QUICK START GUIDE

RUCKUS IoT Suite Getting Started Guide

Part Number: 800-72018-001 Rev J
Publication Date: July 2021

Copyright, Trademark and Proprietary Rights Information

© 2021 CommScope, Inc. All rights reserved.

No part of this content may be reproduced in any form or by any means or used to make any derivative work (such as translation, transformation, or adaptation) without written permission from CommScope, Inc. and/or its affiliates ("CommScope"). CommScope reserves the right to revise or change this content from time to time without obligation on the part of CommScope to provide notification of such revision or change.

Export Restrictions

These products and associated technical data (in print or electronic form) may be subject to export control laws of the United States of America. It is your responsibility to determine the applicable regulations and to comply with them. The following notice is applicable for all products or technology subject to export control:

These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. government or as otherwise authorized by U.S. law and regulations.

Disclaimer

THIS CONTENT AND ASSOCIATED PRODUCTS OR SERVICES ("MATERIALS"), ARE PROVIDED "AS IS" AND WITHOUT WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED. TO THE FULLEST EXTENT PERMISSIBLE PURSUANT TO APPLICABLE LAW, COMMSCOPE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, FREEDOM FROM COMPUTER VIRUS, AND WARRANTIES ARISING FROM COURSE OF DEALING OR COURSE OF PERFORMANCE. CommScope does not represent or warrant that the functions described or contained in the Materials will be uninterrupted or error-free, that defects will be corrected, or are free of viruses or other harmful components. CommScope does not make any warranties or representations regarding the use of the Materials in terms of their completeness, correctness, accuracy, adequacy, usefulness, timeliness, reliability or otherwise. As a condition of your use of the Materials, you warrant to CommScope that you will not make use thereof for any purpose that is unlawful or prohibited by their associated terms of use.

Limitation of Liability

IN NO EVENT SHALL COMMSCOPE, COMMSCOPE AFFILIATES, OR THEIR OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, SUPPLIERS, LICENSORS AND THIRD PARTY PARTNERS, BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER, EVEN IF COMMSCOPE HAS BEEN PREVIOUSLY ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER IN AN ACTION UNDER CONTRACT, TORT, OR ANY OTHER THEORY ARISING FROM YOUR ACCESS TO, OR USE OF, THE MATERIALS. Because some jurisdictions do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of liability for consequential or incidental damages, some of the above limitations may not apply to you.

Trademarks

ARRIS, the ARRIS logo, COMMSCOPE, RUCKUS, RUCKUS WIRELESS, the Ruckus logo, the Big Dog design, BEAMFLEX, CHANNELFLY, FASTIRON, ICX, SMARTCELL and UNLEASHED are trademarks of CommScope, Inc. and/or its affiliates. Wi-Fi Alliance, Wi-Fi, the Wi-Fi logo, Wi-Fi Certified, the Wi-Fi CERTIFIED logo, Wi-Fi Protected Access, the Wi-Fi Protected Setup logo, Wi-Fi Protected Setup, Wi-Fi Multimedia and WPA2 and WMM are trademarks or registered trademarks of Wi-Fi Alliance. All other trademarks are the property of their respective owners.

Contents

Preface **4**
Contacting RUCKUS Customer Services and Support 4
Document Feedback 5
RUCKUS Product Documentation Resources 5
Online Training Resources 5
Document Conventions 5
Command Syntax Conventions 6

RUCKUS IoT Suite Overview **6**
RUCKUS IoT Suite End-to-End Solution Deployment 6
The IoT Challenge 7
The RUCKUS IoT Solution 7

Before You Begin **8**

Building a Converged IoT Access Network **8**
Step 1: Installing a RUCKUS IoT Controller 8
Step 2: Deploying RUCKUS Access Points and Ensuring Discovery of Controllers 9
Step 3: Configuring the RUCKUS IoT Controller and Initializing IoT Services 10

Preface

Contacting RUCKUS Customer Services and Support

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

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

What Support Do I Need?

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

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

Open a Case

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

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

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

Self-Service Resources

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

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

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

Document Feedback

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

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

When contacting us, include the following information:

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

For example:

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

RUCKUS Product Documentation Resources

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

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

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

Online Training Resources

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

Document Conventions

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

TABLE 1 Text Conventions

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

Notes, Cautions, and Safety Warnings

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

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

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

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

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

Command Syntax Conventions

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

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

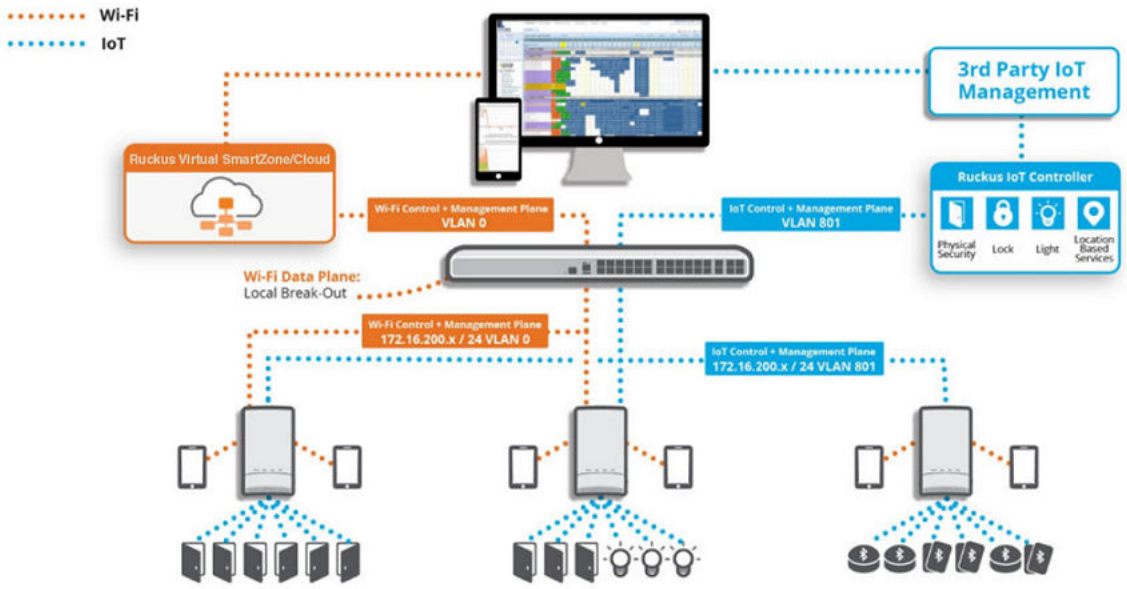
RUCKUS IoT Suite Overview

This guide supports 1.5 and later releases. The RUCKUS IoT Suite is a collection of network hardware and software infrastructure components used to create a converged, multi-standard Internet of Things (IoT) access network.

RUCKUS IoT Suite End-to-End Solution Deployment

The following diagram shows a typical RUCKUS IoT Suite deployment.

FIGURE 1 Typical RUCKUS IoT Deployment



The following components make up the RUCKUS IoT Suite deployment:

- RUCKUS IoT-ready Access Points (APs): Accommodate RUCKUS IoT Modules, and provides Built-in IoT support to establish multi-standards wireless access for Wi-Fi and non-Wi-Fi IoT endpoints
- RUCKUS IoT Modules: Radio or radio-and-sensor devices that connect to a RUCKUS IoT-ready AP to enable endpoint connectivity based on standards such as Bluetooth Low Energy (BLE) and Zigbee
- RUCKUS SmartZone Controller: A network controller that provides a management interface for the WLAN
- RUCKUS IoT Controller: A virtual controller, deployed in tandem with a RUCKUS SmartZone OS-based controller, that performs connectivity, device, and security management

The IoT Challenge

Enterprises seeking to deploy IoT solutions come across challenges such as network investment, system integration, security, data analytics and several others. To encourage adoption, enterprise IoT solution vendors develop vertically-integrated, proprietary infrastructure silos that often address only a single problem but that do not readily integrate with other silos and offer limited opportunity for infrastructure reuse. The net result is that even successful IoT deployments require redundant network infrastructure, additional security apparatus, and extensive integration services.

The RUCKUS IoT Solution

To address the IoT challenge, RUCKUS has developed a suite of products that can be deployed as an IoT access network that consolidates multiple physical-layer networks into a single converged network. This common network simplifies IoT endpoint onboarding, establishes uniform security protocols, and converges IoT endpoint management and policy-setting. In short, an IoT access network enables organizations to more quickly realize benefits from IoT use cases.

The RUCKUS IoT Suite simplifies the creation of IoT access networks through the reuse of LAN and WLAN infrastructure, which shortens the time to deploy and reduces the cost of an IoT solution.

Before You Begin

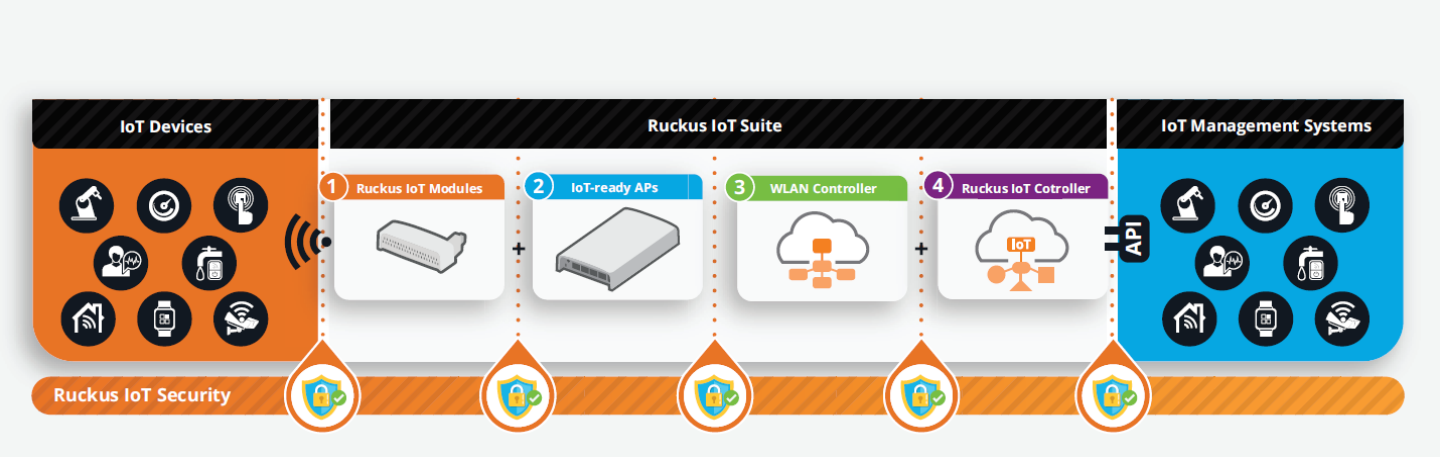
To begin using the RUCKUS IoT Controller to manage the IoT devices and IoT services, you must prepare the following components:

- An existing network with an Internet connection
- A RUCKUS SmartZone or Virtual SmartZone wireless LAN (WLAN) controller implementation on the network.

Building a Converged IoT Access Network

RUCKUS has developed the RUCKUS IoT Suite to enable a secure IoT access network. The following figure shows the various components that comprise the RUCKUS IoT Suite. The following steps provide a brief introduction to each component, and prerequisites to be considered before installing the components on the network.

FIGURE 2 RUCKUS IoT Overview



Step 1: Installing a RUCKUS IoT Controller

The RUCKUS IoT Controller is a virtual controller that integrates with the SmartZone Controller to perform connectivity, device, and security management functions for non-Wi-Fi devices. The RUCKUS IoT Controller can be installed on the four hypervisors described in the following table.

TABLE 2 Supported Hypervisors

Hypervisor	Vendor	Version
ESXi	VMware	6.0 and later
VM Virtual Box	Oracle	5.1.20 and later
VM Player	VMware	12 or later
KVM	Linux	2.11.1 or later
Hyper-v	Microsoft Windows	6.2 or later

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

Before you begin installing the RUCKUS IoT Controller on any hypervisor, consider the following prerequisites:

- Ports 80, 123 or NTP, 443, 1883, and 8883 must be open.

- The virtual machine (VM) on which the RUCKUS IoT Controller is installed must have a minimum of 4 vCPUs, 4 GB RAM, and Fixed 20 GB HDD.

  NOTE
  For a high-scale deployment, RUCKUS recommends a minimum of 8 vCPUs and 8 GB RAM for the RUCKUS IoT Controller.

  NOTE
  RUCKUS recommends the following minimum hardware requirements for IoT Server.

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

For information on how to install the RUCKUS IoT Controller, refer to the *RUCKUS IoT Controller Installation Guide*.

Step 2: Deploying RUCKUS Access Points and Ensuring Discovery of Controllers

Using the Dynamic Host Configuration Protocol (DHCP) Option 43 method, deploy RUCKUS Access Points (APs) and ensure discovery of the WLAN Controller and, subsequently, of the RUCKUS IoT Controller.

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

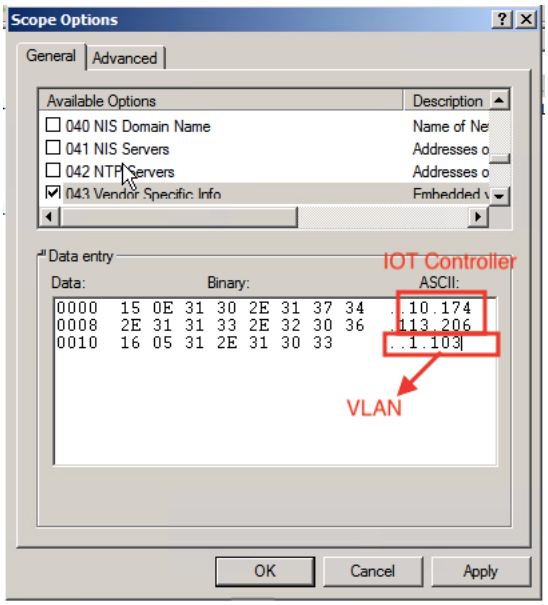
- Suboption 21: Used to configure a RUCKUS IoT Controller IPv4 address or FQDN (mandatory)
- Suboption 22: Used to set the control VLAN for IoT Control/Data traffic (optional)

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

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

The DHCP Option 43 sub-option code 21 and 22 is used to set the Ruckus IOT controller IP address.

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



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

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

dhcp_opt43 configuration subopt 22- "vlan_mode.vlan_id"

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

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

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

Step 3: Configuring the RUCKUS IoT Controller and Initializing IoT Services

The RUCKUS IoT APs and devices can be managed using the RUCKUS IoT Controller.

Before you begin configuring RUCKUS IoT Controller services, consider the following prerequisites:

- The controller must be installed on a hypervisor.
- The RUCKUS IoT Module must be installed on the RUCKUS AP.
- The required credentials to log in to the RUCKUS IoT Controller must be secured.

For information on how to configure the RUCKUS IoT Controller, refer to the *RUCKUS IoT Controller Configuration Guide*.

COMMSCOPE®
RUCKUS®

© 2021 CommScope, Inc. All rights reserved.
350 West Java Dr., Sunnyvale, CA 94089 USA
https://www.commscope.com