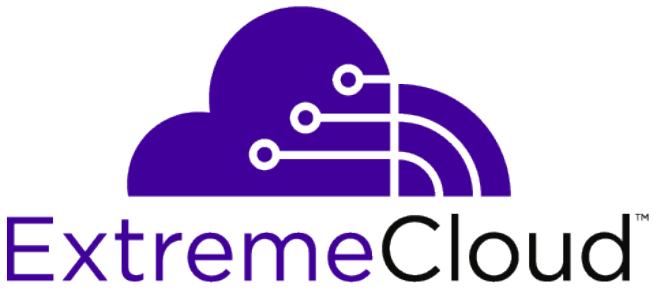

ExtremeCloud™ Quick Reference

Version 4.51.02

9036377-01

Published September 2019

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Table of Contents

Preface

This section discusses the conventions used in this guide, ways to provide feedback, additional help, and other Extreme Networks® publications.

Text Conventions

The following tables list text conventions that are used throughout this guide.

Table 1: Notice Icons

Icon	Notice Type	Alerts you to...
	General Notice	Helpful tips and notices for using the product.
	Note	Important features or instructions.
	Caution	Risk of personal injury, system damage, or loss of data.
	Warning	Risk of severe personal injury.
New!	New Content	Displayed next to new content. This is searchable text within the PDF.

Table 2: Text Conventions

Convention	Description
`Screen displays`	This typeface indicates command syntax, or represents information as it appears on the screen.
The words **enter** and **type**	When you see the word "enter" in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says "type."
[Key] names	Key names are written with brackets, such as **[Return]** or **[Esc]**. If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press **[Ctrl]**+**[Alt]**+**[Del]**
Words in italicized type	Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles.

Providing Feedback to Us

Quality is our first concern at Extreme Networks, and we have made every effort to ensure the accuracy and completeness of this document. We are always striving to improve our documentation and help you work better, so we want to hear from you! We welcome all feedback but especially want to know about:

- Content errors or confusing or conflicting information.

- Ideas for improvements to our documentation so you can find the information you need faster.
- Broken links or usability issues.

If you would like to provide feedback to the Extreme Networks Information Development team, you can do so in two ways:

- Use our short online feedback form at https://www.extremenetworks.com/documentation-feedback/.
- Email us at documentation@extremenetworks.com.

Please provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

Getting Help

If you require assistance, contact Extreme Networks using one of the following methods:

Extreme Portal	Search the GTAC (Global Technical Assistance Center) knowledge base, manage support cases and service contracts, download software, and obtain product licensing, training, and certifications.
The Hub	A forum for Extreme Networks customers to connect with one another, answer questions, and share ideas and feedback. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.
Call GTAC	For immediate support: 1-800-998-2408 (toll-free in U.S. and Canada) or +1 408-579-2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact

Before contacting Extreme Networks for technical support, have the following information ready:

- Your Extreme Networks service contract number and/or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any action(s) already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

Subscribing to Service Notifications

You can subscribe to email notifications for product and software release announcements, Vulnerability Notices, and Service Notifications.

1 Go to www.extremenetworks.com/support/service-notification-form.
2 Complete the form with your information (all fields are required).

3 Select the products for which you would like to receive notifications.

Note
You can modify your product selections or unsubscribe at any time.

4 Click **Submit**.

Related Publications

ExtremeCloud and other Extreme Networks product documentation can be found on Extreme Documentation page at: www.extremenetworks.com/documentation/

We recommend the following guides for users of ExtremeCloud products:

- *ExtremeCloud Information Center*
- *ExtremeCloud Release Notes*
- *ExtremeCloud Quick Reference*
- *ExtremeCloud REST API Reference (Documentation GUI)*
- *ExtremeCloud Hardware and Software Compatibility Matrices*

1 ExtremeCloud Quick Reference

Prerequisites

ExtremeCloud lets you configure and monitor your network easily and securely, with zero-touch provisioning.

Note
If you do not plan to use ExtremeCloud, see your device's product-specific *Quick Reference* instead.

The following prerequisites must be met before you can register your devices:

- Purchase and receive a supported device.
- Locate the Welcome email with a service contract number.

Note
Former Azara users do not receive or require a contract number.

- Forward the Welcome email to your network administrator.
- Identify the location and site where the device will be deployed.
- Meet the network requirements.
- Meet the additional requirements stated in the *ExtremeCloud Release Notes*.

Note
If your existing network is also using Extreme Networks wireless controllers, you must configure the controllers to accept only the manually approved access points (APs). This action prevents the cloud-enabled APs from connecting to the controller. Note that the AP connection is not predicted in the case of both an on-premise controller and the cloud server accepting an AP.

Network Requirements

You must meet the following network requirements:

- Your company has configured one or more DHCP servers that can issue IP addresses and a DNS server address to ExtremeCloud-managed APs, switches, and both wired and wireless users.
- HTTPS traffic must be allowed through your firewall on port 443 towards devices.extremenetworks.com for ExtremeCloud-managed APs and switches to connect to ExtremeCloud and receive their configuration, software updates and send analytics.
- Make sure your content filter is allowing access to Amazon Web Services (AWS).
- Verify that Network Time Protocol (NTP) is allowed out through your firewall on port 123 so that the APs can submit NTP queries to pool.ntp.org to set their clocks.
- Each site must have L2 connectivity. The APs within a site operate within a single RF domain and therefore must have L2 connectivity to function properly.
- The best practice is to use a single VLAN for all the APs in a site instead of distributing the site's APs over multiple VLANs. If you decide to distribute a site's APs over multiple VLANs, then you must allow either routing or forwarding of SIAPP multicast between those VLANS.

ExtremeCloud-enabled devices need to be able to access several different application servers in order to provide their full functionality. Verify that your firewall is allowing ExtremeCloud-enabled devices behind it to access to the following domains and ports:

Table 3: Firewall Requirements and Port List

Component		Ports for AP/Cloud Communication					
Source	Destination / Domain Name	Protocol	Src Port	Dest Port	Service	Remark	Open Firewall
Admin Console	ezcloudx.com	TCP	Any	443	HTTPS	Access the ExtremeCloud management application.	Required
Admin Console / API integrated systems	api.ezcloudx.com	TCP	Any	443	HTTPS	Application access to the backend services managing ExtremeCloud-enabled devices.	Required
Access Point & Switches	devices.extremenetworks.com	TCP	Any	443	HTTPS	Management Tunnel between AP and ExtremeCloud (configuration, image, statistics, upgrade, traces).	Required
Access Points & Switches	NTP Server	UDP	Any	123	NTP	Clock synchronization.	Required
Access Points	radius.ezcloudx.com	UDP	Any	1812, 1813	RADIUS	The integrated captive portal solution requires a cloud RADIUS lookup for each wireless client authentication using the captive portal.	Required if using the built-in captive portal

Table 3: Firewall Requirements and Port List (continued)

Component		Ports for AP/Cloud Communication					
Source	Destination / Domain Name	Protocol	Src Port	Dest Port	Service	Remark	Open Firewall
Access Points	cp.ezcloudx.com	TCP	Any	443, 80	HTTP, HTTPS	Used by the integrated captive portal solution hosted at cp.ezcloudx.com. Access to the portal is required to ensure wireless clients can authenticate using the captive portal.	Required if using the built-in captive portal
Access Points & Switches	http://aptransient-eu-central-1.s3.eu-central-1.amazonaws.com/	TCP	Any	443	HTTPS	Used by ExtremeCloud-enabled devices that, on command, may upload tech support files to storage managed by this application.	Required
Access Points & Switches	http://extremeimages.s3.amazonaws.com/	TCP	Any	443	HTTPS	Required to successfully upgrade ExtremeCloud managed devices. The IP range for the S3 bucket is: { "ip_prefix": "52.219.72.0/22", "region": "eu-central-1", "service": "S3" }, { "ip_prefix": "52.219.44.0/22", "region": "eu-central-1", "service": "S3" } { "ip_prefix": "52.92.68.0/22", "region": "eu-central-1", "service": "S3" }, { "ip_prefix": "54.231.192.0/20", "region": "eu-central-1", "service": "S3" },	Required

Table 3: Firewall Requirements and Port List (continued)

Component		Ports for AP/Cloud Communication					
Source	Destination / Domain Name	Protocol	Src Port	Dest Port	Service	Remark	Open Firewall
Any	Access Point	TCP	Any	2002, 2003	RCAPD	Collect WireShark traces using AP Real Capture, if enabled.	Optional
WiNG APs	mgmt.devices.extremenetworks.com	TCP	Any	443	HTTPS	Management tunnel between WiNG AP and ExtremeCloud	Required - Allows outbound connections from devices to ExtremeCloud over the various ports listed. This is typically not an issue as these ports are usually open already.

System Limits

The following table shows the system limits:

Table 4: System Limits for ExtremeCloud

Item	Maximum Number
Accounts per customer	1
Sites per account	2,500
Access points per account	10,000
Switches per account	Unlimited
Access points per site	100 ExtremeWireless / 128 ExtremeWireless WiNG
Switches per site	Unlimited
User per site	2,000
Roles per access point	64
Rules per role	64
Active networks per account	8
Administrator accounts per customer	20
Rate limiters per account	16 (8 inbound and 8 outbound)
Rate limiters per site	16 (8 inbound and 8 outbound)
MAC addresses in a customer blacklist	768

Licensing Grace Period

ExtremeCloud expiring licenses are handled as follows:

- 90-day warning in the user interface before the license expires:
  - Warnings display in the heading of the main dashboard
  - View the list of expiring entitlements under **Administration** > **System** > **Expiring Entitlements**
- During the 90 days prior to license expiry, **ExtremeCloud** provides the device with full functionality. After the license expires, the device is not eligible for support and its configuration cannot be changed.
- 90-day grace period to renew the license after the license expires. The devices are not configurable during the grace period.
- After the 90-day grace period expires:
  - The device is completely ignored. It cannot be configured, and its statistics and events are discarded.
  - Depending on the device model, the device resets to factory default settings. Typically, the device continues to run on the latest image it was upgraded to before the reset.
  - All cloud-managed devices will start trying to discover an Extreme Networks cloud manager as if it never had a manager before.

Creating or Updating Your Account

Whether you are creating a new ExtremeCloud Default Administrator account or are adding a device to an existing account, follow these steps:

1 Locate your Welcome email from Extreme Networks.
2 Click the activation link in the Welcome email and follow the on-screen instructions.
3 (Optional) Enable two-step account verification. For more information, see the *ExtremeCloud Information Center*.

Using the Deployment Prerequisite Tool

An administrator can download and run a prerequisite tool to verify that installation requirements have been met before installing cloud-managed access points and switches at a site. The tool checks requirements specific to **ExtremeCloud** and performs tasks such as making REST API calls to your REST servers, looking up your FQDNs in DNS, and verifying that your Amazon S3 connection is enabled.

This tool is compatible with Windows, Linux, and Mac OS X devices.

To download and use the prerequisite tool:

1 Log on to the machine that is on the same subnet that your access points (APs) are deployed on. You will need to run the executable file on this same subnet.
2 Download the zip file (ezcloud_prerequisite_validation_tool.zip), which contains the tool in the form of binary executable files, a Readme, and a license file. The link to download the zip file is available from the following locations:
  - On the **ExtremeCloud** login screen in the bottom right corner.

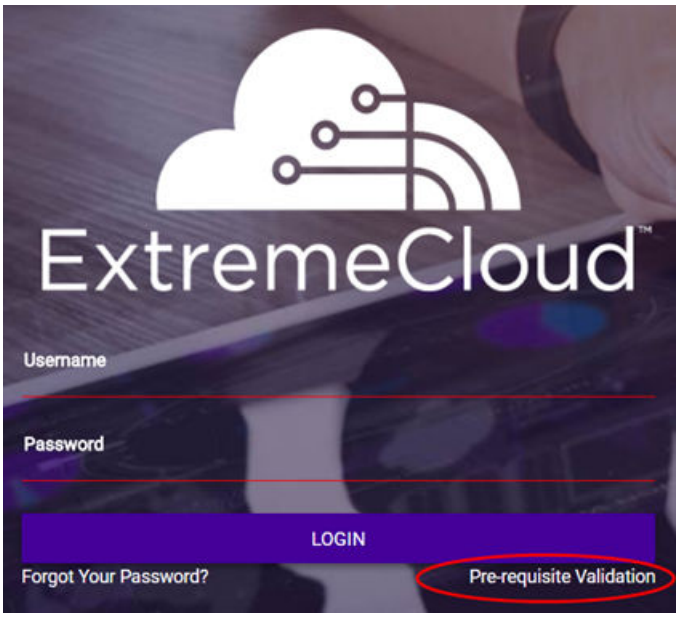

Figure 1: Login Screen

- From the drop-down list located on the top right corner of the user interface, under your user name.

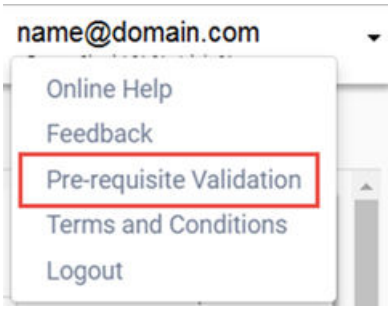

Figure 2: Drop-down List

3 Run the binary executable file that is suitable for your operating system. The tool checks the local machine and a summary report is returned. All of the items on the list must pass the test in order to deploy the product. If any item fails, fix it and then repeat this procedure until everything passes. Then proceed with deployment of your devices.

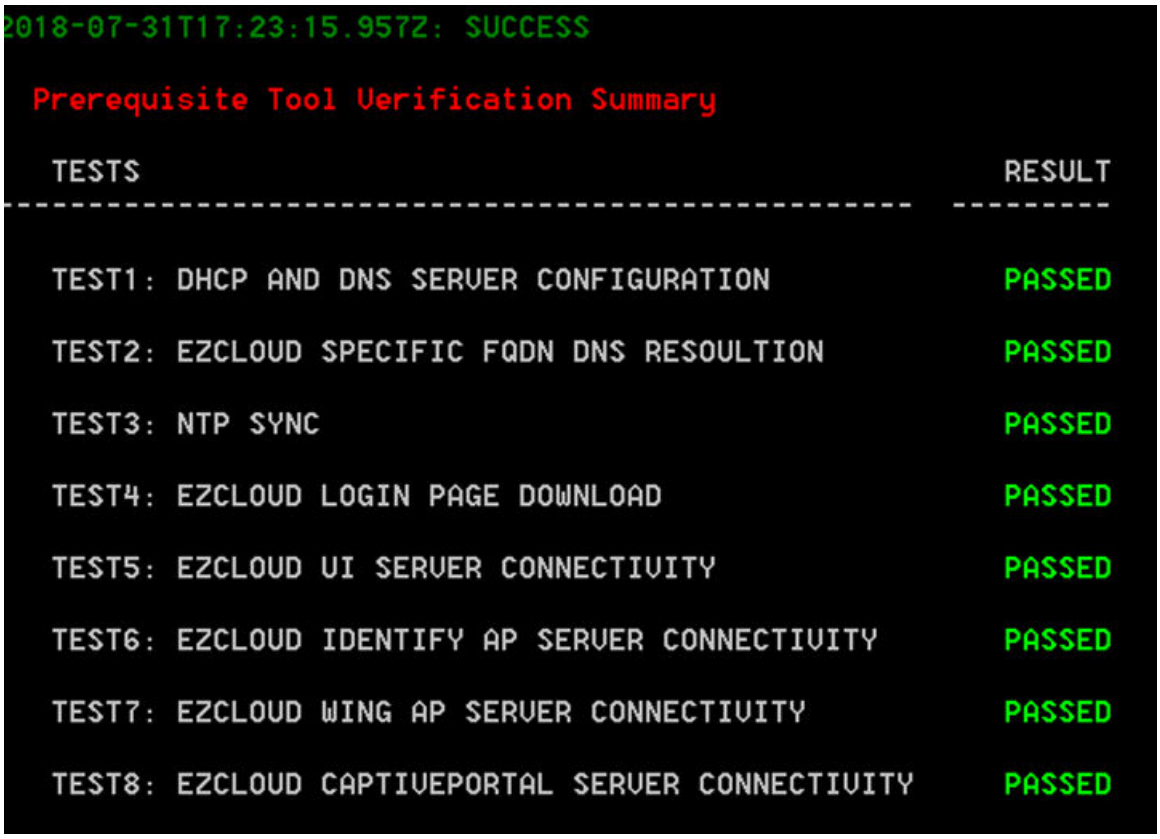

Figure 3: Prerequisite Tool Summary Report

Device Adoption Rules

The device adoption feature simplifies the deployment of access points (APs) and switches by automatically assigning them to a site. A set of rules determines the site assignments when devices are registered for the first time. Without adoption rules, devices must be manually assigned to sites.

To use the adoption rules feature:

1 Create a site (**Configure** > **Site**).
2 Configure the adoption rules for the site (**Configure** > **Adoption**).
3 Connect the devices to **ExtremeCloud**.

Connecting ExtremeSwitches

Whether you are using cloud-support ExtremeXOS switches or Extended Edge Switching in your environment, the connection process is the same. Connect all of the switches before you connect the APs. ExtremeCloud-enabled switches are not required to use ExtremeCloud-enabled APs.

Zero Touch Provisioning (ZTP) is provided on all cloud-supported switches.

For Extended Edge Switching, ZTP performs the following tasks automatically:

- Determines if the switch is capable of being a CB.
- Detects if any BPE are attached.

- Enables VPEX mode on the CB.
- Assigns the next available slot number to each BPE.
- Configures the CB ports where the BPE(s) are connected to be LAGs.
- Upgrades the CB and VPEX, when upgrades are available.

To connect switches:

1 If you plan to use device adoption rules, set up sites with the adoption rules before connecting the devices.

2 Install the switch hardware and connect the power according to the product-specific *Installation Guide*.

3 Connect one of the switch Ethernet payload ports to a network that provides Internet access. The switch should be connected through one of its data plane ports if possible, rather than through its management port.

Note
For an entitled switch to locate and connect to ExtremeCloud, only *one* port can be connected. After the connection is established, additional ports can be connected.

The switch automatically connects with ExtremeCloud and downloads the firmware image over HTTPS. The switch automatically upgrades its firmware, reconnects to ExtremeCloud and receives a default configuration. All ports, except the management port, are placed on the same untagged management VLAN.

4 Verify that the management LED indicates that the switch is powered on and has completed its start-up sequence.

Note
The LED should be blinking green slowly at the rate of about once per second.

5 Log in to your ExtremeCloud administrator account at https://ezcloudx.com. On the first login, the configuration wizard opens. Use the wizard to update the network security key of the predefined wireless network.

Note
Alternatively, you can exit the wizard and configure your own networks. For more information, see the *ExtremeCloud Information Center*.

6 From the user interface, select **Monitor** > **Devices** > **Switches**. The status icon changes from gray (Undiscovered) to either green, yellow, or red. As the switch cycles through upgrade and configuration, its state will change color in the user interface several times. The switch is ready to use when the status is either green (in service) or yellow (in service, trouble).

Note
Typically the switch takes a few minutes to connect with ExtremeCloud.

7 Repeat these steps for all cloud-enabled switches.

Note
If a switch persistently fails or its status remains gray or red for more than 20 minutes, contact Support.

Note

10 Gbps licenses are available to enable 2 or 4 uplink ports for 10Gbps operation. This is a separately licensed feature. To assign licenses to a switch, select **Administration** > **System** > **Assign Licenses**. The **Assign Licenses** option only displays when unassigned licenses are available.

Connecting APs

If you are using ExtremeWireless WiNG AP7612, AP7632, or AP7662, make sure that your firmware is upgraded to 5.9.2.2 or higher (and 5.9.2.5 is recommended) to connect to **`ExtremeCloud`**. For instructions, see this GTAC article: https://gtacknowledge.extremenetworks.com/articles/Solution/ExtremeCloud-WiNG-Access-Points-not-connecting-to-ezcloudx-com or refer to the ExtremeWireless WiNG AP-specific user documentation.

Follow this process to connect the APs to ExtremeCloud:

1 If you plan to use device adoption rules, set up sites with the adoption rules before connecting the devices.

2 Connect your AP's LAN 1 or LAN 2 to either a switch that allows the AP to connect to the Internet, or connect to an Ethernet network port with Internet connection. Apply power to the AP using either PoE from the switch or a separate external transformer. For more information, see the product-specific *Installation Guide*. For product documentation online, visit: https://www.extremenetworks.com/documentation/

3 The AP discovers ExtremeCloud and gets registered automatically, typically in a few minutes. The default SSID (Staff) is broadcast when the AP connects to the service.

4 Look at the physical AP and verify that the Radio 1 and Radio 2 LEDs are solid green, which indicates that the AP is activated in the cloud.

The following table shows the LED patterns and the associated status for ExtremeWireless APs when they are connected to cloud management.

Table 5: LED Patterns for ExtremeWireless APs Connecting with `ExtremeCloud`

Radio B/G LED (Left)	Radio A LED (Right)	Status LED	AP Detailed State
Off	Off	Blink green	Initialization: Power-on self test (POST)
	Blink green	Blink green	Initialization: Random delay
		Blink red	Initialization: No Ethernet
	Solid green	Blink green	Initialization: Vulnerable period (not supported)
		Blink red	Reset to factory defaults

Table 5: LED Patterns for ExtremeWireless APs Connecting with `ExtremeCloud` (continued)

Radio B/G LED (Left)	Radio A LED (Right)	Status LED	AP Detailed State
Blink green	Off	Blink green or orange	Network discovery: 802.1x authentication
		Blink red	Failed 802.1x authentication
	Blink green	Blink green or orange	Network discovery: DHCP
		Blink red	Default IP address
	Solid green	Blink green or orange	Network discovery: discovery/connect
		Blink red	Discovery failed
• Green - Radio On • Off - Radio Off	• Green - Radio On • Off - Radio Off	Solid green	Connected

The following table shows the LED patterns and the associated status for ExtremeWireless WiNG APs when they are connected to cloud management.

Table 6: LED Patterns for ExtremeWireless WiNG APs Connecting with `ExtremeCloud`

Task	5 GHz Activity LED (Amber)	2.4 GHz Activity LED (Green)
Unconfigured Radio	On	On
Normal Operation	• If this radio band is enabled: Blinks at 5-second intervals • If this radio band is disabled: Off • If there is activity on this band: Blinks at 1 time per second	• If this radio band is enabled: Blinks at 5-second intervals • If this radio band is disabled: Off • If there is activity on this band: Blinks at 1 time per second
Firmware Update	On	Off
Locate AP Mode	LEDs blink in an alternating green, red and amber pattern using an irregular blink rate. This LED state in no way resembles normal operating conditions.	LEDs blink in an alternating green, red and amber pattern using an irregular blink rate. This LED state in no way resembles normal operating conditions.

5 Log in to your administrator account at https://ezcloudx.com. On the first login, the configuration wizard opens. Use the wizard to update the network security key of the predefined wireless network.

Alternatively, you can exit the wizard and configure your own networks. For more information, see "How to Set Up Your Network" in the *ExtremeCloud Information Center*.

6 Select **Monitor** > **Devices** > **Access Points** and look for the device in your **Devices** list. If the AP is not listed in your account, this usually indicates there is no subscription coverage for your device. You may need to contact Sales for assistance, for all other inquires contact Support.

Note

If an AP persistently fails or its status remains gray or red for more than 20 minutes, contact Support.

More Information

- *ExtremeCloud Information Center*
- *ExtremeCloud Release Notes*
- ExtremeCloud Hardware/Software Compatibility Matrices