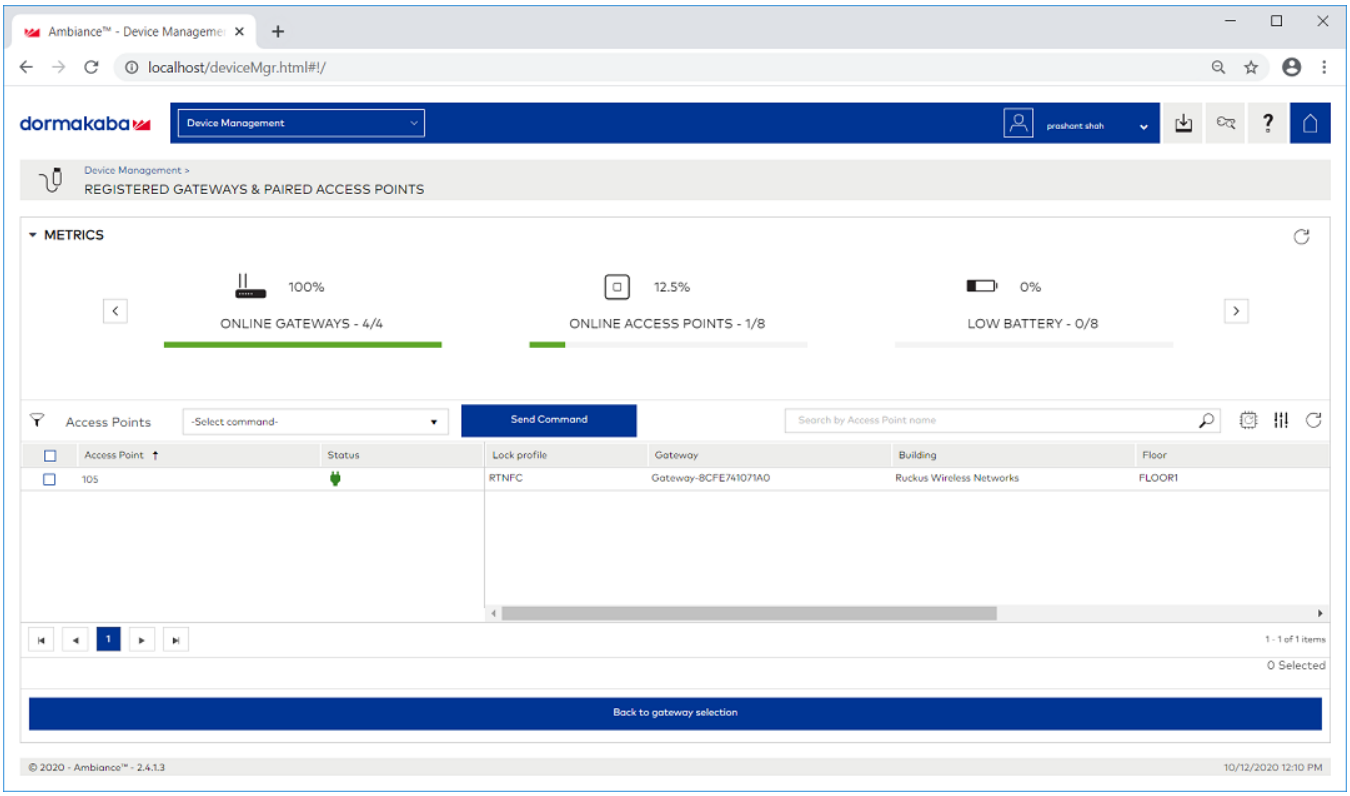


4. From the **Gateways**, select a gateway, and from the pull down select **Pairing ON** and click **Send Command** to start the gateway in scanning mode.
5. Swipe RF Pairing key card.

   The LED pattern blinks green LED once, and amber colour LED thrice.
6. Lock will appear in IoT Controller's **Scan Window**, give name to the Lock and click **Accept**.
7. Select the same **Gateway**, from pull down menu and select **Pairing OFF**, and click **Send Command** to stop pairing.

8. Click **Device manager** > **Registered Gateways & Access Points**, and select the Access point.

FIGURE 105 Displaying the Lock



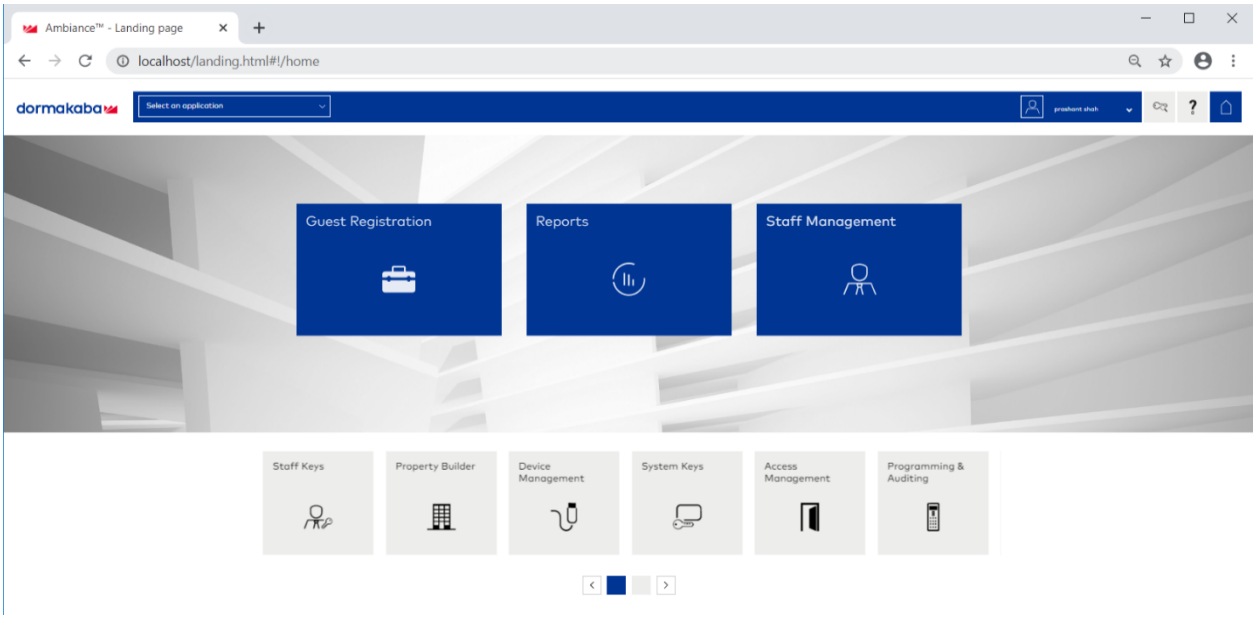
9. To confirm the lock connection, select the sage gateway, and click **Next to Access Point**.

Blocking the Key Remotely

Perform the below steps to block the key remotely.

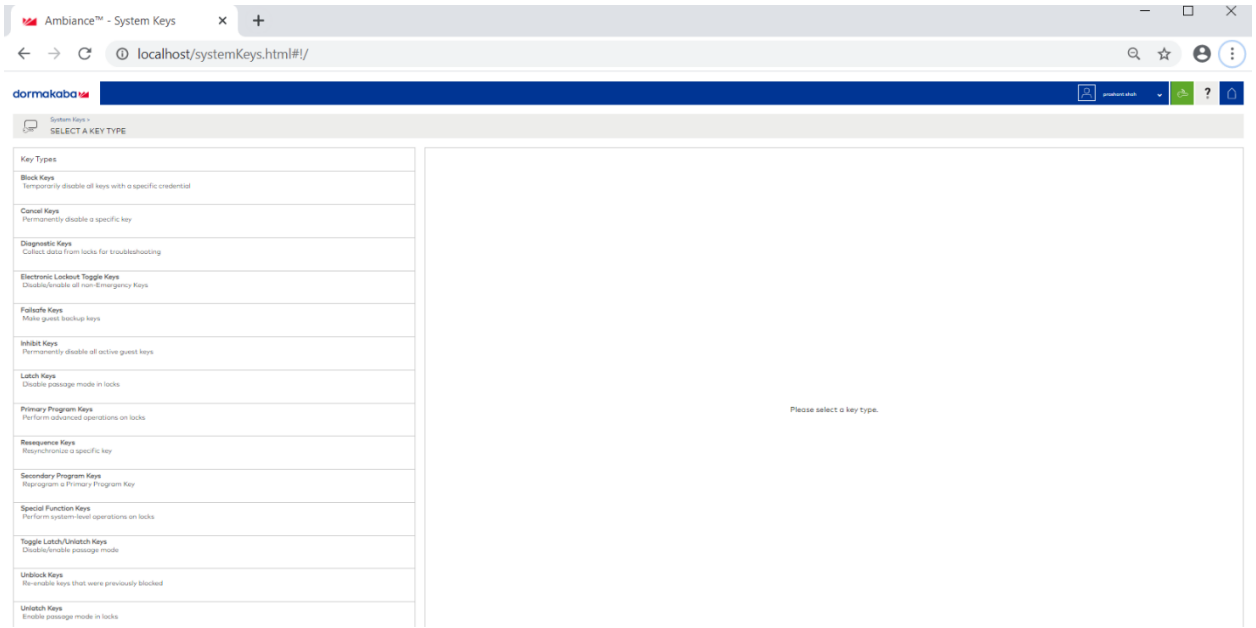
1. Go to Dormakaba Homepage.

   FIGURE 106 Dormakaba Homepage



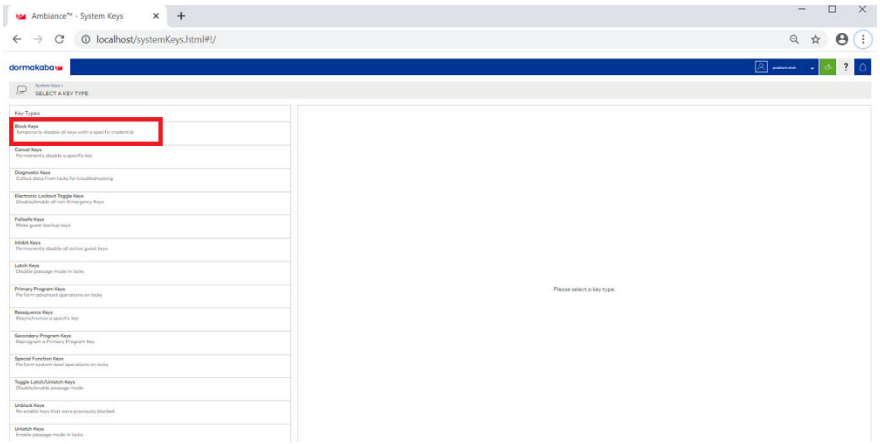
2. Click **System Keys**.

   FIGURE 107 Selecting the System Keys



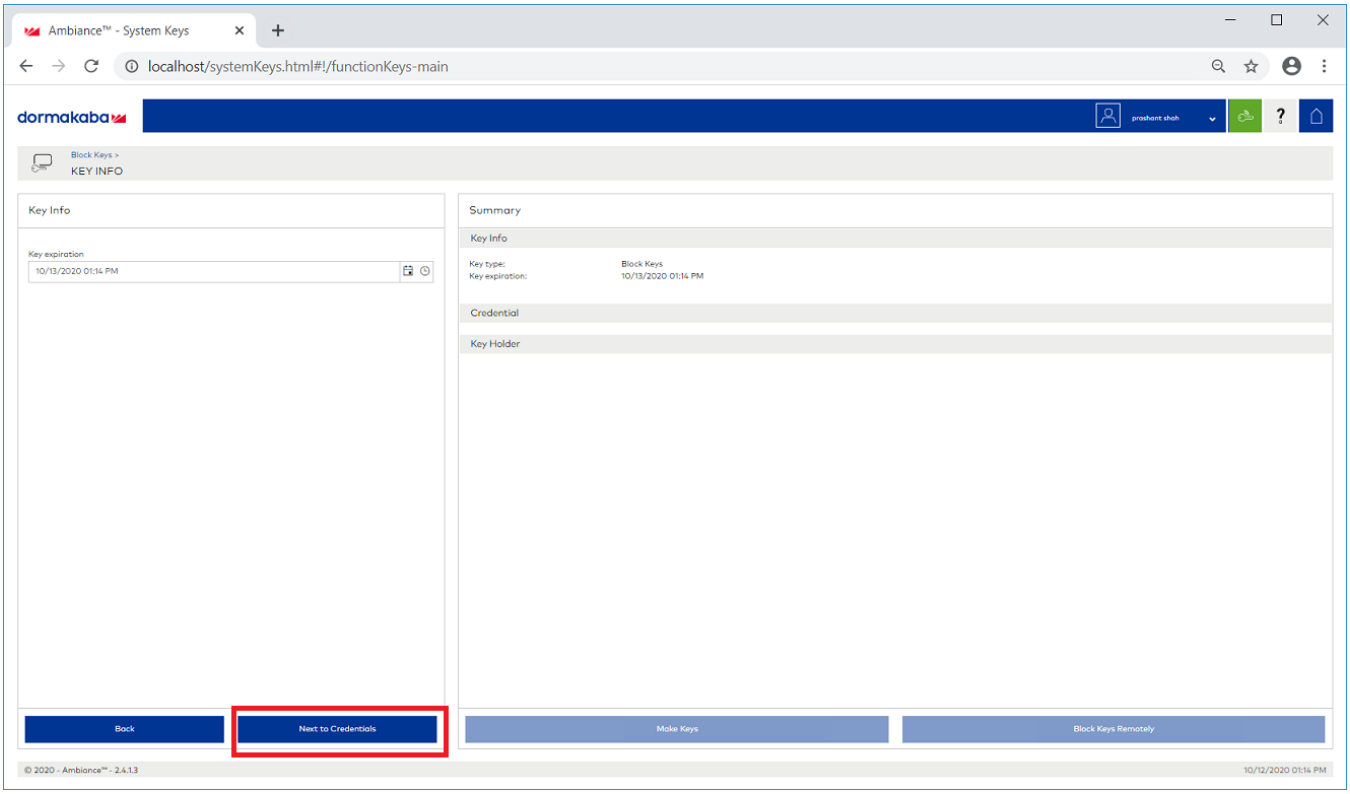
3. Click **Block Keys**.

FIGURE 108 Selecting the Block Keys



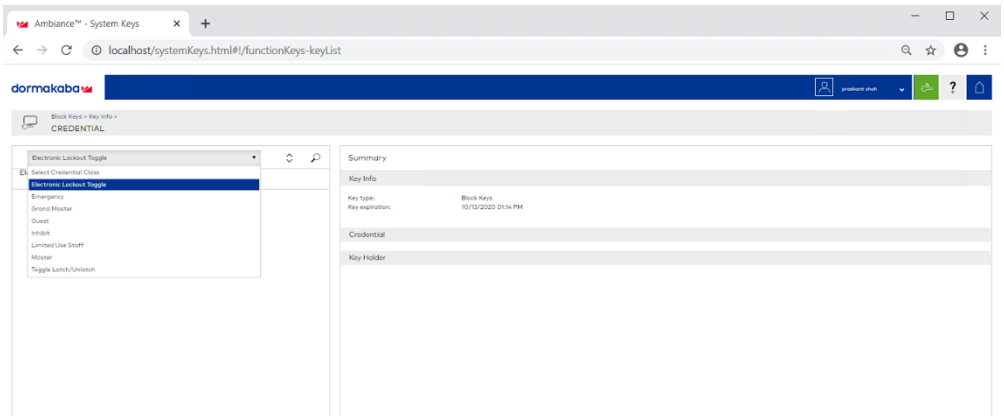
4. Click **Next to credential**.

FIGURE 109 Clicking the option Next to credential



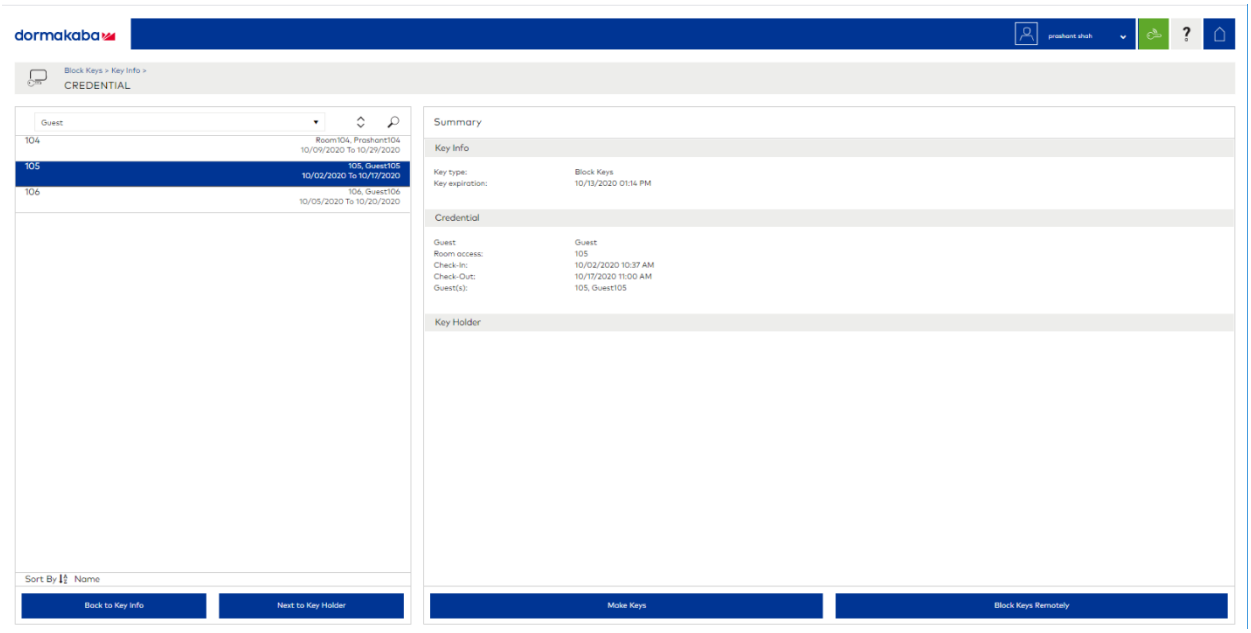
5. From the list, select **Guest** to block a **Guest room**.

FIGURE 110 Selecting Guest from the drop-down list



6. Select a guest room number from the drop-down list to block the key.

FIGURE 111 Selecting the Guest Room Number



7. Click **Block Key Remotely**.

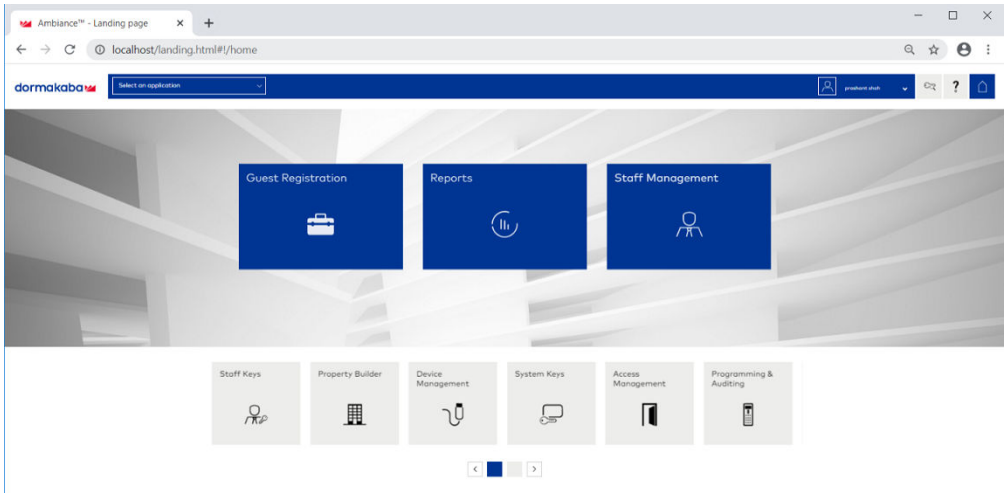
After you click **Block Key Remotely**, the LEDs will glow in the following pattern - one solid red LED, six green, and yellow LED together.

Unblocking the Key Remotely

Perform the below steps to unblock the keys remotely.

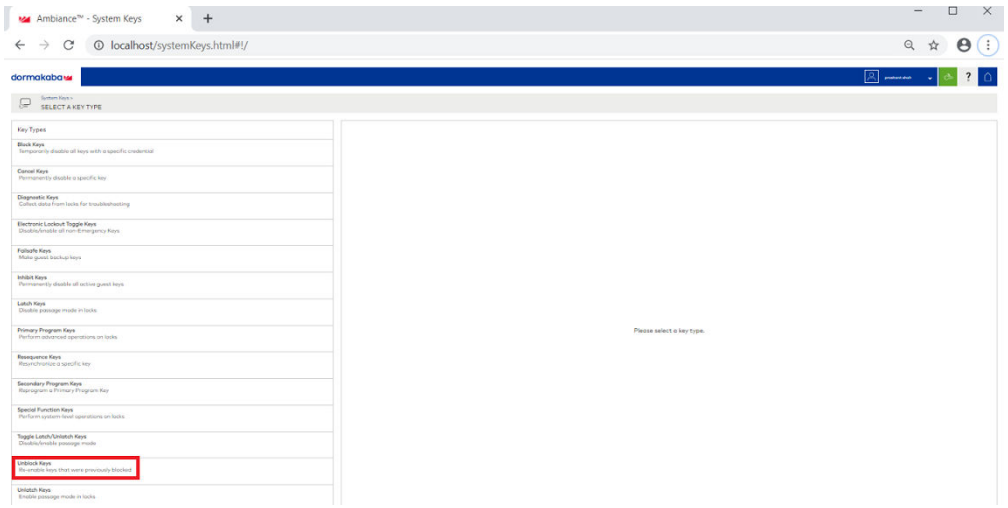
1. Go to the Dormakaba Homepage.

   FIGURE 112 Dormakaba Homepage



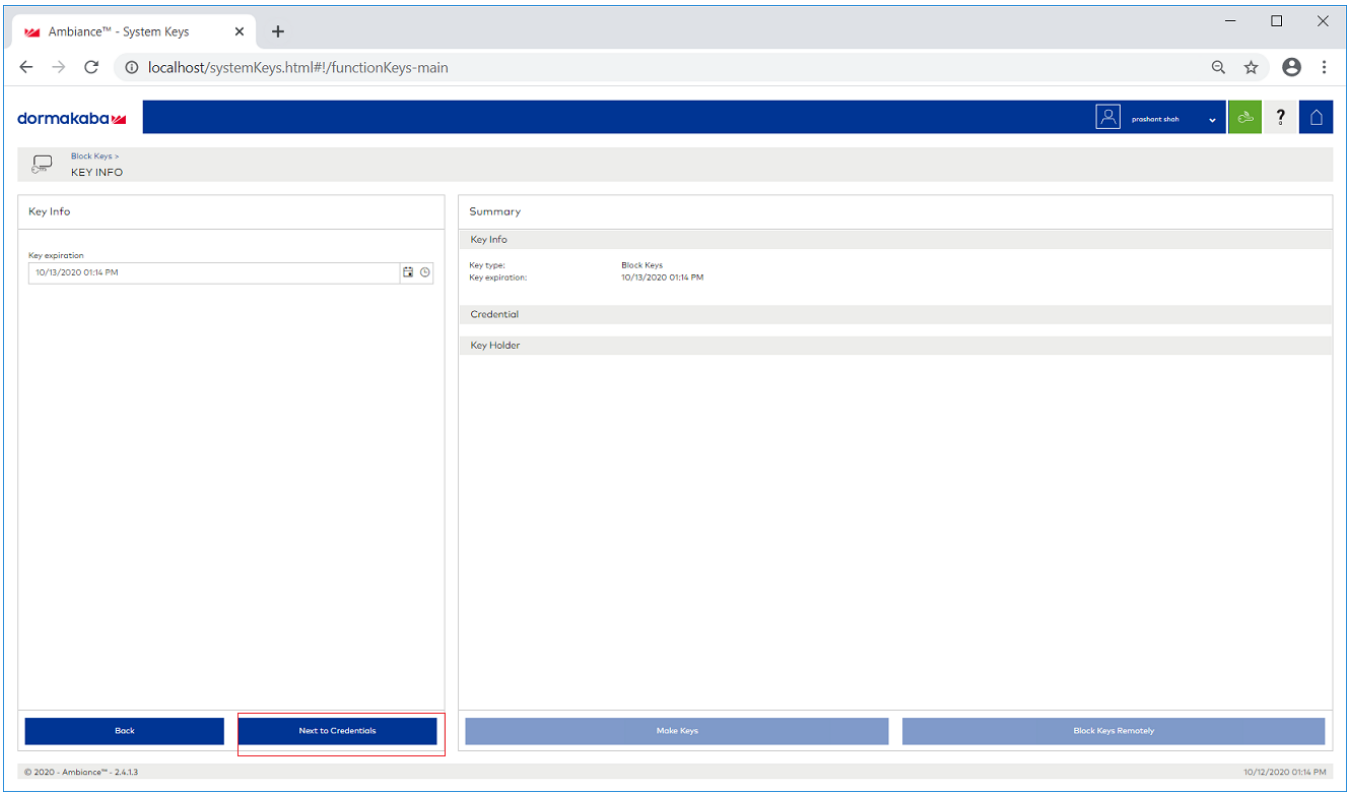
2. Click **System Keys**.

   FIGURE 113 Selecting the Unblock Keys



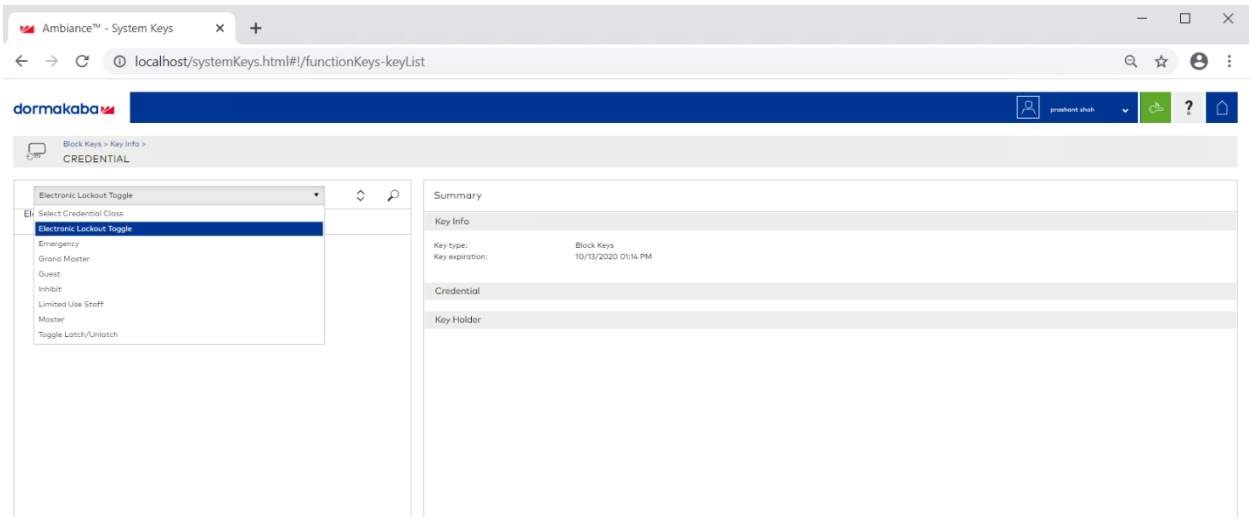
3. Click **Next to Credntial**.

FIGURE 114 Clicking the option Next to Credential



4. From the list select **Guest** to unblock a guest room.

FIGURE 115 Selecting Guest from the drop-down list



5. Select a guest room number to unblock.

6. Click **Unblock Key Remotely**.

   After you click **Unblock Key Remotely**, the LEDs will glow in the following pattern - one solid red LED, six green, and yellow LED together.

Rules Engine

- Rules Engine Overview..... 112
- Configuring Rules..... 112
- Rules-Dashboard..... 113

Rules Engine Overview

The RUCKUS IoT Controller provides a provision to write custom rules using the Node-RED tool. The Rules Engine provides a browser-based Node-RED editor that makes design flows using the wide range of nodes in the palette. These nodes can be deployed at runtime in a single click.

Configuring Rules

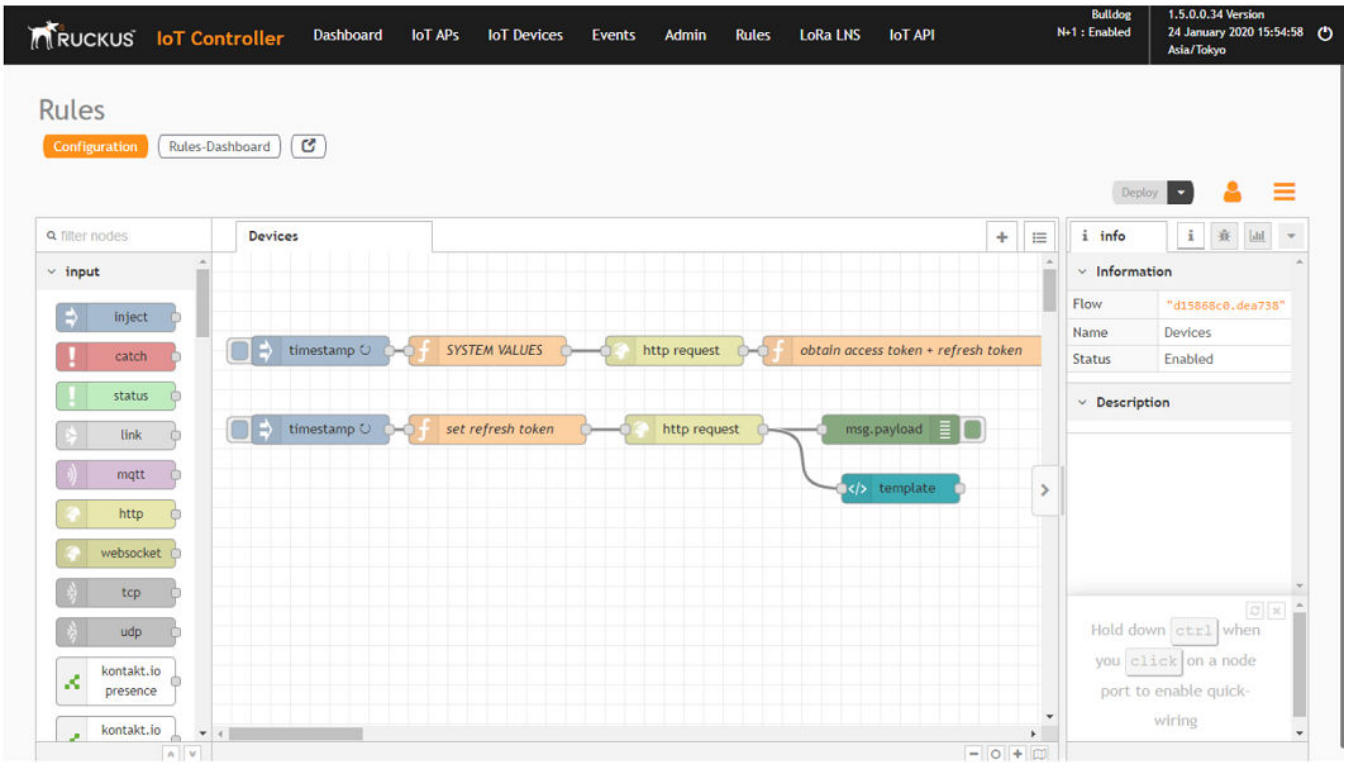
The RUCKUS IoT Controller allows you to configure a rule or design a flow for an AP or device by using a wide range of the nodes in the palette of Node-RED editor.

Complete the following steps to configure a rule.

1. From the main menu, click **Rules** > **Configuration**.

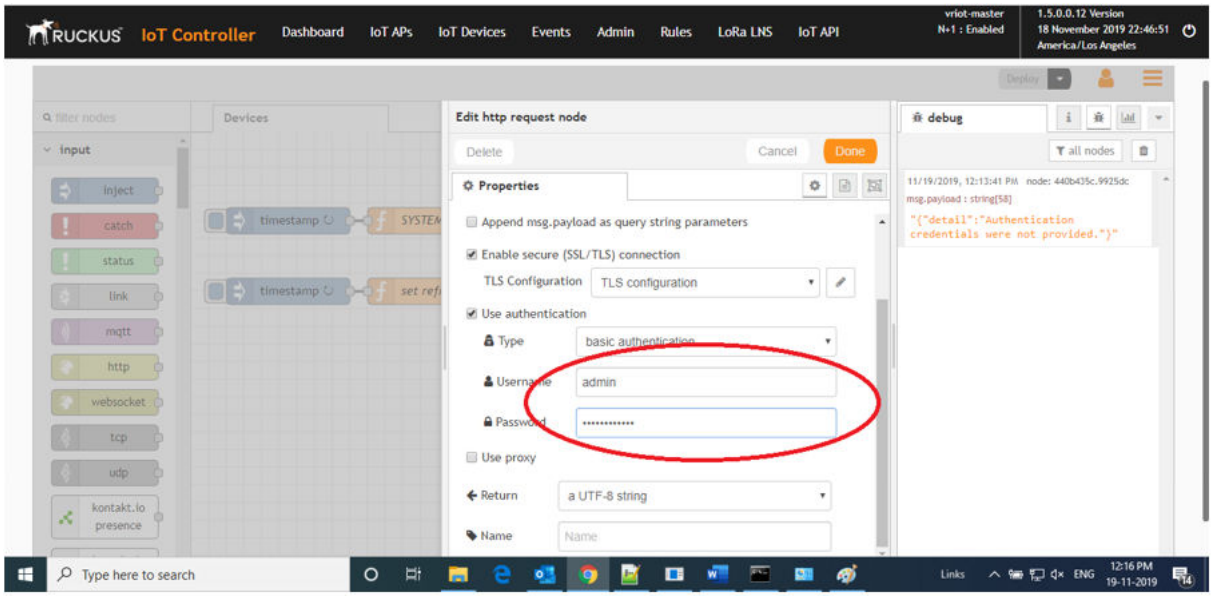
   NOTE
   To create the rules, refer to https://nodered.org/docs/.

FIGURE 116 Configuring a Rule



2. Click the **http request** node.

FIGURE 117 Editing the HTTP Request Node



Enter the login credentials, such as username and password, in the **Username** and **Password** fields, respectively.

3. Click **Deploy**.

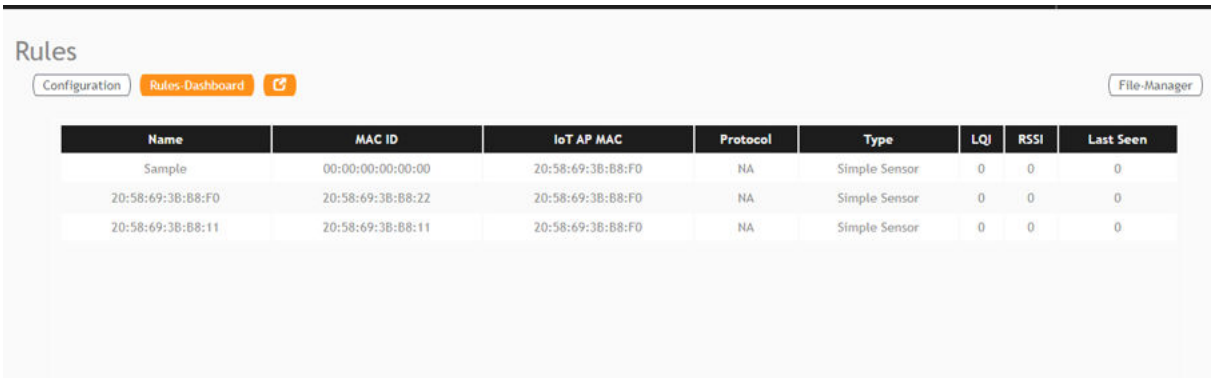
The workflow is ready to be deployed.

Rules-Dashboard

The **Rules-Dashboard** displays the configured rules.

1. From the main menu, click **Rules** > **Rules-Dashboard**.

FIGURE 118 Rules-Dashboard



The **Rules-Dashboard** lists the configured devices.

2. Click .

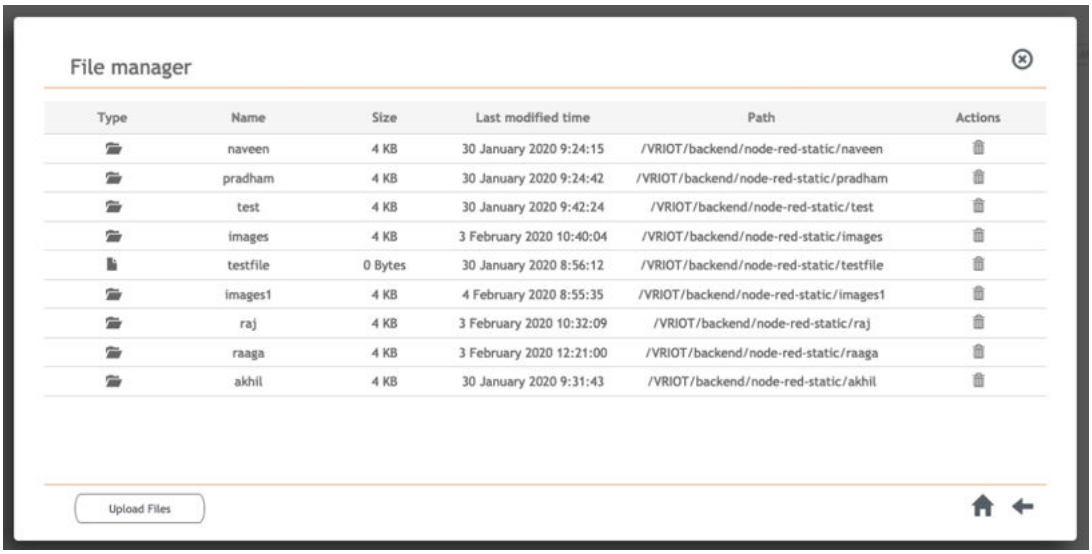
   A browser opens with the **Rules-Dashboard** page.

3. Click File-Manager.

   A File-Manager page opens

4. Click **Upload Files**.

FIGURE 119 Uploading Files in the File Manager



NOTE

The following file-formats are supported to upload the file.

- HTML
- CSS
- PNG
- JPEG
- GIF

LoRaWAN

- LoRaWAN Overview 115
- Logging In to the LoRa Network 115
- LoRaWAN Dashboard 116
- Configuring LoRa Devices 117
- Configuring LoRaWAN Routers 119

LoRaWAN Overview

LoRa is a wireless technology used for IoT applications. LoRaWAN can be provisioned using the LoRa Network Server (LNS) that is embedded in the RUCKUS IoT Controller. The RUCKUS IoT LNS is able to communicate with LoRa routers, end devices, and as well as with LoRa application servers through its northbound interfaces.

Logging In to the LoRa Network

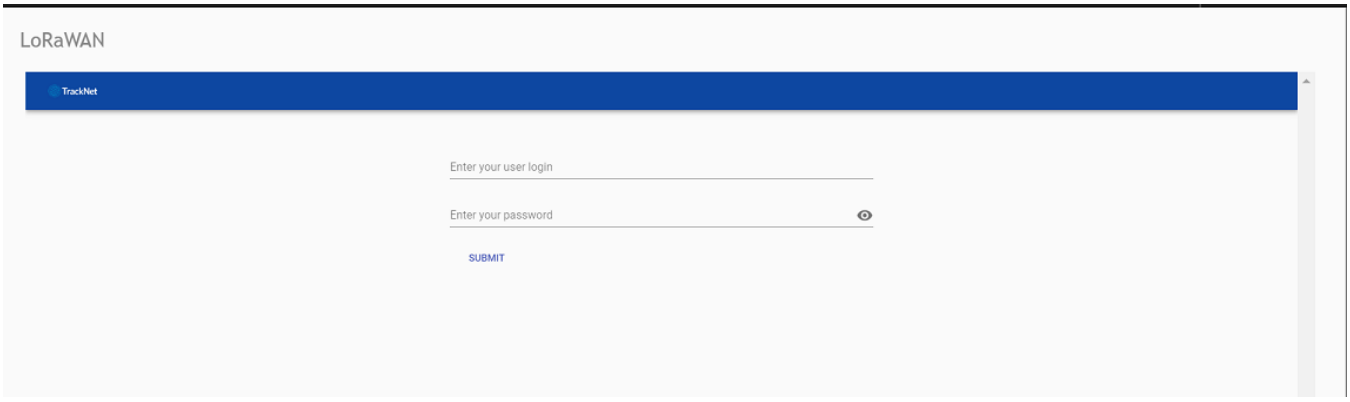
LoRaWAN is a media access control (MAC) protocol for wide area networks. It is designed to allow low-powered devices to communicate with Internet-connected applications over long-range wireless connections.

Complete the following steps to access the LoRa network.

1. From the main menu, click **LoRa LNS**.

   The LoRaWAN login page is displayed.

   FIGURE 120 Logging In to the LoRaWAN



2. Enter the login credentials and click **Submit**.

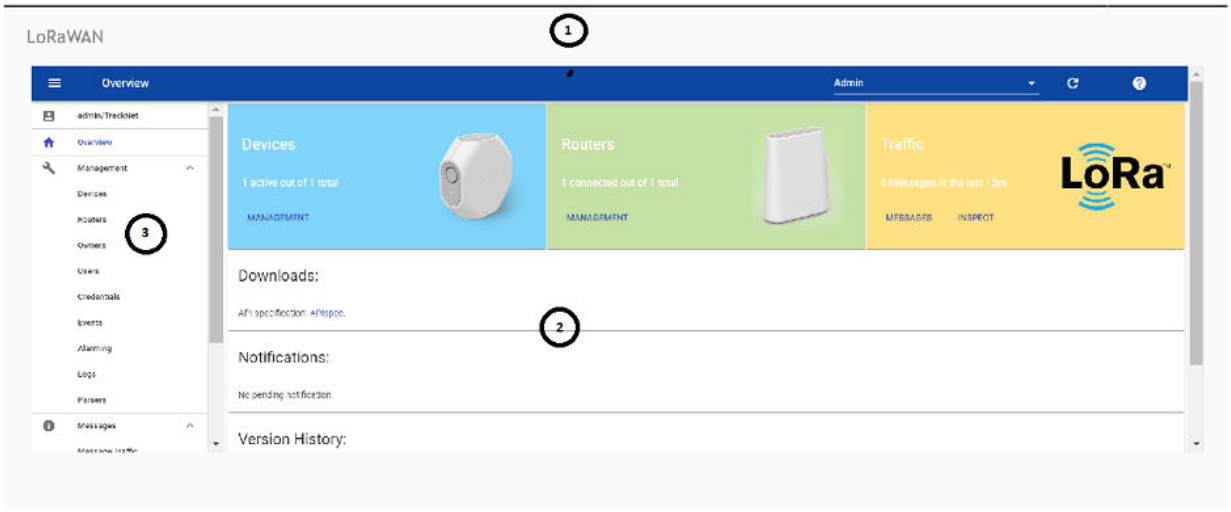
   NOTE

   The login credentials for the LoRaWAN network and the RUCKUS IoT Controller are the same.

LoRaWAN Dashboard

The LoRaWAN dashboard provides the count of routers and devices connected to the LoRa Network Server (LNS) of the RUCKUS IoT Controller. It also displays the messages related to network traffic.

FIGURE 121 LoRaWAN Dashboard



1. Header Panel
2. Main Control Panel
3. Navigation Bar

The following table describes the components of the LoRaWAN dashboard.

TABLE 6 Identifying the Various Components of the LoRaWAN Dashboard

Name	Components
Header Panel	Consists of the following components: • Help icon • Refresh icon • Name of the user

TABLE 6 Identifying the Various Components of the LoRaWAN Dashboard (continued)

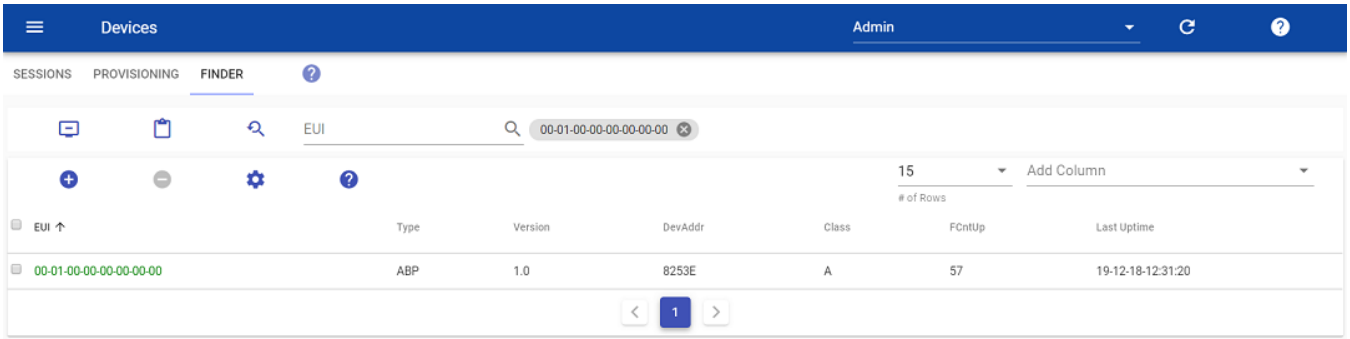
Name	Components
Main Content Panel	Consists of the following components: • Devices: Displays the count of LoRa devices connected to the LNS. **NOTE** If you click **Management** , the **Devices** page is displayed with more information about the devices. • Routers: Displays the count of LoRa routers connected to LNS. If you click **Management**, the **Routers** page is displayed with more information about the routers. • Traffic: Displays the traffic in the network. **NOTE** If you click **Message**, the **Message traffic** page is displayed. If you click **Inspect**, the **Watchboard** page is displayed. • Downloads: Allows you to download API specification files. • Notifications: Displays the notifications. • Version History: Displays the version history of LoRa Network Server (LNS).

Configuring LoRa Devices

Before you add LoRa devices to the Lora Network Server (LNS), you must provision the device.

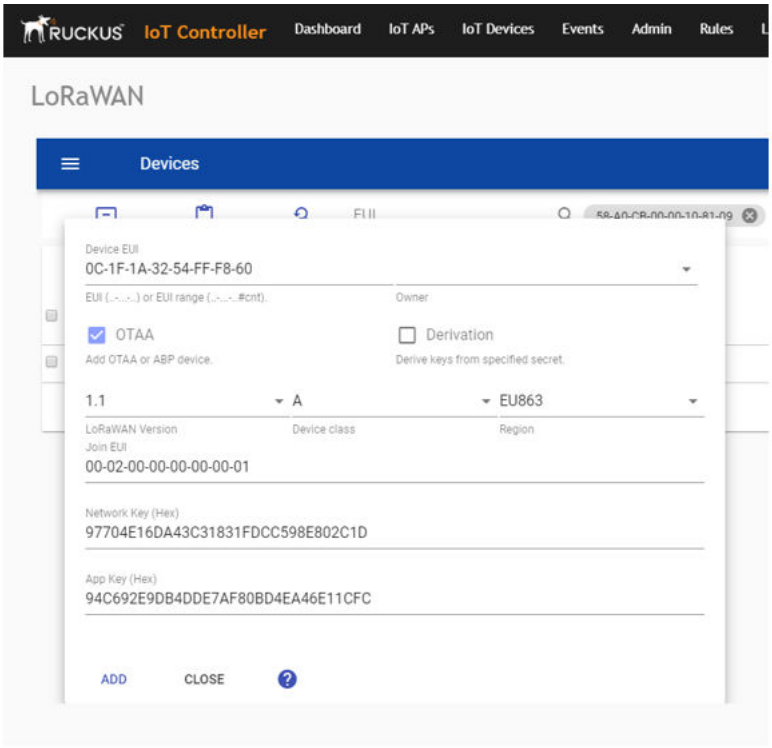
1. On the **Devices** page, click to provision the device.

FIGURE 122 Configuring LoRa Devices



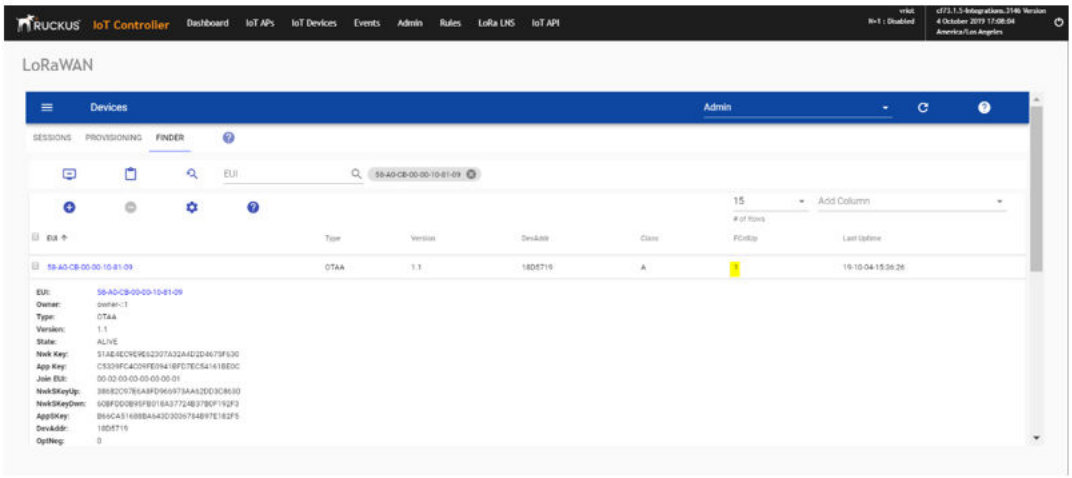
The following example shows the configuration of the device Semtech TBDW100 Door/Window Sensor device. Different devices have different ways to configure the gateway to communicate with the LNS of the Ruckus IoT Controller.

FIGURE 123 Provisioning the Device



2. Enter values for the device parameters. (Refer to the previous figure for an example.)
   - **Device EUI**: The MAC ID of the device.
   - **Owner**: Select the one who is provisioned from the list.
   - **Derivation**: Select the check box to derive keys from a specified secret.
   - **Region**: Must be U.S. or block0 (from menu).
   - **LoRaWAN Version**: The version number of the LoRaWAN.
   - **Device class**: Must be A, B, or C.
   - **Join EUI**: A group indicator with no actual configuration-enforcing meaning, though in a product there are conventions to follow.
   - **Network Key**: Enter the network key provided by the manufacturer.
   - **App Key**: Enter the application key provided by the manufacturer.
3. Click **Add**. The device is added to the LNS.

FIGURE 124 Device Joining the LNS



NOTE
When the FCntUp variable receives a packet, the state changes from ProV to ALIVE.

Configuring LoRaWAN Routers

To add a router to the LoRa Network Server (LNS), you must provision the router.

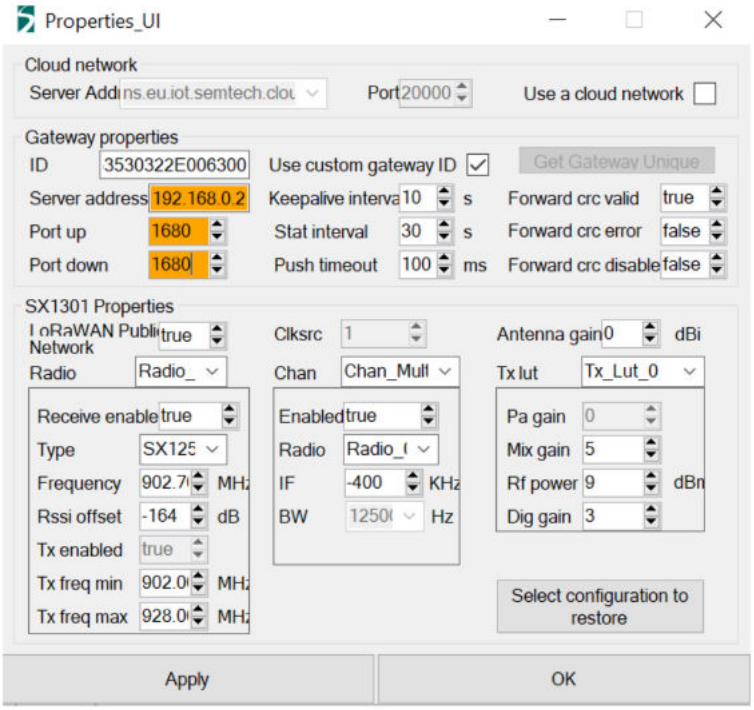
Complete the following steps to configure the Semtech LoRa Picocell Gateway to communicate with the LoRa Network Server (LNS) in the Ruckus IoT Controller.

NOTE
Different routers have different ways of provisioning the gateway.

Preparing the Semtech LoRa Picocell Gateway

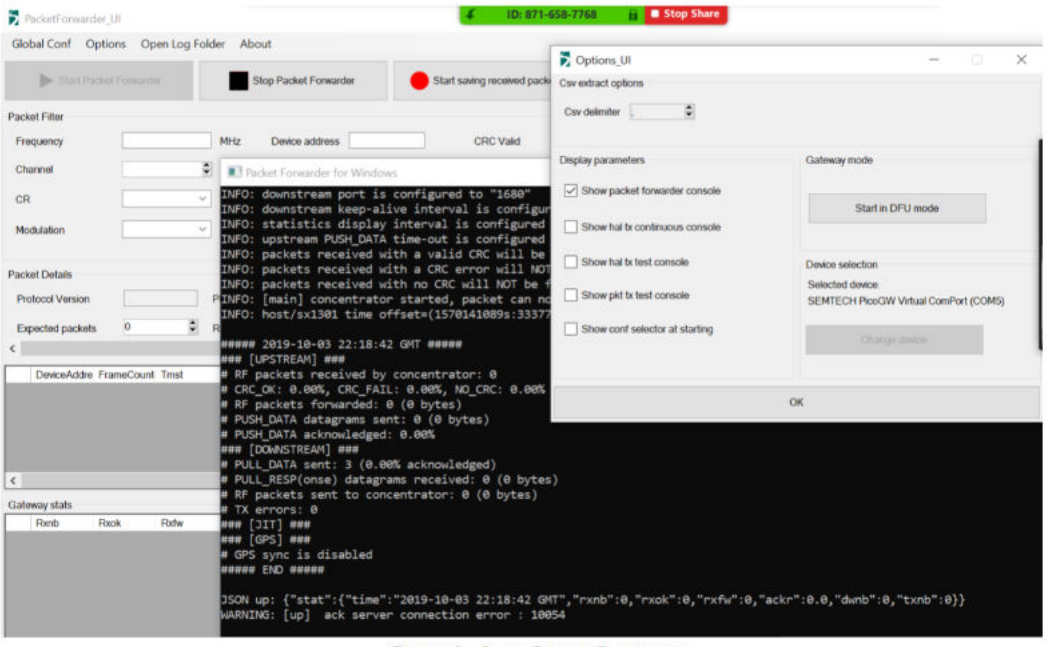
1. Load PicoGW_UI_Release_V1.0.3.4 and run **Setup**.
2. In the **Properties_UI** dialog box, address the following options:
   - Select the **Use a cloud network** check box.
   - Click **Get Gateway Unique**.
   - Select the **Use custom gateway ID** check box.
   - Copy the ID to the copy buffer to use later in the process.
   - Change the **Server address** to the IP address of the TrackCentral LNS.
   - Set **Port up** and **Port down** to **1680**.
   - For **Tx lut**, select **Tx_Lut_15** and set the **Rf power** to **30** dBm (to allow the end device to join the ACK TX).

FIGURE 125 Configuring the LoRa Picocell Gateway



3. Select the Global Conf option, and launch the packet forwarder by selecting **Show packet forwarder console**.

FIGURE 126 Starting Packet Forwarder

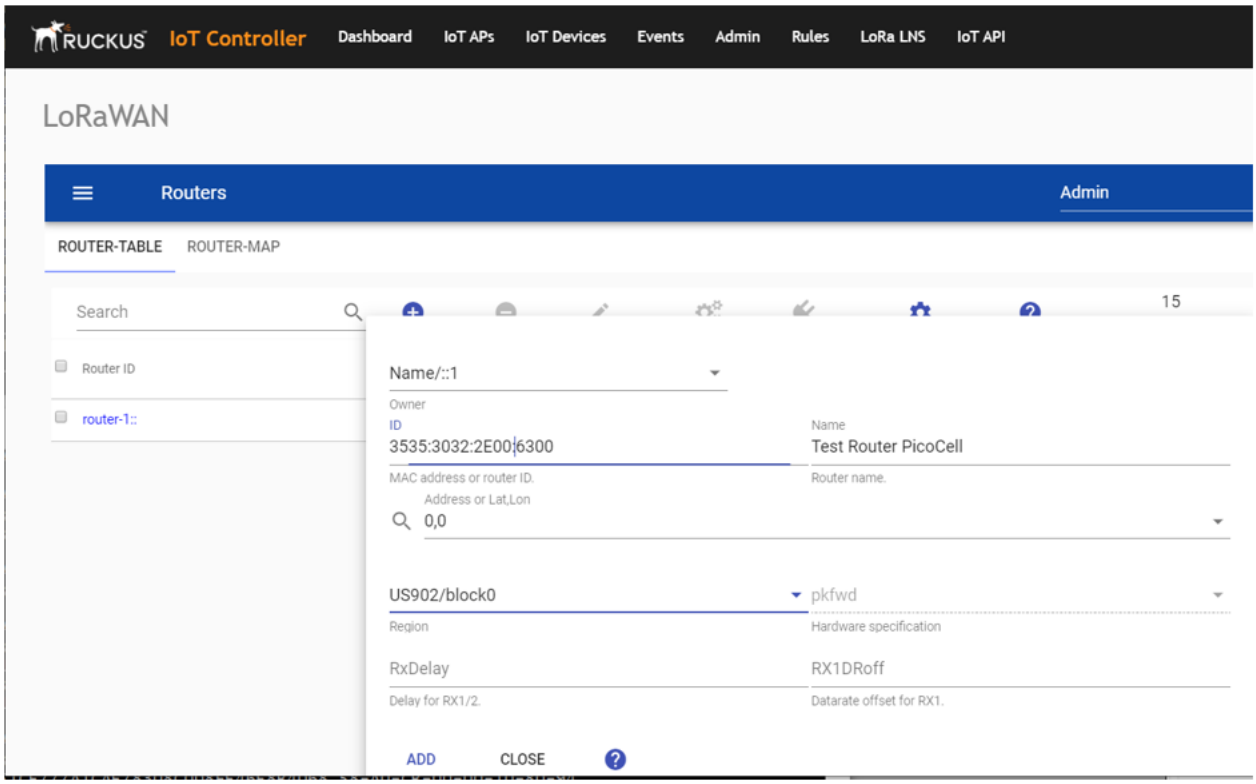


Configuring the Semtech LoRa Picocell Gateway as a Router in the LNS

Complete the following steps to configure the Semetech LoRa Picocell Gateway as a router in the LoRa Network Server (LNS).

1. On the **Routers** page, click to configure the router.
   a) In the **Owner** field, enter the name of the owner.
   b) In the **MAC address** field, enter the MAC address or router ID by adding a colon between every four characters.
   c) In the **Router name** field, enter the name of the router.
   d) In the **Region** field, select a region from the list.

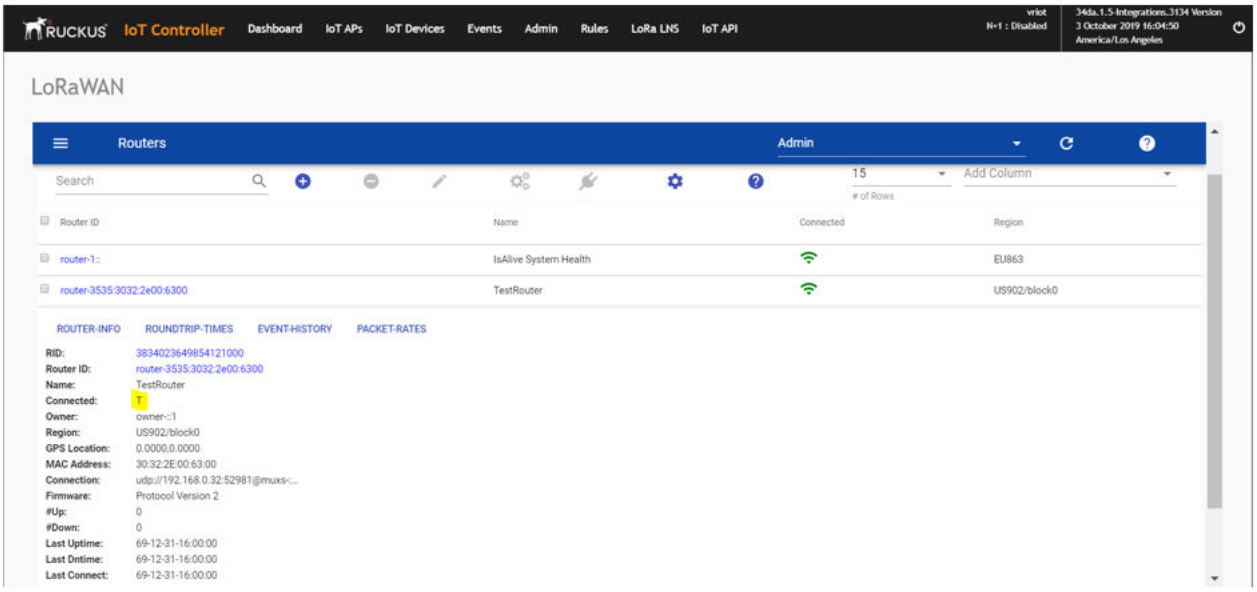
FIGURE 127 Configuring the Router



2. Click **ADD**.

   The router is added to the LNS.

   FIGURE 128 Adding the Router to the LNS



Events

- Viewing Events..... 123
- Viewing SmartThings Event..... 124

Viewing Events

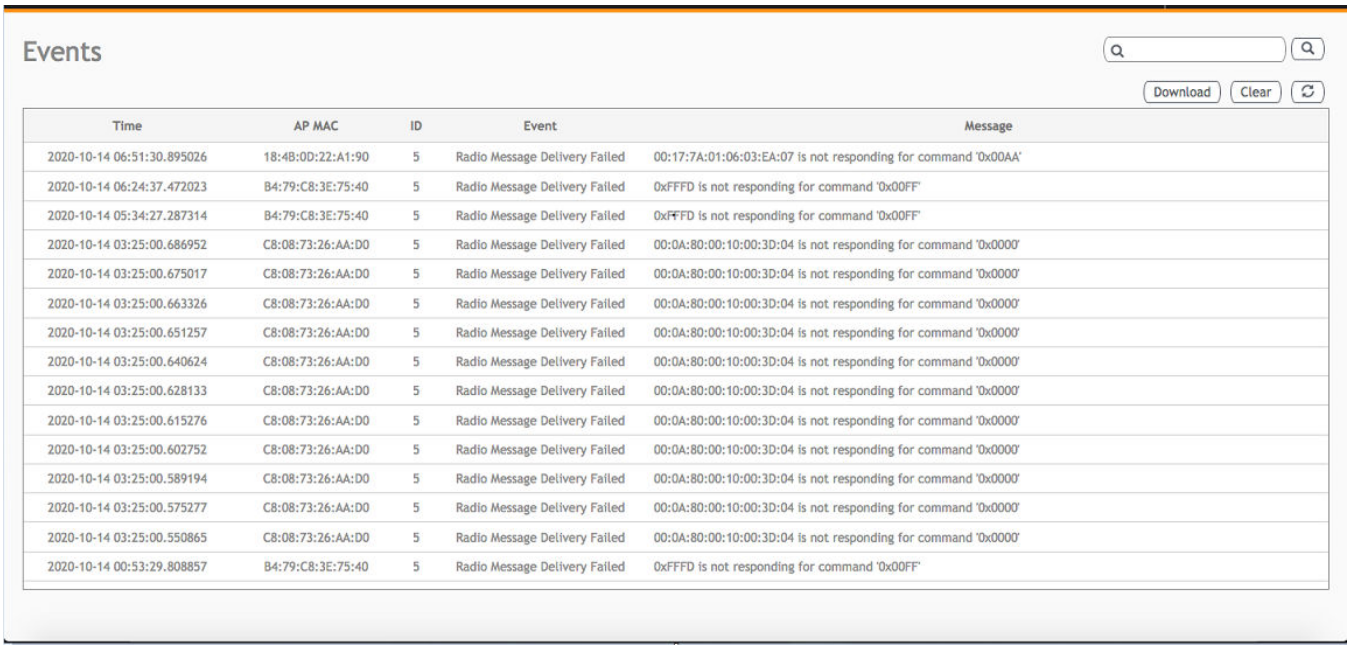
An event is an occurrence or the detection of certain conditions in and around the RUCKUS I100 IoT Module. An AP rebooting, detection of a RUCKUS I100 IoT Module, module undetection, and module swap are all examples of events.

Complete the following steps to view events.

1. From the main menu, click **Events**.

   The **Events** page is displayed.

   FIGURE 129 Events Page



2. Click **Download** to download the event logs file.

   The event logs file contains the time of the event occurrence, its MAC address, and event name.

3. Click **Clear** to clear the log file.

Viewing SmartThings Event

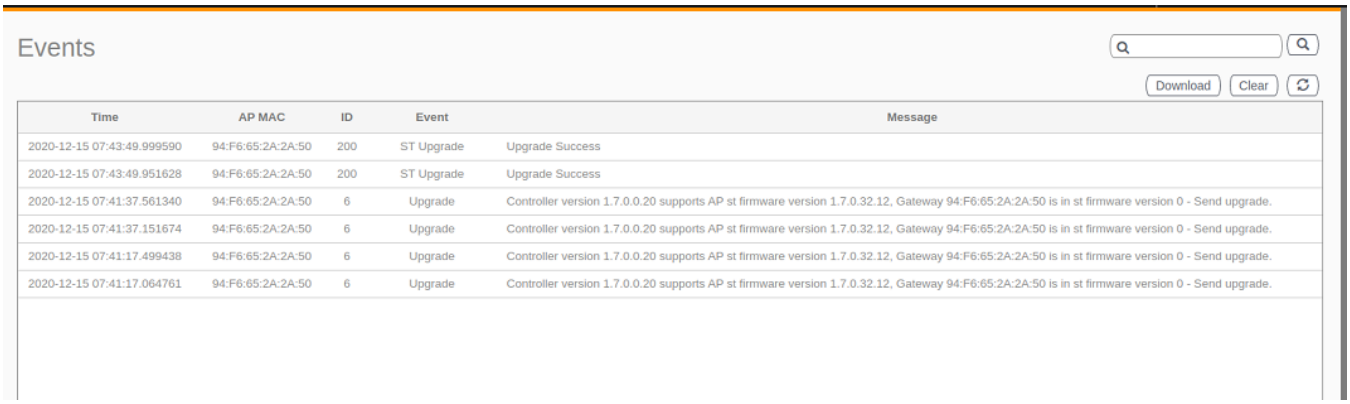
The **Events** page shows the SmartThings events from AP.

Complete the following steps to view events.

1. From the main menu, click **Events**.

   The **Events** page is displayed.

   FIGURE 130 Event page for Smartthings



2. Click **Download** to download the event logs file.

   The event logs file contains the time of the event occurrence, its MAC address, and event name.

3. Click **Clear** to clear the log file.

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