

# RUCKUS IoT Controller Configuration Guide, 2.2.0.0 GA

**Supporting IoT Controller Release 2.2.0.0**

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# Contact Information, Resources, and Conventions

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## 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.ruckusnetworks.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://community.ruckuswireless.com>
- Knowledge Base Articles—<https://support.ruckuswireless.com/answers>
- Software Downloads and Release Notes—[https://support.ruckuswireless.com/#products\\_grid](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](https://support.ruckuswireless.com/case_management).

## 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](mailto:#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.ruckusnetworks.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://commscopeuniversity.myabsorb.com/>. The registration is a two-step process described in this [video](#). You create a CommScope account and then register for, and request access for, CommScope University.

# 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	<code>device(config)# interface ethernet 1/1/6</code>
<b>bold</b>	User interface (UI) components such as screen or page names, keyboard keys, software buttons, and field names	On the <b>Start</b> menu, click <b>All Programs</b> .
<i>italics</i>	Publication titles	Refer to the <i>RUCKUS Small Cell Release Notes</i> 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
<b>bold text</b>	Identifies command names, keywords, and command options.
<i>italic text</i>	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, <i>member[member...]</i> .
\	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.





# About This Guide

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## 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 2.2.0.0 GA

Feature	Description	Location
Activating the Monitoring Services	The topic gives information on the usage of Monitoring Services and the steps to activate them on the RUCKUS IoT Controller.	<a href="#">Activating the Monitoring Services</a> on page 38
Activating and Editing SALTO plugin	The topics gives information on activating and editing the SALTO plugin.	<ul style="list-style-type: none"><li>• <a href="#">SALTO Plugin</a> on page 75</li><li>• <a href="#">Adding Controller to the SALTO Space</a> on page 79</li></ul>



# Getting Started

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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".

## Getting Started

### Logging In to RUCKUS IoT Controller

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

**FIGURE 1** RUCKUS IoT Controller Main Menu

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

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

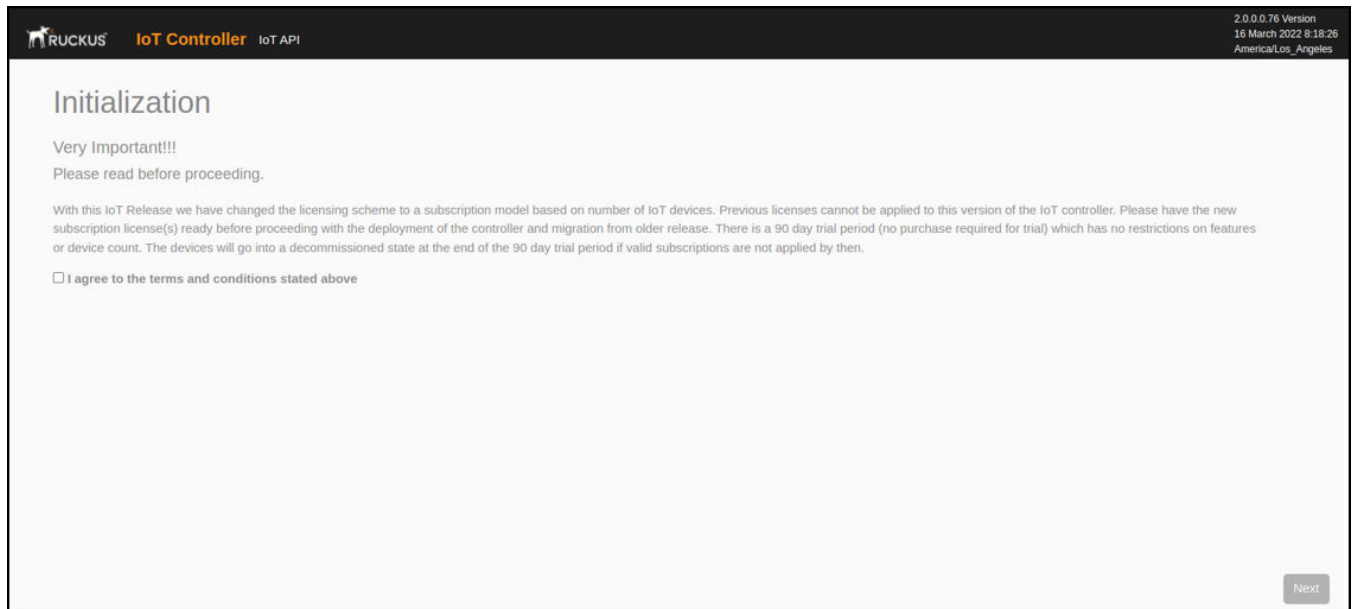
Enter Choice: 1

-----
Network info :
-----
IP (enp0s17) : 192.168.0.48/24
Gateway      : 192.168.0.1
Hostname     : vriot
DNS domain   :
FQDN        : vriot
DNS         : 192.168.0.1
N+1 Status  : Disabled
-----

Set Network(1) or Exit(x). Select [1/x]:
```

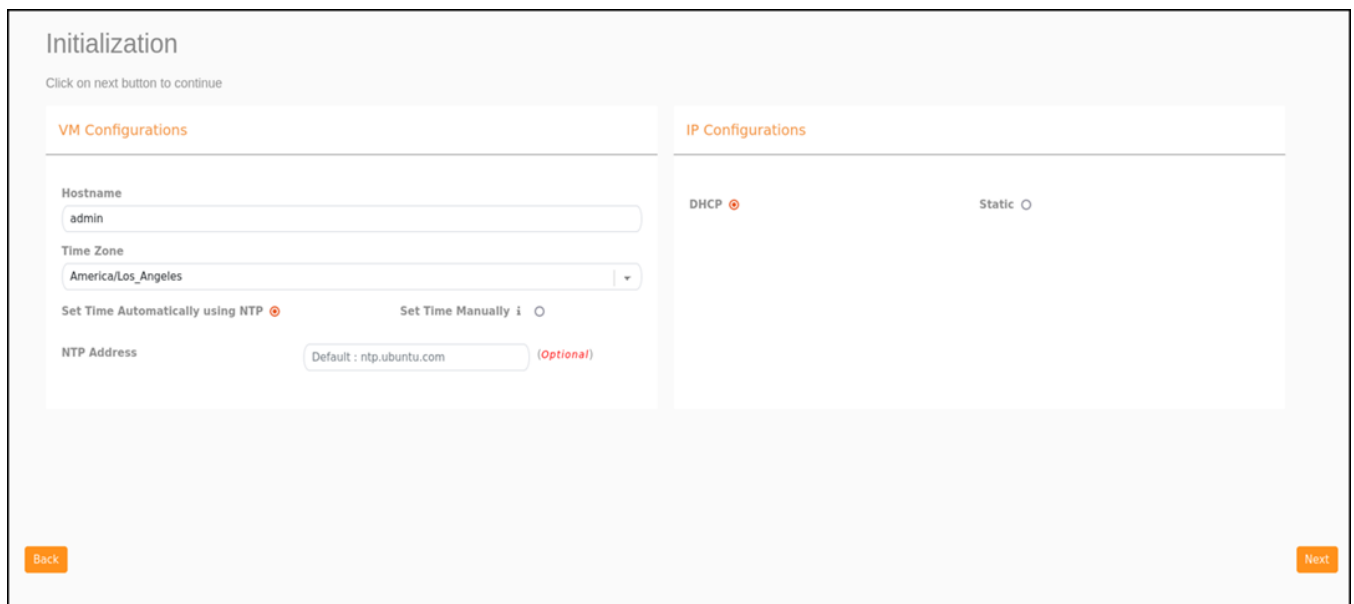
3. Open a web browser, enter the IP address in the address bar, and press **Enter**.  
The **Initialization** page is displayed.

**FIGURE 2** Accepting Subscription Based Licensing



Select the **I agree to terms and conditions stated above** and click **Next**.

**FIGURE 3** Initial VM and IP Configurations



## Getting Started

### Logging In to RUCKUS IoT Controller

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.

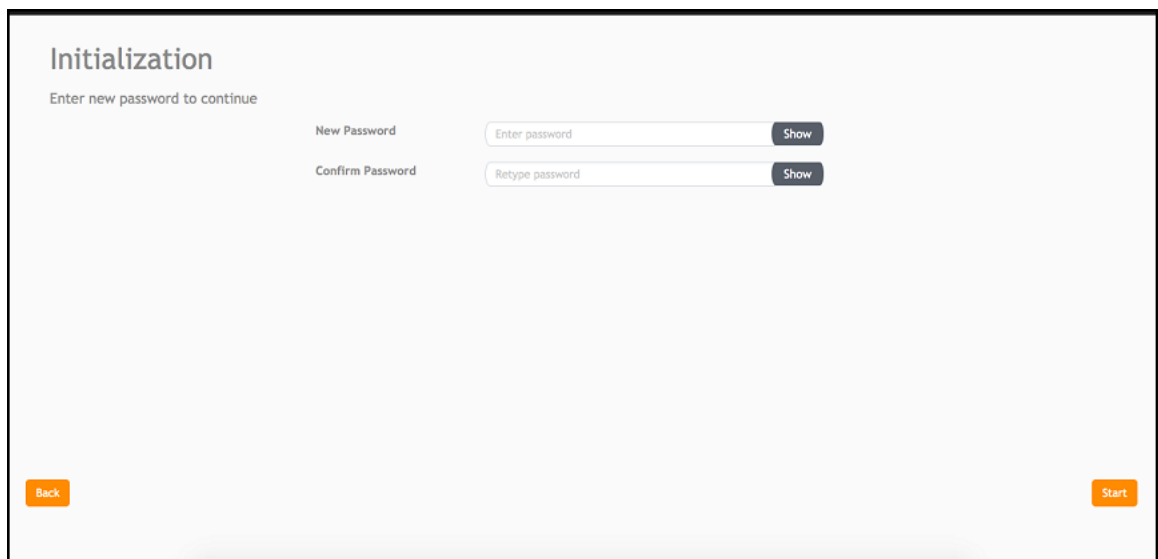
The RUCKUS IoT Controller services are sensitive to time synchronization. If the **Set Time Automatically using NTP** option is not available (such as in an isolated setup), you can select the **Set Time Manually** option to disable NTP sync.

#### NOTE

Ensure the NTP between the SmartZone, APs and RUCKUS IoT Controller are in sync.

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. Click **Start**.

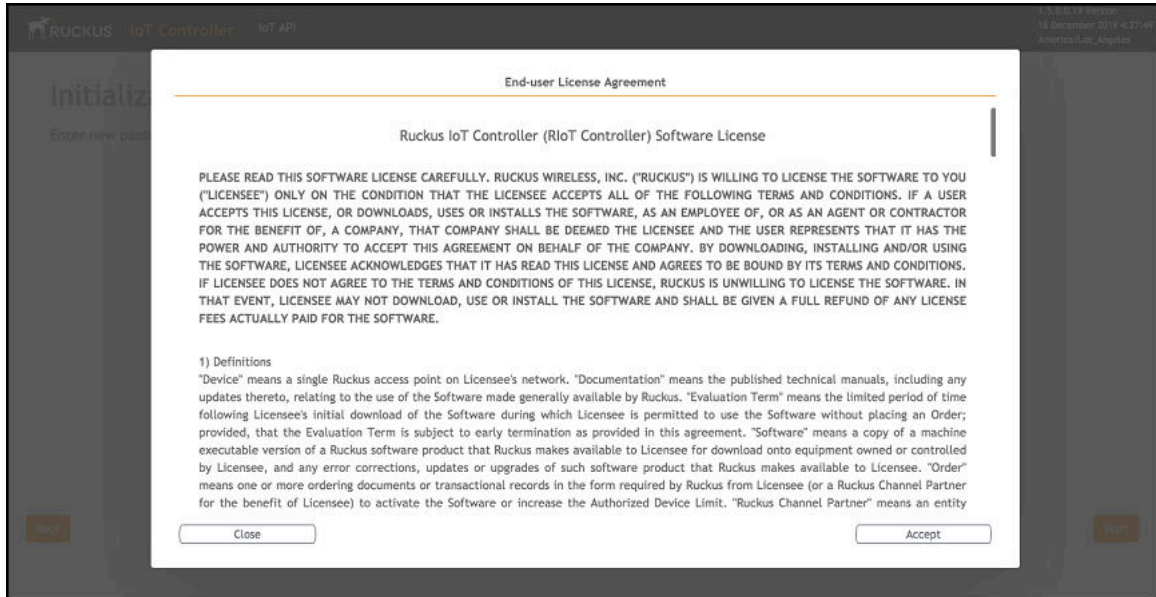
**FIGURE 4** Confirming the Password



The screenshot shows the 'Initialization' screen of the RUCKUS IoT Controller. The title 'Initialization' is at the top left. Below it, the instruction 'Enter new password to continue' is displayed. There are two input fields: 'New Password' with a placeholder 'Enter password' and a 'Show' button, and 'Confirm Password' with a placeholder 'Retype password' and a 'Show' button. At the bottom left is an orange 'Back' button, and at the bottom right is an orange 'Start' button.

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

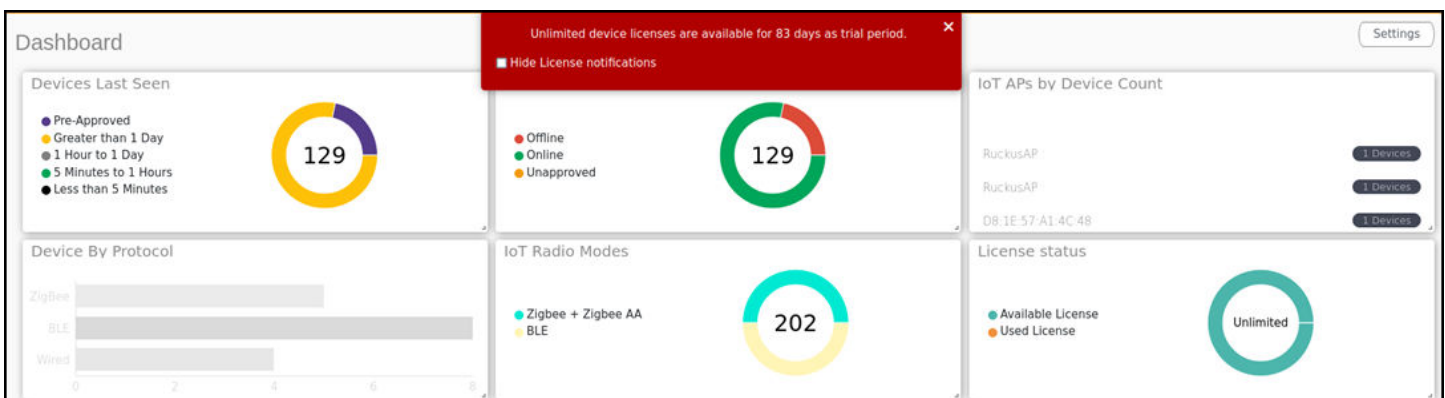
**FIGURE 5** End-user License Agreement



## 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.

## Getting Started

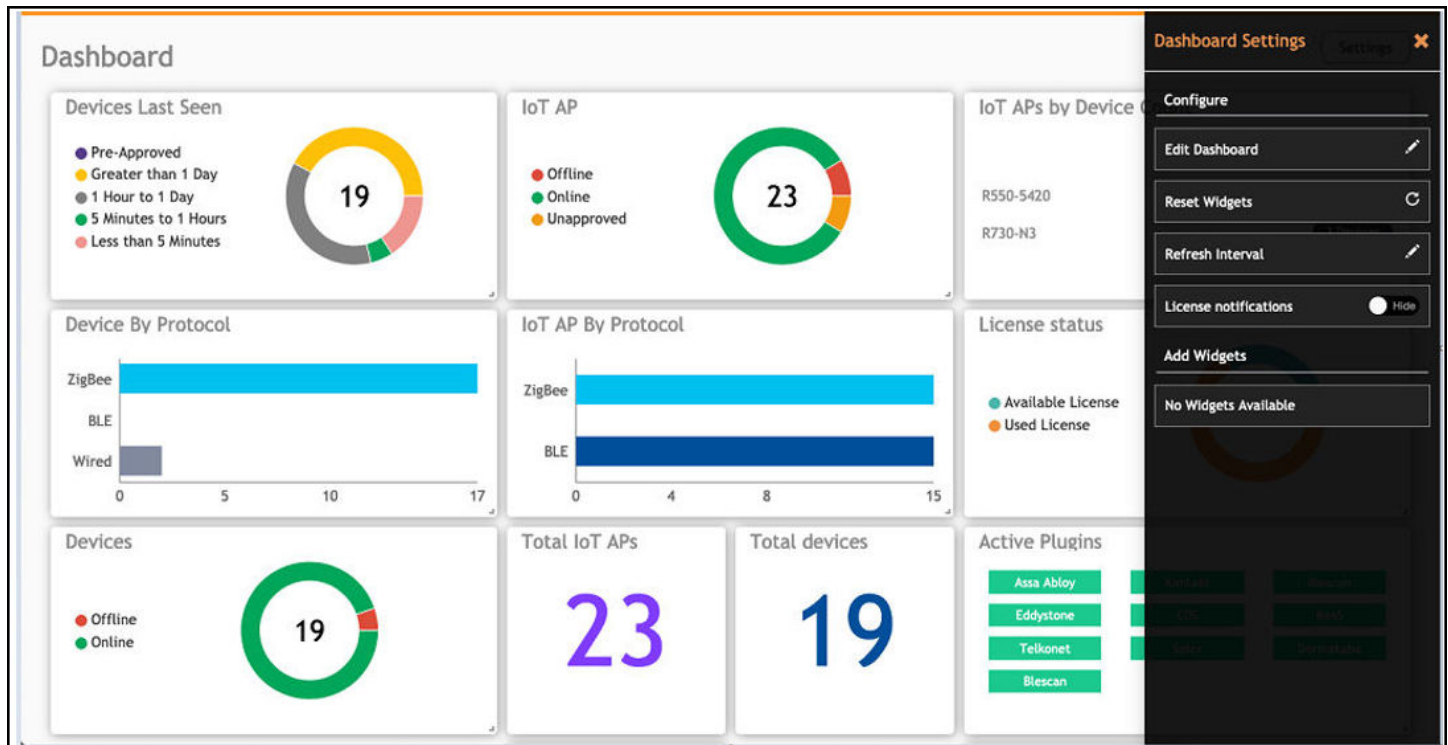
### Getting to Know the Dashboard

**TABLE 4** Dashboard Elements (continued)

Box Name	Description
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.
Devices by Battery Level	Shows the status of devices that are grouped together by battery level.
Active Plugins	Shows the plugins that are enabled.
IoT AP	Shows the status of Access Points that are connected to the RUCKUS IoT Controller.
Device By Protocol	Shows the total number of devices connected by the protocol being used. RUCKUS supports two protocols: BLE and Zigbee.
IoT Radio Modes	Shows the number of APs-Radios running by the protocol being used. RUCKUS supports two protocols: BLE and Zigbee.
License status	Shows the total of number of licenses, and the status of the licenses that are available or used by 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**, **License Status**, **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) ensures high system availability, reliability and scalability of the controller, and also enables load balancing, backup, and failover. The hosts must be in the same subnet and must be reachable 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 controllers:

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

## Configuring Static Addresses for Primary and Secondary Controllers

The static IP addresses of the primary and secondary controllers can be configured in two ways:

1. From the RUCKUS IoT Controller main menu, select **Admin > VM Configurations**.
2. Set the static addresses 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.

## Configuring N+1

### Configuring the N+1 Feature

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

**FIGURE 8** RUCKUS IoT Controller Main Menu

```
172.16.112.243 - PuTTY
*****
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.
* Primary Controller and Secondary Controller should have same password configured for the User admin.

Enter Secondary Controller IP : █
```

3. Enter 1 to continue the configuration.

**FIGURE 9** Continuing the 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) : █
```

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

FIGURE 10 Configuring the Primary Controller

```
172.16.112.243 - PuTTY
*****
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.
* Primary Controller and Secondary Controller should have same password configured for the User admin.

Enter Secondary Controller IP : █
```

## Configuring N+1

### Configuring the N+1 Feature

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

#### NOTE

The preferred virtual IP address must not be the same as the primary or secondary controller IP addresses.

Enter the admin password and type a preferred N+1 password

```
172.16.113.178 - PuTTY
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.
* Primary Controller and Secondary Controller should have same password configured for the User admin.

Enter Secondary Controller IP :172.16.113.102
Enter preferred Virtual IP :171.16.113.111
Enter admin password for configuring N+1:

Enter new password for configuring N+1
New password should contain atleast 1 uppercase, 1 number , 1 Symbol and atleast 8 characters length
:

N+1 will stop all services & configurations in Secondary Controller. Enter Y/N to continue : █
```

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

**FIGURE 11** Completing the Primary Controller Configuration

```
172.16.113.178 - PuTTY
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.
* Primary Controller and Secondary Controller should have same password configured for the User admin.

Enter Secondary Controller IP :172.16.113.102
Enter preferred Virtual IP :172.16.113.111
Enter admin password for configuring N+1:

Enter new password for configuring N+1
New password should contain atleast 1 uppercase, 1 number , 1 Symbol and atleast 8 characters length
:

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.

## Configuring N+1

### Configuring the N+1 Feature

FIGURE 12 Continuing with the Secondary Controller Configuration

```
172.16.113.178 - PuTTY
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.
* Primary Controller and Secondary Controller should have same password configured for the User admin.

Enter Secondary Controller IP :172.16.113.102
Enter preferred Virtual IP :172.16.113.111
Enter admin password for configuring N+1:

Enter new password for configuring N+1
New password should contain atleast 1 uppercase, 1 number , 1 Symbol and atleast 8 characters length
:

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 13 N+1 Configuration Completed

```
172.16.113.178 - PuTTY
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.
* Primary Controller and Secondary Controller should have same password configured for the User admin.

Enter Secondary Controller IP :172.16.113.102
Enter preferred Virtual IP :172.16.113.111
Enter admin password for configuring N+1:

Enter new password for configuring N+1
New password should contain atleast 1 uppercase, 1 number , 1 Symbol and atleast 8 characters length
:

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 controller or active primary controller, and the secondary controller or active secondary controller, enter **5** in the **Enter Choice** field.

**FIGURE 14** Verifying the IP Address of the Active Primary Controller

```
172.16.113.178 - PuTTY
*****
                        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     : 172.16.113.111
      Mode           : Active Primary Controller
      My IP          : 172.16.113.178
      Secondary Controller IP : 172.16.113.102
      ConfigSync     : Not Applicable, Controller is Active.
      Node Status    : vriot(2): normal
vriot_prim(1): normal
-----

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

## Configuring N+1

### Configuring the N+1 Feature

- To replace the secondary controller, enter 3.

#### NOTE

While replacing the node, both controller should have same admin password and user needs to enter the password while replacing the node.

**FIGURE 15** 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 16 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
█
```

## Configuring N+1

### Configuring the N+1 Feature

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

**FIGURE 17** Configuring Forced Fallback

```
172.16.113.178 - PuTTY
*****
                        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     : 172.16.113.111
      Mode           : Primary Controller
      My IP          : 172.16.113.178
      Secondary Controller IP : 172.16.113.102
      ConfigSync     : 05/20/2021 08:05:03
      Node Status    : vriot(2): normal
vriot_prim(1): normal
-----

N+1 Configure(1) / Disable(2) / Forced Fallback(3) / Exit(x) : █
```

10. To replace the primary controller, enter 3.

FIGURE 18 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) : █
```

## Configuring N+1

### Configuring the N+1 Feature

11. Enter the IP address of the primary controller.

**FIGURE 19** 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 20 Successful 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 21** 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.



# Viewing Counters on the Controller Menu

The feature Show Counters allows you to view the information about AP based statics, Controller based statics, and Celery and Beacons Statics etc.

1. Log in to the console of the RUCKUS IoT Controller using the username "admin" and password "admin".
2. Enter 7 in the **Enter Choice** field.

**FIGURE 22** Choosing Option 7

```

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

1 - Ethernet Network
2 - System Details
3 - NTP Setting
4 - System Operation
5 - N+1
6 - Comm Debugger
7 - Show Counters
8 - Plugin Subnet Configuration
x - Log Off

Enter Choice: 7

1 - AP Counters
2 - Controller Counters
3 - Task Counters
4 - Integration Counters
5 - Table Counters
x - Main Menu

Enter Choice: █
    
```

The below table lists the counters, and their usages. You can enter the corresponding choice as per your requirement in the choice field at the CLI prompt.

**TABLE 5** List of Counters

Counter	Usage
AP Counters	Displays the inputs for AP based statics such as count of IoT Service Restarts, Dongle swap event, IoT Application Upgrade, and IoT Radio Mode change.
Controller Counters	Displays the Controller Based Statics such as count of AP's added, deleted, Approved or Unapproved, count of devices added or deleted, count of controller Reboot or Upgrade or Downgrade or DB-Backup
Task Counters	Displays the number of celery tasks succeeded or failed.
Integration Counters	Displays the Beacon based Statics such as the number of messages forwarded to each beacon vendor.
Table Counters	Displays the number of documents in the each collection.

## Viewing Counters on the Controller Menu

3. For example, to view the information about the AP based statics such as count of IoT service restarts, Dongle swap event count, IoT application upgraded count, and IoT Radio Mode change, enter **1** in the **Enter Choice** field and the the Gateway MAC address. You must enter the Gateway MAC address for AP Counters, Task Counters and Integration Counters.

# Managing IoT Controller System Configuration

- Managing Services..... 37
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- Resetting RUCKUS IoT Controller..... 95

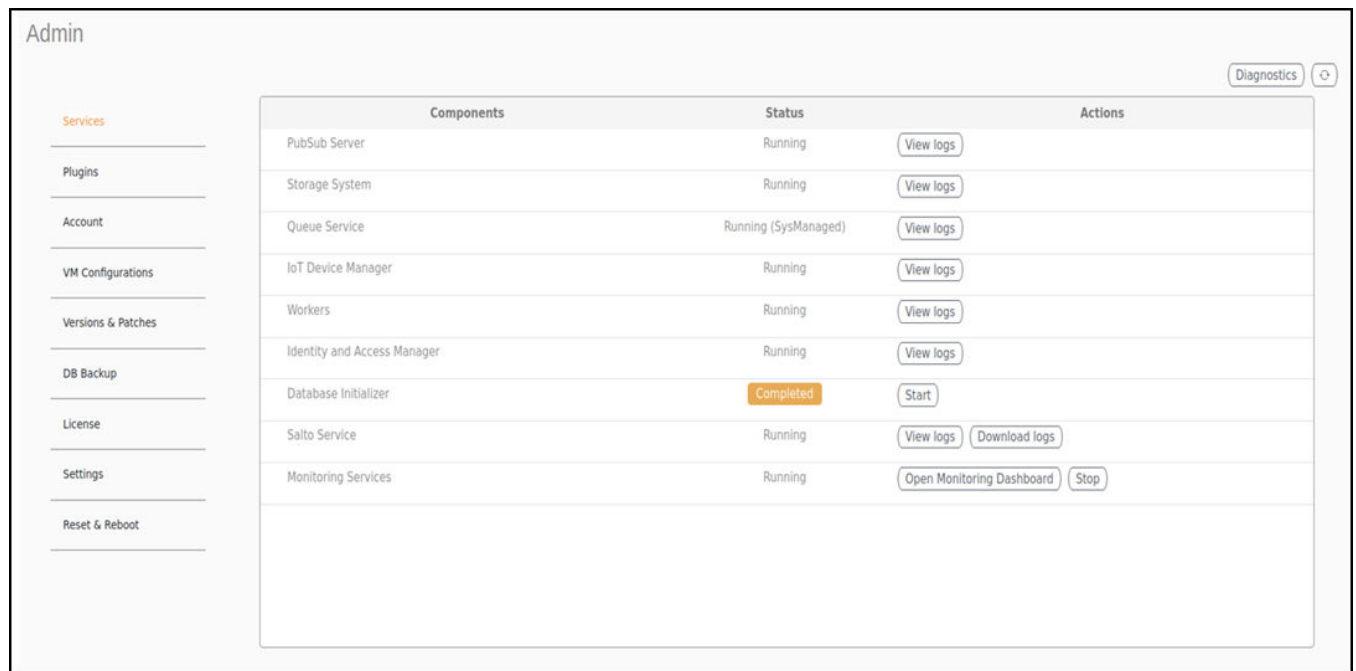
## Managing Services

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** Managing Services Page



The currently running services and their details are displayed.

3. Select a service to start or stop.

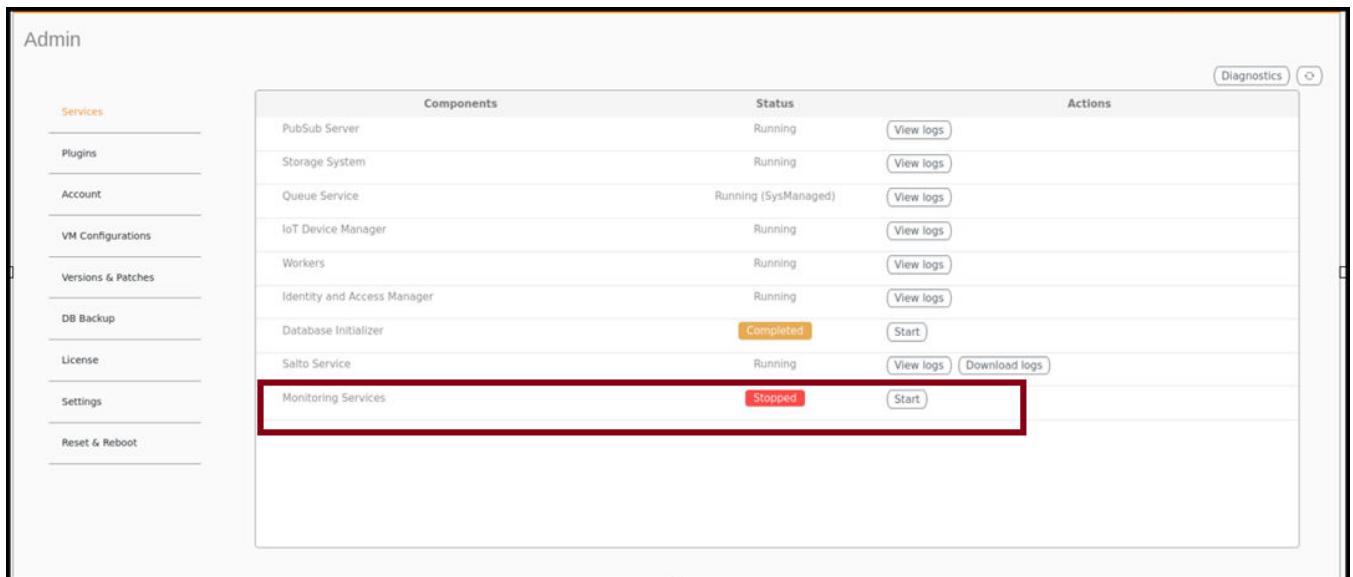
## Activating the Monitoring Services

The Monitoring Services collect and store time-series data (metrics) from various targets, enabling you to query, and make analysis based on this data. The multi-dimensional data model has its own query language (PromQL) to communicate. The Monitoring Services assist in monitoring and ensuring the reliability of system and applications.

To activate the Monitoring Services, the administrator must perform the following steps.

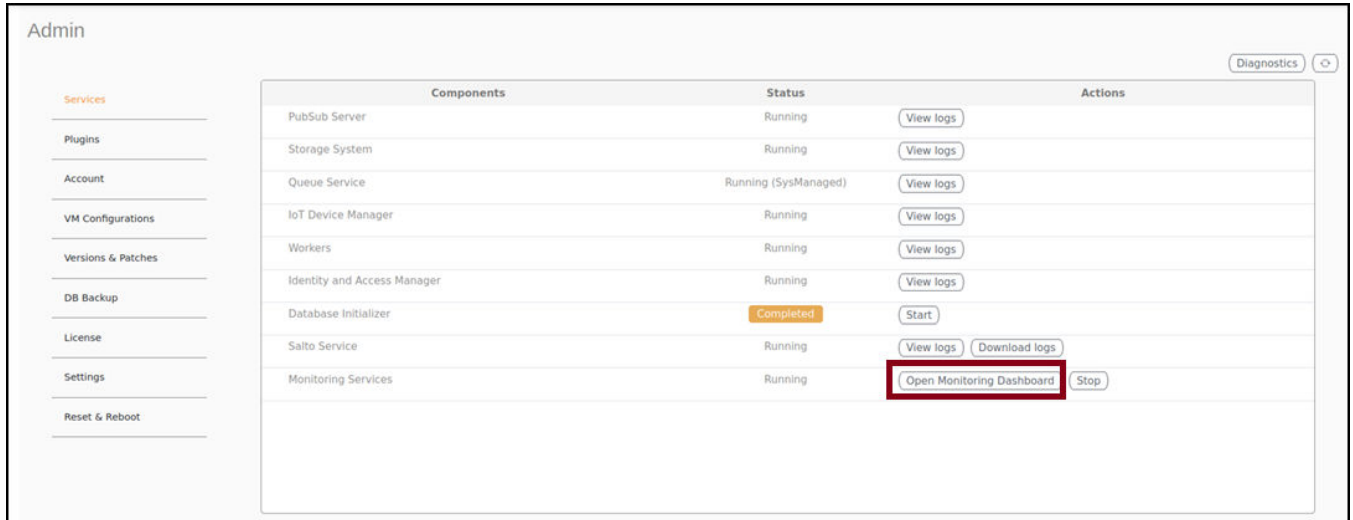
1. From the main menu, click **Admin**.
2. In the left navigation pane, select **Services**.  
The currently running services and their details are displayed.
3. Select **Monitoring Services** and click **Start**.

**FIGURE 24** Activating the Monitoring Services



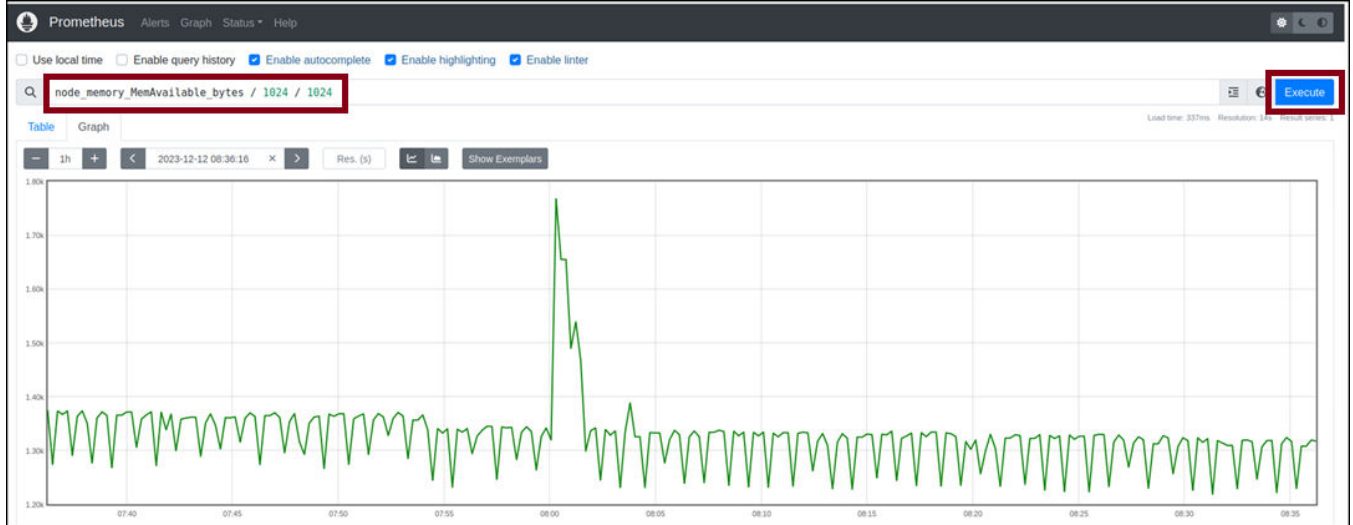
4. Click the **Open Monitoring Dashboard** to open the **Prometheus** Dashboard page.

**FIGURE 25** Clicking the Open Monitoring Dashboard



5. Enter the Prometheus query in the **Search** field and click **Execute**.

**FIGURE 26** The Prometheus Dashboard Page



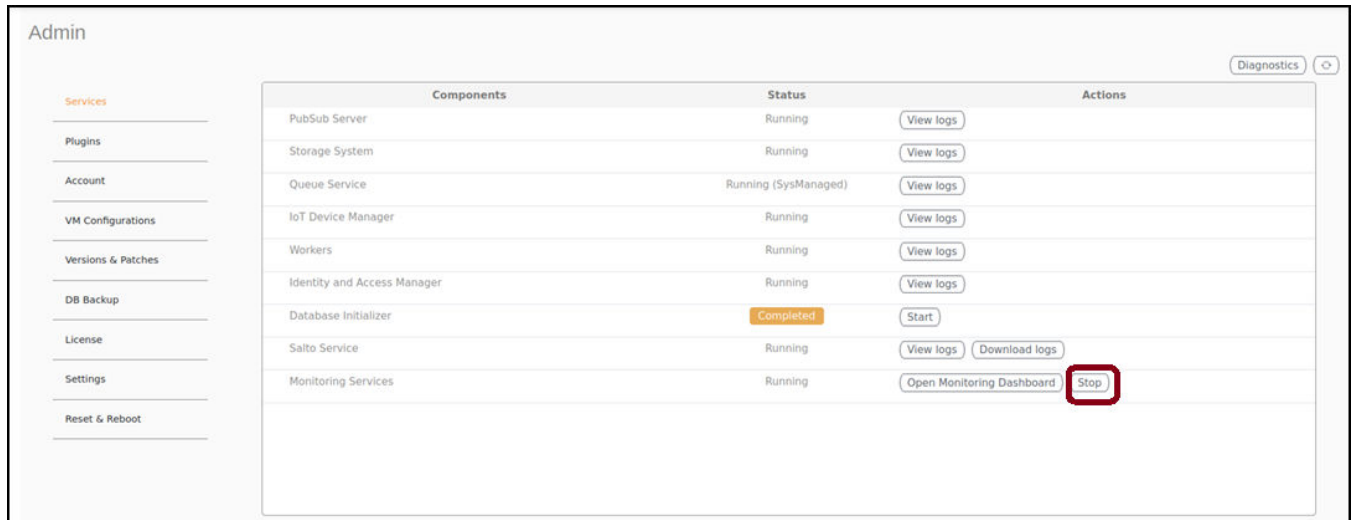
For example, in the above figure, after entering the Prometheus query **node\_memory\_MemAvailable\_bytes / 1024 / 1024**, the result shows a graph, displaying the available memory in the RUCKUS IoT Controller.

## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

6. To de-activate the Monitoring Services, from the main menu, go to **Admin > Services > Monitoring Services** and click **Stop**.

**FIGURE 27** De-activating the Monitoring Services



## 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, Soter, BLE Scan, Dormakaba locks.

### Activating and Editing the Assa Abloy Plugin

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

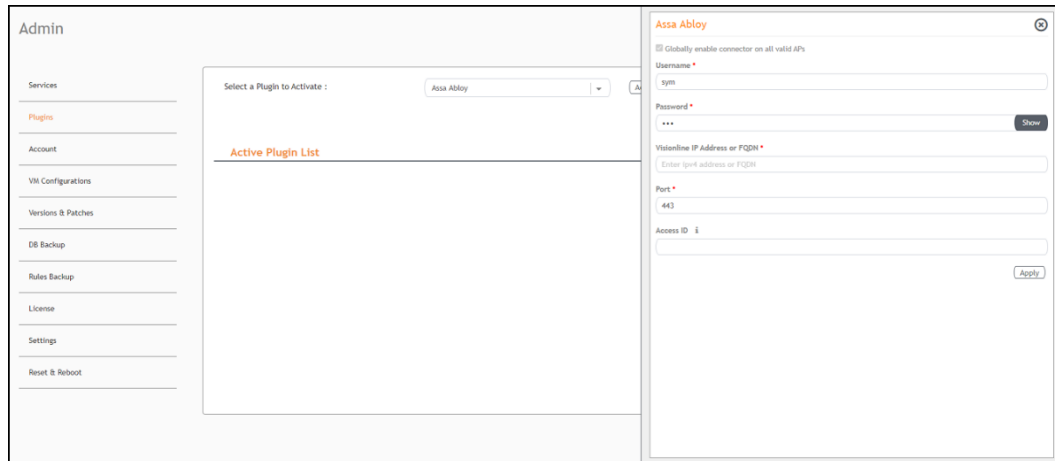
To establish a connection to a vendor infrastructure, the administrator must perform the following steps.

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 28** Activating the Assa Abloy Plugin



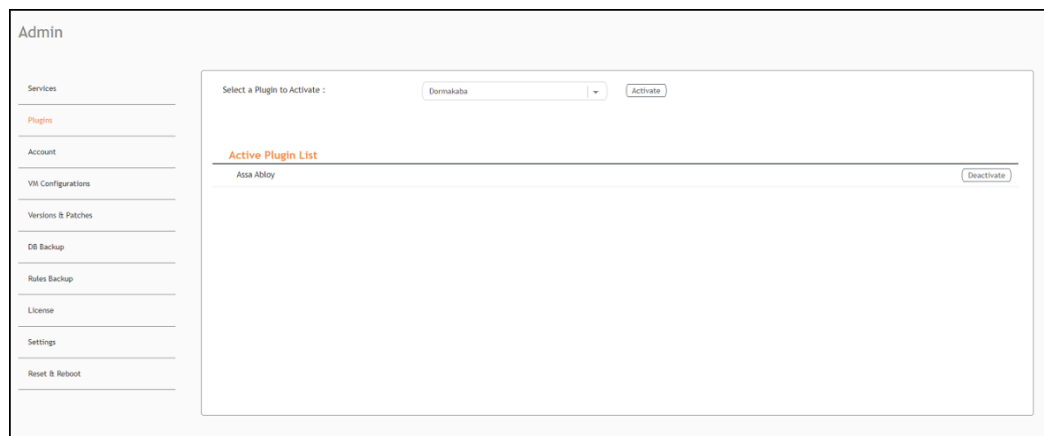
4. After the Assa Abloy plugin is activated, enter the following configuration parameters.
  - a) For **Username**, enter the name of the user connecting to the Visionline Server
  - b) For **Password**, enter the password of the user connecting to the Visionline Server.
  - c) Enter the **Visionline IP address** or **FQDN**.

**NOTE**

By default, the port number is 443.

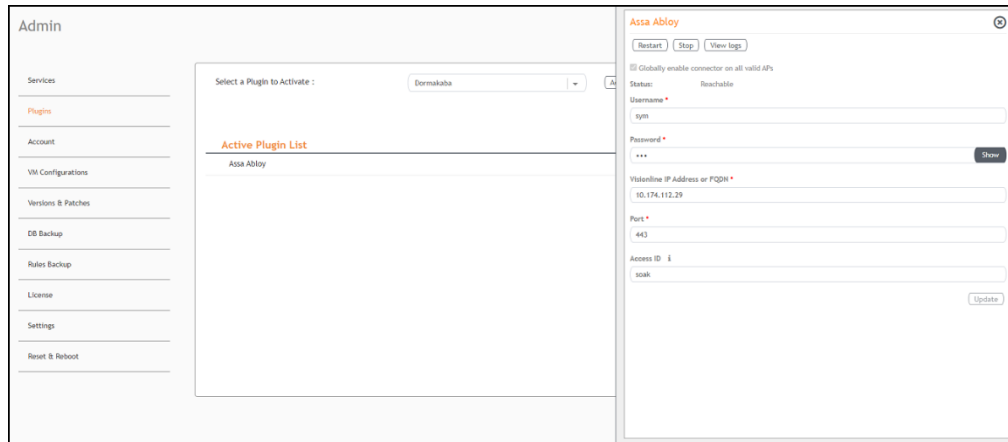
5. Click **Apply**.  
The Assa Abloy plugin is added in the **Active Plugin List**.
6. To deactivate the Assa Abloy plugin, select it and click **Deactivate**.

**FIGURE 29** Deactivating the Assa Abloy Plugin



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

**FIGURE 30** Updating the Configuration Parameters



## Activating and Editing the Eddystone Plugin

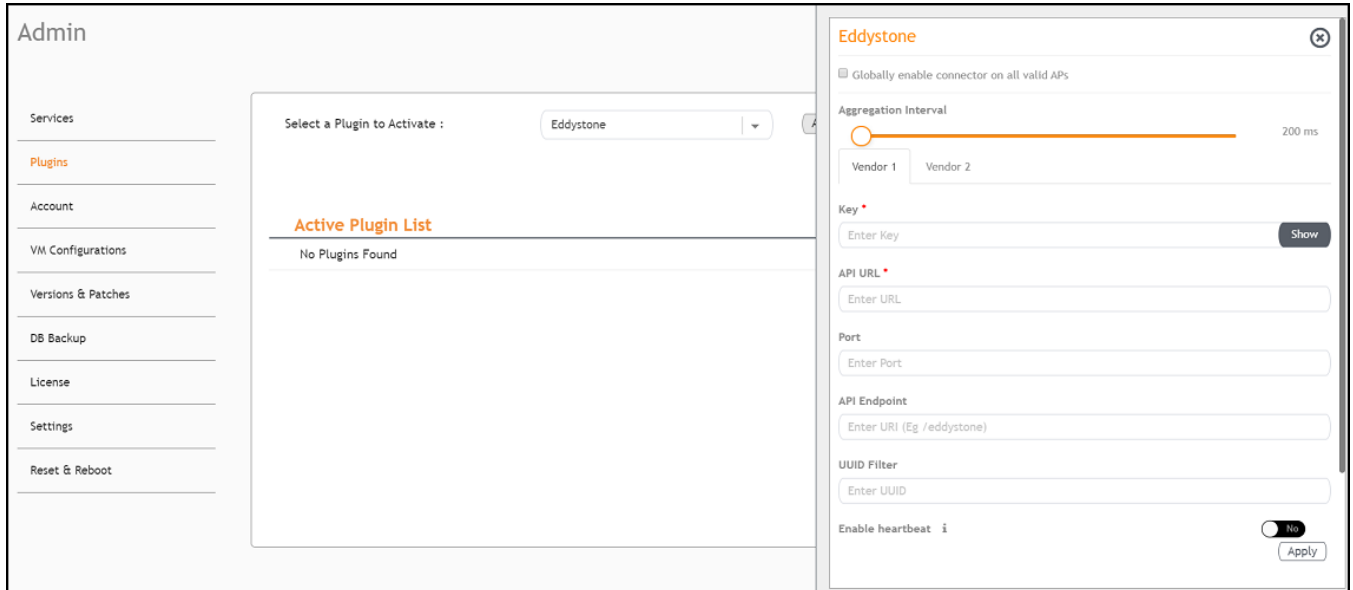
The RUCKUS IoT Controller provides support for the Bluetooth Low Energy (BLE) Eddystone plugin. The RUCKUS IoT Controller reads the packet from IoT AP, and routes the packets to the BLE beacon vendor cloud services.

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 31** Activating the Eddystone Plugin



## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

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 105 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.

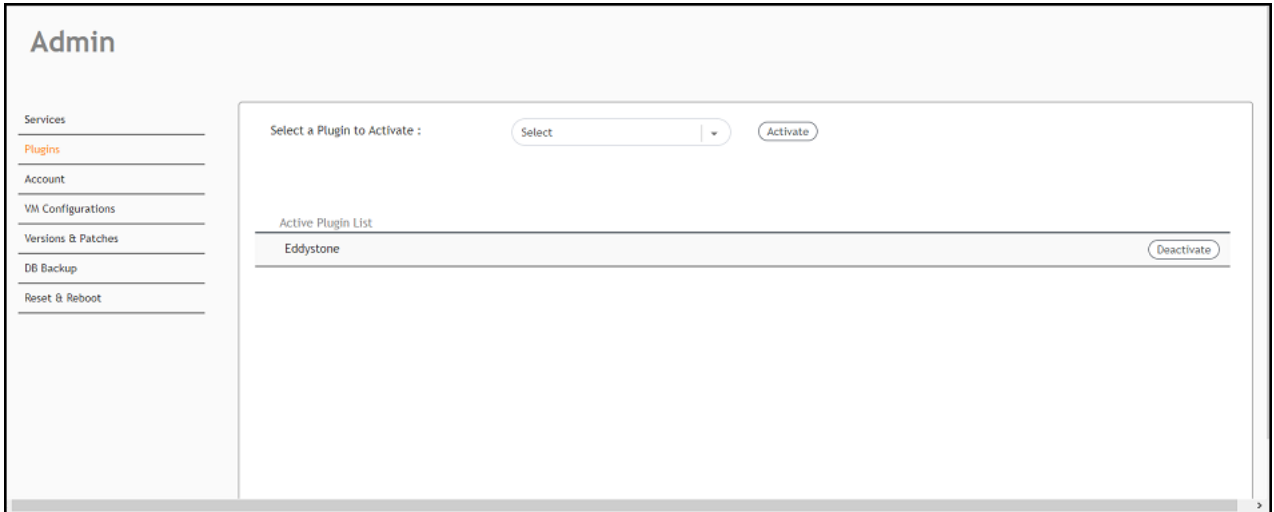
Enabling heartbeat allows the vendor application to receive the IoT AP status, such as online or offline.

5. Click **Apply**.

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

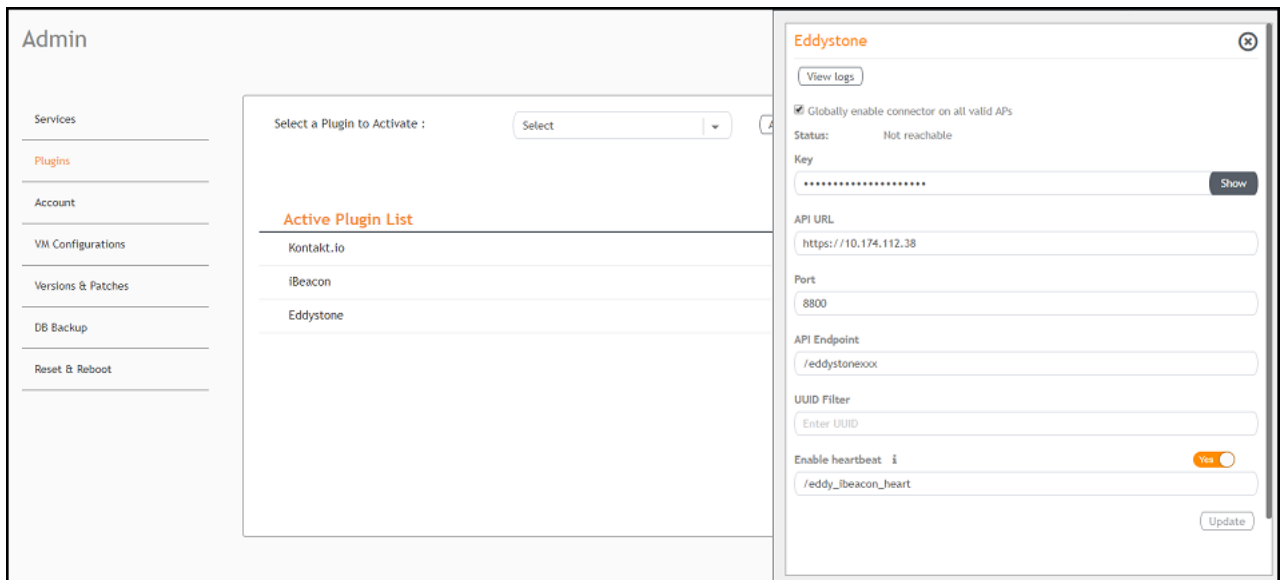
- To deactivate the Eddystone plugin, select it and click **Deactivate**.

**FIGURE 32** Deactivating the Eddystone Plugin



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

**FIGURE 33** Updating the Configuration Parameters



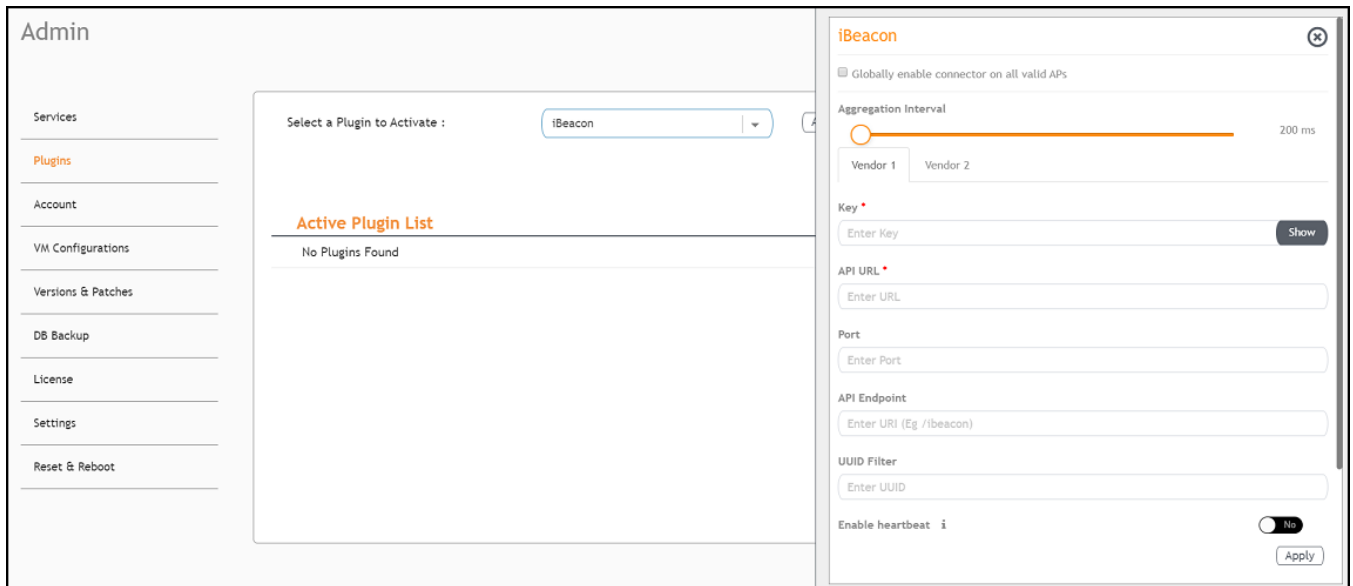
## Activating and Editing the iBeacon Plugin

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 34** 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 to [Adding Tags to an AP](#) on page 105 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**.

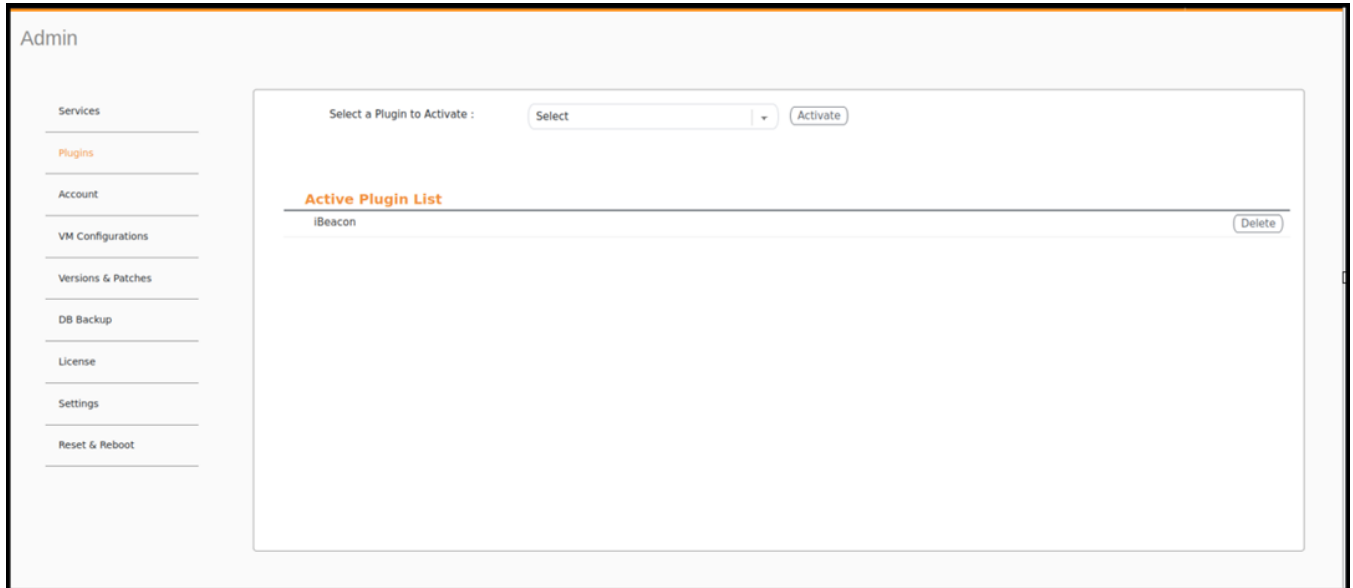
The iBeacon plugin is added in the **Active Plugin List**.

## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

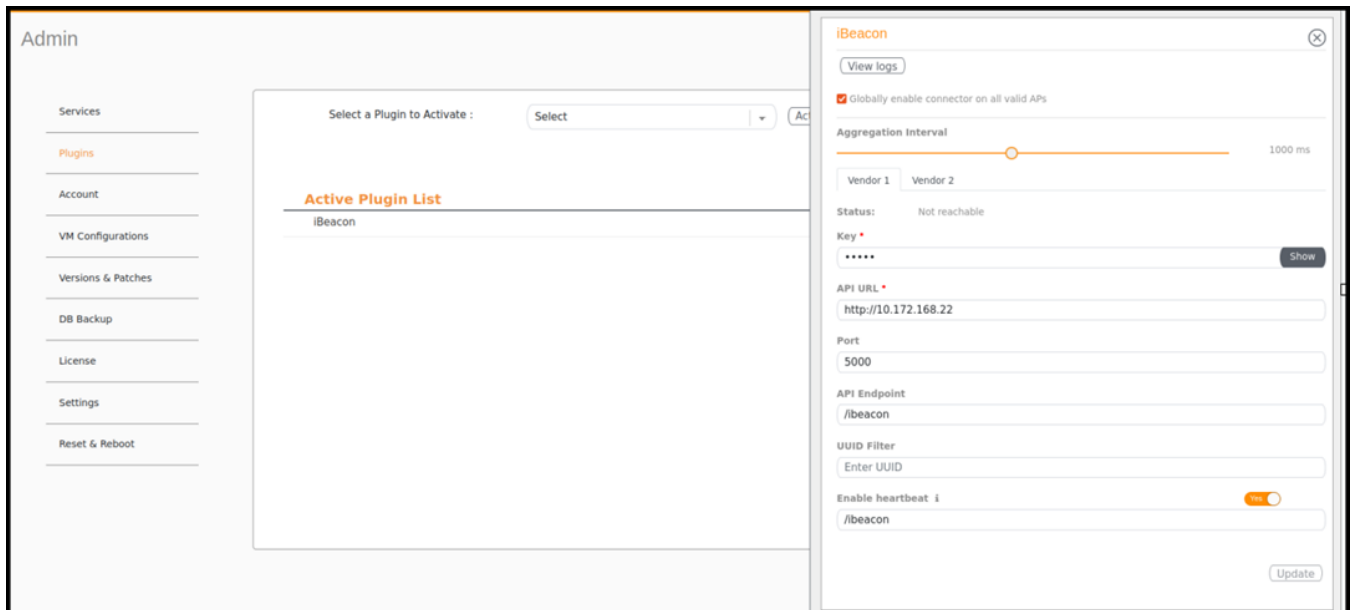
- To deactivate the iBeacon plugin, select it and click **Deactivate**.

**FIGURE 35** Deactivating the iBeacon Plugin



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

**FIGURE 36** Updating the Configuration Parameters





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

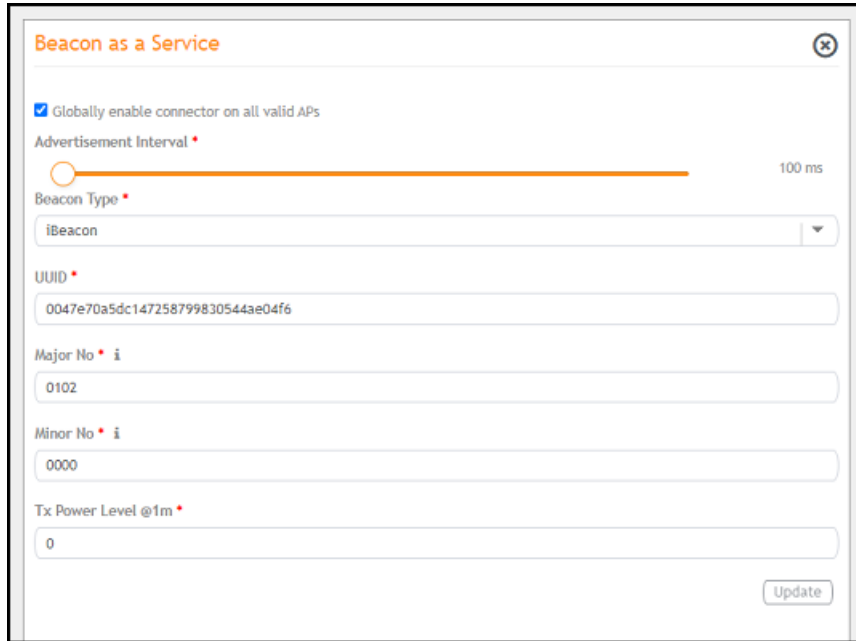
The RUCKUS IoT Controller provides support for the Bluetooth Low Energy (BLE) beaconing service. An AP can begin transmitting BLE beacons (iBeacons) that can be used by the user for various cases, such as wayfinding and pushing.

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 37** Activating the Beacon as a Service Plugin (iBeacon)



The screenshot shows a configuration window titled "Beacon as a Service" with a close button in the top right corner. The window contains the following settings:

- Globally enable connector on all valid APs
- Advertisement Interval: A slider set to 100 ms.
- Beacon Type: A dropdown menu set to "iBeacon".
- UUID: A text input field containing "0047e70a5dc147258799830544ae04f6".
- Major No: A text input field containing "0102".
- Minor No: A text input field containing "0000".
- Tx Power Level @1m: A text input field containing "0".
- An "Update" button is located at the bottom right of the form.

**FIGURE 38** Activating Beacon as a Service (Eddystone)



The screenshot shows a configuration window titled "Beacon as a Service" with a close button in the top right corner. The window contains the following settings:

- Globally enable connector on all valid APs
- Advertisement Interval: A slider set to 100 ms.
- Beacon Type: A dropdown menu set to "iBeacon".
- UUID: A text input field containing "0047e70a5dc147258799830544ae04f6".
- Major No: A text input field containing "0102".
- Minor No: A text input field containing "0000".
- Tx Power Level @1m: A text input field containing "0".
- An "Update" button is located at the bottom right of the form.

FIGURE 39 Activating Beacon as Service (Generic)

The screenshot shows the 'Beacon as a Service' configuration window. At the top, there is a checkbox labeled 'Globally enable connector on all valid APs' which is checked. Below this is a slider for 'Advertisement Interval' set to 100 ms. The 'Beacon Type' dropdown is set to 'Custom Beacon'. The 'Vendor type' dropdown is set to 'Generic'. There is a text input field with '03' and an 'Add' button. Below this is a table with columns 'ADV Type' and 'Value', containing one entry with '01' and '0192'. There are 'Add' and 'Update' buttons.

ADV Type	Value	Actions
01	0192	

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 105 for more information.
  - b) In the **Beacon Type** list, select the type of beacon.
  - c) Provide relevant values for given fields based on Beacon Type. For iBeacon, a common 32 characters UUID can be given which will be applied to all APs. If Append AP MAC is checked, Controller will append 12 characters of AP MAC at the end of 20 characters UUID, so that it will be unique for every AP data.
  - 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**.

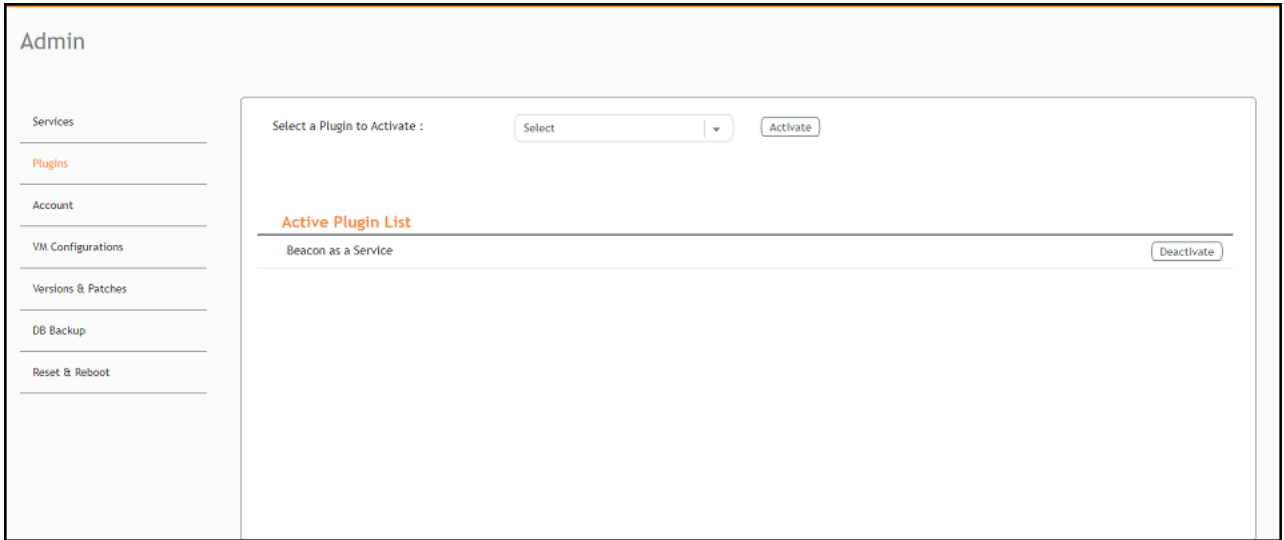
The Beacon as a Service plugin is added in the **Active Plugin List**.

## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

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

**FIGURE 40** Deactivating the Beacon as a Service Plugin



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

FIGURE 41 Updating the Configuration Parameters (iBeacon)

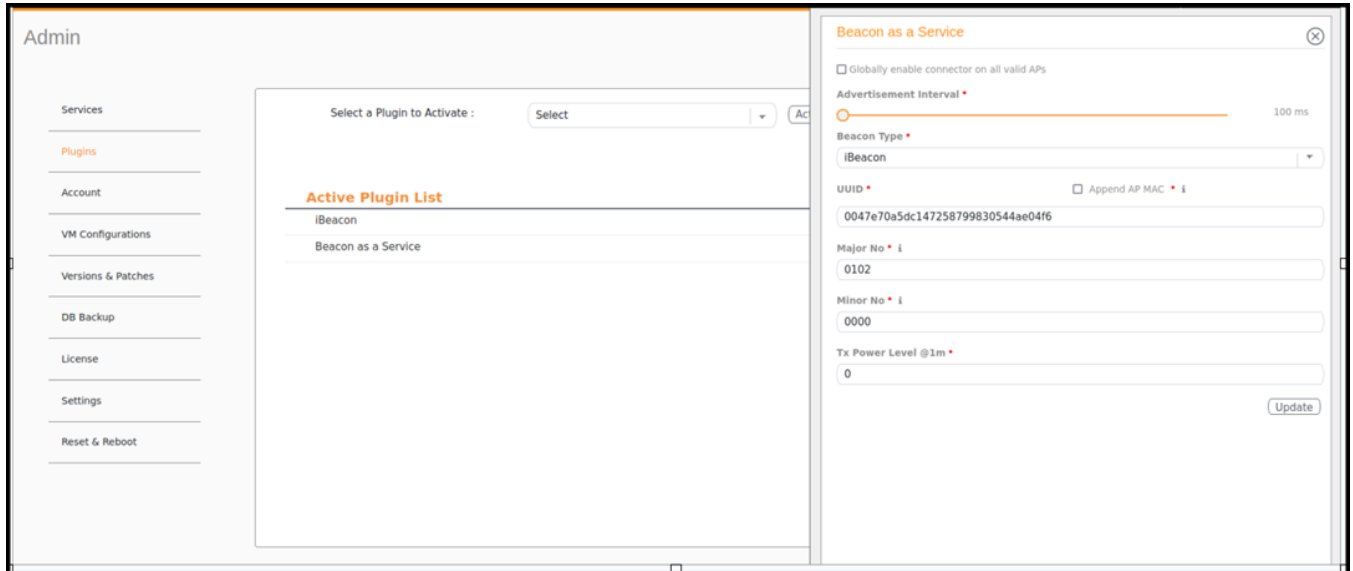


FIGURE 42 Updating Configuration parameters (Eddystone)

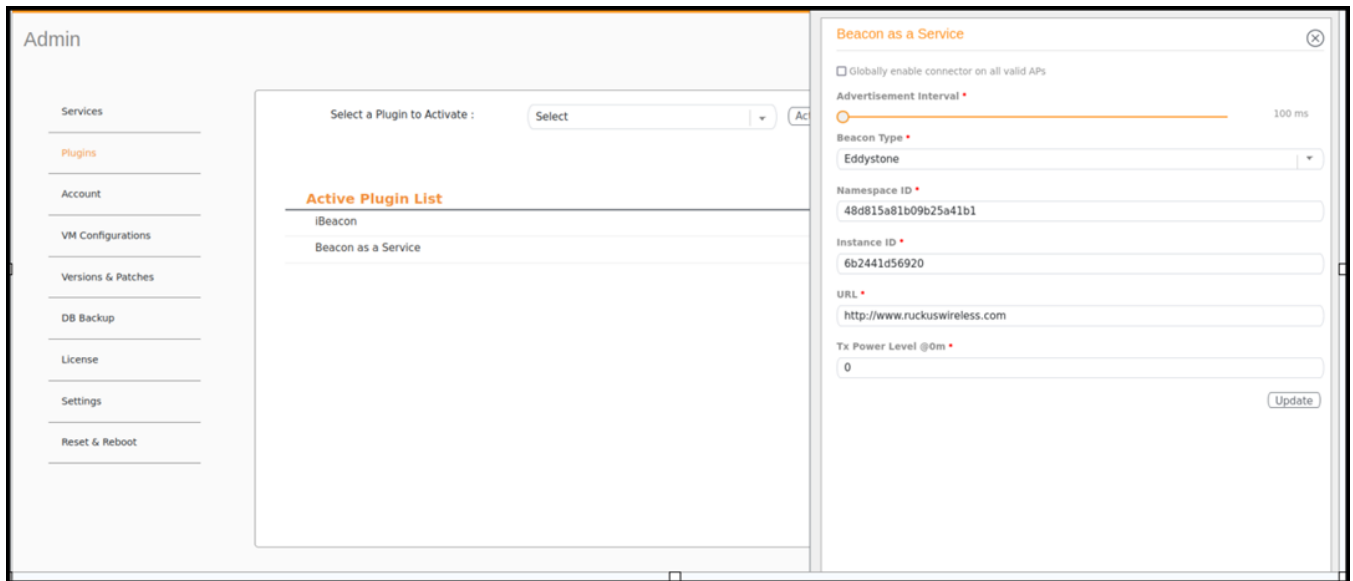
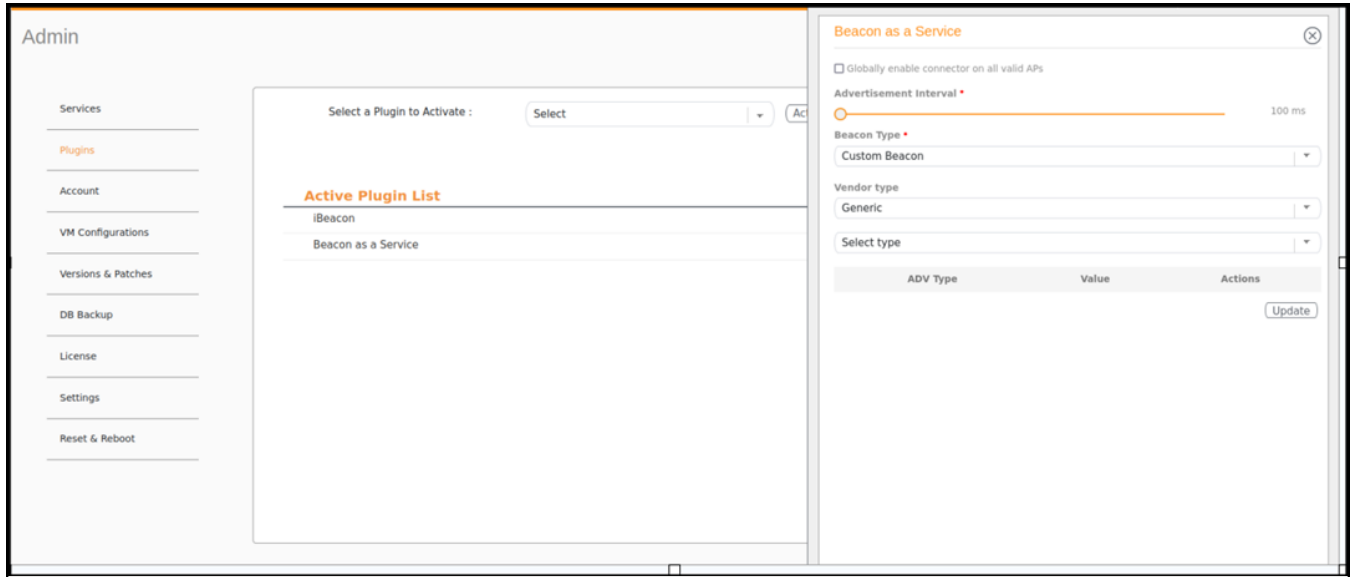


FIGURE 43 Updating Configuration Parameters (Generic)



## 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 React Mobile beacons 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 44** Activating the Beacon as a Service Plugin



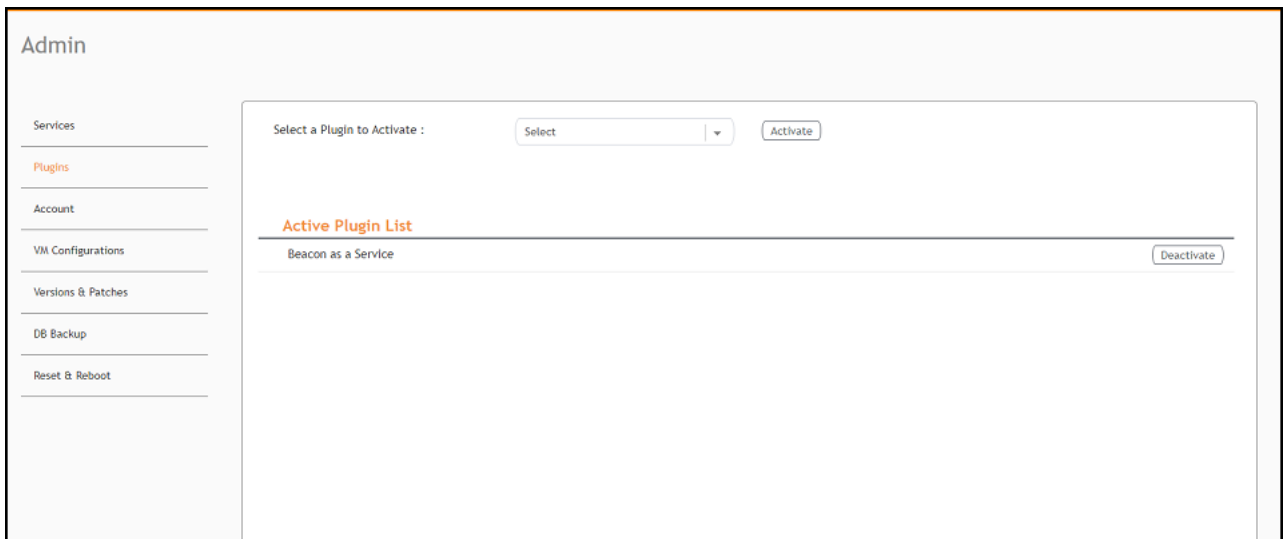
4. After the Beacon as Service plugin is activated, enter the following configuration parameters.
  - a) Select **Globally enable connector on all valid APs** to add all respective IoT APs automatically. Connectors are mapped to IoT AP by adding the connector name tag to the IoT AP.

**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 105 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) 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 45** Deactivating the Beacon as a Service Plugin



## Activating and Editing the BLE Scan Plugin

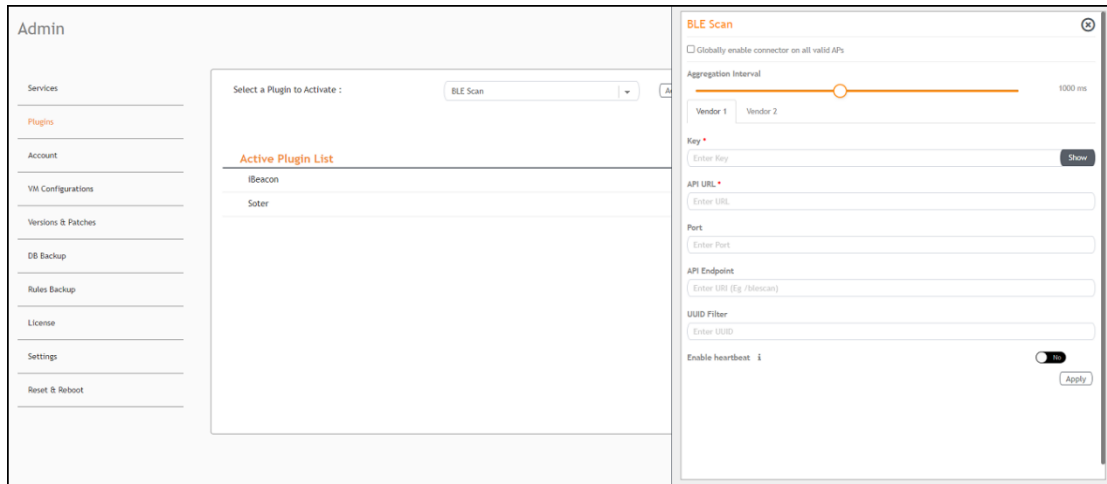
The RUCKUS IoT Controller provides support for the Bluetooth Low Energy (BLE) BLE Scan Plugin . The RUCKUS IoT Controller reads the packet from the IoT AP and routes the packets to the BLE beacon vendor cloud services.

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 46** 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 105 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.

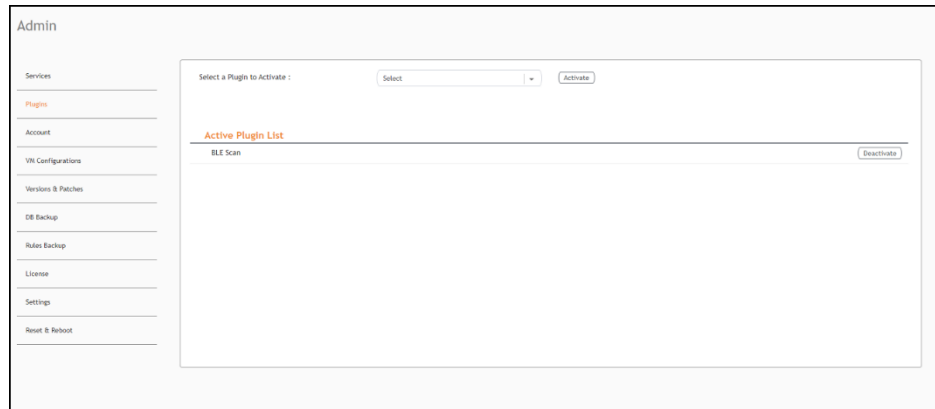
- h) Enable heartbeat.

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



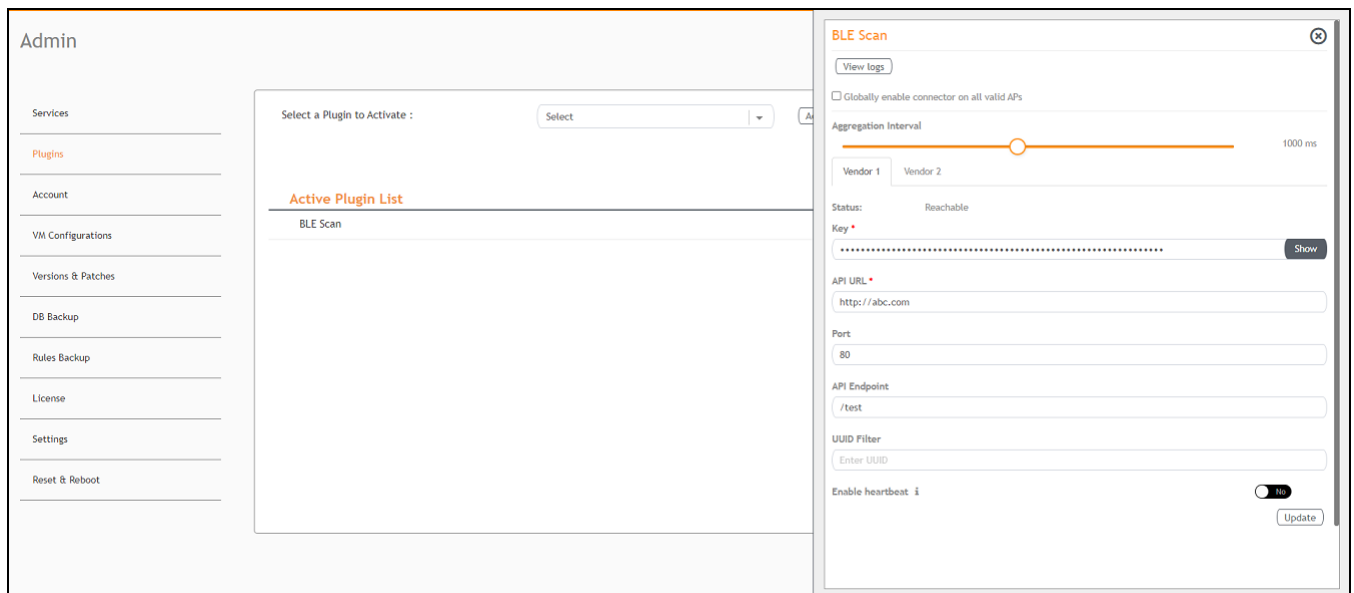
5. Click **Apply**.  
The BLE Scan plugin is added in the **Active Plugin List**.
6. To deactivate the BLE Scan plugin, select it and click **Deactivate**.

**FIGURE 47** Deactivating the BLE Scan Plugin



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

**FIGURE 48** Updating the Configuration Parameters



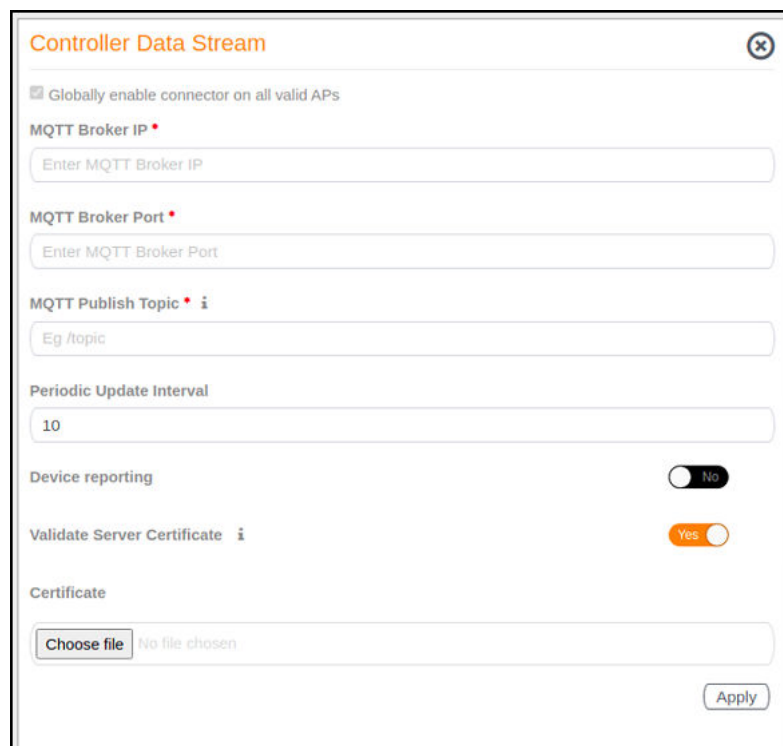
## Activating and Editing the Controller Data Stream Plugin

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 49** Activating the Controller Data Stream Plugin



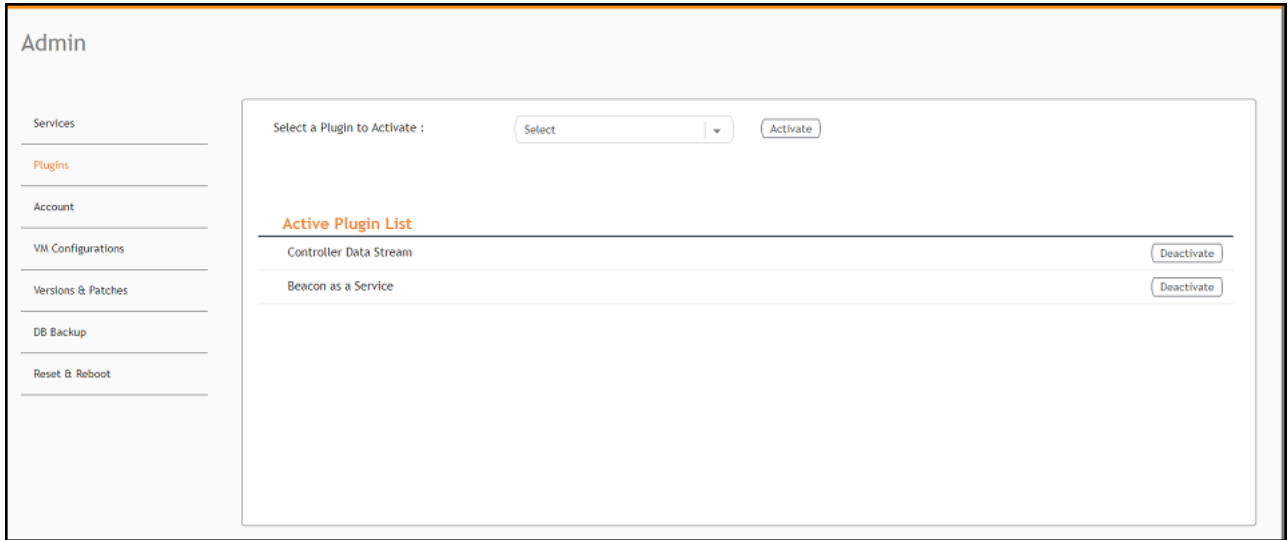
The screenshot shows the 'Controller Data Stream' configuration window. It includes a checkbox for 'Globally enable connector on all valid APs'. Below are input fields for 'MQTT Broker IP', 'MQTT Broker Port', and 'MQTT Publish Topic' (with an example 'Eg /topic'). There is a 'Periodic Update Interval' field set to '10'. Two toggle switches are present: 'Device reporting' (set to 'No') and 'Validate Server Certificate' (set to 'Yes'). A 'Certificate' section has a 'Choose file' button and the text 'No file chosen'. An 'Apply' button is at the bottom right.

4. After the Controller Data Stream plugin is activated, enter the following configuration parameters.
  - a) In **MQTT Broker IP**, enter the IP address of your MQTT broker.
  - b) In **MQTT Broker Port**, enter the network port to which you want to connect.
  - c) 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.
  - d) In **Periodic Update Interval** enter the interval to receive MQTT Publish.
  - e) Enable **Device Reporting** and enter the topic endpoint which will publish message whenever a device change event is received.
  - f) 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**.

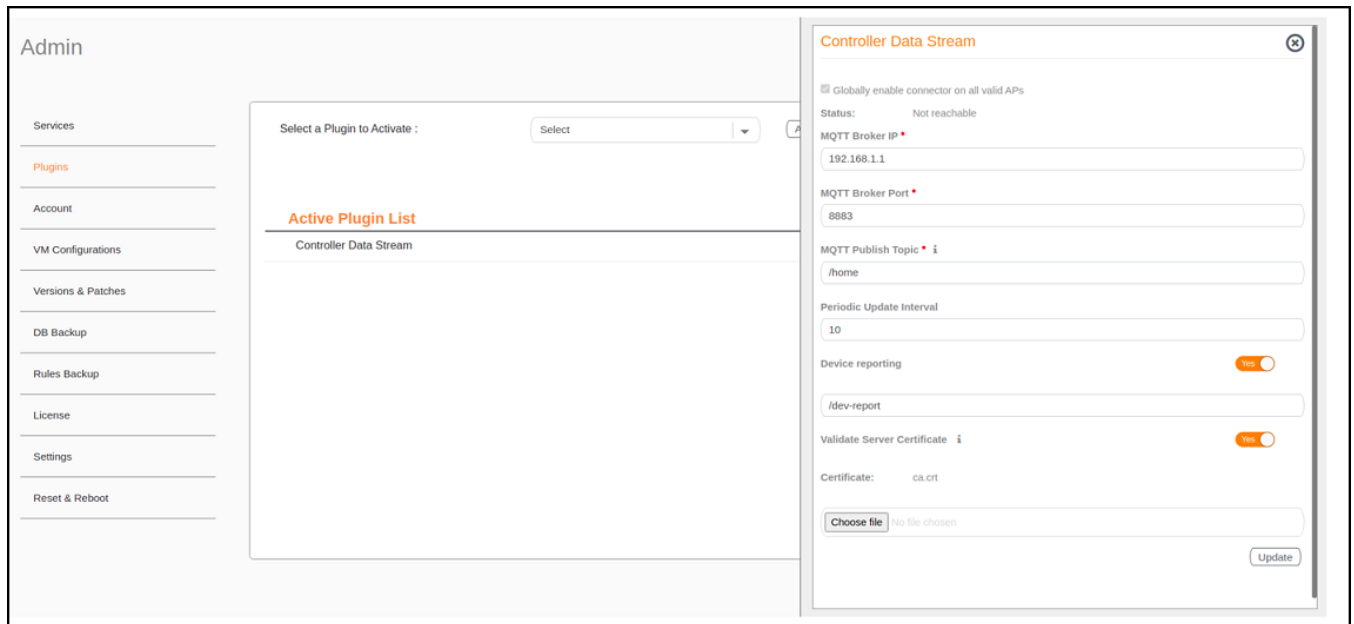
- To deactivate the Controller Data Stream plugin, select it and click **Deactivate**.

**FIGURE 50** Deactivating the Controller Data Stream Plugin



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

**FIGURE 51** Updating the Configuration Parameters



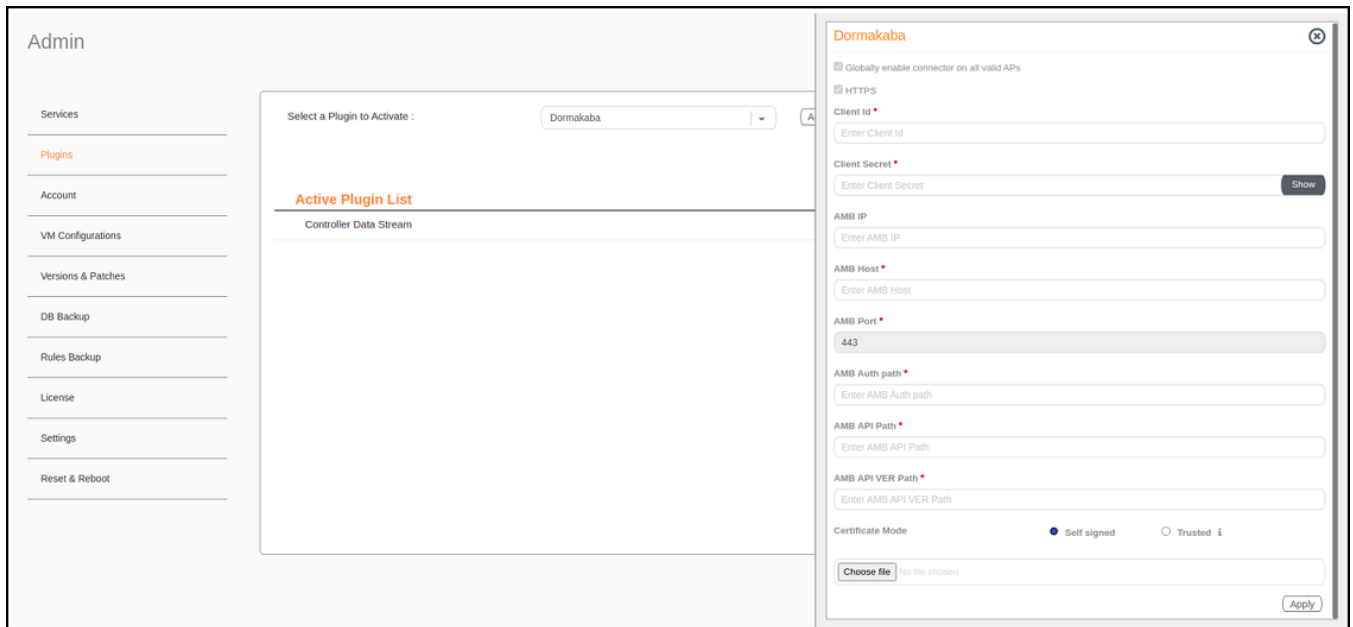
## Activating and Editing the Dormakaba Plugin

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 52** Activating the Dormakaba Plugin



4. After the Dormakaba plugin is activated, enter the following configuration parameters.
  - a) Enter the **Client Id** used for connecting to Ambiance Server.

**NOTE**

The Client ID must not be configured as "admin" while activating the Dormakaba plugin.

- b) Enter the **Client Secret** used for connecting to Ambiance Server.
- c) Enter the **Ambiance IP Address** .
- d) Enter the **Ambiance Host**.

**NOTE**

The URL for Host is <https://exmaple.test.net>.

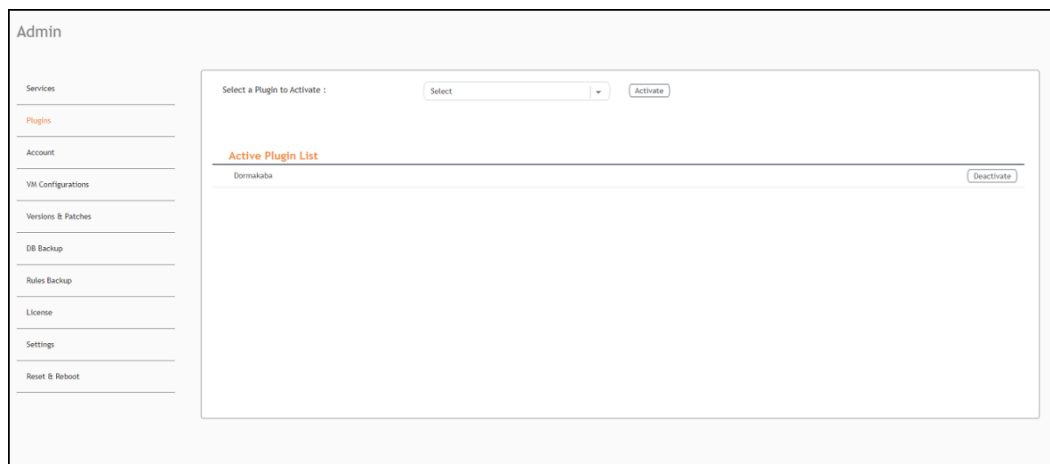
- e) Enter the **Ambiance Port**.
- f) Enter the **Ambiance Auth Path**.
- g) Enter the **Ambiance API Path**.
- h) Enter the **Ambiance API VER Path**.
- i) Select the **Certificate Mode**.
- j) Click **Choose file**.

5. Click **Apply**.

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

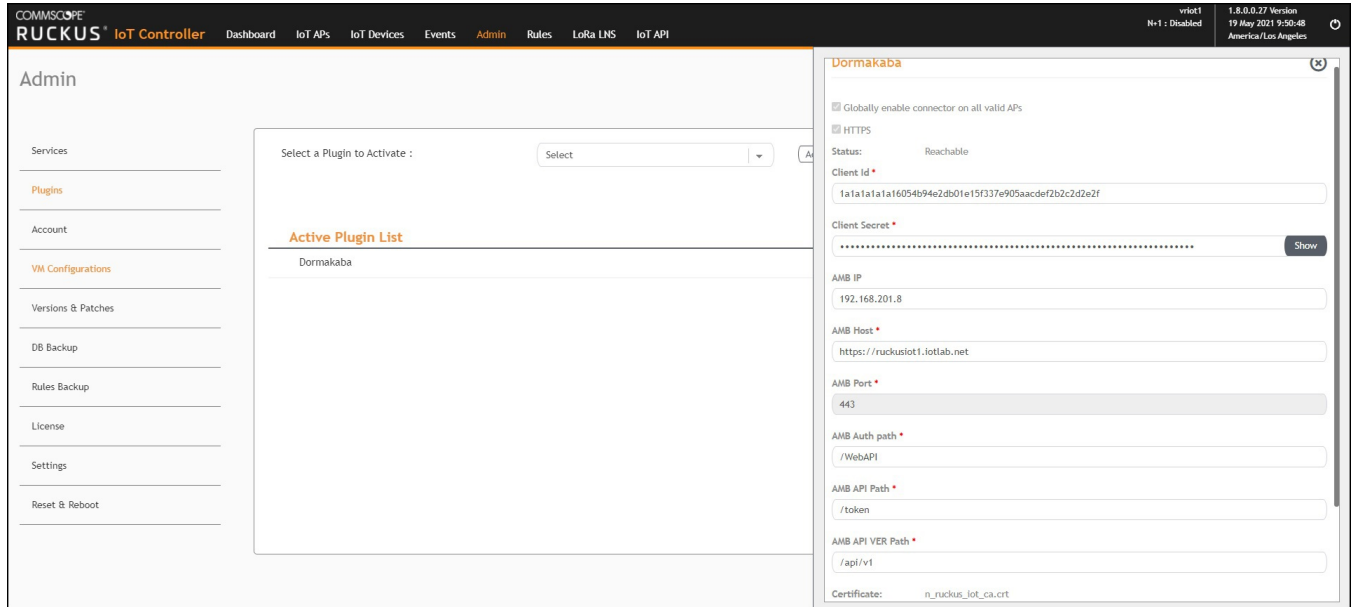
6. To deactivate the Dormakaba plugin, select it and click **Deactivate**.

**FIGURE 53** Deactivating the Dormakaba Plugin



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

FIGURE 54 Updating the Configuration Parameters



## Activating and Editing the Telkonet Plugin

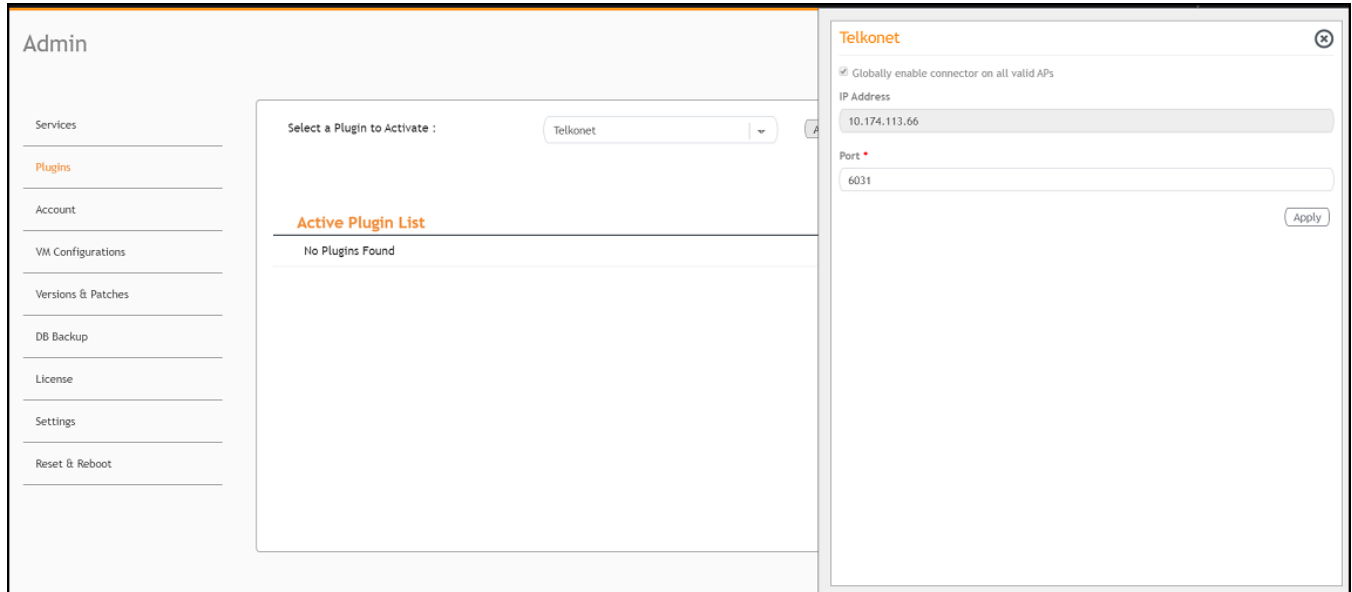
The RUCKUS IoT Controller provides support for the Telkonet devices and their respective MQTT APIs.

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 55** Activating the Telkonet Plugin



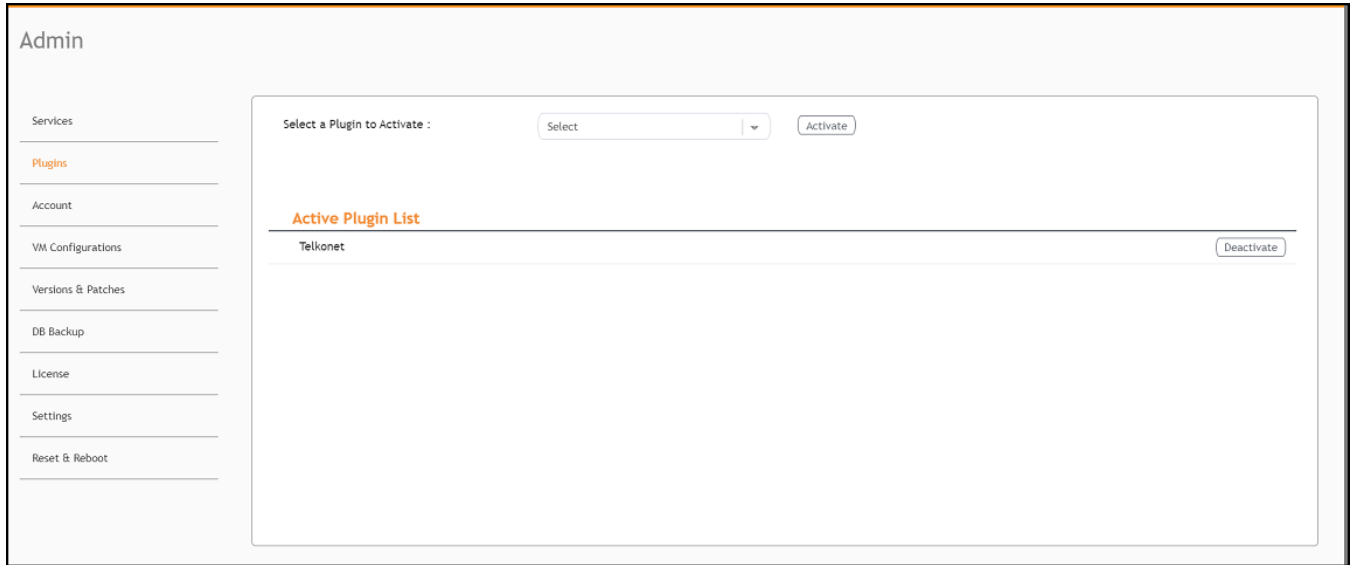
4. After the Telkonet plugin is activated, enter the following configuration parameters.
  - a) Enter the IP Address.  
This is the IP address of the Telkonet controller.
  - b) Enter the Port number.  
This is the port number on which the vendor/connector web server is running.
5. Click **Apply**.  
The Telkonet plugin is added in the **Active Plugin List**.

## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

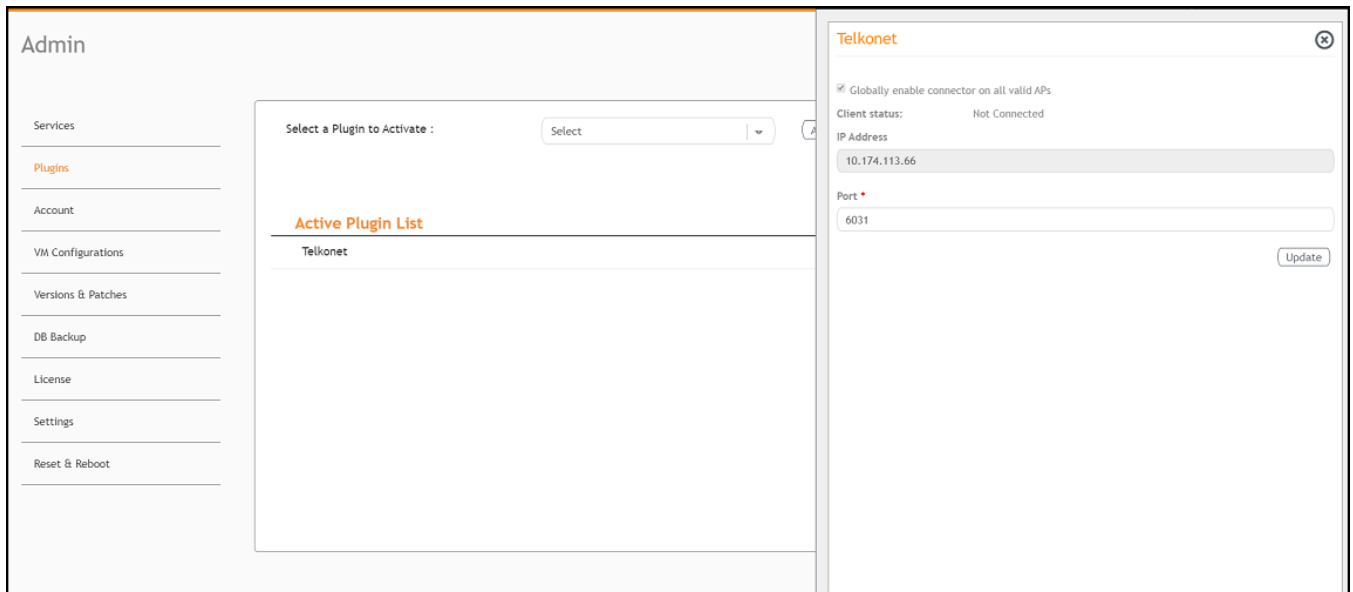
- To deactivate the Telkonet plugin, select it and click **Deactivate**.

**FIGURE 56** Deactivating the Telkonet Plugin



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

**FIGURE 57** Updating the Configuration Parameters





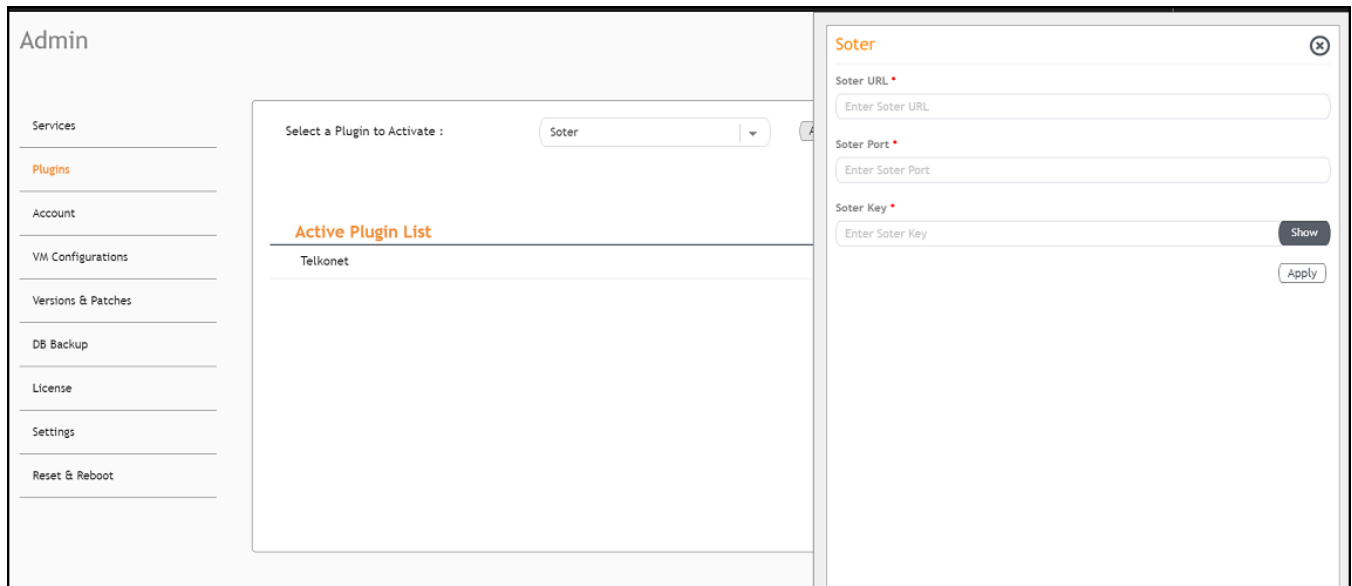
## Activating and Editing the Soter Plugin

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 58** 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**.

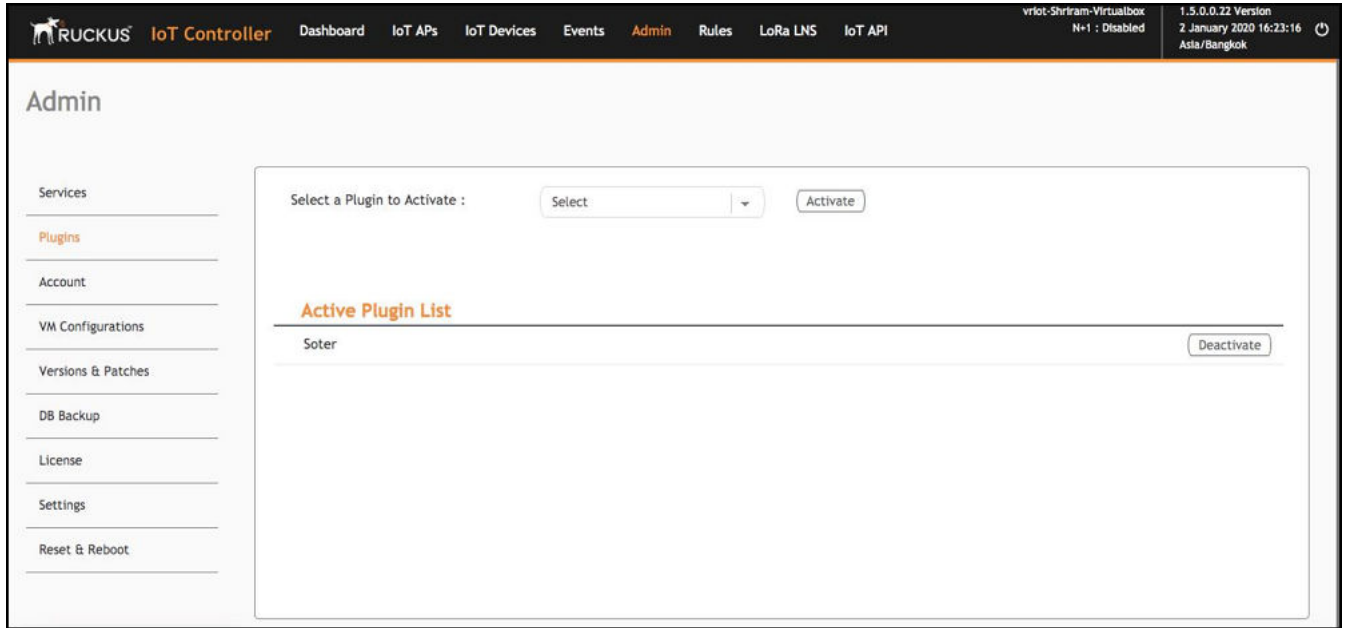
The Soter plugin is added in the **Active Plugin List**.

## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

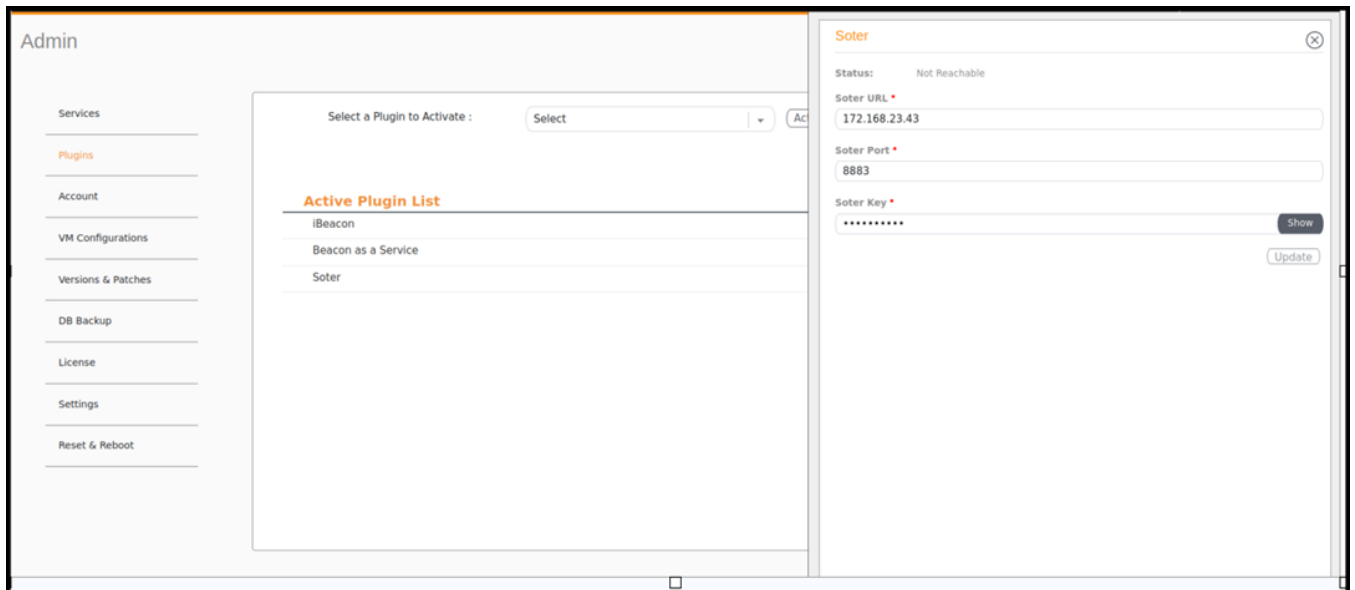
- To deactivate the Soter plugin, select it and click **Deactivate**.

**FIGURE 59** Deactivating the Soter Plugin



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

**FIGURE 60** Updating the Configuration Parameters



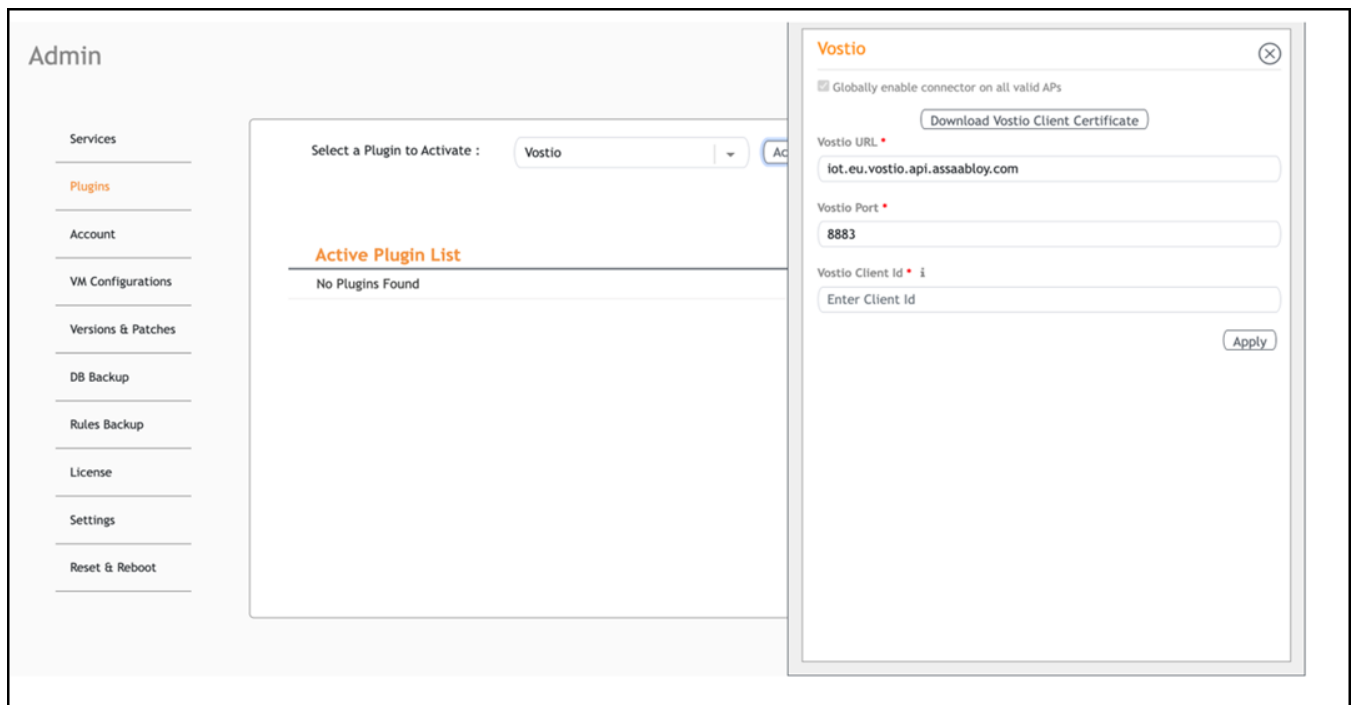
## Activating and Editing the Vostio Plugin

The RUCKUS IoT Controller supports the Vostio plugin. The RUCKUS IoT Controller communicates with Vostio Assa Abloy cloud and executes the operations issued from the Vostio cloud.

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. From the **Select a Plugin to Activate** list, select a **Vostio** plugin and click **Activate**.

**FIGURE 61** Activating the Vostio Plugin



## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

4. After the Vostio plugin is activated, enter the following configuration parameters.
  - a) Enable **Globally enable connector on all valid APs** to add IoT APs. The connectors are mapped to the IoT AP by adding the connector name tag to the 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 105 for more information.

- b) Click **Download Vostio Client Certificate** to generate and download the Vostio client certificate.
  - c) In **Vostio URL** field, enter the URL for vostio.

**NOTE**

By default, the vostio URL is set to Vostio URL endpoint.

- d) In **Vostio Port** field, enter the port number.

**NOTE**

By default, the port number is 8883.

- e) In **Vostio Client Id** field, enter the network ID.

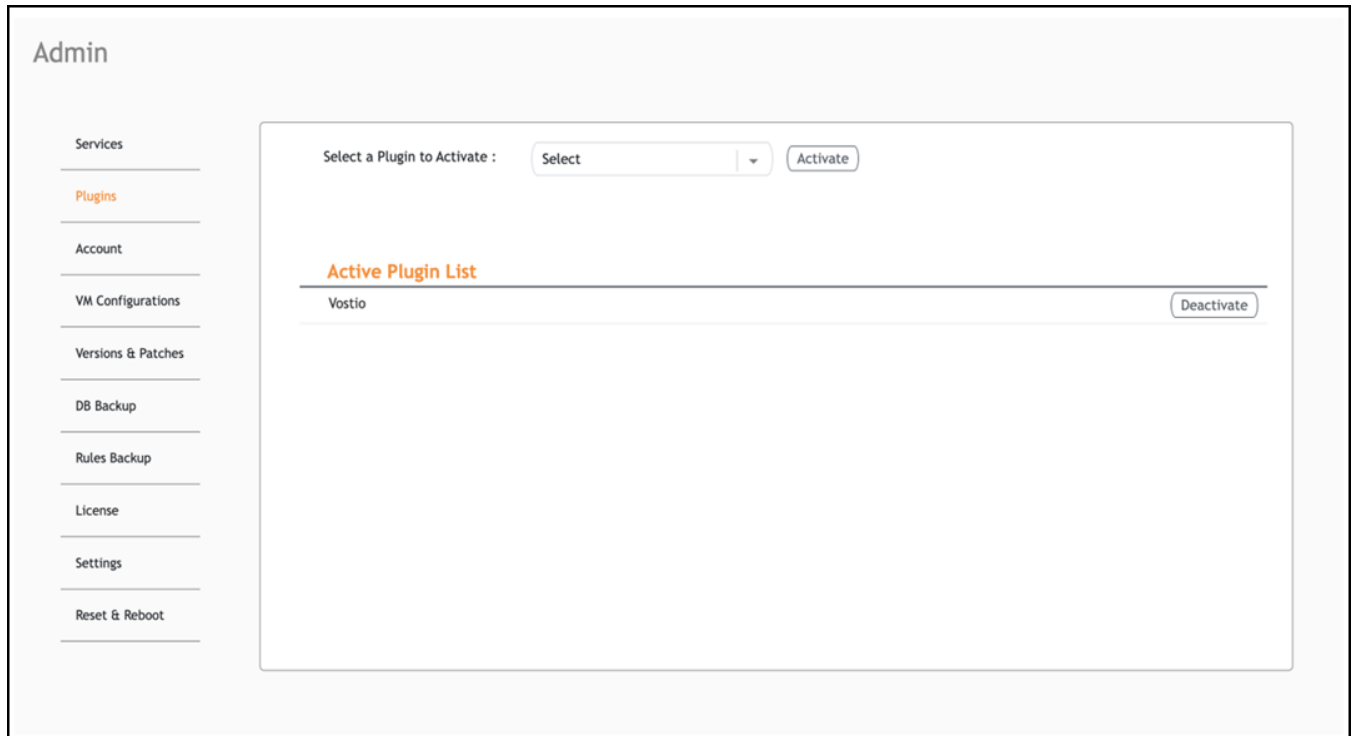
**NOTE**

Refer to [Getting the Network ID from Vostio Cloud Platform](#) on page 71 to retrieve the Network ID.

5. Click **Apply**. The Vostio plugin is added in the **Active Plugin List**.

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

**FIGURE 62** Deactivating the Vostio Plugin

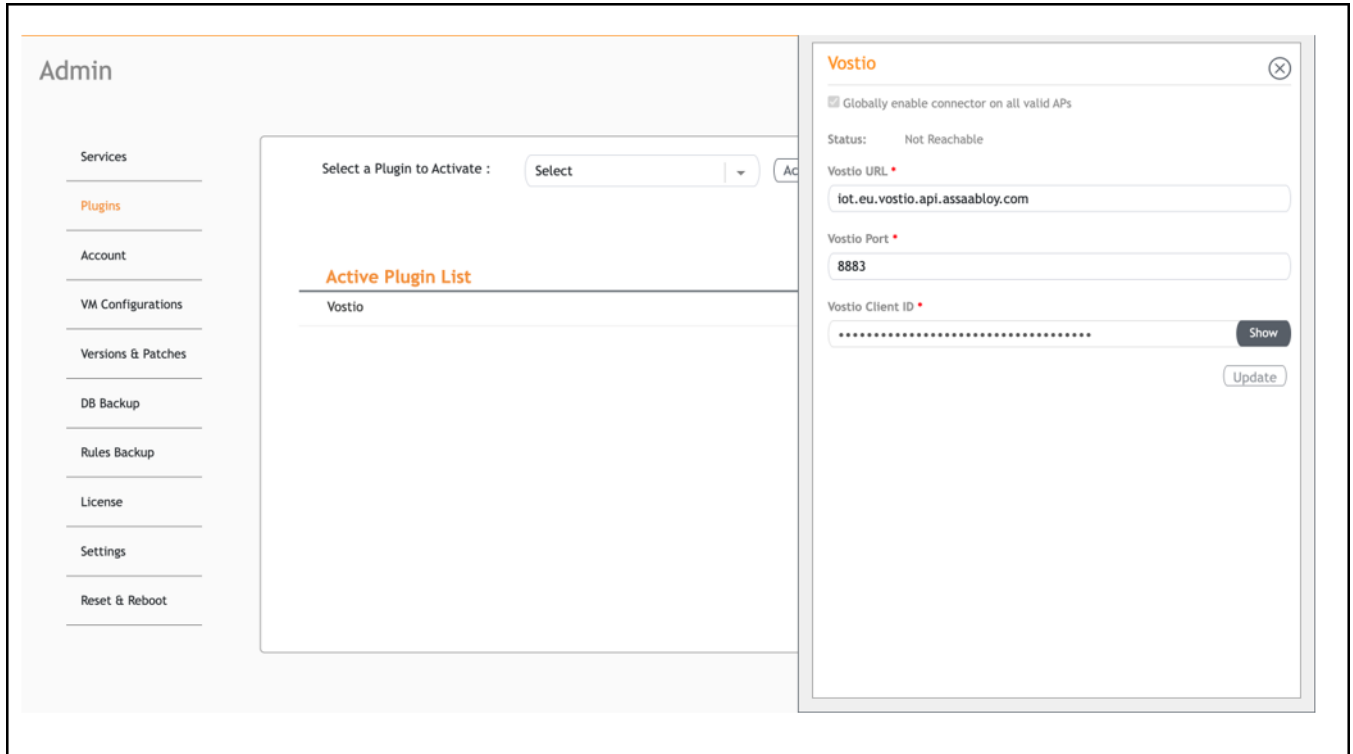


7. To edit the configuration of the Vostio plugin, select it and click **Update**.

**NOTE**

The **Vostio Client Id** field cannot be edited. You can edit **Vostio URL** and **Vostio Port** fields.

**FIGURE 63** Updating the Fields in Vostio Plugin

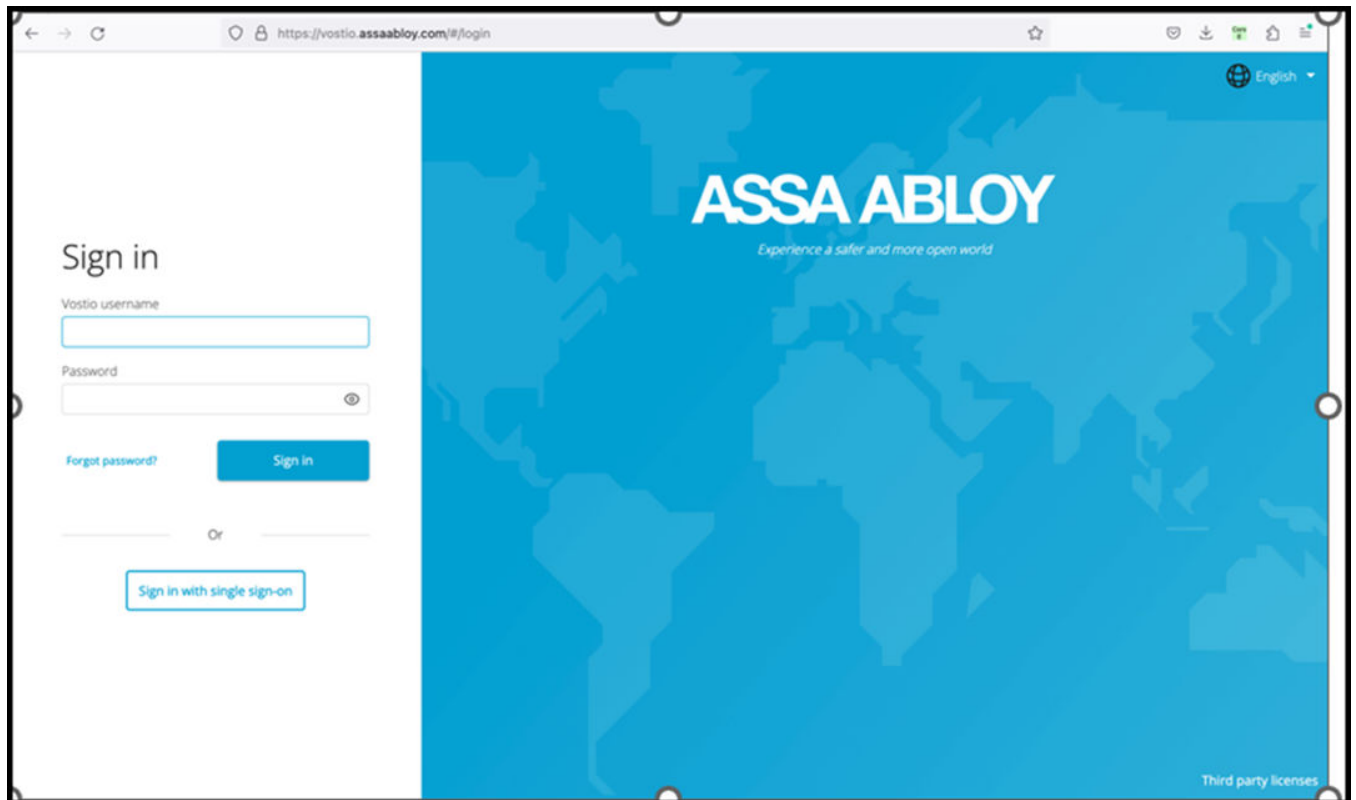


## Getting the Network ID from Vostio Cloud Platform

Perform the following steps to obtain the network ID.

1. Open a web browser and type the url <https://vostio.assaabloy.com/#/login>.  
The **ASSA ABLOY** Sign in page is displayed.

**FIGURE 64** ASSA ABLOY Sign In Page



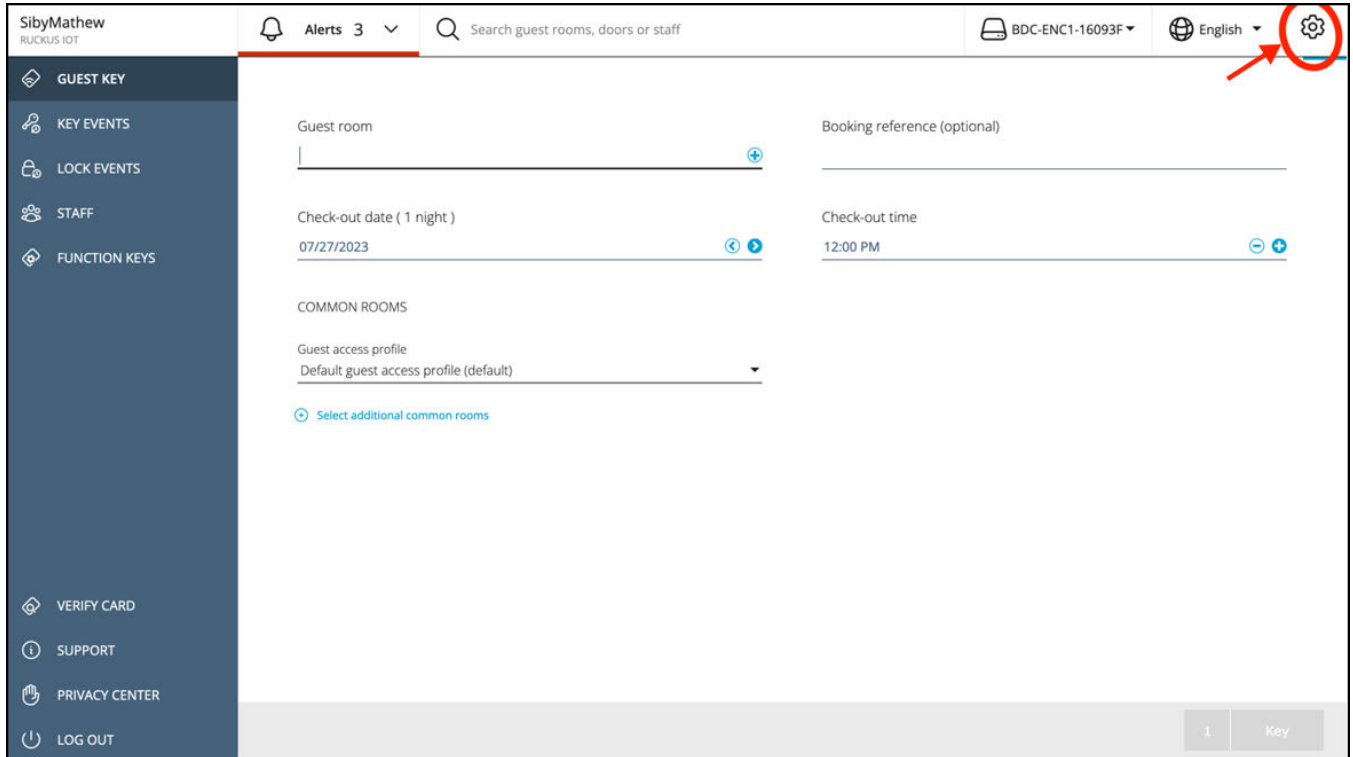
2. Enter the Vostio username and password. Click **Sign in**.

## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

3. Click the **Settings** icon in the top right corner.

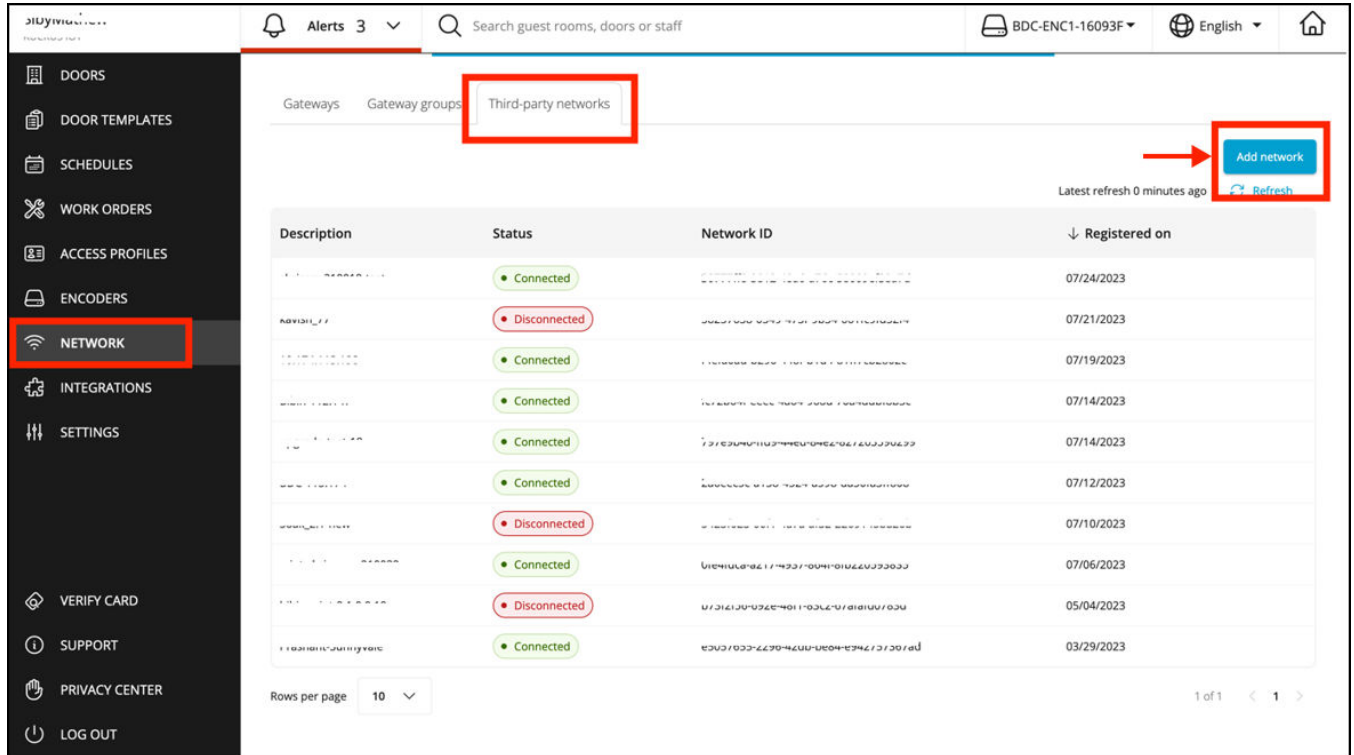
**FIGURE 65** Settings Page





- From the left navigation pane, select the **NETWORK** tab and click **Third-party networks**.

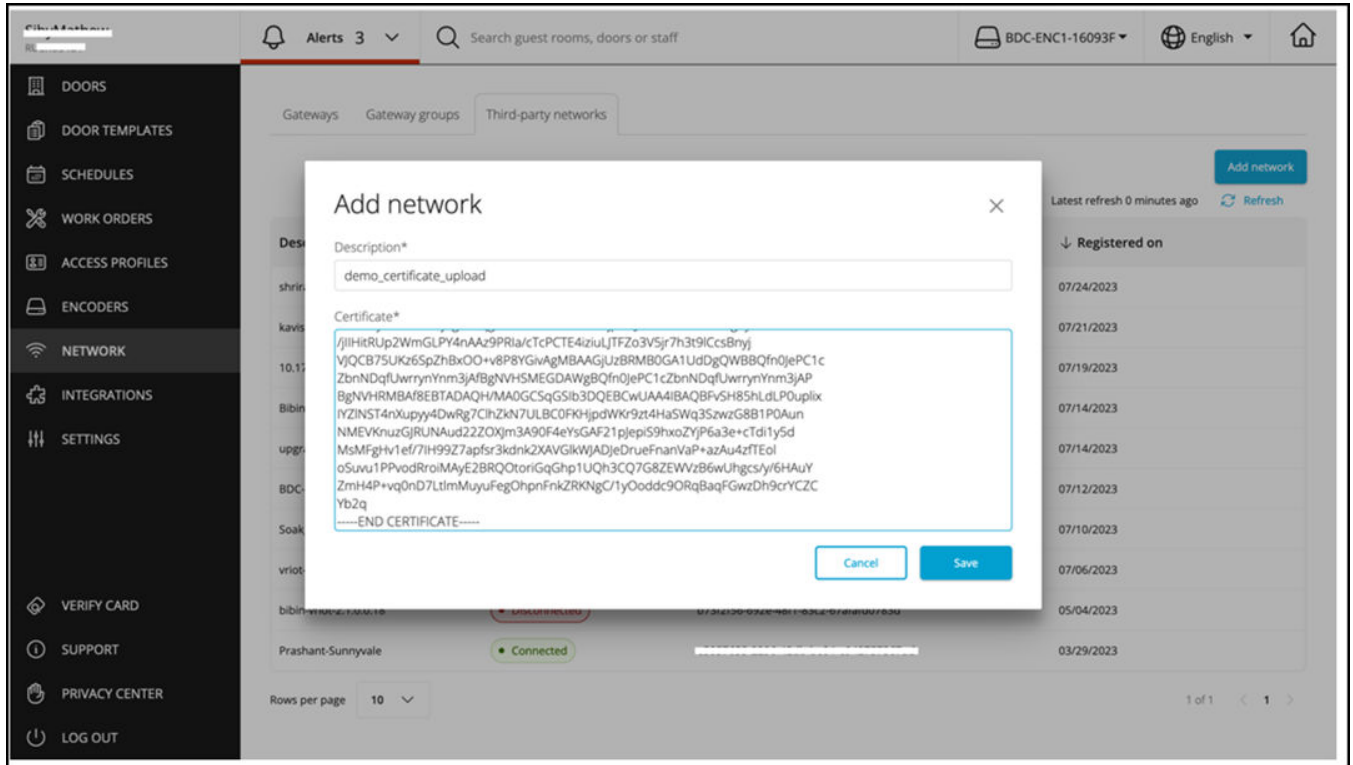
**FIGURE 66** Selecting the Network Tab



5. Click **Add network** to add the details of the certificate in the **Add network** page.

In the **Description** field, enter the name for the certificate. Copy the content of the certificate into the **Certificate** field, and click **Save**. You can view the certificate under the **Third-party networks** tab.

FIGURE 67 Adding Network Details

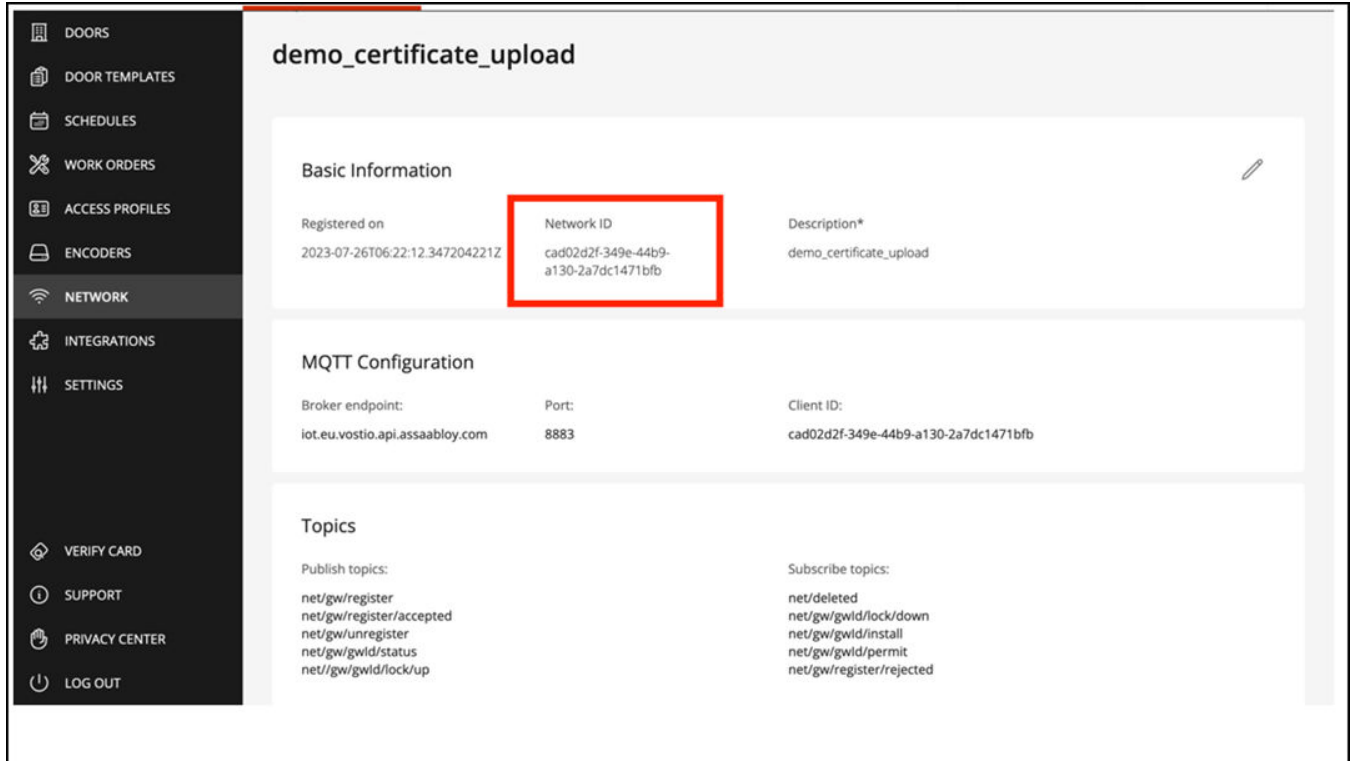


**NOTE**

Refer to step 4(b) [Activating and Editing the Vostio Plugin](#) on page 67 for downloading the Vostio Client certificate.

- Click the uploaded certificate in **Description** column. Under **Basic Information** view the certificate details and capture the value of network ID in **Network ID** column.

FIGURE 68 Capturing the Network ID



**NOTE**

The value of the network ID is used as the Vostio client ID for RUCKUS IoT Controller.

## SALTO Plugin

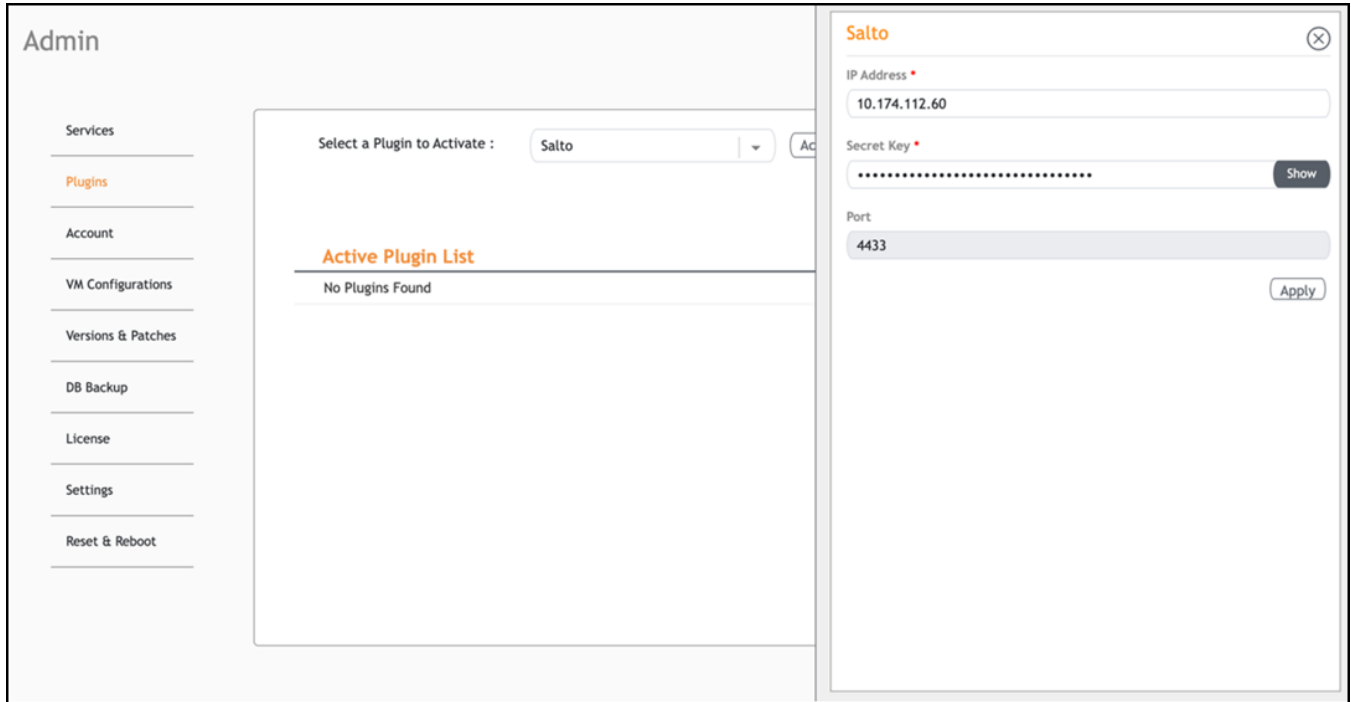
The SALTO App operating within the RUCKUS IoT Controller communicates with SALTO space solutions, and onboards SALTO locks to the gateway through gateway and lock internal communication.

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

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

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

**FIGURE 69** Selecting Salto PPlugin from the list



4. After the Salto plugin is activated, enter the following configuration parameters.
  - a) Enter the **IP Address** of the Salto Space for which you want the RUCKUS IoT Controller to be configured.
  - b) Enter the **Security Key** which is generated from the Salto Space.

**NOTE**

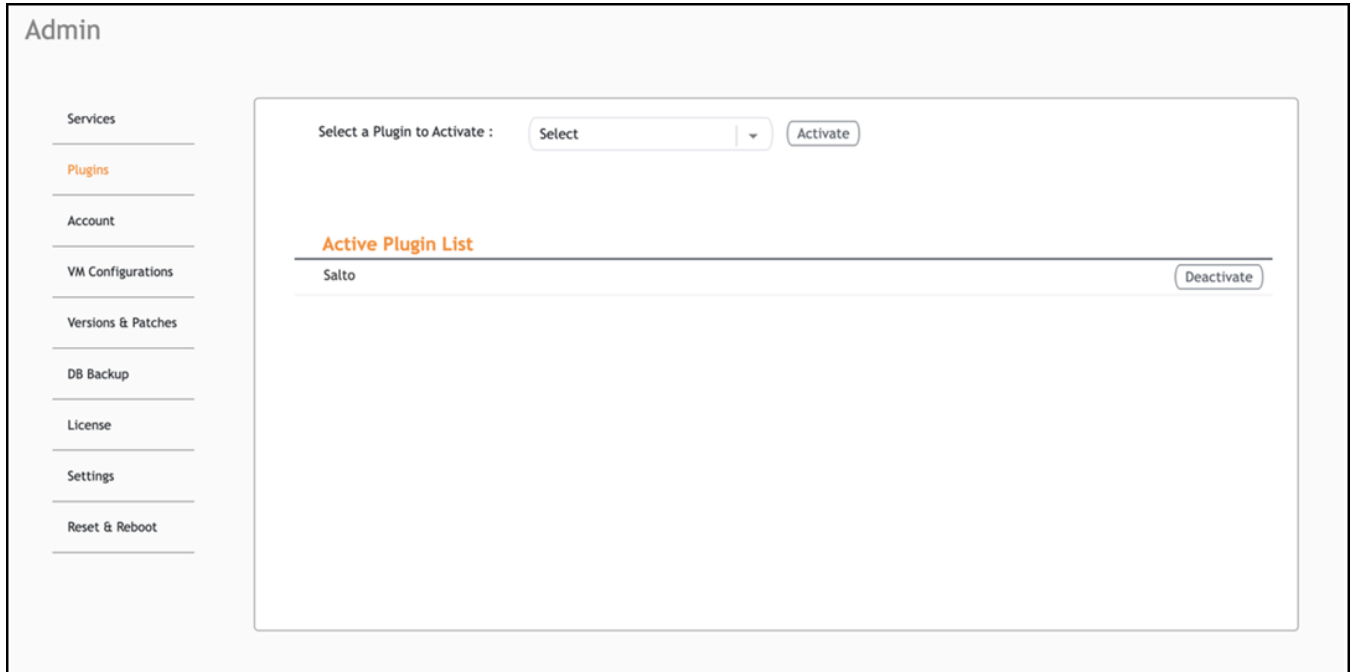
Refer to [Adding Controller to the SALTO Space](#) on page 79 to generate the Secret Key.

- c) The **Port** is pre-configured with the port number 4433, and this value cannot be altered.
5. Click **Apply**.

The Salto plugin is added in the **Active Plugin List**. After activating the plugin, navigate to the Salto Space and perform its Initialization. Refer to [Adding Controller to the SALTO Space](#) on page 79 to perform Initialization.

- To deactivate the Salto plugin, select it and click **Deactivate**.

**FIGURE 70** Deactivating the Plugin

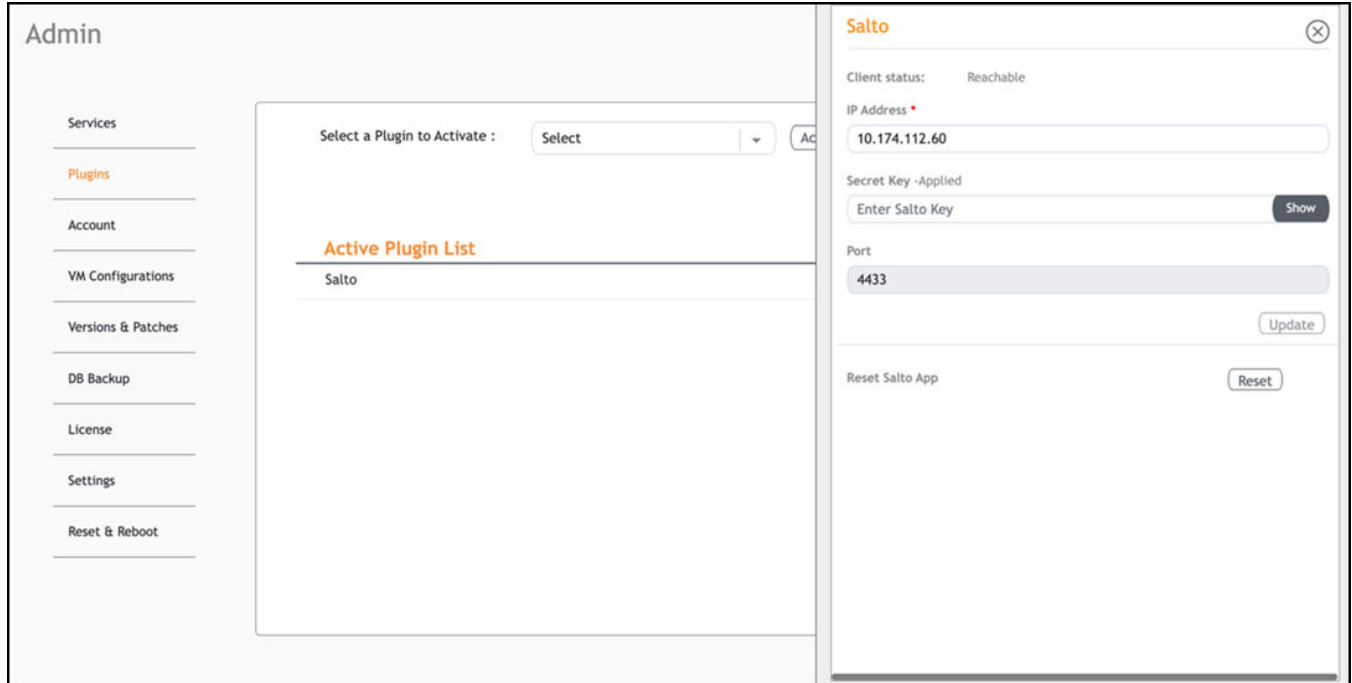


## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

7. To edit the configuration of the Salto plugin, click **Reset** adjacent to Reset Salto App. This clears the entry in the **Secret Key** field and closes the Salto plugin side bar.

**FIGURE 71** Updating the Configuration



8. Select the Salto plugin from the **Active Plugin List** and repeat step 4 to enter the new configuration parameters. Click **Update**. After successfully updating the plugin initialize the Secret Key. Refer to [Adding Controller to the SALTO Space](#) on page 79 to perform Initialization.

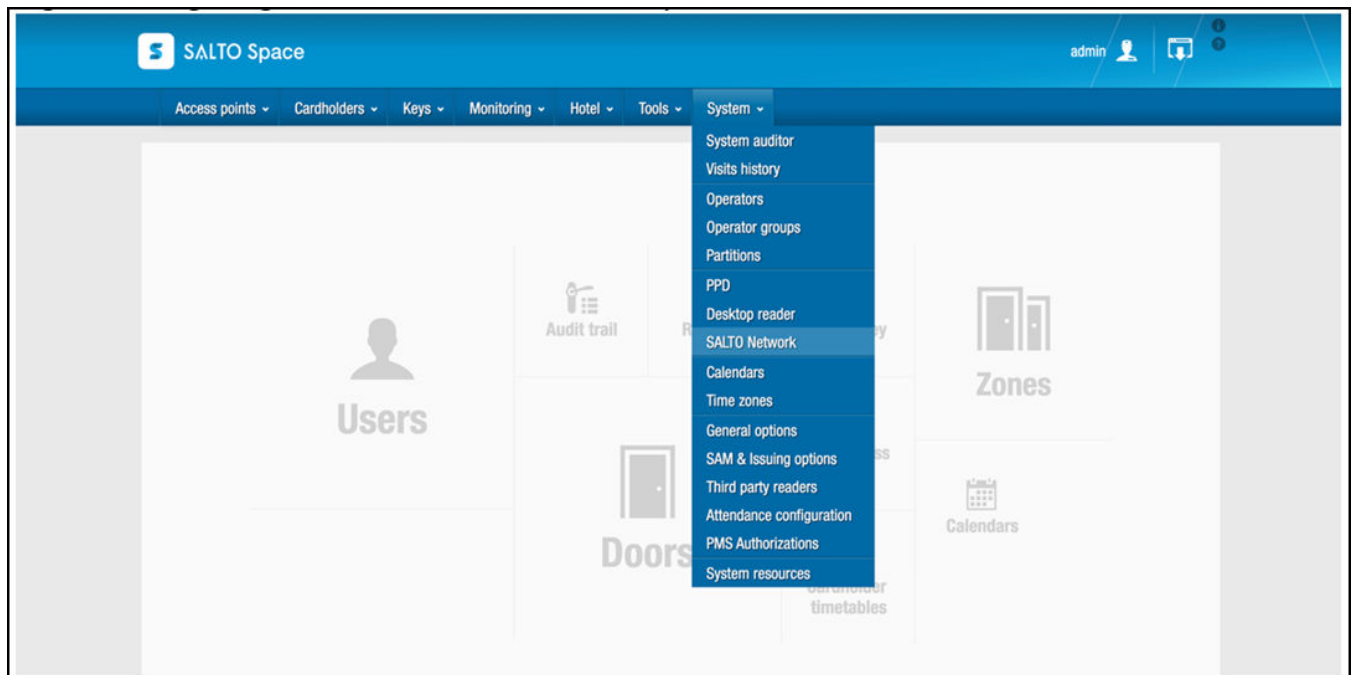
## Adding Controller to the SALTO Space

SALTO Space is an on-premise management platform that allows you to manage RUCKUS IoT controller, IoT gateways and SALTO locks. Generating the Secret Key and Initialization of the Secret Key are the crucial steps in authentication of the RUCKUS IoT Controller in the SALTO Space network.

Following are the steps to generate the Secret Key and Initializing the key.

1. Log in to the SALTO Space with valid credentials. Click **Enter**.  
The **SALTO Space** page is displayed.

**FIGURE 72** SALTO Space Dashboard

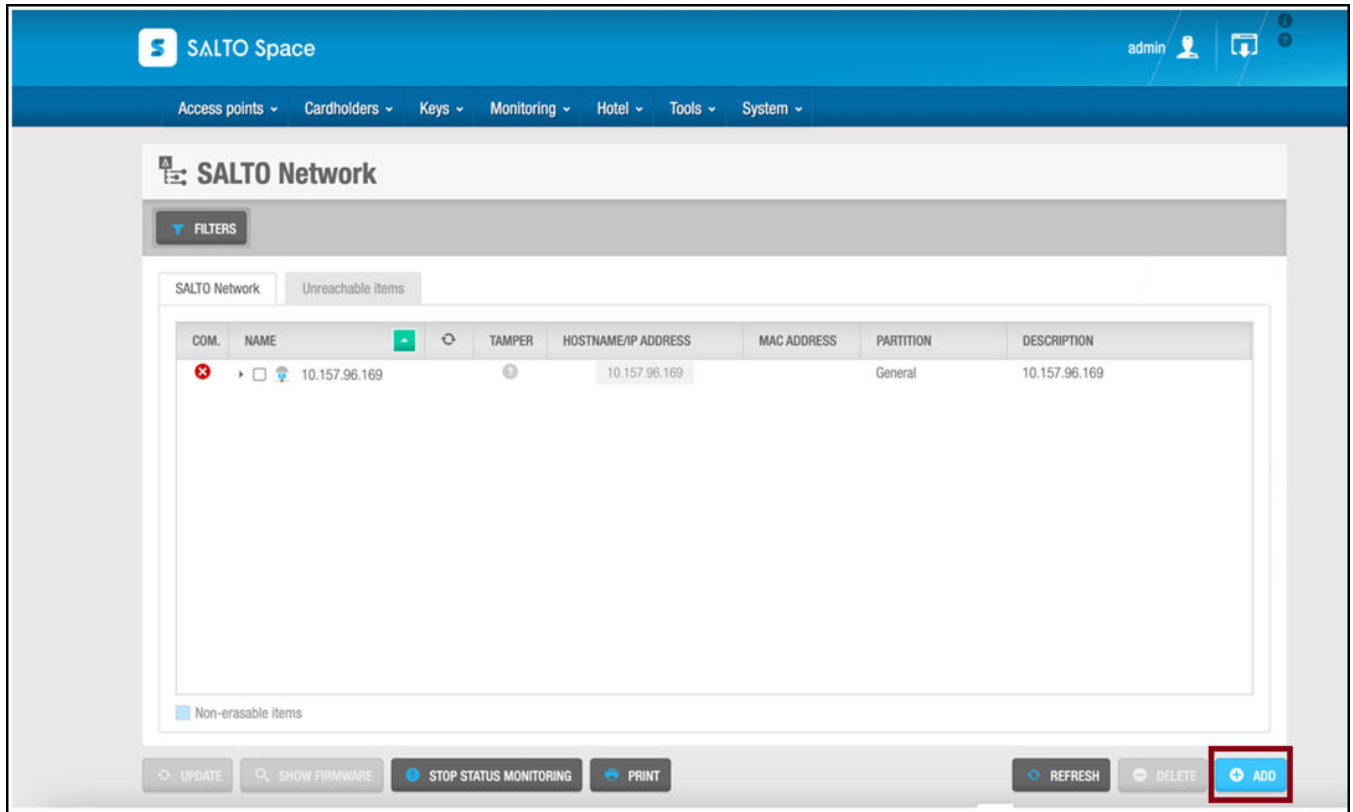


## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

2. On the menu, click **System** and select **SALTO Network** from the list.  
The **SALTO Network** page is displayed.

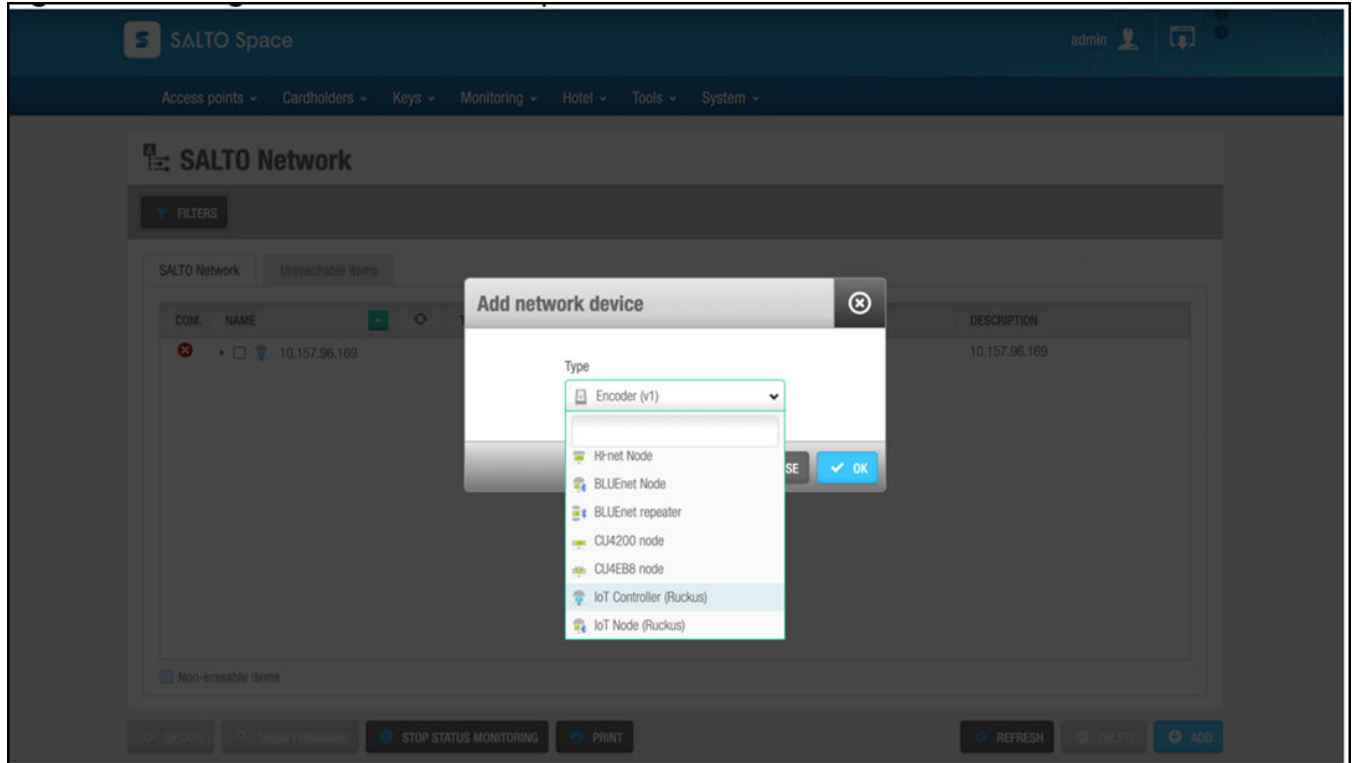
**FIGURE 73** SALTO Network Page





3. Click **ADD**. The **Add network device** pop-up page is displayed. Select the **IoT Controller (Ruckus)** from the **Type** list and click **OK**. The **IDENTIFICATION** page is displayed.

**FIGURE 74** Selecting the IoT Controller from the list

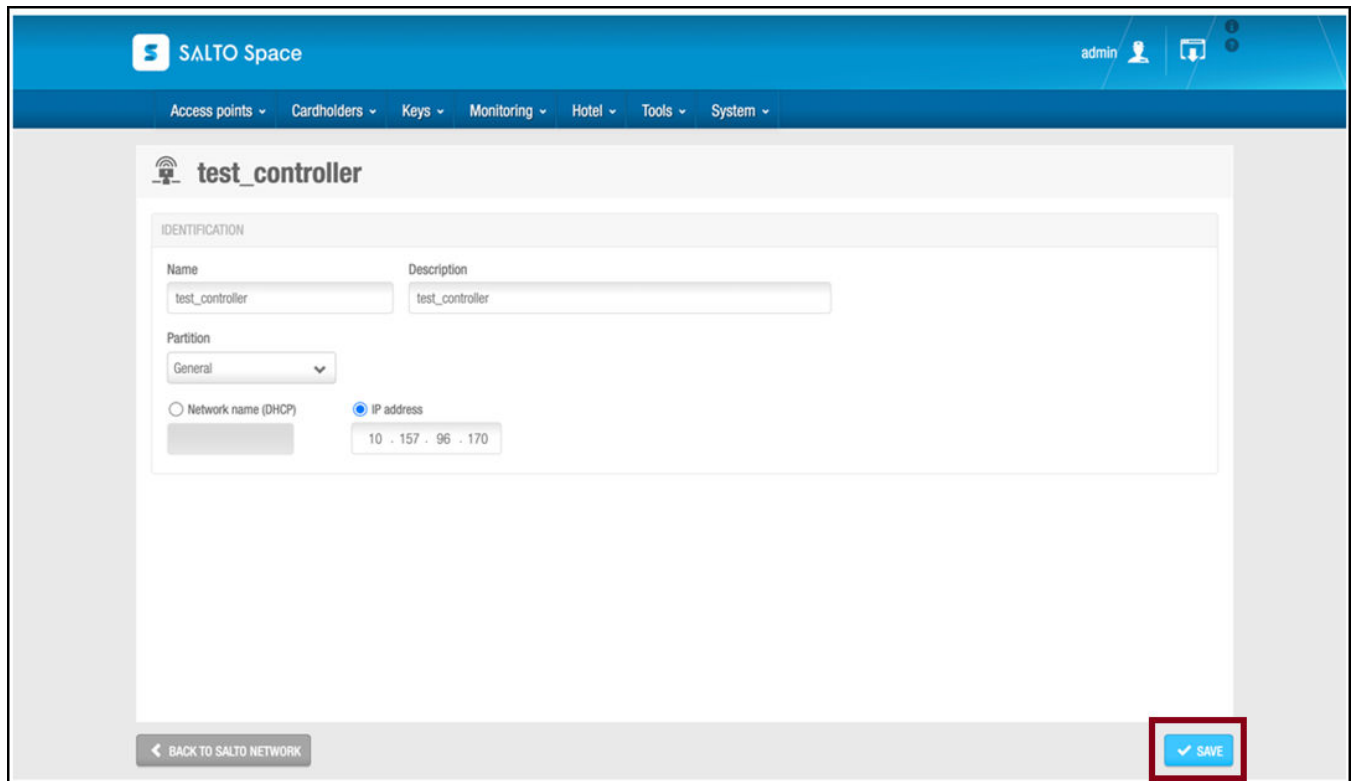


## Managing IoT Controller System Configuration

### Activating and Editing the Plugins

4. Configure the following parameters on the **IoT Controller (Ruckus)** page.
  - a) **Name:** Enter the name for the controller.
  - b) **Description:** Enter the description for the controller.
  - c) **Partition:** Select **General** from the list. By default the Partition selected is **General**.
  - d) **IP address:** Enter the RUCKUS IoT Controller IP address.

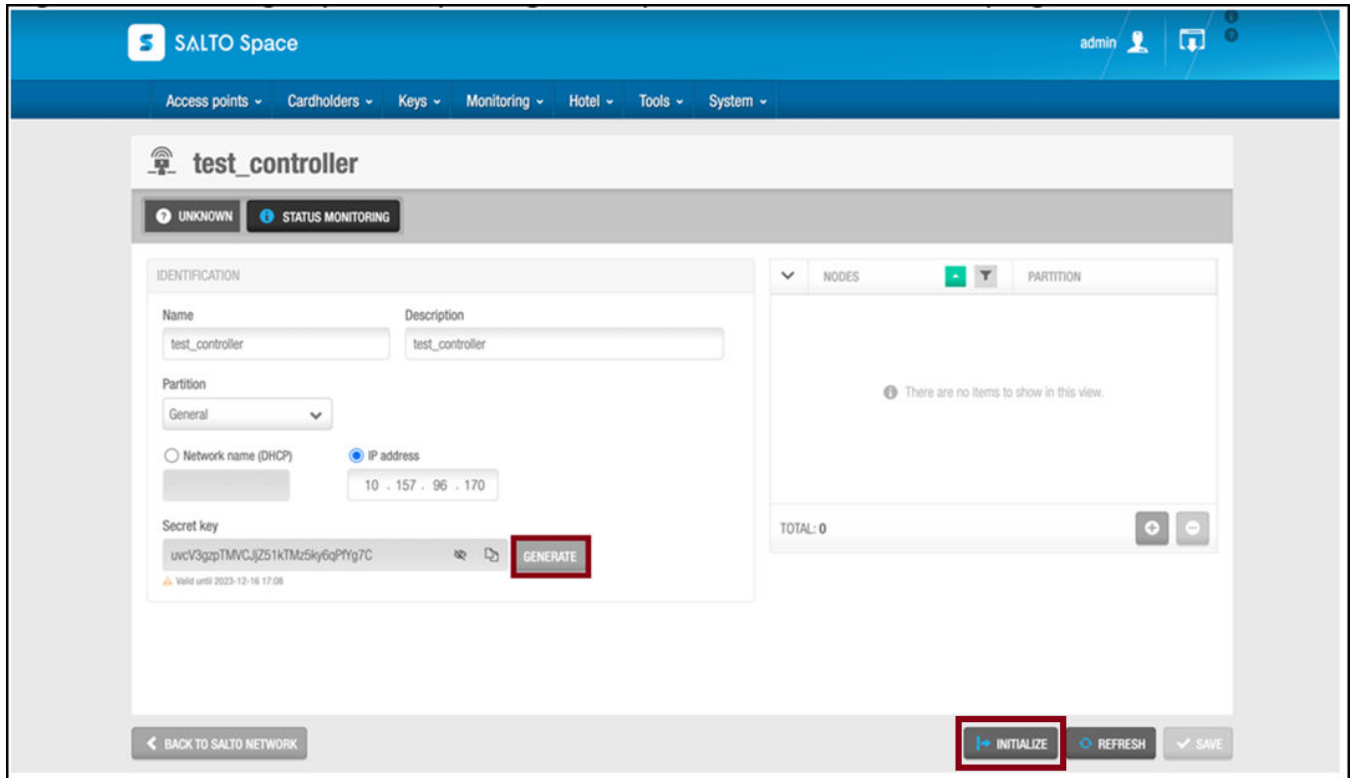
**FIGURE 75** Configuring the IoT Controller Parameters



The screenshot shows the SALTO Space web interface for configuring an IoT Controller. The page title is "test\_controller". Under the "IDENTIFICATION" section, there are two input fields for "Name" and "Description", both containing the text "test\_controller". Below these is a "Partition" dropdown menu set to "General". There are two radio buttons: "Network name (DHCP)" (unselected) and "IP address" (selected). The "IP address" field contains the value "10 . 157 . 96 . 170". At the bottom of the page, there is a "BACK TO SALTO NETWORK" button on the left and a "SAVE" button on the right, which is highlighted with a red square.

5. Click **Save** to save the RUCKUS IoT Controller information.  
The **IDENTIFICATION** page is displayed

**FIGURE 76** Clicking Generate and Initialize buttons



6. Click **Generate** to generate the Secret key. Click the **Copy** icon to copy the Secret Key.

**NOTE**

The Secret key is used for activating the SALTO plugin.

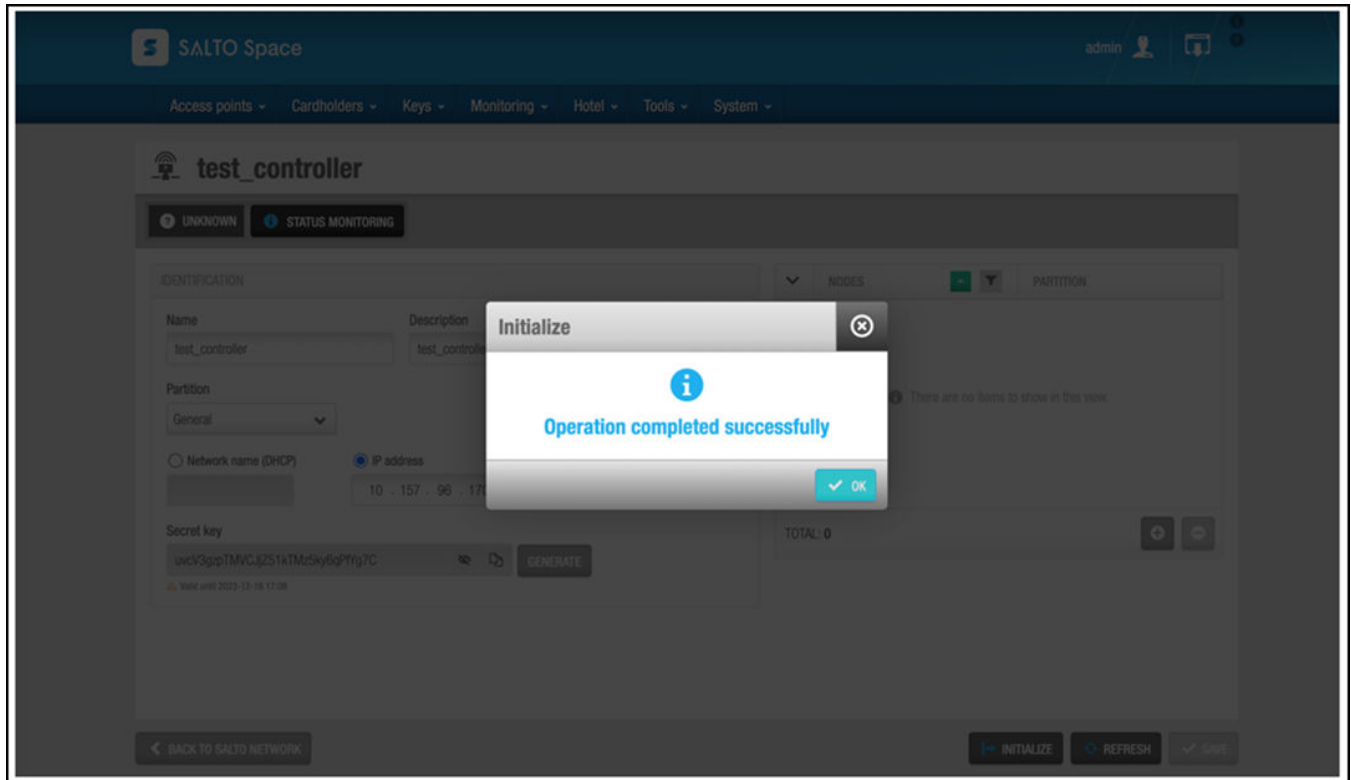
## Managing IoT Controller System Configuration

### Changing the Password

7. Click **Initialize** to initialize the Secret key.

The **IoT Controller (Ruckus)** is successfully connected with SALTO Space network.

**FIGURE 77** Successful Completion



## Changing the Password

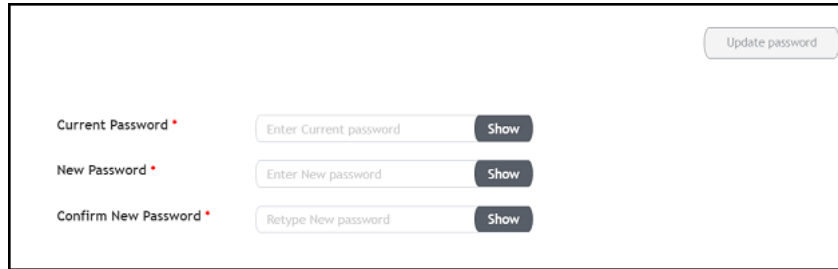
A single administrator is responsible for creating a RUCKUS IoT Controller account. This administrator manages system operations.

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 78** Changing the Password



The screenshot shows a password change form with three input fields: 'Current Password', 'New Password', and 'Confirm New Password'. Each field has a 'Show' button to toggle password visibility. An 'Update password' button is located at the top right of the form.

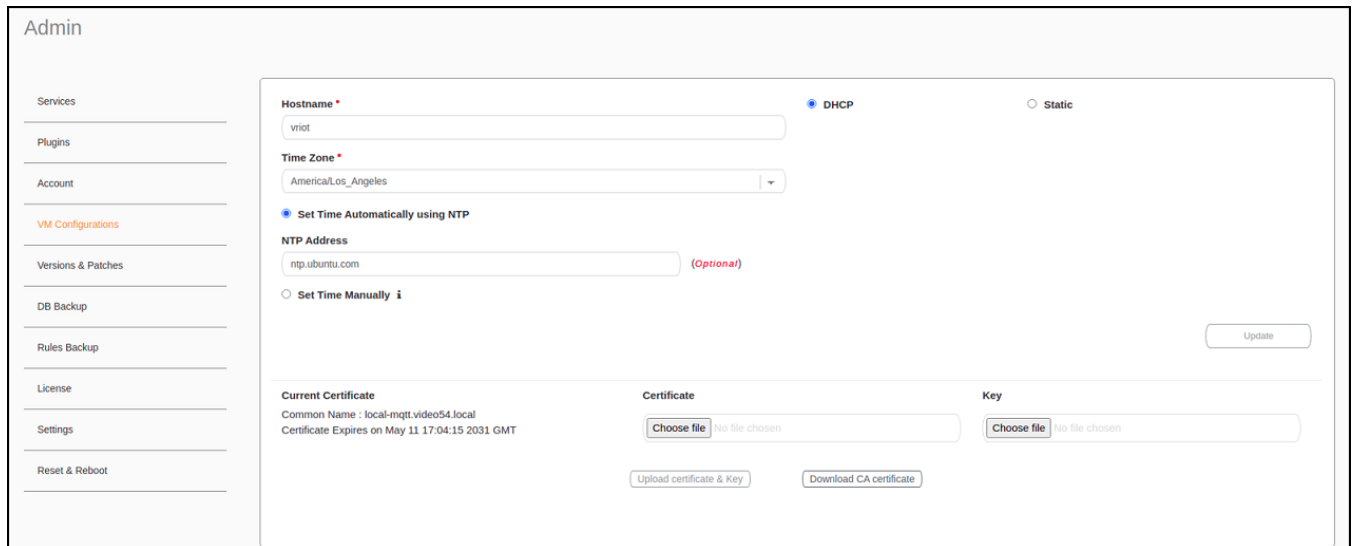
3. Change the password and click **Update password**.

## 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 79** Configuring a Virtual Machine



The screenshot shows the 'Admin' interface with a left navigation pane. The 'VM Configurations' option is highlighted. The main content area displays configuration options for a virtual machine, including Hostname (vriot), Time Zone (America/Los\_Angeles), and NTP Address (ntp.ubuntu.com). There are radio buttons for 'Set Time Automatically using NTP' (selected) and 'Set Time Manually'. Below these are fields for 'Current Certificate' and 'Key', each with a 'Choose file' button. There are also 'Upload certificate & Key' and 'Download CA certificate' buttons. An 'Update' button is located at the bottom right of the configuration area.

## Managing IoT Controller System Configuration

### Uploading Versions and Patches

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

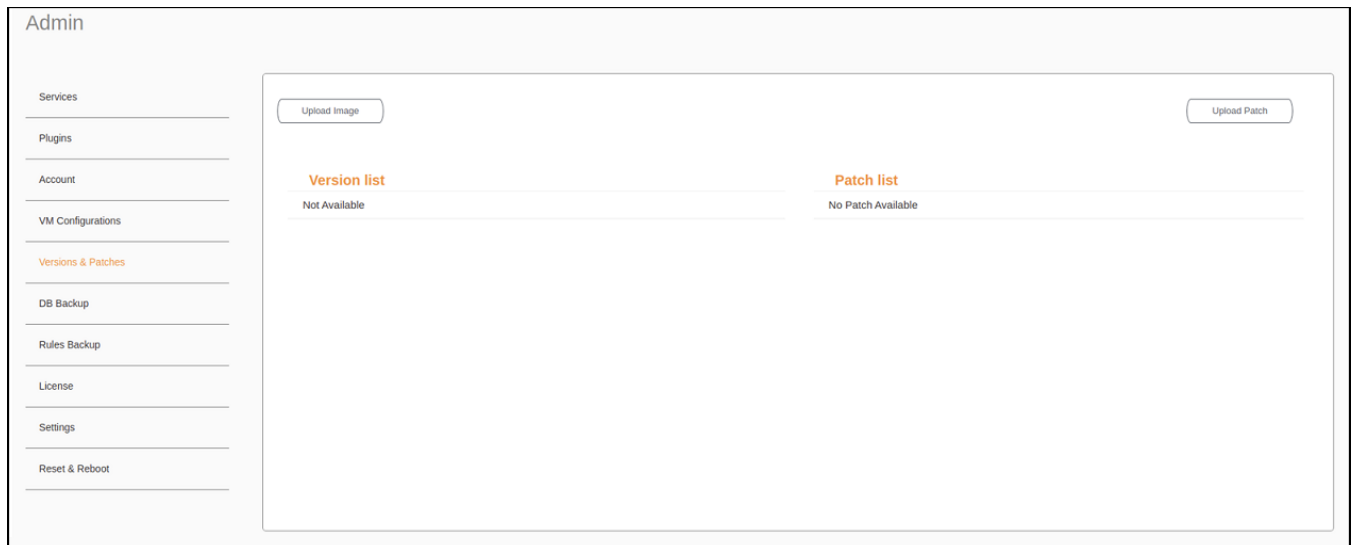
RUCKUS frequently releases updates to RUCKUS IoT Controller. The administrator normally receives any updates about new and updated software by email.

### 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 80** Uploading an Image

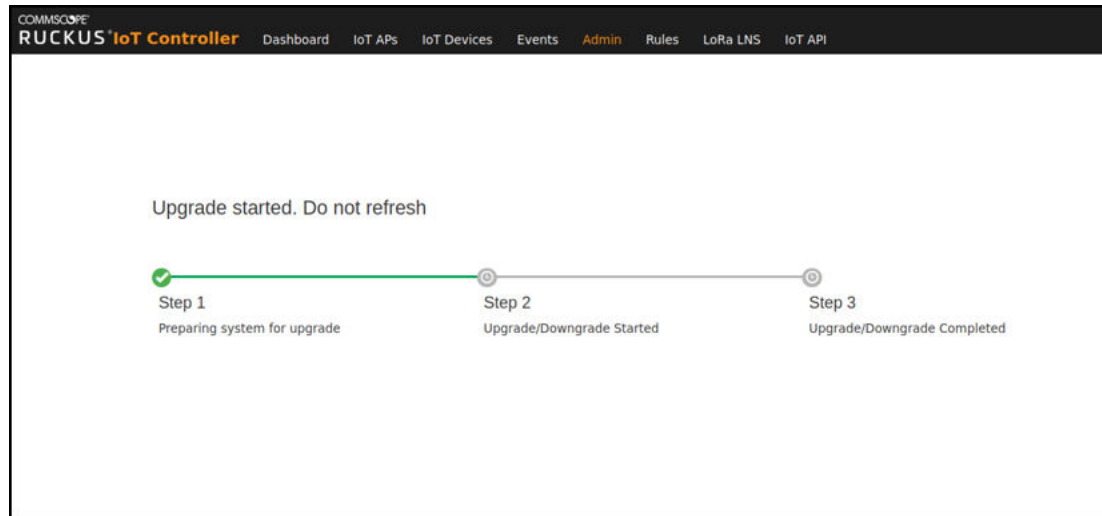


3. Click **Upload Image** to upload the upgrade package.

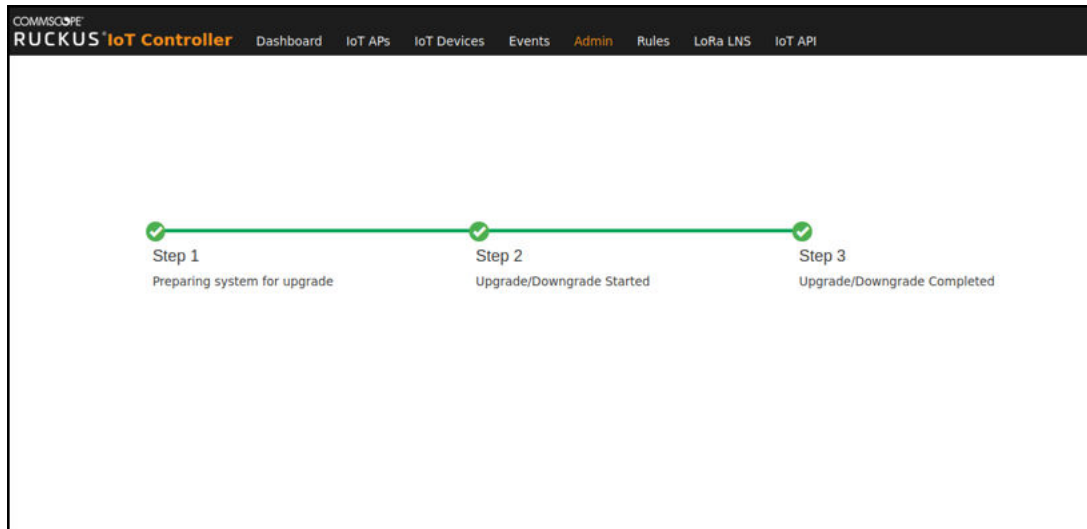
The new version is listed in the **Version list**.

4. Select the latest version to upgrade and click **Set**. To remove a version, select it and click **Delete**.

**FIGURE 81** Initiating the Upgrade Process



**FIGURE 82** Completing the Upgrade Process



### **Upgrade N+1 RUCKUS IoT Controller**

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

3. From the version list select the latest version to upgrade and click **Set**.

FIGURE 83 N+1 Upgrade Started

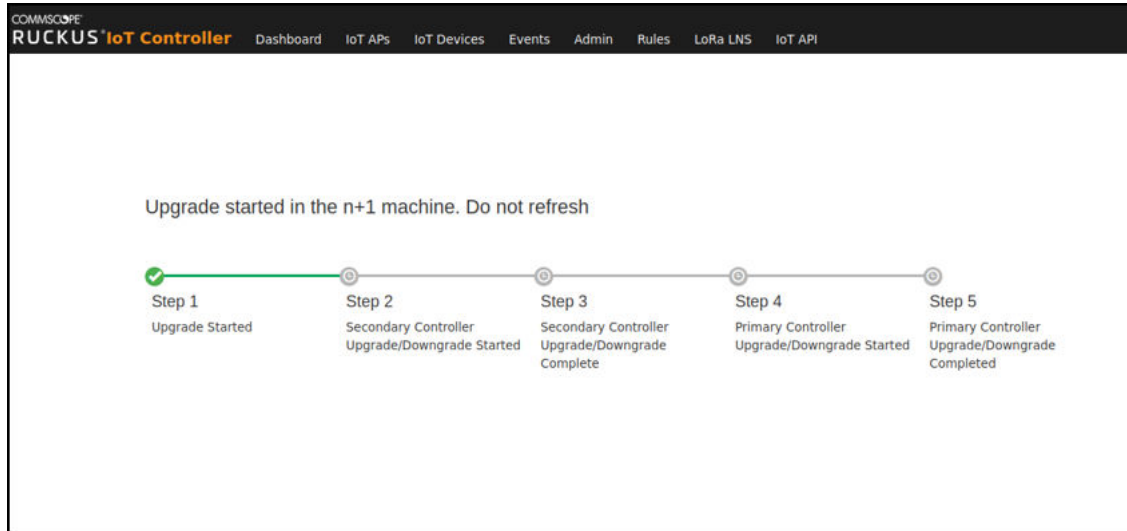
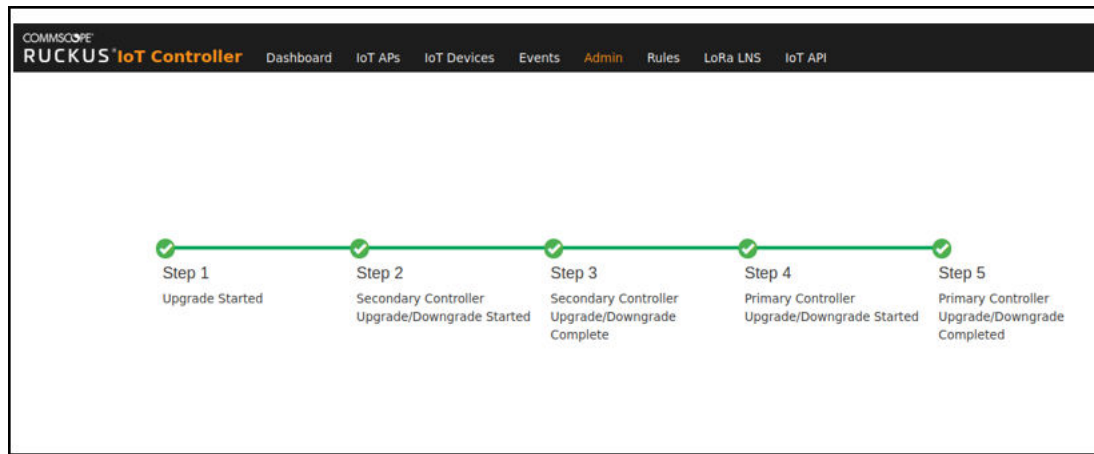


FIGURE 84 N+1 Upgrade Completed



## Uploading a Patch

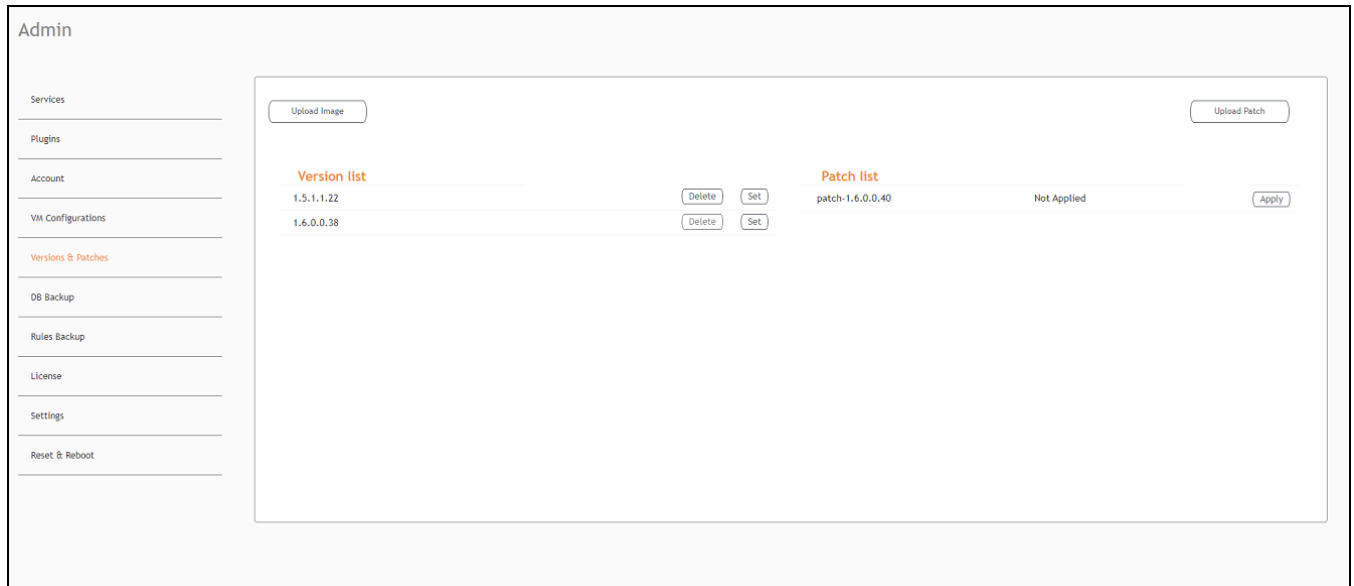
Patches to the software can be downloaded from the RUCKUS Support portal.

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



2. In the left navigation pane, click **Versions & Patches**.

**FIGURE 85** Uploading a Patch



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

**ATTENTION**

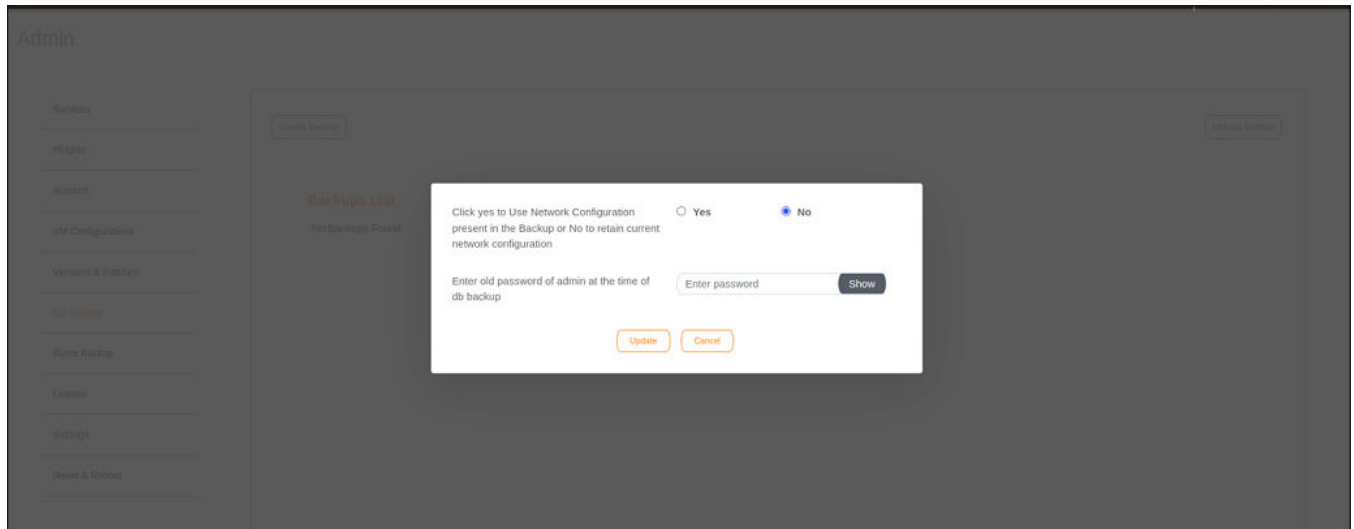
You cannot revert a patch.

## 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 86 Backing Up or Restoring Files



3. Click **Create Backup now** to perform a backup manually.
4. Click **Download** to download the backup files.
5. Click **Upload Backup** to upload and restore a DB backup file.

**NOTE**

The RUCKUS IoT Controller maintains the backups of the last five configuration files. While uploading or restoring database backup file, a dialogue box appears with the below message, so you can select either static or dynamic network configuration present in the backup file.

Use Network Configuration Present in 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**.

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

**FIGURE 87** Uploading a License

Controller serial number: **10CF4GV8TS5DX77NT379QG09JQTE** Upload License

Device capacity license used: **438**

Device capacity license remaining: **unlimited**

Device capacity license total: **unlimited**

**Primary License List**

Name	License type	Description	Start date	Expiry date	Count
INSTANCE-IOTC	Enabled	Instance Trial license	16-Mar-2022	14-Jun-2022	1
CAPACITY-IOTC	Enabled	Capacity Trial license	16-Mar-2022	14-Jun-2022	Unlimited

## Managing IoT Controller System Configuration

### Change the Settings

3. Click **Upload License** to upload the license. The License check-out means consuming a device capacity license, and License check-in means forfeiting a device capacity license. The License check-out happens when Device gets added. The License check-in happens when Device is deleted.

#### NOTE

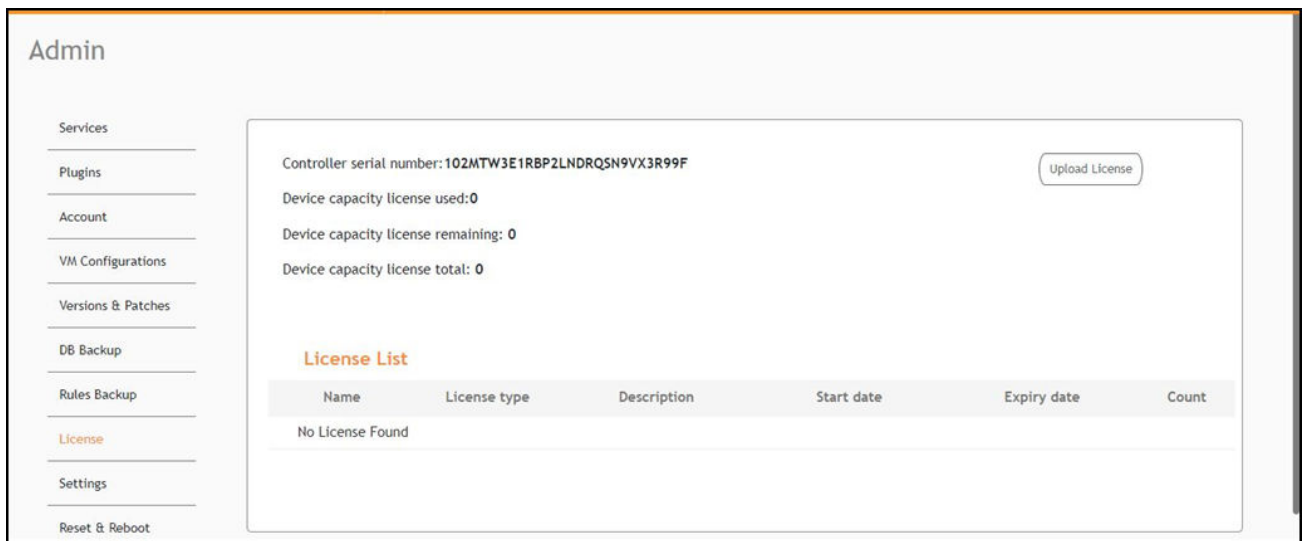
In N+1 configuration, for the secondary controller the license capacity is unlimited for 30 days.

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.
- **Device capacity license used**: Displays the number of licenses used by Devices.

#### NOTE

If no core license is uploaded after expiry of trial then the GUI is redirected to a warning message as below, and access to the controller comes to a halt until you upload the new license.



The screenshot shows the Admin page with a sidebar menu on the left containing: Services, Plugins, Account, VM Configurations, Versions & Patches, DB Backup, Rules Backup, License (highlighted), Settings, and Reset & Reboot. The main content area displays the following information:

- Controller serial number: 102MTW3E1RBP2LNDRQSN9VX3R99F
- Device capacity license used: 0
- Device capacity license remaining: 0
- Device capacity license total: 0

Below this information is a section titled "License List" with a table. The table has the following columns: Name, License type, Description, Start date, Expiry date, and Count. The table content is "No License Found".

- **Device capacity licenses remaining**: Displays the number of unused licenses by Devices.
- **Device capacity license total** : It is the total capacity available for the device. It will appear only when the user uploads the device capacity 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**.

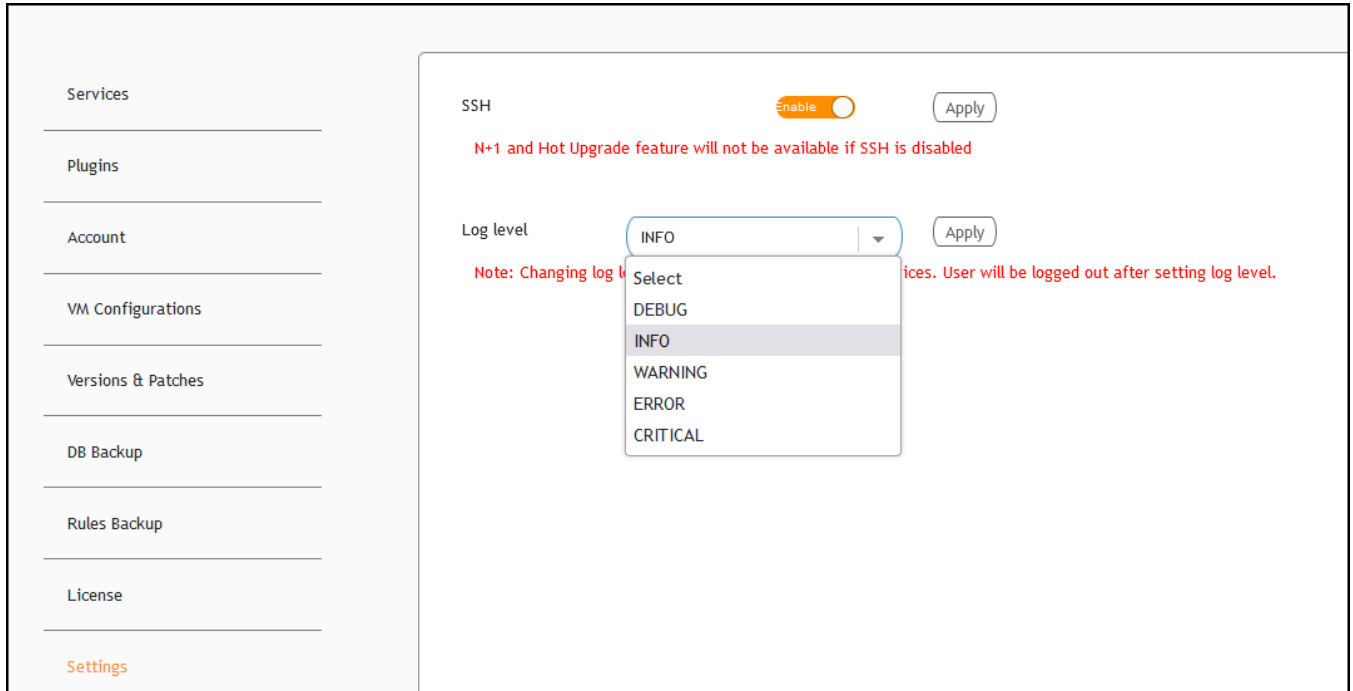
## Change the Settings

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

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

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

**FIGURE 88** Settings Page



## Managing IoT Controller System Configuration

### Change the Settings

#### 3. Enable SSH.

##### NOTE

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

FIGURE 89 Showing Error on Disabling SSH

```
*****
                          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 :10.174.113.91
[ Enter preferred Virtual IP :10.174.113.70
[ N+1 will stop all services & configurations in Secondary Controller. Enter Y/N to continue : y

Error: To configure N+1 please enable SSH in vRIoT controller.
-----
```

#### 4. The **Log Level** consists of the below list items. Select **INFO** and click **Apply**.

- **DEBUG** - To debug a problem in IoT controller, relatively detailed tracing used by application developers for troubleshooting. Logs a message with level DEBUG on this logger.
- **INFO** - Informational messages that might make sense to end users and system administrators and highlight the progress of the application. Logs a message with level INFO on this logger.
- **WARNING** - Warning logs indicate that an unexpected event has occurred in an application that may disrupt or delay other processes. Logs a message with level WARNING on this logger.
- **ERROR** - Error events of considerable importance that will prevent normal program execution but might still allow the application to continue running. Logs a message with level ERROR on this logger.

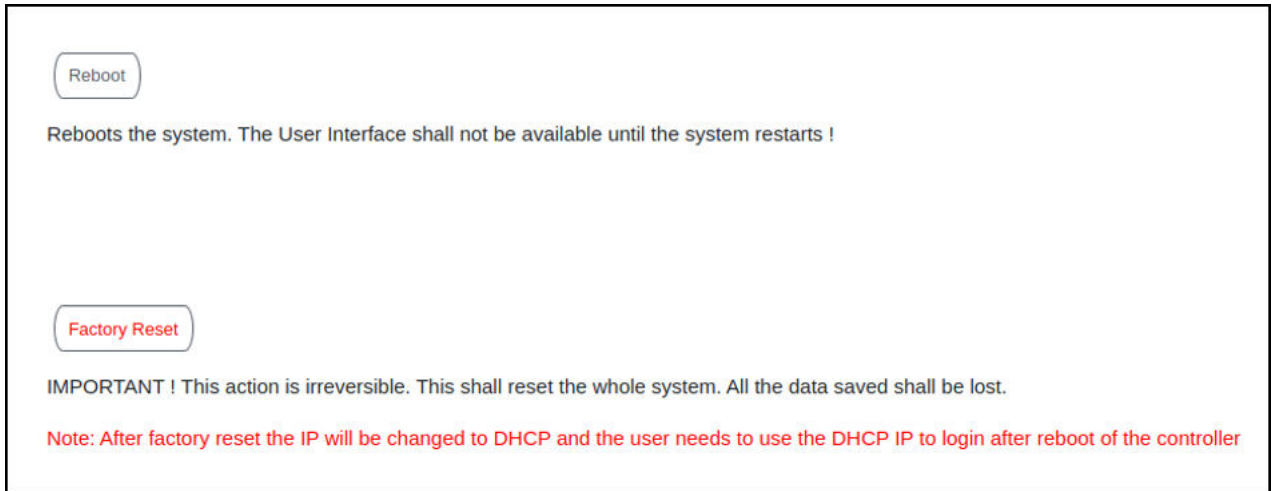
## Rebooting RUCKUS IoT Controller

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 90** 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.



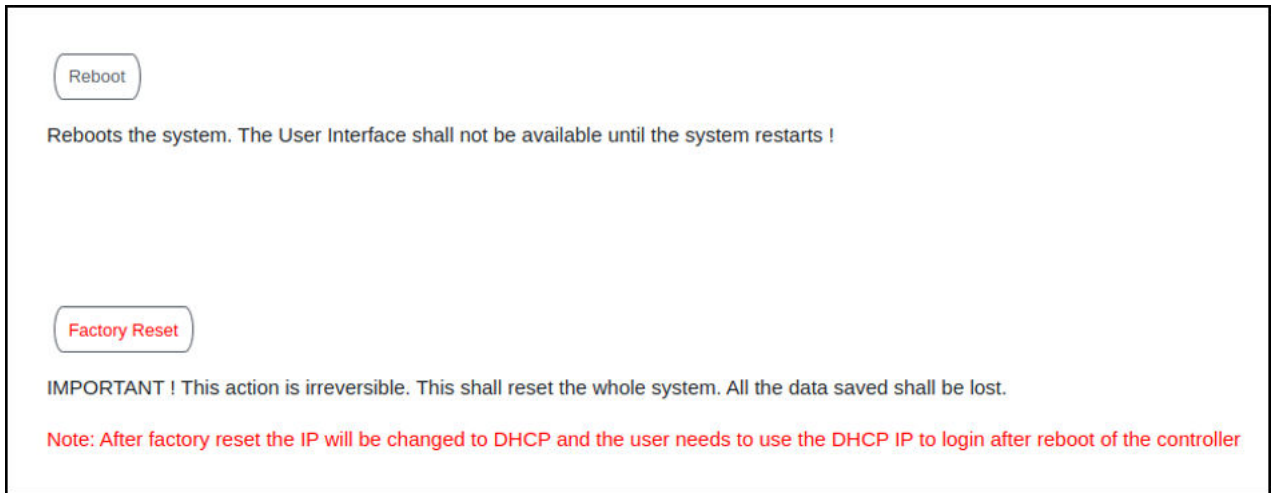
**CAUTION**

Performing the reset action is irreversible.

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

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

**FIGURE 91** Resetting RUCKUS IoT Controller



3. Click **Factory Reset**.



# Managing IoT Access Points

---

- IoT AP Overview..... 97
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- Editing an IoT AP..... 103
- Adding Tags to an AP..... 105
- Approval of IoT APs..... 107
- Exporting IoT APs to CSV..... 107

## 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 (RKSLI). RKSLI 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:

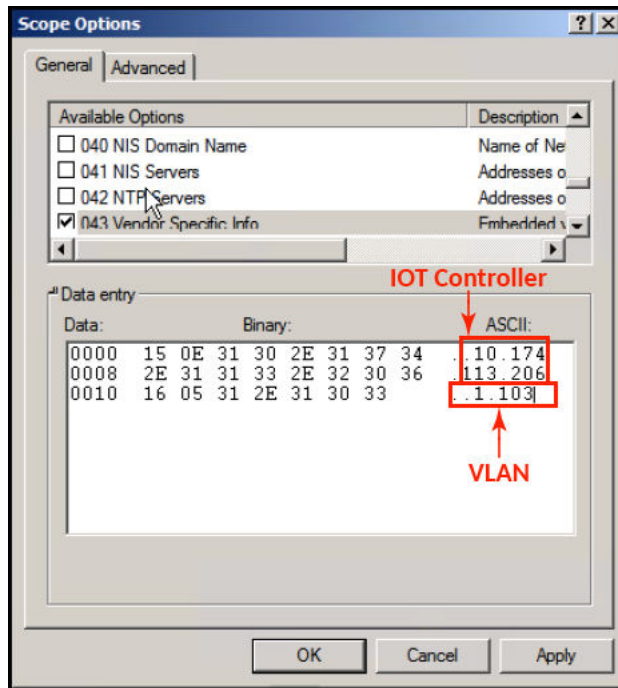
- Suboption 21: Used to configure a RUCKUS IoT Controller IPv4 address or FQDN (mandatory)
- Suboption 22: Used to set the control VLAN for IoT Control/Data traffic (optional)

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.

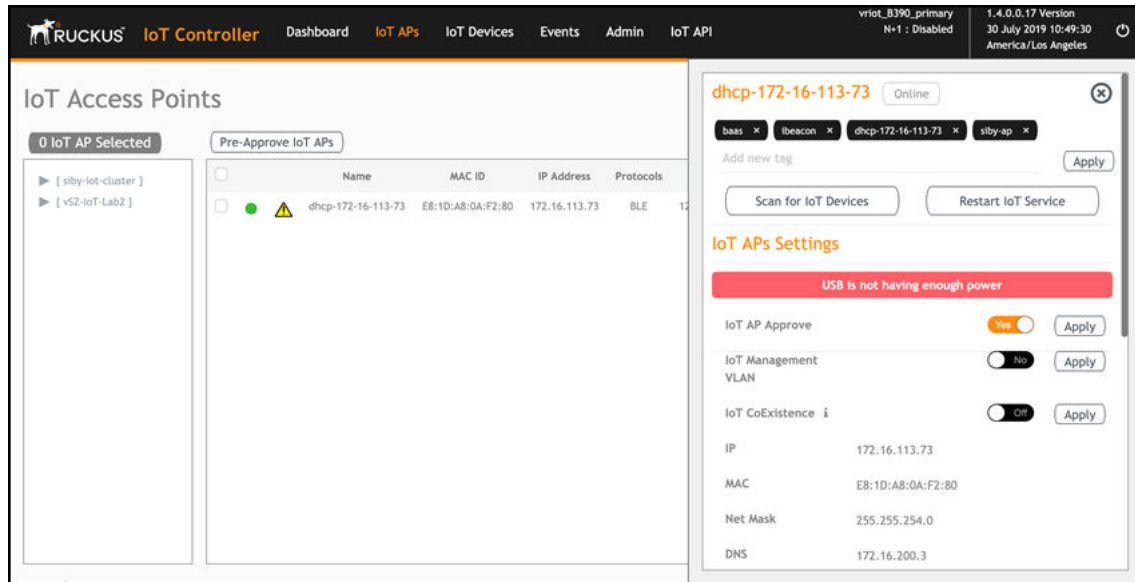
## RUCKUS Command Line Interface

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 92 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.

## Gateway Onboarding

Gateway Onboarding can be done by performing the following steps.

1. Log into AP console and set IoT Controller using the command `set iotg-mqtt-brokerip <iot controller ip address>`
2. Approve the AP
3. Configure ZigBee(DK) mode by performing the following substeps.
  - a) Click AP, a window will open.
  - b) Select the radio that needs to be configured.
  - c) For mode, from the drop-down list, select "ZigBee(DK)".
  - d) Click **Apply**

The ZigBee\_DK protocol has been configured successfully.

## Managing IoT Access Points

### Gateway Onboarding

- After Configuring ZigBee\_DK successfully, login to Ambiance Server and go to “Device Management”, and click **Registered Gateways and Paired Access Points**.

FIGURE 93 Showing Registered Gateways and Paired Access Points

Device Management >  
REGISTERED GATEWAYS & PAIRED ACCESS POINTS

METRICS

ONLINE GATEWAYS - 0/1      ONLINE ACCESS POINTS - 0/1      LOW BATTERY - 0/1

Devices: - Select command -      Send Command      Search by Gateway name, IP address or MAC address

Gateway	Status	Type	MAC Address	IP address	Antenna	Last offline
Gateway-54EC2F101850		darimakaba Rx-Link	54EC2F101850	10.174.312.207	Unknown	01/28/2023 05:50 AM

1 - 1 of 1 items  
0 Selected

Back      Delete Gateway(s)      Next to Access Points      Go to Settings to activate Windows

## 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 94** IoT Access Points Page

Name	MAC ID	IP Address	Protocols	Uptime	Actions	Tags
H510-Ramesh_DONOT_DISTURB_devices_connected	0C:F4:D5:1E:40:C0	172.29.124.58	ZIGBEE	37 days, 5:25:11	[trash]	All H510-Ramesh_DONOT_DISTURB_0C:F4:D5:1E:40:C0
R550-5420-AA_connected	80:03:84:03:54:20	172.29.124.235	BLE,ZIGBEE,ZIGBEE_AA	33 days, 3:18:08	[trash]	All R550-5420-AA_connected_80:03:84:03:54:20 [lock]
R650-92E0-AA_Connected	DC:AE:EB:00:92:E0	172.29.124.251	ZIGBEE,ZIGBEE_AA,BLE	6 days, 22:57:21	[trash]	All DC:AE:EB:00:92:E0 kontakt beacon eddyston
R610-Ramesh	B4:79:C8:04:E3:00	172.29.124.37	BLE	37 days, 5:15:40	[trash]	All B4:79:C8:04:E3:00 kontakt beacon eddyston
R610@deSk	B4:79:C8:04:E6:F0	10.74.136.122	ZIGBEE_DK,ZIGBEE_AA	37 days, 1:25:11	[trash]	All R610-MY_DESK_OFFICE_SEAT_B4:79:C8:04:E6:F0
R510-Ramesh	D8:38:FC:1B:FC:D0	172.29.124.71	BLE	2 days, 11:59:13	[trash]	All D8:38:FC:1B:FC:D0 kontakt beacon eddyston
R550-depop	84:23:88:2E:F0:50	10.174.112.36	BLE	37 days, 5:23:30	[trash]	All R550-depop_84:23:88:2E:F0:50 kontakt beac
H510-my-desk	D8:38:FC:25:C4:C0	172.29.116.71	BLE	34 days, 0:35:29	[trash]	All H510-my-desk_D8:38:FC:25:C4:C0 kontakt be
R550-0b40-DK_AA_Connecte70.ca:97:2d:0b:40	70:CA:97:2D:0B:40	172.29.125.12	ZIGBEE,ZIGBEE_AA,ZIGBEE_DK	13 days, 0:16:17	[trash]	All R550-0b40-DK_AA_Connected_70:CA:97:2D:0B:40
H550-2A70	34:20:E3:2D:2A:70	172.29.124.254	BLE	5 days, 23:16:44	[trash]	All H550-2A70_34:20:E3:2D:2A:70 kontakt beac

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

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

**FIGURE 95** Adding a Single IoT AP

The screenshot shows a configuration window titled "Pre Approve IoT APs". At the top, there are two tabs: "Single" (which is highlighted in orange) and "Batch". Below the tabs, there is a "MAC \*" field containing the text "0E:0D:6F:00:0F:00". Underneath that is a "Tag" field with the placeholder text "Add new tag". At the bottom of the window, there are two buttons: "Cancel" on the left and "Save" on the right.

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 96** Adding a Batch of IoT APs

The screenshot shows a web interface titled "Pre Approve IoT APs". At the top, there are two buttons: "Single" and "Batch". The "Batch" button is highlighted in orange. Below this, there is a button labeled "Download CSV Template". Underneath that is a file selection area with a "Choose File" button and the text "No file chosen". At the bottom of the interface, there are two buttons: "Cancel" on the left and "Upload" on the right.

## 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.

## Managing IoT Access Points

### Editing an IoT AP

- Click an IoT AP to edit.

**FIGURE 97** Single IoT AP Mode

The screenshot displays the 'IoT Access Points' configuration page. On the left, there is a tree view showing the network structure with folders for 'RUCKUS-1-CLUST' and 'RUC-600-2-CLUST'. Below this, a table lists the IoT APs. The table has columns for Name, MAC ID, IP Address, and Protocols. The right side of the page shows the configuration options for the selected AP, including 'IoT APs Settings' and 'Radio Info'.

Name	MAC ID	IP Address	Protocols
H510-Ramesh_DONOT_DISTURB_devices_connected	DC:F4:D5:1E:40:C0	172.29.124.58	ZIGBEE
R550-S420-AA_connected	80:03:84:03:54:20	172.29.124.235	BLE,ZIGBEE,ZIGBEE_AA
R550-92E0-AA_connected	DC:AE:E8:00:92:E0	172.29.124.251	ZIGBEE,ZIGBEE_AA,BLE
R610-Ramesh	84:79:CB:04:E3:00	172.29.124.37	BLE
R610@desk	84:79:CB:04:E6:F0	10.74.136.122	ZIGBEE_DK,ZIGBEE_AA
R510-Ramesh	DE:38:FC:16:FC:D0	172.29.124.71	BLE
R550-depop	84:23:89:2E:FO:50	10.174.112.36	BLE
H510-my-desk	DE:38:FC:25:C4:C0	172.29.116.71	BLE
R550-0640-DK_AA_Connecte70 ca:97:2d:0b:40	70:CA:97:2D:0B:40	172.29.125.12	ZIGBEE,ZIGBEE_AA,ZIGBEE
H550-2A70	34:20:E3:2D:2A:70	172.29.124.254	BLE

The configuration panel on the right includes the following settings:

- IoT APs Settings:**
  - IoT AP Approve:  ON (Apply)
  - IoT Management VLAN:  ON (Apply)
  - IoT Management VLAN: 108
  - Mode:  ONLINK  OFFLINK
  - IP: 172.29.116.71
  - MAC: D8:38:FC:25:C4:C0
  - Net Mask: 255.255.252.0
  - DNS: 10.10.10.106
  - IoT version: 1.9.2.0.10001
- Radio Info:**
  - Radio 1: PAN 0
  - Buttons:  Kontakt,  iBeacon,  Eddystone,  BLE Scan,  BaaS
  - PAN 0 Mode: BLE (Apply)
  - Set Tx Power: 10 (Apply)
  - IoT CoExistence:  (Apply)
  - IoT Radio MAC: 90:FD:9F:FF:FE:7C:34:17

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, Zigbee DK)
- 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.

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



## Adding Tags to an AP

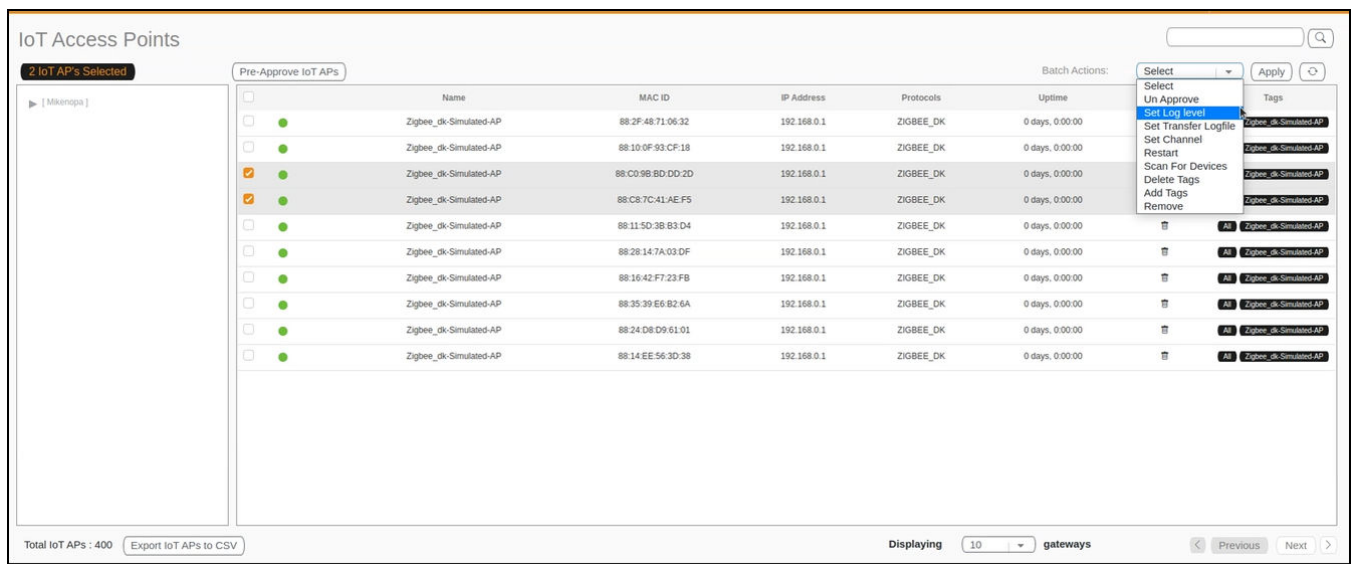
The AP tags are a way of grouping APs together by applying identifying tags. If the **Globally enable connector on all valid APs** is disabled when activating a plugin, complete the following steps to add tags to an AP to activate a plugin on the AP.

- From the main menu, click **IoT APs**.  
A list of IoT APs is displayed.
- Select an IoT AP. You can select single or multiple AP(s) and perform batch actions as below.

### NOTE

You can select one or more APs to add tags.

**FIGURE 98** Selecting an AP to Add Tags

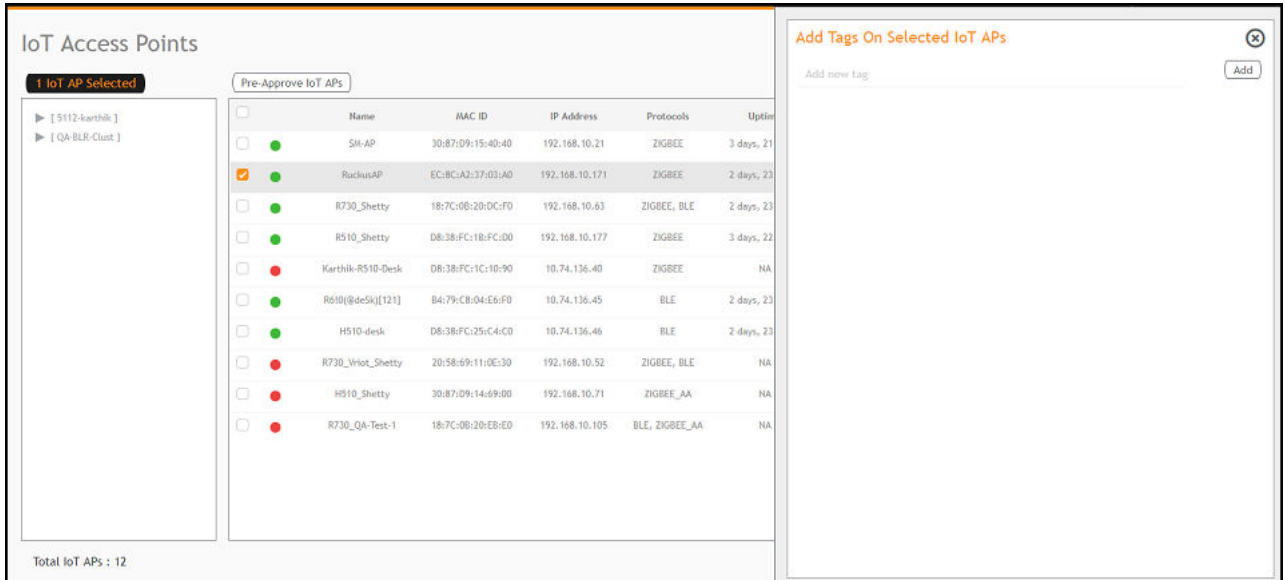


- The **Batch Actions** list contains the options listed below. Select **Add Tags** from the list.
  - Un Approve - To Unapprove the selected approved AP(s)
  - Set Log level - Setting log level for selected AP(s)
  - Set Transfer Logfile - Enable or Disable AP logs transfer from AP to controller for selected AP(s)
  - Restart - Restart selected AP(s)
  - Scan For Devices - Scan for selected AP(s)
  - Delete Tags - Delete Tags for selected AP(s)
  - Add Tags - Add Tags for selected AP(s)
  - Remove - Remove selected AP(s)
  - BaaS operations - Change BaaS operations for selected AP(s)

**Managing IoT Access Points**  
**Adding Tags to an AP**

- 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 99** 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 6** Plugins and Corresponding Tag Names

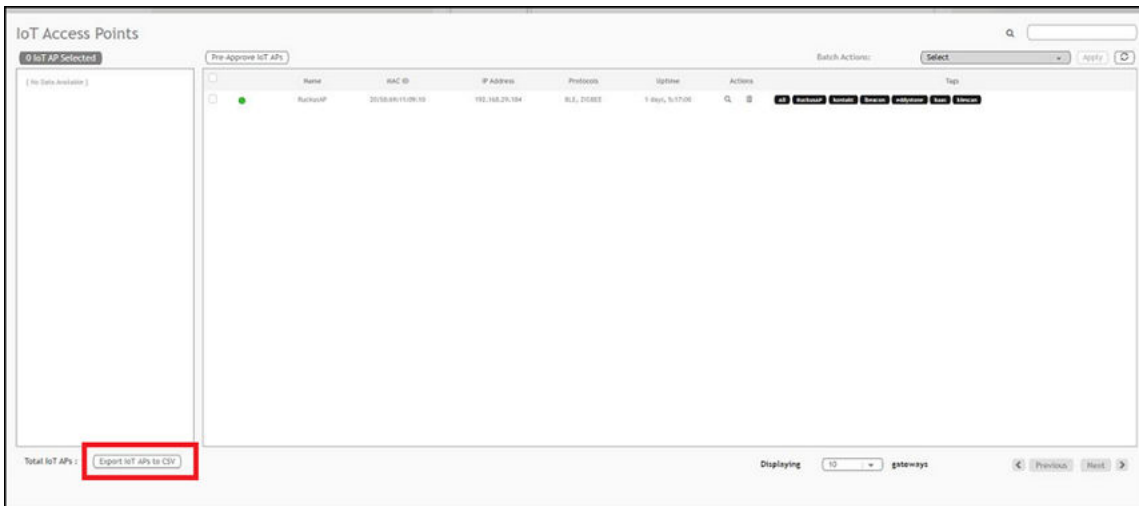
Plugin	Tag Name
Kontakt.io Beacons	kontakt
iBeacon	ibeacon
Beacon as a Service	baas
Eddystone	eddstone
BLE Scan	blescan

## 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.



## Enabling BaaS Major and Minor Number

BaaS is enabled only when the BaaS plugin is activated.

Complete the following steps to enable BaaS Major and Minor Number.

1. From the main menu, click IoT APs.  
A list of selected IoT APs is displayed.

## Managing IoT Access Points

### Exporting IoT APs to CSV

2. Click an IoT AP, and update the fields **BAAS iBeacon Major No** and **BAAS iBeacon Minor No** in AP sidebar.

**FIGURE 100** Enabling Baas Major and Minor number

The screenshot displays the IoT AP management interface. On the left, a table lists IoT APs with columns for Name, MAC ID, and IP Address. A 'Pre-Approve IoT APs' button is visible above the table. On the right, the 'Radio Info' sidebar for 'Radio 0' is shown, featuring various configuration options and status indicators.

Name	MAC ID	IP Address
RuckusAP	0C:F4:D5:1E:22:10	192.168.20.10

**Radio Info**

Radio 0

Kontakt  iBeacon  Eddystone  BLE Scan  BaaS

Custom BaaS Major Minor No Yes  Apply

Baas iBeacon Major No

Baas iBeacon Minor No

Mode  Apply

Set Tx Power (BLE)  Apply

IoT CoExistence  Apply

IoT Radio MAC 90:FD:9F:FF:FE:0C:89:CB

IoT Radio Mode ble

IoT Radio Status Available

PAN ID 0xFFFF

Channel NA

#### NOTE

You can update a single IoT AP.

3. Select **Batch BaaS operation** from the **Batch Actions** list.

#### NOTE

You can select one or more APs to add tags.

- To update for more than single IoT AP, update **Baas iBeacon Major No** and **Baas iBeacon Minor No** from sidebar.

**FIGURE 101** Updating Baas Major and Minor Number for Multiple IoT APs

The screenshot displays the IoT AP management interface. On the left, a table lists IoT APs with columns for Name, MAC ID, IP Address, and Protocol. The 'H510' entry is selected. On the right, the 'BaaS plugin Batch operations' sidebar is open, showing a 'Custom BaaS Major Minor No' toggle set to 'Yes' and an 'Apply' button. Below the toggle are input fields for 'Baas iBeacon Major No' and 'Baas iBeacon Minor No'.

Pre-Approve IoT APs					
<input type="checkbox"/>		Name	MAC ID	IP Address	Protocol
<input type="checkbox"/>	● ⚠	R650-Shriram-qa-test	B4:79:C8:3E:75:40	172.29.124.182	NA
<input type="checkbox"/>	● ⚠	R750-Shriram-qa-test	B4:79:C8:3E:72:00	172.29.116.68	NA
<input checked="" type="checkbox"/>	●	H510	0C:F4:D5:1E:97:D0	172.29.124.215	BLE
<input type="checkbox"/>	● ⚠	R610-Shriram	B4:79:C8:01:F0:30	172.29.124.39	NA
<input type="checkbox"/>	●	H510-2-SHRIRAM	30:87:D9:14:69:00	172.29.102.22	ZIGBEE

**BaaS plugin Batch operations** ✕

Custom BaaS Major Minor No Yes Apply

Baas iBeacon Major No

Baas iBeacon Minor No



# Managing Devices

- Devices Overview..... 111
- Managing OSRAM Light Bulbs..... 113
- Managing an Assa Abloy Lock..... 114
- Managing the Dormakaba Locks..... 116
- Device Operations for Specific Clusters and Commands..... 129

## Devices Overview

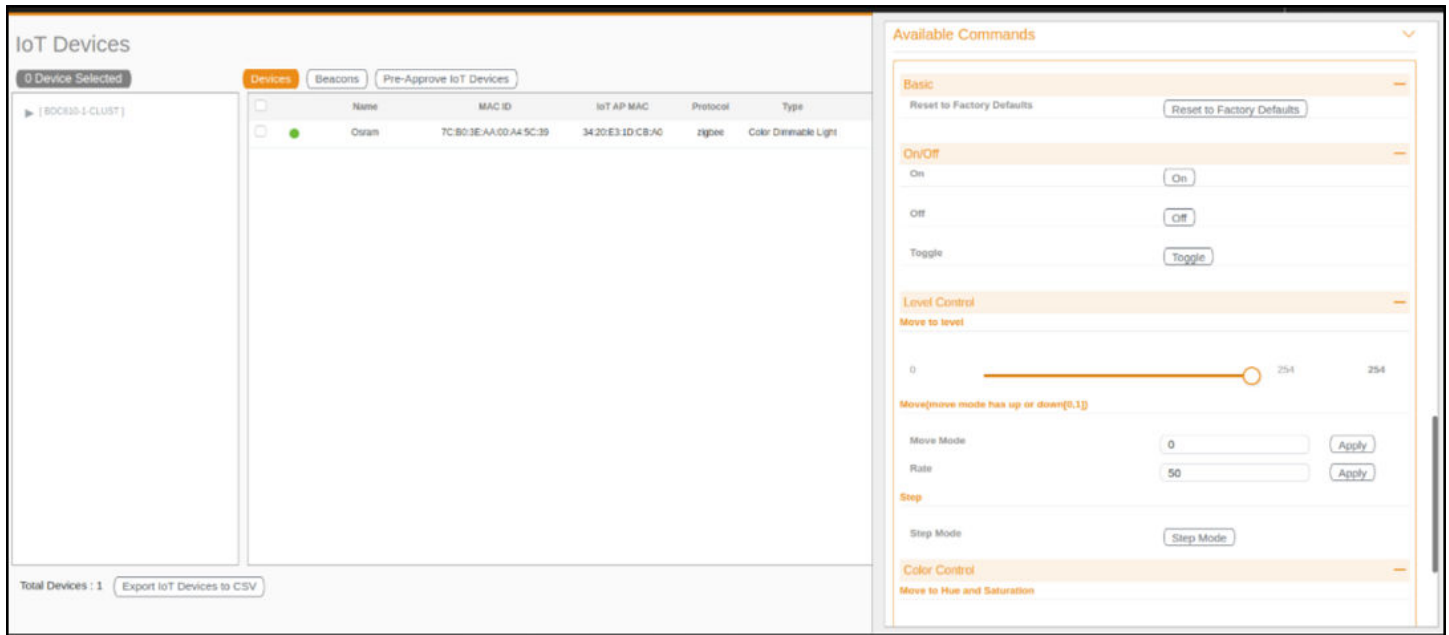
The RUCKUS IoT Controller requires explicit user approval of devices. Only an approved device can be allowed into the IoT infrastructure.

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 102** IoT Devices Page



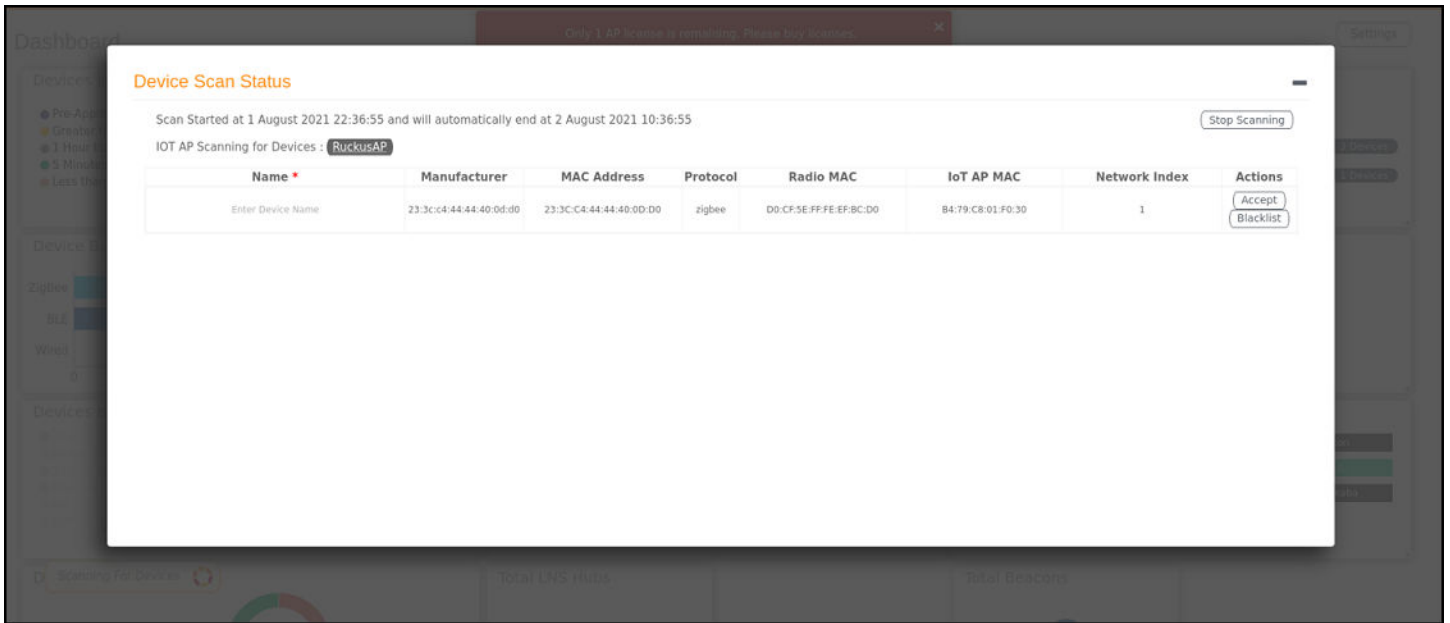
The device scan operation must be performed to start the device discovery process on the gateway.

**NOTE**

It is important that the IoT devices are scanned and onboarded to the nearest AP for good RSSI/LQI. For more information about RSSI/LQI for reliable connection, refer to <https://support.ruckuswireless.com/articles/000011687>.

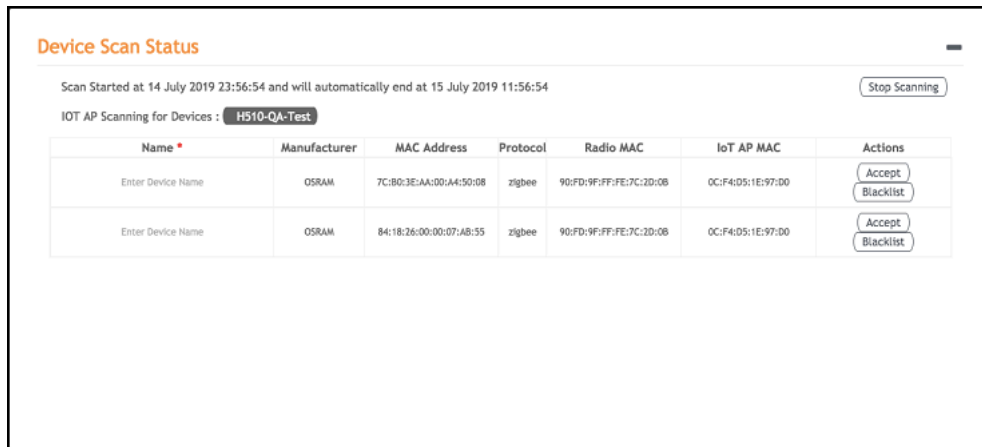
Upon starting device discovery, a dialog box is displayed, as shown in the following figure.

FIGURE 103 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.

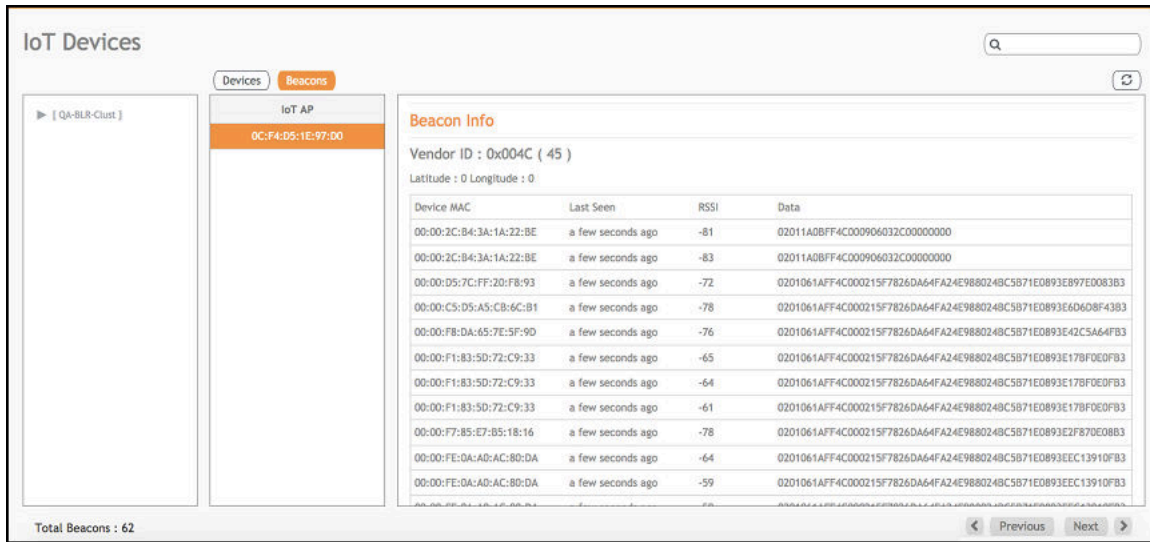
FIGURE 104 Adding Device After Discovery



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

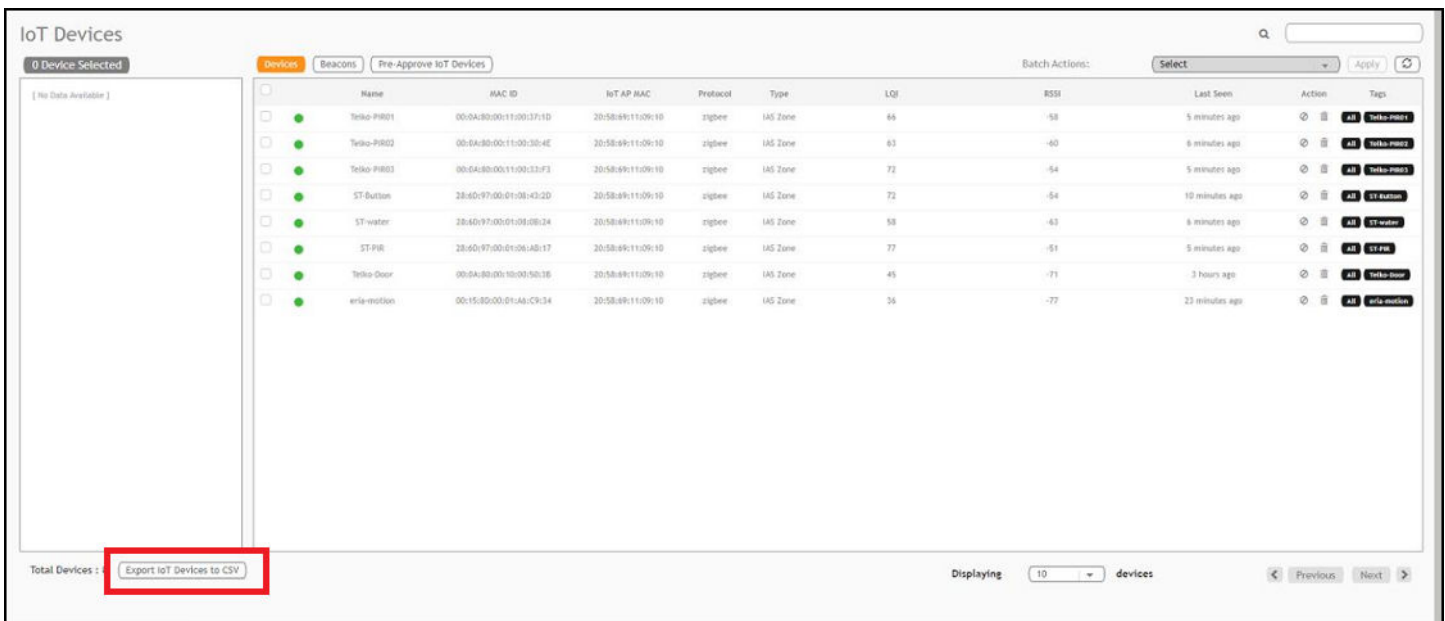


FIGURE 105 Beacons Page



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 106 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.

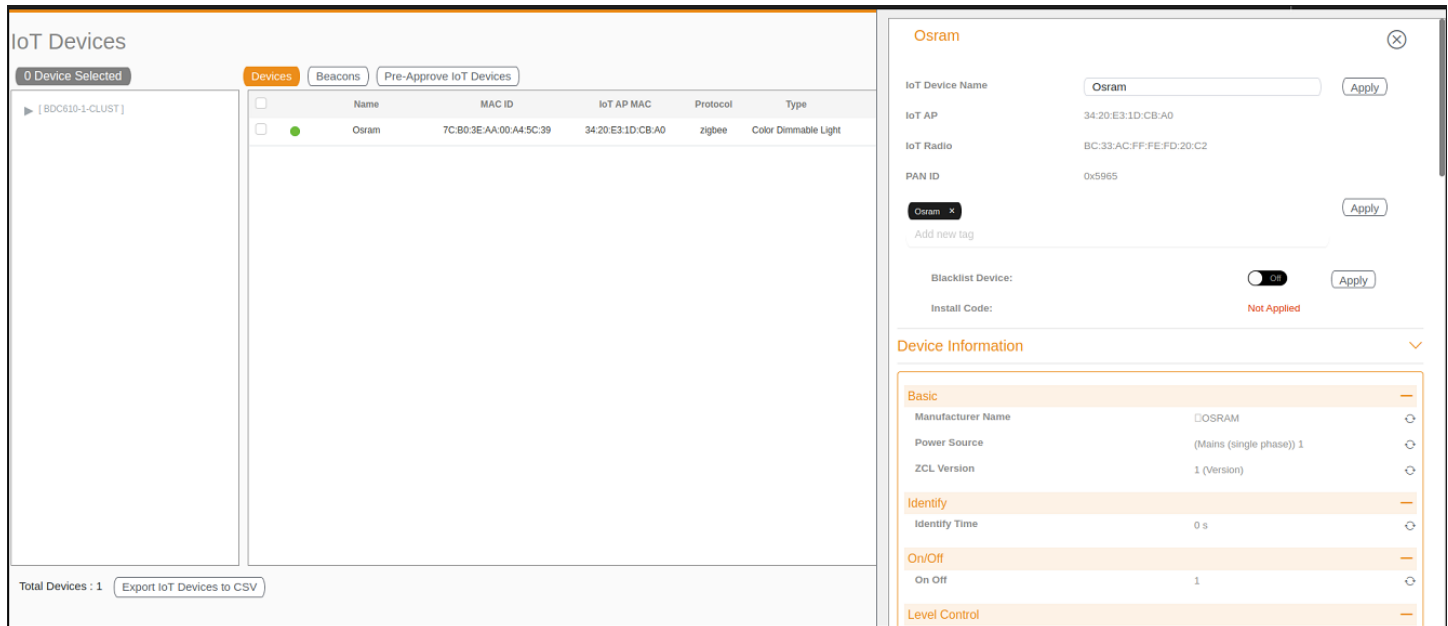
## Managing Devices

### Managing an Assa Abloy Lock

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 107** 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 108** Visionline Server Event Log

Room Event List							
Ro...	Regist...	Time	Event	Card Name	User Group	SeqNum	
102	100085	8/18/2017 6:53:00 PM	Guest Card accepted (67)	Guest (MC)	Guest	2	
102	100085	8/18/2017 6:53:00 PM	A loyalty card was encoded (1264)	Guest (MC)	Guest	1	
102	100085	8/18/2017 6:53:00 PM	Added a card image to the loyalty-card list (120)	Online Command	Online	0	
104	100083	8/18/2017 6:52:00 PM	Guest Card accepted (67)	Guest (MC)	Guest	6	
101	100084	8/18/2017 6:51:00 PM	Guest Card accepted (67)	Guest (MC)	Guest	11	

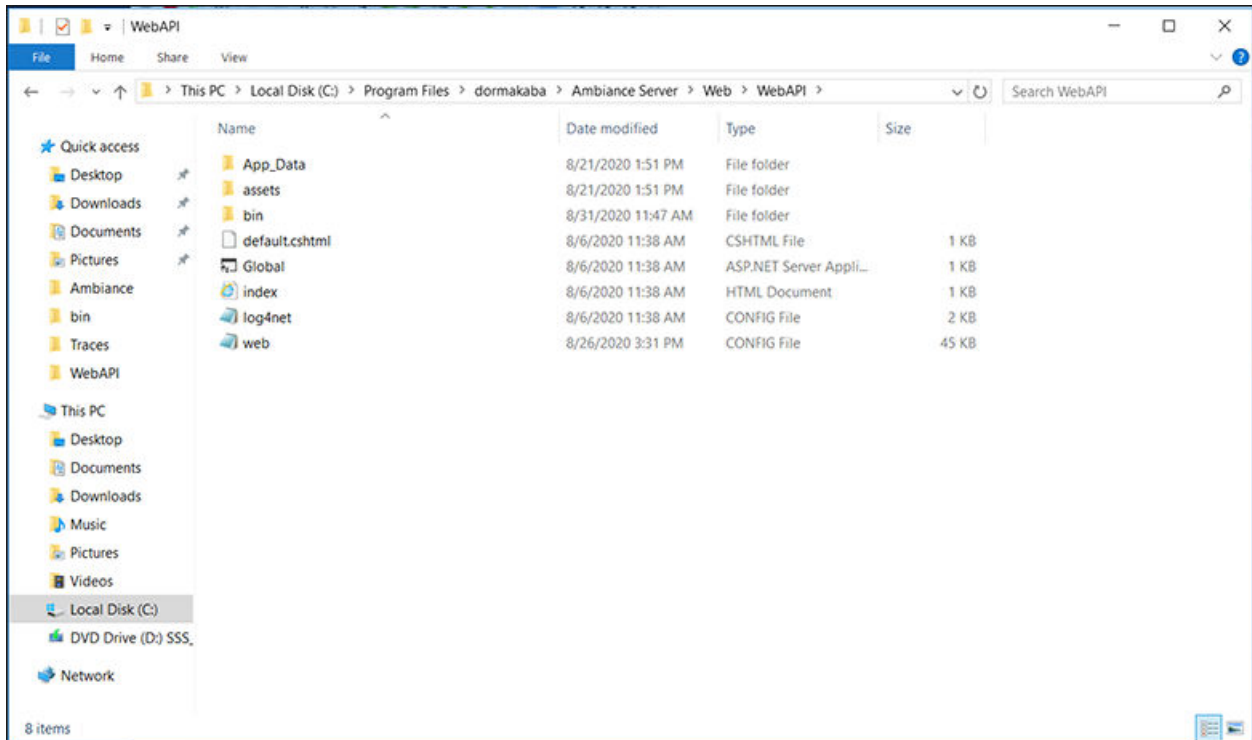
# Managing the Dormakaba Locks

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

You must configure the IP address 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 109** Locating the web config file



- From the row, **HubGatewayServiceUri** value="http://192.168.0.2/", select the IP address of the controller.

FIGURE 110 Finding the IP Address

```

web - Notepad
File Edit Format View Help
<add key="PmsRestApiURL" value="http://localhost:45226/" />

<add key="PMSRestAPIUser" value="admin01" />
<add key="PMSRestAPIKey" value="admin@01" />

<add key="timeout" value="3600000" />
<add key="ConnectionToRabbitMQRetrialCount" value="1" />
<add key="ConnectionToRabbitMQRetrialDelayInSeconds" value="20" />
<add key="DependencyServerRetryDelaySeconds" value="2" />
<add key="DependencyServerRetryCount" value="5" />

<!--Rest EndPoint URI TODO Move to syssetting-->
<add key="HubGatewayServiceUri" value="http://192.168.0.2/" />
<!--Log and Tracing Settings-->
<add key="enableTracing" value="false" />
<add key="log4net.Internal.Debug" value="false" />
<add key="logConfigFile" value="%katimavik_root%\log4net.config" />

<add key="ClientInstallationPackageLocation" value="C:\Program Files\Dormakaba\Ambiance Server\Web\Ambiance_client.exe" />
<add key="ClientInstallationPackageName" value="Ambiance_client.exe" />
<add key="ClientInstallationConfigPackageLocation" value="C:\Program Files\Dormakaba\Ambiance Server\Web\serverURL.config" />
<add key="ClientInstallationConfigPackageName" value="serverURL.config" />
</appSettings>
<system.web>
  <trace enabled="false" pageOutput="false" requestLimit="40" localOnly="false" />
  <compilation debug="true" targetFramework="4.6.2" />
  <httpRuntime maxRequestLength="1048576" targetFramework="4.5" />
</system.web>
<runtime>
  <ThrowUnobservedTaskExceptions enabled="false" />
  <assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">
    <dependentAssembly>
      <assemblyIdentity name="System.Net.Http" publicKeyToken="B03F5F7F11D50A3A" culture="neutral"/>
      <bindingRedirect oldVersion="0.0.0.0-4.2.0.0" newVersion="4.0.0.0"/>
    </dependentAssembly>
  </assemblyBinding>
</runtime>

```

## 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.

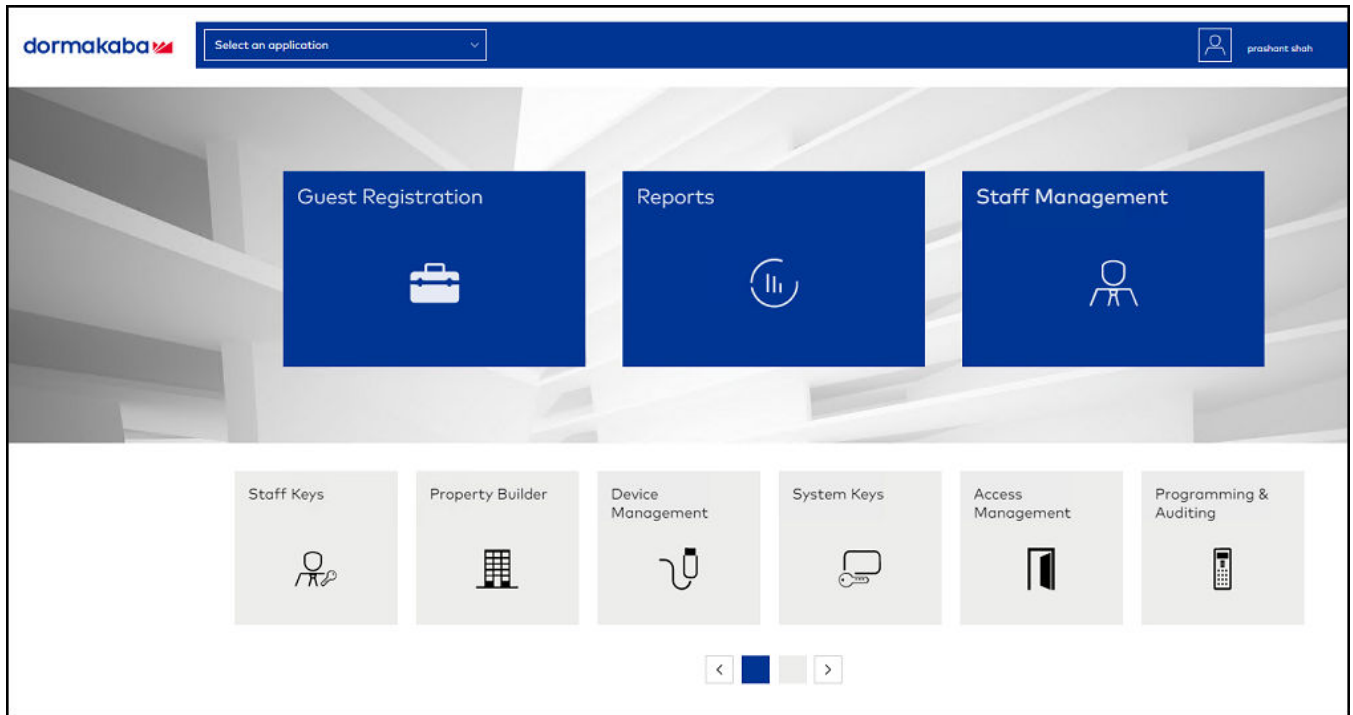
- Select the Gateway and start a Device Scan from Ambiance UI.  
A scan window appears in the UI.
- Swipe the Dormakaba Pairing Card across the lock.
- Ensure that the LED blinks.  
Dormakaba Lock details will show in the Scan Window of the controller.
- Add the lock to the Ruckus IoT Controller (if it is not already pre-approved).
- 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.

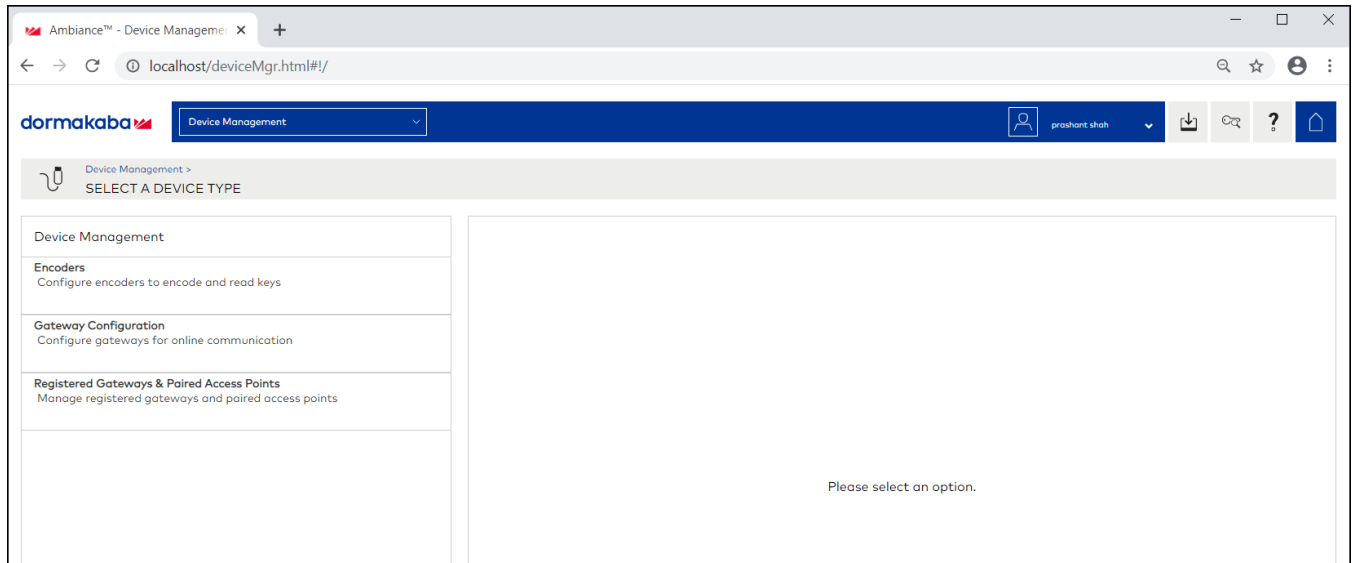
1. Login to the Ambiance Server. The default username and password is **Admin01** and **Admin@01**.

FIGURE 111 Login into Dormakaba Plugin



2. Click **Device Management**.

**FIGURE 112** Selecting Device Management

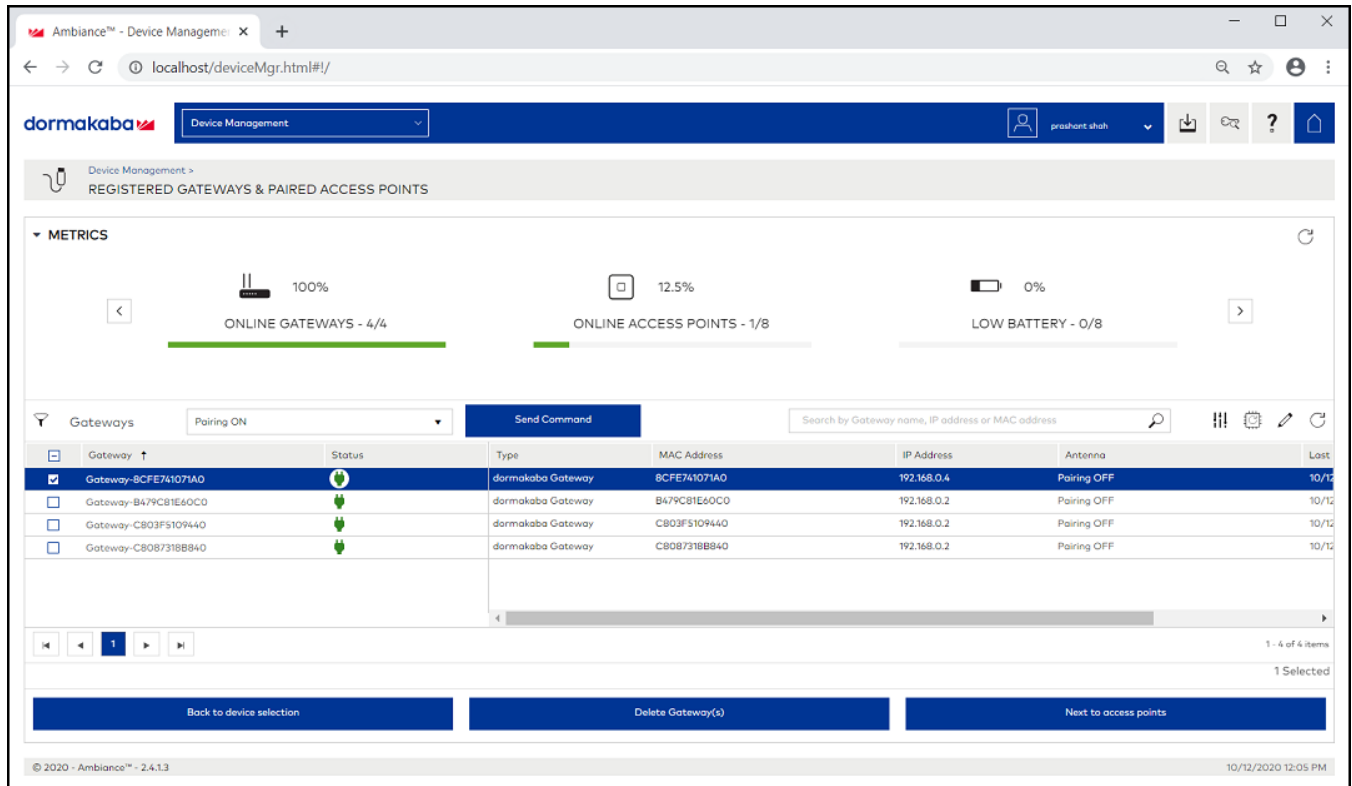


## Managing Devices

### Managing the Dormakaba Locks

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

FIGURE 113 Selecting Register Gateways and Paired Access points

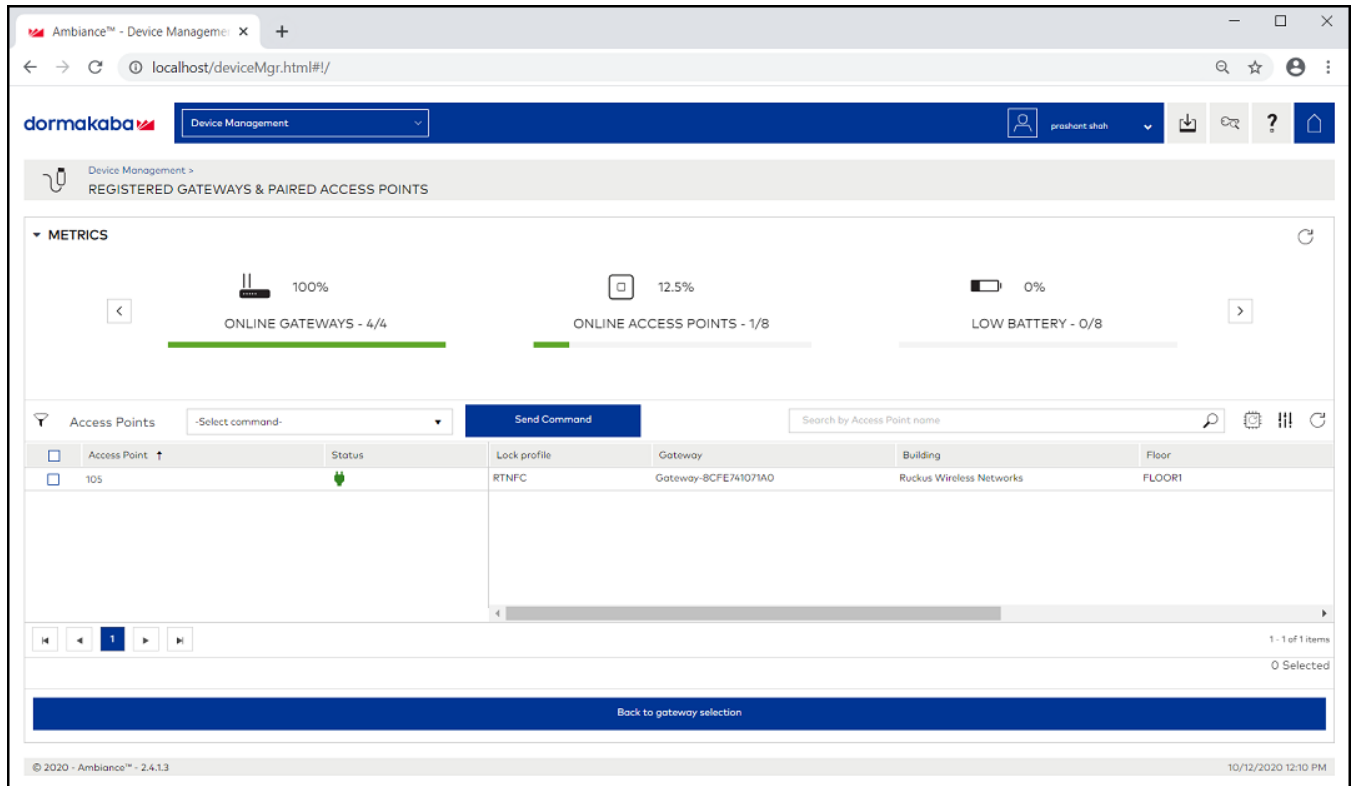


4. From the **Gateways**, select a gateway, and from the pull down select **Pairing ON** and click **Send Command** to start the gateway in scanning mode.
5. Swipe RF Pairing key card.  
The LED pattern blinks green LED once, and amber colour LED thrice.
6. Lock will appear in IoT Controller's **Scan 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 114** Displaying the Lock



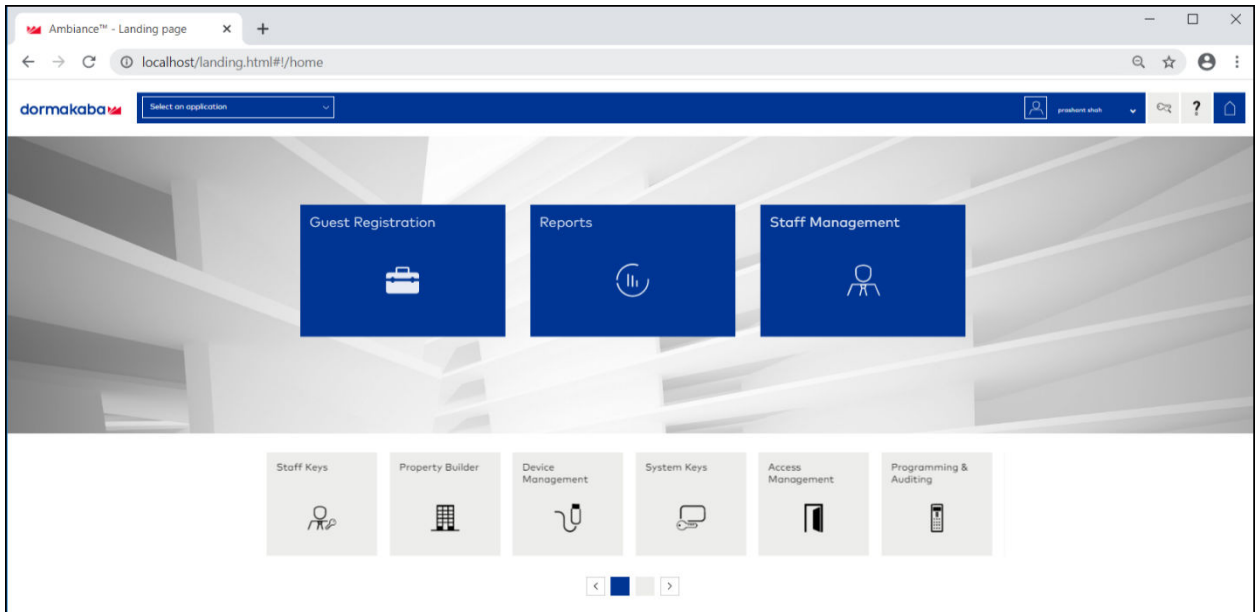
9. To confirm the lock connection, select the sage gateway, and click **Next to Access Point**.

## Blocking the Key Remotely

Perform the below steps to block the key remotely.

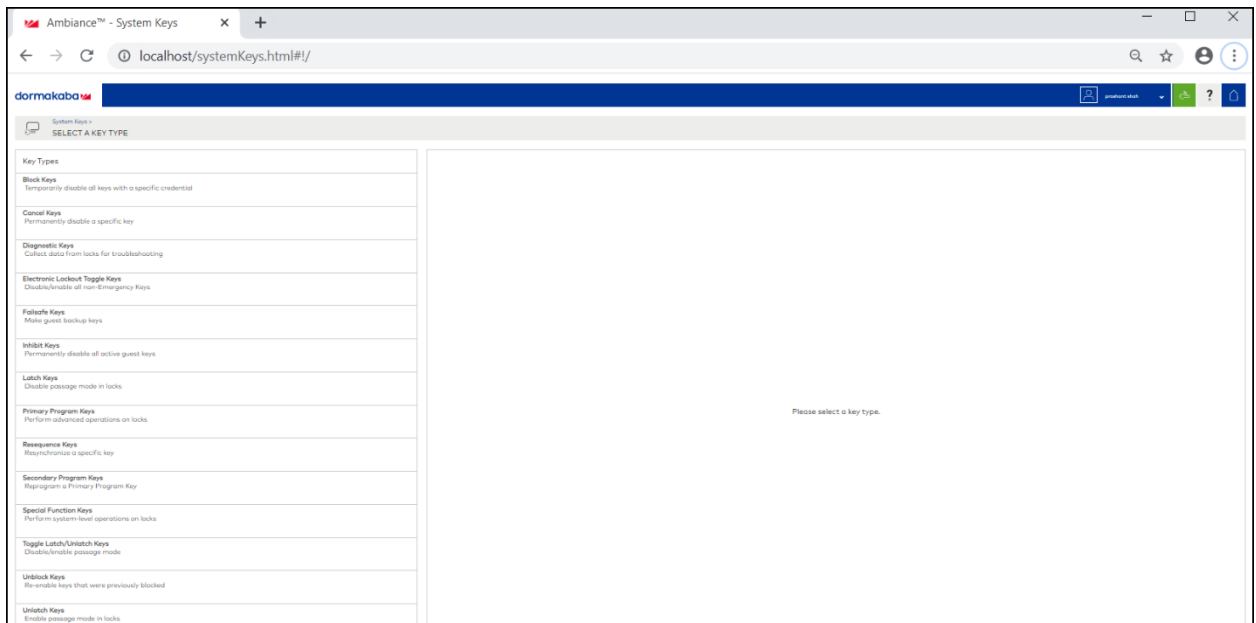
1. Go to Dormakaba Homepage.

FIGURE 115 Dormakaba Homepage



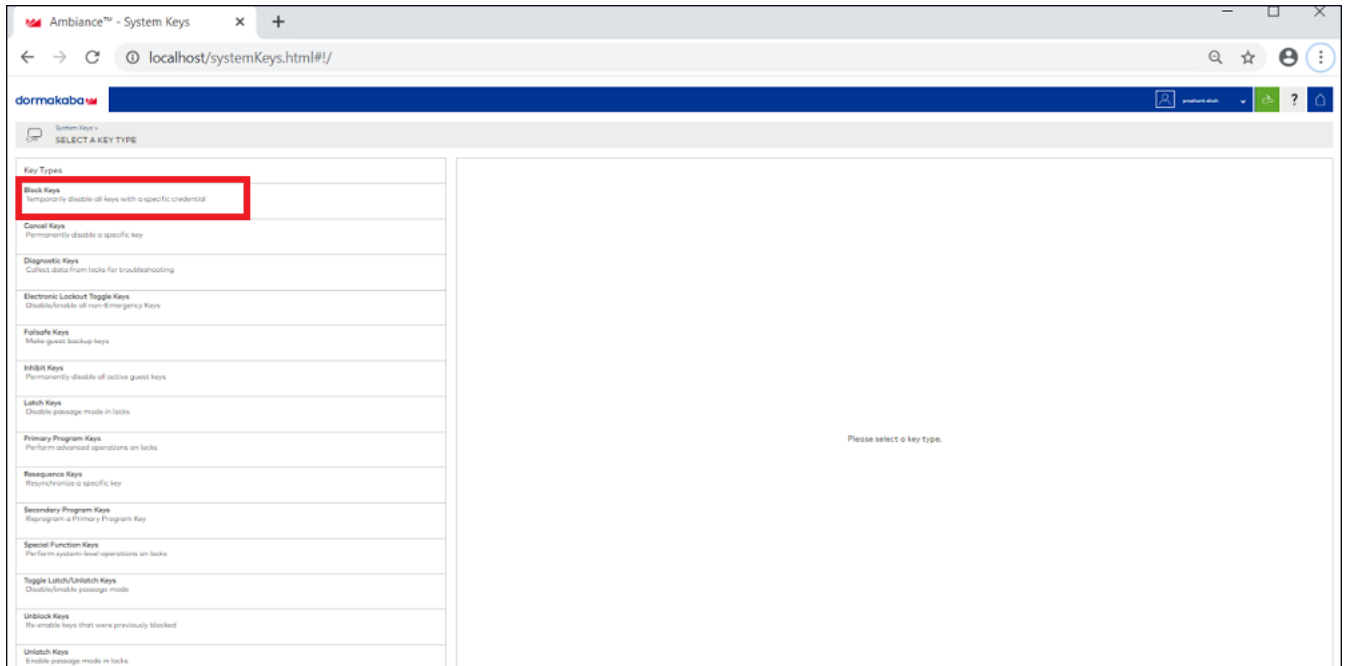
2. Click **System Keys**.

FIGURE 116 Selecting the System Keys



3. Click **Block Keys**.

**FIGURE 117** Selecting the Block Keys

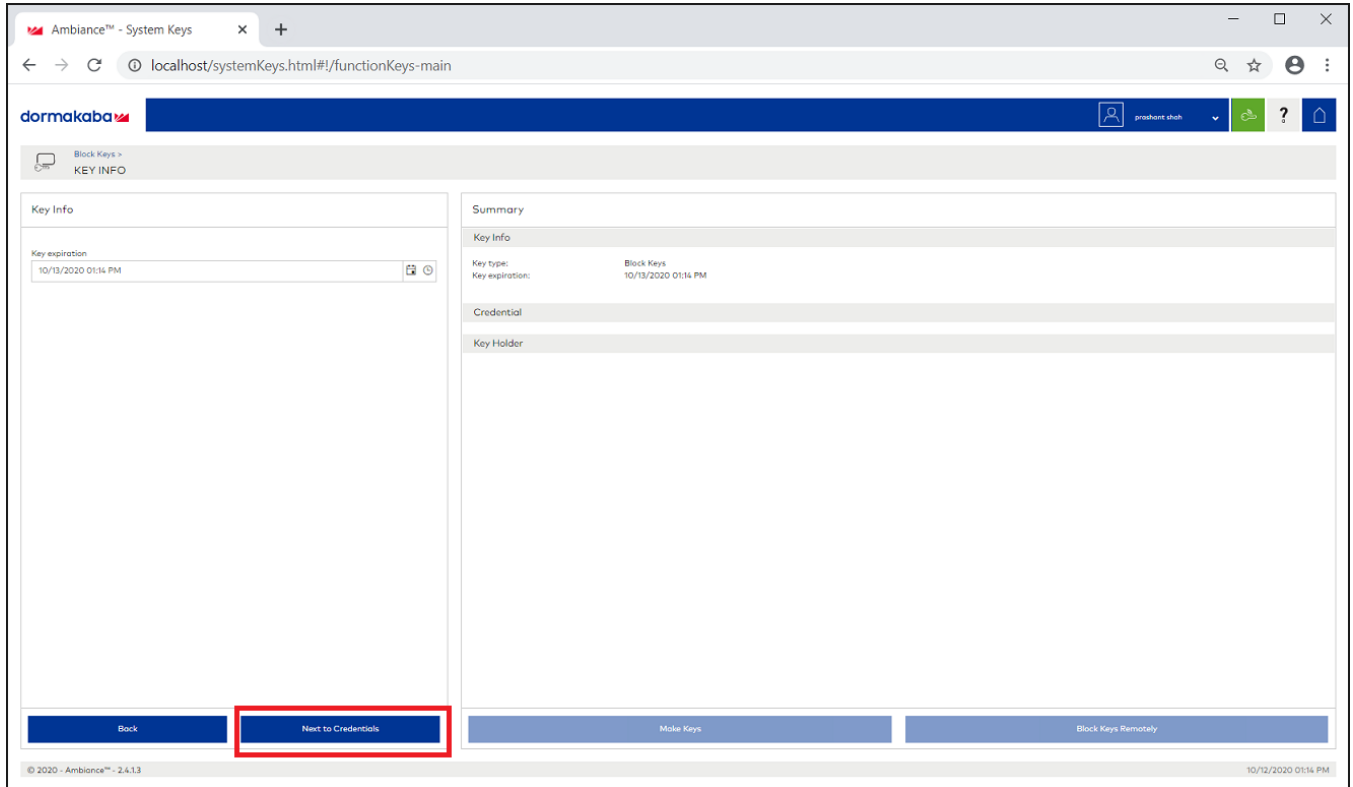


## Managing Devices

### Managing the Dormakaba Locks

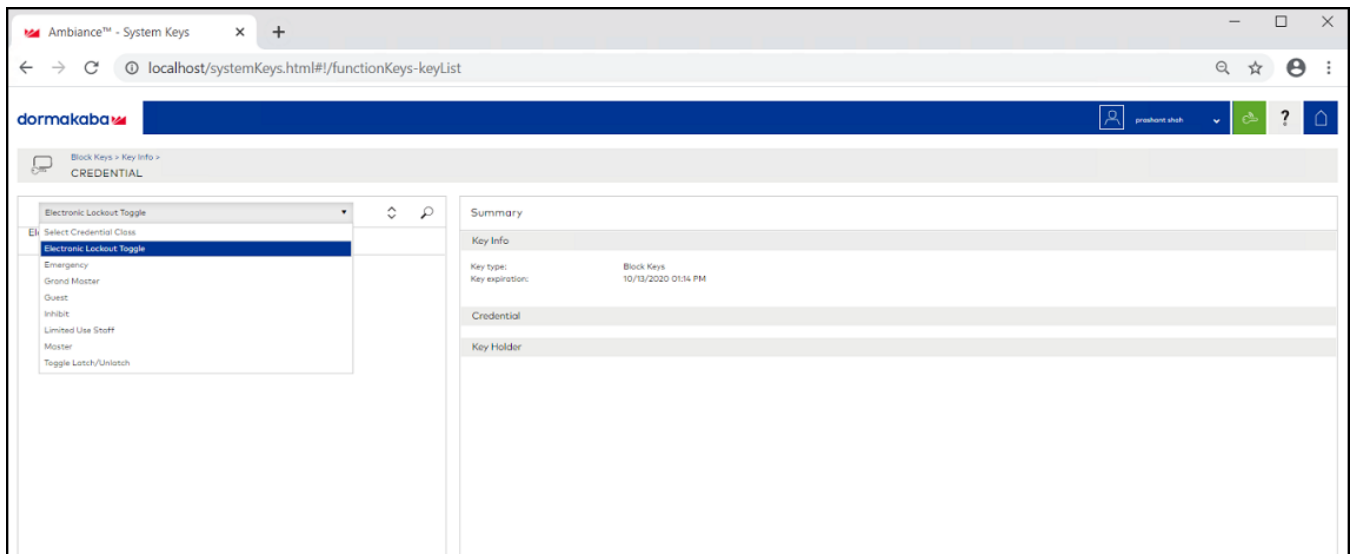
4. Click **Next to credential**.

**FIGURE 118** Clicking the option Next to credential



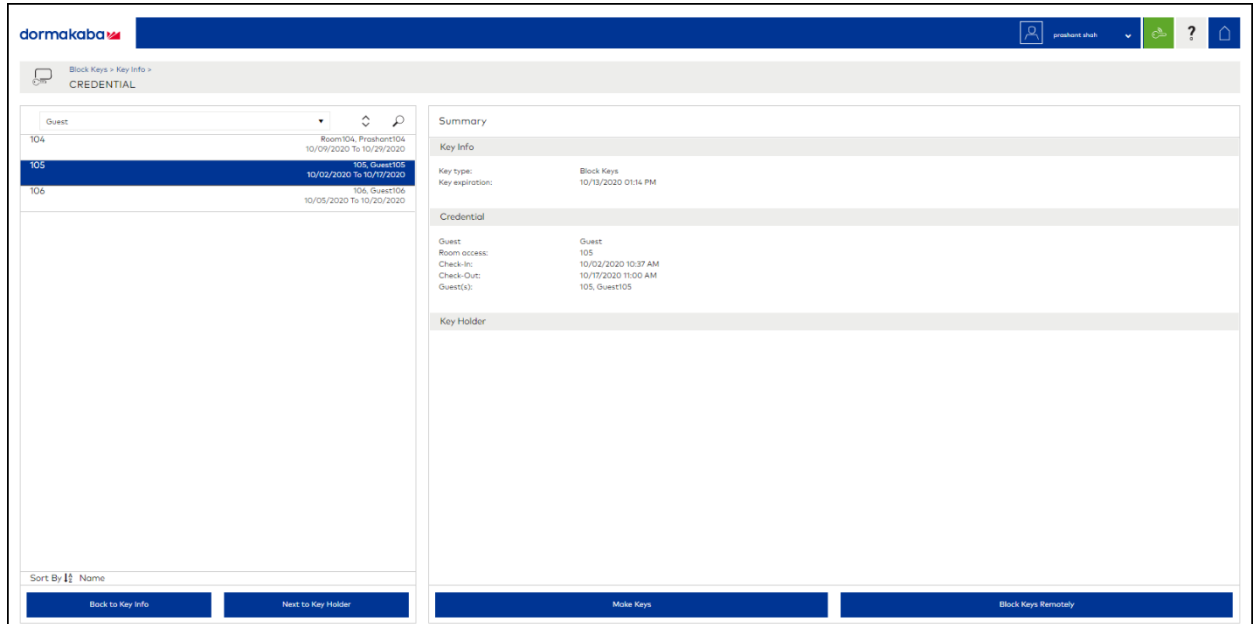
5. From the list, select **Guest** to block a **Guest room**.

**FIGURE 119** Selecting Guest from the drop-down list



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

FIGURE 120 Selecting the Guest Room Number



7. Click **Block Key Remotely**.

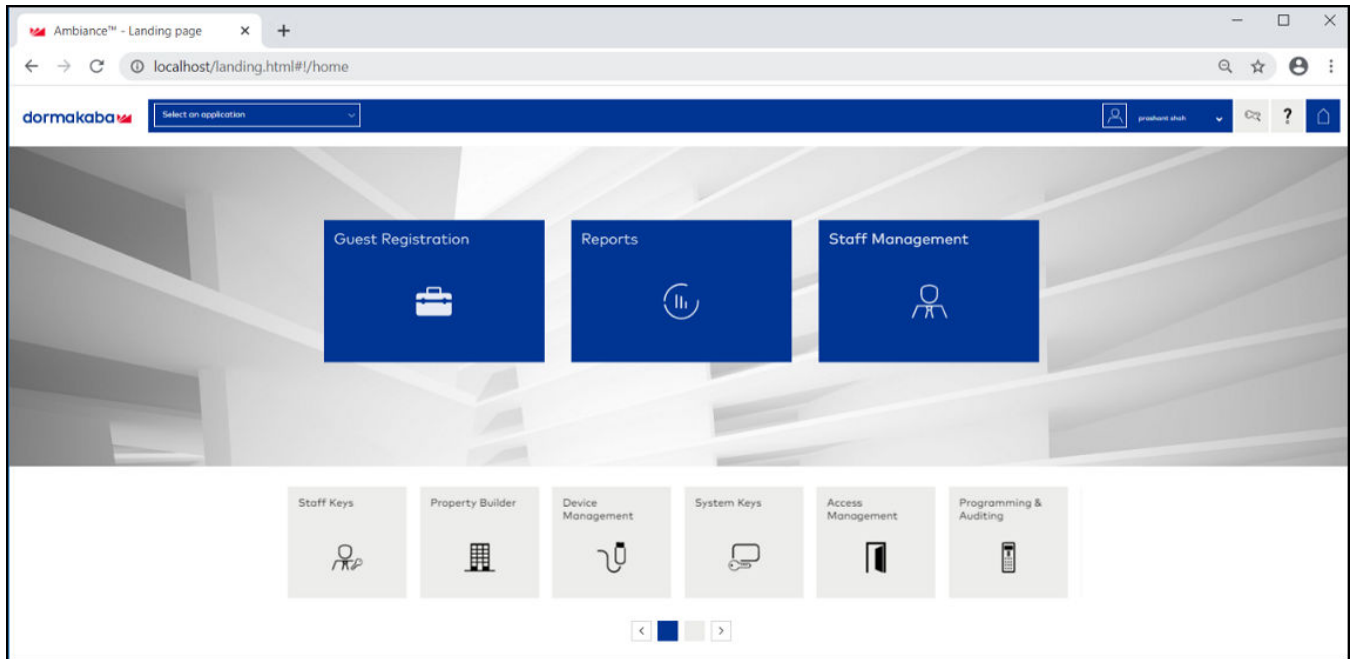
After you click **Block Key Remotely**, the LEDs will glow in the following pattern - one solid red LED, six green, and yellow LED together.

## Unlocking the Key Remotely

Perform the below steps to unblock the keys remotely.

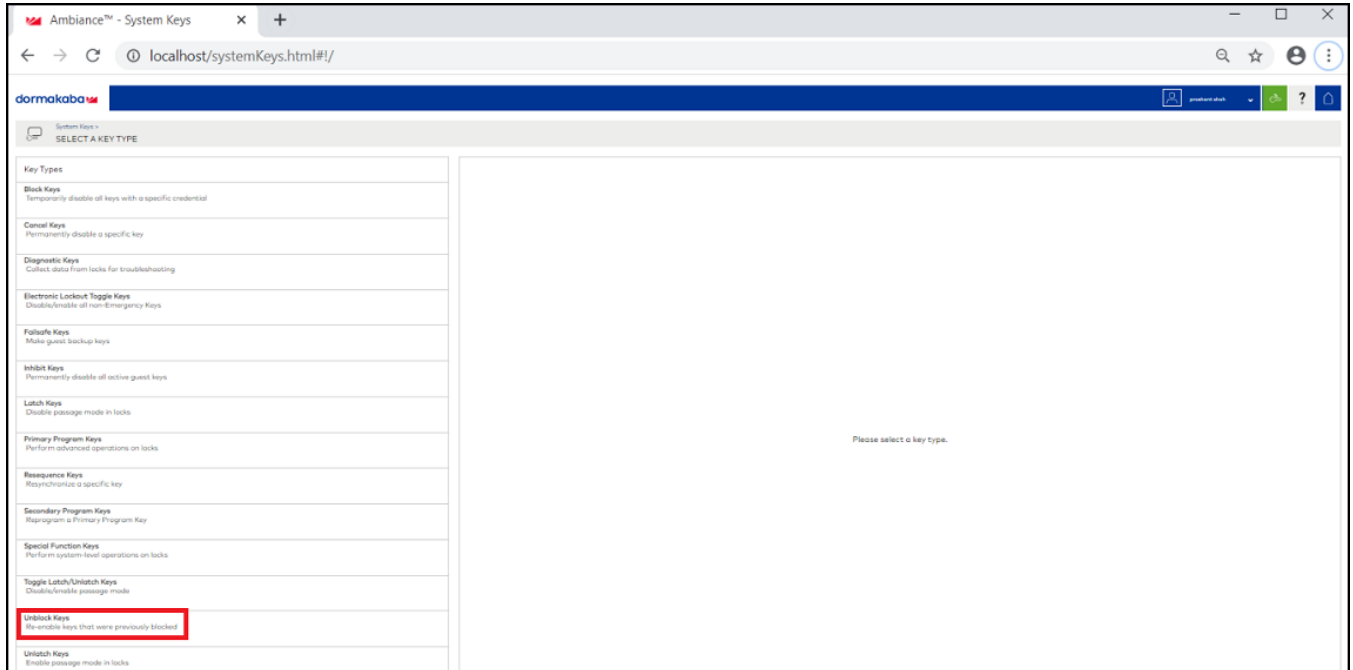
1. Go to the Dormakaba Homepage.

FIGURE 121 Dormakaba Homepage



2. Click **System Keys**.

**FIGURE 122** Selecting the Unblock Keys

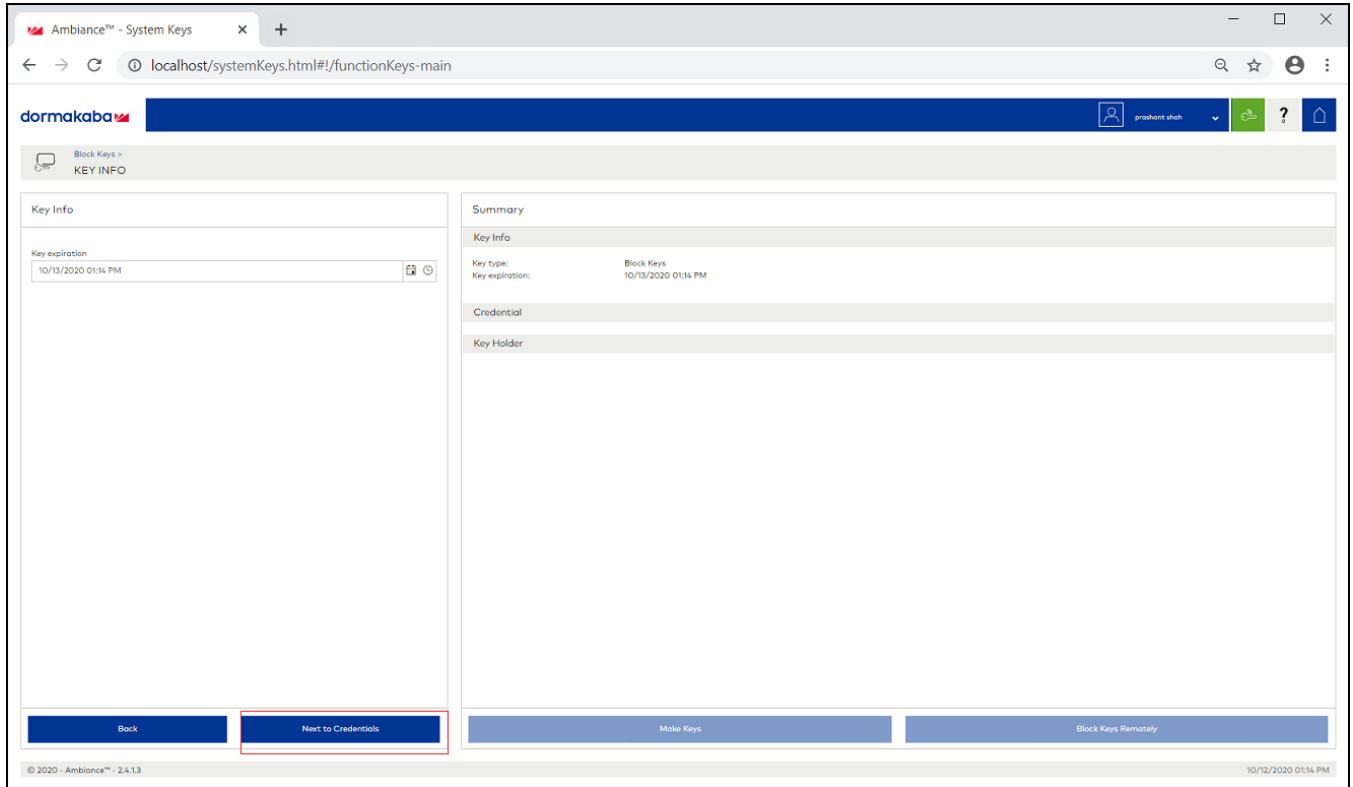


## Managing Devices

### Managing the Dormakaba Locks

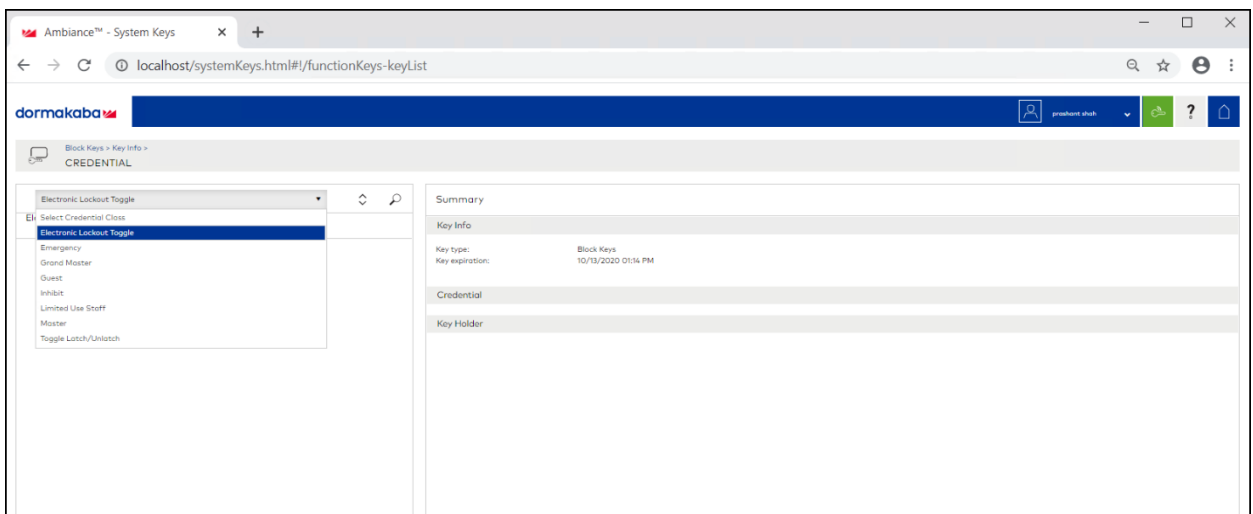
3. Click **Next to Credential**.

**FIGURE 123** Clicking the option Next to Credential



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

**FIGURE 124** 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.

## Device Operations for Specific Clusters and Commands

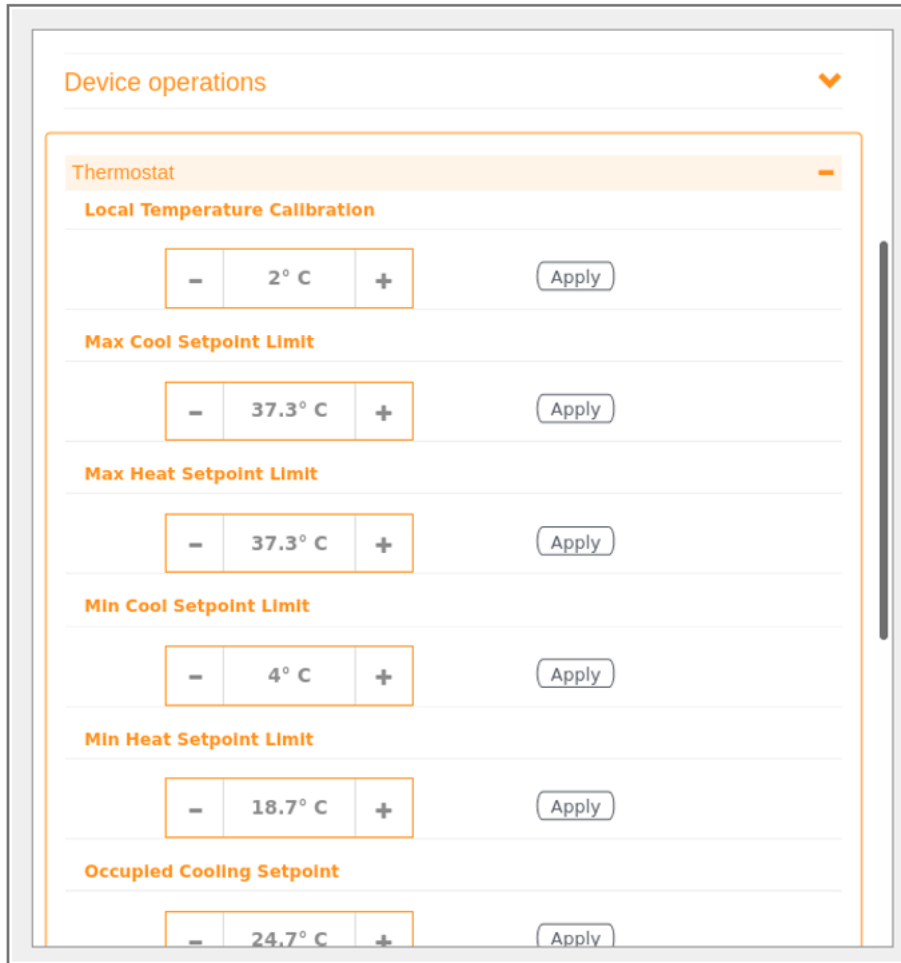
To configure the values for Thermostat complete the following steps.

1. From the main menu, go to **IoT Devices > Devices**.

## Managing Devices

### Device Operations for Specific Clusters and Commands

2. Select a thermostat, and configure the various operations such as **SystemMode**, **Local Temperature Calibration**, **Max Cool Setpoint Limit**, **Max Heat Setpoint Limit**, **Min Cool Setpoint Limit**, **Min Heat Setpoint Limit**, **Occupied Cooling Setpoint**, **Occupied Heating Setpoint**, **Unoccupied Cooling Setpoint**, **Unoccupied Heating Setpoint**, **FanMode**, and **KeypadLockout** in the sidebar.



**FIGURE 125** Thermostat User Interface Configuration and Fan Control Cluster operations

The screenshot displays a configuration interface for a thermostat. It features several sections, each with a title and a corresponding control element:

- Temperature Setpoint:** A numeric input field showing **18.7° C**, flanked by minus and plus buttons, with an **Apply** button to the right.
- Occupied Cooling Setpoint:** A section header followed by a numeric input field showing **24.7° C**, flanked by minus and plus buttons, with an **Apply** button to the right.
- Occupied Heating Setpoint:** A section header followed by a numeric input field showing **19.4° C**, flanked by minus and plus buttons, with an **Apply** button to the right.
- System Mode:** A section header followed by a dropdown menu currently set to **Heat**, with an **Apply** button to the right.
- Thermostat User Interface Configuration:** A section header with a minus sign on the right, followed by a sub-section header **Keypad Lockout**.
- Keypad Lockout:** A dropdown menu currently set to **No lockout**, with an **Apply** button to the right.
- Fan Control:** A section header with a minus sign on the right, followed by a sub-section header **Fan Mode**.
- Fan Mode:** A dropdown menu currently set to **On**, with an **Apply** button to the right.



# Events

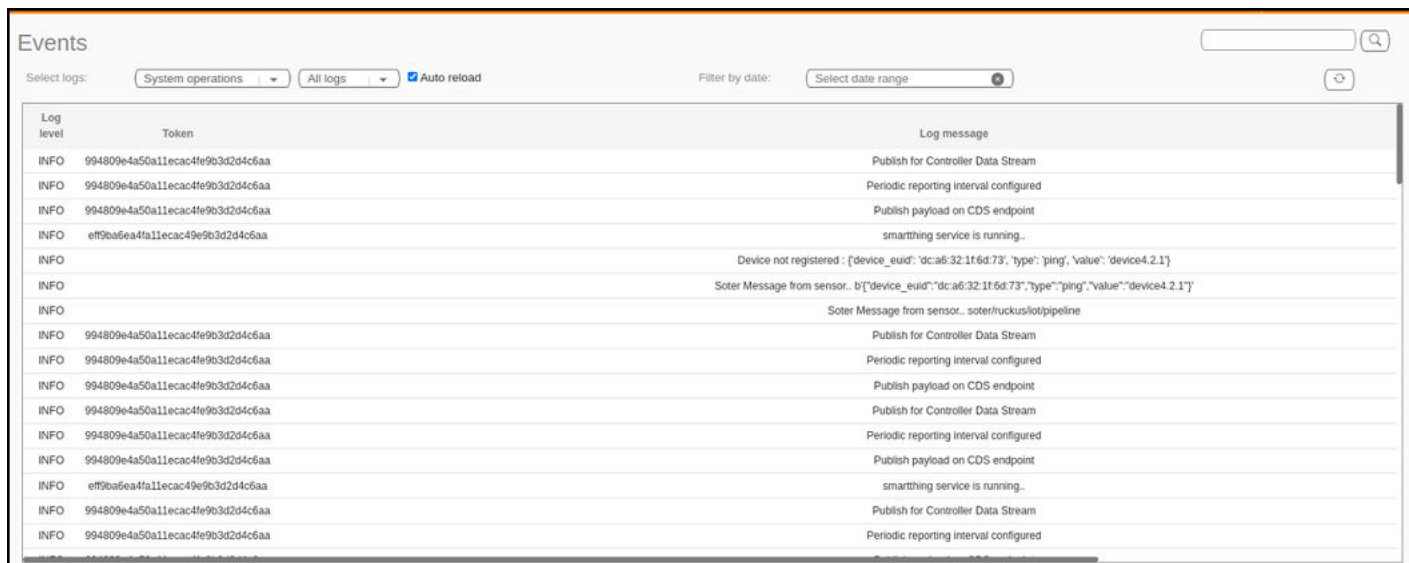
- Viewing Events..... 133

## 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.

To view the Events, from the main menu, click **Events** tab, the **Events** page is displayed as below.

FIGURE 126 Events Page



Log level	Token	Log message
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Publish for Controller Data Stream
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Periodic reporting interval configured
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Publish payload on CDS endpoint
INFO	eff9ba6ea4fa11ecac49e9b3d2d4c6aa	smarththing service is running..
INFO		Device not registered : {device_euid: 'dc:a6:32:1f:6d:73', type: 'ping', value: 'device4.2.1'}
INFO		Soter Message from sensor.. b[{"device_euid":"dc:a6:32:1f:6d:73","type":"ping","value":"device4.2.1"}]
INFO		Soter Message from sensor.. soter/ruckus/iot/pipeline
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Publish for Controller Data Stream
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Periodic reporting interval configured
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Publish payload on CDS endpoint
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Publish for Controller Data Stream
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Periodic reporting interval configured
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Publish payload on CDS endpoint
INFO	eff9ba6ea4fa11ecac49e9b3d2d4c6aa	smarththing service is running..
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Publish for Controller Data Stream
INFO	994809e4a50a11ecac4fe9b3d2d4c6aa	Periodic reporting interval configured



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<https://www.commscope.com>