RUCKUS ICX 8200 Switch Hardware Installation Guide

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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. Request 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@ruckusnetworks.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, log in to the RUCKUS Training Portal at https://ruckus.myabsorb.com using your RUCKUS Partner Portal account credentials. If you do not have an account, you can sign up for one on the login screen. Once logged in, you can access your training dashboard. There you will find links to the RUCKUS Education YouTube channel, Partner training and accreditation courses, the RUCKUS NETWORKING course catalog, and more.

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.

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New in This Document

The following table includes descriptions of new information added to this edition.

TABLE 2 Summary of Enhancements Added to This Edition

Feature	Description	Reference
Regulatory statements	Updated BSMI information	BSMI Statement (Taiwan) on page 126 Cautions and Danger Notices on page 129

Supported Hardware and Software

This document is applicable to all RUCKUS ICX 8200 switch models. The following tables list the device models, power supplies, fan assemblies, and rack mount kits supported.

TABLE 3 Switch Models

Part Number	Description	Introduced (OS)	Currently Supported (OS)	Notes
ICX8200-C08PF	8x10/100/1000 Mbps RJ-45 PoE+ ports and 2x1/10 Gbps SFP+ ports	10.0.00	Yes	Integrated power supply, fanless 124 W power budget
ICX8200-C08PFV	AV 8x10/100/1000 Mbps RJ-45 PoE+ ports and 2x1/10 Gbps SFP+ ports	10.0.10e	Yes	Integrated power supply, fanless 124 W power budget
ICX8200-C08ZP	4x100/1000/2500 Mbps RJ-45 PoE++ ports, 4x100 Mbps/1/2.5/5/10 Gbps RJ-45 PoE++ ports, and 2x1/10/25 Gbps SFP28 ports	10.0.10	Yes	Integrated power supply, fanless 240 W power budget
ICX8200-C08ZP-V	AV 4x100/1000/2500 Mbps RJ-45 PoE++ ports, 4x100 Mbps/1/2.5/5/10 Gbps RJ-45 PoE++ ports, and 2x1/10/25 Gbps SFP28 ports	10.0.10h	Yes	Integrated power supply, fanless 240 W power budget
ICX8200-24	24x10/100/1000 Mbps RJ-45 ports and 4x1/10/25 Gbps SFP28 ports	10.0.00	Yes	Integrated power supply
ICX8200-24F	24x1 Gbps SFP ports and 4x1/10/25 Gbps SFP28 ports	10.0.10	Yes	Integrated power supply
ICX8200-24FX	16x1/10 Gbps SFP+ ports and 8x1/10/25 Gbps SFP28 ports	10.0.10	Yes	Integrated power supply
ICX8200-24P	24x10/100/1000 Mbps RJ-45 PoE+ ports and 4x1/10/25 Gbps SFP28 ports	10.0.00	Yes	Integrated power supply 370 W power budget
ICX8200-24PV	AV 24x10/100/1000 Mbps RJ-45 PoE+ ports and 4x1/10/25 Gbps SFP28 ports	10.0.10e	Yes	Integrated power supply 370 W power budget
ICX8200-24ZP	24x100/1000/2500 Mbps RJ-45 PoE++ ports and 4x1/10/25 Gbps SFP28 ports	10.0.10	Yes	Integrated power supply 740 W power budget

TABLE 3 Switch Models (Continued)

Part Number	Description	Introduced (OS)	Currently Supported (OS)	Notes
ICX8200-24ZP-V	AV 24x100/1000/2500 Mbps RJ-45 PoE++ ports and 4x1/10/25 Gbps SFP28 ports	10.0.10h	Yes	Integrated power supply 740 W power budget
ICX8200-24XP2	16x100/1000/2500 Mbps RJ-45 PoE++ ports, 8x100 Mbps/1/2.5/5/10 Gbps RJ-45 PoE++ ports, and 6x1/10/25 Gbps SFP28 ports	10.0.10j	Yes	Hot-swappable power supplies and fan assemblies Power budget: 950 W with 1 PSU, 1900 W with 2 PSUs
ICX8200-48	48x10/100/1000 Mbps RJ-45 ports and 4x1/10/25 Gbps SFP28 ports	10.0.00	Yes	Integrated power supply
ICX8200-48F	48x1 Gbps SFP ports and 4x1/10/25 Gbps SFP28 ports	10.0.10	Yes	Integrated power supply
ICX8200-48P	48x10/100/1000 Mbps RJ-45 PoE+ ports and 4x1/10/25 Gbps SFP28 ports	10.0.00	Yes	Integrated power supply 370 W power budget
ICX8200-48P-V	AV 48x10/100/1000 Mbps RJ-45 PoE+ ports and 4x1/10/25 Gbps SFP28 ports	10.0.00h	Yes	Integrated power supply 370 W power budget
ICX8200-48PF	48x10/100/1000 Mbps RJ-45 PoE+ ports and 4x1/10/25 Gbps SFP28 ports	10.0.00	Yes	Integrated power supply 740 W power budget
ICX8200-48PF-V	AV 48x10/100/1000 Mbps RJ-45 PoE+ ports and 4x1/10/25 Gbps SFP28 ports	10.0.00h	Yes	Integrated power supply 740 W power budget
ICX8200-48PF2	48x10/100/1000 Mbps RJ-45 PoE+ ports and 4x1/10/25 Gbps SFP28 ports	10.0.00	Yes	Hot-swappable power supplies and fan assemblies Power budget: 840 W with 1 PSU, 1480 W with 2 PSUs
ICX8200-48PF2-V	AV 48x10/100/1000 Mbps RJ-45 PoE+ ports and 4x1/10/25 Gbps SFP28 ports	10.0.00h	Yes	Hot-swappable power supplies and fan assemblies Power budget: 840 W with 1 PSU, 1480 W with 2 PSUs
ICX8200-48NP2	40x100 Mbps/1/2.5/5 Gbps RJ-45 PoE++ ports, 8x100 Mbps/1/2.5/5/10 Gbps RJ-45 PoE++ ports, and 8x1/10/25 Gbps SFP28 ports	10.0.10j	Yes	Hot-swappable power supplies and fan assemblies Power budget: 950 W with 1 PSU, 1900 W with 2 PSUs
ICX8200-48ZP2	32x10/100/1000 Mbps RJ-45 PoE+ ports, 16x100/1000/2500 Mbps RJ-45 PoE++ ports, and 4x1/10/25 Gbps SFP28 ports	10.0.10	Yes	Hot-swappable power supplies and fan assemblies Power budget: 800 W with 1 PSU, 1480 W with 2 PSUs
ICX8200-48ZP2-V	AV 32x10/100/1000 Mbps RJ-45 PoE+ ports, 16x100/1000/2500 Mbps RJ-45 PoE++ ports, and 4x1/10/25 Gbps SFP28 ports	10.0.10h	Yes	Hot-swappable power supplies and fan assemblies Power budget: 800 W with 1 PSU, 1480 W with 2 PSUs

NOTE
The ICX8200-C08ZP and ICX8200-C08ZP-V require an IEC 60320-1 C15 power cord.

TABLE 4 Power Supplies

Part Number	Description	Introduced (OS)	Currently Supported (OS)
RPS23-E	920 W AC power supply with nonport-side exhaust airflow for ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V	10.0.00	Yes
RPS24-E	1200 W AC power supply with nonport-side exhaust airflow for ICX8200-24XP2 and ICX8200-48NP2	10.0.10j	Yes

TABLE 5 Fan Assemblies

Part Number	Description	Introduced (OS)	Currently Supported (OS)
ICX-FAN13-E	Fan with nonport-side exhaust airflow for ICX8200-24XP2 and ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V	10.0.00	Yes

TABLE 6 Mounting Kits

Part Number	Description	Notes
XBR-R000295	1U, 1.5U, and 2U Universal Kit for Four-Post Racks	Not included with the device. Optionally orderable.
ICX7000-RMK	Two-post fixed rack mount kit	Included with ICX 8200 24-port and 48-port models.
ICX7000-C12-RMK	Compact switch mount kit	Not included with the device. Optionally orderable.
ICX-DIN-MNT	DIN rail mount kit	Not included with the device. Optionally orderable.

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Hardware Features

The RUCKUS ICX 8200 is a high-density enterprise access switch that offers 10, 100, and 1000 Mbps and 1, 2.5, 5, 10, and 25 Gigabit Ethernet (GbE) line rates, low latency store-and-forward switching, and up to 720 Gbps throughput for campus LAN environments.

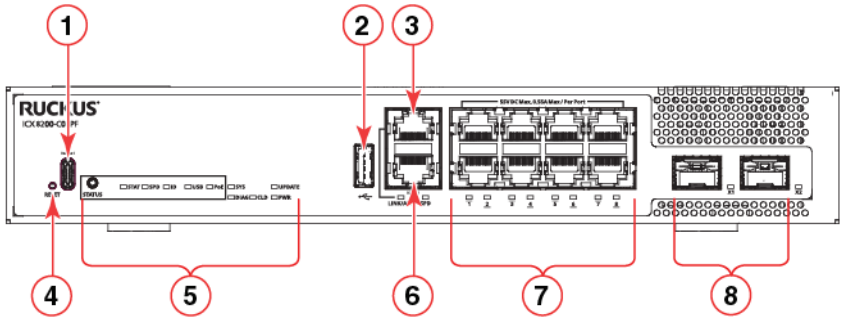
The RUCKUS ICX 8200 switches support the following features (features are model-dependent):

- SFP ports supporting 1-GbE transceivers, SFP+ ports supporting 1-GbE and 10-GbE transceivers, or SFP28 ports supporting 1-GbE, 10-GbE, and 25-GbE transceivers
- Comprehensive support for a range of 1-GbE, 10-GbE, and 25-GbE transceivers (refer to the latest RUCKUS Optics Family Data Sheet)
- Copper ports supporting 10, 100, and 1000 Mbps, and 2.5, 5, and 10 Gbps
- Copper ports supporting PoE/PoE+ and PoE++ (IEEE 802.3bt)
- Four 1/10/25-GbE SFP28 stacking ports on the 24 port and 48 port switches, eight 1/10/25-GbE SFP28 stacking ports on the ICX8200-24FX and ICX8200-48NP2 switches, two 1/10-GbE SFP+ stacking ports on the ICX8200-C08PF switch, or two 1/10/25-GbE SFP28 stacking ports on the ICX8200-C08ZP and ICX8200-C08ZP-V switches (supporting stacking for up to twelve switches). The stacking ports can also be configured as uplink (data) ports.
- Dual redundant, hot-swappable power supplies available with exhaust airflow on the ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V
- Two (1+1) redundant, hot-swappable fan assemblies available with exhaust airflow on the ICX8200-24XP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V. Four (3+1) redundant, hot-swappable fan assemblies available with exhaust airflow on the ICX8200-48NP2
- One 10/100/1000-Mbps Ethernet port (RJ-45) for out-of-band management
- RJ-45 and USB Type-C serial management ports to configure and manage the switch through the Command Line Interface (CLI)
- One USB Type-A port for the transfer of software and configuration files from an external storage device

Port-Side Views of the RUCKUS ICX 8200 Switch

Figure 1 shows the port-side view of the RUCKUS ICX8200-C08PF switch.

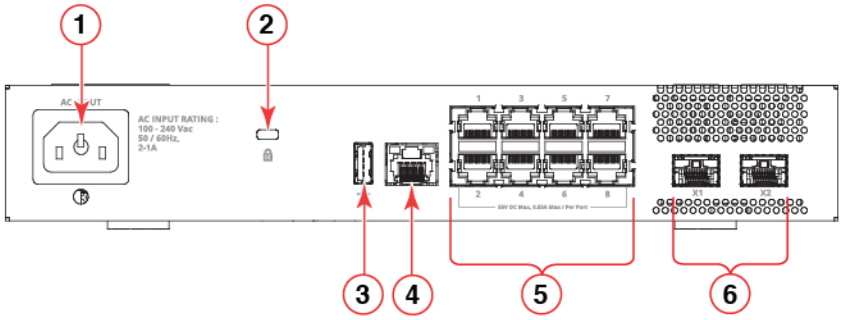
FIGURE 1 Port-Side View of the RUCKUS ICX8200-C08PF



1	USB Type-C console port	5	Status mode button and LEDs
2	USB port (for external disk drive)	6	RJ-45 console port
3	Management port (RJ-45)	7	Slot 1: 10/100/1000 Mbps RJ-45 PoE+ ports
4	Reset button	8	Slot 2: 1/10 Gbps SFP+ stacking/uplink ports

Figure 2 shows the port-side view of the RUCKUS ICX8200-C08PFV switch.

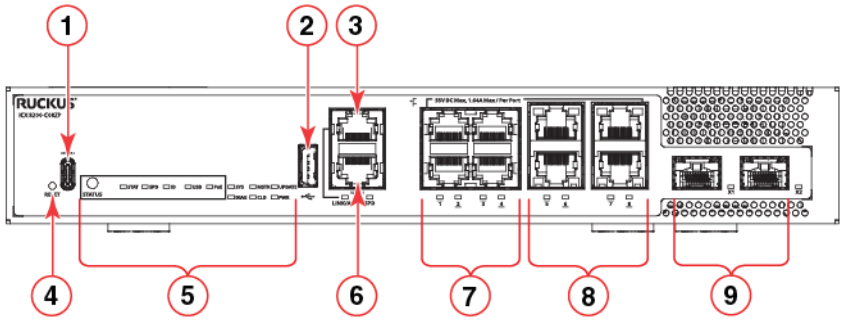
FIGURE 2 Port-Side View of the RUCKUS ICX8200-C08PFV



1	AC power socket	4	Management port (RJ-45)
2	Kensington lock slot	5	Slot 1: 10/100/1000 Mbps RJ-45 PoE+ ports
3	USB port (for external disk drive)	6	Slot 2: 1/10 Gbps SFP+ stacking/uplink ports

Figure 3 shows the port-side view of the RUCKUS ICX8200-C08ZP and ICX8200-C08ZP-V switch.

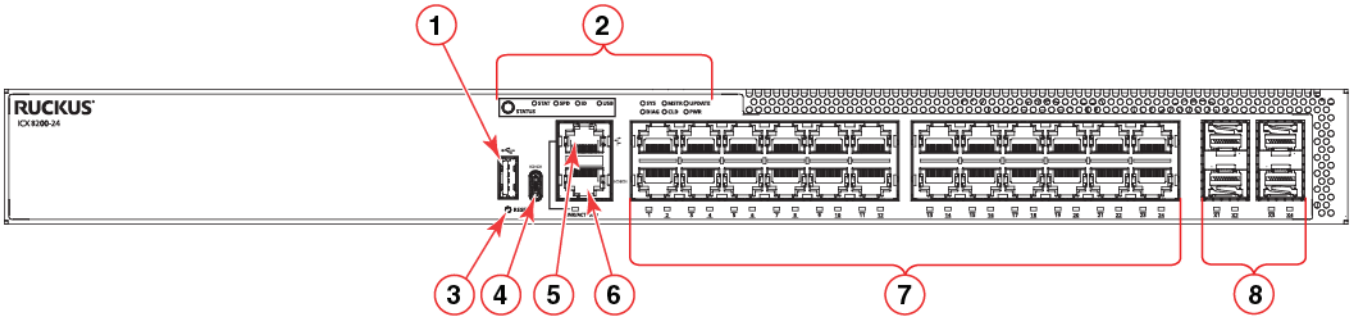
FIGURE 3 Port-Side View of the RUCKUS ICX8200-C08ZP and ICX8200-C08ZP-V



1	USB Type-C console port	6	RJ-45 console port
2	USB port (for external disk drive)	7	Slot 1: 100/1000/2500 Mbps RJ-45 PoE++ ports
3	Management port (RJ-45)	8	Slot 1: 100 Mbps/1/2.5/5/10 Gbps RJ-45 PoE++ ports
4	Reset button	9	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports
5	Status mode button and LEDs		

Figure 4 shows the port-side view of the RUCKUS ICX8200-24 switch.

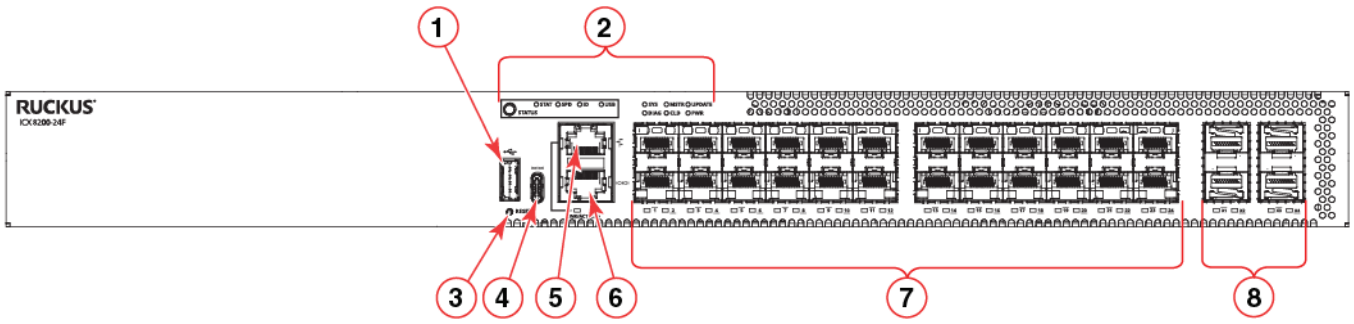
FIGURE 4 Port-Side View of the RUCKUS ICX8200-24



1	USB port (for external disk drive)	5	Management port (RJ-45)
2	Status mode button and LEDs	6	RJ-45 console port
3	Reset button	7	Slot 1: 10/100/1000 Mbps RJ-45 ports
4	USB Type-C console port	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 5 shows the port-side view of the RUCKUS ICX8200-24F switch.

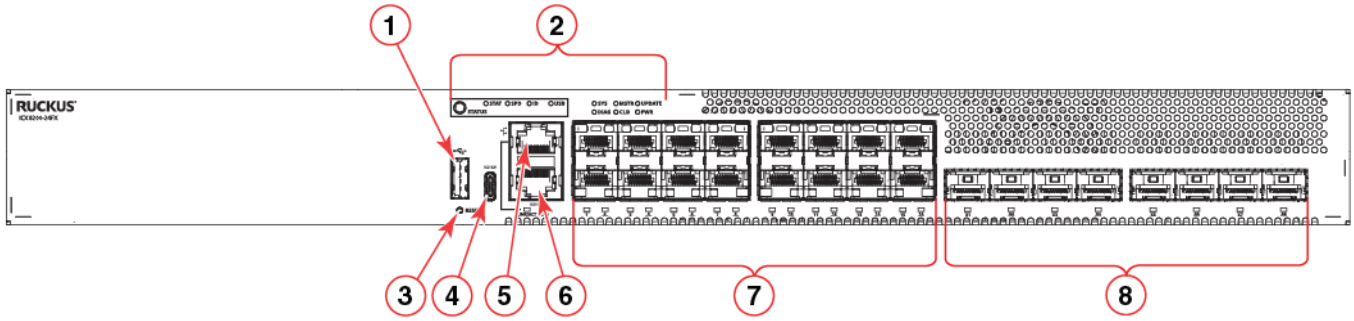
FIGURE 5 Port-Side View of the RUCKUS ICX8200-24F



1	USB port (for external disk drive)	5	Management port (RJ-45)
2	Status mode button and LEDs	6	RJ-45 console port
3	Reset button	7	Slot 1: 1 Gbps SFP ports
4	USB Type-C console port	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 6 shows the port-side view of the RUCKUS ICX8200-24FX switch.

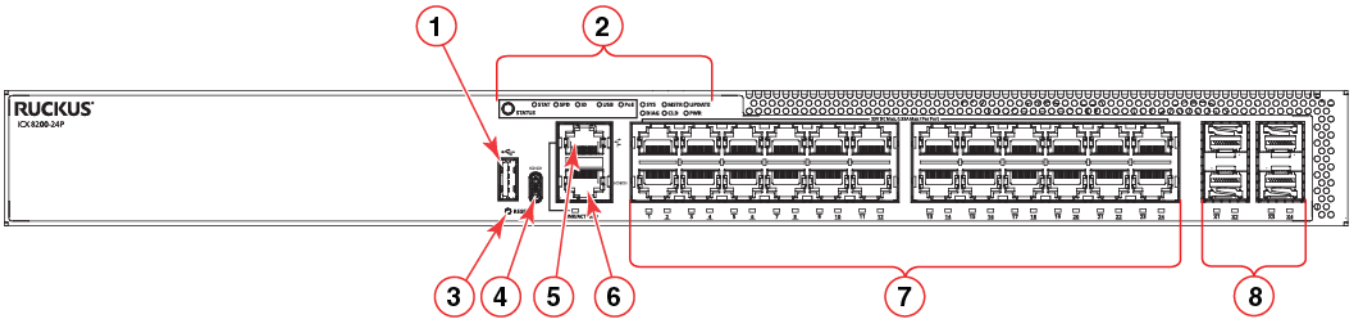
FIGURE 6 Port-Side View of the RUCKUS ICX8200-24FX



1	USB port (for external disk drive)	5	Management port (RJ-45)
2	Status mode button and LEDs	6	RJ-45 console port
3	Reset button	7	Slot 1: 1/10 Gbps SFP+ ports
4	USB Type-C console port	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 7 shows the port-side view of the RUCKUS ICX8200-24P switch.

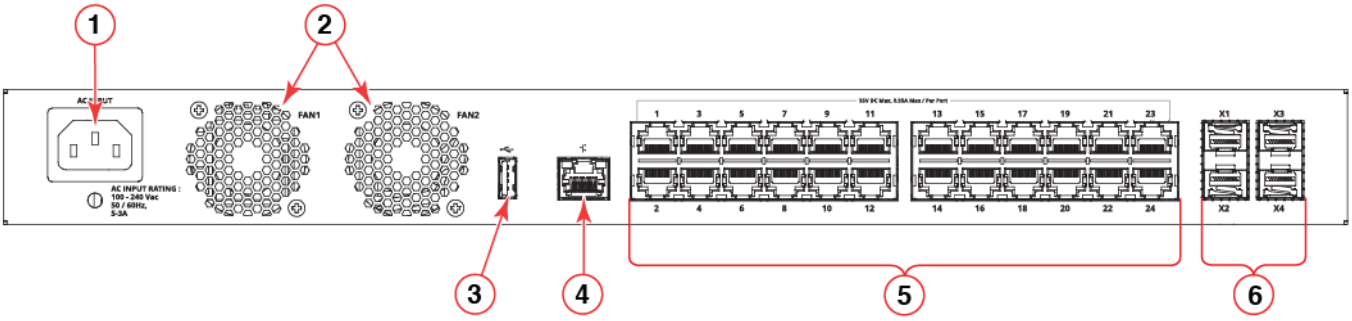
FIGURE 7 Port-Side View of the RUCKUS ICX8200-24P



1	USB port (for external disk drive)	5	Management port (RJ-45)
2	Status mode button and LEDs	6	RJ-45 console port
3	Reset button	7	Slot 1: 10/100/1000 Mbps RJ-45 PoE+ ports
4	USB Type-C console port	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 8 shows the port-side view of the RUCKUS ICX8200-24PV switch.

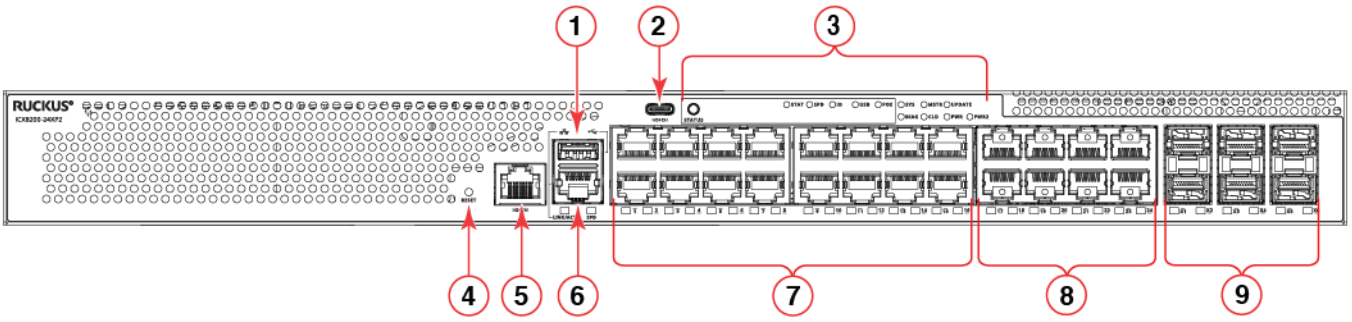
FIGURE 8 Port-Side View of the RUCKUS ICX8200-24PV



1	AC power socket	4	Management port (RJ-45)
2	Fan vents	5	Slot 1: 10/100/1000 Mbps RJ-45 PoE+ ports
3	USB port (for external disk drive)	6	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 9 shows the port-side view of the RUCKUS ICX8200-24XP2 switch.

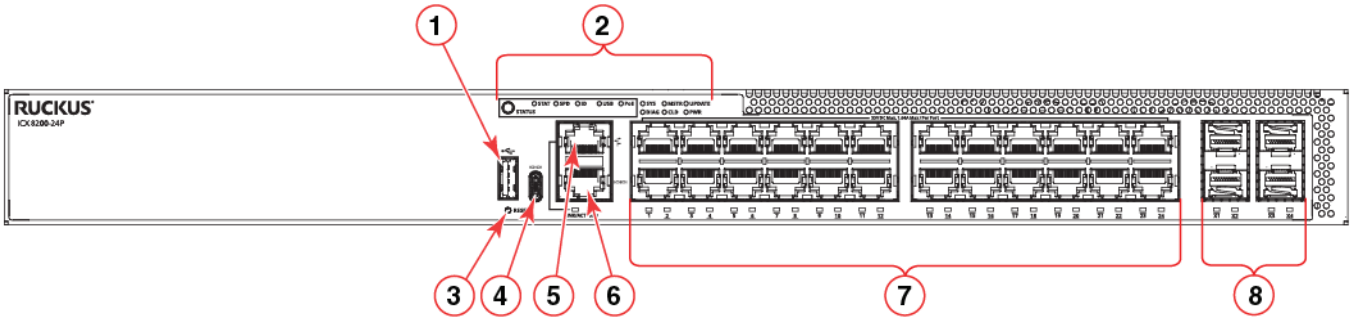
FIGURE 9 Port-Side View of the RUCKUS ICX8200-24XP2



1	USB port (for external disk drive)	6	Management port (RJ-45)
2	USB Type-C console port	7	Slot 1: 100/1000/2500 Mbps RJ-45 PoE++ ports
3	Status mode button and LEDs	8	Slot 1: 100 Mbps/1/2.5/5/10 Gbps RJ-45 PoE++ ports
4	Reset button	9	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports
5	RJ-45 console port		

Figure 10 shows the port-side view of the RUCKUS ICX8200-24ZP and ICX8200-24ZP-V switch.

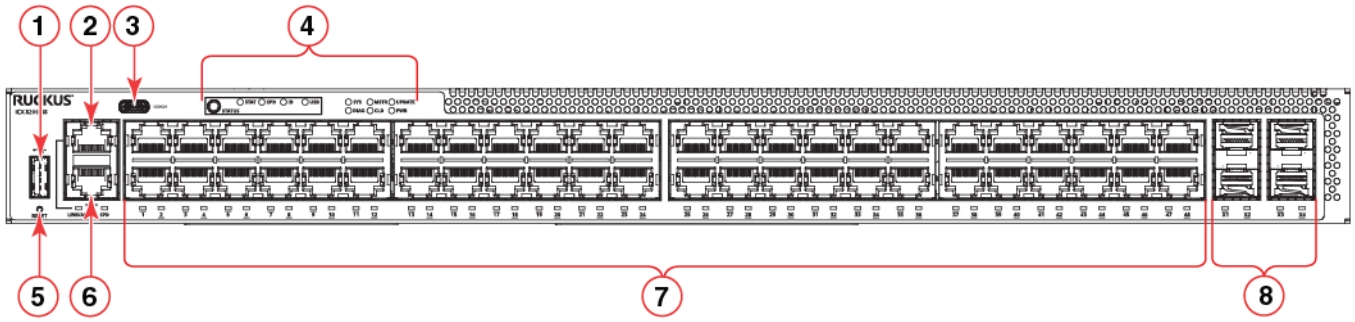
FIGURE 10 Port-Side View of the RUCKUS ICX8200-24ZP and ICX8200-24ZP-V



1	USB port (for external disk drive)	5	Management port (RJ-45)
2	Status mode button and LEDs	6	RJ-45 console port
3	Reset button	7	Slot 1: 100/1000/2500 Mbps RJ-45 PoE++ ports
4	USB Type-C console port	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 11 shows the port-side view of the RUCKUS ICX8200-48 switch.

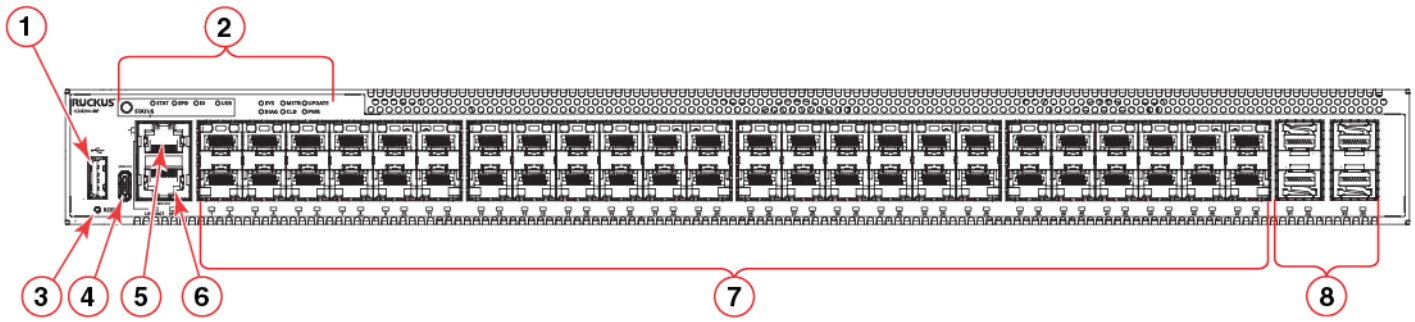
FIGURE 11 Port-Side View of the RUCKUS ICX8200-48



1	USB port (for external disk drive)	5	Reset button
2	Management port (RJ-45)	6	RJ-45 console port
3	USB Type-C console port	7	Slot 1: 10/100/1000 Mbps RJ-45 ports
4	Status mode button and LEDs	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 12 shows the port-side view of the RUCKUS ICX8200-48F switch.

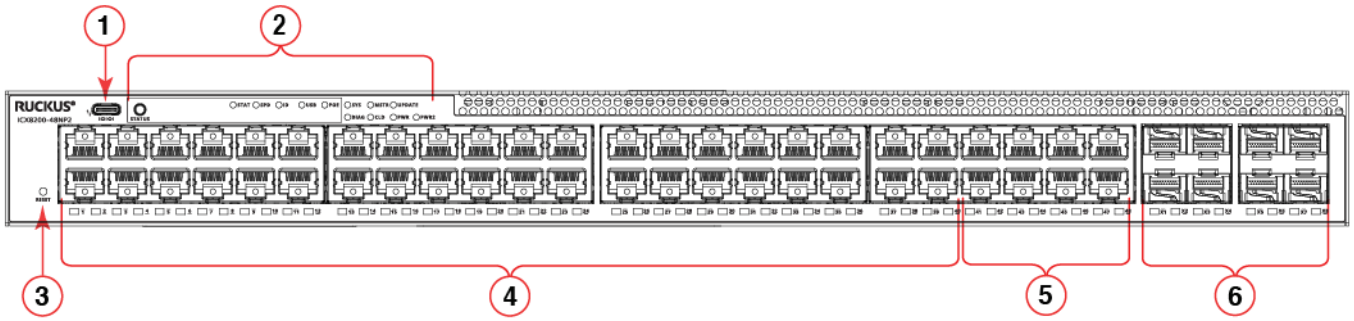
FIGURE 12 Port-Side View of the RUCKUS ICX8200-48F



1	USB port (for external disk drive)	5	Management port (RJ-45)
2	Status mode button and LEDs	6	RJ-45 console port
3	Reset button	7	Slot 1: 1 Gbps SFP ports
4	USB Type-C console port	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 13 shows the port-side view of the RUCKUS ICX8200-48NP2.

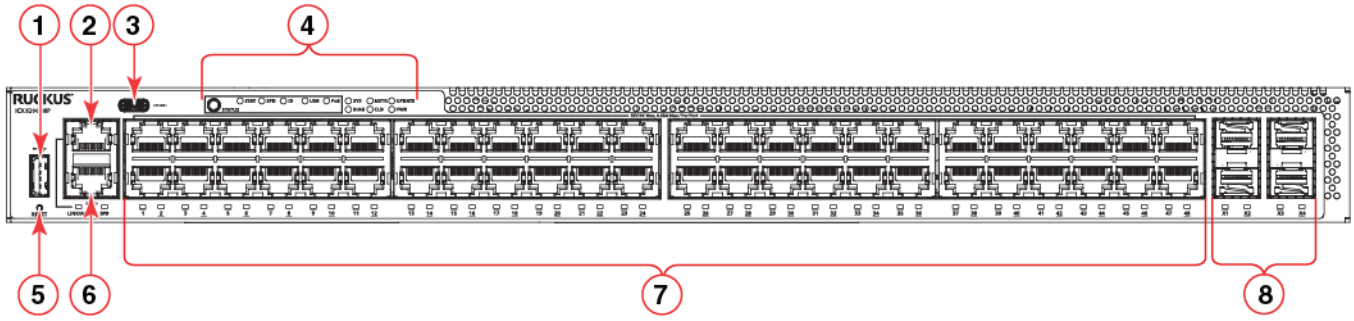
FIGURE 13 Port-Side View of the RUCKUS ICX8200-48NP2



1	USB Type-C console port	4	Slot 1: 100 Mbps/1/2.5/5 Gbps RJ-45 PoE++ ports
2	Status mode button and LEDs	5	Slot 1: 100 Mbps/1/2.5/5/10 Gbps RJ-45 PoE++ ports
3	Reset button	6	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 14 shows the port-side view of the RUCKUS ICX8200-48P and ICX8200-48P-V switch.

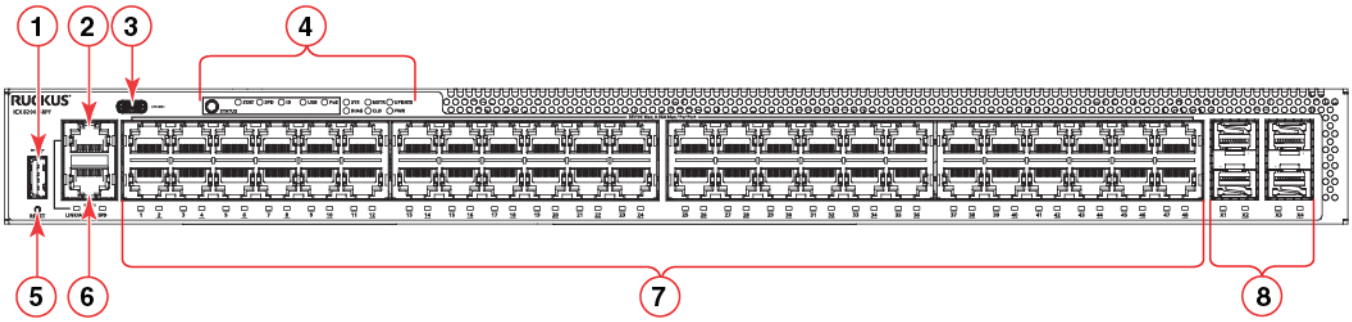
FIGURE 14 Port-Side View of the RUCKUS ICX8200-48P and ICX8200-48P-V



1	USB port (for external disk drive)	5	Reset button
2	Management port (RJ-45)	6	RJ-45 console port
3	USB Type-C console port	7	Slot 1: 10/100/1000 Mbps RJ-45 PoE+ ports
4	Status mode button and LEDs	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 15 shows the port-side view of the RUCKUS ICX8200-48PF and ICX8200-48PF-V switch.

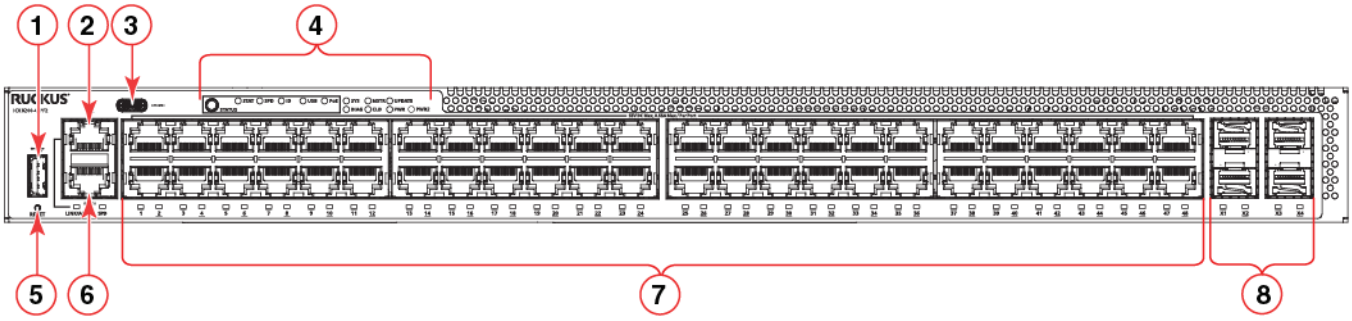
FIGURE 15 Port-Side View of the RUCKUS ICX8200-48PF and ICX8200-48PF-V



1	USB port (for external disk drive)	5	Reset button
2	Management port (RJ-45)	6	RJ-45 console port
3	USB Type-C console port	7	Slot 1: 10/100/1000 Mbps RJ-45 PoE+ ports
4	Status mode button and LEDs	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 16 shows the port-side view of the RUCKUS ICX8200-48PF2 and ICX8200-48PF2-V switch.

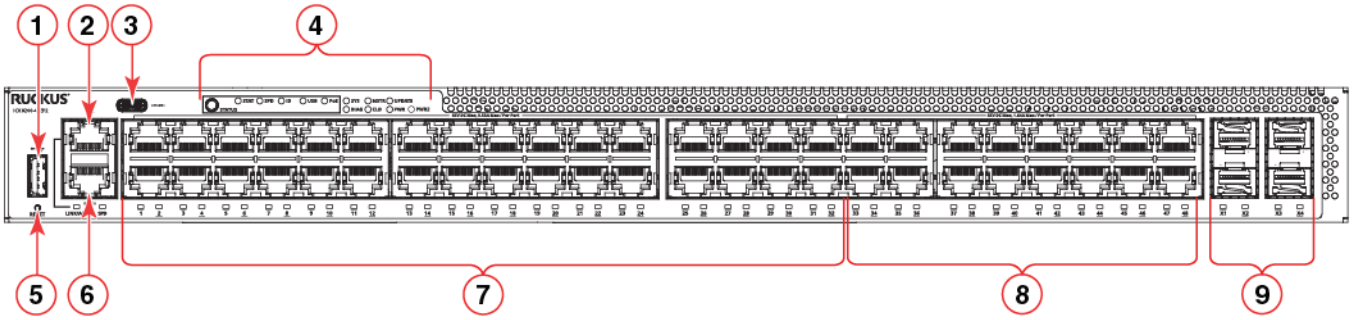
FIGURE 16 Port-Side View of the RUCKUS ICX8200-48PF2 and ICX8200-48PF2-V



1	USB port (for external disk drive)	5	Reset button
2	Management port (RJ-45)	6	RJ-45 console port
3	USB Type-C console port	7	Slot 1: 10/100/1000 Mbps RJ-45 PoE+ ports
4	Status mode button and LEDs	8	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports

Figure 17 shows the port-side view of the RUCKUS ICX8200-48ZP2 and ICX8200-48ZP2-V switch.

FIGURE 17 Port-Side View of the RUCKUS ICX8200-48ZP2 and ICX8200-48ZP2-V

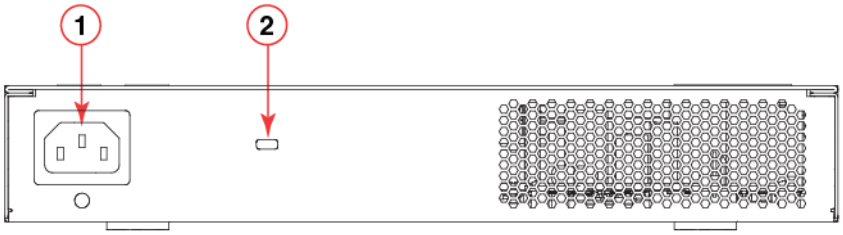


1	USB port (for external disk drive)	6	RJ-45 console port
2	Management port (RJ-45)	7	Slot 1: 10/100/1000 Mbps RJ-45 PoE+ ports
3	USB Type-C console port	8	Slot 1: 100/1000/2500 Mbps RJ-45 PoE++ ports
4	Status mode button and LEDs	9	Slot 2: 1/10/25 GbE SFP28 stacking/uplink ports
5	Reset button		

Nonport-Side Views of the RUCKUS ICX 8200 Switch

Figure 18 shows the nonport-side view of the RUCKUS ICX8200-C08PF switch.

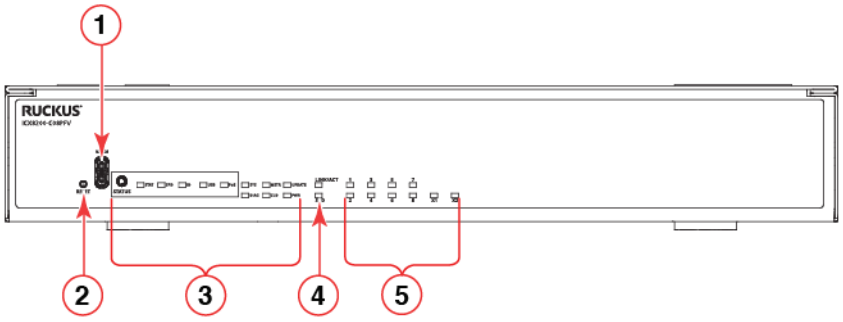
FIGURE 18 Nonport-Side View of the RUCKUS ICX8200-C08PF



1	AC power socket	2	Kensington lock slot

Figure 19 shows the nonport-side view of the RUCKUS ICX8200-C08PFV switch.

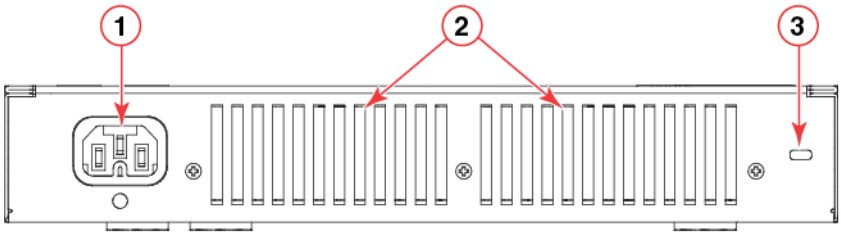
FIGURE 19 Nonport-Side View of the RUCKUS ICX8200-C08PFV



1	USB Type-C console port	4	LINK/ACT (link/activity) and SPD (speed) management port LEDs
2	Reset button	5	Port link/activity LEDs
3	Status mode button and LEDs		

Figure 20 shows the nonport-side view of the RUCKUS ICX8200-C08ZP and ICX8200-C08ZP-V switch.

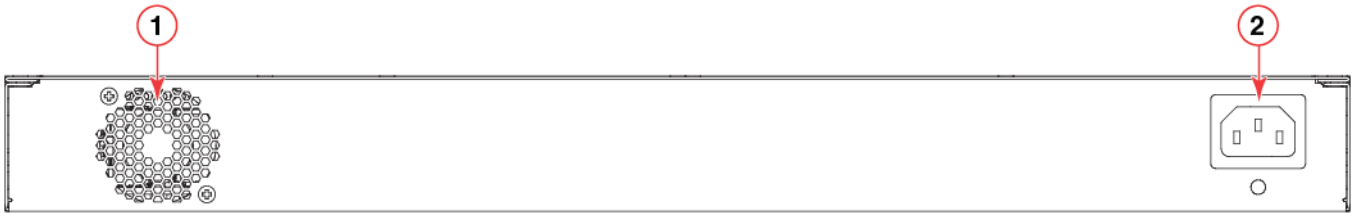
FIGURE 20 Nonport-Side View of the RUCKUS ICX8200-C08ZP and ICX8200-C08ZP-V



1	AC power socket	3	Kensington lock slot
2	Cooling fins		

Figure 21 shows the nonport-side view of the RUCKUS ICX8200-24 switch.

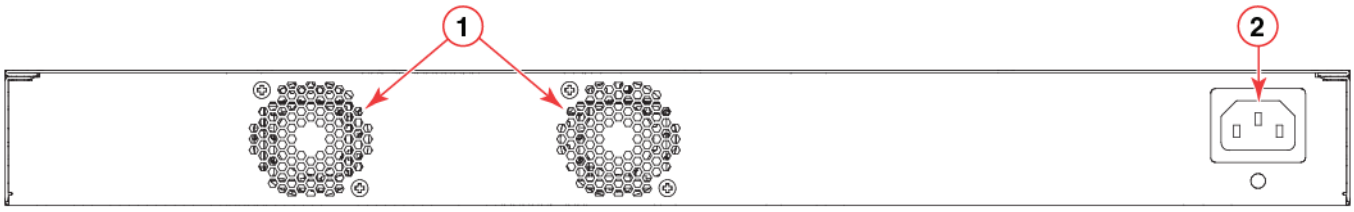
FIGURE 21 Nonport-Side View of the RUCKUS ICX8200-24



1	Fan vent	2	AC power socket

Figure 22 shows the nonport-side view of the RUCKUS ICX8200-24F switch.

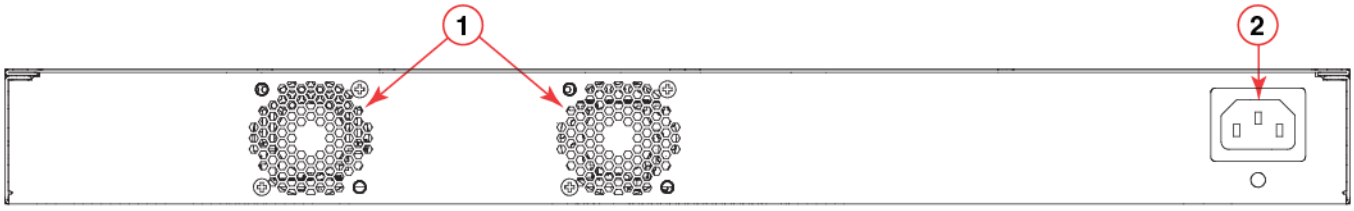
FIGURE 22 Nonport-Side View of the RUCKUS ICX8200-24F



1 Fan vents 2 AC power socket

Figure 23 shows the nonport-side view of the RUCKUS ICX8200-24FX switch.

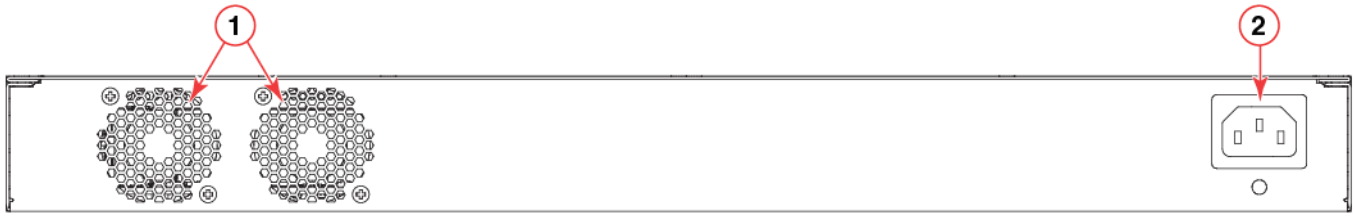
FIGURE 23 Nonport-Side View of the RUCKUS ICX8200-24FX



1 Fan vents 2 AC power socket

Figure 24 shows the nonport-side view of the RUCKUS ICX8200-24P switch.

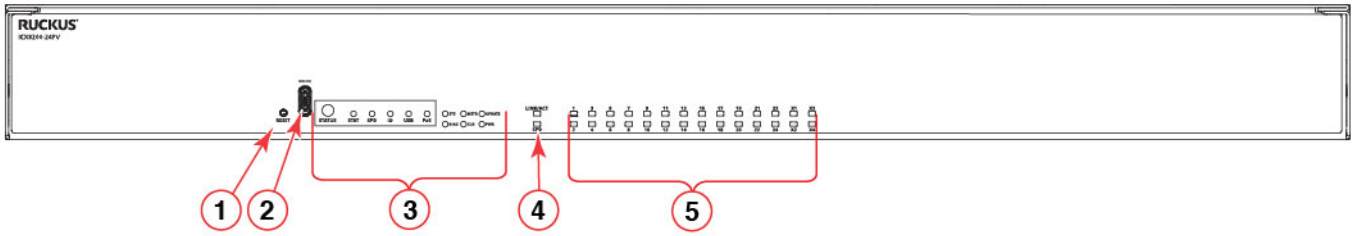
FIGURE 24 Nonport-Side View of the RUCKUS ICX8200-24P



1 Fan vents 2 AC power socket

Figure 25 shows the nonport-side view of the RUCKUS ICX8200-24PV switch.

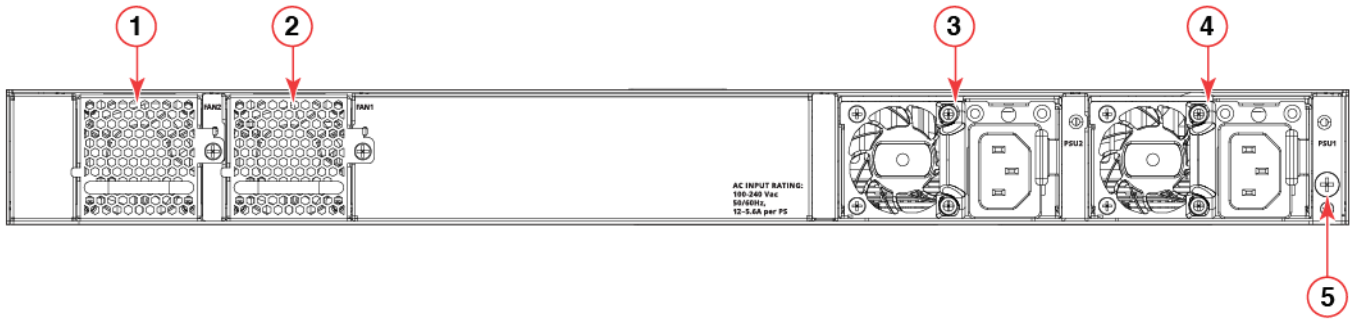
FIGURE 25 Nonport-Side View of the RUCKUS ICX8200-24PV



1	Reset button	4	LINK/ACT (link/activity) and SPD (speed) management port LEDs
2	USB Type-C console port	5	Port link/activity LEDs
3	Status mode button and LEDs		

Figure 26 shows the nonport-side view of the RUCKUS ICX8200-24XP2.

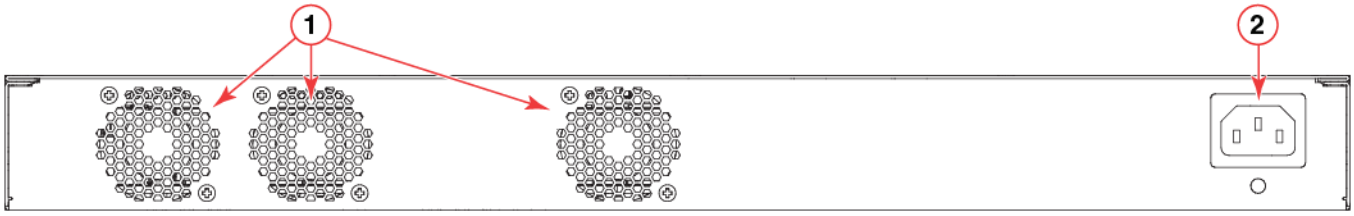
FIGURE 26 Nonport-Side View of the RUCKUS ICX8200-24XP2



1	Fan assembly 2	4	Power supply unit 1
2	Fan assembly 1	5	Grounding terminal
3	Power supply unit 2		

Figure 27 shows the nonport-side view of the RUCKUS ICX8200-24ZP and ICX8200-24ZP-V switch.

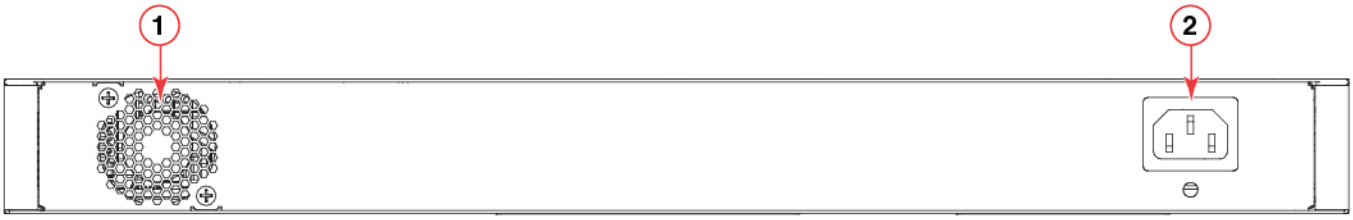
FIGURE 27 Nonport-Side View of the RUCKUS ICX8200-24ZP and ICX8200-24ZP-V



1	Fan vents	2	AC power socket

Figure 28 shows the nonport-side view of the RUCKUS ICX8200-48 switch.

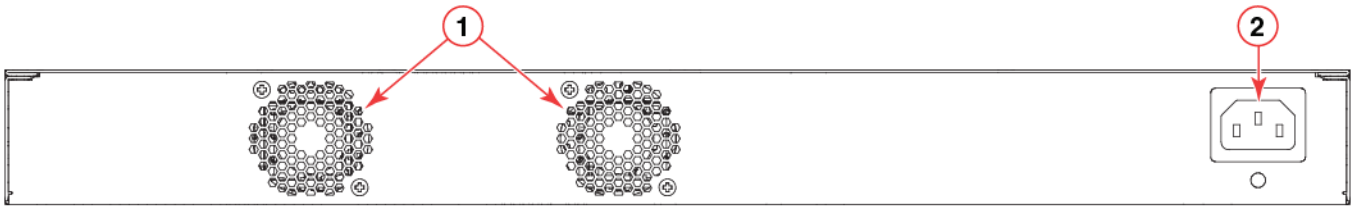
FIGURE 28 Nonport-Side View of the RUCKUS ICX8200-48



1	Fan vent	2	AC power socket

Figure 29 shows the nonport-side view of the RUCKUS ICX8200-48F switch.

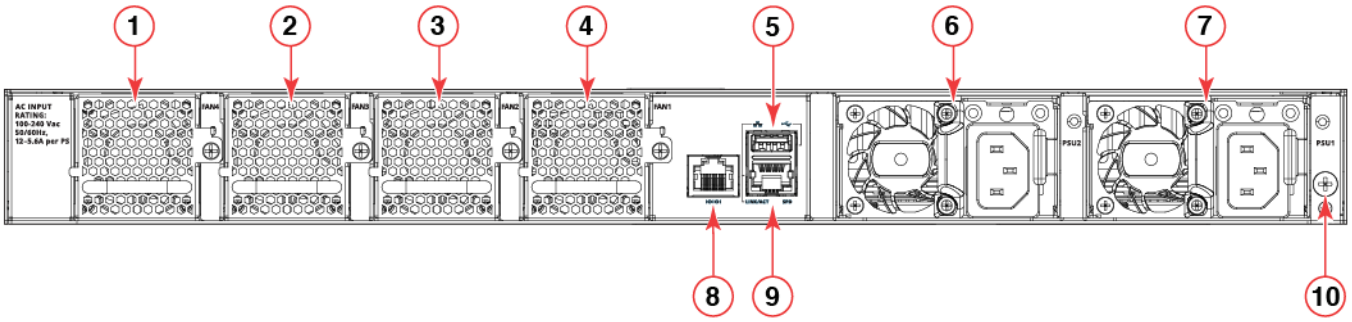
FIGURE 29 Nonport-Side View of the RUCKUS ICX8200-48F



1	Fan vents	2	AC power socket

Figure 30 shows the nonport-side view of the RUCKUS ICX8200-48NP2.

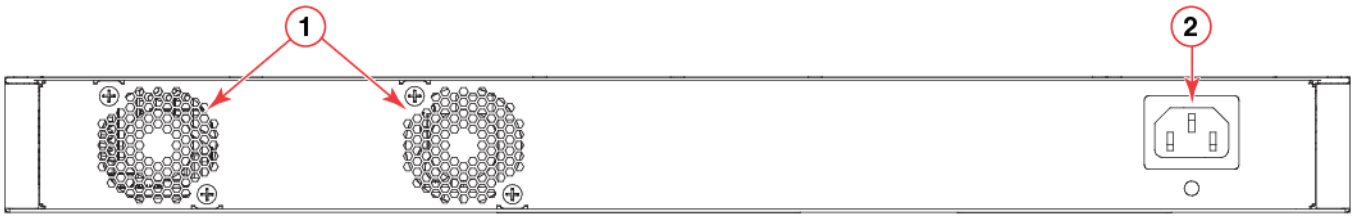
FIGURE 30 Nonport-Side View of the RUCKUS ICX8200-48NP2



1	Fan assembly 4	6	Power supply unit 2
2	Fan assembly 3	7	Power supply unit 1
3	Fan assembly 2	8	RJ-45 console port
4	Fan assembly 1	9	Management port (RJ-45)
5	USB port (for external disk drive)	10	Grounding terminal

Figure 31 shows the nonport-side view of the RUCKUS ICX8200-48P and ICX8200-48P-V switch.

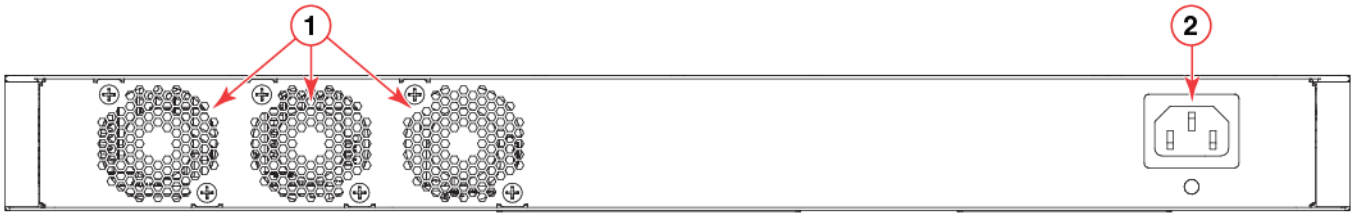
FIGURE 31 Nonport-Side View of the RUCKUS ICX8200-48P and ICX8200-48P-V



1	Fan vents	2	AC power socket

Figure 32 shows the nonport-side view of the RUCKUS ICX8200-48PF and ICX8200-48PF-V switch.

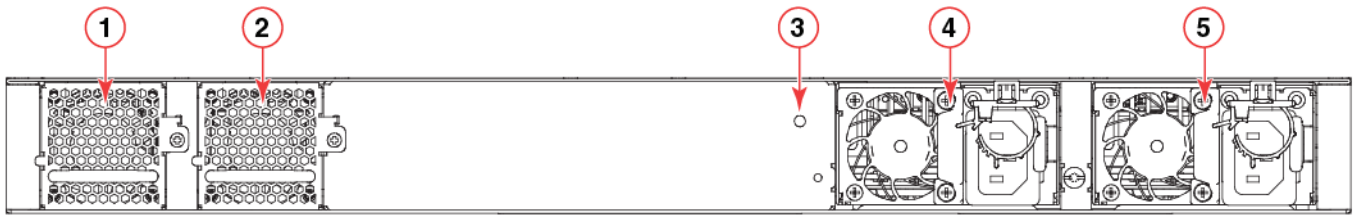
FIGURE 32 Nonport-Side View of the RUCKUS ICX8200-48PF and ICX8200-48PF-V



1	Fan vents	2	AC power socket

Figure 33 shows the nonport-side view of the RUCKUS ICX8200-48PF2 and ICX8200-48PF2-V switch.

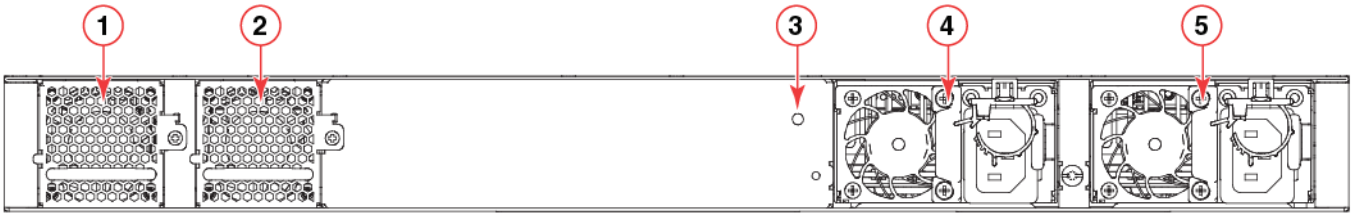
FIGURE 33 Nonport-Side View of the RUCKUS ICX8200-48PF2 and ICX8200-48PF2-V



1	Fan assembly 2	4	Power supply unit 2
2	Fan assembly 1	5	Power supply unit 1
3	Grounding terminal		

Figure 34 shows the nonport-side view of the RUCKUS ICX8200-48ZP2 and ICX8200-48ZP2-V switch.

FIGURE 34 Nonport-Side View of the RUCKUS ICX8200-48ZP2 and ICX8200-48ZP2-V



1	Fan assembly 2	4	Power supply unit 2
2	Fan assembly 1	5	Power supply unit 1
3	Grounding terminal		

Device Management Options

You can use the management functions built into the switch to monitor the port status, physical status, and other information to help you analyze device performance and system debugging. The switch automatically performs power-on self-test (POST) each time it is turned on.

You can manage the switch using any of the management options listed in the following table.

TABLE 7 Management Options for the Switch

Management Tool	Out-of-Band Support	In-Band Support	Reference Documents
Command line interface (CLI)	Ethernet or serial connection	Yes	*RUCKUS FastIron Command Reference Guide*
RUCKUS FastIron Web Management Interface	Ethernet	Yes	*RUCKUS FastIron Web Management Interface User Guide*
Standard SNMP applications	Ethernet	Yes	*RUCKUS FastIron Management Configuration Guide*
SmartZone	Ethernet	Yes	*RUCKUS SmartZone Network Administration Guide* *RUCKUS FastIron Management Configuration Guide*
RUCKUS One	Ethernet	Yes	*RUCKUS One User Guide (Online Help)* *RUCKUS FastIron Management Configuration Guide*
RUCKUS Unleashed	Ethernet	Yes	*RUCKUS Unleashed User Guide*

NOTE
ICX8200-24PV and ICX8200-C08PFV do not currently support management by RUCKUS One and SmartZone.

Preparing for Installation

- Safety Precautions 31
- Facility Requirements 34
- Quick Installation Checklist 36
- Shipping Carton Contents 37

Safety Precautions

When using this product, observe all danger, caution, and attention notices in this manual. The safety notices are accompanied by symbols that represent the severity of the safety condition.

Refer to "Cautions and Danger Notices" on page 129 for translations of safety notices for this product.

General Precautions



DANGER
The procedures in this manual are for qualified service personnel.



DANGER
Before beginning the installation, see the precautions in "Power Precautions."



DANGER
Be careful not to accidentally insert your fingers into the fan tray while removing it from the chassis. The fan may still be spinning at a high speed.



CAUTION
Changes or modifications made to this device that are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



CAUTION
Disassembling any part of the power supply and fan assembly voids the warranty and regulatory certifications. There are no user-serviceable parts inside the power supply and fan assembly.



CAUTION
For indoor use only. The switch, power supplies, and all connected cables are not designed for outdoor use.



CAUTION
Make sure the airflow around the front, sides, and back of the device is not restricted.



CAUTION
To protect the serial port from damage, keep the cover on the port when not in use.

CAUTION
Never leave tools inside the chassis.

CAUTION
If you do not install a fan assembly or power supply in a slot, you must keep the slot filler panel in place. If you run the chassis with an uncovered slot, the system will overheat.

CAUTION
Use the screws specified in the procedure. Using longer screws can damage the device.

CAUTION
Do not install the device in an environment where the operating ambient temperature might exceed 45°C (113°F).

CAUTION
Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the manufacturer's instructions.

ESD Precautions

DANGER
For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.

CAUTION
Static electricity can damage the chassis and other electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

CAUTION
Before plugging a cable into any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

Power Precautions

DANGER
If the installation requires a different power cord than the one supplied with the device, make sure you use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the device.

DANGER
Risk of Electrical Shock: To disconnect power, remove all power cords from the unit.



DANGER
Disconnect the power cord from all power sources to completely remove power from the device.

DANGER
This device might have more than one power cord. To reduce the risk of electric shock, disconnect all power cords before servicing.



CAUTION
To avoid high voltage shock, do not open the device while the power is on.



CAUTION
Use a separate branch circuit for each power cord, which provides redundancy in case one of the circuits fails.



CAUTION
Ensure that the device does not overload the power circuits, wiring, and over-current protection. To determine the possibility of overloading the supply circuits, add the ampere (amp) ratings of all devices installed on the same circuit as the device. Compare this total with the rating limit for the circuit. The maximum ampere ratings are usually printed on the devices near the input power connectors.

Lifting Precautions



DANGER
Use safe lifting practices when moving the product.



DANGER
Mount the devices you install in a rack as low as possible. Place the heaviest device at the bottom and progressively place lighter devices above.



CAUTION
Make sure the rack housing the device is adequately secured to prevent it from becoming unstable or falling over.



CAUTION
To prevent damage to the chassis and components, never attempt to lift the chassis using the fan or power supply handles. These handles were not designed to support the weight of the chassis.

Laser Precautions



DANGER
All fiber-optic interfaces use Class 1 lasers.



DANGER
Laser radiation. Do not view directly with optical instruments. Class 1M laser products.



DANGER
Use only optical transceivers that are qualified by RUCKUS and comply with the FDA Class 1 radiation performance requirements defined in 21 CFR Subchapter I, and with IEC 60825 and EN60825. Optical products that do not comply with these standards might emit light that is hazardous to the eyes.

Facility Requirements

To install and operate the device successfully, ensure compliance with the following electrical, environmental, location, and cable management requirements.

Electrical Considerations

For successful installation and operation of the device, ensure that the following electrical requirements are met:

- The primary outlet is correctly wired, protected by a circuit breaker, and grounded in accordance with local electrical codes.
- The supply circuit, line fusing, and wire size are adequate, as specified by the electrical rating on the device nameplate.
- The power supply standards are met.

Environmental Considerations

For successful installation and operation of the device, ensure that the following environmental requirements are met:

- Some combinations of intake and exhaust airflows may not be compatible with your environment. Consult your fan assembly and power supply module FRU kits to determine the correct configuration.
- The ambient air temperature does not exceed 45°C (113°F).

Location Considerations

Before installing the device, plan its location and orientation relative to other devices and equipment. Devices can be mounted in a standard 19-inch equipment rack or on a flat horizontal surface.

The site should meet the following requirements:

- Maintain the operating environment as specified in "Environmental Considerations" on page 34.
- Allow a minimum of 7.62 cm (3 in.) of space between the front and the back of the device and walls or other obstructions for proper airflow.
- Allow at least 7.62 cm (3 in.) of space at the front and back of the device for the twisted-pair, fiber-optic, and power cabling.
- Allow access space for installing, cabling, and maintaining the devices.
- Ensure the status LEDs are clearly visible.
- Allow for twisted-pair cables to be routed away from power lines, fluorescent lighting fixtures, and other sources of electrical interference, such as radios and transmitters.
- Allow for the unit to be connected to a separate grounded power outlet that provides 100 to 240 VAC, 50 to 60 Hz, is within 2 m (6.6 ft) of each device, and is powered from an independent circuit breaker. As with any equipment, a filter or surge suppressor is recommended.

Rack Considerations

For successful installation and operation of the device in a rack, ensure the following rack requirements are met:

- The rack must be a standard EIA rack.
- The equipment in the rack is grounded through a reliable branch circuit connection and maintains ground at all times. Do not rely on a secondary connection to a branch circuit, such as a power strip.
- Airflow and temperature requirements are met on a continual basis, particularly if the device is installed in a closed or multirack assembly.

- The additional weight of the device does not exceed the rack's weight limits or unbalance the rack in any way.
- The rack is secured to ensure stability in case of unexpected movement, such as an earthquake.

Recommendations for Cable Management

Cables can be organized and managed in a variety of ways; for example, use cable channels on the sides of the rack or patch panels to reduce the potential for tangling the cables. The following list provides some recommendations for cable management:



CAUTION
Before plugging a cable to any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

NOTE
You should not use tie wraps with fiber-optic cables because they are easily overtightened and can damage the optical fibers. Velcro-like wraps are recommended.

- Plan for the rack space required for cable management before installing the device.
- Leave at least 1 m (3.28 ft) of slack for each port cable. This provides room to remove and replace the device, allows for inadvertent movement of the rack, and helps prevent the cables from being bent to less than the minimum bend radius.
- For easier maintenance, label the cables and record the devices to which they are connected.
- Keep LEDs visible by routing port cables and other cables away from the LEDs.

Quick Installation Checklist

This checklist provides a high-level overview of the basic installation process from the planning stage to the point where the device comes online and is ready to be deployed. Completing all the tasks in the suggested order ensures successful installation. RUCKUS recommends that you print this checklist and take it to the installation site.

Follow the steps listed in Table 8 to install your device. Details for each of these steps are provided on the pages indicated.

TABLE 8 Installation Tasks

Task Number	Task	Where to Find More Information	Completed
1	Ensure that the physical environment that will host the device has the proper cabling and ventilation.	"Facility Requirements" on page 34	
2	If customizing a RUCKUS ICX8200-24XP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, or ICX8200-48ZP2-V switch baseline chassis: 1. Install at least one power supply unit. 2. Install at least one fan. If customizing a RUCKUS ICX8200-48NP2 switch baseline chassis: 1. Install at least one power supply unit. 2. Install at least three fans.	"Inserting a New AC Power Supply" on page 101 "Inserting a New Fan Assembly" on page 106	
3	Mount the device.	"Mounting on a Desktop or Flat Surface" on page 41 "Mounting a 24-Port or 48-Port Switch on a Wall" on page 42 "Mounting a Compact Switch on a Wall" on page 44 "Mounting a Compact Switch Under a Flat Surface or on a Ceiling" on page 45 "Mounting a Compact Switch on a DIN Rail" on page 48 "Mounting a 24-Port or 48-Port Switch in a Two-Post Rack" on page 50 "Mounting a Compact Switch in a Two-Post Rack" on page 53 "Installing the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295)" on page 56	
4	Connect devices in a stack	"Connecting Devices in a Stack" on page 67	
5	Plug the device into a nearby power source that adheres to the regulatory requirements outlined in this manual.	"Providing Power to the Device" on page 75	
6	Attach a terminal or laptop to the device. This will enable you to configure the device through the command line interface (CLI).	"Establishing a First-Time Serial Connection" on page 75	
7	Assign a password for additional access security. No default password is assigned to the CLI.	*RUCKUS FastIron Command Reference Guide*	
8	Before attaching equipment to the device, you must configure an interface IP address to the subnet on which the device will be located. Initial IP address configuration is performed using the CLI with a direct serial connection.	*RUCKUS FastIron Command Reference Guide*	
9	Connect network equipment to the system.	"Connecting Network Devices" on page 80	
10	Test IP connectivity to other devices by pinging them and tracing routes.	*RUCKUS FastIron Command Reference Guide*	
11	Continue configuring the device using the CLI.	*RUCKUS FastIron Command Reference Guide*	
12	Secure access to the device.	*RUCKUS FastIron Management Configuration Guide*	

Shipping Carton Contents

RUCKUS ICX 8200 devices ship with all of the following items included in the shipping carton. When unpacking the device, verify that the contents of the shipping carton are complete. If any items are missing, contact the place of purchase.

- The RUCKUS ICX 8200 device
- An accessory kit containing the following items:
  - Two-post rack kit (ICX7000-RMK) containing four rack-mounting screws and four cage nuts (included only with 24-port and 48-port models)
  - Rack mounting kit containing two L-shaped mounting brackets and two sets of eight sink-head screws (included only with 24-port and 48-port models)
  - Wall mounting kit containing two wall-mount screws and two plastic anchors (not included with ICX8200-24PV)
  - One power cord retaining clip
  - One USB Type-C to USB Type-A cable (included only with ICX8200-24PV and ICX8200-C08PFV)
  - One US AC power cord, shielded (included only with ICX8200-24PV and ICX8200-C08PFV)
  - One RJ-45-to-DB9 adapter (not included with ICX8200-24PV and ICX8200-C08PFV)
  - Four rubber feet (included only with ICX8200-C08PF, ICX8200-C08PFV, ICX8200-C08ZP, and ICX8200-C08ZP-V)
  - One grounding screw with washer (included only with ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V)
  - RUCKUS AV Quick Setup Insert document (included only with ICX8200-24PV and ICX8200-C08PFV)
  - China ROHS sheet
  - Read Me First document

Mounting the Device

- Mounting Options 39
- Mounting the Device in a Rack 39
- Precautions Specific to Mounting 40
- Mounting on a Desktop or Flat Surface 41
- Mounting a 24-Port or 48-Port Switch on a Wall 42
- Mounting a Compact Switch on a Wall 44
- Mounting a Compact Switch Under a Flat Surface or on a Ceiling 45
- Mounting a Compact Switch on a DIN Rail 48
- Mounting a 24-Port or 48-Port Switch in a Two-Post Rack 50
- Mounting a Compact Switch in a Two-Post Rack 53
- Installing the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295) 56
- Connecting Devices in a Stack 67

Mounting Options

The RUCKUS ICX 8200 24-port and 48-port switches support the following mounting options:

- In a two-post Telco rack using a two-post rack mount kit (ICX7000-RMK). The two-post rack mount brackets are included with the switch and support various mounting positions (refer to Figure 45).
- In a four-post EIA rack using the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295). The rack kit can be used to install devices in EIA racks that are between 61 cm and 81 cm (24 in. to 32 in.) deep.
- As a standalone unit on a wall.
- As a standalone unit on a flat surface.

The RUCKUS ICX8200-C08PF, ICX8200-C08PFV, ICX8200-C08ZP, and ICX8200-C08ZP-V compact switches support the following mounting options:

- In a two-post Telco rack using the compact switch mount kit (ICX7000-C12-RMK).
- As a standalone unit on a wall.
- As a standalone unit on a flat surface.
- As a standalone unit under a flat surface or on a ceiling using the compact switch mount kit (ICX7000-C12-RMK).
- As a standalone unit on a DIN rail using the DIN rail mount kit (ICX-DIN-MNT).

Mounting the Device in a Rack



CAUTION
Make sure the rack housing the device is adequately secured to prevent it from becoming unstable or falling over.

NOTE
You need a #2 Phillips screwdriver for installation.

Before mounting the switch in a rack, pay particular attention to the following factors:

- Temperature: Because the temperature within a rack assembly may be higher than the ambient room temperature, check that the rack-environment temperature is within the specified operating temperature range. (Refer to "Environmental Considerations" on page 34.)
- Mechanical loading: Do not place any equipment on top of a rack-mounted unit.
- Circuit overloading: Be sure that the supply circuit to the rack assembly is not overloaded.
- Grounding: Rack-mounted equipment should be properly grounded. Particular attention should be given to supply connections other than direct connections to the mains electricity supply.

To mount the product into a two-post rack using the included rack-mount kit, refer to "Mounting a 24-Port or 48-Port Switch in a Two-Post Rack" on page 50 or "Mounting a Compact Switch in a Two-Post Rack" on page 53 for the installation procedures.

To mount the product into a four-post rack that is between 61 cm and 81 cm (24 in. to 32 in.) deep, you can order a four-post rack kit with the part number XBR-R000295. For the procedures to install this kit, refer to "Installing the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295)" on page 56.

To mount a compact switch into a two-post rack, refer to "Mounting a Compact Switch in a Two-Post Rack" on page 53.

Precautions Specific to Mounting

The following precautions specifically apply to mounting the device.



DANGER
Use safe lifting practices when moving the product.



CAUTION
Make sure the rack housing the device is adequately secured to prevent it from becoming unstable or falling over.



CAUTION
Make sure the airflow around the front and sides of the device is not restricted.



CAUTION
Never leave tools inside the device.



CAUTION
Use the screws specified in the procedure. Using longer screws can damage the device.

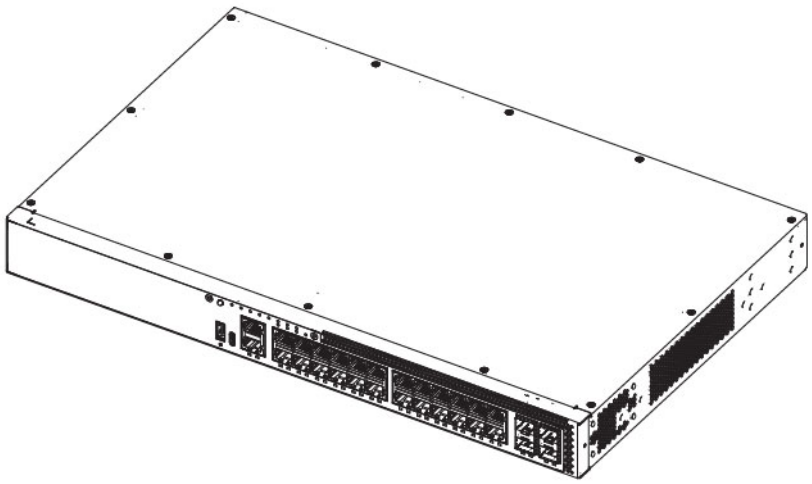


CAUTION
Do not install the device in an environment where the operating ambient temperature might exceed 45°C (113°F).

Mounting on a Desktop or Flat Surface

Complete the following steps to install the RUCKUS ICX 8200 24-port and 48-port switches on a desktop or other flat surface.

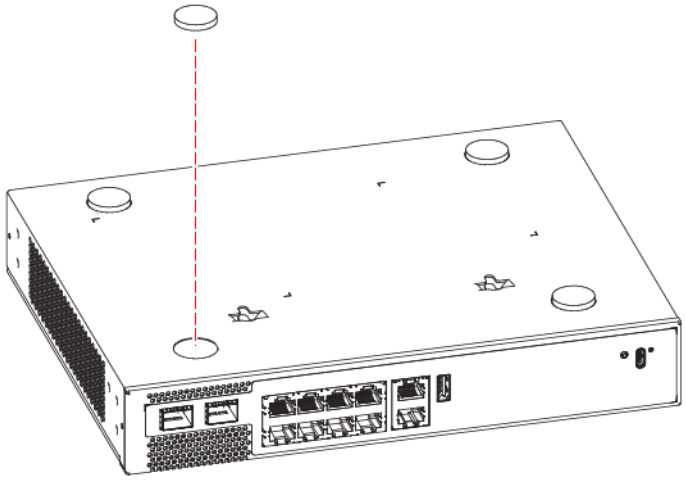
FIGURE 35 Installing on a Flat Surface



1. Set the device on a flat desktop, table, or shelf near an AC power source. Make sure that adequate ventilation is provided for the system. A 7.62 cm (3-inch) clearance is recommended on each side.
2. If installing a single device only, go to "Providing Power to the Device".
3. If installing multiple devices, place each device squarely on top of the one below.

Complete the following steps to install a RUCKUS ICX 8200 compact switch on a desktop or other flat surface.

FIGURE 36 Attaching the Optional Adhesive Feet



1. Attach the four adhesive feet to the bottom of the device.
2. Set the device on a flat desktop, table, or shelf near an AC power source. Make sure that adequate ventilation is provided for the system. A 7.62 cm (3-inch) clearance is recommended on each side.
3. If installing a single device only, go to "Providing Power to the Device".
4. If installing multiple devices, attach the adhesive feet to each device. Place each device squarely on top of the one below.

Mounting a 24-Port or 48-Port Switch on a Wall

Use the following instructions to install a RUCKUS ICX 8200 24-port or 48-port switch on a wall using the two-post rack mount brackets included with the switch.

Time and Items Required

Allow 15 to 30 minutes to complete the installation.

The following items are required to install the device using the two-post rack mount brackets included with the switch:

- #2 Phillips torque screwdriver
- Hammer
- Drill



CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

Complete the following tasks to install the device on a wall.

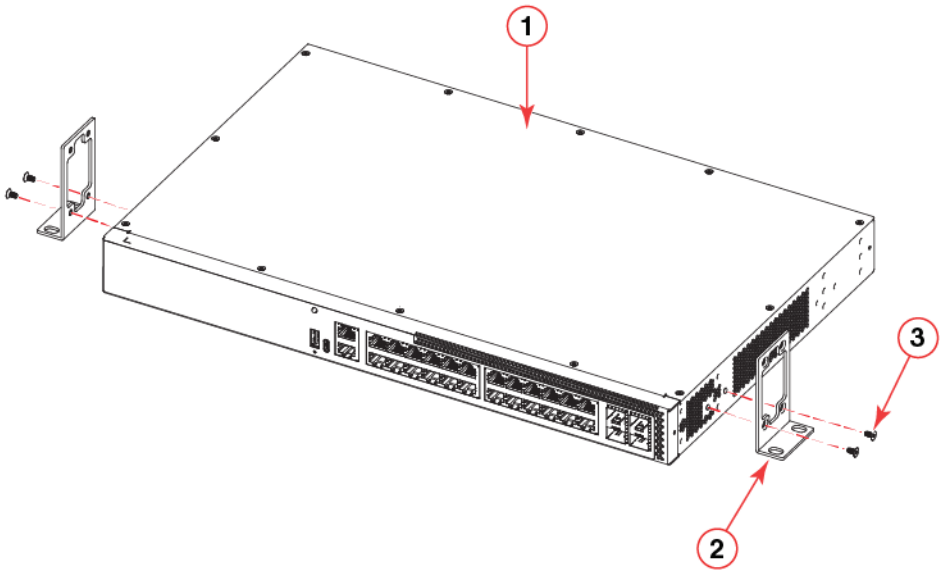
1. "Attaching the Front Brackets" on page 42
2. "Installing the Device on a Wall" on page 43

Attaching the Front Brackets

Complete the following steps to attach the front brackets to the device.

1. Position the right front bracket with the flat side against the right side of the switch as shown in Figure 37.
2. Insert two 6-32 x 5/16-in. flathead screws through the aligned holes in the bracket and then into the holes on the side of the switch.
3. Repeat Step 1 and Step 2 to attach the left front bracket to the left side of the device.
4. Tighten all 6-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 37 Attaching the Front Brackets for Wall Mounting



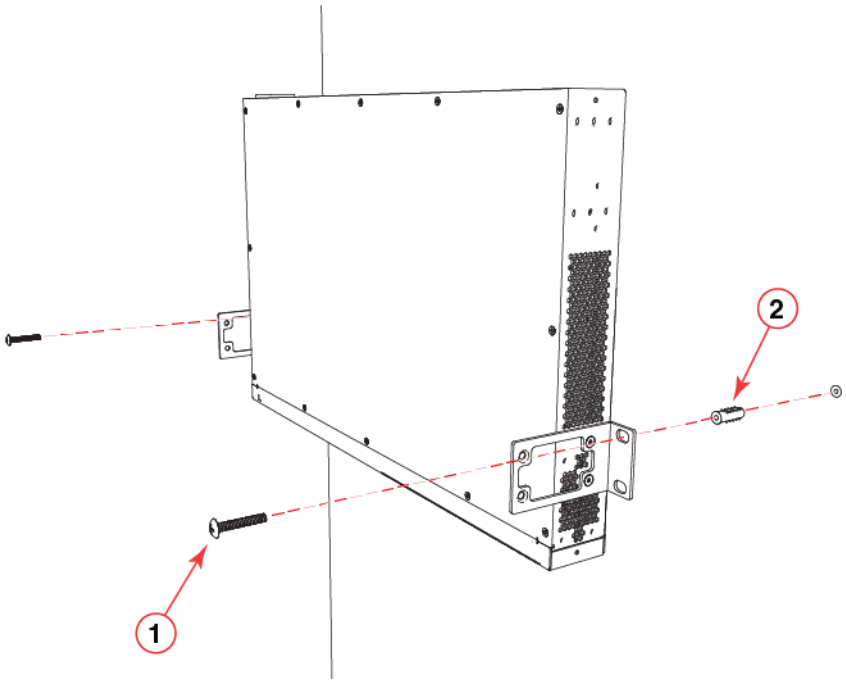
1	Top of the device	3	Screws, 6-32 x 5/16-in., flathead Phillips
2	Front brackets		

Installing the Device on a Wall

Complete the following steps to install the device on a wall.

1. Position the device on the wall, as shown in Figure 38, providing temporary support under the device.
2. At the bracket mounting location on the wall, mark the position for four holes.
3. Drill four holes in the wall where you want to mount the device.
4. Hammer the wall-mount anchors into the four holes.
5. Attach the right front bracket to the wall using two 4x25-mm panhead screws. Use the upper and lower holes in the bracket.
6. Attach the left front bracket to the wall using two 4x25-mm panhead screws. Use the upper and lower holes in the bracket.
7. Tighten all the 4x25-mm screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 38 Positioning the Device on a Wall



1 Screws, 4x25-mm panhead Phillips

2 Wall-mount anchors

Mounting a Compact Switch on a Wall

Use the following instructions to install a RUCKUS ICX 8200 compact switch on a wall using the wall-mount anchors and screws included with the switch.

Time and Items Required

Allow 15 to 30 minutes to complete the installation.

The following items are required to install the device using the wall-mount anchors and screws included with the switch:

- #2 Phillips torque screwdriver
- Hammer
- Drill

CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

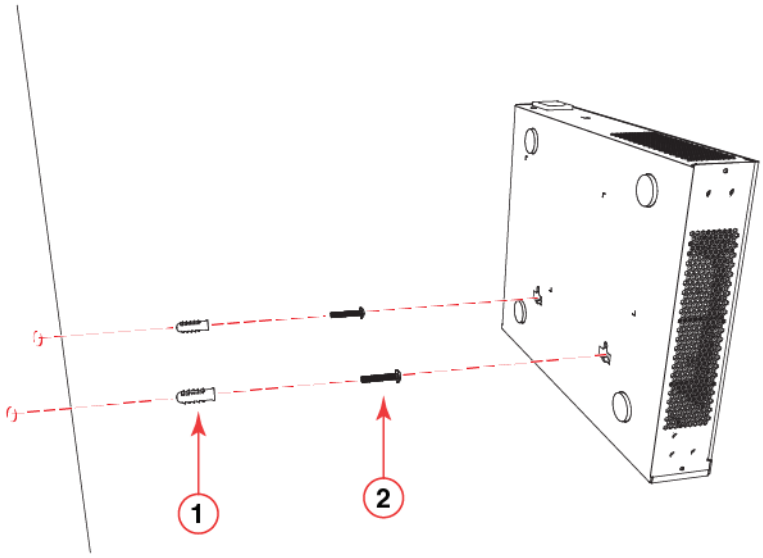
Installing the Device on a Wall

Complete the following steps to install the device on a wall.

NOTE
When mounting the device on a wall, always mount the device with the port side down.

1. At the mounting location on the wall, mark the position for two holes 12 cm apart.
2. Drill two holes in the wall where you want to mount the device.
3. Hammer the wall-mount anchors into the two holes.
4. Use a #2 Phillips screwdriver to secure the two wall-mount screws into the wall-mount anchors. Leave a gap of 4.0 to 4.5 mm between the screw head and the wall.
5. With the port side of the device facing down, aim the mounting holes on the bottom panel of the device towards the wall-mounting screws on the wall and hang the device securely against the wall, so that the wall-mount screws are inserted into the mounting holes.

FIGURE 39 Positioning a Compact Switch on a Wall



1 Wall-mount anchors
2 Screws, 4x25-mm, panhead Phillips

Mounting a Compact Switch Under a Flat Surface or on a Ceiling

Use the following instructions to install a RUCKUS ICX 8200 compact switch under a flat surface or on a ceiling using the compact switch mount kit (ICX7000-C12-RMK).

Time and Items Required

Allow 15 to 30 minutes to complete the installation.

The following items are required to install the device using the compact switch mount kit (ICX7000-C12-RMK):

- #2 Phillips torque screwdriver
- Hammer

- Drill
- Compact switch mount kit (ICX7000-C12-RMK)

CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

Installing the Device Under a Flat Surface or on a Ceiling

Complete the following steps to install the device under a flat surface or on a ceiling.

1. "Attaching the Brackets" on page 46
2. "Installing the Device Under a Flat Surface or on a Ceiling" on page 47

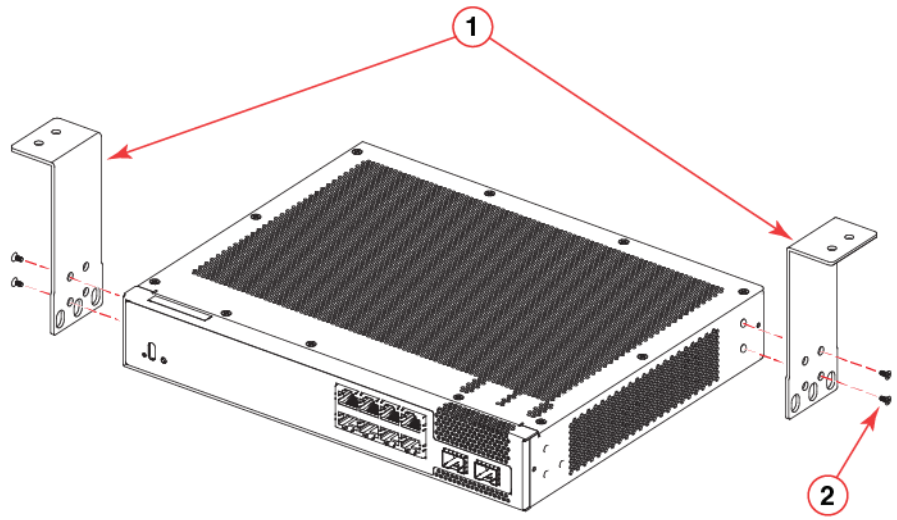
Attaching the Brackets

Complete the following steps to attach the long or short front brackets to the device.

CAUTION
When mounting the device under a fixed surface using the short brackets, mount the device with the bottom panel up to prevent blocking the top panel vents.

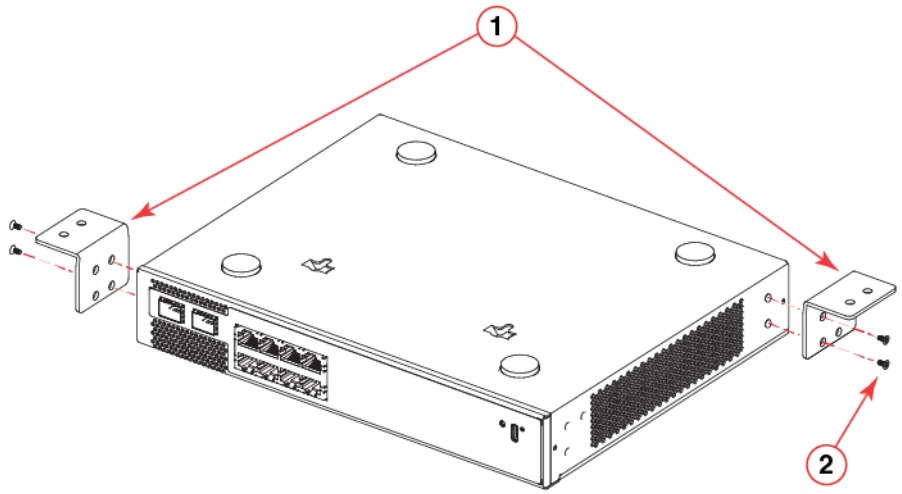
1. Position the right front bracket with the flat side against the rear right side of the switch, as shown in Figure 40 or Figure 41.
2. Insert two M4x8 panhead screws through the aligned holes in the bracket and then into the holes on the side of the switch.
3. Position the left front bracket with the flat side against the front left side of the switch, as shown in Figure 40 or Figure 41.
4. Tighten all M4x8 screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 40 Attaching the Long Front Brackets for Ceiling Mounting



1 Front brackets
2 Screws, M4x8, panhead Phillips

FIGURE 41 Attaching the Short Front Brackets for Ceiling Mounting

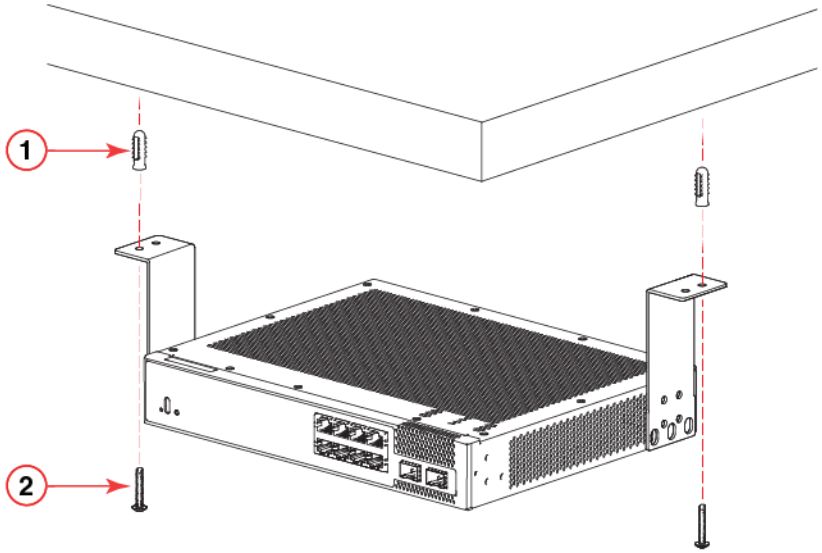


1 Front brackets 2 Screws, M4x8, panhead Phillips

Installing the Device Under a Flat Surface or on a Ceiling

1. At the mounting location, provide temporary support under the device and mark the position for two holes using the brackets as guides.
2. Drill holes at the two marked locations.
3. Hammer the wall-mount anchors into the two holes.
4. Attach the right front bracket to the surface using a #2 Phillips screwdriver to secure a screw into the wall-mount anchor.
5. Attach the left front bracket to the surface using a #2 Phillips screwdriver to secure a screw into the wall-mount anchor.
6. Tighten the screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 42 Positioning the Device Under a Flat Surface or on a Ceiling



1 Wall-mount anchors 2 Screws, 4x25-mm, panhead Phillips

Mounting a Compact Switch on a DIN Rail

Use the following instructions to install a RUCKUS ICX 8200 compact switch on a 35-mm, 7.5-mm deep, top hat section, type O DIN rail using the DIN rail mounting kit (ICX-DIN-MNT).

Time and Items Required

Allow 15 to 30 minutes to complete the installation.

The following items are required to install the device using the DIN rail mounting kit (ICX-DIN-MNT):

- #2 Phillips torque screwdriver
- DIN rail mounting kit (ICX-DIN-MNT)

CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

Installing the Device on a DIN Rail

Complete the following steps to install the device on a DIN rail.

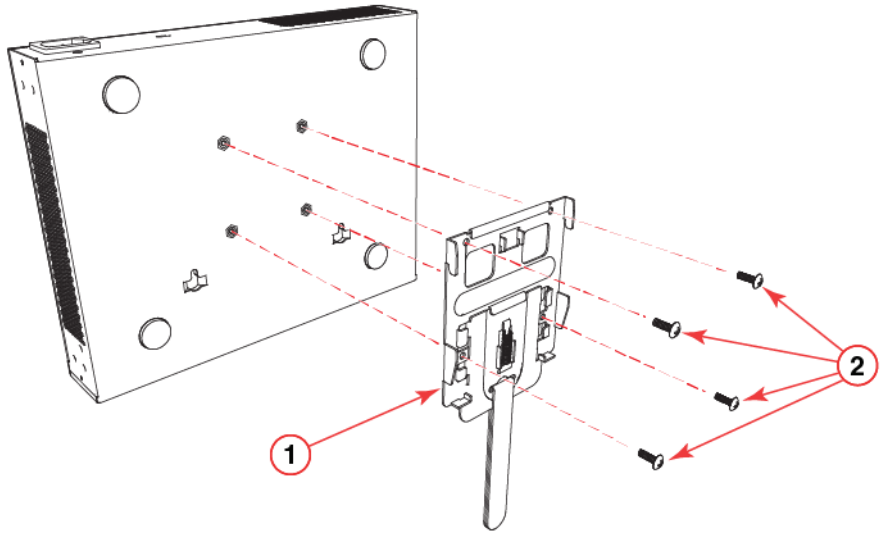
1. "Attaching the Mounting Plate" on page 48
2. "Installing the Device on a DIN Rail" on page 49

Attaching the Mounting Plate

Complete the following steps to attach the mounting plate to the device.

1. Position the mounting plate against the base of the switch, as shown in Figure 43.
2. Insert four M3 flathead screws through the aligned holes in the mounting plate and then into the holes on the base of the switch.
3. Tighten all screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 43 Attaching the DIN Rail Mounting Plate



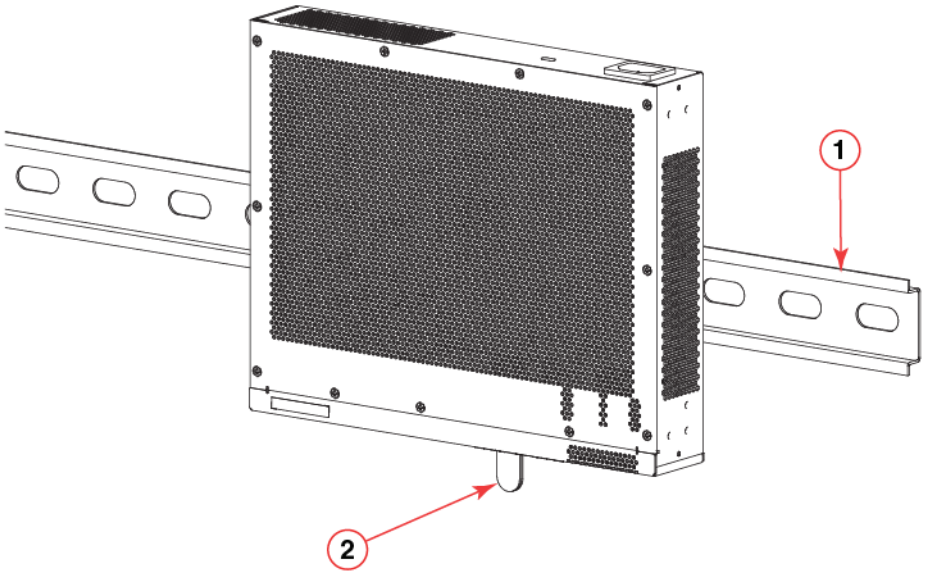
1 DIN mounting plate
2 Screws, M3, flathead Phillips

Installing the Device on a DIN Rail

1. Hook the top of the mounting plate onto the top edge of the DIN rail.
2. Push the lower edge of the mounting plate onto the DIN rail until it latches securely to the rail.

NOTE
Pull the release tab down to remove the device from the DIN rail.

FIGURE 44 Mounting the Device on a DIN Rail

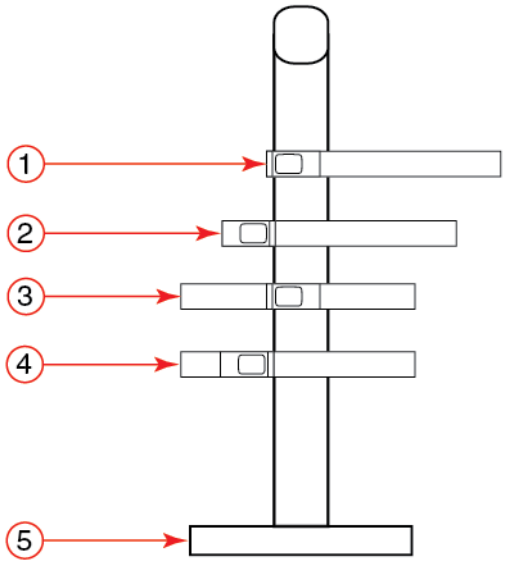


1 DIN rail
2 Release tab

Mounting a 24-Port or 48-Port Switch in a Two-Post Rack

The RUCKUS ICX 8200 can be installed in a two-post rack in various mounting positions, as shown in Figure 45.

FIGURE 45 Two-Post Rack Mounting Positions



1	Front flush mount	4	Reverse mid-mount
2	Reverse-front mount	5	Two-post rack, side view
3	Front mid-mount		

NOTE
For four-post racks, follow the procedures in "Installing the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295)" on page 56.

Use the following instructions to install the RUCKUS ICX 8200 switch in two-post Telco racks using the two-post rack mount brackets included with the switch.

Time and Items Required

Allow 15 to 30 minutes to complete the installation.

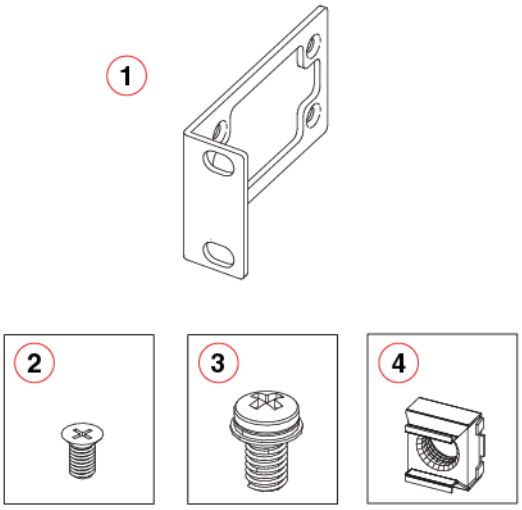
The following items are required to install the device using the two-post rack mount brackets included with the switch:

- #2 Phillips torque screwdriver
- 1/4-inch slotted-blade screwdriver

Parts List

The parts shown in the following figure are required for mounting a 24-port or 48-port switch in a two-post rack.

FIGURE 46 Parts Required for Mounting a 24-Port or 48-Port Switch in a Two-Post Rack



1	Front brackets (2)	3	Screw, 10-32 x 5/8-in., panhead Phillips (4)
2	Screw, 6-32 x 5/16-in., flathead Phillips (8)	4	Retainer nut, 10-32 (4)

Flush-Front Mounting

CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

Complete the following tasks to install the device in a two-post rack.

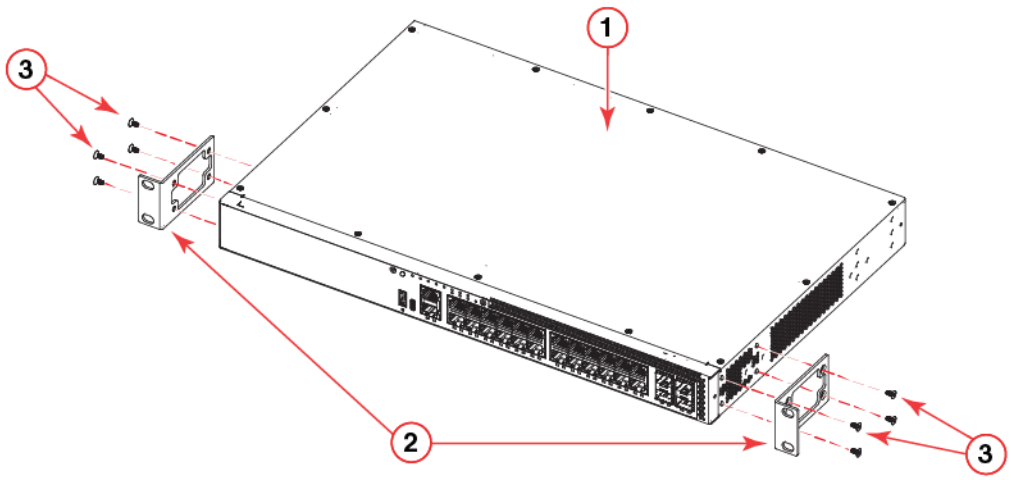
1. "Attaching the Front Brackets" on page 51
2. "Installing the Device in the Rack" on page 52

Attaching the Front Brackets

Complete the following steps to attach the front brackets to the device.

1. Position the right front bracket with the flat side against the right side of the switch, as shown in Figure 47.
2. Insert four 6-32 x 5/16-in. flathead screws through the top and bottom holes of the two vertically aligned series of holes in the bracket and then into the pair of holes on the side of the switch.
3. Repeat Step 1 and Step 2 to attach the left front bracket to the left side of the device.
4. Tighten all 6-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 47 Attaching the Front Brackets



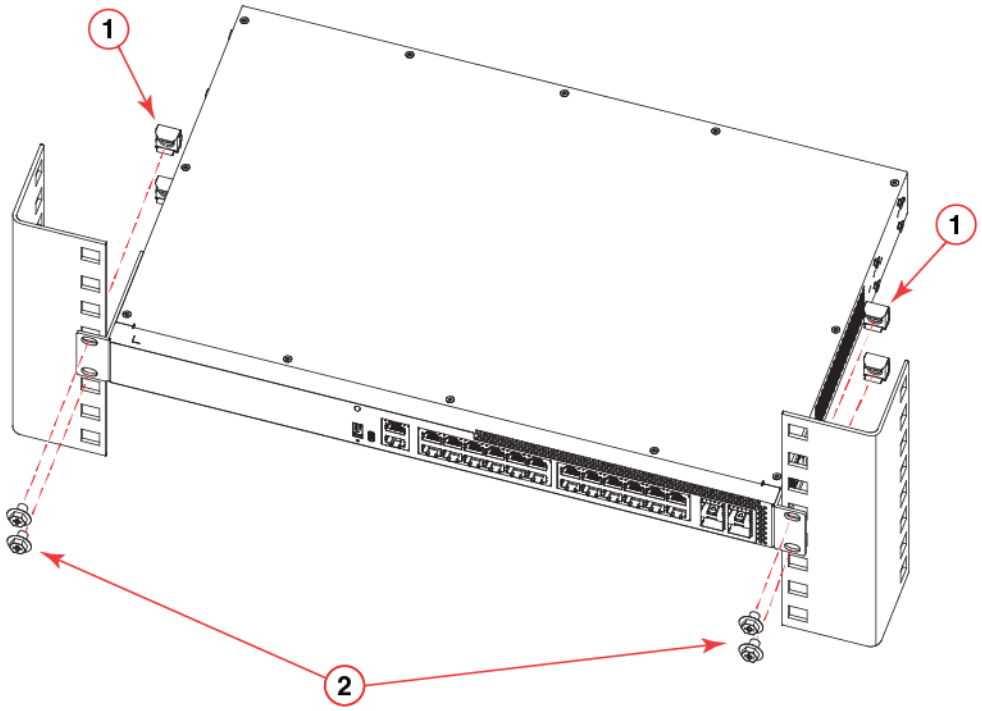
1	Top of the device	3	Screws, 6-32 x 5/16-in., flathead Phillips
2	Front brackets		

Installing the Device in the Rack

Complete the following steps to install the device in the rack.

1. Position the device in the rack, as shown in Figure 48, providing temporary support under the device until the switch is secured to the rack.
2. Attach the right front bracket to the right front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.
3. Attach the left front bracket to the left front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.
4. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 48 Positioning the Device in the Rack



1 Retainer nuts, 10-32

2 Screws, 10-32 x 5/8-in., panhead Phillips

Mounting a Compact Switch in a Two-Post Rack

Use the following instructions to install a RUCKUS ICX 8200 compact switch in a two-post Telco rack using the compact switch mount kit (ICX7000-C12-RMK).

Time and Items Required

Allow 15 to 30 minutes to complete the installation.

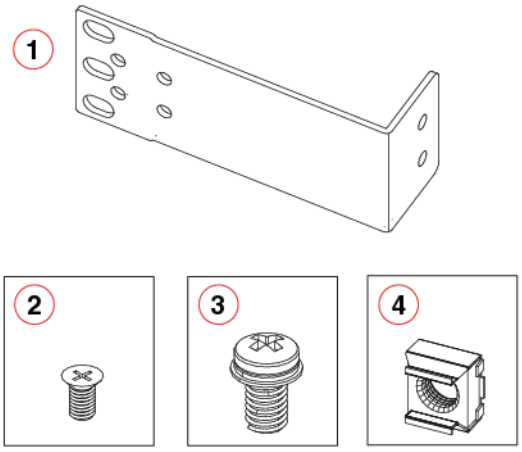
The following items are required to install the device using the compact switch mount kit (ICX7000-C12-RMK):

- #2 Phillips torque screwdriver
- 1/4-inch slotted-blade screwdriver
- Compact switch mount kit (ICX7000-C12-RMK)

Parts List

The parts shown in the following figure are required for mounting a compact switch in a two-post rack.

FIGURE 49 Parts Required for Mounting a Compact Switch in a Two-Post Rack



1	Front brackets (2)	3	Screw, 10-32 x 5/8-in., panhead Phillips (4)
2	Screw, M4x8, panhead Phillips (4)	4	Retainer nut, 10-32 (4)

Flush-Front Mounting

CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

Complete the following tasks to install the device in a two-post rack.

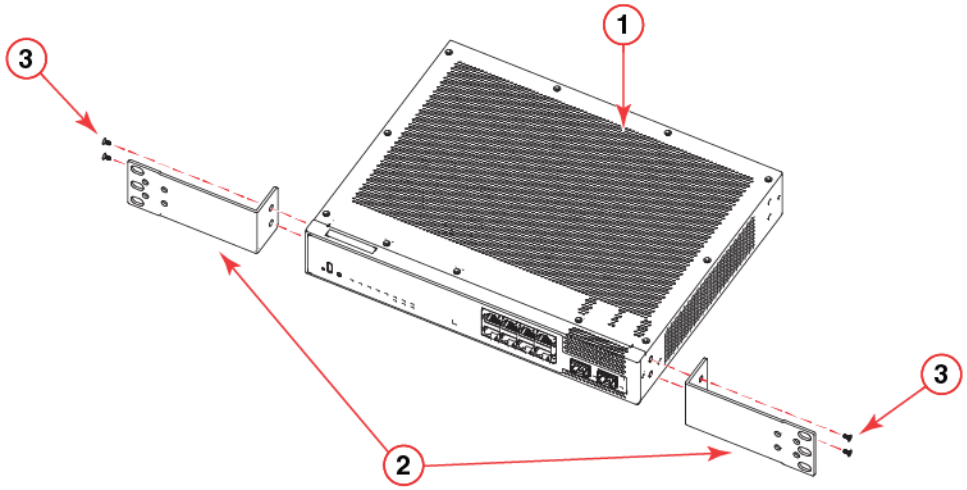
1. "Attaching the Front Brackets" on page 54
2. "Installing the Device in the Rack" on page 55

Attaching the Front Brackets

Complete the following steps to attach the front brackets to the device.

1. Position the right front bracket with the flat side against the right side of the switch, as shown in Figure 50.
2. Insert two M4x8 panhead screws through the top and bottom vertically aligned holes in the bracket and then into the holes on the side of the switch.
3. Repeat Step 1 and Step 2 to attach the left front bracket to the left side of the device.
4. Tighten all M4x8 screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 50 Attaching the Front Brackets



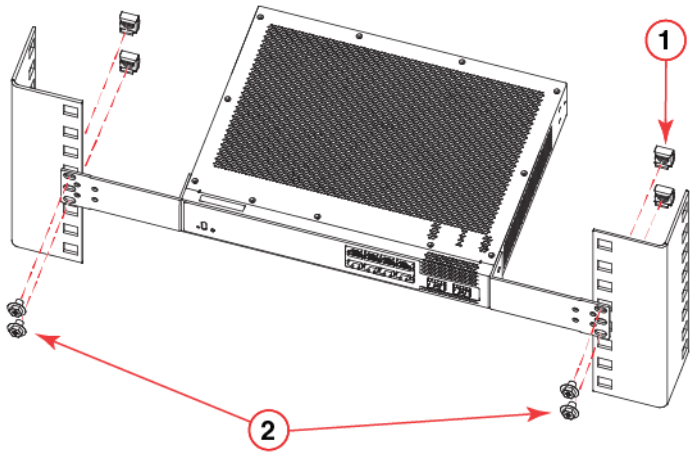
1 Top of the device
2 Front brackets
3 Screws, M4x8, panhead Phillips

Installing the Device in the Rack

Complete the following steps to install the device in the rack.

1. Position the device in the rack, as shown in Figure 51, providing temporary support under the device.
2. Attach the right front bracket to the right front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.
3. Attach the left front bracket to the left front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.
4. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 51 Positioning the Device in the Rack



1 Screws, 10-32 x 5/8-in., panhead Phillips
2 Retainer nuts, 10-32

Installing the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295)

Use the following instructions to install a RUCKUS ICX 8200 switch in a 19-in. (48.3 cm) EIA rack using the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295).

The device can be installed so that the port side is either flush with the front posts or recessed with the non-port side flush with the rear posts. A recessed position allows a more gradual bend in the fiber-optic cables connected to the device and less interference in the aisle at the front of the rack.

NOTE
Hardware devices illustrated in these procedures are only for reference and may not depict the device you are installing into the rack.

Installation Requirements

Review the installation and facility requirements for your product before mounting the device. Refer to "Facility Requirements" on page 34 for more information.

Use Electronic Industries Association (EIA) standard racks. Provide space in a 19-in. (48.3 cm) EIA rack, as required for the device type, with a minimum distance of 24 in. (60.96 cm) and a maximum distance of 32 in. (81.28 cm) between the front and back posts.

Time and Items Required

Allow 15 to 30 minutes to complete this procedure.

The following items are required to install the device using the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295):

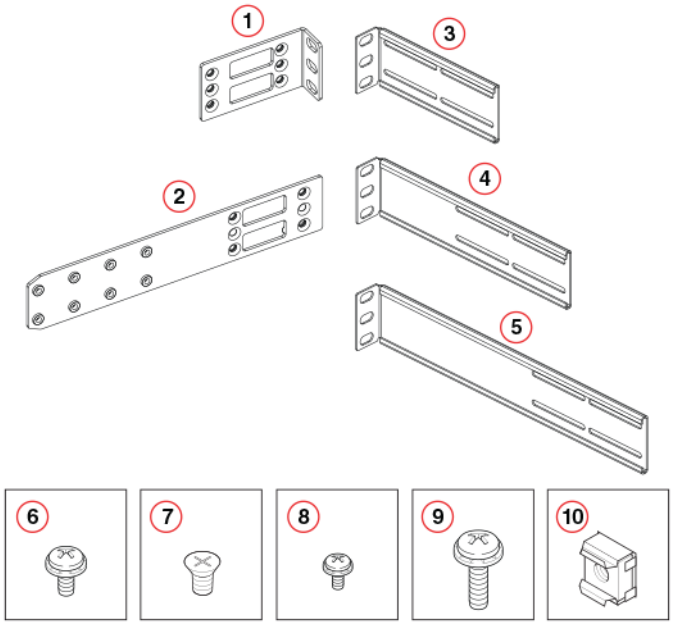
- Two-post rack mount brackets and 6-32 x 5/16-in. flathead screws included with the RUCKUS ICX 8200 24-port and 48-port switches
- Clamps or other means of temporarily supporting the device in the rack
- #2 Phillips torque screwdriver
- 1/4-inch slotted-blade torque screwdriver

NOTE
The front brackets in the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295) should not be attached to the front of the RUCKUS ICX 8200 24-port and 48-port switches. Use the two-post rack mount brackets and screws included with the switch.

Parts List

The parts provided in the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295) are illustrated in the following figure.

FIGURE 52 Items in the 1U, 1.5U, and 2U Universal Kit for Four-Post Racks (XBR-R000295)



1	Front brackets (2)	6	Screw, 8-32 x 5/16-in., panhead Phillips (8)
2	Bracket extensions (2)	7	Screw, 8-32 x 5/16-in., flathead Phillips (16)
3	Rear brackets, short (2)	8	Screw, 6-32 x 1/4-in., panhead Phillips (8)
4	Rear brackets, medium (2)	9	Screw, 10-32 x 5/8-in., panhead Phillips (8)
5	Rear brackets, long (2)	10	Retainer nut, 10-32 (8)

Flush-Front Mounting the Device in the Rack

CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

NOTE
The illustrations in the rack installation procedures are for reference only and may not show the actual device.

Complete the following tasks to install the device in a four-post rack.

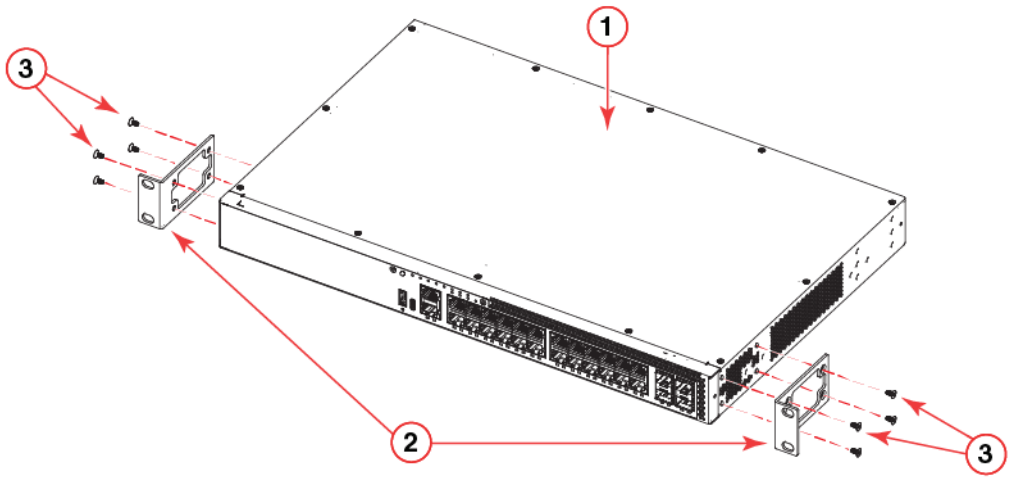
1. "Attaching the Front Brackets" on page 57
2. "Attaching the Bracket Extensions to the Device" on page 58
3. "Installing the Device in the Rack" on page 59
4. "Attaching the Rear Brackets to the Bracket Extensions" on page 60
5. "Attaching the Rear Brackets to the Rack Posts" on page 61

Attaching the Front Brackets

Complete the following steps to attach the two-post rack mount brackets included with the RUCKUS ICX 8200 switch to the front of the device.

1. Position the right front bracket with the flat side against the right side of the device at the front of the device, as shown in Figure 53.
2. Insert four 6-32 x 5/16-in. flathead screws through the vertically aligned holes in the bracket and then into the holes on the side of the device. Use the upper and lower screw holes.
3. Repeat Step 1 and Step 2 to attach the left front bracket to the left side of the device.
4. Tighten all the 6-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 53 Attaching the Front Brackets



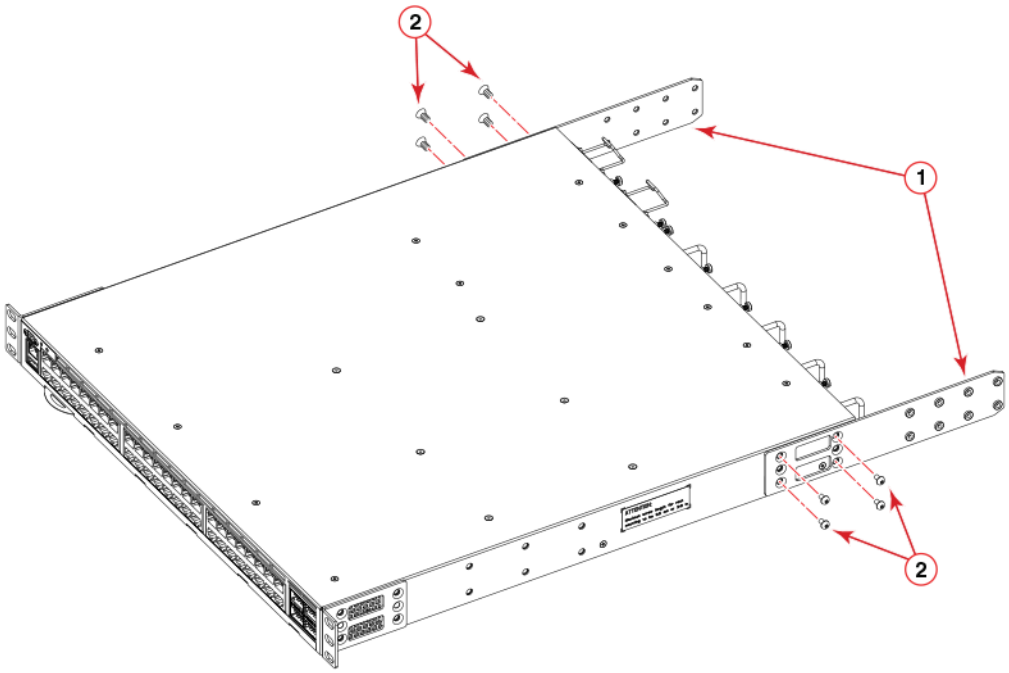
1	Device	3	Screws, 6-32 x 5/16-in., flathead Phillips
2	Two-post rack mount brackets included with the switch		

Attaching the Bracket Extensions to the Device

Complete the following steps to attach the bracket extensions to the device. There are medium and long bracket extensions that you can use for this step. Choose the correct bracket extension for the depth of your rack.

1. Position the right bracket extension along the side of the device, as shown in Figure 54.
2. Insert four 8-32 x 5/16-in. flathead screws through the vertically aligned holes in the bracket extension and then into the holes on the side of the device. Use the upper and lower screw holes, leaving the center holes empty.
3. Repeat Step 1 and Step 2 to attach the left bracket extension to the left side of the device.
4. Tighten all the 8-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 54 Attaching the Bracket Extensions to the Device



1 Bracket extensions

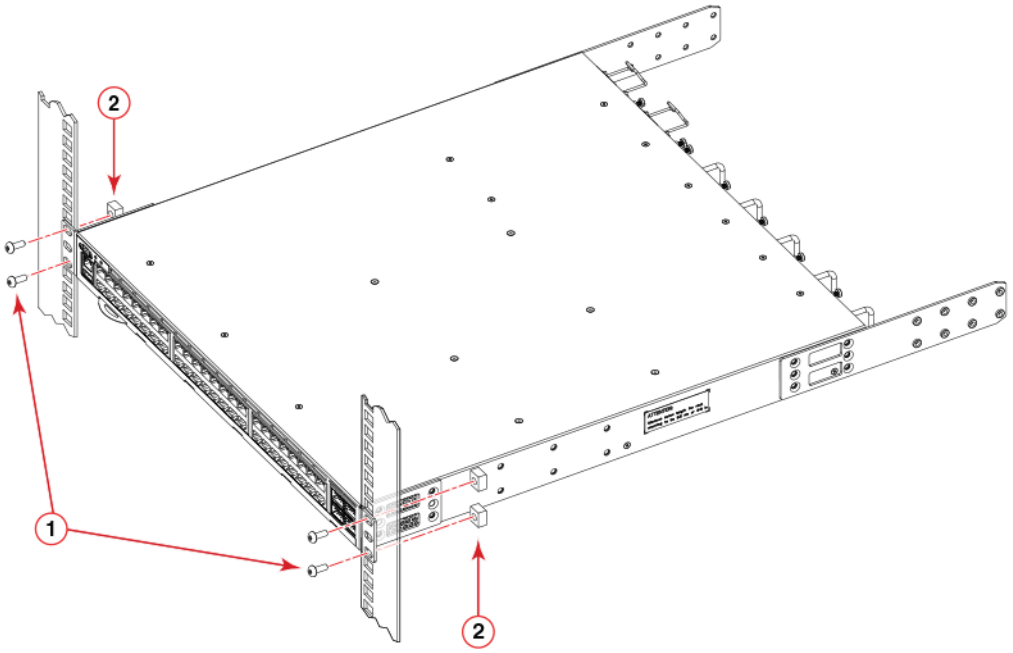
2 Screws, 8-32 x 5/16-in., flathead Phillips

Installing the Device in the Rack

Complete the following steps to install the device in the rack.

1. Position the device in the rack, as shown in Figure 55, providing temporary support under the device until the rail kit is secured to the rack.
2. Attach the right front bracket to the right front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.
3. Attach the left front bracket to the left front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.
4. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 55 Positioning the Device in the Rack



1 Screws, 10-32 x 5/8-in., panhead Phillips
2 Retainer nuts, 10-32

Attaching the Rear Brackets to the Bracket Extensions

Complete the following steps to attach the rear brackets to the bracket extensions. There are short and long rear brackets that you can use for this step. Choose the correct bracket for the depth of your rack.

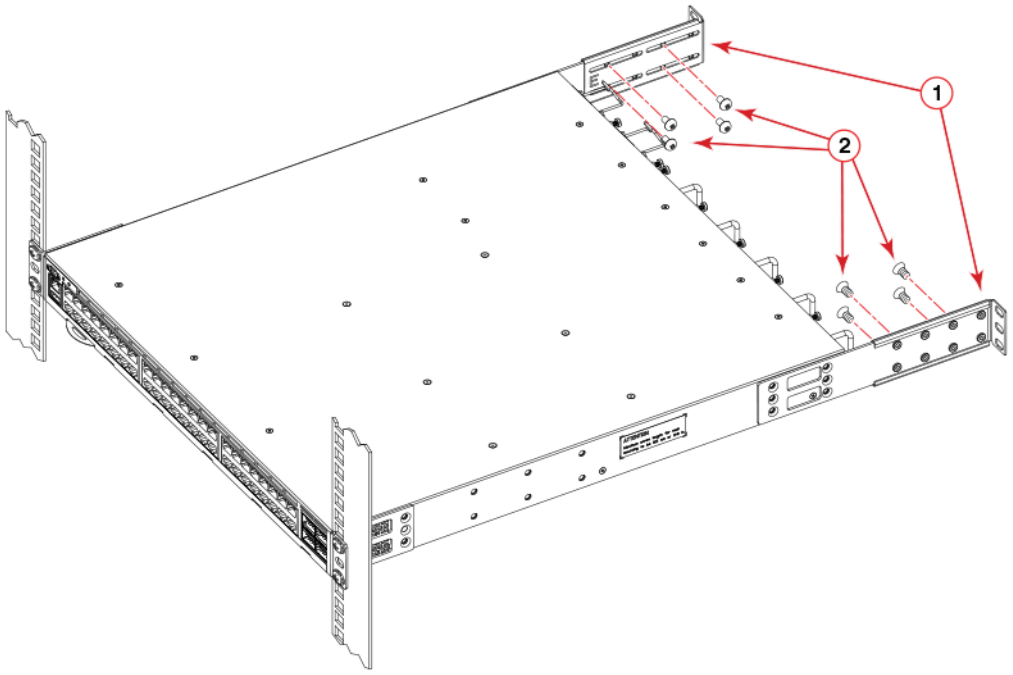
1. Slide the right rear bracket onto the right bracket extension, as shown in Figure 56.

   The short rear brackets are shown. Use the first and third vertical pairs of holes for the screws.

   Refer to Figure 57 for the positioning of the medium or long brackets and screws.

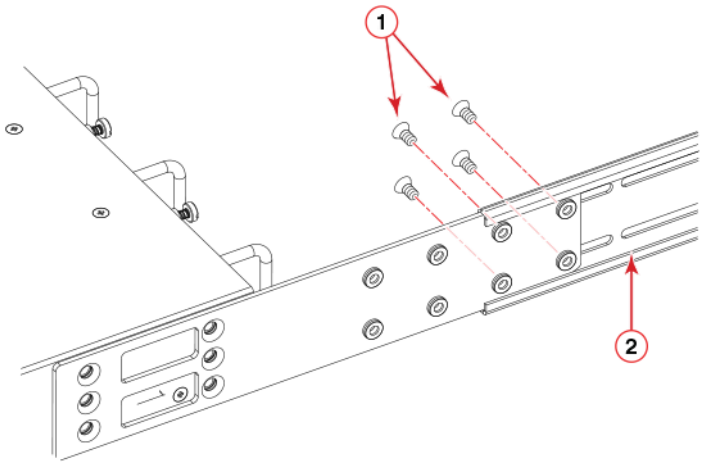
2. Attach the brackets using four 6-32 x 1/4-in. panhead screws.
3. Repeat Step 1 and Step 2 to attach the left rear bracket to the left bracket extension.
4. Adjust the brackets to the rack depth and tighten all the 6-32 x 1/4-in. screws to a torque of 9 in-lb (10 cm-kg).

FIGURE 56 Attaching the Rear Brackets to the Bracket Extensions



1 Rear brackets
2 Screws, 6-32 x 1/4-in., panhead Phillips

FIGURE 57 Attaching the Medium or Long Rear Brackets to the Bracket Extensions



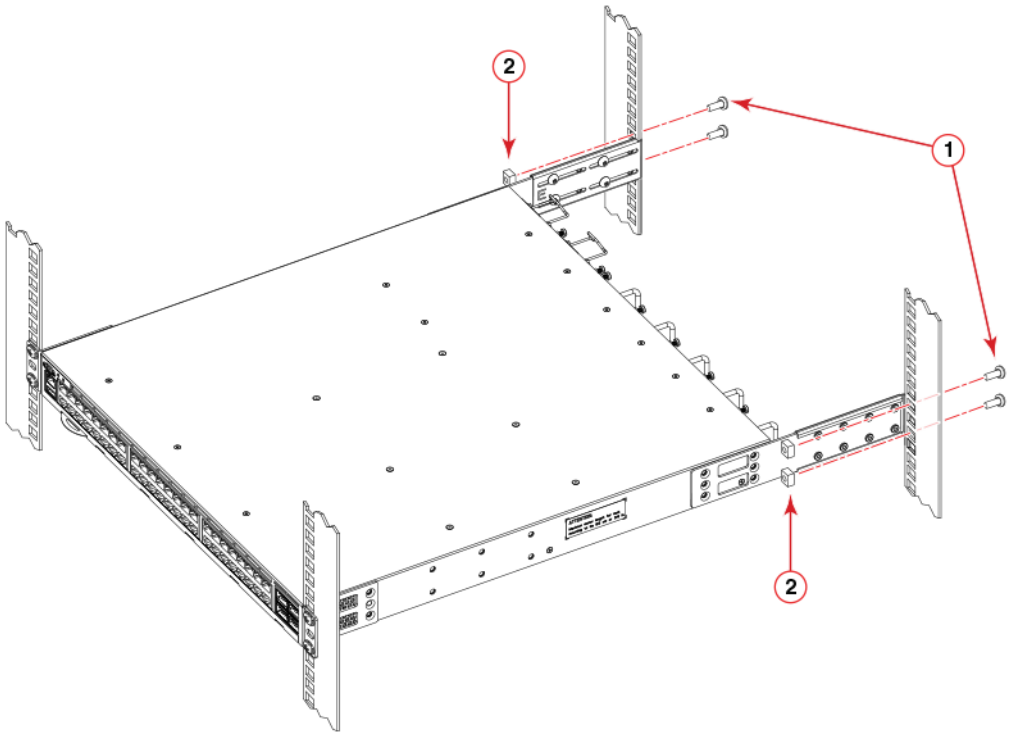
1 Screws, 6-32 x 1/4-in., panhead Phillips
2 Rear bracket, medium or long

Attaching the Rear Brackets to the Rack Posts

Complete the following steps to attach the rear brackets to the rack posts.

1. Attach the right rear bracket to the right rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts, as shown in Figure 58. Use the upper and lower holes in the bracket.
2. Attach the left rear bracket to the left rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.
3. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 58 Attaching the Rear Brackets to the Rack Posts



1 Screws, 10-32 x 5/8-in., panhead Phillips
2 Retainer nuts, 10-32

Flush-Rear (Recessed) Mounting the Device in the Rack

The flush-rear (recessed) mounting is similar to the flush-front mounting except that the brackets are reversed on the device.

CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

NOTE
The illustrations in the rack installation procedures are for reference only and may not show the actual device.

Complete the following tasks to install the device in a four-post rack:

1. "Attaching the Front Brackets to the Rear of the Device" on page 63
2. "Attaching the Bracket Extensions to the Front of the Device" on page 63
3. "Installing the Device in the Rack" on page 64
4. "Attaching the Rear Brackets to the Bracket Extensions at the Front of the Device" on page 65
5. "Attaching the Rear Brackets to the Front Rack Posts" on page 66

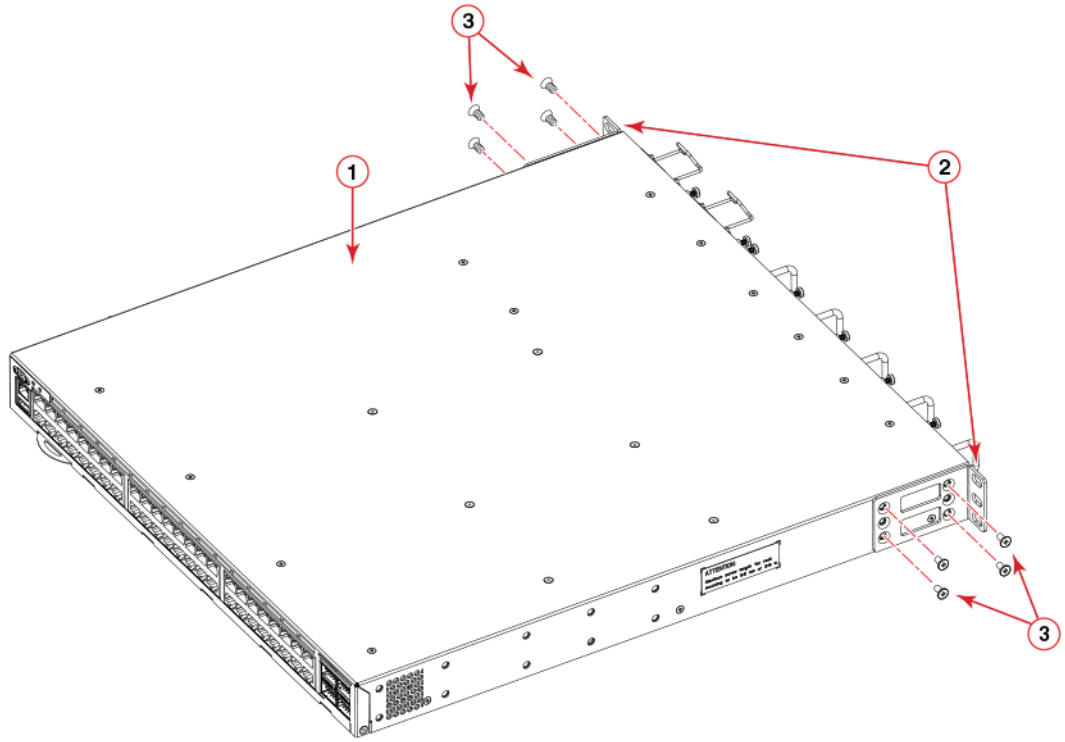
Attaching the Front Brackets to the Rear of the Device

NOTE
In this installation, the brackets are named as listed in the parts list even though the installation of the brackets is reversed from the flush-front installation.

Complete the following steps to attach the front brackets to the rear of the device.

1. Position the right front bracket with the flat side against the right rear side of the device, as shown in Figure 59.
2. Insert four 8-32 x 5/16-in. flathead screws through the vertically aligned holes in the bracket and then into the holes on the side of the device. Use the upper and lower screw holes, leaving the center holes empty.
3. Repeat Step 1 and Step 2 to attach the left front bracket to the left side of the device.
4. Tighten all the 8-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 59 Attaching the Front Brackets to the Rear of the Device



1 Device
2 Front brackets
3 Screws, 8-32 x 5/16-in., flathead Phillips

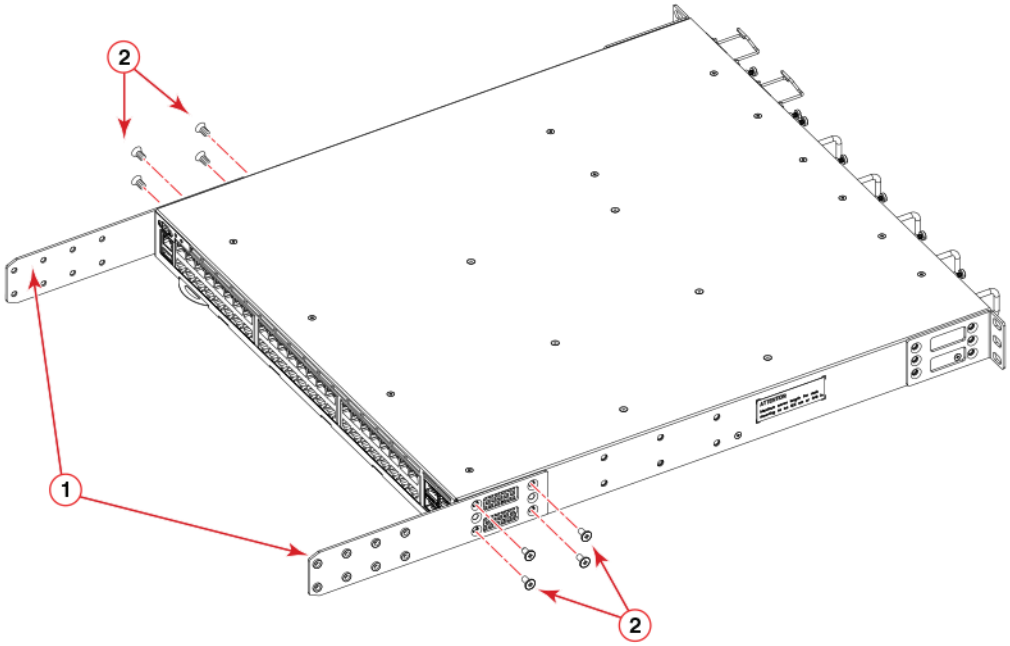
Attaching the Bracket Extensions to the Front of the Device

Complete the following steps to attach the bracket extensions to the front of the device. There are medium and long bracket extensions that you can use for this step. Choose the correct bracket extension for the depth of your rack.

1. Position the right bracket extension along the side of the device, as shown in Figure 60.
2. Attach the bracket using four 6-32 x 5/16-in. flathead screws.
3. Repeat Step 1 and Step 2 to attach the left bracket extension to the left side of the device.

4. Tighten all the 6-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 60 Attaching the Bracket Extensions to the Device



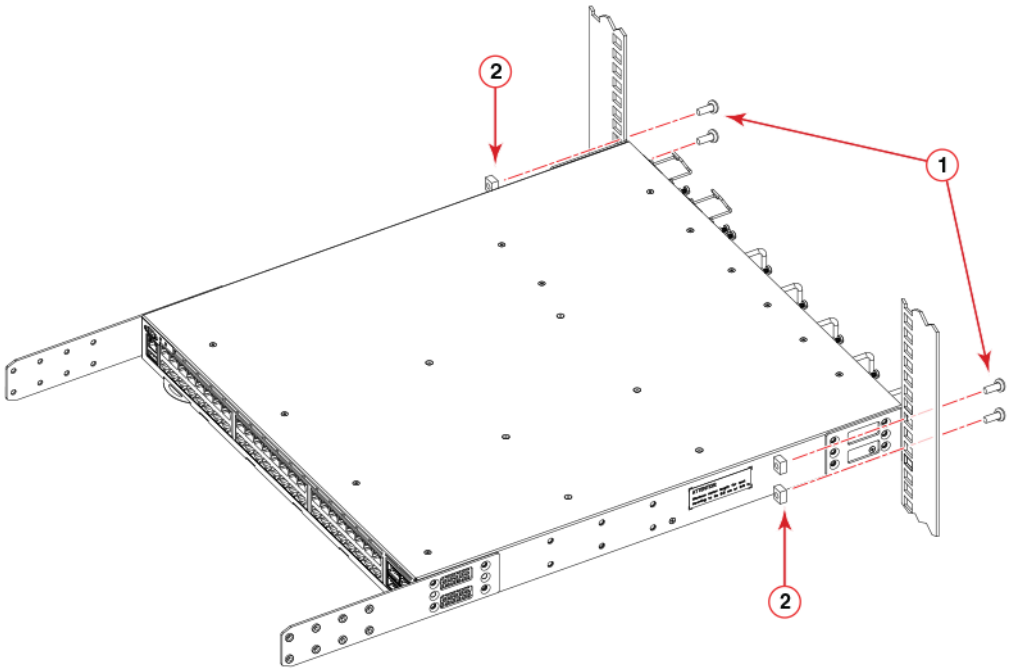
1	Bracket extensions	2	Screws, 6-32 x 5/16-in., flathead Phillips

Installing the Device in the Rack

Complete the following steps to install the device in the rack.

1. Position the device in the rack, as shown in Figure 61, providing temporary support under the device until the rail kit is secured to the rack.
2. Attach the right front bracket to the right rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.
3. Attach the left front bracket to the left rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.
4. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 61 Positioning the Device in the Rack



1 Screws, 10-32 x 5/8-in., panhead Phillips
2 Retainer nuts, 10-32

Attaching the Rear Brackets to the Bracket Extensions at the Front of the Device

Complete the following steps to attach the rear brackets to the bracket extensions. There are short and long front brackets that you can use for this step. Choose the correct bracket for the depth of your rack.

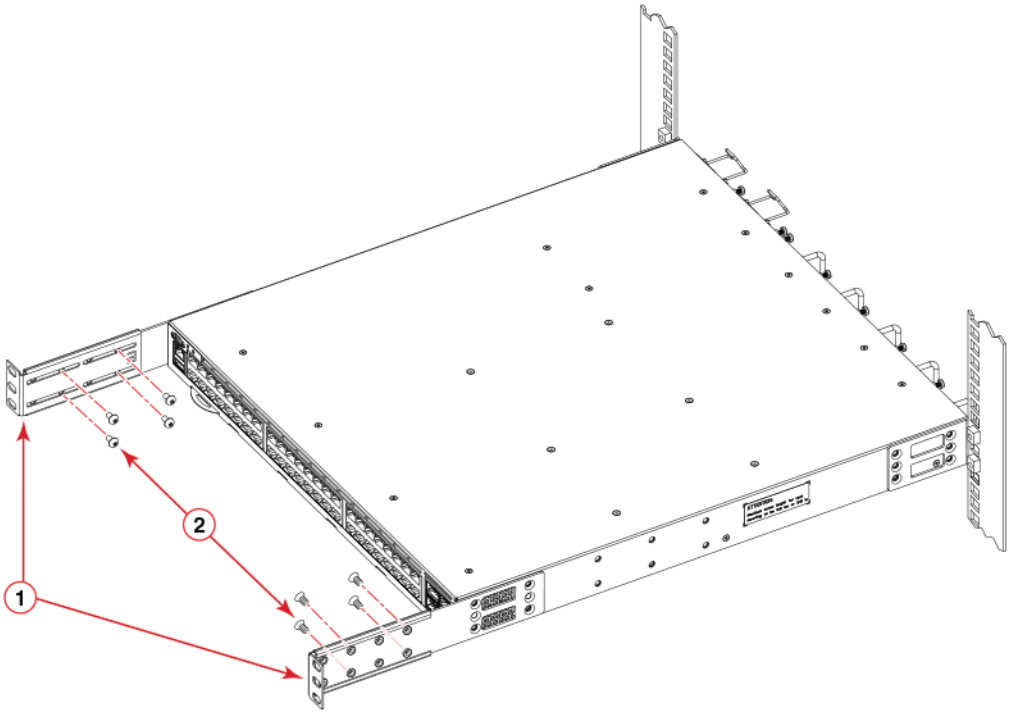
1. Slide the right rear bracket onto the right bracket extension, as shown in Figure 62.

   The short rear brackets are shown. Use the first and third vertical pairs of holes for the screws.

   Refer to Figure 63 for the positioning of the medium or long brackets and screws.

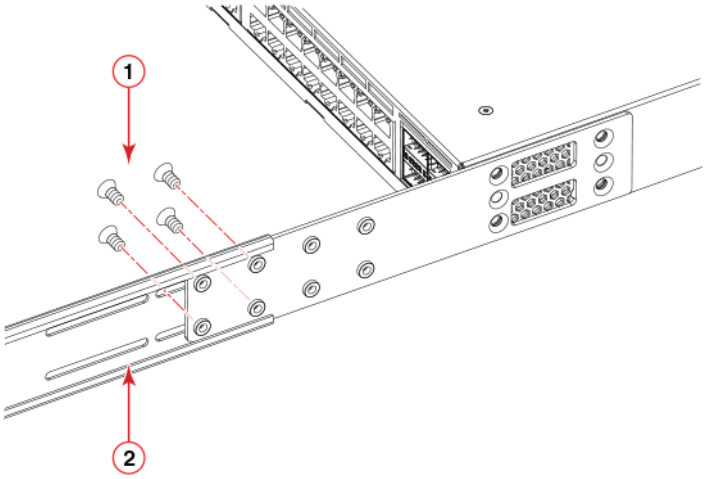
2. Attach the brackets using four 6-32 x 1/4-in. screws.
3. Repeat Step 1 and Step 2 to attach the left rear bracket to the left bracket extension.
4. Adjust the brackets to the rack depth and tighten all the 6-32 x 1/4-in. screws to a torque of 9 in-lb (10 cm-kg).

FIGURE 62 Attaching the Short Rear Brackets to the Bracket Extensions at the Front of the Device



1 Rear brackets, short
2 Screws, 6-32 x 1/4-in., panhead Phillips

FIGURE 63 Attaching the Medium or Long Rear Brackets to the Bracket Extensions



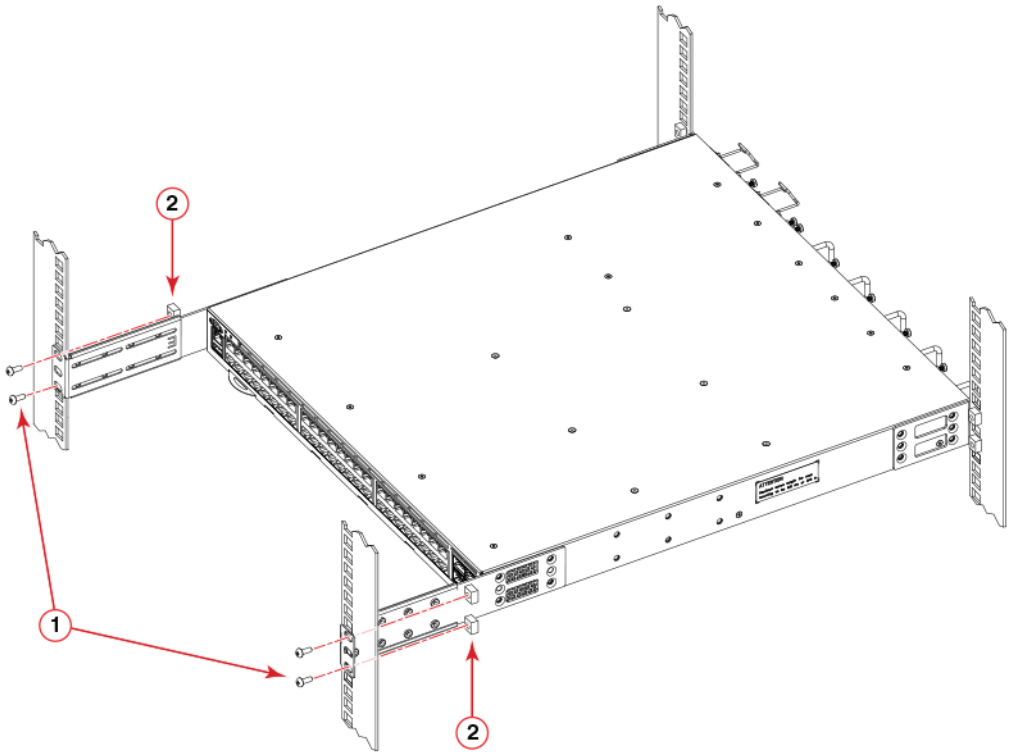
1 Screws, 6-32 x 1/4-in., panhead Phillips
2 Rear bracket, medium or long

Attaching the Rear Brackets to the Front Rack Posts

Complete the following steps to attach the rear brackets to the front rack posts.

1. Attach the right rear bracket to the right front rack post using two 10-32 x 5/8-in. screws and two retainer nuts, as shown in Figure 64. Use the upper and lower holes in the bracket.
2. Attach the left rear bracket to the left front rack post using two 10-32 x 5/8-in. screws and two retainer nuts. Use the upper and lower holes in the bracket.
3. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 64 Attaching the Rear Brackets to the Front Rack Posts



1 Screws, 10-32 x 5/8-in., panhead Phillips
2 Retainer nuts, 10-32

Connecting Devices in a Stack

The RUCKUS ICX 8200 switches can operate as standalone devices or as a member of a stack. A stack is a group of devices—RUCKUS stackable units and their connected stacking links—that are connected so that the stack is managed as a single entity.

You can mix any RUCKUS ICX 8200 models together in a stack. A stack cannot contain other device types.

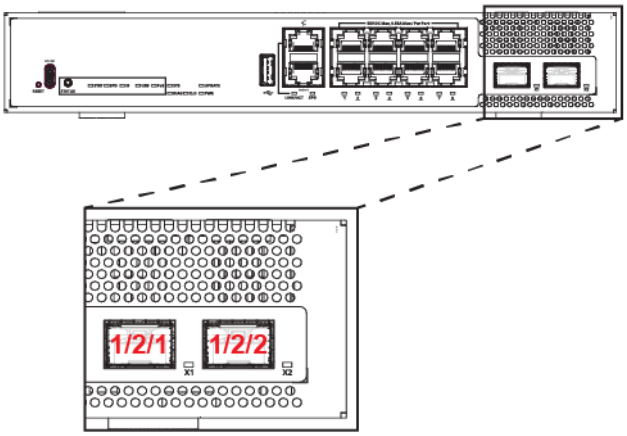
NOTE
ICX8200-24PV and ICX8200-C08PFV do not currently support stacking.
Stacking is currently supported between ICX 8200 AV switch models only. Stacking is not supported when a stack has a mix of AV and non-AV switches.

Stacking Ports

There are four 25-GbE SFP28 ports on the RUCKUS ICX 8200 24-port and 48-port switches that can be used as stacking ports. The RUCKUS ICX8200-24FX and ICX8200-48NP2 switches have eight 25-GbE SFP28 stacking ports. The RUCKUS ICX8200-C08PF switch has two 10-GbE SFP+ stacking ports and the RUCKUS ICX8200-C08ZP switch has two 25-GbE SFP28 stacking ports. The stacking ports can also be configured as uplink (data) ports.

The following figure shows the stacking ports on the RUCKUS ICX8200-C08PF.

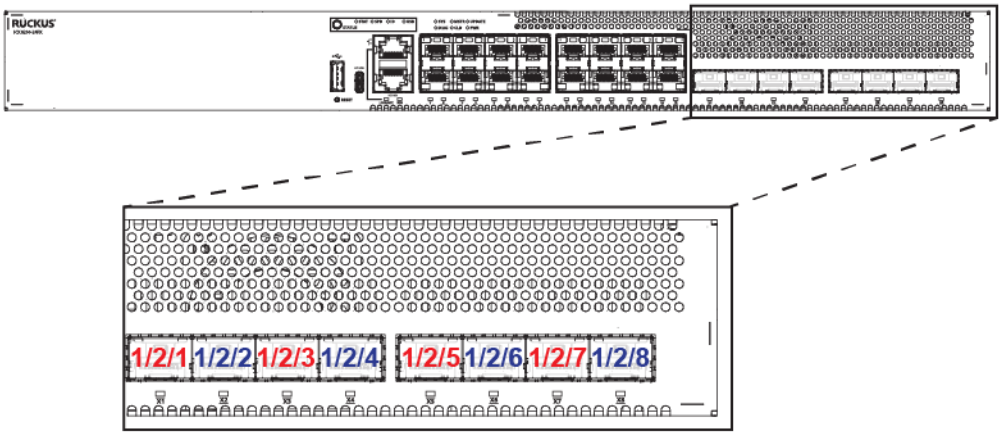
FIGURE 65 RUCKUS ICX8200-C08PF Stacking Ports



The 10-GbE ports 1/2/1 and 1/2/2 are valid-stack-ports (supporting only 10-GbE stacking). Valid-stack-ports have the capability to accept special stacking packets during a CLI-initiated command sequence of the stack interactive-setup utility.

The following figure shows the stacking ports on the RUCKUS ICX8200-24FX.

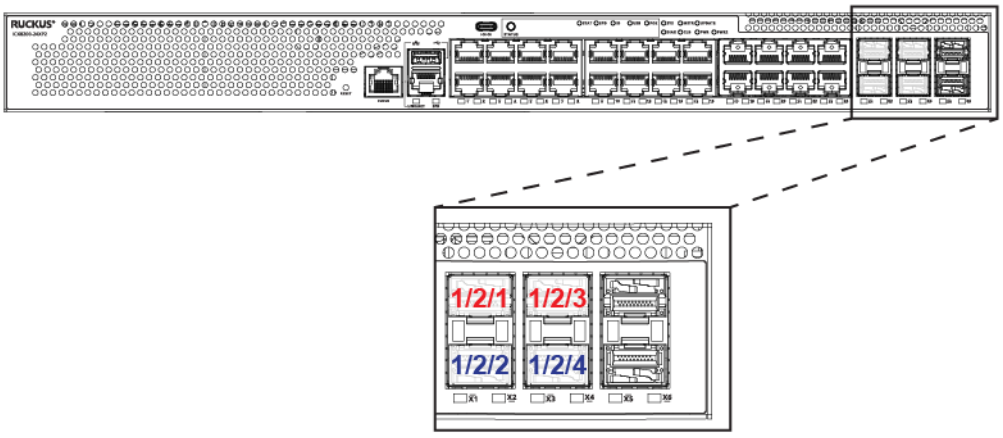
FIGURE 66 RUCKUS ICX8200-24FX Stacking Ports



The 25-GbE ports 1/2/1, 1/2/3, 1/2/5, and 1/2/7 are valid-stack-ports (supporting 10-GbE and 25-GbE stacking). Valid-stack-ports have the capability to accept special stacking packets during a CLI-initiated command sequence of the stack interactive-setup utility.

The following figure shows the stacking ports on the RUCKUS ICX8200-24XP2.

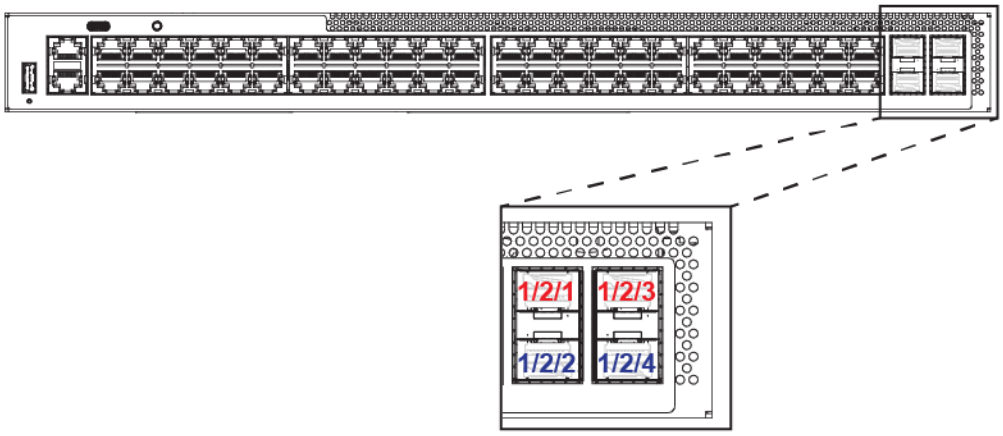
FIGURE 67 RUCKUS ICX8200-24XP2 Stacking Ports



The 25-GbE ports 1/2/1 and 1/2/3 are valid-stack-ports (supporting 10-GbE and 25-GbE stacking). Valid-stack-ports have the capability to accept special stacking packets during a CLI-initiated command sequence of the stack interactive-setup utility.

The following figure shows the stacking ports on the RUCKUS ICX8200-48.

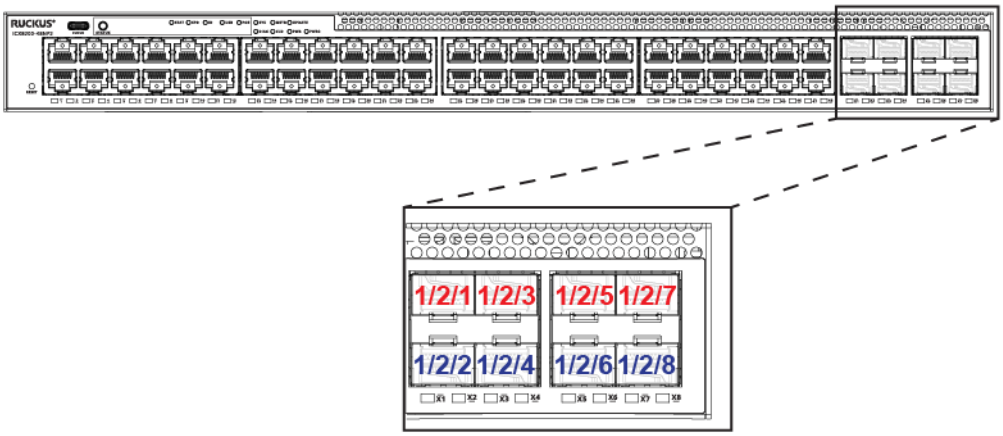
FIGURE 68 RUCKUS ICX8200-48 Stacking Ports



The 25-GbE ports 1/2/1 and 1/2/3 are valid-stack-ports (supporting 10-GbE and 25-GbE stacking). Valid-stack-ports have the capability to accept special stacking packets during a CLI-initiated command sequence of the stack interactive-setup utility.

The following figure shows the stacking ports on the RUCKUS ICX8200-48NP2.

FIGURE 69 RUCKUS ICX8200-48NP2 Stacking Ports



The 25-GbE ports 1/2/1, 1/2/3, 1/2/5, and 1/2/7 are valid-stack-ports (supporting 10-GbE and 25-GbE stacking). Valid-stack-ports have the capability to accept special stacking packets during a CLI-initiated command sequence of the stack interactive-setup utility.

Stacking Configuration Requirements

Before configuring the stack using the CLI, physically connect the devices using stacking cables. For information about configuring a stack, refer to the *RUCKUS FastIron Stacking Configuration Guide*.

Stacking Cables

Use SFP28 or SFP+ direct-attached copper stacking cables or SFP28 or SFP+ optics with fiber cables to connect the RUCKUS ICX 8200 devices in a stack.

NOTE
Stacking cables are not included in the shipping carton and must be ordered separately.

Stack Size

A traditional stack can contain a maximum of twelve RUCKUS ICX 8200 devices that are any combination of the 24-port and 48-port switches, or compact RUCKUS ICX 8200 compact switches. A stack cannot contain other device types.

Stacking Topologies

Both linear and ring topologies are supported in a stack.

In a linear stack topology, there is a connection between each switch that carries two-way communications across the stack. For example, in a four-unit stack using a linear topology, unit 1 connects to unit 2, unit 2 to unit 3, and unit 3 to unit 4.

Figure 70 shows a supported three-unit linear stacking topology using the 10-GbE stacking ports on RUCKUS ICX8200-C08PF switches.

FIGURE 70 10-GbE Linear Stacking Topology

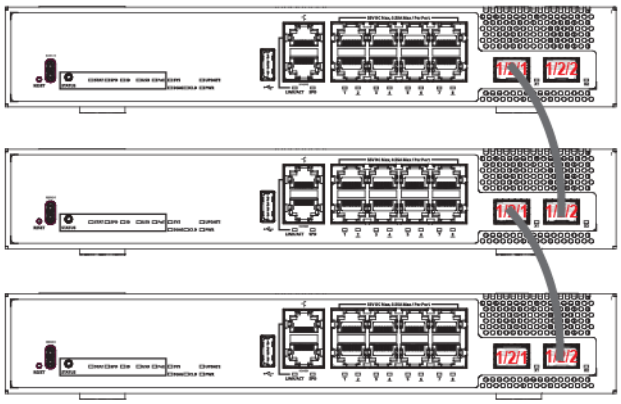
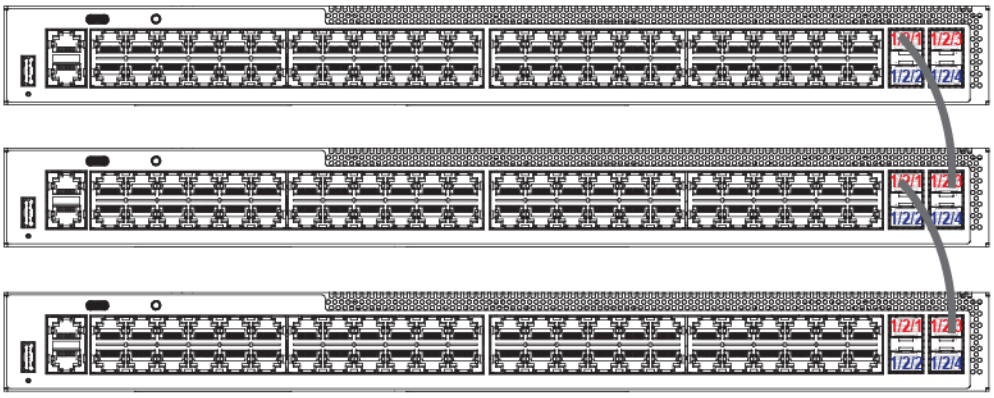


Figure 71 shows a supported three-unit linear stacking topology using the 25-GbE stacking ports on RUCKUS ICX8200-48 switches.

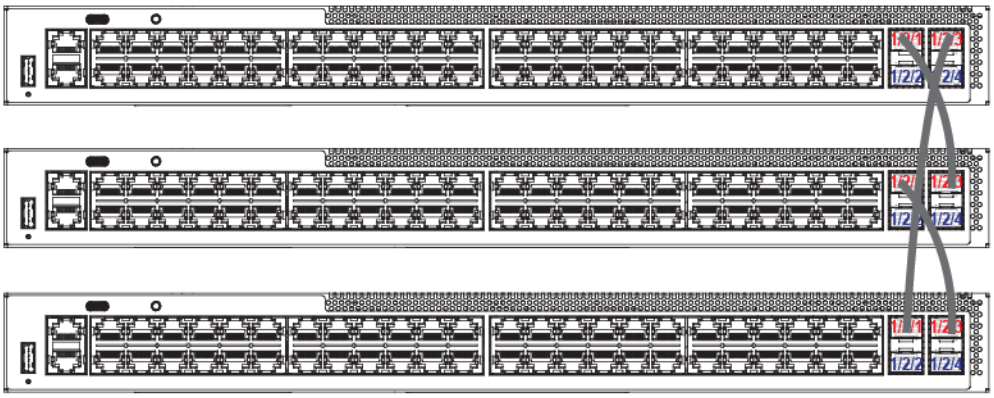
FIGURE 71 25-GbE Linear Stacking Topology



In a ring stack topology, there is an extra connection between the logical first and last devices, forming a “ring” or “closed-loop.” The closed-loop connection provides a redundant path for the stack link, so if one link fails, stack communications can be maintained. For example, in a three-unit stack using a ring topology, unit 1 connects to unit 2, unit 2 connects to unit 3, and unit 3 connects to unit 1.

Figure 72 shows a supported ring stacking topology using the 25-GbE stacking ports on RUCKUS ICX8200-48 switches.

FIGURE 72 25-GbE Ring Stacking Topology



Interactive-Setup Utility

Stack interactive-setup lets you easily configure your entire stack through the active controller, which propagates the configuration to all stack members. Stack interactive-setup is the most secure way to build a traditional stack and gives you the most control over how your stack is built. The stack interactive-setup utility can also discover new links between existing stack units, enlarge a stacking trunk, or change a chain topology to a ring. The utility provides an option for users to change member IDs interactively.

The **stack interactive-setup** command, entered in privileged EXEC mode, is used to initiate the utility. RUCKUS recommends that you make all physical connections and run **stack interactive-setup** on the active controller of a stack or on a standalone unit that will become the active controller.

The interactive-setup utility starts discovery in both upstream and downstream directions. The discovery process produces a list of upstream and downstream devices that are available to join the stack. Refer to the *RUCKUS FastIron Stacking Configuration Guide* for more information on interactive-setup discovery.

Zero-Touch Provisioning

Stack zero-touch provisioning (ZTP) is the automatic discovery of stack members. When stack zero-touch provisioning is enabled, the system performs stack interactive-setup every three minutes in the background, without any prompts to the user or opportunities for user input. The resulting configuration is similar to running stack interactive-setup and accepting all recommended values. Stack zero-touch provisioning can detect new links between existing units and can discover new clean units (without startup-config flash), but it cannot change existing unit IDs.

Stack zero-touch provisioning is enabled by entering **stack zero-touch-enable** in global configuration mode. Refer to the *RUCKUS FastIron Stacking Configuration Guide* for more information on stack zero-touch provisioning.

> **NOTE**
> RUCKUS recommends the use of stack interactive-setup in preference to stack zero-touch provisioning because the interactive-setup utility allows you more flexibility when selecting units, assigning IDs, or configuring a linear-topology trunk. Stack interactive-setup also makes connection errors easier to spot.

Support for Two-Unit Stack Linear Trunks

FastIron 08.0.90 and later releases support a linear-topology trunk in a two-unit stack. A two-unit stack can form a linear topology with a trunk containing all stacking ports, instead of dividing the ports into the two directions of a ring topology. The linear-topology trunk provides the same redundancy as a two-unit ring because of trunk load balancing. Furthermore, a linear-topology trunk doubles the bandwidth of the stacking ports between two units.

In a two-unit ring topology, only one direction is used even though there are two paths for a unit to reach the other unit. In contrast, a linear-topology trunk uses all ports to reach the other unit.

NOTE
In a ring of more than two units, all directions of any unit are fully utilized because each direction is to a different unit. Therefore, the linear-topology trunk is not supported in a stack of more than two units.

FIGURE 73 RUCKUS ICX8200-48 Two-Unit Stack with Linear-Topology Trunk (Four Ports)



NOTE
For more information about stacking, refer to the *RUCKUS FastIron Stacking Configuration Guide*.

Initial Setup and Verification

- Providing Power to the Device 75
- Establishing a First-Time Serial Connection 75
- Establishing an Out-of-Band Management Port Connection 76

Providing Power to the Device

After you complete the physical installation, you can power on the system.

1. Install alternating-current (AC) power supplies in the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, or ICX8200-48ZP2-V switch. Refer to "Power Supplies" on page 99. Only the listed models take an installable power supply.
2. Connect AC power cables to the power supply connectors.

   NOTE
   The equipment should be installed near a power source and in an easily accessible location.

3. Connect the power cables to the 100-240 VAC power source. The power sources should be on separate circuits to protect against power failure. Ensure that the power cords have a minimum service loop of 6 inches available and are routed to avoid stress.

   NOTE
   Power is supplied to the device as soon as the first power supply is connected.

4. After the device has booted, verify that the power and status LEDs are green or blue (ICX8200-C08PFV and ICX8200-24PV).

   The power supply LEDs display amber until power-on self-test (POST) is complete, and then change to green or blue. The switch usually requires several minutes to boot and complete POST.

   NOTE
   To turn the system off, simply unplug the power cables.

For more information about how to interpret LEDs and run diagnostic tests, refer to "Diagnostic Tests and Monitoring" on page 95.

Establishing a First-Time Serial Connection

To assign an IP address, you must have access to the command line interface (CLI). The CLI is a text-based interface that can be accessed through a direct serial connection to the device and through Telnet connections. The CLI is described in detail in the *RUCKUS FastIron Management Configuration Guide*.

Access the CLI by connecting to the RJ-45 or USB Type-C console port. After you assign an IP address, you can access the system through Telnet, or RUCKUS Network Advisor.

Perform the following steps to access the device through a serial connection.

1. Connect the serial cable to the RJ-45 or USB Type-C console port on the RUCKUS ICX 8200 switch and to an RS-232 serial port on the workstation using the RJ-45-to-DB9 adapter included in the shipping carton or a USB Type-C serial console port cable.

   For port pinout information for the console ports, refer to "Serial Port Specifications (Pinout USB Type-C)" on page 118 and "Serial Port Specifications (Pinout RJ-45)" on page 119.

2. Disable any serial communication programs running on the workstation such as synchronization programs.
3. Open a terminal emulator application such as HyperTerminal on a Windows PC, or TERM, TIP, or Kermit in a UNIX environment, and configure the application as follows:
   - In a Windows environment
     - Baud: 9600 bps and no other value
     - Data bits: 8
     - Parity: None
     - Stop bits: 1
     - Flow control: None
   - In a UNIX environment using TIP, enter the following string at the prompt:

     ```
     tip /dev/ttyb -9600
     ```

     If ttyb is already in use, use ttya instead and enter the following string at the prompt:

     ```
     tip /dev/ttya -9600
     ```

Establishing an Out-of-Band Management Port Connection

The Gigabit Ethernet management port (RJ-45) on the RUCKUS ICX 8200 provides an out-of-band network connection to the device. After you assign an IP address, you can access the RUCKUS ICX 8200 from anywhere in the attached network using Telnet, a web browser, or other network management tools, such as RUCKUS Network Advisor. To prevent unauthorized access, RUCKUS recommends that the management port only be connected to a secure private network.

To manage the RUCKUS ICX 8200 switch through its management port, connect the port to the Ethernet network using Category 5 or better cable. Management of the RUCKUS ICX 8200 is described in detail in the *RUCKUS FastIron Management Configuration Guide*.

NOTE
The RUCKUS ICX 8200 does not support jumbo frames on the out-of-band management port. (Frame size greater than 1500 bytes does not ingress into the management port.)

Installing Transceivers and Cables

- Precautions Specific to Transceivers and Cables 77
- Cleaning the Fiber-Optic Connectors 77
- Managing Cables 78
- Installing a Fiber-Optic Transceiver 78
- Replacing a Fiber-Optic Transceiver 79
- Connecting Network Devices 80

Precautions Specific to Transceivers and Cables



DANGER
All fiber-optic interfaces use Class 1 lasers.



DANGER
Laser radiation. Do not view directly with optical instruments. Class 1M laser products.



DANGER
Use only optical transceivers that are qualified by RUCKUS and comply with the FDA Class 1 radiation performance requirements defined in 21 CFR Subchapter I, and with IEC 60825 and EN60825. Optical products that do not comply with these standards might emit light that is hazardous to the eyes.



DANGER
For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.



CAUTION
Before plugging a cable to any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

Cleaning the Fiber-Optic Connectors

To avoid problems with the connection between the fiber-optic transceiver (SFP/SFP+/SFP28) and the fiber cable connectors, RUCKUS strongly recommends cleaning both connectors each time you disconnect and reconnect them. Dust can accumulate in the connectors and cause problems such as reducing the optic launch power.

To clean the fiber cable connectors, RUCKUS recommends using a fiber-optic reel-type cleaner. When not using a fiber-optic transceiver connector, make sure to keep the protective covering in place.

Managing Cables

Cables can be organized and managed in a variety of ways, for example, using cable channels on the sides of the rack or patch panels to minimize cable management. Follow these recommendations:

NOTE
You should not use tie wraps with optical cables because they are easily overtightened and can damage the optic fibers.



CAUTION
Before plugging a cable to any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

- Plan for rack space required for cable management before installing the switch.
- Leave at least 1 m (3.28 ft) of slack for each port cable. This provides room to remove and replace the switch, allows for inadvertent movement of the rack, and helps prevent the cables from being bent to less than the minimum bend radius.
- For easier maintenance, label the fiber-optic cables and record the devices to which they are connected.
- Keep LEDs visible by routing port cables and other cables away from the LEDs.
- Use hook and loop style straps to secure and organize fiber-optic cables.
- The minimum bend radius for a 50 micron cable is 2 inches under full tensile load and 1.2 inches with no tensile load.

Installing a Fiber-Optic Transceiver

To monitor the transceivers, the **show media** command output shows the transceiver information for all interfaces on the device. RUCKUS provides support for third-party transceivers, but may require a RUCKUS transceiver be used for troubleshooting.

Support will not be provided if there is an issue with a third-party transceiver.

NOTE
RUCKUS-branded removable media devices are recommended for proper operation of the device.

You can install a new transceiver in a slot while the device is powered on and running. For ports not configured in breakout mode, a fixed speed can also be set using the CLI (refer to the *RUCKUS FastIron Management Configuration Guide*). Port speed changes are dynamic and do not require a system reboot.

ATTENTION
Any mismatch between a transceiver and port speed in “fixed speed” mode causes the port to be disabled. Note that the autonegotiation of link speed with a link partner is not supported on any port.

Installed transceivers are validated against a predefined list and categorized as Qualified, Unqualified, or Unsupported. Qualified transceivers operate normally. Unqualified transceivers are allowed to operate, but a log message is generated to inform the user. Unsupported transceivers are rejected and a port fault log message is generated.

Before installing a fiber-optic transceiver, have an ESD wrist strap available with a plug for connection to the ESD connector on the device.



DANGER
For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.

DANGER
Laser radiation. Do not view directly with optical instruments. Class 1M laser products.

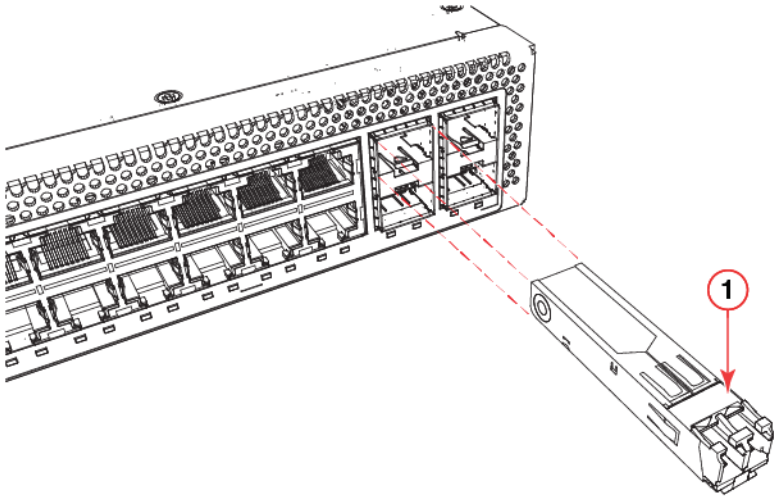
Use the following steps to install a transceiver.

1. Put on the ESD wrist strap and ground yourself by attaching the clip end to a metal surface (such as an equipment rack) to act as ground.
2. Remove the new transceiver from the protective packaging.
3. Remove any protector plugs from the transceivers and the ports.
4. Making sure that the bail (wire handle) is in the unlocked position, place the transceiver in the correctly oriented position on the port, as shown in Figure 74.
5. Slide the transceiver into the port until you feel it click into place; then close the bail. Transceivers are keyed to prevent incorrect insertion.

NOTE
Each fiber-optic transceiver has a 10-pad gold-plated edge connector on the bottom. The correct position to insert a fiber-optic transceiver in the upper row of ports is with the gold-plated edge down. The correct position to insert a fiber-optic transceiver in the lower row of ports is with the gold-plated edge up.

NOTE
If a fiber-optic transceiver is unplugged and plugged in again rapidly, the link may not come up. Allow a delay of two to five seconds between unplugging and reinserting the optic to ensure optic detection so that the link comes up without issues.

FIGURE 74 Installing an SFP+ Transceiver in a Port Slot



1 SFP+ transceiver

Replacing a Fiber-Optic Transceiver

You can remove a fiber-optic transceiver from a slot and replace it with a new one while the RUCKUS ICX 8200 switch is powered on and running.

While removing a fiber-optic transceiver, be sure to wear an ESD wrist strap that is connected to ground.

DANGER
For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.

Use the following steps to remove a fiber-optic transceiver from a slot.

1. Put on the ESD wrist strap and ground yourself by attaching the clip end to a metal surface (such as an equipment rack).
2. Disconnect the fiber cable connector from the port connector.
3. Unlock the fiber-optic transceiver by pulling the bail latch forward, away from the front of the slot.

   NOTE
   The bail latch or pull tab may be attached to either the top or the bottom of the fiber-optic transceiver.
4. Grasp the bail latch and pull the fiber-optic transceiver out of the slot.
5. Store the fiber-optic transceiver in a safe, static-free place or in an anti-static bag.
6. Install a new fiber-optic transceiver in the slot.

Connecting Network Devices

RUCKUS devices support connections to other vendors' routers, switches, and hubs, as well as other RUCKUS devices.

Connecting a Network Device to a Copper Port

For copper connections to another RUCKUS device or any other devices, use straight-through or crossover UTP cabling.

Automatic MDI or MDIX Detection

All 10/100/1000 Mbps Ethernet copper OOB management ports on the devices support automatic Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDIX) detection. Automatic MDI or MDIX detection is enabled on all copper ports by default. For each port, you can disable automatic MDI or MDIX, designate the port as an MDI port, or designate the port as an MDIX port.

For more information about automatic MDI or MDIX detection and configuration details, refer to the *RUCKUS FastIron Management Configuration Guide*.

Connecting a Network Device to a Fiber Port

For direct attachment from the device to a network interface card, switch, or router, using a fiber-optic transceiver, you will need fiber cabling with an LC connector.

For information about transceivers supported on the RUCKUS ICX 8200 switch, refer to the RUCKUS Optics Family Data Sheet.

To connect the device to another network device using a fiber port, you must complete the following tasks:

- Install a fiber-optic transceiver (SFP/SFP+/SFP28). Refer to "Installing a Fiber-Optic Transceiver" on page 78.
- Cable the fiber-optic transceiver.

Cabling a Fiber-Optic Transceiver

Use the following steps to cable a fiber-optic transceiver.

1. Remove the protective covering from the fiber-optic port connectors and store the covering for future use.
2. Before cabling a fiber-optic transceiver, RUCKUS strongly recommends cleaning the cable connectors and the port connectors. For more information, refer to "Cleaning the Fiber-Optic Connectors" on page 77.
3. Gently insert the cable connector (a tab on each connector should face upward) into the transceiver connector until the tab locks into place.
4. Observe the link and activity LEDs to determine if the network connections are functioning properly. For more information about the LED indicators, refer to "LED Activity Interpretation" on page 83.

   NOTE
   To verify that a RUCKUS ICX 8200 switch can reach another device through the network, use the **ping** command at any level of the CLI. For more information, refer to the *RUCKUS FastIron Management Configuration Guide*.

Monitoring the Device

- LED Activity Interpretation 83
- RUCKUS ICX 8200 LEDs 83
- RUCKUS ICX8200-C08PFV and ICX8200-24PV LEDs 89
- Performing a Factory Reset 94
- Diagnostic Tests and Monitoring 95
- Monitoring Power and Cooling 95

LED Activity Interpretation

System activity and status can be determined through the activity of the LEDs on the switch.

There are three possible LED states: off (no light), a steady light, and a flashing light. Flashing lights may be slow, fast, or flickering. The LED colors are either green or amber for all models except the RUCKUS ICX8200-C08PFV and ICX8200-24PV, which have blue or amber LED colors.

Sometimes, the LEDs flash either of the colors during boot, POST, or other diagnostic tests. This is normal; it does not indicate a problem unless the LEDs do not indicate a healthy state after all boot processes and diagnostic tests are complete.

RUCKUS ICX 8200 LEDs

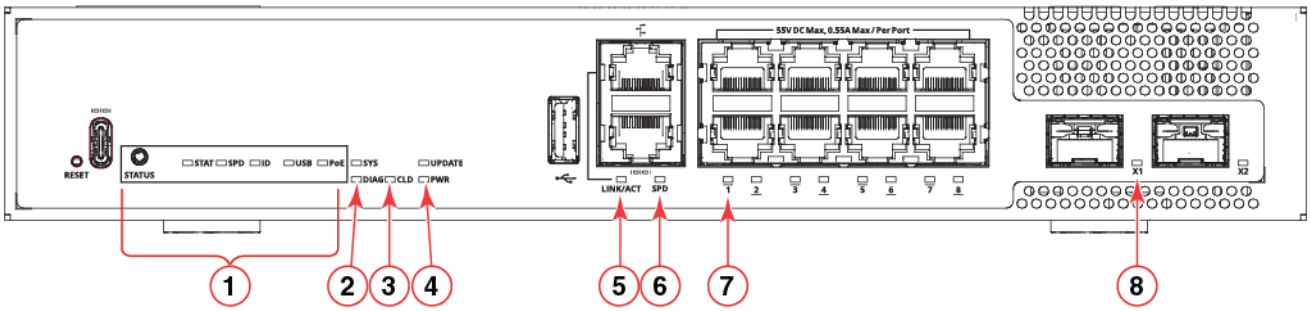
The RUCKUS ICX8200-C08PF, ICX8200-C08ZP, ICX8200-C08ZP-V, ICX8200-24, ICX8200-24F, ICX8200-24FX, ICX8200-24P, ICX8200-24XP2, ICX8200-24ZP, ICX8200-24ZP-V, ICX8200-48, ICX8200-48F, ICX8200-48NP2, ICX8200-48P, ICX8200-48P-V, ICX8200-48PF, ICX8200-48PF-V, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V have the following LEDs:

- Two management port status LEDs (green) for link/activity (LINK/ACT) and speed (SPD)
- One or two power supply unit (PSU) bicolor status LEDs (green and amber) labeled PWR and PWR2 (PWR2 is only on the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2 and ICX8200-48ZP2)
- One SYS (system) bicolor status LED (green and amber)
- One DIAG (diagnostic) bicolor status LED (green and amber)
- One MSTR (stacking configuration) bicolor status LED (green and amber)
- One CLD (RUCKUS One/SmartZone management) bicolor status LED (green and amber)
- One UPDATE (software update) bicolor status LED (green and amber)
- Five status mode LEDs (green) selected by pressing the status mode button:
  - STAT: Port LEDs indicate link and traffic activity.
  - SPD: Port LEDs indicate the link speed.
  - ID: Port LEDs indicate the stack unit ID when the switch is in stacking mode.
  - USB: Indicates files are being copied to a USB drive connected to the USB port.
  - PoE: Port LEDs indicate the Power-over-Ethernet mode status. PoE is supported only on the ICX8200-C08PF, ICX8200-C08ZP, ICX8200-C08ZP-V, ICX8200-24P, ICX8200-24XP2, ICX8200-24ZP, ICX8200-24ZP-V, ICX8200-48NP2, ICX8200-48P, ICX8200-48P-V, ICX8200-48PF, ICX8200-48PF-V, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V.

- Bicolor (green and amber) status LEDs for RJ-45 ports. The LED indication is dependent on the mode set by the status mode button.
- Bicolor (green and amber) status LEDs for SFP/SFP+/SFP28 ports. The LED indication is dependent on the mode set by the status mode button.

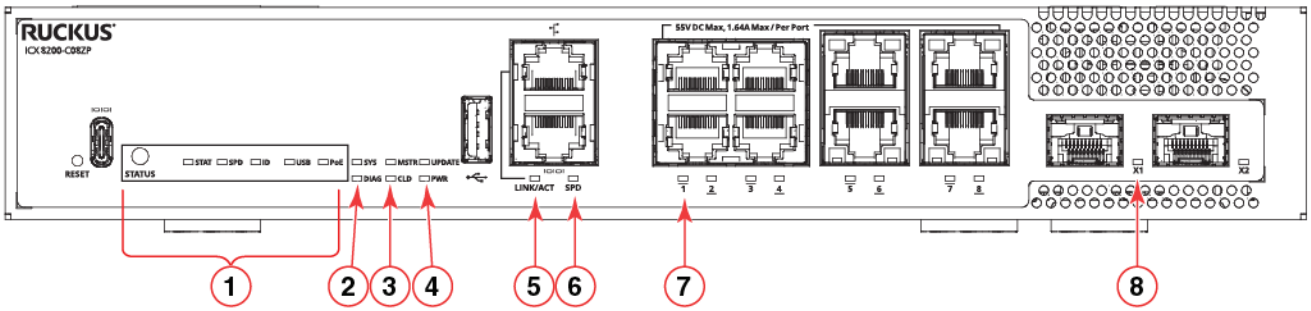
Figure 75, Figure 76, and Figure 77 show the RUCKUS ICX 8200 port-side LEDs.

FIGURE 75 Port-Side LEDs on the RUCKUS ICX8200-C08PF Compact Switch



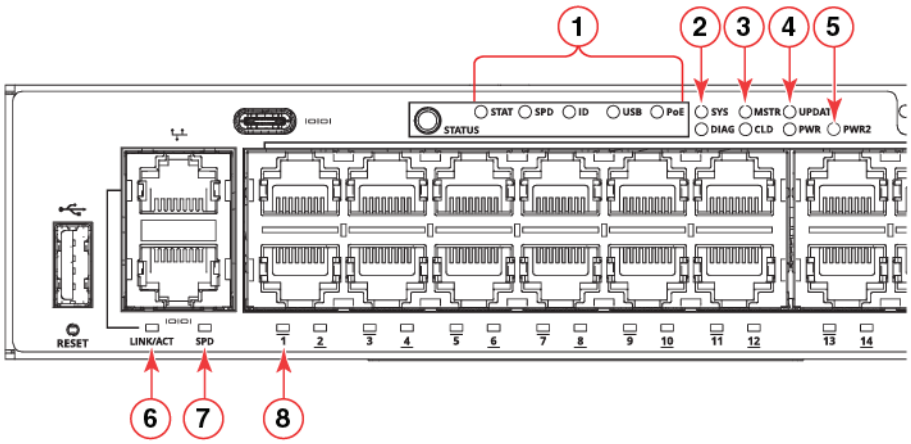
1	Mode status LEDs: STAT, SPD, ID, USB, PoE	5	LINK/ACT (link/activity) management port LED
2	SYS (system status) and DIAG (diagnostic) status LEDs	6	SPD (speed) management port LED
3	CLD (RUCKUS One/SmartZone management) LED	7	RJ-45 port link/activity LEDs
4	UPDATE (software update) and PWR status LEDs	8	SFP+ port link/activity LEDs

FIGURE 76 Port-Side LEDs on the RUCKUS ICX8200-C08ZP Compact Switch



1	Mode status LEDs: STAT, SPD, ID, USB, PoE	5	LINK/ACT (link/activity) management port LED
2	SYS (system status) and DIAG (diagnostic) status LEDs	6	SPD (speed) management port LED
3	MSTR (stacking configuration) status and CLD (RUCKUS One/ SmartZone management) LEDs	7	RJ-45 port link/activity LEDs
4	UPDATE (software update) and PWR status LEDs	8	SFP28 port link/activity LEDs

FIGURE 77 Port-Side LEDs on the RUCKUS ICX 8200 24-Port and 48-Port Switches

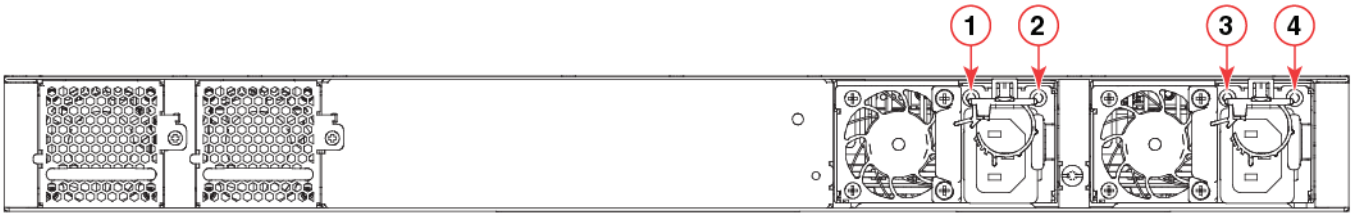


1	Mode status LEDs: STAT, SPD, ID, USB, PoE (only on the ICX8200-24XP2, ICX8200-48NP2, ICX8200-48P, ICX8200-48P-V, ICX8200-48PF, ICX8200-48PF-V, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-24P, ICX8200-24ZP, ICX8200-24ZP-V, ICX8200-48ZP2, and ICX8200-48ZP2-V)	5	PWR2 (PSU 2) status LED (only on the ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V)
2	SYS (system status) and DIAG (diagnostic) status LEDs	6	LINK/ACT (link/activity) management port LED
3	MSTR (stacking configuration) status and CLD (RUCKUS One/ SmartZone management) LEDs	7	SPD (speed) management port LED
4	UPDATE (software update) and PWR (PSU 1) status LEDs	8	Port link/activity LEDs

The RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V have two bicolor power supply status LEDs (green and red) on each installed power supply.

Figure 78 shows the nonport-side LEDs on the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V.

FIGURE 78 Nonport-Side LEDs on the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V



1	Power supply unit 2 DC LED	3	Power supply unit 1 DC LED
2	Power supply unit 2 AC LED	4	Power supply unit 1 AC LED

Status Mode Button and LEDs

The status mode button is used to select the corresponding status indicated by the port status LEDs. Each press of the status mode button selects the next mode in the following sequence.

1. STAT: Port LEDs indicate link and traffic activity (the default mode).
2. SPD: Port LEDs indicate the link speed.
3. ID: Port LEDs indicate the stack unit ID when the switch is in stacking mode.
4. USB: Indicates files are being copied to a USB drive connected to the USB port.
5. PoE: Port LEDs indicate if PoE power is enabled and the amount of power allocated.

When in USB mode, pressing the status mode button for 5 seconds copies files, such as FastIron image and manifest files, configuration files, and Show Tech (**supportsave**) files from the switch to the USB drive. This capability must be enabled by using the **reverse-manifest enable** command in the CLI.

The switch system automatically copies files from an inserted USB drive to the system flash after a system reload. The USB drive must have the files preloaded. The status mode automatically selects USB mode when a USB auto-copy begins.

The following table describes the USB status mode LED for a file copy to or from a USB drive.

TABLE 9 USB Mode LED (File Copy to or from USB)

LED State	Status of Hardware	Recommended Action
Blinking green	A 5-second button press has been detected and the USB copy has started. Or, a system flash upgrade has started from a USB drive.	No action required.
Steady green	A USB drive is plugged in, or a copy operation has completed.	No action required.
Steady amber	No USB device detected.	No action required.
Blinking amber	A USB copy operation has failed, there has been an application error, or the USB is present but there is a mount failure or access failure.	Contact Technical Support.

LED Patterns

The following tables describe the RUCKUS ICX 8200 LED patterns.

TABLE 10 LINK/ACT (Link/Activity) Management Port Status LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Not cabled or no link.	No action required.
Steady green	A link is up with no traffic.	No action required.
Blinking green	A link is up and packets are being transmitted or received.	No action required.

TABLE 11 SPD (Speed) Management Port Status LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Not cabled or 10/100 Mbps link is up.	No action required.
Steady green	A 1000 Mbps link is up.	No action required.

TABLE 12 SYS LED

LED State	Status of Hardware	Recommended Action
Off (no light)	System is off or there is no power.	No action required.
Blinking green	Device is initializing.	No action required.
Steady green	The application software is up and running on the switch.	No action required.
Steady amber	The system is in boot mode.	No action required.
Blinking amber	The system has crashed and the watchdog timer has timed out. Or, the system has failed to boot a valid software image.	Contact Technical Support.

TABLE 13 DIAG LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Diagnostic is off.	No action required.
Blinking green	System self-diagnostic test is in progress.	No action required.
Steady green	System self-diagnostic test has successfully completed.	No action required.
Steady amber	System self-diagnostic test has detected a fault.	Contact Technical Support.

TABLE 14 MSTR LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Stacking mode is enabled and the switch is a stack member operating in slave mode, or the switch is operating in standalone mode.	No action required.
Blinking green	Device is initializing.	No action required.
Steady green	Stacking mode is enabled and the switch is the stack master.	No action required.
Steady amber	Stacking mode is enabled and the switch is the standby controller.	No action required.
Blinking amber	Stacking error. The switch is in a non-operating mode.	Contact Technical Support.

TABLE 15 UPDATE LED

LED State	Status of Hardware	Recommended Action
Off (no light)	System is running an earlier software image.	No action required.
Blinking green	The switch software is being updated through DHCP, USB/TFTP, ISSU, or from another unit in a stack.	No action required.
Steady green	The switch software has been successfully updated through DHCP, USB/TFTP, ISSU, or from another unit in a stack.	No action required.
Blinking amber	An error has occurred during a software update. Or, the system booted after image upgrade from a different partition/image as instructed by the user.	No action required.

TABLE 16 CLD LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Switch is not connected to RUCKUS One/SmartZone management platform, or RUCKUS One/SmartZone management has been disabled on the switch.	No action required.
Blinking green	Switch is attempting to connect to a RUCKUS One/SmartZone management platform.	No action required.

TABLE 16 CLD LED (Continued)

LED State	Status of Hardware	Recommended Action
Steady green	Switch successfully connected to RUCKUS One/SmartZone management platform and is operational.	No action required.
Blinking amber	Switch is being configured by RUCKUS One/SmartZone management platform.	No action required.

TABLE 17 PWR and PWR2 LEDs

LED State	Status of Hardware	Recommended Action
Off (no light)	System is off or there is no power.	Verify the system is on and has completed booting.
Steady green	PSU is on and functioning properly.	No action required.
Steady amber	PSU is missing power or in a faulty state (such as PSU fan failure).	Verify that the PSU power cord is connected to a functioning power source. Replace the power supply.

TABLE 18 25 GbE, 10 GbE, 1 GbE Port Status LEDs

Status Mode	LED State	Status of Hardware	Recommended Action
STAT	Off (no light)	Not cabled.	No action required.
	Steady green	Link is up with no traffic.	No action required.
	Blinking green	Link is up and packets are being transmitted or received.	No action required.
	Steady amber	Packet errors have been detected on the port.	No action required.
	Blinking amber-green	Port is disabled by UDLD, LACP, or other error.	No action required.
SPD	Off (no light)	No valid link on the port.	No action required.
	Steady green	Port is operating at its highest speed. • 25 GbE ports: 25 Gbps • 10 GbE ports: 10 Gbps • 10 GbE RJ-45 ports: 10 Gbps • 2.5 GbE RJ-45 ports: 2500 Mbps • 1 GbE RJ-45 ports: 1000 Mbps	No action required.
	Blinking green	Port is operating at its second highest speed. • 25 GbE ports: 10 GbE • 10 GbE ports: 1 Gbps • 10 GbE RJ-45 ports: 5 Gbps • 2.5 GbE RJ-45 ports: 1000 Mbps • 1 GbE RJ-45 ports: 100 Mbps	No action required.
	Steady amber	Port is operating at its third highest speed. • 25 GbE ports: 1 Gbps • 10 GbE RJ-45 ports: 2.5 Gbps • 2.5 GbE RJ-45 ports: 100 Mbps • 1 GbE RJ-45 ports: 10 Mbps	No action required.
	Blinking amber	Port is operating at its fourth highest speed. • 10 GbE RJ-45 ports: 1 Gbps	No action required.
	Alternating amber/green	Port is operating at its fifth highest speed. • 10 GbE RJ-45 ports: 100 Mbps	No action required.

TABLE 18 25 GbE, 10 GbE, 1 GbE Port Status LEDs (Continued)

Status Mode	LED State	Status of Hardware	Recommended Action
ID	Steady green	The port number is the same as the stack ID. Or, the port number is the first digit of the PE ID.	No action required.
	Steady amber	The port number is the second digit of the PE ID. If the port number is 10, then the second digit or PE ID is 0.	No action required.
	Alternating amber/green	The port number indicates that the first and second digit of the PE ID are the same.	No action required.
PoE	Off (no light)	Port is not providing PoE power for reasons such as: • PoE is disabled. • There is no device connected to the port. • The device connected to the port is not a PoE device.	No action required.
	Steady green	PoE is on. Port is providing power.	No action required.
	Blinking amber	PoE is off due to a fault or not enough PoE power budget set for the port.	No action required.

NOTE
The alternating amber/green LED state is not supported for the RUCKUS ICX8200-24XP2 and ICX8200-48NP2.

TABLE 19 Power Supply AC LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Power supply is operating in non-redundant mode and is not receiving external power.	Verify that the power supply power cord is connected to a functioning power source.
Steady green	Power supply is receiving external power.	No action required.
Steady red (with power cord connected)	Power supply is operating in 1+1 redundant mode and is not receiving external power.	Verify that the power supply power cord is connected to a functioning power source.

TABLE 20 Power Supply DC LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Power supply is not powered on in non-redundant mode.	Verify that the power supply power cord is connected to a functioning power source.
Steady green	Power supply is on and functioning properly.	No action required.
Steady red (with power cord connected)	Power supply has a fault.	Replace the power supply.
Blinking red	Power supply has detected an over-current condition.	The warning can be cleared by using the following CLI command: **clear chassis unit-id** *id* **ps-device** *id* **led**

RUCKUS ICX8200-C08PFV and ICX8200-24PV LEDs

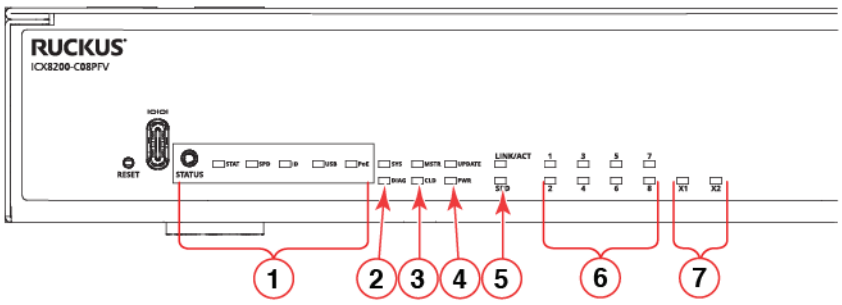
The RUCKUS ICX8200-C08PFV and ICX8200-24PV have the following nonport-side LEDs:

- Two management port status LEDs (blue) for link/activity (LINK/ACT) and speed (SPD)
- One PWR (power) bicolor status LED (blue and amber)
- One SYS (system) bicolor status LED (blue and amber)
- One DIAG (diagnostic) bicolor status LED (blue and amber)

- One MSTR (stacking configuration) bicolor status LED (blue and amber)
- One CLD (RUCKUS One/SmartZone management) bicolor status LED (blue and amber)
- One UPDATE (software update) bicolor status LED (blue and amber)
- Five status mode LEDs (blue) selected by pressing the status mode button (a sixth mode turns all LEDs off):
  - STAT: Port LEDs indicate link and traffic activity.
  - SPD: Port LEDs indicate the link speed.
  - ID: Port LEDs indicate the stack unit ID when the switch is in stacking mode.
  - USB: Indicates files are being copied to a USB drive connected to the USB port.
  - PoE: Port LEDs indicate the Power-over-Ethernet mode status.
- Bicolor (blue and amber) status LEDs for RJ-45 ports. The LED indication is dependent on the mode set by the status mode button.
- Bicolor (blue and amber) status LEDs for SFP/SFP+/SFP28 ports. The LED indication is dependent on the mode set by the status mode button.

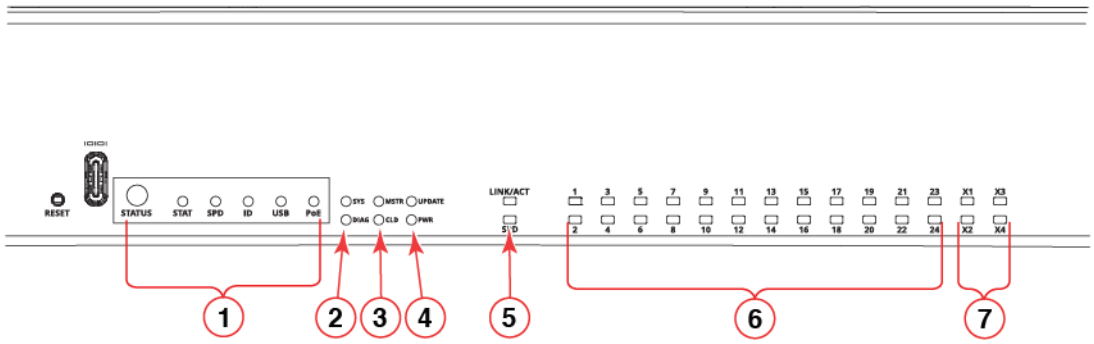
Figure 79 and Figure 80 show the nonport-side LEDs on the RUCKUS ICX8200-C08PFV and ICX8200-24PV.

FIGURE 79 Nonport-Side LEDs on the RUCKUS ICX8200-C08PFV Compact Switch



1	Mode status LEDs: STAT, SPD, ID, USB, PoE	5	LINK/ACT (link/activity) and SPD (speed) management port LEDs
2	SYS (system status) and DIAG (diagnostic) status LEDs	6	RJ-45 port link/activity LEDs
3	MSTR (stacking configuration) status and CLD (RUCKUS One/ SmartZone management) LEDs	7	SFP+ port link/activity LEDs
4	UPDATE (software update) and PWR status LEDs		

FIGURE 80 Nonport-Side LEDs on the RUCKUS ICX8200-24PV Switch



1	Mode status LEDs: STAT, SPD, ID, USB, PoE	5	LINK/ACT (link/activity) and SPD (speed) management port LED
2	SYS (system status) and DIAG (diagnostic) status LEDs	6	RJ-45 port link/activity LEDs
3	MSTR (stacking configuration) status and CLD (RUCKUS One/ SmartZone management) LEDs	7	SFP28 port link/activity LEDs
4	UPDATE (software update) and PWR status LEDs		

Status Mode Button and LEDs

The status mode button is used to select the corresponding status indicated by the port status LEDs. Each press of the status mode button selects the next mode in the following sequence.

1. STAT: Port LEDs indicate link and traffic activity (the default mode).
2. SPD: Port LEDs indicate the link speed.
3. ID: Port LEDs indicate the stack unit ID when the switch is in stacking mode.
4. USB: Indicates files are being copied to a USB drive connected to the USB port.
5. PoE: Port LEDs indicate if PoE power is enabled and the amount of power allocated.
6. Off: All LEDs are turned off, including the status mode LEDs (STAT, SPD, ID, USB, PoE), system LEDs (SYS, DIAG, MSTR, CLD, UPDATE, PWR), management port LEDs, and all port LEDs.

When in USB mode, pressing the status mode button for 5 seconds copies files, such as FastIron image and manifest files, configuration files, and Show Tech (**supportsave**) files from the switch to the USB drive. This capability must be enabled by using the **reverse-manifest enable** command in the CLI.

The switch system automatically copies files from an inserted USB drive to the system flash after a system reload. The USB drive must have the files preloaded. The status mode automatically selects USB mode when a USB auto-copy begins.

The following table describes the USB status mode LED for a file copy to or from a USB drive.

TABLE 21 USB Mode LED (File Copy to or from USB)

LED State	Status of Hardware	Recommended Action
Blinking blue	A 5-second button press has been detected and the USB copy has started. Or, a system flash upgrade has started from a USB drive.	No action required.
Steady blue	A USB drive is plugged in, or a copy operation has completed.	No action required.

TABLE 21 USB Mode LED (File Copy to or from USB) (Continued)

LED State	Status of Hardware	Recommended Action
Steady amber	No USB device detected.	No action required.
Blinking amber	A USB copy operation has failed, there has been an application error, or the USB is present but there is a mount failure or access failure.	Contact Technical Support.

LED Patterns

The following tables describe the RUCKUS ICX8200-C08PFV and ICX8200-24PV LED patterns.

TABLE 22 LINK/ACT (Link/Activity) Management Port Status LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Not cabled or no link.	No action required.
Steady blue	A link is up with no traffic.	No action required.
Blinking blue	A link is up and packets are being transmitted or received.	No action required.

TABLE 23 SPD (Speed) Management Port Status LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Not cabled or 10/100 Mbps link is up.	No action required.
Steady blue	A 1000 Mbps link is up.	No action required.

TABLE 24 SYS LED

LED State	Status of Hardware	Recommended Action
Off (no light)	System is off or there is no power.	No action required.
Blinking blue	Device is initializing.	No action required.
Steady blue	The application software is up and running on the switch.	No action required.
Steady amber	The system is in boot mode.	No action required.
Blinking amber	The system has crashed and the watchdog timer has timed out. Or, the system has failed to boot a valid software image.	Contact Technical Support.

TABLE 25 DIAG LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Diagnostic is off.	No action required.
Blinking blue	System self-diagnostic test is in progress.	No action required.
Steady blue	System self-diagnostic test has successfully completed.	No action required.
Steady amber	System self-diagnostic test has detected a fault.	Contact Technical Support.

TABLE 26 MSTR LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Stacking mode is enabled and the switch is a stack member operating in slave mode, or the switch is operating in standalone mode.	No action required.
Blinking blue	Device is initializing.	No action required.
Steady blue	Stacking mode is enabled and the switch is the stack master.	No action required.

TABLE 26 MSTR LED (Continued)

LED State	Status of Hardware	Recommended Action
Steady amber	Stacking mode is enabled and the switch is the standby controller.	No action required.
Blinking amber	Stacking error. The switch is in a non-operating mode.	Contact Technical Support.

TABLE 27 UPDATE LED

LED State	Status of Hardware	Recommended Action
Off (no light)	System is running an earlier software image.	No action required.
Blinking blue	The switch software is being updated through DHCP, USB/TFTP, ISSU, or from another unit in a stack.	No action required.
Steady blue	The switch software has been successfully updated through DHCP, USB/TFTP, ISSU, or from another unit in a stack.	No action required.
Blinking amber	An error has occurred during a software update. Or, the system booted after image upgrade from a different partition/image as instructed by the user.	No action required.

TABLE 28 CLD LED

LED State	Status of Hardware	Recommended Action
Off (no light)	Switch is not connected to RUCKUS One/SmartZone management platform, or RUCKUS One/SmartZone management has been disabled on the switch.	No action required.
Blinking blue	Switch is attempting to connect to a RUCKUS One/SmartZone management platform.	No action required.
Steady blue	Switch successfully connected to RUCKUS One/SmartZone management platform and is operational.	No action required.
Blinking amber	Switch is being configured by RUCKUS One/SmartZone management platform.	No action required.

TABLE 29 PWR LED

LED State	Status of Hardware	Recommended Action
Off (no light)	System is off or there is no power.	Verify the system is on and has completed booting.
Steady blue	PSU is on and functioning properly.	No action required.
Steady amber	PSU is missing power or in a faulty state (such as PSU fan failure).	Verify that the PSU power cord is connected to a functioning power source. Replace the power supply.

TABLE 30 25 GbE, 10 GbE, 1 GbE Port Status LEDs

Status Mode	LED State	Status of Hardware	Recommended Action
STAT	Off (no light)	Not cabled.	No action required.
	Steady blue	Link is up with no traffic.	No action required.
	Blinking blue	Link is up and packets are being transmitted or received.	No action required.
	Steady amber-blue (pink)*	Packet errors have been detected on the port.	No action required.
	Blinking amber-blue (pink)*	Port is disabled by UDLD, LACP, or other error.	No action required.

TABLE 30 25 GbE, 10 GbE, 1 GbE Port Status LEDs (Continued)

Status Mode	LED State	Status of Hardware	Recommended Action
SPD	Off (no light)	No valid link on the port.	No action required.
	Steady blue	Port is operating at its highest speed. • 25 GbE ports: 25 Gbps • 10 GbE ports: 10 Gbps • 1 GbE RJ-45 ports: 1000 Mbps	No action required.
	Blinking blue	Port is operating at its second highest speed. • 25 GbE ports: 10 GbE • 10 GbE ports: 1 Gbps • 1 GbE RJ-45 ports: 100 Mbps	No action required.
	Steady amber	Port is operating at its third highest speed. • 25 GbE ports: 1 Gbps • 1 GbE RJ-45 ports: 10 Mbps	No action required.
ID	Steady blue	The port number is the same as the stack ID. Or, the port number is the first digit of the PE ID.	No action required.
	Steady amber	The port number is the second digit of the PE ID. If the port number is 10, then the second digit or PE ID is 0.	No action required.
	Alternating amber/blue	The port number indicates that the first and second digit of the PE ID are the same.	No action required.
PoE	Off (no light)	Port is not providing PoE power for reasons such as: • PoE is disabled. • There is no device connected to the port. • The device connected to the port is not a PoE device.	No action required.
	Steady blue	PoE is on. Port is providing power.	No action required.
	Blinking amber	PoE is off due to a fault or not enough PoE power budget set for the port.	No action required.

* **Note:** In STAT mode on the ICX8200-24PV or ICX8200-C08PFV, you may notice that the port LEDs exhibit a pink or purple hue under certain conditions. This phenomenon occurs when the blue and amber LED lights flash simultaneously. It often happens due to errors in network traffic or interactions with nearby LEDs.

Performing a Factory Reset

Complete the following steps to perform a factory reset using the reset button.

1. Remove power from the switch.
2. Press and hold the reset button while applying power to the switch.
3. Release the reset button as soon as all the system LEDs begin to flash amber.

Note: If you do not release the reset button within five seconds of all system LEDs beginning to flash amber, the factory reset will not occur.

When all the system LEDs blink green (blue for ICX8200-C08PFV and ICX8200-24PV), all the configuration data is erased and the switch is returned to its factory configuration. When all the system LEDs are solid green, the erase process is complete and the system reloads. Once reloaded and the SYS LED is steady green, the factory reset is complete.

NOTE
You can also perform the factory reset by using the CLI. For instructions, refer to the **erase system factory-default** command in the *RUCKUS FastIron Command Reference Guide*. Be aware that this command erases the configuration file, the license, and all core dump files. (If you want to keep your license, you can run the **erase startup-config** command, then reload ICX without saving the configuration file when prompted.)

Diagnostic Tests and Monitoring

RUCKUS FastIron software includes diagnostic tests to help you troubleshoot the hardware. System diagnostic software is designed to fulfill the purpose of offline diagnostics. In offline diagnostics, you must turn the diagnostic flags on or off to execute diagnostic tests during the next bootup.

The CLI commands for system diagnostic tests are **dm diag** and **dm alt-diag**. These diagnostic tests verify all available hardware components including:

- I2C devices
- EEPROM
- CPU packet
- Line rate

During system diagnostic testing, the system is completely under the control of the diagnostic software. All hardware components are verified, and results are displayed on the console. In cases where a failure is detected, results and corrective actions will be displayed. After the system diagnostic testing is complete, the system exits from the diagnostic mode and reloads the system for normal operation.

System diagnostic testing runs at link speeds of 1 Gbps, 10 Gbps, or 25 Gbps depending on the speed of the link being tested and the type of port.

The RUCKUS device is engineered for reliability and requires no routine operational steps or maintenance. You can monitor the device by paying attention to the following information:

- The LEDs showing the status of system components
- A description of the operations that the device performs when you power it on

The following commands can be especially helpful in monitoring the health status of various device components. For details about these commands, refer to the *RUCKUS FastIron Management Configuration Guide*:

- **show chassis**
- **show system**

Monitoring Power and Cooling

If the unit powers off after running for a while, check for loose power connections, power losses or surges at the power outlet, and use the **show chassis** command to verify that the temperature is below the shutdown threshold. If you still cannot isolate the problem, then the internal power supply may be defective. In this case, contact RUCKUS Technical Support for assistance.

The device contains temperature sensors that the software reads based on a configurable device poll time. The device has two automatic speed fan control settings based on the temperature. To protect the device from overheating, the following temperature threshold levels exist:

- The warning level is the temperature at which the device generates a syslog message. It is configurable up to 100°C (212°F).
- The shutdown level is the temperature at which the device reboots. It is set by the device and is not configurable. When the device temperature reaches the shutdown level, it generates a warning message that the device's temperature is over the shutdown level and the device shuts down in two minutes. The system restarts 120 seconds after the device reaches the temperature shutdown level.

The switch fans have two speeds, low and high. The fan speed settings are set by the device and are not configurable. During system bootup, the fans run at high speed. After bootup, the fans operate at low speed when the temperature of the switch is below the high limit temperature that is specified in the following table. If the switch reaches the high limit temperature, the fans operate at high speed until the switch reaches the low limit temperature specified in the table, at which time the fans slow to low speed. If the switch reaches or exceeds the critical (shutdown) temperature for two minutes, the switch reboots.

TABLE 31 Temperature Thresholds

Model	Low Limit Temperature	High Limit Temperature	Critical (Shutdown) Temperature
ICX8200-C08PF (fanless)	Not applicable	Not applicable	80.5°C (177°F)
ICX8200-C08PFV (fanless)	Not applicable	Not applicable	80.5°C (177°F)
ICX8200-C08ZP and ICX8200-C08ZP-V (fanless)	Not applicable	Not applicable	80°C (176°F)
ICX8200-24	39°C (102°F)	47°C (117°F)	69°C (156°F)
ICX8200-24F	49°C (120°F)	57°C (135°F)	61°C (142°F)
ICX8200-24FX	48°C (118°F)	56°C (133°F)	60°C (140°F)
ICX8200-24P	54.5°C (130°F)	62.5°C (145°F)	69°C (156°F)
ICX8200-24PV	54.5°C (130°F)	62.5°C (145°F)	69°C (156°F)
ICX8200-24XP2	47°C (116.6°F)	59°C (138.2°F)	64°C (147.2°F)
ICX8200-24ZP and ICX8200-24ZP-V	42°C (108°F)	50°C (122°F)	55°C (131°F)
ICX8200-48	53.5°C (128°F)	61.5°C (143°F)	70°C (158°F)
ICX8200-48F	52°C (126°F)	60°C (140°F)	63°C (145°F)
ICX8200-48NP2	52°C (125.6°F)	61°C (141.8°F)	64°C (147.2°F)
ICX8200-48P and ICX8200-48P-V	50.5°C (123°F)	58.5°C (137°F)	65°C (149°F)
ICX8200-48PF and ICX8200-48PF-V	45°C (113°F)	53°C (127°F)	64°C (147°F)
ICX8200-48PF2 and ICX8200-48PF2-V	48°C (118°F)	56°C (133°F)	69°C (156°F)
ICX8200-48ZP2 and ICX8200-48ZP2-V	50°C (122°F)	58°C (136°F)	60°C (140°F)

To display the temperature of a device, enter the **show chassis** command at any level of the CLI. The **show chassis** command displays the current temperature, the power supply status, and temperature threshold levels. The displayed temperature reflects the temperature of the board inside the device.

```
ICX8200-48PF2 Router# show chassis

The stack unit 1 chassis info:

Power supply 1 (AC - PoE) present, status ok
        Model Number:   23-1000100-01
        Vendor Serial Number:   SA01A7372125000087
        Firmware Ver:   32.65
Power supply 2 present, status failed, reason NO POWER INPUT

Fan 1 ok, speed (auto): [[1]]<->2
Fan 2 ok, speed (auto): [[1]]<->2

Fan controlled temperature: 35.5 deg-C

Fan speed switching temperature thresholds:
                Speed 1: NM<----->56       deg-C
                Speed 2:       48<-----> 69 deg-C (shutdown)
```

```
Fan 1 Air Flow Direction:  Front to Back
Fan 2 Air Flow Direction:  Front to Back
Slot 1 Current Temperature: 25.0 deg-C (Sensor 1), 30.0 deg-C (Sensor 2), 35.5 deg-C (Sensor 3), 37.0 deg-C
(Sensor 4), 33.0 deg-C (Sensor 5)
        Warning level.......: 55.0 deg-C
        Shutdown level......: 69.0 deg-C
Boot Prom MAC : c0c5.207e.9cd2
Management MAC: c0c5.207e.9cd2
ICX8200-48PF2 Router#
```

Power Supplies

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- Precautions Specific to Power Supplies 100
- Time and Items Required 100
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- Inserting a New AC Power Supply 101
- Grounding the RUCKUS ICX 8200 Switch 102

Power Supply Overview

Only the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switches support a hot-swappable alternating-current (AC) power supply. These switches are capable of running on one power supply. The second power supply provides redundancy.

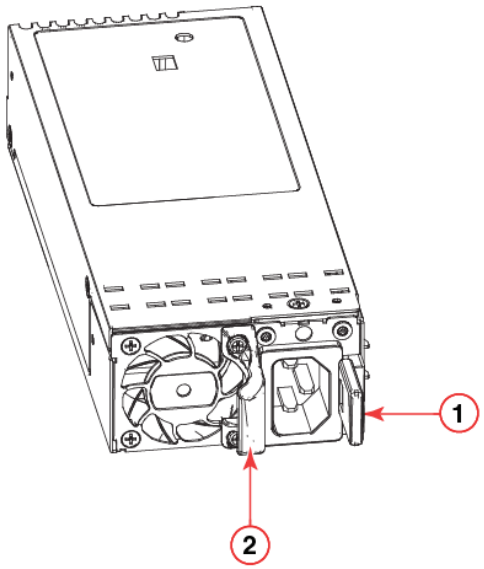
If the second power supply slot is unused, you must cover it with a filler panel.

NOTE
RUCKUS recommends that the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switches operate with two power supplies and two or four fan assemblies installed. If a power supply or fan assembly fails, it must be replaced as soon as possible.

The power supplies in the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switch chassis can be removed and replaced without special tools. The device can continue operating during the replacement.

The RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switches support an AC power supply with nonport-side air exhaust. This unit moves the air from the port side to the nonport side of the device.

FIGURE 81 AC Power Supply



1 Release lever 2 Power supply handle

Precautions Specific to Power Supplies

DANGER
Make sure that the power source circuits are properly grounded, then use the power cord supplied with the device to connect it to the power source.

DANGER
If the installation requires a different power cord than the one supplied with the device, make sure you use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the device.

CAUTION
Disassembling any part of the power supply and fan assembly voids the warranty and regulatory certifications. There are no user-serviceable parts inside the power supply and fan assembly.

CAUTION
If you do not install a fan assembly or power supply in a slot, you must keep the slot filler panel in place. If you run the chassis with an uncovered slot, the system will overheat.

Time and Items Required

Installing or removing and replacing a power supply should require less than five minutes to complete.

A new power supply is required to replace a power supply.

Replacing a Power Supply

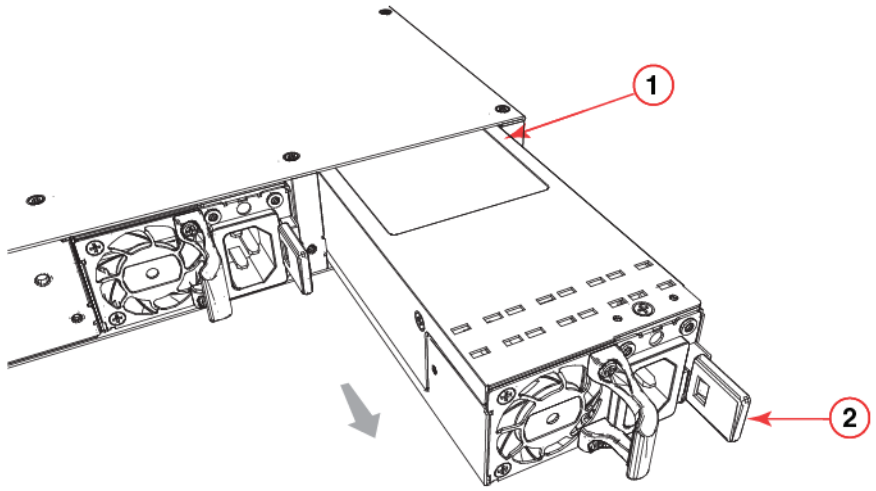
When installing or replacing a power supply unit, keep in mind that a power supply for the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V can be swapped in or out while the device is running. The remaining power supply provides enough power for the device.

CAUTION
Power supplies are hot-swappable. However, they should be inserted or removed without a power cord being connected to a power source to avoid damage.

Inserting a New AC Power Supply

Use the following steps to install an AC power supply in the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switch.

FIGURE 82 Installing an AC Power Supply Unit



1 Power supply slot
2 Release lever

1. If replacing a power supply, remove the previously installed power supply from the appropriate slot by pressing the release lever and pulling the power supply handle.
2. If installing a new power supply into a slot covered with a filler panel:
   a. Press the release lever on the filler panel.
   b. Remove the filler panel.
3. Before opening the package that contains the power supply, touch the bag to the switch casing to discharge any potential static electricity. RUCKUS recommends using an ESD wrist strap during installation.
4. Remove the power supply from the anti-static shielded bag.
5. Holding the power supply level, guide it into the carrier rails on each side and gently push it all the way into the slot, ensuring that it firmly engages with the connector and the release lever clicks into its locked position.

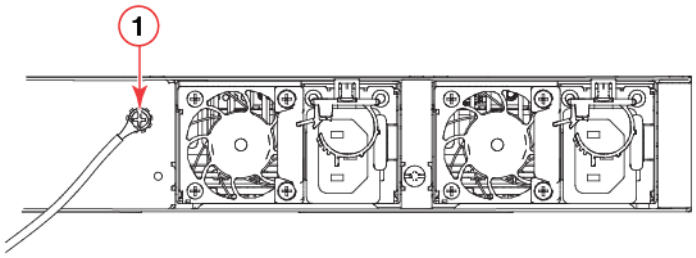
When the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switch is powered on, the LEDs on the power supply should light up green to confirm that the power supply is correctly installed and supplying power.

CAUTION
If you do not install a fan assembly or power supply in a slot, you must keep the slot filler panel in place. If you run the chassis with an uncovered slot, the system will overheat.

Grounding the RUCKUS ICX 8200 Switch

The RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switches include a single-screw grounding terminal for chassis grounding. The surface area around this terminal is not painted to provide a good electrical connection. Before connecting power to the device, connect the grounding screw to ground the chassis if required by your local building code or regulatory compliance.

FIGURE 83 Connecting the Grounding Terminal



1 Grounding terminal

CAUTION
For the installation of a RUCKUS device with AC or DC systems, use a ground wire of at least 10 AWG. The ground wire should have an agency-approved crimped connector (provided with the device) attached to one end, with the other end attached to building ground. The connector must be crimped with the proper tool, allowing it to be connected to the ground screw on the enclosure. Before crimping the ground wire into a ground lug, ensure that the bare copper wire has been cleaned and antioxidant is applied to the bare wire. In addition, anti-rotation devices or lock washers must be used with all screw connections for the grounding wire.

Perform the following steps to connect to the grounding terminal.

1. Ensure that the rack in which the RUCKUS ICX 8200 switch is mounted is properly grounded and in compliance with local regulations.
2. Ensure that there is a good electrical connection to the grounding point on the rack (no paint or isolating surface treatment).
3. Crimp a grounding lug to a grounding wire of at least 10 American Wire Gauge (AWG). The 10 AWG wire and grounding lug should be crimped together using a proper tool.
4. Attach the 10 AWG stranded copper wire to the grounding terminal on the RUCKUS ICX 8200 switch using the screw and lock washer included in the accessory kit.
5. Attach the grounding wire to a grounding point.

NOTE
The terminal for the connection of a grounding conductor is not to be used with an aluminum conductor.

NOTE
To ensure adequate bonding when attaching the ground lug, a minimum of 20 in-lb (2.76 Nm) of torque is required to be applied to the mounting hardware used to attach the ground lug.

Fan Assemblies

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Fan Assembly Overview

The RUCKUS ICX8200-24XP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switches include two redundant, hot-swappable fan assemblies. The second fan assembly provides redundancy.

The RUCKUS ICX8200-48NP2 switch includes four redundant, hot-swappable fan assemblies. The fourth fan assembly provides redundancy.

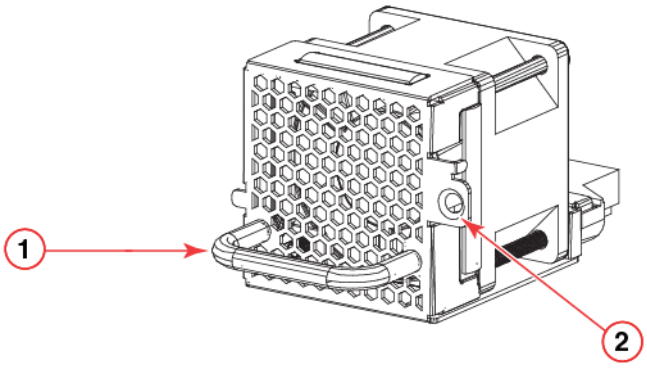
If power supply and fan assembly slots are unused, you must cover them with filler panels.

NOTE
RUCKUS recommends that the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switches operate with two power supplies and two (or four) fan assemblies installed. If a power supply or fan assembly fails, it must be replaced as soon as possible.

The fan assemblies in the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switch chassis can be removed and replaced without special tools. The device can continue operating during the replacement.

The device supports a fan assembly with nonport-side air exhaust. This unit moves the air from the port side to the nonport side of the device.

FIGURE 84 Fan Assembly



1 Fan assembly handle
2 Screw

Precautions Specific to Fan Assemblies



DANGER
Be careful not to accidentally insert your fingers into the fan assembly while removing it from the chassis. The fan may still be spinning at a high speed.



CAUTION
Disassembling any part of the power supply and fan assembly voids the warranty and regulatory certifications. There are no user-serviceable parts inside the power supply and fan assembly.



CAUTION
If you do not install a fan assembly or power supply in a slot, you must keep the slot filler panel in place. If you run the chassis with an uncovered slot, the system will overheat.

Time and Items Required

Installing or removing and replacing a fan assembly should require less than five minutes to complete.

The following items are required to replace a fan assembly:

- New fan assembly
- #1 Phillips screwdriver

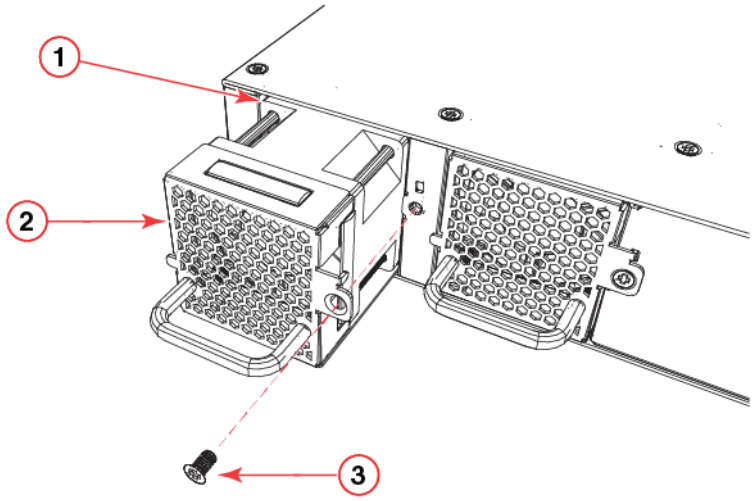
Replacing a Fan Assembly

When installing or replacing a fan assembly unit, keep in mind that a fan assembly for the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V can be swapped in or out while the device is running. The remaining fan assembly provides enough airflow for the device.

Inserting a New Fan Assembly

Use the following steps to install a fan assembly in the RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switch.

FIGURE 85 Installing a Fan Assembly



1	Fan assembly slot	3	Screw
2	Fan assembly		

1. If replacing a fan assembly:
   a. Using a Phillips screwdriver, unscrew the screw on the fan assembly.
   b. Remove the fan assembly from the chassis by pulling the handle on the fan assembly out and away from the chassis.
   c. Ensure that the replacement fan assembly has the same part number as the fan assembly being replaced.
2. If installing a new fan assembly into a slot covered with a filler panel:
   a. Using a Phillips screwdriver, unscrew the screw on the filler panel.
   b. Remove the filler panel.
3. Before opening the package that contains the new fan assembly, touch the bag to the switch casing to discharge any potential static electricity. RUCKUS recommends that you wear an ESD wrist strap during installation.
4. Remove the fan assembly from the anti-static shielded bag.

   NOTE
   Do not force the installation. If the fan assembly does not slide in easily, ensure that it is correctly oriented before continuing.
5. Holding the fan assembly level, guide it into the carrier rails on each side and gently push it all the way into the slot, ensuring that it firmly engages with the connector.
6. When you are sure the fan assembly has properly engaged the connector, tighten the screw to secure the fan assembly in the slot.

   NOTE
   The fans are controlled automatically by the device.

CAUTION
If you do not install a fan assembly or power supply in a slot, you must keep the slot filler panel in place. If you run the chassis with an uncovered slot, the system will overheat.

RUCKUS ICX 8200 Specifications

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System Specifications

TABLE 32 System Specifications

System Component	Description
Enclosure	Stackable up to 12 switches per stack, chassis-mountable (1U) in a standard 4-post rack
Power Supplies	Fixed AC power supply Dual redundant, hot-swappable power supplies supported with 920 W AC (ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V) or 1200 W AC (ICX8200-24XP2, ICX8200-48NP2)
Cooling	Forced-air cooling front-to-back
System Architecture	Non-blocking shared-memory switch

Ethernet

TABLE 33 Supported Ethernet Connections

System Component	Description	Maximum Ports Supported
25 GbE SFP28 Ports	1/10/25 GbE SFP28 port	4 (all 24-port and 48-port models) 6 (ICX8200-24XP2) 8 (ICX8200-24FX and ICX8200-48NP2) 2 (ICX8200-C08ZP and ICX8200-C08ZP-V)
10 GbE SFP+ Ports	1/10 GbE SFP+ port	16 (ICX8200-24FX) 2 (ICX8200-C08PF) 2 (ICX8200-C08PFV)
10 GbE RJ-45 Ports	100M/1/2.5/5/10 GbE RJ-45 port	4 (ICX8200-C08ZP and ICX8200-C08ZP-V) 8 (ICX8200-24XP2 and ICX8200-48NP2)
5 GbE RJ-45 Ports	100M/1/2.5/5 GbE RJ-45 port	40 (ICX8200-48NP2)
2.5 GbE RJ-45 Ports	100/1000/2500 Mbps RJ-45 ports	24 (ICX8200-24ZP and ICX8200-24ZP-V) 16 (ICX8200-24XP2, ICX8200-48ZP2, and ICX8200-48ZP2-V) 4 (ICX8200-C08ZP and ICX8200-C08ZP-V)
1 GbE SFP Ports	1 GbE SFP ports	48 (ICX8200-48F) 24 (ICX8200-24F)
1 GbE RJ-45 Ports	10/100/1000 RJ-45 port	48 (ICX8200-48, ICX8200-48P, ICX8200-48P-V, ICX8200-48PF, ICX8200-48PF-V, ICX8200-48PF2, and ICX8200-48PF2-V) 32 (ICX8200-48ZP2 and ICX8200-48ZP2-V) 24 (ICX8200-24, ICX8200-24P, and ICX8200-24PV) 8 (ICX8200-C08PF) 8 (ICX8200-C08PFV)
Ethernet Management Port	10/100/1000 Mbps RJ-45 port	1

LEDs

TABLE 34 System and Port LEDs

System Component	Description
Switch Status and Management	Seven LED types indicate switch status: PWR and PWR2 (power supply units) DIAG (diagnostics) SYS (system status) MSTR (stacking configuration) CLD (RUCKUS One/SmartZone management) UPDATE (software update) STAT, SPD, ID, USB, PoE status mode
Ports	LEDs indicate port status or switch ID based on the status mode selection

Other

TABLE 35 Other Accessories

System Component	Description
Serial Cable	1 (RJ-45 to RJ-45)
RJ-45-to-DB9 Adapter	1
AC Power Cord Connector (not included)	IEC 60320-1 C13 and IEC 60320-1 C15 (ICX8200-C08ZP and ICX8200-C08ZP-V)

NOTE
These accessories do not apply to the ICX8200-C08PFV and ICX8200-24PV.

Weight and Physical Dimensions

TABLE 36 Physical Dimensions per Model

Model	Height	Width	Depth	Weight (with Basic Modules)
ICX8200-C08PF	4.40 cm 1.73 inches	27.00 cm 10.63 inches	21.40 cm 8.42 inches	2.27 kg 5.00 lb
ICX8200-C08PFV	4.40 cm 1.73 inches	27.00 cm 10.63 inches	21.40 cm 8.42 inches	2.27 kg 5.00 lb
ICX8200-C08ZP and ICX8200-C08ZP-V	4.40 cm 1.73 inches	27.00 cm 10.63 inches	26.00 cm 10.24 inches	3.23 kg 7.12 lb
ICX8200-24	4.40 cm 1.73 inches	44.00 cm 17.32 inches	28.00 cm 11.02 inches	3.74 kg 8.24 lb
ICX8200-24F	4.40 cm 1.73 inches	44.00 cm 17.32 inches	28.00 cm 11.02 inches	3.77 kg 8.31 lb
ICX8200-24FX	4.40 cm 1.73 inches	44.00 cm 17.32 inches	28.00 cm 11.02 inches	3.81 kg 8.40 lb
ICX8200-24P	4.40 cm 1.73 inches	44.00 cm 17.32 inches	28.00 cm 11.02 inches	4.34 kg 9.57 lb
ICX8200-24PV	4.40 cm 1.73 inches	44.00 cm 17.32 inches	28.00 cm 11.02 inches	4.34 kg 9.57 lb
ICX8200-24XP2	4.40 cm 1.73 inches	44.00 cm 17.32 inches	37.00 cm 14.57 inches	7.79 kg 17.18 lb
ICX8200-24ZP and ICX8200-24ZP-V	4.40 cm 1.73 inches	44.00 cm 17.32 inches	28.00 cm 11.02 inches	5.22 kg 11.51 lb
ICX8200-48	4.40 cm 1.73 inches	44.00 cm 17.32 inches	37.00 cm 14.57 inches	4.96 kg 10.93 lb
ICX8200-48F	4.40 cm 1.73 inches	44.00 cm 17.32 inches	28.00 cm 11.02 inches	4.30 kg 9.48 lb

TABLE 36 Physical Dimensions per Model (Continued)

Model	Height	Width	Depth	Weight (with Basic Modules)
ICX8200-48NP2	4.40 cm 1.73 inches	44.00 cm 17.32 inches	37.00 cm 14.57 inches	8.63 kg 19.02 lb
ICX8200-48P and ICX8200-48P-V	4.40 cm 1.73 inches	44.00 cm 17.32 inches	37.00 cm 14.57 inches	5.57 kg 12.28 lb
ICX8200-48PF and ICX8200-48PF-V	4.40 cm 1.73 inches	44.00 cm 17.32 inches	37.00 cm 14.57 inches	5.51 kg 12.15 lb
ICX8200-48PF2 and ICX8200-48PF2-V	4.40 cm 1.73 inches	44.00 cm 17.32 inches	37.00 cm 14.57 inches	6.39 kg 14.09 lb
ICX8200-48ZP2 and ICX8200-48ZP2-V	4.40 cm 1.73 inches	44.00 cm 17.32 inches	37.00 cm 14.57 inches	6.64 kg 14.64 lb

Environmental Requirements

TABLE 37 Environmental Requirements

Condition	Operational	Non-operational
Ambient Temperature	0°C to 45°C (32°F to 113°F) at sea level	-40°C to 70°C (-40°F to 158°F)
Relative Humidity (non-condensing)	10% to 95% at 50°C (122°F)	5% to 95% at 70°C (158°F)
Altitude (above sea level)	0 to 3,048 m (10,000 ft)	0 to 12,000 m (39,370 ft)
Shock	20 G, 11 ms, half-sine wave	33 G, 11 ms, half-sine wave
Vibration	1 G sine, 0.4 grms random, 5-500 Hz	2.4 G sine, 1.1 grms random, 5-500 Hz
Airflow	Nominal: 21-30 cfm, Maximum: 100-110 cfm.	N/A

TABLE 37 Environmental Requirements (Continued)

Condition	Operational	Non-operational
Heat Dissipation (+/- 5%)	**NOTE:** Refer to "Power Consumption (Typical Configuration)" on page 114 and "Power Consumption (Maximum Configuration)" on page 116 for detailed information on heat dissipation.	N/A
Operating Noise	ICX8200-C08PF: Fanless ICX8200-C08PFV: Fanless ICX8200-C08ZP and ICX8200-C08ZP-V: Fanless ICX8200-24: 40.0 dBA ICX8200-24F: 41.0 dBA ICX8200-24FX: 41.0 dBA ICX8200-24P: 41.0 dBA ICX8200-24PV: 41.0 dBA ICX8200-24XP2: 48.9 dBA ICX8200-24ZP and ICX8200-24ZP-V: 41.0 dBA ICX8200-48: 40.0 dBA ICX8200-48F: 41.0 dBA ICX8200-48NP2: 50.3 dBA ICX8200-48P and ICX8200-48P-V: 41.0 dBA ICX8200-48PF and ICX8200-48PF-V: 41.0 dBA ICX8200-48PF2 and ICX8200-48PF2-V: 51.0 dBA ICX8200-48ZP2 and ICX8200-48ZP2-V: 51.0 dBA	N/A

Power Supply Specifications (per PSU)

The RUCKUS ICX8200-24XP2, ICX8200-48NP2, ICX8200-48PF2, ICX8200-48PF2-V, ICX8200-48ZP2, and ICX8200-48ZP2-V switches are the only models that supports a hot-swappable power supply.

TABLE 38 Power Supply Specifications

Power Supply Model	Maximum Output Power Rating (DC)	Input Voltage	Input Line Frequency	Maximum Input Current	Input Line Protection	Maximum Inrush Current
RPS23-E	920 W	100-240V	50-60Hz	13 A	Fuses	60 A
RPS24-E	1200 W	100-120V 200-240V	50-60Hz	15 A 8 A	Fuses	40 A 60 A

Power Supply Hold-Up Times

TABLE 39 Power Supply Hold-Up Time per Model

Model Name	Power Supply Hold-Up Time
ICX8200-C08PF	10 ms
ICX8200-C08PFV	10 ms
ICX8200-C08ZP and ICX8200-C08ZP-V	20 ms

TABLE 39 Power Supply Hold-Up Time per Model (Continued)

Model Name	Power Supply Hold-Up Time
ICX8200-24	10 ms
ICX8200-24F	10 ms
ICX8200-24FX	10 ms
ICX8200-24P	20 ms
ICX8200-24PV	20 ms
ICX8200-24XP2	14 ms 100-120V@1000W 12 ms 200-240V@1200W
ICX8200-24ZP and ICX8200-24ZP-V	10 ms
ICX8200-48	10 ms
ICX8200-48F	10 ms
ICX8200-48NP2	14 ms 100-120V@1000W 12 ms 200-240V@1200W
ICX8200-48P and ICX8200-48P-V	20 ms
ICX8200-48PF and ICX8200-48PF-V	10 ms
ICX8200-48PF2 and ICX8200-48PF2-V	10 ms
ICX8200-48ZP2 and ICX8200-48ZP2-V	14 ms

Power Consumption (Typical Configuration)

All downlink ports, stacking ports, and uplink ports are linked up with 10% traffic rate. No POE load on POE models. Fans are at nominal speed.

TABLE 40 Power Consumption (Typical Configuration)

Model Name (Input Power ±5%)	@100 VAC Input	@200 VAC Input	Minimum Number of Power Supplies	Notes
ICX8200-C08PF	18.1 W 61.78 BTU/hr	18 W 61.44 BTU/hr	1 x 165 W AC	
ICX8200-C08PFV	18.1 W 61.78 BTU/hr	18 W 61.44 BTU/hr	1 x 165 W AC	
ICX8200-C08ZP and ICX8200-C08ZP-V	40.20 W 137.21 BTU/hr	39.20 W 133.79 BTU/hr	1 x 305 W AC	
ICX8200-24	31.1 W 106.15 BTU/hr	31.4 W 107.17 BTU/hr	1 x 65 W AC	
ICX8200-24F	63.04 W 215.16 BTU/hr	65.33 W 222.98 BTU/hr	1 x 100 W AC	
ICX8200-24FX	79.80 W 272.36 BTU/hr	81.67 W 278.75 BTU/hr	1 x 150 W AC	
ICX8200-24P	37 W 126.28 BTU/hr	36.5 W 124.58 BTU/hr	1 x 500 W AC	

TABLE 40 Power Consumption (Typical Configuration) (Continued)

Model Name (Input Power ±5%)	@100 VAC Input	@200 VAC Input	Minimum Number of Power Supplies	Notes
ICX8200-24PV	37 W 126.28 BTU/hr	36.5 W 124.58 BTU/hr	1 x 500 W AC	
ICX8200-24XP2	85.8 W 292.76 BTU/hr	86.6 W 295.49 BTU/hr	1 x 1200 W AC	1 PSU
	95.7 W 326.54 BTU/hr	97.4 W 332.34 BTU/hr	2 x 1200 W AC	2 PSUs
ICX8200-24ZP and ICX8200-24ZP-V	68.90 W 235.16 BTU/hr	68.32 W 233.18 BTU/hr	1 x 950 W AC	
ICX8200-48	45.40 W 154.95 BTU/hr	47.10 W 160.77 BTU/hr	1 x 100 W AC	
ICX8200-48F	106.10 W 362.13 BTU/hr	105.90 W 361.45 BTU/hr	1 x 180 W AC	
ICX8200-48NP2	176.6 W 602.58 BTU/hr	178.2 W 608.04 BTU/hr	1 x 1200 W AC	1 PSU
	193.2 W 659.22 BTU/hr	195.7 W 667.75 BTU/hr	2 x 1200 W AC	2 PSUs
ICX8200-48P and ICX8200-48P-V	50.00 W 170.65 BTU/hr	49.10 W 167.58 BTU/hr	1 x 500 W AC	
ICX8200-48PF and ICX8200-48PF-V	51.6 W 176.11 BTU/hr	51 W 174.07 BTU/hr	1 x 950 W AC	
ICX8200-48PF2 and ICX8200-48PF2-V	64.6 W 220.48 BTU/hr	64.3 W 219.46 BTU/hr	1 x 920 W AC	1 PSU
	86.6 W 295.57 BTU/hr	86.2 W 294.21 BTU/hr	2 x 920 W AC	2 PSUs
ICX8200-48ZP2 and ICX8200-48ZP2-V	87.83 W 299.77 BTU/hr	87.18 W 297.55 BTU/hr	1 x 920 W AC	1 PSU
	104.64 W 357.14 BTU/hr	103.06 W 351.75 BTU/hr	2 x 920 W AC	2 PSUs

Power Consumption (Maximum Configuration)

All downlink ports, stacking ports, and uplink ports are linked up with 100% traffic rate. 100% POE load on POE models. Fans are at high speed.

TABLE 41 Power Consumption (Maximum Configuration)

Model Name (Input Power ±5%)	@100 VAC Input	@200 VAC Input	Minimum Number of Power Supplies	Notes
ICX8200-C08PF	154.2 W 526.3 BTU/hr	150.6 W 514.01 BTU/hr	1 x 165 W AC	
ICX8200-C08PFV	154.2 W 526.3 BTU/hr	150.6 W 514.01 BTU/hr	1 x 165 W AC	
ICX8200-C08ZP and ICX8200-C08ZP-V	297.90 W 1016.76 BTU/hr	290.30 W 990.82 BTU/hr	1 x 305 W AC	
ICX8200-24	38.7 W 132.09 BTU/hr	38.7 W 132.09 BTU/hr	1 x 65 W AC	
ICX8200-24F	76.46 W 260.96 BTU/hr	77.46 W 264.38 BTU/hr	1 x 100 W AC	
ICX8200-24FX	91.20 W 311.27 BTU/hr	92.46 W 315.57 BTU/hr	1 x 150 W AC	
ICX8200-24P	459 W 1566.6 BTU/hr	445 W 1518.82 BTU/hr	1 x 500 W AC	
ICX8200-24PV	459 W 1566.6 BTU/hr	445 W 1518.82 BTU/hr	1 x 500 W AC	
ICX8200-24XP2	1104.1 W 525.81 BTU/hr	1109.5 W 544.23 BTU/hr	1 x 1200 W AC	1 PSU
	2366.7 W 1592.44 BTU/hr	2134.2 W 799.12 BTU/hr	2 x 1200 W AC	2 PSUs
ICX8200-24ZP and ICX8200-24ZP-V	906.44 W 3093.75 BTU/hr	858.63 W 2930.57 BTU/hr	1 x 950 W AC	
ICX8200-48	53.1 W 181.23 BTU/hr	54.1 W 184.48 BTU/hr	1 x 100 W AC	
ICX8200-48F	117.10 W 399.67 BTU/hr	115.50 W 394.21 BTU/hr	1 x 180 W AC	
ICX8200-48NP2	1109.5 W 544.23 BTU/hr	1216.6 W 909.67 BTU/hr	1 x 1200 W AC	1 PSU
	2261.4 W 1233.14 BTU/hr	2231.7 W 1131.81 BTU/hr	2 x 1200 W AC	2 PSUs
ICX8200-48P and ICX8200-48P-V	465 W 1587.08 BTU/hr	451 W 1539.3 BTU/hr	1 x 500 W AC	
ICX8200-48PF and ICX8200-48PF-V	890 W 3037.64 BTU/hr	854 W 2914.77 BTU/hr	1 x 950 W AC	

TABLE 41 Power Consumption (Maximum Configuration) (Continued)

Model Name (Input Power ±5%)	@100 VAC Input	@200 VAC Input	Minimum Number of Power Supplies	Notes
ICX8200-48PF2 and ICX8200-48PF2-V	1051.52 W 3588.92 BTU/hr	977.63 W 3336.73 BTU/hr	1 x 920 W AC	1 PSU
	1782.42 W 6083.54 BTU/hr	1667.81 W 5692.37 BTU/hr	2 x 920 W AC	2 PSUs
ICX8200-48ZP2 and ICX8200-48ZP2-V	1043.67 W 3562.13 BTU/hr	966.67 W 3299.32 BTU/hr	1 x 920 W AC	1 PSU
	1784.41 W 6090.33 BTU/hr	1675.19 W 5717.56 BTU/hr	2 x 920 W AC	2 PSUs

Data Port Specifications (Ethernet)

TABLE 42 Ethernet Ports Specifications

Model Name	Port Type	Number (in Module)	Description
ICX8200-C08PF	10 GbE	2 (slot 2)	1/10 GbE SFP+ stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	1 GbE	8 (slot 1)	RJ-45 PoE+ ports, 10/100/1000 Mbps
ICX8200-C08PFV	10 GbE	2 (slot 2)	1/10 GbE SFP+ stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable (Note: ICX8200-C08PFV does not currently support stacking.)
	1 GbE	8 (slot 1)	RJ-45 PoE+ ports, 10/100/1000 Mbps
ICX8200-C08ZP and ICX8200-C08ZP-V	25 GbE	2 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	10 GbE	4 (slot 1)	RJ-45 PoE++ ports, 100M/1/2.5/5/10 Gbps.
	2.5 GbE	4 (slot 1)	RJ-45 PoE++ ports, 100/1000/2500 Mbps.
ICX8200-24	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	1 GbE	24 (slot 1)	RJ-45 ports, 10/100/1000 Mbps
ICX8200-24F	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	1 GbE	24 (slot 1)	1 GbE SFP ports
ICX8200-24FX	25 GbE	8 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	10 GbE	16 (slot 1)	1/10 GbE SFP+ ports
ICX8200-24P	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	1 GbE	24 (slot 1)	RJ-45 PoE+ ports, 10/100/1000 Mbps
ICX8200-24PV	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable (Note: ICX8200-24PV does not currently support stacking.)
	1 GbE	24 (slot 1)	RJ-45 PoE+ ports, 10/100/1000 Mbps
ICX8200-24XP2	25 GbE	6 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	10 GbE	8 (slot 1)	RJ-45 PoE++ ports, 100M/1/2.5/5/10 Gbps.
	2.5 GbE	16 (slot 1)	RJ-45 PoE++ ports, 100/1000/2500 Mbps.
ICX8200-24ZP and ICX8200-24ZP-V	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	2.5 GbE	24 (slot 1)	RJ-45 PoE++ ports, 100/1000/2500 Mbps.

TABLE 42 Ethernet Ports Specifications (Continued)

Model Name	Port Type	Number (in Module)	Description
ICX8200-48	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	1 GbE	48 (slot 1)	RJ-45 ports, 10/100/1000 Mbps
ICX8200-48F	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	1 GbE	48 (slot 1)	1 GbE SFP ports
ICX8200-48NP2	25 GbE	8 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	10 GbE	8 (slot 1)	RJ-45 PoE++ ports, 100M/1/2.5/5/10 Gbps.
	5 GbE	40 (slot 1)	RJ-45 PoE++ ports, 100M/1/2.5/5 Gbps
ICX8200-48P and ICX8200-48P-V	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	1 GbE	48 (slot 1)	RJ-45 PoE+ ports, 10/100/1000 Mbps
ICX8200-48PF and ICX8200-48PF-V	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	1 GbE	48 (slot 1)	RJ-45 PoE+ ports, 10/100/1000 Mbps
ICX8200-48PF2 and ICX8200-48PF2-V	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	1 GbE	48 (slot 1)	RJ-45 PoE+ ports, 10/100/1000 Mbps
ICX8200-48ZP2 and ICX8200-48ZP2-V	25 GbE	4 (slot 2)	SFP28 stacking/uplink ports, compatible with optical transceivers, or direct attached copper cable
	2.5 GbE	16 (slot 1)	RJ-45 PoE++ ports, 100/1000/2500 Mbps.
	1 GbE	32 (slot 1)	RJ-45 PoE+ ports, 10/100/1000 Mbps.

Serial Port Specifications (Pinout USB Type-C)

TABLE 43 Pinout USB Type-C for Serial Protocol

Pin	Signal	Description
A1	USB-C_GND	Ground
A2	Reserved	Not used
A3	Reserved	Not used
A4	USB_TYPE_C_5V_IN	5 V bus power
A5	USB-C_CC1	Configuration channel
A6	USB-C_AD1+	Data A positive
A7	USB-C_AD1-	Data A negative
A8	Reserved	Not used
A9	USB_TYPE_C_5V_IN	5 V bus power
A10	Reserved	Not used
A11	Reserved	Not used
A12	USB-C_GND	Ground
B1	USB-C_GND	Ground
B2	Reserved	Not used
B3	Reserved	Not used
B4	USB_TYPE_C_5V_IN	5 V bus power

TABLE 43 Pinout USB Type-C for Serial Protocol (Continued)

Pin	Signal	Description
B5	Reserved	Not used
B6	USB-C_BD2+	Data B positive
B7	USB-C_BD2-	Data B negative
B8	Reserved	Not used
B9	USB_TYPE_C_5V_IN	5 V bus power
B10	Reserved	Not used
B11	Reserved	Not used
B12	USB-C_GND	Ground

Serial Port Specifications (Pinout RJ-45)

TABLE 44 Pinout RJ-45 for Serial Protocol

Pin	Signal	Description
1	Not supported	N/A
2	Not supported	N/A
3	UART1_TXD	Transmit data to ICX
4	GND	Logic ground
5	Not supported	N/A
6	UART1_RXD	Receive data from ICX
7	Not supported	N/A
8	Not supported	N/A

Serial Port Specifications (Protocol)

TABLE 45 Serial Protocol Parameters

Parameter	Value
Baud	9600 and no other value
Data bits	8
Parity	None
Stop bits	1
Flow control	None

Memory Specifications

TABLE 46 Memory Specifications

Memory	Type	Size
Main memory	DDR4 SDRAM	4 GB
Boot Flash	SPI Flash (dual boot)	16 MB
eMMC Flash	NAND flash	8 GB

Regulatory Compliance (EMC)

- FCC Part 15, Subpart B (Class A)
- EN 55032 (CE mark) (Class A)
- EN 55035 (CE mark) (Immunity) for Information Technology Equipment
- EN 55024 (CE mark) (Immunity) for Information Technology Equipment
- ICES-003 (Canada) (Class A)
- AS/NZ 55032 (Australia/New Zealand) (Class A)
- VCCI (Japan) (Class A)
- EN 300 386
- CNS 15936-1 (BSMI) (Taiwan) (Class A)
- KS C 9832 (South Korea) (Class A)
- KS C 9835 (South Korea)
- TCVN 7189 / TCVN 7317 (Vietnam) (Class A)
- EN 61000-3-2
- EN 61000-3-3

Regulatory Compliance (Safety)

- CAN/CSA-C22.2 No. 62368-1/UL 62368-1 - Safety of Information Technology Equipment
- EN 60825 Safety of Laser Products - Part 1: Equipment Classification, Requirements and User's Guide
- EN 60950-1/IEC 60950-1/EN 62368-1/EC 62368-1 Safety of Information Technology Equipment
- CNS 15598-1 (BSMI) (Taiwan)

Regulatory Compliance (Environmental)

- 2014/35/EU and 2014/30/EU
- 2011/65/EU – Restriction of the use of certain hazardous substance in electrical and electronic equipment (EU RoHS)
- 2012/19/EU – Waste electrical and electronic equipment (EU WEEE)
- 94/62/EC – packaging and packaging waste (EU)

- 2006/66/EC – batteries and accumulators and waste batteries and accumulators (EU battery directive)
- 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (EU REACH)
- Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 – U.S. Conflict Minerals
- 30/2011/TT-BCT – Vietnam circular
- SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in EIPs (China)
- SJ/T 11364-2006 Marking for the Control of Pollution Caused by EIPs (China)
- CNS 15663 (BSMI) (Taiwan)

Regulatory Statements

- USA (FCC CFR 47 Part 15 Warning) . . . 123
- Industry Canada Statement . . . 123
- Europe and Australia (CISPR 32 Class A Warning) . . . 123
- Germany (Noise Warning) . . . 123
- Japan (VCCI) . . . 124
- Korea . . . 124
- China . . . 125
- BSMI Statement (Taiwan) . . . 126

USA (FCC CFR 47 Part 15 Warning)

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

NOTE
Changes or modifications made to this device which are not expressly approved by RUCKUS could void the user's authority to operate the equipment.

Industry Canada Statement

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

English translation of above statement

This Class A digital apparatus complies with Canadian ICES-003.

Europe and Australia (CISPR 32 Class A Warning)

This equipment is compliant with Class A of CISPR 32. In a residential environment, this equipment may cause radio interference.

Germany (Noise Warning)

Maschinenlärminformations-Verordnung - 3. GPSGV, der höchste Schalldruckpegel beträgt 52 dB(A) gemäss EN ISO 7779.

English translation of above statement

Machine noise information regulation - 3. GPSGV, the highest sound pressure level value is 52 dB(A) in accordance with EN ISO 7779.

Japan (VCCI)

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

English translation of above statement

This is Class A product based on the standard of the Voluntary Control Council For Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

Korea

A 급 기기 (업무용 방송통신기기): 이 기기는 업무용 (A 급) 으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며 , 가정외의 지역에서 사용하는 것을 목적으로 합니다 .

English translation of above statement

Class A device (Broadcasting Communication Device for Office Use): This device obtained EMC registration for office use (Class A), and may be used in places other than home. Sellers and/or users need to take note of this.

China

China-CCC Warning statements

在维修的时候一定要断开所有电源 (English translation“disconnect all power sources before service”)

For non tropical use:

安全说明和标记	汉文	“仅适用于非热带气候条件下安全使用。”
	藏文	《ཀྱེས་ཀྱང་/ ཆོག་/ ཁ་ཆོག་ ཁས་ལེན་གནང་/ ཁོང་ཚོ་/ ཏུ་/ རྒྱུན་ལྡན་པའི་ གནས་ཚུལ་ལ་/ ཡིན་/ ཞེས་/ བཀའ་/ཡིན་ །།》
	蒙古文	“ᠵᠦᠪᠬᠡ᠋ᠨ᠋ᠤ᠋ᠭᠠᠯ᠋ᠤ᠋ᠨ᠋ᠳ᠋ᠤ᠋ᠷᠠᠯ᠋ᠳᠠᠭᠠᠨ᠋ᠠ᠋ᠴᠠᠭᠠᠯᠢᠭ᠋ᠢᠨ᠋ᠳ᠋ᠤ᠋ᠨ᠋ᠠ᠋ᠬᠠᠷᠭᠠᠭᠠᠷᠠᠢ

产品内含危害物质揭露表 Products contain hazardous substances exposing table						
零部件名称 Component Name	危害物质项目 Hazardous Substances Project					
	铅 (Pb)	镉 (Cd)	汞 (Hg)	六价铬 (Cr^{6+})	多溴联苯 (PBB)	多溴二苯乙醚 (PBDE)
突波吸收器 (静电保护) TVS array/Suppressor	×	○	○	○	○	○
连接器 Conn adapter	×	○	○	○	○	○
环保电源模块 DC-DC module	×	○	○	○	○	○
二极管 Diode	×	○	○	○	○	○
螺丝 Screw	×	○	○	○	○	○
电压转换集成电路 Regulator	×	○	○	○	○	○
风扇 Fan	×	○	○	○	○	○
电源供应器 Power supply	×	○	○	○	○	○
电阻 Resistor	×	○	○	○	○	○
本表格依据 SJ/T : 11364-2014 的规定编制。						
○ : 表示此部件使用的所有同类材料中此种有毒或有害物质的含量均低于 GB/T 26572-2011 规定的限制要求。 ○ : Indicates the toxic or hazardous substance content of the part (at the homogenous material level) is lower than the threshold defined by Requirements for Concentration Limits for Toxic or hazardous Substances in Electronic Information Products (GB/T 26572-2011) issued by Chinese Ministry of Information Industry ("Not Contained" toxic or hazardous substances).						
×: 表示此部件使用的至少一种同类材料中，此种有毒或有害物质的含量高于 GB/T 26572-2011 规定的限制要求。 ×: Indicates the toxic or hazardous substance content of the part (at the homogenous material level) is over the threshold defined by standard of GB/T 26572-2011 (“Contained” toxic or hazardous substances). Suppliers can explain the technical cause of “X" according to actual situation.						
除非另外特别的标注，此标志为针对所涉及产品的环保使用期标志，某些零部件会有一个不同的环保使用期 (例如，电池单元模块) 贴在其产品上。此环保使用期限只适用于产品是在产品手册中所规定的条件下工作。 The Environment- Friendly Use Period (EFUP) for all enclosed products and their parts are per the symbol shown here, unless otherwise marked. Certain parts may have a different EFUP (for example, battery modules) and so are marked to reflect such. The Environment- Friendly Use Period is valid only when the product is operated under the conditions defined in the product manual.						

BSMI Statement (Taiwan)

警告：為避免電磁干擾，本產品不應安裝或使用於住宅環境。

English translation of above statement

Warning: To avoid electromagnetic interference, this product should not be installed or used in a residential environment.

設備名稱:网络交换机 / 網路交換機			型號 (型式):ICX 8200-48ZP2			
Equipment name			Type designation (Type)			
單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr+6)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
電路板元件 PCBA	—	○	○	○	○	○
風扇 Fan	—	○	○	○	○	○
機殼 Chassis	○	○	○	○	○	○
線材 Cable	○	○	○	○	○	○
電源供應器 Power Supply	—	○	○	○	○	○
備　考 1.	" 超出 0.1 wt %" 及 " 超出 0.01 wt %" 係指限用物質之百分比含量超出百分比含量基準值。					
Note 1:	"Exceeding 0.1 wt %" and "exceeding 0.01 wt %" indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.					
備　考 2.	" ○ " 係指該項限用物質之百分比含量未超出百分比含量基準值。					
Note 2:	" ○ " indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.					
備　考 3.	" — " 係指該項限用物質為排除項目。					
Note 3:	The " — " indicates that the restricted substance corresponds to the exemption.					
型號： 系列型號：	ICX 8200-48ZP2 ICX 8200-C08PF, ICX 8200-C08PFV, ICX 8200-C08ZP, ICX 8200-24, ICX 8200-24P, ICX 8200-24PV, ICX 8200-24ZP, ICX 8200-24FX, ICX 8200-24F, ICX 8200-48, ICX 8200-48P, ICX 8200-48PF, ICX 8200-48PF2, ICX 8200-48F, ICX 8200-48NP2, ICX 8200-24XP2					
< 限用物質排除項目說明 Restriction of Restricted Substance> 風扇不適用於 ICX 8200-C08PF, ICX 8200-C08ZP, ICX 8200-C08PFV						

BSMI AC IN Rating

100-120V~, 50/60Hz, 11.5A per PS

200-240V~, 50/60Hz, 6.2A per PS

PoE Out

57Vdc Max, 1.73A Max., 90W Max per port

Obligatory Applicant

台灣康普通信系統有限公司
臺北市內湖區瑞光路411號11樓

BSMI Statement (Taiwan)

Cautions and Danger Notices

- Cautions 129
- Danger Notices. 135

Cautions

A caution calls your attention to a possible hazard that can damage equipment.

“Vorsicht” weist auf die Gefahr einer möglichen Beschädigung des Gerätes hin.

Une mise en garde attire votre attention sur un risque possible d'endommagement de l'équipement. Ci-dessous, vous trouverez les mises en garde utilisées dans ce manuel.

Un mensaje de precaución le advierte sobre un posible peligro que pueda dañar el equipo. Las siguientes son precauciones utilizadas en este manual.

「注意」事項旨在提醒您注意可能損壞設備的潛在危險。

CAUTION
Changes or modifications made to this device that are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

VORSICHT	Falls dieses Gerät verändert oder modifiziert wird, ohne die ausdrückliche Genehmigung der für die Einhaltung der Anforderungen verantwortlichen Partei einzuholen, kann dem Benutzer der weitere Betrieb des Gerätes untersagt werden.
MISE EN GARDE	Les éventuelles modifications apportées à cet équipement sans avoir été expressément approuvées par la partie responsable d'en évaluer la conformité sont susceptibles d'annuler le droit de l'utilisateur à utiliser cet équipement.
PRECAUCIÓN	Si se realizan cambios o modificaciones en este dispositivo sin la autorización expresa de la parte responsable del cumplimiento de las normas, la licencia del usuario para operar este equipo puede quedar anulada.
注意	若對本設備進行未經合規責任方明確批准的變更或修改，可能會導致使用者喪失操作該設備的權限。

CAUTION
Disassembling any part of the power supply and fan assembly voids the warranty and regulatory certifications. There are no user-serviceable parts inside the power supply and fan assembly.

VORSICHT	Das Zerlegen von Netzteilen oder Lüftereinheiten macht die Garantie und die gesetzlichen Zertifizierungen ungültig. Die Netzteile und Lüftereinheiten enthalten keine Teile, die vom Benutzer gewartet werden können.
MISE EN GARDE	Le démontage d'une pièce du bloc d'alimentation ou du ventilateur annule la garantie et les certificats de conformité. Aucune pièce du bloc de l'alimentation ou du ventilateur ne peut être réparée par l'utilisateur.
PRECAUCIÓN	Si se desmonta cualquier pieza del módulo de fuente de alimentación y ventiladores, la garantía y las certificaciones normativas quedan anuladas. En el interior del módulo de fuente de alimentación y ventiladores no hay piezas que pueda reparar el usuario.
注意	拆解電源供應器及風扇組件的任何部分，均會導致保固失效，並使相關合規認證作廢。電源供應器及風扇組件內部不含可由使用者自行維修的零件。

CAUTION
For indoor use only. The switch, power supplies, and all connected cables are not designed for outdoor use.

VORSICHT	Nur für den Innengebrauch. Der Switch, die Netzteile und alle angeschlossenen Kabel sind nicht für den Einsatz im Freien ausgelegt.
MISE EN GARDE	Pour une utilisation en intérieur uniquement. Le commutateur, les alimentations et tous les câbles connectés ne sont pas conçus pour une utilisation en extérieur.
PRECAUCIÓN	Sólo para uso en interiores. El interruptor, las fuentes de alimentación y todos los cables conectados no están diseñados para uso en exteriores.
注意	僅限室內使用。開關、電源及所有連接線均非為戶外使用而設計。



CAUTION
Make sure the airflow around the front, sides, and back of the device is not restricted.

VORSICHT	Stellen Sie sicher, dass an der Vorderseite, den Seiten und an der Rückseite der Luftstrom nicht behindert wird.
MISE EN GARDE	Vérifiez que rien ne restreint la circulation d'air devant, derrière et sur les côtés du dispositif et qu'elle peut se faire librement.
PRECAUCIÓN	Asegúrese de que el flujo de aire en las inmediaciones de las partes anterior, laterales y posterior del instrumento no esté restringido.
注意	請確保設備前側、兩側及後側周圍的空氣流通不受阻礙。



CAUTION
To protect the serial port from damage, keep the cover on the port when not in use.

VORSICHT	Um den seriellen Anschluss vor Beschädigungen zu schützen, sollten Sie die Abdeckung am Anschluss belassen, wenn er nicht verwendet wird.
MISE EN GARDE	Mettre le bouchon de protection sur le port série lorsqu'il ne sert pas pour éviter de l'endommager.
PRECAUCIÓN	Para evitar que se dañe el puerto serie, mantenga la cubierta colocada sobre el puerto cuando no lo utilice.
注意	為防止串口受損，在不使用時請蓋好串口蓋。



CAUTION
Never leave tools inside the chassis.

VORSICHT	Lassen Sie keine Werkzeuge im Chassis zurück.
MISE EN GARDE	Ne laissez jamais d'outils à l'intérieur du châssis.
PRECAUCIÓN	No deje nunca herramientas en el interior del chasis.
注意	切勿將工具留在機殼內。



CAUTION
If you do not install a fan assembly or power supply in a slot, you must keep the slot filler panel in place. If you run the chassis with an uncovered slot, the system will overheat.

VORSICHT	Wenn Sie in einem Steckplatz keine Lüfterbaugruppe oder kein Netzteil installieren, müssen Sie die Abdeckblende des Steckplatzes an Ort und Stelle lassen. Wenn Sie das Gehäuse mit einem nicht abgedeckten Steckplatz betreiben, wird das System überhitzen.
MISE EN GARDE	Si vous n'installez pas de bloc de ventilation ou d'alimentation dans un logement, vous devez laisser le panneau obturateur du logement en place. Si vous exécutez le châssis avec un emplacement non couvert, le système surchauffera.
PRECAUCIÓN	Si no instala un conjunto de ventilador o una fuente de alimentación en una ranura, debe mantener el panel de relleno de la ranura en su lugar. Si ejecuta el chasis con una ranura descubierta, el sistema se sobrecalentará.
注意	如果某個插槽內未安裝風扇組件或電源，則必須保留該插槽的擋板。如果機箱在插槽未被遮蓋的情況下運行，系統將會過熱。

CAUTION
Use the screws specified in the procedure. Using longer screws can damage the device.

VORSICHT	Verwenden Sie die in der Anleitung aufgeführten Schrauben. Mit längeren Schrauben wird das Gerät möglicherweise beschädigt.
MISE EN GARDE	Utilisez les vis mentionnées dans les instructions. L'utilisation de vis plus longues peut endommager l'appareil.
PRECAUCIÓN	Utilice los tornillos especificados en el procedimiento. Si utiliza tornillos de mayor longitud, podría dañar el dispositivo.
注意	請使用操作流程中指定的螺絲。使用過長的螺絲可能會損壞設備。

CAUTION
Do not install the device in an environment where the operating ambient temperature might exceed 45°C (113°F).

VORSICHT	Das Gerät darf nicht in einer Umgebung mit einer Umgebungsbetriebstemperatur von über 45° C (113° F) installiert werden.
MISE EN GARDE	N'installez pas le dispositif dans un environnement où la température d'exploitation ambiante risque de dépasser 45° C (113° F).
PRECAUCIÓN	No instale el instrumento en un entorno en el que la temperatura ambiente de operación pueda exceder los 45° C (113° F).
注意	請勿將設備安裝在運轉環境溫度可能超過 45°C (113°F) 的環境中。

CAUTION
Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the manufacturer's instructions.

VORSICHT	Es besteht Explosionsgefahr, wenn ein unzulässiger Batterietyp eingesetzt wird. Verbrauchte Batterien sind entsprechend den geltenden Vorschriften zu entsorgen.
MISE EN GARDE	Risque d'explosion en cas de remplacement de la pile par un modèle incorrect. Débarrassezvous des piles usagées conformément aux instructions.
PRECAUCIÓN	Riesgo de explosión si se sustituye la batería por una de tipo incorrecto. Deshágase de las baterías usadas de acuerdo con las instrucciones.
注意	如果更換的電池型號不正確，可能會有爆炸風險。請依照製造商的說明處置廢舊電池。

CAUTION
When mounting the device under a fixed surface using the short brackets, mount the device with the bottom panel up to prevent blocking the top panel vents.

VORSICHT	Wenn Sie das Gerät mit den kurzen Halterungen unter einer festen Oberfläche montieren, montieren Sie das Gerät mit der unteren Platte nach oben, um zu verhindern, dass die Belüftungsöffnungen der oberen Platte blockiert werden.
MISE EN GARDE	Lors du montage de l'appareil sous une surface fixe à l'aide des supports courts, montez l'appareil avec le panneau inférieur vers le haut pour éviter de bloquer les évents du panneau supérieur.
PRECAUCIÓN	Cuando monte el dispositivo debajo de una superficie fija utilizando los soportes cortos, monte el dispositivo con el panel inferior hacia arriba para evitar que se bloqueen las rejillas de ventilación del panel superior.
注意	使用短支架將設備安裝在固定表面下方時，請將設備底板朝上安裝，以免遮擋頂板上的通風口。

CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

VORSICHT	Bei diesem Verfahren muss das Gerät ausgeschaltet und von der Fabric getrennt sein.
MISE EN GARDE	Au cours de cette procédure, l'appareil doit être éteint et déconnecté du réseau.
PRECAUCIÓN	El dispositivo debe estar apagado y desconectado del fabric durante este procedimiento.
注意	在此操作過程中，必須將設備關閉並使其與織物脫離連接。



CAUTION
Power supplies are hot-swappable. However, they should be inserted or removed without a power cord being connected to a power source to avoid damage.

VORSICHT	Netzteile sind hot-swap-fähig. Sie sollten jedoch eingesetzt oder entfernt werden, ohne dass ein Stromkabel mit einer Stromquelle verbunden ist, um Beschädigungen zu vermeiden.
MISE EN GARDE	Les unités d'alimentation sont permutables à chaud. Cependant, et pour éviter tout dommage, elles doivent être insérées ou retirées sans cordon d'alimentation relié à une source d'alimentation.
PRECAUCIÓN	Los proveedores de energía son deslizables por calor. Sin embargo deben insertarse o extraerse sin ningún cable de alimentación conectado a la fuente de alimentación para evitar daños.
注意	電源支援熱插拔。但為避免損壞，插入或拔出電源時，請確保其未連接至電源。



CAUTION
Static electricity can damage the chassis and other electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

VORSICHT	Statische Elektrizität kann das System und andere elektronische Geräte beschädigen. Um Schäden zu vermeiden, entnehmen Sie elektrostatisch empfindliche Geräte erst aus deren antistatischer Schutzhülle, wenn Sie bereit für den Einbau sind.
MISE EN GARDE	L'électricité statique peut endommager le châssis et les autres appareils électroniques. Pour éviter tout dommage, conservez les appareils sensibles à l'électricité statique dans leur emballage protecteur tant qu'ils n'ont pas été installés.
PRECAUCIÓN	La electricidad estática puede dañar el chasis y otros dispositivos electrónicos. A fin de impedir que se produzcan daños, conserve los dispositivos susceptibles de dañarse con la electricidad estática dentro de los paquetes protectores hasta que esté listo para instalarlos.
注意	靜電可能會損壞機殼及其他電子設備。為避免損壞，請將對靜電敏感的設備保留在防靜電包裝內，直到準備安裝時再取出。



CAUTION
Use a separate branch circuit for each power cord, which provides redundancy in case one of the circuits fails.

VORSICHT	Es empfiehlt sich die Installation eines separaten Stromkreiszweiges für jede Elektroschnur als Redundanz im Fall des Ausfalls eines Stromkreises.
MISE EN GARDE	Utilisez un circuit de dérivation différent pour chaque cordon d'alimentation ainsi, il y aura un circuit redondant en cas de panne d'un des circuits.
PRECAUCIÓN	Use un circuito derivado separado para cada cordón de alimentación, con lo que se proporcionará redundancia en caso de que uno de los circuitos falle.
注意	為每條電源線使用獨立的支路，這樣當其中一條支路發生故障時，仍能提供冗餘保障。



CAUTION
To avoid high voltage shock, do not open the device while the power is on.

VORSICHT	Das eingeschaltete Gerät darf nicht geöffnet werden, da andernfalls das Risiko eines Stromschlags mit Hochspannung besteht.
MISE EN GARDE	Afin d'éviter tout choc électrique, n'ouvrez pas l'appareil lorsqu'il est sous tension.
PRECAUCIÓN	Para evitar una descarga de alto voltaje, no abra el dispositivo mientras esté encendido.
注意	為避免高壓電擊，請勿在設備通電時開啟。



CAUTION
Ensure that the device does not overload the power circuits, wiring, and over-current protection. To determine the possibility of overloading the supply circuits, add the ampere (amp) ratings of all devices installed on the same circuit as the device. Compare this total with the rating limit for the circuit. The maximum ampere ratings are usually printed on the devices near the input power connectors.

VORSICHT	Stromkreise, Verdrahtung und Überlastschutz dürfen nicht durch das Gerät überbelastet werden. Addieren Sie die Nennstromleistung (in Ampere) aller Geräte, die am selben Stromkreis wie das Gerät installiert sind. Somit können Sie feststellen, ob die Gefahr einer Überbelastung der Versorgungsstromkreise vorliegt. Vergleichen Sie diese Summe mit der Nennstromgrenze des Stromkreises. Die Höchstnennströme (in Ampere) stehen normalerweise auf der Geräterückseite neben den Eingangsstromanschlüssen.
MISE EN GARDE	Assurez-vous que le dispositif ne risque pas de surcharger les circuits d'alimentation, le câblage et la protection de surintensité. Pour déterminer le risque de surcharge des circuits d'alimentation, additionnez l'intensité nominale (ampères) de tous les dispositifs installés sur le même circuit que le dispositif en question. Comparez alors ce total avec la limite de charge du circuit. L'intensité nominale maximum en ampères est généralement imprimée sur chaque dispositif près des connecteurs d'entrée d'alimentation.
PRECAUCIÓN	Verifique que el instrumento no sobrecargue los circuitos de corriente, el cableado y la protección para sobrecargas. Para determinar la posibilidad de sobrecarga en los circuitos de suministros, añada las capacidades nominales de corriente (amp) de todos los instrumentos instalados en el mismo circuito que el instrumento. Compare esta suma con el límite nominal para el circuito. Las capacidades nominales de corriente máximas están generalmente impresas en los instrumentos, cerca de los conectores de corriente de entrada.
注意	請確保設備不會導致電源電路、線路及過電流保護裝置過載。若要判斷供電電路是否有過載風險，可將連接在同一電路上的所有設備的額定電流 （以安培為單位）相加，並將所得總和與該電路的額定限值進行比較。設備的最大額定電流通常標註在設備上，位於電源輸入介面附近。



CAUTION
Before plugging a cable to any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

VORSICHT	Bevor Sie ein Kabel in einen Anschluss einstecken, entladen Sie jegliche im Kabel vorhandene elektrische Spannung, indem Sie mit den elektrischen Kontakten eine geerdete Oberfläche berühren.
MISE EN GARDE	Avant de brancher un câble à un port, assurez-vous de décharger la tension du câble en reliant les contacts électriques à la terre.
PRECAUCIÓN	Antes de conectar un cable en cualquier puerto, asegúrese de descargar la tensión acumulada en el cable tocando la superficie de conexión a tierra con los contactos eléctricos.
注意	在將線纜連接至任何連接埠之前，請務必透過讓線纜的電氣接點接觸接地表面，來釋放線纜上積聚的靜電。



CAUTION
For the installation of a RUCKUS device with AC or DC systems, use a ground wire of at least 10 AWG. The ground wire should have an agency-approved crimped connector (provided with the device) attached to one end, with the other end attached to building ground. The connector must be crimped with the proper tool, allowing it to be connected to the ground screw on the enclosure. Before crimping the ground wire into a ground lug, ensure that the bare copper wire has been cleaned and antioxidant is applied to the bare wire. In addition, anti-rotation devices or lock washers must be used with all screw connections for the grounding wire.

VORSICHT	Verwenden Sie für die Installation eines RUCKUS-Geräts mit AC- oder DC-Systemen ein Erdungskabel mit mindestens 10 AWG. Das Erdungskabel sollte an einem Ende mit einem behördlich zugelassenen Quetschverbinder (im Lieferumfang des Geräts enthalten) und am anderen Ende mit der Gebäudeerde verbunden sein. Der Stecker muss mit dem richtigen Werkzeug gecrimpt werden, damit er mit der Erdungsschraube am Gehäuse verbunden werden kann. Stellen Sie vor dem Crimpen des Erdungskabels in eine Erdungsöse sicher, dass das blanke Kupferkabel gereinigt und ein Antioxidans auf das blanke Kabel aufgetragen wurde. Außerdem müssen bei allen Schraubverbindungen für die Erdungsleitung Verdrehsicherungen oder Sicherungsscheiben verwendet werden.
MISE EN GARDE	Pour l'installation d'un appareil RUCKUS avec des systèmes CA ou CC, utilisez un fil de terre d'au moins 10 AWG. Le fil de terre doit avoir un connecteur serti approuvé par l'agence (fourni avec l'appareil) attaché à une extrémité, avec l'autre extrémité attachée à la terre du bâtiment. Le connecteur doit être serti avec l'outil approprié, permettant de le connecter à la vis de terre du boîtier. Avant de sertir le fil de terre dans une cosse de terre, assurez-vous que le fil de cuivre nu a été nettoyé et qu'un antioxydant a été appliqué sur le fil nu. De plus, des dispositifs anti-rotation ou des rondelles de blocage doivent être utilisés avec toutes les connexions à vis pour le fil de mise à la terre.
PRECAUCIÓN	Para la instalación de un dispositivo RUCKUS con sistemas de CA o CC, use un cable a tierra de al menos 10 AWG. El cable a tierra debe tener un conector engarzado aprobado por la agencia (suministrado con el dispositivo) conectado a un extremo, con el otro extremo conectado a la tierra del edificio. El conector debe engarzarse con la herramienta adecuada, lo que permite conectarlo al tornillo de tierra del gabinete. Antes de engarzar el cable de tierra en una lengüeta de conexión a tierra, asegúrese de que el cable de cobre pelado se haya limpiado y que se le haya aplicado antioxidante. Además, se deben usar dispositivos antirrotación o arandelas de seguridad con todas las conexiones de tornillo para el cable de conexión a tierra.
注意	在安裝採用交流電 (AC) 或直流 (DC) 供電系統的 RUCKUS 設備時，請使用規格至少為 10 AWG 的接地線。接地線的一端應連接一個經相關機構認證的壓接端子 （隨設備提供），另一端則連接至建築物的接地系統。必須使用專用工具對端子進行壓接，以便將其連接到外殼上的接地螺絲上。在將接地線壓接到接地端子之前，請確保裸銅線已清潔乾淨，並在其表面塗抹了抗氧化劑。此外，在接地線的所有螺絲連接處，必須使用防轉裝置或鎖緊墊圈。



CAUTION
Make sure the rack housing the device is adequately secured to prevent it from becoming unstable or falling over.

VORSICHT	Stellen Sie sicher, dass das Gestell oder der Schrank für die Unterbringung des Geräts auf angemessene Weise gesichert ist, so dass das Gestell oder der Schrank nicht wackeln oder umfallen kann.
MISE EN GARDE	Vérifiez que le bâti ou le support abritant le dispositif est bien fixé afin qu'il ne devienne pas instable ou qu'il ne risque pas de tomber.
PRECAUCIÓN	Verifique que el bastidor o armario que alberga el instrumento está asegurado correctamente para evitar que pueda hacerse inestable o que caiga.
注意	請確保安放設備的機架已妥善固定，以防其變得不穩定或傾倒。



CAUTION
To prevent damage to the chassis and components, never attempt to lift the chassis using the fan or power supply handles. These handles were not designed to support the weight of the chassis.

VORSICHT	Um Schäden am Gehäuse und an den Komponenten zu vermeiden, versuchen Sie niemals, das Gehäuse an den Griffen des Lüfters oder des Netzteils anzuheben. Diese Griffe sind nicht dafür ausgelegt, das Gewicht des Gehäuses zu tragen.
MISE EN GARDE	Pour éviter d'endommager le châssis et les composants, ne jamais tenter de soulever le châssis par les poignées du ventilateur ou de l'alimentation. Ces poignées n'ont pas été conçues pour supporter le poids du châssis.
PRECAUCIÓN	Para prevenir daños al chasis y a los componentes, nunca intente levantar el chasis usando las asas de la fuente de alimentación o del ventilador. Tales asas no han sido diseñadas para soportar el peso del chasis.
注意	為防止機殼及組件受損，切勿嘗試透過風扇或電源供應器上的把手來提起機殼。這些把手並非為承受機殼重量而設計。

Danger Notices

A danger notification calls your attention to a possible hazard that can cause injury or death. The following are the warnings used in this manual.

“Gefahr” weist auf eine mögliche Gefährdung hin, die zu Verletzungen oder Tod führen können. Sie finden die folgenden Warnhinweise in diesem Handbuch.

Un danger attire votre attention sur un risque possible de blessure ou de décès. Ci-dessous, vous trouverez les avertissements utilisés dans ce manuel.

Una señal de peligro le llama la atención sobre cualquier posible peligro que pueda ocasionar daños personales o la muerte. A continuación se dan las advertencias utilizadas en este manual.

危險提示旨在提醒您注意可能導致受傷或死亡的潛在危險。本手冊中使用了以下警告資訊。



DANGER
The procedures in this manual are for qualified service personnel.

GEFAHR	Die Verfahren in diesem Handbuch sind nur für qualifiziertes Wartungspersonal gedacht.
DANGER	Les procédures décrites dans ce manuel doivent être effectuées par le personnel de service qualifié uniquement.
PELIGRO	Los procedimientos de este manual se han hecho para personal de servicio cualificado.
危險	本手冊中的操作程序是供具備相應資格的維修人員使用。



DANGER
Make sure that the power source circuits are properly grounded, then use the power cord supplied with the device to connect it to the power source.

GEFAHR	Stellen Sie sicher, dass die Stromkreise ordnungsgemäß geerdet sind. Benutzen Sie dann das mit dem Gerät gelieferte Stromkabel, um es an die Srromquelle anzuschließen.
DANGER	Vérifiez que les circuits de sources d'alimentation sont bien mis à la terre, puis utilisez lecordon d'alimentation fourni avec le dispositif pour le connecter à la source d'alimentation.
PELIGRO	Verifique que circuitos de la fuente de corriente están conectados a tierra correctamente; luego use el cordón de potencia suministrado con el instrumento para conectarlo a la fuente de corriente.
危險	請確保電源電路已妥善接地，然後使用設備隨附的電源線將其連接至電源。



DANGER
Before beginning the installation, see the precautions in “Power Precautions.”

GEFAHR	Vor der Installation siehe Vorsichtsmaßnahmen unter “Power Precautions” (Vorsichtsmaßnahmen in Bezug auf elektrische Ablagen).
DANGER	Avant de commencer l'installation, consultez les précautions décrites dans “Power Precautions” (Précautions quant à l'alimentation).
PELIGRO	Antes de comenzar la instalación, consulte las precauciones en la sección “Power Precautions” (Precauciones sobre corriente).
危險	在開始安裝之前，請參閱 「電源注意事項」中的預防措施。



DANGER
Be careful not to accidentally insert your fingers into the fan tray while removing it from the chassis. The fan may still be spinning at a high speed.

GEFAHR	Die Finger dürfen nicht versehentlich in das Ventilatorblech gesteckt werden, wenn dieses vom Gehäuse abgenommen wird. Der Ventilator kann sich unter Umständen noch mit hoher Geschwindigkeit drehen.
DANGER	Faites attention de ne pas accidentellement insérer vos doigts dans le boîtier du ventilateur lorsque vous l'enlevez du châssis. Il est possible que le ventilateur tourne encore à grande vitesse.
PELIGRO	Procure no insertar los dedos accidentalmente en la bandeja del ventilador cuando esté desmontando el chasis. El ventilador podría estar girando a gran velocidad.
危險	從機殼中取出風扇托架時，請務必小心，切勿讓手指不慎伸入其中。此時風扇可能仍在高速旋轉。



DANGER
For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.

GEFAHR	Aus Sicherheitsgründen sollte ein EGB-Armband zum Schutz von elektronischen gefährdeten Bauelementen mit einem 1 Megaohm-Reihenwiderstand ausgestattet sein.
DANGER	Pour des raisons de sécurité, la dragonne ESD doit contenir une résistance de série 1 méga ohm.
PELIGRO	Por razones de seguridad, la correa de muñeca ESD deberá contener un resistor en serie de 1 mega ohmio.
危險	出於安全考慮，防靜電 （ESD）腕帶應串聯一個 1 兆歐姆的電阻。



DANGER
If the installation requires a different power cord than the one supplied with the device, make sure you use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the device.

GEFAHR	Falls für die Installation ein anderes Stromkabel erforderlich ist (wenn das mit dem Gerät gelieferte Kabel nicht passt), müssen Sie sicherstellen, dass Sie ein Stromkabel mit dem Siegel einer Sicherheitsbehörde verwenden, die für die Zertifizierung von Stromkabeln in Ihrem Land zuständig ist. Das Siegel ist Ihre Garantie, dass das Stromkabel sicher mit Ihrem Gerät verwendet werden kann.
DANGER	Si l'installation nécessite un cordon d'alimentation autre que celui fourni avec le dispositif, assurez-vous d'utiliser un cordon d'alimentation portant la marque de l'organisation responsable de la sécurité qui définit les normes et régulations pour les cordons d'alimentation dans votre pays. Cette marque vous assure que vous pouvez utiliser le cordon d'alimentation avec le dispositif en toute sécurité.
PELIGRO	Si la instalación requiere un cordón de corriente distinto al que se ha suministrado con el instrumento, verifique que usa un cordón de corriente que venga con la marca de la agencia de seguridad que defina las regulaciones para cordones de corriente en su país. Esta marca será su garantía de que el cordón de corriente puede ser utilizado con seguridad con el instrumento.
危險	若安裝時需要使用與設備隨附電源線不同的電源線，請確保所選電源線上標示您所在國家 / 地區針對電源線相關法規所規定的安全認證機構識別。此標識可確保此電源線與該設備配合使用時是安全的。



DANGER
Risk of Electrical Shock: To disconnect power, remove all power cords from the unit.



GEFAHR	Stromschlaggefahr: Um die Stromversorgung zu unterbrechen, entfernen Sie alle Netzkabel vom Gerät.
DANGER	Risque de Choc Électrique: Pour débrancher, l'alimentation électrique, veuillez assurer tous les cables d'alimentation sont retires de l'unite.
PELIGRO	Riesgo de descarga eléctrica: Para desconectar la alimentación, retire todos los cables de alimentación de la unidad.
危險	觸電風險：若要切斷電源，請從設備上拔下所有電源線。



DANGER
Disconnect the power cord from all power sources to completely remove power from the device.

GEFAHR	Ziehen Sie das Stromkabel aus allen Stromquellen, um sicherzustellen, dass dem Gerät kein Strom zugeführt wird.
DANGER	Débranchez le cordon d'alimentation de toutes les sources d'alimentation pour couper complètement l'alimentation du dispositif.
PELIGRO	Para desconectar completamente la corriente del instrumento, desconecte el cordón de corriente de todas las fuentes de corriente.
危險	將電源線從所有電源上斷開，以徹底切斷設備的供電。



DANGER
This device might have more than one power cord. To reduce the risk of electric shock, disconnect all power cords before servicing.

GEFAHR	Dieses System ist möglicherweise mit mehr als einem Netzkabel ausgestattet. Trennen Sie stets die Verbindung aller Netzkabel, bevor Sie Wartungsarbeiten durchführen, um dieGefahr eines Stromschlags auszuschließen.
DANGER	Ce commutateur peut comporter plusieurs cordons d'alimentation. Pour réduire les risques de choc électrique, déconnectez tous les cordons d'alimentation avant d'effectuerl'entretien de l'appareil.
PELIGRO	Este conmutador podría tener más de un cable de alimentación. Para reducir el riesgo de sufrir una descarga eléctrica, desconecte todos los cables de alimentación antes de proceder con la reparación.
危險	本設備可能配有多條電源線。為降低觸電風險，在進行維修前，請斷開所有電源線。



DANGER
Use safe lifting practices when moving the product.

GEFAHR	Beim Bewegen des Produktes ist auf eine sichere Hubtechnik zu achten.
DANGER	Utiliser des techniques de levage sûres pour déplacer le produit.
PELIGRO	Tenga mucho cuidado al levantar el producto para moverlo
危險	搬運本產品時，請採取安全的搬運方式。



DANGER
Mount the devices you install in a rack as low as possible. Place the heaviest device at the bottom and progressively place lighter devices above.

GEFAHR	Montieren Sie die Geräte im Gestell so tief wie möglich. Platzieren Sie das schwerste Gerät ganz unten, während leichtere Geräte je nach Gewicht (je schwerer desto tiefer) darüber untergebracht werden.
DANGER	Montez les dispositifs que vous installez dans un bâti aussi bas que possible. Placez le dispositif le plus lourd en bas et le plus léger en haut, en plaçant tous les dispositifs progressivement de bas en haut du plus lourd au plus léger.
PELIGRO	Monte los instrumentos que instale en un bastidor lo más bajos posible. Ponga el instrumento más pesado en la parte inferior y los instrumentos progresivamente más livianos más arriba.
危險	將安裝在機架上的設備盡可能放置在較低的位置。最重的設備應放在最底部，較輕的設備則依序向上放置。



DANGER
All fiber-optic interfaces use Class 1 lasers.

GEFAHR	Alle Glasfaser-Schnittstellen verwenden Laser der Klasse 1.
DANGER	Toutes les interfaces en fibres optiques utilisent des lasers de classe 1.
PELIGRO	Todas las interfaces de fibra óptica utilizan láser de clase 1.
危險	所有光纖介面均使用 1 類雷射。



DANGER
Laser radiation. Do not view directly with optical instruments. Class 1M laser products.

GEFAHR	Laserstrahlung! Schauen Sie nicht direkt mit optischen Instrumenten in den Laserstrahl herein. Klasse 1M Laserprodukte.
DANGER	Rayonnement de laser. Ne regardez pas directement avec les instruments optiques. Produits de laser de la classe 1M.
PELIGRO	Radiacion de Laser. No vea directamente con Instrumentos Opticos. Clase 1M de Productos de Laser.
危險	雷射輻射，勿以光學儀器直視等級 1 M雷射產品。
警告	レーザ放射 光学器具で直接ビームを見ないこと クラス 1 M レーザ製品



DANGER
Use only optical transceivers that are qualified by RUCKUS and comply with the FDA Class 1 radiation performance requirements defined in 21 CFR Subchapter I, and with IEC 60825 and EN60825. Optical products that do not comply with these standards might emit light that is hazardous to the eyes.

GEFAHR	Verwenden Sie nur optische Transceiver, die von RUCKUS zugelassen sind und die die Anforderungen gemäß FDA Class 1 Radiation Performance Standards in 21 CFR, Unterkapitel I, sowie IEC 60825 und EN60825 erfüllen. Optische Produkte, die diese Normen nicht erfüllen, können Strahlen aussenden, die für das menschliche Auge gefährlich sind.
DANGER	Utilisez uniquement des émetteurs-récepteurs optiques certifiés par RUCKUS et conformes aux exigences sur la puissance de rayonnement de catégorie 1 de la FDA définies au sous-chapitre 21 CFR I et à les normes IEC 60825 et EN60825. Les produits optiques non-conformes à ces normes sont susceptibles d'émettre une lumière dangereuse pour les yeux.
PELIGRO	Utilice sólo transceptores ópticos aprobados por RUCKUS y que cumplan con las normas IEC 60825 y EN60825, y con los estándares de rendimiento Clase 1 de FDA definidos en el subcapítulo I de 21 CFR. Los productos ópticos que no cumplan con estos estándares pueden emitir luz dañina para los ojos.
危險	僅可使用經 RUCKUS 認證且符合以下標準的光收發模組：美國食品藥物管理局 (FDA) 21 CFR I 分章所規定的 「1 類 (Class 1)」輻射性能要求，以及 IEC 60825 和 EN 60825 標準。若光產品不符合這些標準，其所發出的光線可能會對眼睛造成危害。



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