SOFTWARE INSTALLATION GUIDE



# **RUCKUS IoT Controller** Software Installation Guide, 2.2.0.0 GA

Supporting IoT Controller Release 2.2.0.0 GA

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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
- 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.

# **Document Feedback**

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

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

When contacting us, include the following information:

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

For example:

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

# **RUCKUS Product Documentation Resources**

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

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

White papers, data sheets, and other product documentation are available at https://www.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	<pre>device(config)# interface ethernet 1/1/6</pre>
bold	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>
italics	Publication titles	Refer to the RUCKUS Small Cell Release Notes for more information.

## Notes, Cautions, and Safety Warnings

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

## NOTE

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

#### ATTENTION

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



## CAUTION

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



#### DANGER

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

# **Command Syntax Conventions**

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

Convention	Description
bold text	Identifies command names, keywords, and command options.
italic text	Identifies a variable.
[]	Syntax components displayed within square brackets are optional.
	Default responses to system prompts are enclosed in square brackets.
{x   y   z}	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
x y	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
	Repeat the previous element, for example, member[member].
١	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**

•	Introduction to RUCKUS IoT Controller	. 9
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# **Introduction to RUCKUS IoT Controller**

The RUCKUS IoT Controller is a versatile, easy-to-deploy service and management component that allows for integration of Internet of Things (IoT) devices and IoT services for a wide range of use cases. It provides a robust, secure, scalable, interoperable, and well-managed general transport between IoT devices and cloud services.

The RUCKUS IoT Controller is an open-programmable framework that exposes northbound APIs and is thereby a highly flexible IoT transport for RUCKUS partners to integrate a wide range of IoT services and solutions for the enterprise and beyond.

This guide provides information about how to install the RUCKUS IoT Controller on a supported hypervisor. Topics include the list of supported hypervisors and RUCKUS IoT Controller installation instructions using the .OVA or .qcow2 file.

#### 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.

This guide is intended for use by those responsible for installing and setting up network equipment. It assumes a basic working knowledge of local area networking, wireless networking, and wireless devices.

# What's New in This Document

## Summary of New Features in RUCKUS IoT Controller 2.2.0.0 GA

Feature	Description	Location
Replaced the Initlization Page 2 Screenshot.	Support for Rules Engine is removed.	Installing RUCKUS IoT Controller on a     VMware ESXi on page 12
		<ul> <li>Installing a KVM Guest Using Virtual Machine Manager on page 23</li> </ul>
Removed the topic " Upgrading the Ruckus IoT Controller with N+1 Configuration".	Refer Release Notes for more details.	-

## Summary of New Features in RUCKUS IoT Controller 2.1.0.0 GA

Feature	Description	Location
No new features for this release.	-	-

#### **TABLE 2** Summary of New Features in RUCKUS IoT Controller 1.8.1.1 SR

Feature	Description	Location
No new features added for this release.		

## TABLE 2 Summary of New Features in RUCKUS IoT Controller 1.8.1.1 SR (continued)

Feature	Description	Location
Installing RUCKUS IoT Controller on Oracle VM Virtual Box.	This topic is removed for the current relese.	-
Installing RUCKUS IoT Controller using VMware Player.	This topic is removed for the current release.	-

### TABLE 3 Summary of New Features in RUCKUS IoT Controller 1.8.1.0 MR

Feature	Description	Location
No New features for this release.	Minor updates	Refer to topics- Supported Hypervisors, Upgrading the RUCKUS IoT Controller, and Upgrading the RUCKUS IoT Controller with N+1 configuration.

## TABLE 4 Summary of New Features in RUCKUS IoT Controller 1.8.0.0

Feature	Description	Location
No New features for this release.	The Intialization page is changed for all the Hypervisors.	Refer to Installing RUCKUS IoT Controller on Hypervisor on page 11

## TABLE 5 Summary of New Features in RUCKUS IoT Controller Release 1.7.1.0 (Rev A)

Feature	Description	Location
Upgrading the RUCKUS IoT Controller with N+1 Configuration	New steps added	Refer to #unique_17.

# Installing RUCKUS IoT Controller on Hypervisor

•	System Requirements for Installing RUCKUS IoT Controller on a Hypervisor	11
•	Installing RUCKUS IoT Controller on a VMware ESXi	12
•	Installing a KVM Guest Using virsh Commands	
•	Installing a KVM Guest Using Virtual Machine Manager	
•	Installing RLICKLIS INT Controller on Hyper-V	

# System Requirements for Installing RUCKUS IoT Controller on a Hypervisor

The RUCKUS IoT Controller supports a number of hypervisors and requires a virtual machine (VM).

The following table lists the hypervisors (and their release versions) on which you can install the controller.

#### TABLE 6 Supported Hypervisors

Hypervisor	Vendor	Version
ESXi	VMware	6.0 and later
KVM	Linux	2.11.1 or later
Hyper-v	Microsoft Windows	6.2 or later

### NOTE

For the compatible hardware for the hypervisors listed above, refer to the respective vendors website.

The virtual machine (VM) on which the controller is installed must meet the following requirements:

- The VM for the VMware ESXi hypervisor must have a minimum of 4 vCPUs, 4 GB RAM, and Fixed 20 GB HDD.
- The VM for the KVM hypervisor must have a minimum of 4 vCPUs, 4 GB RAM, and Fixed 20 GB HDD.
- The VM for the Hyper-v hypervisor must have a minimum of 4 vCPUs, 4 GB RAM, and Fixed 20 GB HDD.
- Ports 80, 123 or NTP, 443, 1883, and 8883 must be open.

## Hardware Recommendations for the IoT Server

Customers must obtain robust and reliable server hardware that will support a virtualized environment for IoT applications with enough headroom to expand in the future. Each deployment is unique and hardware specifications will need to be adapted to specific needs. For a typical deployment (e.g. RUCKUS IoT Controller, VMware ESXi, Ubuntu Linux server, IP camera VMS, additional IoT VMs or applications), we recommend server hardware that meets the below specifications:

- **CPU**: 4 core i7 or equivalent
- Memory: 32 GB
- Hard Disk: 1 TB

# Installing RUCKUS IoT Controller on a VMware ESXi

The RUCKUS IoT Controller can be installed on a VMware ESXi hypervisor using an .OVA file.

- 1. Download the RUCKUS IoT Controller distribution package in the .OVA file format from the RUCKUS Support website at https://support.ruckuswireless.com.
- 2. Open VMware ESXi and select Virtual Machines from the Navigator pane.

FIGURE 1 Creating or Registering Virtual Machines

<b>vm</b> ware <sup>®</sup> ESXi <sup>™</sup>			root@10.137.36.15 ·	
Navigator	🔂 localhost.video54.local - Virtual Machines			
✓ ☐ Host Manage	Treate / Register VM   Pow			Q Search
Monitor	Virtual macl Create or register a virtual machine	Status v Used space v	Guest OS v Host name	✓ Host CPU ✓ Host memory ✓
🛛 🗗 Virtual Machines 🛛 🛛 17	Automation-ubuntu-16.04-installer	Nor 14.18 GB	Ubuntu Linux (64-bit) Unknown	0 MHz 0 MB
Storage	Automation-Stage-Server	📀 Nor 11.55 GB	Ubuntu Linux (64-bit) Unknown	0 MHz 0 MB
Networking	Automation-Production-Server	🔮 Nor 15.48 GB	Ubuntu Linux (64-bit) Unknown	0 MHz 0 MB
	🗌 🎒 Gateway-Vriot	📀 Nor 7.72 GB	Ubuntu Linux (64-bit) Unknown	0 MHz 0 MB
	🗌 🎒 IBM-Vriot-1.3.0.0.1	📀 Nor 5.61 GB	Ubuntu Linux (64-bit) Unknown	0 MHz 0 MB
	A-visionline	📀 Nor 17.27 GB	Microsoft Windows Se Unknown	18 MHz 6.02 GB
	🗌 📑 qa-win-dns-200	📀 Nor 11.52 GB	Microsoft Windows Se Unknown	25 MHz 3.93 GB
	Gateway-vsz-10019	⊘ Nor 29.85 GB	Other (32-bit) Unknown	0 MHz 0 MB
				17 items
	Recent tasks			
	Task ~ Target	✓ Initiator ✓ Queued	Started V Result	✓ Completed ▼

3. Click Create/Register VM.

4. On the New virtual machine page, click Select creation type, and select Deploy a virtual machine from an OVF or OVA file. Click Next.

FIGURE 2 Select Creation Type Page

3 Select storage	How would you like to create a Virtual Machine?	
4 License agreements 5 Deployment options 6 Additional settings 7 Ready to complete	Create a new virtual machine Deploy a virtual machine from an OVF or OVA file Register an existing virtual machine	This option guides you through the process of creating a virtual machine from an OVF and VMDK files.
<b>vm</b> ware		

5. Click Select OVF and VMDK files, enter a name for the virtual machine, and select the OVF file. Click Next.

FIGURE 3 Select OVF and VMDK Files Page

🔁 New virtual machine - VRIOT	
<ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> <li>3 Select storage</li> </ul>	Select OVF and VMDK files Select the OVF and VMDK files or OVA for the VM you would like to deploy
<ol> <li>3 Select storage</li> <li>4 License agreements</li> <li>5 Deployment options</li> <li>6 Additional settings</li> <li>7 Ready to complete</li> </ol>	Enter a name for the virtual machine.           VRIOT           Virtual machine names can contain up to 80 characters and they must be unique within each ESXi instance.
	× 🐨 vriot-1.6.0.0.38.ova
<b>vm</b> ware <sup>*</sup>	
	Back Next Finish Cancel

6. Click **Select storage**, and select the datastore in which you want to save the configuration and disk files. Click **Next**.

FIGURE 4 Select Storage Page

😚 New virtual machine - IoT - IoT									_	
<ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> </ul>	Select storage Select the datastore in which to store the confi	guration and	d dis	k files.						
<ul> <li>3 Select storage</li> <li>4 License agreements</li> <li>5 Deployment options</li> </ul>	The following datastores are accessible from t virtual machine configuration files and all of the			esource <mark>t</mark> hat	t you s	selected.	Sele	ct the destinatio	n datastor	e for the
6 Ready to complete	Name v	Capacity	~	Free	~	Туре	~	Thin pro v	Access	~
	datastore1	924 GB		807.09 GE	3 1	VMFS6		Supported	Single	
									1	items
<b>vm</b> ware										
					Back		Ne	xt Finis	h ]	Cancel

7. Click License agreements to accept the terms and conditions of the software license and click Agree.

FIGURE 5 License Agreements Page

Select creation type	License agreements
Select OVF and VMDK files Select storage	Read and accept the license agreements
License agreements Deployment options	An end-user license
Ready to complete	RUCKUS WIRELESS, INC.
	Ruckus IoT Controller (RIoT Controller) Software License
	PLEASE READ THIS SOFTWARE LICENSE CAREFULLY. RUCKUS WIRELESS, INC. ("RUCKUS") IS WILLING TO LICE TO YOU ("LICENSEE") ONLY ON THE CONDITION THAT THE LICENSEE ACCEPTS ALL OF THE FOLLOWING TERMS AN IF A USER ACCEPTS THIS LICENSE, OR DOWNLOADS, USES OR INSTALLS THE SOFTWARE, AS AN EMPLOYEE OF, C OR CONTRACTOR FOR THE BENEFIT OF, A COMPANY, THAT COMPANY SHALL BE DEEMED THE LICENSEE AND THE US THAT IT HAS THE POWER AND AUTHORITY TO ACCEPT THIS AGREEMENT ON BEHALF OF THE COMPANY. BY DOWNLOADING, INSTALLING AND/OR USING THE SOFTWARE, LICENSEE ACKNOWLEDGES THAT IT HAS READ THIS AGREES TO BE BOWND BY ITS TERMS AND CONDITIONS. IF LICENSEE DOES NOT AGREE TO THE TEMMS AND CONC LICENSE, RUCKUS IS UNWILLING TO LICENSE THE SOFTWARE, IN THAT EVENT, LICENSEE MAY NOT DOWNLOAD, THE SOFTWARE AND SHALL BE GIVEN A FULL REFUND OF ANY LICENSE FEES ACTUALLY PAID FOR THE SOFTWARE,
	<ol> <li>Definitions         "Device" means a single Ruckus access point on Licensee's network.         "Documentation" means the published technical manuals, including any updates thereto, relating to         available by Ruckus.         "Evaluation Term" means the limited period of time following Licensee's initial download of the 5     </li> </ol>
	to use the Software without placing an Order; provided, that the Evaluation Term is subject to ea
<b>vm</b> ware	
	1 agree

8. Click Deployment options, and select the Network mappings and Disk provisioning. Click Next.

FIGURE 6 Deployment Options Page

🔁 New virtual machine - IoT - IoT		
<ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> <li>3 Select storage</li> </ul>	Deployment options Select deployment options	
<ul> <li>4 License agreements</li> <li>5 Deployment options</li> <li>6 Ready to complete</li> </ul>	Network mappings	VM Network
	Disk provisioning	Thin     Thick
	Power on automatically	8
<b>vm</b> ware <sup>®</sup>		
		Back Next Finish Cancel

9. Click Ready to complete and review the settings. Click Finish.

FIGURE 7 Ready to Complete Page

<ul> <li>1 Select creation type</li> <li>2 Select OVF and VMDK files</li> </ul>	Ready to complete Review your settings selection before	e finishing the wizard
✓ 3 Select storage		
✓ 4 License agreements	Product	vriot
<ul> <li>5 Deployment options</li> <li>6 Ready to complete</li> </ul>	VM Name	VRIOT
	Files	vriot-1.6.0.0.38.vmdk
	Datastore	datastore1
	Provisioning type	Thin
	Network mappings	VM Network: VM Network
	Guest OS Name	Unknown
	Do not refresh your b	rowser while this VM is being deployed.
<b>vm</b> ware <sup>®</sup>		

The RUCKUS IoT Controller login prompt is displayed.

## FIGURE 8 RUCKUS IOT Controller Login Prompt

	Ruckus IoT Controller [Running]
Ruckus IoT Controller	
vriot login: _	

10. Log in to the virtual machine using the username and password.

11. Enter **1** in the **Enter Choice** field to get the IP address of the virtual machine.

This information is needed to access the RUCKUS IoT Controller Initialization page.

### FIGURE 9 Displaying the IP Address

- N+1 - Comm Debugger - Log Off		
<ul> <li>System Operation</li> <li>N+1</li> <li>Comm Debugger</li> <li>Log Off</li> </ul>		
- N+1 - Comm Debugger - Log Off		
- Log Off		
- Log Off		
nter Choice: 1		
nter Choice: 1		
etwork info :		
IP (eth0) : 10	.174.112.79/23	
Gateway : 10		
Hostname : vr		
DNS domain :		
FQDN : VI	iot	
L VL		
	.42.50.240 10.0.248.1	

To configure N+1 on the RUCKUS IoT Controller, enter **5** in the **Enter Choice** field. Refer to "Configuring N+1" in the RUCKUS IoT Controller Configuration Guide to complete this configuration.

12. Open a web browser on your host machine and enter the IP address of the VM in the address bar.

HTTP and HTTPS on ports 80 and 443 are supported.

The Initialization page is displayed.

FIGURE 10 Intialization Page 1

RUCKUS	IOT Controller IOT API	2.0.0.0.76 Version 16 March 2022 8:18:26 America/Los_Angeles
Initia	lization	
Very Imp	iortant!!!	
Please re	ad before proceeding.	
subscription	T Release we have changed the licensing scheme to a subscription model based on number of IoT devices. Previous licenses cannot be applied to this version of the IoT controller. Please have the nu license(s) ready before proceeding with the deployment of the controller and migration from older release. There is a 90 day trial period (no purchase required for trial) which has no restrictions on fer sount. The devices will go into a decommissioned state at the end of the 90 day trial period if valid subscriptions are not applied by then.	
🗆 I agree t	o the terms and conditions stated above	
		Next

13. Select the required services and click Next.

### FIGURE 11 Initialization Page 2

itialization ck on next button to continue					
/M Configurations			IP Configurations		
Hostname			DHCP 📀	Static O	
Time Zone					
America/Los_Angeles		•			
Set Time Automatically using NTP 💿	Set Time Manually i	0			
NTP Address	Default : ntp.ubuntu.com	(Optional)			

14. Confirm the configuration information and click Next.

The RUCKUS IoT ControllerInitialization page is displayed.

FIGURE 12 Confirming the Password

Initialization				
	New Password	Enter password	Show	
	Confirm Password	Retype password	Show	
Back				Start

- 15. Enter a new password and re-enter the new password in the Confirm Password field. Click Start.
- 16. The End-user License Agreement page is displayed. Click Accept to accept the RUCKUS IoT Controller license.

FIGURE 13 End-user License Agreement Page

	ler μεταγγία.
Haliz -	End-user License Agreement
URIN DUSS	Ruckus IoT Controller (RIoT Controller) Software License
	PLEASE READ THIS SOFTWARE LICENSE CAREFULLY. RUCKUS WIRELESS, INC. ("RUCKUS") IS WILLING TO LICENSE THE SOFTWARE TO YOU ("LICENSEE") ONLY ON THE CONDITION THAT THE LICENSEE ACCEPTS ALL OF THE FOLLOWING TERMS AND CONDITIONS. IF A USER ACCEPTS THIS LICENSE, OR DOWNLOADS, USES OR INSTALLS THE SOFTWARE, AS AN EMPLOYEE OF, OR AS AN AGENT OR CONTRACTOR FOR THE BENEFIT OF, A COMPANY, THAT COMPANY SHALL BE DEEMED THE LICENSEE AND THE USER REPRESENTS THAT IT HAS THE POWER AND AUTHORITY TO ACCEPT THIS AGREEMENT ON BEHALF OF THE COMPANY. BY DOWNLOADING, INSTALLING AND/OR USING THE SOFTWARE, LICENSEE ACKNOWLEDGES THAT IT HAS READ THIS LICENSE AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS. IF LICENSEE ACKNOWLEDGES THAT IT HAS READ THIS LICENSE, RUCKUS IS UNWILLING TO LICENSE THE SOFTWARE. IN THAT EVENT, LICENSEE MAY NOT DOWNLOAD, USE OR INSTALL THE SOFTWARE AND SHALL BE GIVEN A FULL REFUND OF ANY LICENSE FEES ACTUALLY PAID FOR THE SOFTWARE.
	1) Definitions "Device" means a single Ruckus access point on Licensee's network. "Documentation" means the published technical manuals, including any updates thereto, relating to the use of the Software made generally available by Ruckus. "Evaluation Term" means the limited period of time following Licensee's initial download of the Software during which Licensee is permitted to use the Software without placing an Order; provided, that the Evaluation Term is subject to early termination as provided in this agreement. "Software" means a copy of a machine executable version of a Ruckus software product that Ruckus makes available to Licensee for download onto equipment owned or controlled by Licensee, and any error corrections, updates or upgrades of such software product that Ruckus makes available to Licensee (or a Ruckus Channel Partner for the benefit of Licensee) to activate the Software or increase the Authorized Device Limit, "Ruckus Channel Partner" means an entity
	Close Accept

You are ready to configure and start the RUCKUS IoT Controller services. Refer to the RUCKUS IoT Controller Configuration Guide for more information.

# **Installing a KVM Guest Using virsh Commands**

The RUCKUS IoT Controller can be installed on the KVM Guest using virsh commands.

- 1. Use the tar -xvf vriot-qcow2-2.0.0.0.x.tar command to extract the vriot-qcow2-2.0.0.0.x.tar file.
- 2. Use the sudo mv vriot-2.0.0.0.x.qcow2 /var/lib/libvirt/images/ command to move the qcow2 image to the libvirt images path..
- 3. Use the virsh define vriot-2.0.0.0.x.xml command to define the VM.

#### NOTE

You must edit the XML file to add it to the network interface

- 4. Use the virsh start Ruckus-IoT-Controller command to start the virtual machine (VM).
- 5. Use the virsh console Ruckus-IoT-Controller command to obtain console access to the VM.

# **Installing a KVM Guest Using Virtual Machine Manager**

The RUCKUS IoT Controller can be installed on a KVM guest using Virtual Machine Manager.

- 1. Download the RUCKUS IoT Controller distribution package in the .tar file format from the RUCKUS Support website at https://support.ruckuswireless.com.
- 2. Use the tar -xvf filename.tar command to obtain the qcow2 image file and template file.
- 3. Open the Virtual Machine Manager.

4. From the Virtual Machine Manager menu, select File > Create a New Virtual Machine.

FIGURE 14 Virtual Machine Manager Menu

Virtual Machine Manager	8
File Edit View Help	
🔛 📃 Open 📄 🔝 🕑 👻	
Name 🔺	CPU usage
localhost (QEMU)	

The **New VM** dialog box is displayed.

5. Enter the name of the virtual machine, select Import existing disk image, and click Forward.

FIGURE 15 New VM Dialog Box Step 1

Virtual Machine Manager	8
File Edit View Help	
📴   💻 Open 📄 📗 🕑 🗸	
Name New VM 🛞	
local Create a new virtual machine Step 1 of 4	
Enter your virtual machine details	
Name: VRIOT-KVM	
Connection: localhost (QEMU/KVM)	
Choose how you would like to install the operating system	
○ Local install media (ISO image or CDROM)	
<ul> <li>Network Install (HTTP, FTP, or NFS)</li> </ul>	
<ul> <li>Network Boot (PXE)</li> </ul>	
Import existing disk image	
Cancel Back Forward	

6. Enter the path of the .qcow image, the operating system type, and the version number, and click Forward.

FIGURE 16 New VM Dialog Box Step 2

Virtual Machine Manager	8
File Edit View Help	
Copen Den U Correction	
Name New VM 8	
local Create a new virtual machine Step 2 of 4	
Provide the existing storage path:	
/home/vriot-qa-2/Desktop/vriot-937a.offline-upgr Browse	
Choose an operating system type and version	
OS type: Generic ‡	
Version: Generic 1	
Version. Generic 💡	
Cancel Back Forward	

7. Select the memory size of RAM (in MB) and the number of central processing units (CPUs) for the virtual machine, and click Forward.

FIGURE 17 New VM Dialog Box Step 3

Virtual Machine Manager	×
File Edit View Help	
📫 📄 Open 📄 🔟 🙋 👻	
Name New VM 🛞	
local Create a new virtual machine Step 3 of 4	
Choose Memory and CPU settings	
Memory (RAM): 4096 🗘 MB	
Up to 15929 MB available on the host	
CPUs: 4	
Up to 4 available	
Cancel Back Forward	

8. Select Customize configuration before install, and click Finish.

FIGURE 18 New VM Dialog Box Step 4

Virtual Machine Manager	3
File Edit View Help	
🔛 💭 Open 📄 🚺 🗸	
Name New VM 8	
Create a new virtual machine	
Ready to begin installation of <b>VRIOT-KVM</b> OS: Generic Install: Import existing OS image Memory: 4096 MB CPUs: 4 Storage: 1.2 GB /home/vriot-qa-2/Desktop/vriot-937a.offline-upgrade	
<ul> <li>Customize configuration before install</li> <li>Specifying an operating system is required for best performance</li> <li>Advanced options</li> <li>Cancel Back Finish</li> </ul>	

#### NOTE

Recommended clock speed is 3.1Ghz.

The RUCKUS IoT Controller installation on the virtual manager begins.

9. After the installation has completed, open the Virtual Machine Manager. Select **Disk** in the left pane and information about the disk is displayed. Expand **Advanced options** and ensure that the disk bus is **IDE** and the storage format is **qcow2**.

FIGURE 19 Virtual Disk Configuration

<ul> <li>Boot Options</li> <li>Disk 1</li> <li>NIC :27:3e:10</li> <li>Input</li> <li>Display VNC</li> <li>Sound: default</li> <li>Console</li> <li>Video Default</li> </ul>	Storage size: 1.18 GB Readonly: Shareable: V Advanced options Disk bus: DE Serial number: Storage format: performance options Porformance options IO Tuning Tip: 'source' refers to information seen from the host OS, while 'target' refers to information seen from the guest OS

Installing a KVM Guest Using Virtual Machine Manager

10. Select **Boot Options** in the left pane. Ensure that **Start virtual machine on host boot up** and **Enable boot menu** are selected. Select **Hard Disk** and click **Apply**.

FIGURE 20 Boot Options Configuration

Autostart	
Boot device order	
	Boot device order Enable boot menu Hard Disk COROM Floppy ty Network (PXE)

11. Log in to the RUCKUS IoT Controller using the username and password.

FIGURE 21 RUCKUS IOT Controller Login Prompt

VRIOT-KVM Virtual Machine	
File Virtual Machine View Send Key	
Ruckus IoT Controller	
uriot login: _	

12. Enter **1** in the **Enter Choice** field to get the IP address of the virtual machine.

This information is needed to access the RUCKUS IoT Controller Initialization page.

FIGURE 22 Displaying the IP Address

2 - System Det	etwork ails
3 - NTP Settin	
4 - System Ope	
5 - N+1	
5 - Comm Debug	ger
4 - Log Off	
Inter Choice:	1
Jetwork info .	
Network info :	
	: 10.174.112.79/23
IP (eth0)	
IP (eth0)	: 10.174.112.79/23 : 10.174.112.1
IP (eth0) Gateway	: 10.174.112.79/23 : 10.174.112.1 : vriot
Gateway Hostname	: 10.174.112.79/23 : 10.174.112.1 : vriot :
IP (eth0) Gateway Hostname DNS domain FQDN	: 10.174.112.79/23 : 10.174.112.1 : vriot :
IP (eth0) Gateway Hostname DNS domain FQDN	: 10.174.112.79/23 : 10.174.112.1 : vriot : : vriot : 10.42.50.240 10.0.248.1

To configure N+1 on the RUCKUS IoT Controller, enter **5** in the **Enter Choice** field. Refer to "Configuring N+1" in the RUCKUS IoT Controller Configuration Guide to complete this configuration.

13. Open a web browser on your host machine and enter the IP address of the VM in the address bar.

HTTP and HTTPS on ports 80 and 443 are supported.

The Initialization page is displayed.

FIGURE 23 Initialization Page

RUCKUS	IoT Controller IoT API	2.0.0.0.76 Version 16 March 2022 8:18:26 America/Los_Angeles
Initia	lization	
Very Imp	ortant!!!	
Please rea	ad before proceeding.	
subscription	T Release we have changed the licensing scheme to a subscription model based on number of IoT devices. Previous licenses cannot be applied to this version of the IoT controller. Please have the ne license(s) ready before proceeding with the deployment of the controller and migration from older release. There is a 90 day trial period (no purchase required for trial) which has no restrictions on fea num. The devices will go into a decommissioned state at the end of the 90 day trial period if valid subscriptions are not applied by then.	
🗆 I agree to	o the terms and conditions stated above	
		Next

14. Select the required services and click Next.

### FIGURE 24 Inital VM and IP Configurations

/M Configurations			IP Configurations		
Hostname admin			DHCP 📀	Static 🔿	
Time Zone					
America/Los_Angeles					
Set Time Automatically using NTP 📀	Set Time Manually i	0			
NTP Address	Default : ntp.ubuntu.com	(Optional)			

15. Confirm the configuration information and click Next.

The RUCKUS IoT ControllerInitialization page is displayed.

FIGURE 25 Confirming the Password

Initialization				
	New Password	Enter password	Show	
	Confirm Password	Retype password	Show	
Back				Start

- 16. Enter a new password and re-enter the new password in the **Confirm Password** field. Click **Start**.
- 17. The End-user License Agreement page is displayed. Click Accept to accept the RUCKUS IoT Controller license.

FIGURE 26 End-user License Agreement Page

TRUCKUS I IOT Cor	Niröllige för API	1,5,0,0,19 Version 16 December 2019 4:27:49 America/Lec_Angeles
Initializ	End-user License Agreement	
Encennew page	Ruckus IoT Controller (RIoT Controller) Software License	
	PLEASE READ THIS SOFTWARE LICENSE CAREFULLY. RUCKUS WIRELESS, INC. ("RUCKUS") IS WILLING TO LICENSE THE SOFTWARE TO YOU ("LICENSEE") ONLY ON THE CONDITION THAT THE LICENSEE ACCEPTS ALL OF THE FOLLOWING TERMS AND CONDITIONS. IF A USER ACCEPTS THIS LICENSE, OR DOWNLOADS, USES OR INSTALLS THE SOFTWARE, AS AN EMPLOYEE OF, OR AS AN AGENT OR CONTRACTOR FOR THE BENEFIT OF, A COMPANY, THAT COMPANY SHALL BE DEEMED THE LICENSEE AND THE USER REPRESENTS THAT IT HAS THE POWER AND AUTHORITY TO ACCEPT THIS AGREEMENT ON BEHALF OF THE COMPANY. BY DOWNLOADING, INSTALLING AND/OR USING THE SOFTWARE, LICENSEE ACKNOWLEDGES THAT IT HAS READ THIS LICENSE AND AGREES TO BE DOUND BY ITS TERMS AND CONDITIONS. IF LICENSEE ACKNOWLEDGES THAT IT HAS READ THIS LICENSE, RUCKUS IS UNWILLING TO LICENSE THE SOFTWARE. IN THAT EVENT, LICENSEE MAY NOT DOWNLOAD, USE OR INSTALL THE SOFTWARE AND SHALL BE GIVEN A FULL REFUND OF ANY LICENSE FEES ACTUALLY PAID FOR THE SOFTWARE.	
	1) Definitions "Device" means a single Ruckus access point on Licensee's network. "Documentation" means the published technical manuals, including any updates thereto, relating to the use of the Software made generally available by Ruckus. "Evaluation Term" means the limited period of time following Licensee's initial download of the Software during which Licensee is permitted to use the Software without placing an Order; provided, that the Evaluation Term is subject to early termination as provided in this agreement. "Software" means a copy of a machine executable version of a Ruckus software product that Ruckus makes available to Licensee for download onto equipment owned or controlled by Licensee, and any error corrections, updates or upgrades of such software product that Ruckus makes available to Licensee. "Order" means one or more ordering documents or transactional records in the form required by Ruckus from Licensee (or a Ruckus Channel Partner for the benefit of Licensee) to activate the Software or increase the Authorized Device Limit. "Ruckus Channel Partner" term	Ser
	Close	

You are ready to configure and start the RUCKUS IoT Controller services. Refer to the RUCKUS IoT Controller Configuration Guide for more information.

# **Installing RUCKUS IoT Controller on Hyper-V**

The RUCKUS IoT Controller can be installed on Hyper-V using a VHD file.

## **Installing Hyper-V**

- 1. Extract the VMDK file from the .OVA file using a zip extractor application such as 7-Zip, WinZip, WinRAR, and so on.
- 2. Convert the VMDK to VHD using a tool such as StarWind V2V Converter or QEMU disk image utility for Windows.
- From the Windows 10 Start menu, enter Settings, and press Enter. The Windows Settings page is displayed.
- 4. Click Apps, and select Apps and Features.
- Under Related settings, select Programs and Features. The Uninstall or change program page is displayed.
- 6. Select Turn Windows Features on or off.

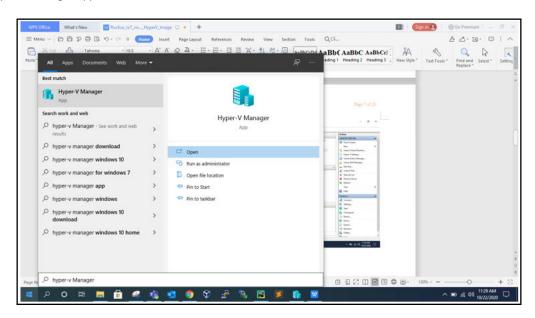
FIGURE 27 Windows Features

i unit v	vindows features on or off			-
	feature on, select its check box. To turn a feature box means that only part of the feature is turned of		r its check	t box.
	Data Center Bridging			-
H 🗌	Device Lockdown			
	Guarded Host			- 14
⊞ 🔽 📜	Hyper-V			
	Internet Explorer 11			
± 🗍	Internet Information Services			
	Internet Information Services Hostable Web Con	re		
± 🗌 📕	Legacy Components			
± 🔽 📜	Media Features			
± 🗍	Microsoft Message Queue (MSMQ) Server			
	Microsoft Print to PDF			
	Microsoft XPS Document Writer			
±	MultiPoint Connector			
H 🔳 📜	Print and Document Services			
	RAS Connection Manager Administration Kit (Cl	MAK)		
	Remote Differential Compression API Support			
	RIP Listener			~

7. Select Hyper-V, and click OK.

8. From the Windows 10 Start menu, enter Hyper-V Manager, and press Enter.

FIGURE 28 Hyper-V Manager App



9. Click Open.

The Hyper-V Manager page is displayed.

Click the Hyper-V host computer name in the left pane, and select Virtual Switch Manager from the Actions list in the right pane.
 The Virtual Switch Manager dialog box is displayed.

FIGURE 29 Creating Virtual Switch

Hyper-V Manager			_	- 0	$\times$
File Action View Help	Strual Switch Manager for DESKTOP-BE8	7LBE — 🗆 🗙			
🗢 🔿 🙍 🖬 🛛 🖬	I				
📰 Hyper-V Manager	Virtual Switches     New virtual network switch	2 Create virtual switch		Actions	
DESKTOP-BE87LBE	🗄 🚜 New Virtual Switch	What type of virtual switch do you want to create?		DESKTOP-BE87LBE	<b>^</b> ^
Name	Internal only	External	ıfigurati	Quick Create	
Ruckus	Internal only	Private		New	
- Ruckus	Jefault Switch     Default Network			Import Virtual Machine	
🖥 Ruckus	Global Network Settings			Hyper-V Settings	
	MAC Address Range	Create Virtual Switch		Virtual Switch Manager	
	00-15-5D-B1-8E-00 to 00-15-5D-8	Creates a virtual switch that binds to the physical network adapter so that virtual		🛃 Virtual SAN Manager	
Checkpoir		machines can access a physical network.			
Checkpoil			G	Inspect Disk	
				Stop Service	
				× Remove Server	
				C Refresh	
				View	•
				🛛 Help	- 1
				Ruckus_3	-
				📲 Connect	
Ruckus 3				Settings	
				🕑 Start	
				🔂 Checkpoint	
				> Revert	
				Move	
				Export	
	1			🗐 Rename	
Summary		OK Cancel Apply		🛃 Delete	

- 11. Select the type of virtual switch (External, Internal or Private), click Create Virtual Switch, and click OK. . The Virtual Switch Properties dialog box is displayed.
- 12. In the Name field, enter the name of the virtual switch. You can enter additional information in the Notes field.

13. Under Connection type, select External network, Internal network, or Private network. If you select External network, select the type of network adapter you want to use, and select the Allow management operating systems to share the network adapter check box.

💠 🔿 🖄 📆 🖬 🖬		Virtual Switches     New virtual network switch	🙏 Virtual Switch Properties		Actions	_
DESKTOP-BE87LBE	Virtual Ma	🗈 🚜 New Virtual Switch	Name:		DESKTOP-BE87LBE	
	Name Ruckus	Internal only	Virtual Switch Demo	ifigurati	Quick Create	
	Ruckus	Internal only	Notes:		New	
	Ruckus	Default Switch Default Network	^		🔁 Import Virtual Machine	
	Ruckus	🗷 📲 New Virtual Switch	· · · · · · · · · · · · · · · · · · ·		Hyper-V Settings	
		Intel(R) Dual Band Wireless-A	Connection type		Virtual Switch Manager	
		Intel(R) Dual Band Wireless-A	What do you want to connect this virtual switch to?		Virtual SAN Manager	
	Checkpoin	Global Network Settings     MAC Address Range	External network:	•	🚅 Edit Disk	
	8 🔂 A	00-15-5D-81-8E-00 to 00-15-5D-8	Inte(R) Dual Band Wireless-AC 3168		Inspect Disk	
	- L -		Allow management operating system to share this network adapter		Stop Service	
			O Internal network		X Remove Server	
			O Private network		O Refresh	
			VLAN ID		View	•
			Enable virtual LAN identification for management operating system		Help	
			The VLAN identifier specifies the virtual LAN that the management operating system will use for all network communications through this network adapter. This		Ruckus_3	*
			setting does not affect virtual machine networking.		Connect	
	Ruckus_3		2		Settings	
			Remove		Start	
			Kenove		B Checkpoint	
					> Revert	
					Move	
					Export	
		1			Rename	
	Summary		OK Cancel Apply		Delete	

FIGURE 30 Selecting the Network

14. Click Apply.

### **Creating a New Virtual Machine**

- 1. After installing Hyper-V on your computer, you can create new virtual machine. To create Virtual Machine, type Hyper-V Manager in the search box situated on the taskbar below and press ENTER.
- 2. From the Windows 10 Start menu, enter Hyper-V Manager, and press Enter.

The Hyper-V Manager page is displayed.

3. Click Action tab, select New > Virtual Machine.

The New Virtual Machine Wizard is displayed. You must complete each of the virtual machine configuration options through the wizard.

4. Under **Specify Name and Location**, in the **Name** field, enter the name of the VM. Either store the VM in the default location or select the **Store the virtual machine in a different location** check box, and click **Browse** to select a different location.

FIGURE 31 Specify Name and Location Wizard Page

Assign Memory       Name:       New Virtual Machine         Configure Networking       You can create a folder or use an existing folder to store the virtual machine. If you don't select a folder, the virtual machine is stored in the default folder configured for this server.         Installation Options       Store the virtual machine in a different location	Specify Nan Before You Begin Specify Name and Location Specify Generation		ual machine. ger. We recommend that you use a name that h e name of the guest operating system or worklow	
Connect Virtual Hard Disk Installation Options Summary C:\ProgramData\Microsoft\Windows\Hyper-V\ Browse If you plan to take checkpoints of this virtual machine, select a location that has enough free	Assign Memory			]
If you plan to take checkpoints of this virtual machine, select a location that has enough free	Connect Virtual Hard Disk	folder, the virtual machine is stored in th	ne default folder configured for this server.	n't select a
	Summary	Location: C:\ProgramData\Microsoft\W	/indows\Hyper-V\	Browse
			< Previous Next > Finish	Cancel

6. Under **Specify Generation**, select **Generation 1** or **Generation 2**. It is recommended to select **Generation 1**, because Generation 1 VMs support 32-bit and 64-bit guest operating systems and BIOS-based architectures.

FIGURE 32 Specify Generation Wizard Page

🖳 New Virtual Machine Wiza	rd ×
💴 Specify Gene	eration
Before You Begin Specify Name and Location Specify Generation Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	<ul> <li>Choose the generation of this virtual machine.</li> <li></li></ul>
	< Previous Next > Finish Cancel

8. Under Assign Memory, in the Startup memory field, enter the amount of memory that will be assigned to the VM (4096 MB as it is minimum RAM required for RUCKUS IoT controller). Select the **Use Dynamic Memory for this virtual machine** check box to save memory.

FIGURE 33 Assign Memory Wizard Page

🖳 New Virtual Machine Wiza	d	×
📒 🛛 Assign Memo	ory	
Before You Begin Specify Name and Location Specify Generation	Specify the amount of memory to allocate to this virtual machine. You can specify an amount from 32 MB through 12582912 MB. To improve performance, specify more than the minimum amount recommended for the operating system. Startup memory: 4096 MB	!
Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	<ul> <li>Use Dynamic Memory for this virtual machine.</li> <li>When you decide how much memory to assign to a virtual machine, consider how you intend to use the virtual machine and the operating system that it will run.</li> </ul>	
	< Previous Next > Finish Cancel	

10. Under **Configure Networking**, select the connection that will be used when connecting the VM to the network. If you have not created a virtual switch earlier, select **Not Connected**.

### NOTE

Use the default switch for the internal network, and use a different virtual switch with an external network.

FIGURE 34 Configure Networking Wizard Page

📃 New Virtual Machine Wiza	rd	×
Configure N	etworking	
Before You Begin Specify Name and Location Specify Generation	Each new virtual machine includes a network adapter. You can virtual switch, or it can remain disconnected. Connection: Not Connected Not Connected	configure the network adapter to use a
Assign Memory	Default Switch	
Configure Networking Connect Virtual Hard Disk Installation Options Summary	Virtual Switch Demo	
	< Previous Next	> Finish Cancel

12. Under Connect Virtual Hard Disk, select Use an existing virtual hard disk to attach an existing virtual hard disk in VHD or VHDX format, and click Browse to select the location of the virtual hard disk.

FIGURE 35 Connect Virtual Hard Disk Wizard Page

	tual Hard Disk	
Before You Begin Specify Name and Location Specify Generation Assign Memory	A virtual machine requires storage so that you can install an operating system. You can storage now or configure it later by modifying the virtual machine's properties. Create a virtual hard disk Use this option to create a VHDX dynamically expanding virtual hard disk.	specify the
Configure Networking	Name: New Virtual Machine.vhdx	
Connect Virtual Hard Disk	Location: C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks\	
Summary	Size: 127 GB (Maximum: 64 TB)	
	<ul> <li>Use an existing virtual hard disk</li> <li>Use this option to attach an existing virtual hard disk, either VHD or VHDX format.</li> </ul>	
	Location: F:\Ruckus.vhd	Browse
	<ul> <li>Attach a virtual hard disk later</li> <li>Use this option to skip this step now and attach an existing virtual hard disk later.</li> </ul>	

13. Click Finish.

14. Open the VM in Hyper-V Manager and from the Actions list in the right pane, click Settings. Confirm the displayed VM configuration settings such as number of PROCESSOR is 4, RAM size is 4096 MB, and HDD size is 20 GB, click Apply, and click OK.

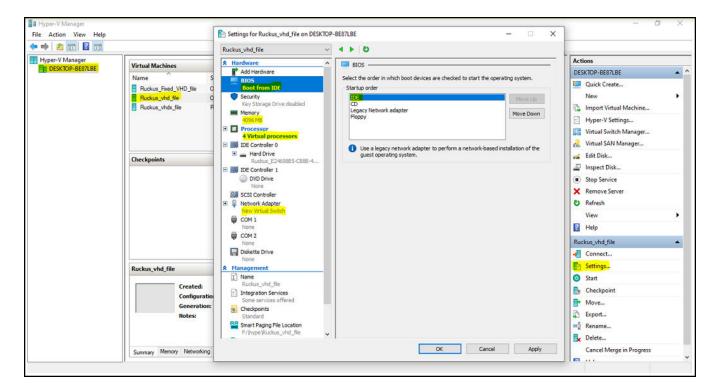


FIGURE 36 Confirming the VM Settings

### NOTE

If you open the VM in Hyper-V Manager and a black screen is displayed, press **Ctrl+Alt+End** or **Ctrl+Alt+Delete** after a restart until the boot screen is no longer visible.

### FIGURE 37 Appearance of Black Screen

🖳 Ruckus_vhd_fil	le on DESKTOP-BE87	LBE - Virtu	al Machine Connection		_	×
File Action	Media Clipboard	View	Help			
<mark> 🕒 🕲 </mark>	🕘   II IÞ   🔂	5 🖳				

### **Upgrading the Software**

# Upgrading the AP Firmware Using SmartZone 100 or Virtual SmartZone Controller

You can upgrade the existing AP firmware using a SmartZone 100 controller or Virtual SmartZone.

Always back up the controller before attempting a software upgrade. If you are managing a multi-node cluster, back up the entire cluster, and then verify that the backup process has completed successfully. If you have an FTP server, back up the entire cluster and upload the backup files from all the nodes in a cluster to a remote FTP server.

### NOTE

RUCKUS strongly recommends backing up the SmartZone 100 controller cluster before performing an upgrade. If the upgrade process fails for any reason, you can use the latest backup file to restore the controller cluster.

#### NOTE

Before beginning the upgrade, you must obtain a valid controller software upgrade file from RUCKUS Support or an authorized RUCKUS reseller.

- 1. Copy the software upgrade file that you received from RUCKUS to the computer where you are accessing the controller web interface or to any location on the network that is accessible from the web interface.
- 2. From the SmartZone 100 user interface, click Administration > Upgrade.

### FIGURE 38 SmartZone 100 User Interface

SmartZene 100	1	VRIOTQA-CLST C Filter default	o admin Ø
Dashboard	Upgrade Upgrade History AP Patch		
System 🕨	Current System Information		W
Access Points	Controller Version 3.6.1.2.13022		
Wireless LANs	Control Plane Software Version         3,6,1,2,13001           Data Plane Software Version         3,6,1,0,40		
Clients >	AP Firmware Version 3.6.1.2.13022		
Applications	Upload		w.
Services & Profiles 🕨 🕨	Run Pre-Upgrade Validations (It will take a few minutes to check if the system has sufficient resources to complete the upgrade) Upload the patch file (".ximg) that you want to use to upgrade the controller.     Browse		
Report	2. Upload		
Traubleshooting	Patch for Pending Upgrade		
Administration 🔻			
Admins and Roles			
Backup & Restore			
Upgrade			

Upgrading the AP Firmware Using SmartZone 100 or Virtual SmartZone Controller

3. Select the **Upgrade** tab.

Under Current System Information, the controller version information is displayed.

#### NOTE

The Upgrade History tab displays information about previous cluster upgrades.

4. Under **Upload**, select **Run Pre-Upgrade Validations** to verify if the data migration was successful. This option allows you to verify data migration errors before performing the upgrade.

### NOTE

You can still upgrade even if there are data migration errors.

- 5. Click **Browse** to select the .ximg patch file.
- 6. Click **Upload** to upload the controller configuration to the configuration in the patch file.

The controller uploads the file to its database, and then performs file verification. After the file is verified, the **Patch for Pending Upgrade** section is populated with information about the upgrade file. If data migration was unsuccessful, the following error is displayed:

Exception occurred during the validation of data migration. Please apply the system configuration backup and contact system administrator.

- 7. If the controller configuration upload was successful, perform one of the following steps:
  - Click **Upgrade** to start the upgrade process without backing up the current controller cluster or its system configuration.
  - Click Backup & Upgrade to back up the controller cluster and system configuration before performing the upgrade.

When the upgrade (or backup-and-upgrade) process is complete, the controller logs you out of the web interface automatically. When the controller login page displays again, you have completed upgrading the controller.

8. From the Smartzone 100 user interface, click Access Points.

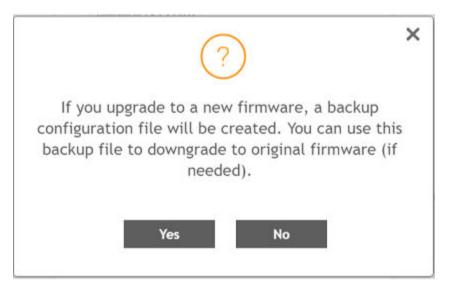
9. Select the zone from the list, click **More**, and select **Change AP Firmware** from the list. The **Change AP Firmware** dialog box is displayed. The current AP firmware version is displayed.

FIGURE 39 Changing the AP Firmware

	=			VRIOTQA-0 2019-04-04 1	alst Stable Stab
Dashboard		Access Points (8) 6 Onlin		×	
System	•	System - Aparna	Change AF I II II ware		
Access Points		+ 🖉 🖄 🗙 More - 🙄 🤇 🖉 Cont	Current AP Firmware 3.6.1.2.13021 Upgrade to 3.6.1.2.13022		search table Q 2 ±
Wireless LANs		- D System 2			Total Traffic (Thr) Clients Latency (2-46) Latency (56) Connec 🔍
Clients	•	+ 🔀 Default Zone + 🔀 Ranganath 🕦			
Applications		+ 🔁 Shriram 📵 + 🔀 Suresh			
Services & Profiles	×				
Report	×				
Troubleshooting					
Administration	•				No data 🚽 3 =
Admins and Roles		General Configuration Health Traffic			A
Backup & Restore					
Upgrade		Name Aparna Type ZONE	Total APs		

10. Click **Upgrade** to upgrade to the new firmware version.

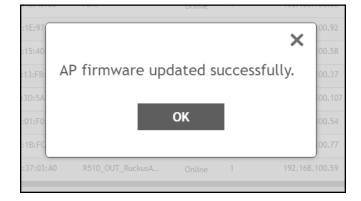
FIGURE 40 Upgrading to New Firmware



Upgrading the AP Firmware Using SmartZone 100 or Virtual SmartZone Controller

11. Click Yes. A confirmation message is displayed stating that the firmware version was updated successfully.

FIGURE 41 Update Successful Confirmation Message



### 12. Click OK.

13. Open the RUCKUS IoT Controller. From the Admin tab, click Versions and Patches.

### FIGURE 42 Uploading an Image

Admin			
Services Plugins Account	Upload Image Upload Patch	Change Version to :	Select v Set
VM Configurations Versions & Patches	Patch list No Patch Available		
DB Backup Reset & Reboot			

- 14. Click **Upload Image** and select the tar.gz image.
- 15. From the Change Version to list, select the image, and click Set.

The RUCKUS IoT Controller is upgraded successfully to the new build.

# Hot Upgrade of IoT Gateway

The "hot upgrade" of the IoT Gateway supports the offline upgrade of an AP IoT bundle from the IoT Controller. If the controller is running a current IoT image, the system makes sure the IoT version of the APs is upgraded or downgraded to match the current system image. If there is any IoT version mismatch between the AP and the controller, a warning message is displayed on IoT AP page.

You can observe the offline upgrade of an AP in the following manner.

1. From the main menu, click IoT APs.

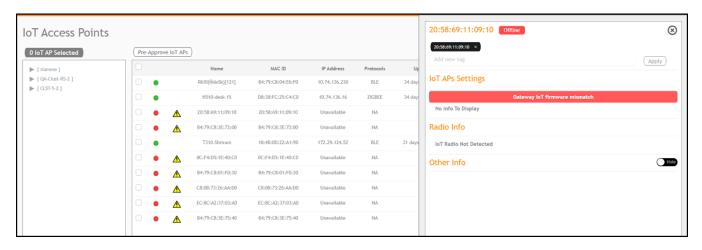
The IoT Access Points page is displayed.

2. Select an IoT AP.

### NOTE

If there is any IoT version mismatch between the AP and the controller, the following warning message is displayed: "Gateway IoT firmware mismatch".

#### FIGURE 43 Viewing IoT APs



3. From the main menu, click **Events** to learn more about the warning message.

### FIGURE 44 Displaying Events

Events				
Time	AP MAC	ID	Event	(Download) (Clear) ( Message
2020-04-14 00:29:37.814848	20:58:69:38:87:10	2	vSZ Link Status	Reboot of AP
2020-04-13 10:46:40.192613	84:79:C8:04:E6:F0	6	Upgrade	Controller version 1.5.0.1.20 supports AP iot firmware version 1.5.0.1.15026, Gateway B4:79:C8:04:E6:F0 is in iot firmware version 1.4.0.0.1412 - Send upgrade.
2020-04-13 10:30:33.739043	0C:F4:D5:1E:97:D0	6	Upgrade	Controller version 1.5.0.1.20 supports AP iot firmware version 1.5.0.1.15026, Gateway 0C:F4:D5:1E:97:D0 is in iot firmware version 1.5.1.0.15026 - Upgrade controller or Downgrade Gateway
2020-04-13 10:25:32.938952	0C:F4:D5:1E:97:D0	6	Upgrade	Controller version 1.5.0.1.20 supports AP lot firmware version 1.5.0.1.15026, Gateway 0C:F4:D5:1E:97:D0 is in lot firmware version 1.5.1.0.15026 · Upgrade controller or Downgrade Gatew
2020-04-13 10:25:32,886309	0C:F4:D5:1E:97:D0	6	Upgrade	Controller version 1.5.0.1.20 supports AP iot firmware version 1.5.0.1.15026, Gateway 0C:F4:D5:1E:97:D0 is in iot firmware version 1.5.1.0.15026 - Upgrade controller or Downgrade Gateway
2020-04-13 10:25:32.811405	0C:F4:D5:1E:97:D0	6	Upgrade	Controller version 1.5.0.1.20 supports AP lot firmware version 1.5.0.1.15026, Gateway 0C:F4:D5:1E:97:D0 is in lot firmware version 1.5.1.0.15026 · Upgrade controller or Downgrade Gatew
2020-04-13 10:25:32.287729	0C:F4:D5:1E:97:D0	6	Upgrade	Controller version 1.5.0.1.20 supports AP lot firmware version 1.5.0.1.15026, Gateway 0C:F4:D5:1E:97:D0 is in lot firmware version 1.5.1.0.15026 · Upgrade controller or Downgrade Gatew
2020-04-13 10:24:25.458678	20:58:69:38:87:10	5	Radio Message Delivery Falled	7C:B0:3E:AA:00:A4:5C:39 is not responding for command Wowe to Hue(direction 2,3)*
2020-04-13 10:24:24.949327	20:58:69:38:87:10	5	Radio Message Delivery Failed	7C:B0:3E:AA:00:A4:5C:39 is not responding for command Move to Hue{direction 2,3)*
2020-04-13 10:24:24.510535	20:58:69:38:87:10	5	Radio Message Delivery Failed	7C:B0:3E:A4:00:A4:5C:39 is not responding for command 'Nove to Hue(direction 2,3)'
2020-04-13 10:24:23.961998	20:58:69:38:87:10	5	Radio Message Delivery Failed	7C:B0:3E:A4:00:A4:5C:39 is not responding for command 'Nove to Hue{direction 2,3)'
2020-04-13 10:24:23.461032	20:58:69:3B:B7:10	5	Radio Message Delivery Failed	7C:B0:3E:A4:00:A4:5C:39 is not responding for command 'Move to Hue(direction 2,3)'
2020-04-13 10:24:22.948703	20:58:69:38:87:10	5	Radio Message Delivery Failed	7C:80:3E:AA:00:A4:5C:39 is not responding for command 'Move to Hue[direction 2,3]'

## **Deploying the APs**

•	Connecting a Set of IoT APs Using a Grouping Method	5	3
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### **Connecting a Set of IoT APs Using a Grouping Method**

There are two methods to determine which set of IoT APs to connect with the IoT Controller:

- Isolate the IoT APs and non-IoT APs at Layer 2 (VLAN) or Layer 3 (IP) subnets. In this case, DHCP option 43 suboption 21 can be configured for networks with APs meant to connect with a particular IoT Controller. The syntax of suboption 21 is the same as suboption 6 for the Wi-Fi Controller.
- If network topology cannot be used for grouping, e.g., as a result of customer's network topology policies, the second method to use is static configuration method:

### NOTE

Running set-iotg-mqtt-broker ip cli script is not recommended for the AP's already connected to the IoT controller.

- Disable IoT processes on all APs.
- Enable IoT processes only on IoT-enabled APs.
- Set the IoT Controller IP address on the IoT-enabled APs.

The static configuration method can be accomplished using a vSZ AP CLI script. For example, in vSZ, you create a zone for the group of IoT-enabled APs that you want to connect to a particular IoT Controller. You then apply the vSZ AP CLI script to the zone that enables IoT (set iotg-enable 1) and set the IoT Controller IP address with the set iotg-mqtt-brokerip ip-address command.

### Managing a License

### **Activating a License**

RUCKUS IoT Controller is a licensed product. The license model is based on a subscription. After purchasing RUCKUS IoT Controller, you are provided with a trial license that is valid for 90 days. You must purchase a subscription license based on your requirements before the expiration of the trial license. After purchasing RUCKUS IoT Controller, an email message is sent to you containing an activation code. Clicking the activation code directs you to the RUCKUS Support website. After the code is validated and attached to a device (the IoT Controller serial number), the license can be downloaded from the website.

### NOTE

For more information on licensing, refer to the RUCKUS IoT Controller Software Licensing Guide, 2.0.0.0

Complete the following steps to activate the license.

### NOTE

N+1 standby requires a separate Core license (similar to RUCKUS IoT Controller 1.8.x). No additional feature or Device Capacity licenses need to be purchased. The RUCKUS IoT Controller will allow unlimited device capacity on the standby controller for 30 days after a failover. You can onboard new devices in the N+1 setup, but you must ensure valid device capacity subscriptions when the controller switches back to the primary.

- 1. Click the activation code in the activation email message. You are redirected to the RUCKUS Support website (support.ruckuswireless.com). Log in to the website using your credentials.
- 2. Click Activate Purchase. The Activating Your Support Contact & License Code page is displayed. In the Code field, enter your activation code, and click Validate.

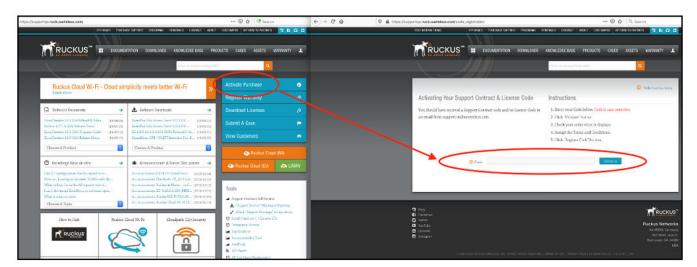


FIGURE 45 Validating the License Code

3. After the successful validation of the license code, accept the Terms and Conditions, and click Activate Purchase.

FIGURE 46 Activating Your Support Contract and License Code

0 🔒 https://supportqs.ruckuswireless.com	vhegister_code/RTU-00683528-YAK-FAT-GUM	🗵 🏠 🧟 Search	
EDIT INSTRUCTIONS	FEEDBACK PURCHASE SUFFORT PROGRAMS	PENEWALS CONTACT ABOUT CLISTOMERS HETLIGH TO PARTNER 😨 🕄 🖸	
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You should have receive an email from support.r	d a Support Contract code and/or License Code is uckuswireless.com.	I. Enter your Code below, Code to case sensitive.     Olick "Validate" button	
10. IS		3. Checz your order when it displays.	
		<ol> <li>Accept the Terms and Conditions.</li> <li>Click "Register Code botton.</li> </ol>	
You are about to to fix the purchas		w. If this is correct, proceed. If not, please call Support	
Please Review TI	ne Order		
Click the 'Activate Furch	ase' button at the bottom of the page		
Oty Right To	Use Product Code	Description	
1 L09-INT1	-WW00	Virtual Appliance (vRIo <sup>+</sup> ), 1 instance	
A Arrest Terms and Co booking accept, y Refusible Processor Cancel	editions in benery acknowledge and agree to the following	Terms and Conditions	

- 4. Obtain the RUCKUS IoT Controller serial number in one of two ways:
  - Obtain the RUCKUS IoT Controller serial number using the RUCKUS IoT Controller console.
    - a. Log in to the console of RUCKUS IoT Controller.
    - b. In the RUCKUS IoT Controller Main Menu, enter 2 in the Enter Choice field to get the system details.

FIGURE 47 RUCKUS IoT Controller Main Menu

****************
Ruckus IoT Controller
Main Menu
**********************
<pre>1 - Ethernet Network 2 - System Details 3 - NTP Setting 4 - System Operation 5 - N+1 6 - Comm Debugger x - Log Off</pre>
Enter Choice: 2
System Details :
Date & Time : Fri Jan 17 17:43:52 PST 2020
Serial : 103VKDUDSV3PD0UGT1C1LE6KXK2A
Version : 1.5.0.0.17

• To obtain the RUCKUS IoT Controller serial number using the RUCKUS IoT Controller user interface, refer to the section "Uploading the RUCKUS IoT Controller License" in the RUCKUS IoT Controller Configuration Guide.

5. On the Associating Your License With Your Product page, enter the RUCKUS IoT Controller serial number, and click Validate Serial Number to activate the license.

FIGURE 48 Associating the License with the Product

<u>م</u>			
	DOCUMENTATION DOWNLOADS	KNOWLEDGE BASE PRODUCTS CASES	ASSETS WARRANTY
		What do you need help with?	٩
Please apply your license to an	asset.		
	#1		
			<ol> <li>Hide Instructions</li> </ol>
Associating Your L	icense With Your Product	Instructions	
this is completed, you will 15 minutes to generate th	can now apply your license to your product. Once the able to download your license. It may take the binary license file. If your license is a Right-To- ill be available immediately.	2. Click "Validate Serial Number" button.	
VALIDATE YOUR DEVICE			
	with Serial Number   10G6GQJ7XP21HXT0BC	RFF7W97W4A Validate	Serial Number
	with Serial Number   10G6GQJ7XP21HXT0BC	REF7W97W4A Validate	e Serial Number
	with Serial Number 10G6GQJ7XP21HXT0BC	REF7W97W4A Validate	Serial Number
		REF7W97W4A Validate	Serial Number

After successful validation, the registration page is displayed.

6. Select the P01-INT1-WW00 device model number and click **Register Device & Bind To Right To Use**.

FIGURE 49 Registering the Device

CC (C an ARRIS company	S KNOWLEDGE BASE PRODUCTS CASES ASSETS WARRANTY
	What do you need help with?
Please apply your license to an asset.	
	① Hide Instructions
Associating Your License With Your Product	Instructions
Your license is valid. You can now apply your license to your product. Or	nce 1. Enter the serial number of your product below.
this is completed, you will be able to download your license. It may take	
15 minutes to generate the binary license file. If your license is a Right- Use or Smart License, it will be available immediately.	To- 3. Follow additional instructions.
Step 2 Of 2	
REGISTER YOUR DEVICE	
REGISTER YOUR DEVICE Select Device Model	
<ul> <li>Select Device Model.</li> <li>Click Register Device &amp; Bind To Right To Use' Button.</li> </ul>	
Select Device Model.	
<ul> <li>Select Device Model.</li> <li>Click Register Device &amp; Bind To Right To Use' Button.</li> <li>Once registered, your right to use will be bound to this device.</li> </ul>	
<ul> <li>Select Device Model.</li> <li>Click Register Device &amp; Bind To Right To Use' Button.</li> </ul>	Register Device & Bind To Right To Usa or
<ul> <li>Select Device Model.</li> <li>Click Register Device &amp; Bind To Right To Use' Button.</li> <li>Once registered, your right to use will be bound to this device.</li> </ul>	
<ul> <li>Select Device Model.</li> <li>Click Register Device &amp; Bind To Right To Use' Button.</li> <li>Once registered, your right to use will be bound to this device.</li> </ul>	es Admin SKU
<ul> <li>Select Device Model.</li> <li>Click Register Device &amp; Bind To Right To Use' Button.</li> <li>Once registered, your right to use will be bound to this device.</li> </ul>	es Admin SKU
<ul> <li>Select Device Model.</li> <li>Click Register Device &amp; Bind To Right To Use' Button.</li> <li>Once registered, your right to use will be bound to this device.</li> </ul>	es Admin SKU
<ul> <li>Select Device Model.</li> <li>Click 'Register Device &amp; Bind To Right To Use' Button.</li> <li>Once registered, your right to use will be bound to this device.</li> </ul>	es Admin SKU

Your license information is displayed.

FIGURE 50 License Information

	icense_upgrade/RTU-00683528-YAK-FAT	-GUM ***	図 ☆ ○ ペ Search	
	FEEDBACK PURCHASE SUPPORT PROGRA	MMS RENEWALS CONTACT ABOUT CUSTOME	IS RETURN TO PARTNER 🔽	ff 🗹 in
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License added to serial number.				
	111			
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License Info			w	
Product Name Virtu	al Appliance (vRIoT), 1 instance	Tags:	Ψ.	
Product Name Virtu. Product Code L09-IN	••			
Product Name Virtu Product Code L09-IN	7T1-WW00	Tags: License Status Active		
Product Name Virtu. Product Code L09-IN License Code RTU-00 AP Count 1.0	FT1-WW00 0683528-YAK-FAT-GUM	Tags: License Status Active	CRFF7W97W4A	
Product Name Virtu. Product Code L09-IN License Code RTU-00 AP Count 1.0	FT1-WW00 0683528-YAK-FAT-GUM	Tags: License Status Active Bound To 10G6GQJ7XP21HXT0F	CRFF7W97W4A	

7. Return to the RUCKUS Support website (support.ruckuswireless.com), and click LiMAN.

FIGURE 51 Accessing Smart License Manager (LiMAN)

🐨 🚔 https://supportgs.ruckuswireless.com		🖾 🕁	
FFEDRACK PURCHAS	SE SUPPORT PROSEAMS RENEWALS CONTACT ABOUT	CUSTOMERS RETURN TO PARTNER 🧏 🖪 🖬 🖻	
	TATION DOWNLOADS KNOWLEDGE BASE PRO	DUCTS CASES ASSETS WARRANTY 1	
Ruckus Cloud Wi-Fi - Cloud sim	plicity meets better Wi-Fi 🛛 📎	Activate Purchase 🥏	
Learn more		Register Warranty 🥔	
<ul> <li>Technical Documents</li> </ul>	🛃 Software Downloads 🛛 🔿	Download Licenses Ø	
ZoneDirector 10.3 (GA Refresh1) Relea (19/09/06) Ruckus foT 1.4 (GA) Release Notes (19/07/29)	ZoneFlex Solo Access Point 112.1.0.0 (19/09/11) ZoneFlex Solo Access Point 112.1.0.0 (19/09/21)	Submit A Case 📁	
ZoneDirector 10.3 (GA) Upgrade Guide (19/07/10) ZoneDirector 10.3 (GA) Science Notes (19/07/18)	2D1200 10.1.2.0.251 (MR2 Scfresh2) So (19/05/77) SmartZone GPB / MQTT Interface Test S (19/05/02)	View Customers 🛛 🛤	
Choose A Product	Choose A Product	Ruckus Cloud (NA)	
Ø Knowledge Base Articles →	& Announcements & Forum Discussions →	👁 Ruckus Cloud (EU) 🛛 🔿 LIMAN	
Can 2D configuration files be copied to ot How can I configure dynamic VIANs with the	Security Notice 20191224 ZoneDirect (JINSV13734) Announcement: Cloudpath CP_ES 5.6.4 (JINSV13734)		$\sim$
What to look for in the AP support info 2 I can't download ZoneDirector software upd	Announcement: Ruckas at Home - on S., (2019/12/13) Announcement: ZD 9.12.3.0.136 (MR3 ., (2019/12/12)	Tools	
What is isolated mesh Chaose A Topic	Announcement: Rackus ICX FI (8,0.90 (2019/11/22) Announcement: Rackus Cloud Wi Fi 18 (2019/11/19)	<ul> <li>Support Contract Self Service</li> <li>Support Service Massing or Expiring</li> </ul>	
How to Hub Ruckus Cl	oud Wi-Fi Cloudpath (ES) Security	Obselv Suppor Coverage" on my device     Serial Numbers <> Iscense Ibs     Temporary Iscense	

8. In the Smart License Manager (LiMAN) page, enter the serial number of the controller, and click the Download Licenses button.

### NOTE

The license must be uploaded to the controller.

FIGURE 52 Downloading the License

Image: A control of the second nuclear of the second nucl	//supportqa.ruckuswireless.cr EDIT PAGE	Preedback Purchase support	F PROGRAMS RENEWALS CONTACT		Search O PARTNER 😽 😭 🖬
Smart License Manager (LIMAN)       I Register RuckOS Hardware			DOWNLOADS KNOWLEDGE BASE	PRODUCTS CASES AS	SETS WARRANTY
Has Adequate Smart AP License Support <ul> <li>Mas Adequate SSC AP License Support</li> <li>Smart AP Support Count:</li> <li>SSC AP Support Count:</li> <li>AP Support Count:</li> <li>Smart Devices</li> <li>License Pool</li> <li>Local License Severs</li> <li>Help &amp; FAQs</li> </ul> Chick the serial number to view the device. Click the action icons to configure.   Add Licenses from License form License device offline.   Opwinded License file   RMA Device, vSCG devices are self-serve.   Hardware devices requires support approval.     Discorption   Action   Discorption   Action			What do you need t	nelp vith?	٩
Smart AP License Count: 5680.0       vSZD AP License Count: 14.0       SCI AP License Count: 0.0         Smart AP Support Count: 239.0       vSZD AP Support Count: 4.0       SCI AP License Count: 0.0         Smart AP Support Count: 239.0       vSZD AP Support Count: 4.0       SCI AP License Count: 0.0         Smart AP Support Count: 239.0       vSZD AP Support Count: 4.0       SCI AP License Count: 0.0         Smart Device:       Litemse Pool       Local License Servers       Help & FAQs         Click the serial number to view the device. Click the action icons to configure.       Add licenses from license pool to device       Benove licenses attached to device. License will return to pool.         O Download license file:       Upload license file:       Benove licenses are self-serve. Hardware devices requires support approval.       10G6GQJ77XP21HXT08CRFF7W97W4A         B       Sorial Number:       Description       Action         10C6GGQJ7XP21HXT08CRFF7W97W4A       Virtual Appliance (vRIoT)Series Admin SKU       Ocior 10	Smart Licer	ise Manager (LiMA)	<b>V)</b>	egister RuckOS Hardware	<ul> <li>Use Advanced Portal</li> </ul>
Click the serial number to view the device. Click the action icons to configure. Add licenses from lecense pool to device Remove licenses attached to device. License will return to pool. Download license file to use device offline. Upload license file. RMA Device. v3CG devices are self-serve. Hardware devices requires support approval. LICGGGQJ7XP21HXT0BCR#F7W97W4A Serial Number Description Action LICGGGQJ7XP21HXT0BCR#F7W97W4A Virtual Appliance (vRIoT)Series Admin SKU OCONT	Smart AP License Cou	nt: 5680.0 vSZD	AP License Count: 14.0	SCI AP License Count:	0.0
<ul> <li>Add licenses from license pool to device</li> <li>Remove licenses attached to device. License will return to pool.</li> <li>Download license file to use device offline.</li> <li>Upload license file.</li> <li>RMA Device. VSCG devices are self-serve. Hardware devices requires support approval.</li> <li>10G66QJ7XP21HXT08CRFF7W97W4A</li> <li>Serial Number Description Action</li> <li>10G66QJ7XP21HXT08CRFF7W97W4A</li> <li>Virtual Appliance (vRIoT)Series Admin SKU OCONT</li> </ul>	Smart Devices	🗟 License Pool 🗟 Local License S	iervers 📄 Help & FAQs		
If     Serial Number     Description     Action       10G6GQJ7XP21HXT08CR8F7W87W4A     Virtual Appliance (vRIoT)Series Admin SKU     Ocoortication	<ul> <li>Add licenses from</li> <li>Remove licenses</li> <li>Download license</li> <li>Upload license fit</li> </ul>	n license pool to device attached to device. License will retur e file to use device offline. ie.	m to pool.		
Serial Number Description Action		IXTOBCRFF7W97W4A			
10G6GQJ7XP21HXT0BCR9F7W97W4A Vurtual Appliance (vRIoT)Series Admin SKU OCO B	11				
			No.		
	10G6GQJ7XP21E	IXTOBCRFF7W97W4A	Virtual Appliance (vRIoT)Series	s Admin SKU	Download Licenses



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