SOFTWARE INSTALLATION GUIDE



RUCKUS IoT Controller Software Installation Guide, 2.0.0.0

Supporting IoT Controller Release 2.0.0.0

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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.commscope.com/ruckus and select **Support**.

What Support Do I Need?

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

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

Open a Case

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

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

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

Self-Service Resources

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

- Technical Documentation—https://support.ruckuswireless.com/documents
- Community Forums—https://forums.ruckuswireless.com/
- 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.commscope.com/ruckus .

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 Start menu, click All Programs .
italics	Publication titles	Refer to the RUCKUS Small Cell Release Notes for more information.

Notes, Cautions, and Safety Warnings

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

NOTE

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

ATTENTION

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



CAUTION

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



DANGER

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

Command Syntax Conventions

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

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

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 2.0.0.0 GA

Feature	Description	Location
No new features for this release.	-	
Minor updates	These updates include changing images.	

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.		
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	Refer to Installing RUCKUS IoT Controller on
	Hypervisors.	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 Upgrading the RUCKUS IoT Controller with N+1 Configuration on page 57.

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 RUCKUS 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

vm ware" ESXi"			root@10.137.36.15	✓ I Help ✓ I Q Search ✓
Navigator	🕤 localhost.video54.local - Virtual Machines			
✓ ☐ Host Manage	Treate / Register VM 💣 Console 🕨 Po	ower on 🔲 Power off 🔢 Suspend	d C Refresh 🏠 Actions	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 🛛 🚺	Automation-ubuntu-16.04-installer	🕑 Nor 14.18 GB	Ubuntu Linux (64-bit) Unknown	0 MHz 0 MB
Storage	C Automation-Stage-Server	🕑 Nor 11.55 GB	Ubuntu Linux (64-bit) Unknown	0 MHz 0 MB
> 🧕 Networking 🛛 4	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
	C 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
				4
	Recent tasks			
	Task V Target	 Initiator Queued 	✓ Started ✓ Result	✓ Completed ▼ ✓
	lask V larger		V Started V Result	Completed V

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

1 New virtual machine		
 Select creation type Select OVF and VMDK files Select storage License agreements Deployment options Additional settings Ready to complete 	Select creation type How would you like to create a Virtual Machine? 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.
		Back Next Finish Cancel

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



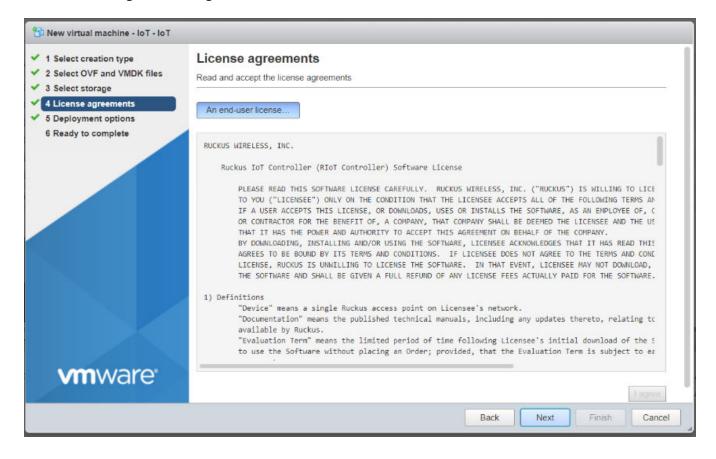
6. Click **Select storage**, and select the datastore in which you want to save the configuration and disk files. Click **Next**.

FIGURE 4 Select Storage Page

Select creation type	Select storage								
Select OVF and VMDK files	Select the datastore in which to store the configuration and disk files.								
Select storage License agreements Deployment options	The following datastores are accessible from virtual machine configuration files and all of t		reso	ource that you	selected.	Sele	ct the destinatio	n datastor	e for t
Ready to complete	Name	- Capacity -	F	Free 🗸	Туре	~	Thin pro v	Access	~
	datastore1	924 GB	8	807.09 GB	VMFS6		Supported	Single	
									tems
								11	tems
vm ware								11	tems

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

FIGURE 5 License Agreements Page



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

FIGURE 6 Deployment Options Page

😚 New virtual machine - IoT - IoT			
 1 Select creation type 2 Select OVF and VMDK files 3 Select storage 	Deployment options Select deployment options		
 4 License agreements 5 Deployment options 6 Ready to complete 	Network mappings	VM Network VM Network	¥
6 Ready to complete	Disk provisioning	Thin Thick	
	Power on automatically		
vmware [.]			
		Back	Finish Cancel

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

FIGURE 7 Ready to Complete Page

	Ready to complete			
2 Select OVF and VMDK files 3 Select storage	Review your settings selection before	ore finishing the wizard		
4 License agreements	Product	vriot		
5 Deployment options 6 Ready to complete	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		
vm ware [*]	Do not refresh your	browser while this VM is being deplo	yed.	

The RUCKUS IoT Controller login prompt is displayed.

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

FIGURE 8 RUCKUS IoT Controller Login Prompt

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

- System Det	ails
- NTP Settin	g
- System Ope	ration
- N+1	
- Comm Debug	ger
- Log Off	
ter Choice: twork info : IP (eth0)	
etwork info : IP (eth0)	
etwork info : IP (eth0)	: 10.174.112.79/23 : 10.174.112.1
etwork info : IP (eth0) Gateway	: 10.174.112.79/23 : 10.174.112.1 : vriot
etwork info : IP (eth0) Gateway Hostname	: 10.174.112.79/23 : 10.174.112.1 : vriot :
etwork info : IP (eth0) Gateway Hostname DNS domain FQDN	: 10.174.112.79/23 : 10.174.112.1 : vriot :
etwork info : 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.

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

	2.0.0.76 Version 1.6 March 2022 8:1826 America/Los_Angeles
Initialization	
Very Important!!!	
Please read before proceeding.	
	er of IoT devices. Previous licenses cannot be applied to this version of the IoT controller. Please have the new on older release. There is a 90 day trial period (no purchase required for trial) which has no restrictions on features f valid subscriptions are not applied by then.
□ I agree to the terms and conditions stated above	
	Next

13. Select the required services and click **Next**.

Initialization Click on next button to continue VM Configurations	
VM Configurations IP Configurations	
Hostname DHCP Static O	
vilot	
Time Zone Americal Los, Angeles	
Set Time Automatically using NTP Set Time Manually i	
NTP Address Default : ntp.ubuntu.com (Optional)	
Optional Services	
C Rules Engine C Samsung SmartThings	
Back	Next

14. Confirm the configuration information and click Next.

The RUCKUS IoT ControllerInitialization page is displayed.

FIGURE 11 Confirming the Password

RUCKUS IOT Controller IoT A	PI			1.5.0.0.19 Version 16 December 2019 4:27:28 America/Los_Angeles
Initialization				
Enter new password to continue	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 12 End-user License Agreement Page

Initializ	End-user License Agreement	
incer alley parts	Ruckus IoT Controller (RIoT Controller) Software License	
I	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 DOES NOT AGREE TO THE TERMS AND CONDITIONS OF 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" means an entity	

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 13 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 14 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) 	
 Network Install (HTTP, FTP, or NFS) 	
 Network Boot (PXE) 	
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 15 New VM Dialog Box Step 2

Virtual Machine Manager	0
File Edit View Help	
🔛 💭 Open 📄 🚺 🗸	
Name New VM 😣	
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 ‡	
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 16 New VM Dialog Box Step 3

Virtual Machine Manager	8
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 17 New VM Dialog Box Step 4

Virtual Machine Manager	0
File Edit View Help	
🔛 💭 Open 📄 🔝 🛃 👻	
Name New VM 😣	
local Create a new virtual machine Step 4 of 4	
Ready to begin installation of VRIOT-KVM 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 Customize configuration before install Specifying an operating system is required for best performance Advanced options Cancel Back Finish	

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 18 Virtual Disk Configuration

Begin Installation Overview Processor Memory Boot Options Disk 1 NIC :27:3e:10 Input Display VNC Sound: default Console	Virtual Disk Target device: Disk 1 Source path: /home/vriot-qa-2/Desktop/vriot-937a.offline-upgrade.3070.qcow2 Storage size: 1.18 GB Readonly: □ Shareable: □ ▼ Advanced options Disk bus: IDE : Serial number: □
Video Default	 Storage format: qcow2 Performance 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 19 Boot Options Configuration

Overview Processor Memory	Autostart
 Boot Options IDE Disk 1 IDE Cisk 1 IDE Cisk 1 Input Display VNC Sound: default Console Video Default 	Boot device order Finable boot menu Finable boot Finabl

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

FIGURE 20 RUCKUS IoT Controller Login Prompt

VRIOT-KVM Virtual Machine	8
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 21 Displaying the IP Address

- System Det	ails
- NTP Settin	g
- System Ope	ration
- N+1	
- Comm Debug	ger
- Log Off	
nter Choice:	1
nter Choice:	1
nter Choice:	1
nter Choice: 	
etwork info :	
etwork info : IP (eth0)	
etwork info : IP (eth0)	: 10.174.112.79/23 : 10.174.112.1
etwork info : IP (eth0) Gateway	: 10.174.112.79/23 : 10.174.112.1 : vriot
etwork info : IP (eth0) Gateway Hostname	: 10.174.112.79/23 : 10.174.112.1 : vriot :
etwork info : IP (eth0) Gateway Hostname DNS domain FQDN	: 10.174.112.79/23 : 10.174.112.1 : vriot :

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.

TRUCKUS IOT Controller INT API	2.0.0.0.76 Version 16 March 2022 8:18:26 America/Los_Angeles
Initialization	
Very Important!!!	
Please read before proceeding. With this IoT 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 net	N
subscription 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 or device count. 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 the terms and conditions stated above	
	Next

14. Select the required services and click Next.

FIGURE 22 Initial VM and IP Configurations

Initialization				
Click on next button to continue				
VM Configurations		IP Configuration	s	
Hostname		DHCP 🖲	Static O	
Time Zone				
America/Santiago	1.			
Set Time Automatically using NTP O	Set Time Manually i 🔹			
Select Date and time	May 20, 2021 4:13 PM			
Optional Services				
C Rules Engine	Track Central		Samsung SmartThings	

15. Confirm the configuration information and click **Next**.

The RUCKUS IoT ControllerInitialization page is displayed.

FIGURE 23 Confirming the Password

RUCKUS IOT Contro	oller IoT API			1.5.0.0.19 Version 16 December 2019 4:27:28 America/Los_Angeles
Initializatio	n			
Enter new password to	continue			
	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 24 End-user License Agreement Page

	ntroller - (let API)	1,5,0,0,19 Version 16 December 2019 4:27 AF America/Loc_Angeles
Initializ	End-user License Agreement	
Enter new parts	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 EMPLOYED 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, INSTALLISING THE SOFTWARE, LICENSEE ACKNOWLEDGES THAT IT HAS READ THIS LICENSE AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS. IF LICENSEE DOES NOT AGREE TO THE TERMS AND CONDITIONS OF 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.	
Take	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 acony 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" means an entity Close	Sur
	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 RUCKUS IoT Controller on Hyper-V

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

Installing Hyper-V

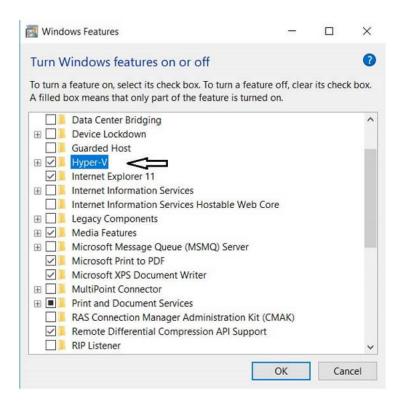
- 1. Extract the VMDK file from the .OVA file using a zip extractor application such as 7-Zip, WinZip, WinRAR, and so on.
- 2. Convert the VMDK to VHD using a tool such as StarWind V2V Converter or QEMU disk image utility for Windows.
- 3. From the Windows 10 Start menu, enter Settings, and press Enter.

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.

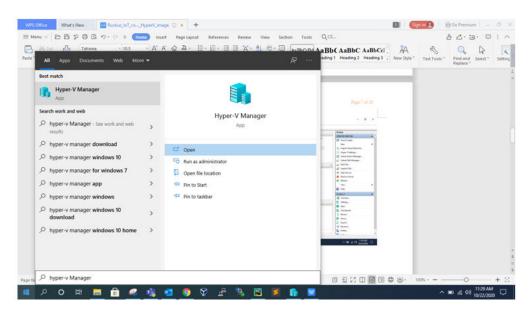
FIGURE 25 Windows Features



7. Select Hyper-V, and click OK.

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

FIGURE 26 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 27 Creating Virtual Switch

← 🔿 🖄 🔐 🔽 📅	Virtual Switches New virtual network switch	💸 Create virtual switch		Actions	
Checkpoin Checkpoin Ruckus Ruckus	Rew Virtual Switch Internal only S. Switch Internal only S. Switch Internal only S. Default Switch Default Switch Clobal Network Settings MAC Address Range 00-15-5D-81-8E-00 to 00-15-5D-8	What type of virtual switch do you want to create? Esternal Private Creates a virtual switch that binds to the physical network adapter so that virtual machines can access a physical network.	rfigurati	DESKTOP-BE87LBE Quick Create New Import Virtual Machine Hyper-V Settings Virtual SAN Manager	•
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	🚨 Virtual Switch Properties	-	Actions	
DESKTOP-BE87LBE	Virtual Ma	New virtual network switch	Name:		DESKTOP-BE87LBE	
	Name	Internal only	Virtual Switch Demo	ıfigurati	Quick Create	
	Ruckus	K vSwitch Internal only	Notes:		New	•
	Ruckus	Jefault Switch Default Network	~		🕞 Import Virtual Machine	
	Ruckus		×		Hyper-V Settings	
		Inter(R) Duar Band Wireless-A E Virtual Switch Demo	Connection type		Virtual Switch Manager	
		Intel(R) Dual Band Wireless-A S Global Network Settings	What do you want to connect this virtual switch to?		🛃 Virtual SAN Manager	
	Checkpoin	MAC Address Range	External network:	(Edit Disk	
	🗆 🔂 A.	00-15-50-81-8E-00 to 00-15-50-8	Intel(R) Dual Band Wireless-AC 3168		Inspect Disk	
	Þ		Allow management operating system to share this network adapter		Stop Service	
			Internal network Private network		Remove Server Refresh	
					View	-
			VLAN ID		7 Help	-1
			The VLAN identifier specifies the virtual LAN that the management operating			-
			system will use for all network communications through this network adapter. This setting does not affect virtual machine networking.		Ruckus_3	-
			2	-	Settings	
	Ruckus_3			-	Start	
			Remove		Checkpoint	
					> Revert	
					Move	
					Export	
					E Rename	
	Summary		OK Cancel Apply		Delete	
					- 🖪 1144	

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 28 Specify Name and Location Wizard Page

Before You Begin	Choose a name and location for this virtual machine.					
pecify Name and Location	The name is displayed in Hyper-V Manager. We recommend that you use a name the identify this virtual machine, such as the name of the guest operating system or wo					
ssign Memory	Name: New Virtual Machine					
Configure Networking Connect Virtual Hard Disk Installation Options	You can create a folder or use an existing folder to store the virtual machine. If you folder, the virtual machine is stored in the default folder configured for this server.	don't select a				
Summary	Location: C:\ProgramData\Microsoft\Windows\Hyper-V\ Browse.					
	If you plan to take checkpoints of this virtual machine, select a location that ha space. Checkpoints include virtual machine data and may require a large amour	it of space.				

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 29 Specify Generation Wizard Page

🖳 New Virtual Machine Wize	ard X
💴 🛛 Specify Gen	eration
Before You Begin Specify Name and Location Specify Generation Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	 Choose the generation of this virtual machine. ● Generation 1 This virtual machine generation supports 32-bit and 64-bit guest operating systems and provides virtual hardware which has been available in all previous versions of Hyper-V. O Generation 2 This virtual machine generation provides support for newer virtualization features, has UEFI-based firmware, and requires a supported 64-bit guest operating system. Once a virtual machine has been created, you cannot change its generation.
	< 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 30 Assign Memory Wizard Page

🖳 New Virtual Machine Wiza	rd	×
Sign Mem	ory	
Before You Begin Specify Name and Location Specify Generation Assign Memory Configure Networking Connect Virtual Hard Disk Installation Options Summary	 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: 409€ MB ✓ Use Dynamic Memory for this virtual machine. (1) 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. 	
	< 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 31 Configure Networking Wizard Page

New Virtual Machine Wiza		×
Before You Begin Specify Name and Location Specify Generation Assign Memory	Virtual switch, or Connection: No No	nachine includes a network adapter. You can configure the network adapter to use a t can remain disconnected.
Configure Networking Connect Virtual Hard Disk Installation Options Summary	Vir	ual 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 32 Connect Virtual Hard Disk Wizard Page

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

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.

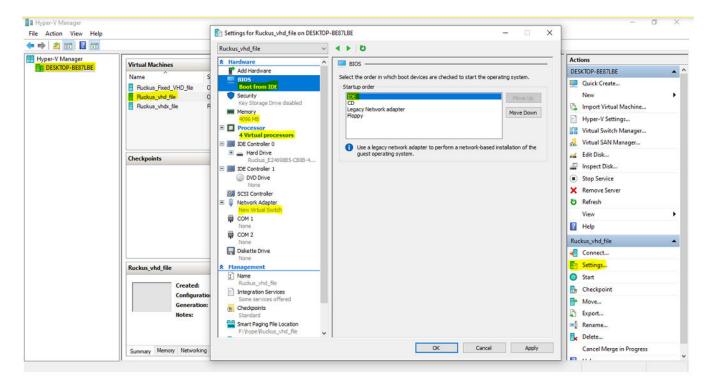
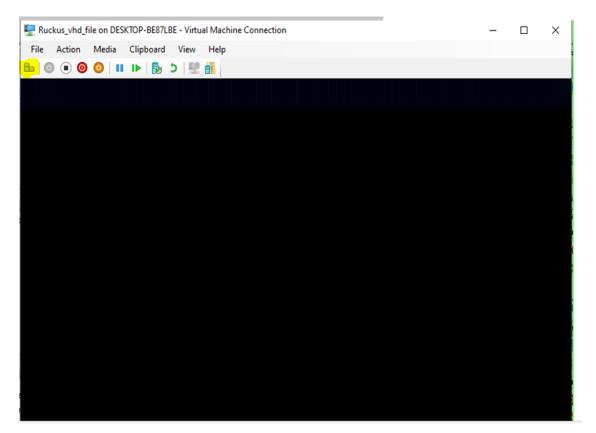


FIGURE 33 Confirming the VM Settings

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 34 Appearance of Black Screen



Installing RUCKUS IoT Controller on AWS

•	Creating an Account with AWS	47
•	Importing the VRIOT Image	48
•	Creating a RUCKUS IoT Controller EC2 Instance	49

Creating an Account with AWS

You must creat an account with Amazon Web Service (AWS) and must have the login details for the acount to begin.

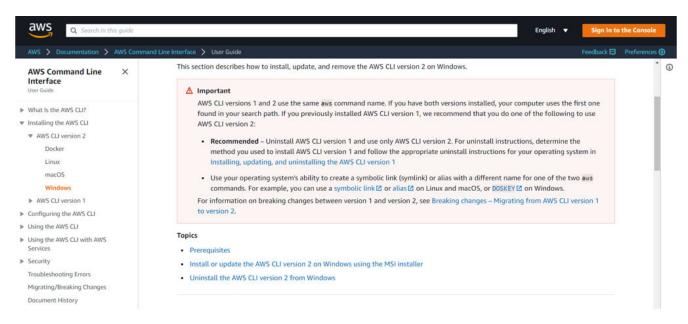
To create an account with AWS perform the following steps.

1. Download the AWS CLI on your OS (Operating System).

NOTE

The below installation is performed on Windows 10 operating system.

FIGURE 35 Opening the AWS Command Line Interface User Guide



2. Click the link "Install update AWS CLI version 2 on Windows using the MSi installer".

Importing the VRIOT Image

Complete the following steps to import the VRIOT image into the AWS shared Amazon Machine Image (AMI).

1. Open the command line prompt, and execute the below commands.

```
Visit the "AWSCLI2" folder
Type "aws --version" at the command prompt
Now type "aws configure"
C:\Program Files\Amazon\AWSCLIV2>aws configure
AWS Access Key ID [None]: <enter AWS Access Key ID>
AWS Secret Access Key [None]: <enter AWS Secret Access Key>
Default region name [None]: us-west-2 (all lower case)
Default output format [None]:
```

2. Create a JSON file called import.json using the following commands. Replace the bucket name with the storage bucket name that you created.

In this example, the VRIOT image file name as vriot-2.0.0.05036.ova.

```
{
    "Description": "Import vriot",
    "DiskContainers": [
        {
            "Description": "vriot-2.0.0.0.5036",
            "Format": "ova",
            "UserBucket":{
               "UserBucket":{
               "S3Bucket": "vriot",
               "S3Key":"dev-2.0.0.0/6aa8.dev-2.0.0.05036/vriot-6aa8.dev-2.0.0.05036.ova"
        }
    }
}
```

3. After creating the "import.json" file, execute the following command.

```
# aws ec2 import-image --cli-input-json file://import.json
```

The system displays the below response.

```
{
    "Description": "Import vriot",
    "ImportTaskId": "import-ami-0d32a196c9257d5a7",
    "Progress": "1",
    "SnapshotDetails": [
        {
         "Description": "vriot-2.0.0.0.5036",
          "DiskImageSize": 0.0,
          "Format": "OVA",
            "UserBucket": {
                "S3Bucket": "vriot",
                "S3Key": "dev-2.0.0.0/6aa8.dev-2.0.0.0.5036/vriot-6aa8.dev-2.0.0.0.5036.ova"
            }
        }
    1.
    "Status": "active",
    "StatusMessage": "pending"
}
```

4. Enter the following command to verify the status of the imported VRIOT image. Be sure to use the correct import task identifier.

```
.# aws ec2 describe-import-image-tasks --import-task-ids "import-ami-0d32a196c9257d5a7"
```

5. Observe the following conversion status response and continue to check the status until conversion is complete. The estimated time for conversion is 30 minutes.

```
{
    "ImportImageTasks": [
         {
             "Architecture": "x86 64",
             "Description": "Import vriot",
             "ImportTaskId": "import-ami-0d32a196c9257d5a7",
             "LicenseType": "BYOL",
             "Platform": "Linux",
"Progress": "39",
             "SnapshotDetails":
                  {
                      "DeviceName": "/dev/sda1",
                      "DiskImageSize": 2866090496.0,
                      "Format": "VMDK",
"Status": "completed",
                      "UserBucket": {
                           "S3Bucket": "vriot",
                           "S3Key": "dev-2.0.0.0/6aa8.dev-2.0.0.0.5036/vriot-6aa8.dev-2.0.0.0.5036.ova"
                      }
                  }
             "Status": "active",
             "StatusMessage": "booting",
             "Tags": []
         }
    1
}
```

Creating a RUCKUS IoT Controller EC2 Instance

Complete the following steps to create a RUCKUS IoT Controller instance on AWS.

1. In the AWS Web Interface, click **Compute** > **EC2**.

2. Navigate to Images > AMIs to ensure that the imported Amazon Machine Image (AMI) exists.

FIGURE 36 Creating an EC2 Instance

FIGURE 37 Dashboard Page

Tell us what you think	Resources			CO
EC2 Dashboard				
Events	You are using the following Amazon EC	2 resources in the US Wes	t (Oregon) Region:	
Tags Limits	Instances (running)	7	Dedicated Hosts	
nstances	Elastic IPs	0	Instances	
nstances New	Key pairs	6	Load balancers	
nstance Types .aunch Templates	Placement groups	0	Security groups	2
Spot Requests	Snapshots	31	Volumes	3
avings Plans				
eserved Instances New	 Easily size, configure, and deploy 	Microsoft SQL Server Al	ways On availability groups on AWS us	sing the AWS 🛛 🗙
edicated Hosts	Launch Wizard for SQL Server. L	earn more		

3. Navigate to Network & Security > Security Groups > Create Security Group.

The security group acts as a virtual firewall that controls the traffic for one or more instances.

4. Define the Setup group name, Description, Ports and the Firewall rule.

The table lists the common service ports.

5. Navigate to Instances and click Instances.

FIGURE 38 Instances Page

New EC2 Experience Tell us what you think	Instances	(7) inf	0						C	Connect Insta	nce state 🔻	Act	tions V Launch instances	$[\bullet]$
	Q Filter in	stances											< 1 >	۲
EC2 Dashboard Events	Instance sta	ate: runr	ning X	Clear	filters									
Tags	ility Zone 🔻	▽		Elastic IP	⊽	IPv6 IPs	⊽	Monitoring	⊽	Security group name 🛛 🕈	Key name	⊽	Launch time	V
Limits	-2a	e	3	<u>2</u>		-		disabled		vriot-sg	nodered-mich		2018/06/21 14:21 GMT-7	
Instances	-Za	e	3			-		disabled		launch-wizard-9	jari-lora		2019/11/18 21:44 GMT-8	
Instances New	-2a	e	5	-		-		disabled		vriot-sg	aws-kp-us-we		2020/05/06 13:01 GMT-7	
Instance Types	-2c	e	5	-		-		disabled		launch-wizard-8	aws-kp-us-we	22	2019/12/04 12:07 GMT-8	
Launch Templates	-2c	e	3			-		disabled		vriot-sg	aws-kp-us-we		2020/08/06 17:23 GMT-7	
Spot Requests	-2c	e	3	2		21		disabled		HashiCorp Vault OSS-va	aws-kp-us-we		2020/08/17 13:17 GMT-7	
Savings Plans	-2b	e	3	-		-		disabled		launch-wizard-13	prashant		2021/08/16 21:47 GMT-7	
Reserved Instances New	4													

6. Select the "Key-Nmae" of the IoT instance The **Port Configuration** page is displayed.

FIGURE 39 Port Details

Port Configuration

aws Services V					Q Search	for services, featu	res, mark	etplace products, and do	s [Alt+S]					shant shah @ 9	082-4389-6555 🔻 Orego	• •	Support
New EC2 Experience X	Inst	ances (1	/7) Info									C Connect	Instance state	Actio	ns 💌 Launch inst.	ances	
	Q	Filter insta	inces													1	> @
EC2 Dashboard		Name	~	Instance	0	Instance sta	e v	Instance type V	Status check	Alarm state		Availability Zone V	Public IPv4 DNS	~	Public IPv4 address	v	Elastic
Events	0	-			1584Secarec	@ Running		c4.large	Ø 2/2 checks passed			us-west-2a	ec2-34-219-187-2		34,219,187,234	0.701	Langere
Tags	0				105ff24d3b	@ Running		t2.medium	Ø 2/2 checks passed			us-west-2a	ec2-34-212-92-42		34,212,92,42		
Limits	0				de9e482df0	@ Running		t2 medium	Ø 2/2 checks passed Ø 2/2 checks passed			us-west-2a	ec2-52-12-193-11		52.12.193.118		
Instances						Running											
Instances New		10			e4af6aa27c	and the second second		t2.small	Ø 2/2 checks passed			us-west-2c	ec2-54-187-198-5		54,187.198,54		15
Instance Types					266d721900	Running		t2.micro	Ø 2/2 checks passed			us-west-2c	ec2-34-223-0-206		34.223.0.206		-
Launch Templates	0	15			fffee37df2	Running		t2.small	Ø 2/2 checks passed	an terrare contra		us-west-2c	ec2-34-219-41-20		34.219.41.205		-
Spot Requests				i-084ce62	218ed07c70	Running	ଭ୍ର	t2.medium	⊘ 2/2 checks passed	No alarms	+	us-west-2b	ec2-54-189-129-6	4.us-wes	54.189.129.64		-
Savings Plans	Inst	ance: i-(184ce62	218ed07c	70				=								×
Reserved Instances New																	
Dedicated Hosts	22			TCP	0.0.0.0			unch-wizard-13									
Scheduled Instances	50			TCP	0.0.0.0			unch-wizard-13									
Capacity Reservations		017		TCP	0.0.0.0			unch-wizard-13									
Images	88			TCP	0.0.0.0			unch-wizard-13									
AMIs	44			TCP	0.0.0.0	0/0		unch-wizard-13									
Elastic Block Store	44			TCP	=/0			unch-wizard-13									
Volumes	48	85		TCP	0.0.0.0	5/0		unch-wizard+13									
Snapshots		Outbour	d rules														
Lifecycle Manager New	1	A Filter n															1 >
																2	
Network & Security	Po	rt range		Protocol	Destin	nation	5	ecurity groups									
Security Groups	All			All	0.0.0.0	0/0	6	unch-wizard-13									
Elastic IPs	88	83		TCP	0.0.0.0	0/0	L	unch-wizard-13									
Placement Groups Key Pairs	48	83		TCP	0.0.0.0	0/0	L.	unch-wizard-13									
Key Pairs Naturel Interform																	

7. Complete the required port details.

Upgrading the Software

•	Upgrading the AP Firmware Using SmartZone 100 or Virtual SmartZone Controller	53
•	Upgrading the RUCKUS IoT Controller with N+1 Configuration	. 57

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.

Upgrading the Software

Upgrading the AP Firmware Using SmartZone 100 or Virtual SmartZone Controller

2. From the SmartZone 100 user interface, click **Administration** > **Upgrade**.

FIGURE 40 SmartZone 100 User Interface

SmartZane 100	=			VRIOTQA-CLST 2019-04-04 15:04:56	Filter default	٥	admin	
Dashboard	Upgrade Upgrade History	AP Patch						
System •	Current System Information						$\overline{\mathbf{v}}$	
Access Points	Controller Version	3.6.1.2.13022						
Wireless LANs	Control Plane Software Version Data Plane Software Version	3.6.1.2.13001 3.6.1.0.40						
Clients •	AP Firmware Version	3.6.1.2.13022						
Applications	Upload						1	
Services & Profiles		you want to use to upgrade the cont	the system has sufficient resources to complete the upgrade troller. rowse	0				
Report •	2 Upload							
Troubleshooting	Patch for Pending Upgrade							
Administration •	and a second s							
Admins and Roles								
Backup & Restore								
Upgrade								

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.

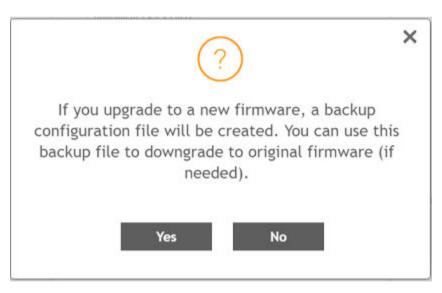
- 8. From the Smartzone 100 user interface, click Access Points.
- 9. Select the zone from the list, click **More**, and select **Change AP Firmware** from the list. The **Change AP Firmware** dialog box is displayed. The current AP firmware version is displayed.

FIGURE 41 Changing the AP Firmware

TRUCKUS"		VRD0TQA-CLST 2019-04-04 15:13:24 C Filter default o admin
Dashboard	Access Points (8) Change AP Firmware	X View Mode: List Group Mesh Map Zone
System	System - Aparna Change AP Firmware 3.6.1.2.13021	
Access Points	+ 2 2 × More - 2 Control Upgrade to 3.6.1.2.13022	search table Q. Ø
Wireless LANs	- C System 2 MAC.Ac	Total Traffic (Ihr) Ellents Latency (2.4G) Latency (5G) Connec 🔍
Clients	Z Default Zone Z Ranganath	
Applications	+ 22 Striran () + 22 Suresh	
Services & Profiles		
Report >		
Traubleshooting		
Administration 🦷		No data 👒 1 👒
Admins and Roles	General Configuration Health Traffic	A
Backup & Restore	Group Info	· · · ·
Upgrade	Hame Aparna Total AP Type ZONE	s 0

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

FIGURE 42 Upgrading to New Firmware



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

Initial of the second secon

FIGURE 43 Update Successful Confirmation Message

- 12. Click OK.
- 13. Open the RUCKUS IoT Controller. From the Admin tab, click Versions and Patches.

FIGURE 44 Uploading an Image

Admin			
Services Plugins Account	Upload Image Upload Patch	Change Version to :	Select v Set
VM Configurations	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.

Upgrading the RUCKUS IoT Controller with N+1 Configuration

Complete the following steps to upgrade the primary and secondary RUCKUS IoT Controllers with the N+1 configuration.

1. Upgrade SmartZone to the supported version.

NOTE

Refer to Upgrading the AP Firmware Using SmartZone 100 or Virtual SmartZone Controller on page 53 for more information.

2. Upgrade the AP firmware using SmartZone 100 or the Virtual SmartZone Controller.

NOTE

Refer to Upgrading the AP Firmware Using SmartZone 100 or Virtual SmartZone Controller on page 53 for more information.

- 3. Ensure that the primary controller is active, and the secondary is running.
- 4. Upload the image file from the primary controller (the same as the normal controller). The image file is automatically copied to the secondary controller.
- 5. Select the version number, and click the **Set** button.

NOTE

Refer to #unique_29 for more information.

The RUCKUS IoT Controller is re-directed to status page, as shown in the following figure.

FIGURE 45 Displaying the Upgrade Process in N+1 Configuration

Upgrade started in the n+1 machine. Do not refresh



After the secondary controller completes the upgrade, the secondary controller reboots. After step 5, the GUI is redirected to the login page of the secondary controller. (The primary controller fails over to the secondary controller.)

6. After a couple of minutes, the primary controller is upgraded and rebooted.

NOTE

If there are no changes to the version list, refer #unique_29 for more information.

- 7. Wait for the primary controller to become active or perform a manual fallback to the primary controller.
- 8. Upload the licenses to the controllers.

Refer to Activating a License on page 63 for more information.

Refer to "Configuring the N+1 Feature" in the RUCKUS IoT Controller Configuration Guide.

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.

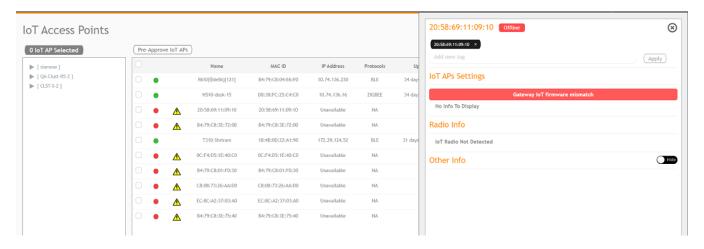
The IoT Access Points page is displayed.

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 46 Viewing IoT APs



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

FIGURE 47 Displaying Events

Events				
Time	AP MAC	ID	Event	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	B4:79:C8:04:E6:F0	6	Upgrade	Controller version 1.5.0.1.20 supports AP lot firmware version 1.5.0.1.15026, Gateway B4:79:C8:04:E6:F0 is in lot 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 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 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 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 10:25:32.886309	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 Gatewa
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 int firmware version 1.5.0.1.15026, Gateway 0C:F4:D5:1E:97:00 is in int firmware version 1.5.1.0.15026 - Upgrade controller or Downgrade Gateway
2020-04-13 10:24:25.458678	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 10:24:24.949327	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 10:24:24.510535	20:58:69:3B: B7 :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	20:58:69:3B:87:10	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 10:24:23.461032	20:58:69:3B:B7:10	5	Radio Message Delivery Failed	7C:80:3E: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:B0:3E:A4:00: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	61
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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 used is subscription based. After purchasing RUCKUS IoT Controller, a trial license which is valid for 90 days is provided with it. You must purchase a subscription license based on your requirement before the expiry of 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 Software Licensing Guide, 2.0.0.0

Complete the following steps to activate the license.

NOTE

In an N+1 setup, ensure that individual licenses are installed on both the primary and the secondary controller, respectively.

- 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.

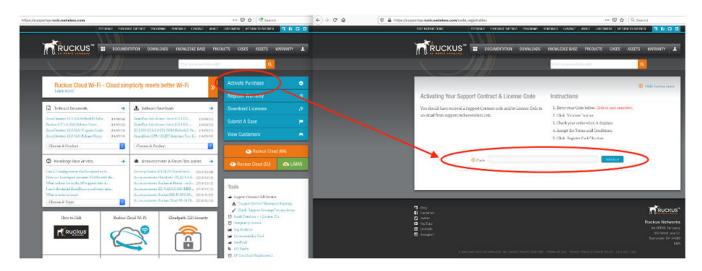


FIGURE 48 Validating the License Code

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

FIGURE 49 Activating Your Support Contract and License Code

		KNOWLEDGE BASE PRODUCTS CASES ASSETS WARRWITY
		Milat (nyormetikelposis)
		© lide instructions
Activating Yo	ur Support Contract & License Code	Instructions
	sceived a Support Contract code and/or License Code in	
an email from sup	port.ruckuzwireless.com.	2. Click "Vylidate" brattom
		 Check your order when it displays. Accept the Terms and Conditions.
		5 Click "Register Code button.
to fix the pur Please Revie		
Click the 'Activate	Furchase' button at the bottom of the page	
	it To Use Product Code	Description
Oty Rigr		Virtual Appliance (vBlo ¹¹), 1 instance
10000	NTI-WW00	
10000		

- 4. Obtain the RUCKUS IoT Controller serial number in 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 50 RUCKUS IoT Controller Main Menu

******	******	*********	****	*****	*****	*****	****	****	****	****	****	
		Ruckus	IoT	Contro	ller							
		Ma	ain	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 :												
		Fri Jan 1'				2020						
Serial		103VKDUDS	VSPD	OUGT1C	ILE 6K	KK2A						
Version		1.5.0.0.1	7									

• To obtain the RUCKUS IoT Controller serial number using the RUCKUS IoT Controller user interface, refer to "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.

	J / M		
RUCKUS	DOCUMENTATION DOWNLOADS	KNOWLEDGE BASE PRODUCTS CASES	ASSETS WARRANTY .
		What do you need help with?	Q
Please apply your license to an	asset.		
-			
			 Hide Instruction:
Associating Your I	License With Your Product	Instructions	
	can now apply your license to your product. Once		selow.
	ll be able to download your license. It may take he binary license file, If your license is a Right-To-	 Click "Validate Serial Number" button. Follow additional instructions. 	
	will be available immediately.	5. Follow additional instructions.	
Step 1 Of 2			
VALIDATE YOUR DEVICE			
Bind to Device	with Serial Number 10G6GQJ7XP21HXT0BCI	REF7W97W4A Valida	te Serial Number
	se Info		
License Purcha			• PRACT (102) NO
	00683528-YAK-FAT-GUM	Product Name Virtual Appliance (vRIoT), 1	instance

FIGURE 51 Associating the License with the Product

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 52 Registering the Device

	KNOWLEDGE BASE PRODUCTS CASES ASSETS WARRANTY
	What do you need help with?
Please apply your license to an asset.	
	O Hide Instructions
Associating Your License With Your Product	Instructions
Your license is valid. You can now apply your license to your product. Once	1. Enter the serial number of your product below.
this is completed, you will be able to download your license. It may take	2. Click "Validate Serial Number" button.
15 minutes to generate the binary license file. If your license is a Right-To- Use or Smart License, it will be available immediately.	3. Follow additional instructions.
Step 2 Of 2	
REGISTER YOUR DEVICE	
Select Device Model.	
Click 'Register Device & Bind To Right To Use' Button.	
Once registered, your right to use will be bound to this device.	
V Please Salast Davise Model	Register Device & Bind To Right To Use or
P01-INTI-WW00 Virtual Appliance (vRIoT)Series A	
Serial Number: 10G6GQJ7	KP21HXT0BCRFF7W97W4A
License Purchase Info	
License Purchase Info	Product Name Virtual Appliance (vRIoT), 1 instance

Your license information is displayed.

FIGURE 53 License Information

🔞 🔒 https://supportqa.ruckuswireless.com/lice	nse_upgrade/RTU-00683528-	YAK-FAT-GUM			•• ⊠ ☆	Search			
	FEEDBACK PURCHASE SUPPORT	PROGRAMS	RENEWALS CONTACT	ABOUT CUSTO	MERS RETU	RN TO PARTNER	11 E	🖬 🖬	
		DOWNLOADS	KNOWLEDGE BASE	PRODUCTS	CASES	ASSETS	WARRANTY	*	
Assets • Licenses • RTU-00			What do you need h	elp with?		٩			
License added to serial number.				_					
License Info Product Name Virtual. Product Code L09-INT License Code RTU-006 AP Count 1.0		<	Type or clark here Tags: License Status / Bound To 10G6	Active GQJ7XP21HX			> vice.		

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

FIGURE 54 Accessing Smart License Manager (LiMAN)

🐨 🖴 https://supportqa.ruckuswireless.com		🗵 🏠 🔍 🤻 Search	
FEEDRACK PURCH	ASE SUPPORT PROGRAMS RENEWALS CONTACT ABOUT	CUSTOMERS RETURN TO PARTNER ୟ 🖪 🗹 🖨	
	ITATION DOWNLOADS KNOWLEDGE BASE PRO	DUCTS CASES ASSETS WAARANTY 1	
	what as year may study were		
Ruckus Cloud Wi-Fi - Cloud sin	nplicity meets better WI-Fi	Activate Purchase 🥥	
Learn more		Register Warranty 🤌	
Technical Documents	🛃 Software Downloads 🛛 🔿	Download Licenses Ø	
ZoneDirector 10.3 (GA Refresh1) Belea (19/09/04) Ruckus toT 1.4 (GA) Release Notes (19/09/26)	ZonePlex Solo Access Point 112.1.0.0 (19/16/11) ZonePlex Solo Access Point 112.1.0.0 (19/16/21)	Submit A Case 📁 🏴	
ZoneDirector 10.3 (GA) Upgrade Guide (19/07/10) ZoneDirector 10.3 (GA) Science Notes (19/07/10)	2D1200 10.1.2.0.251 (MR2 Refresh2) So (19/16/71) SmartZone GPB / MQTT Interface Test S (19/16/02)	View Customers 🛛 🛤	
Choose A Product	Choose A Product	C Ruckus Cloud (NA)	
Ø Knowledge Base Articles →	😃 Announcements & Forum Discussions 🔿	👁 Ruckus Clou I (EU) 🛛 💿 LIMAN	
Can ZD configuration files be copied to ot How can be configure dynamic VLANe with the What to look find the AP support infat x_{i-1}^{t} is can be deviated ZoneDirector activate with	Security Notice 20191204 ZoneDirect (2019/12/4) Announcement: Cloudpath CP_ES 5.6.4 (2019/12/19) Announcement: Ruckus at Kome - on S (2019/12/19) Announcement: ZD 9.12 3.0.136 (MRS (2019/12/12)	Tools	
Choose A Topic	Autoconcentrate 2D 9.12 Xul. 196 (MR3 (2019/12/12) Announcements Backas ICX F108.05.00. (2019/11/22) Announcement: Backas Cloud Wi F138 (2019/11/19)	Support Contract Self Service Support Service "Missing or Expiring	
Hew to Hub Ruckus C	lloud Wi-Fi Cloudpath (ES) Security	Check "Support Coverage" on my device Serial Numbers <> Loonse IDu Temporary Loonse	

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 55 Downloading the License

EDIT PAGE	FEEDBACK PURCHASE SUPPORT PI	ROGRAMS RENEWALS CONTACT A	BOUT CUSTOMERS RETU	RN TO PARTNER 3 6 2 6
	DOCUMENTATION DOV	WNLOADS KNOWLEDGE BASE	PRODUCTS CASES	ASSETS WARRANTY
		What do you need help	with?	٩
Smart License	Manager (LiMAN)	🛛 🛛 Regi	ster RuckOS Hardware	Use Advanced Portal
Has Adequate Smart AP Lic Smart AP License Count: 5 Smart AP Support Count:	i680.0 vSZD AP L	ate vSZD AP License Support 🖌 icense Count: 14.0 upport Count: 4.0	Has Adequate SCI SCI AP License Co SCI AP Support Co	
Smart Devices	icense Pool 🗟 Local License Server	: 📄 Help & FAQs		
 Add licenses from lice Remove licenses attact Download license file Upload license file. 	hed to device. License will return to	pool.		
10G6GQJ7XP21HXT0	BCRFF7W97W4A			
B				
Serial Number	SCRFF7W97W4A	Description Virtual Appliance (vRIoT)Series A	dmin SKU	Action



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