# ExtremeCloud™ Universal ZTNA v24.2.1 Release Notes

## Enhancements, Fixes, and Supported Devices

9039103-01 Rev AA
December 2024

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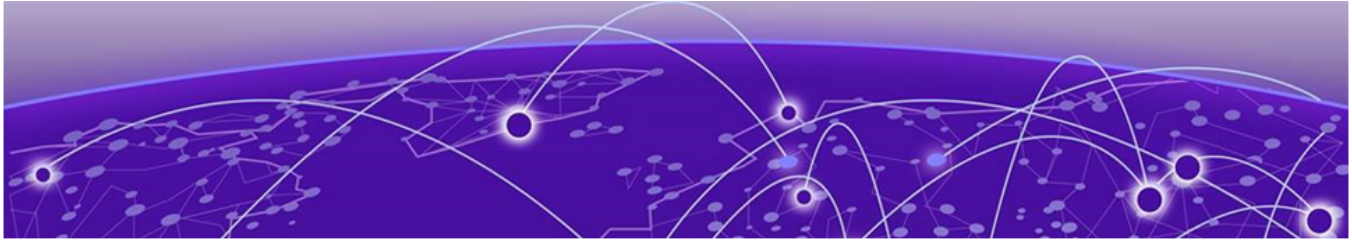

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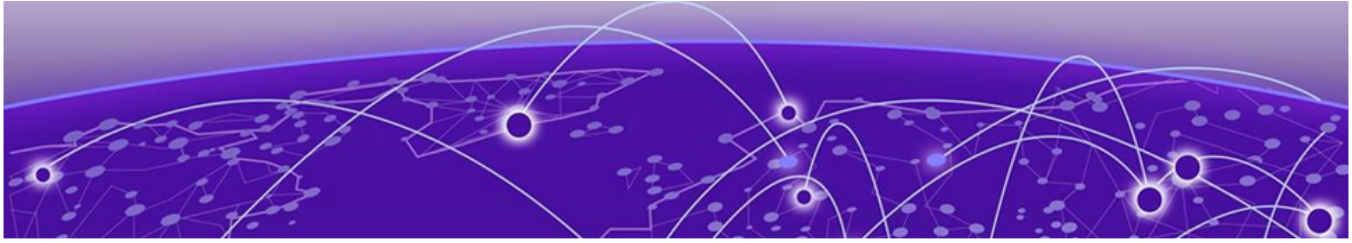


# Abstract

The ExtremeCloud Universal ZTNA 24.2.1 Release Notes detail several technical enhancements, new features, and critical fixes introduced in this release for network administrators managing the ExtremeCloud Universal ZTNA platform. This update supports Application Discovery Additionally, new VLAN attributes, real-time RF heat maps, and roaming trail visualization on the client map enhance network management. Addressed issues include performance fixes for location-based condition rule assignment, Device Group Modal resolution, and auto-refresh for Universal ZTNA pages. Known issues highlights license page issues, profile image sharing for new roles, and syncing with Azure.

# Preface

Read the following topics to learn about:

- The meanings of text formats used in this document.
- Where you can find additional information and help.
- How to reach us with questions and comments.

## Conventions

To help you better understand the information presented in this guide, the following topics describe the formatting conventions used for notes, text, and other elements.

### Text Conventions

Unless otherwise noted, information in this document applies to all supported environments for the products in question. Exceptions, like command keywords associated with a specific software version, are identified in the text.

When a feature, function, or operation pertains to a specific hardware product, the product name is used. When features, functions, and operations are the same across an entire product family, such as Extreme Networks switches or SLX routers, the product is referred to as *the switch* or *the router*.

**Table 1: Notes and warnings**

| Icon | Notice type | Alerts you to... |
|---|---|---|
| | Tip | Helpful tips and notices for using the product |
| | Note | Useful information or instructions |
| | Important | Important features or instructions |

**Table 1: Notes and warnings (continued)**

| Icon | Notice type | Alerts you to... |
|---|---|---|
| | Caution | Risk of personal injury, system damage, or loss of data |
| | Warning | Risk of severe personal injury |

**Table 2: Text**

| Convention | Description |
|---|---|
| `screen displays` | This typeface indicates command syntax, or represents information as it is displayed 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 in boldface, for example **Ctrl** 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. |
| NEW! | New information. In a PDF, this is searchable text. |

**Table 3: Command syntax**

| Convention | Description |
|---|---|
| **bold** text | Bold text indicates command names, keywords, and command options. |
| *italic* text | Italic text indicates variable content. |
| `[ ]` | Syntax components displayed within square brackets are optional.<br>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, such as passwords, are enclosed in angle brackets. |

**Table 3: Command syntax (continued)**

| Convention | Description |
|---|---|
| ... | Repeat the previous element, for example, *member*[*member*...]. |
| \ | In command examples, the backslash indicates a “soft” line break. When a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash. |

## Platform-Dependent Conventions

Unless otherwise noted, all information applies to all platforms supported by Switch Engine software, which are the following:

- ExtremeSwitching® switches
- SummitStack™

When a feature or feature implementation applies to specific platforms, the specific platform is noted in the heading for the section describing that implementation in the Switch Engine command documentation (see the Extreme Documentation page at www.extremenetworks.com/documentation/). In many cases, although the command is available on all platforms, each platform uses specific keywords. These keywords specific to each platform are shown in the Syntax Description and discussed in the Usage Guidelines sections.

## Terminology

When features, functionality, or operation is specific to a device family, such as ExtremeSwitching, the family name is used. Explanations about features and operations that are the same across all product families simply refer to the product as the *device*.

# Send Feedback

The User Enablement team at Extreme Networks has made every effort to ensure that this document is accurate, complete, and easy to use. We strive to improve our documentation to help you in your work, so we want to hear from you. We welcome all feedback, but we especially want to know about:

- Content errors, or confusing or conflicting information.
- Improvements that would help you find relevant information.
- Broken links or usability issues.

To send feedback, email us at documentation@extremenetworks.com.

Provide as much detail as possible including the publication title, topic heading, and page number (if applicable), along with your comments and suggestions for improvement.

# Help and Support

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: (800) 998 2408 (toll-free in U.S. and Canada) or 1 (408) 579 2800. 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:

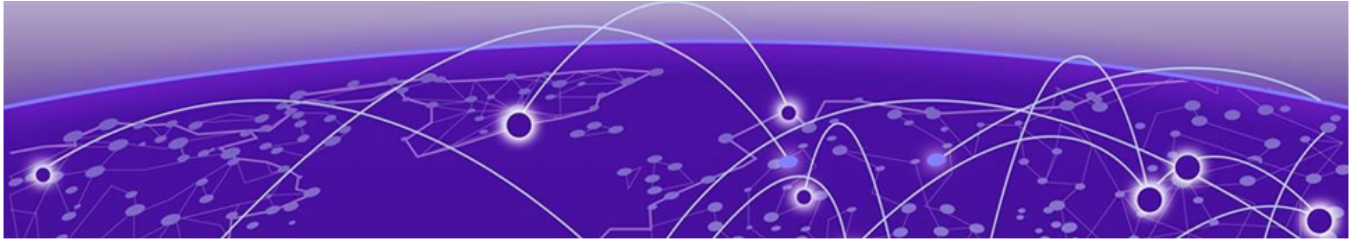
- Your Extreme Networks service contract number, or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any actions already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental 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

## Subscribe to Product Announcements

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

1. Go to The Hub.
2. In the list of categories, expand the **Product Announcements** list.
3. Select a product for which you would like to receive notifications.
4. Select **Subscribe**.
5. To select additional products, return to the **Product Announcements** list and repeat steps 3 and 4.

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



# Universal ZTNA General Release Information

## Overview

Universal ZTNA integrates network, application, and device access security within a single solution to bolster security organization wide. Establish and maintain a consistent security policy across your network with a single solution to manage and enforce an identity-level zero trust policy for all users. You can also manage user networks, applications, and Internet of Things (IoT) device access independent of the user's location.

Universal ZTNA combines and enhances remote and campus access security. Remote access leverages ZTNA continuous authentication, tunneled application sessions with direct to cloud routing. On campus access combines ZTNA and NAC capabilities to control access to the network and applications for headed and headless devices.

# Current Release 24.2.1

December 2024

**Table 4: Addressed Issues in Release 24.2.1**

| Issue ID | Issue | Description |
|---|---|---|
| CFD-12778 | Client spikes high CPU when connecting to Universal ZTNA | We were checking if route exists before adding all routes, and routes were being added in parallel, causing the CPU to spike because the checking command prints all the routes that are added, and then checks if the route exists in the output. This was an I/O operation which got blocked and choked the CPU.<br>Fixed it by not checking the routes before adding/removing them. |
| CFD-12809 | Duplicate key issue if SSID is renamed causing sync issues | Changing the broadcast name of a managed SSID may cause dynamic configuration to fail for the SSID and effected Access Points. |
| CFD-12964 | Newly onboarded RadSec proxy servers did not receive response from Universal ZTNA for hours | Newly deployed RadSec-Proxy was taking much longer time before users could start authenticating against Universal ZTNA. |
| UZ-3818 | Connection prematurely closed BEFORE response | If anything on the Network Resources page is out of sync, run **Resync All** to force a sync. |
| UZ-4444 | Dynamic policy push is not operating correctly in certain rare scenarios | In certain rare scenarios Access Points are in stuck state with issues in dynamic policy push. Perform **Sync now** on Network Devices page and dynamic push enables. |

**Table 4: Addressed Issues in Release 24.2.1 (continued)**

| Issue ID | Issue | Description |
|---|---|---|
| ZTNA-21747 | User Agent handshakes take more than 5 minutes for 1000 concurrent devices and 100 apps coming at the same time | Tunnel connection creation takes up to 45s at worst and 2.2s at best.<br>• Overall Average Connection Time: 5.8s<br>• Overall Minimum Connection Time: 2.2s<br>• Overall Maximum Connection Time: 44.1s<br>• Clients with Connection Time > 5s: 4 |
| ZTNA-26349 | Agent based policy enforcement acknowledgment for 5000 devices and 1k apps is taking 1hr | After the enhancement, policy enforcement on service connectors for 5,000 devices and 300 applications now takes 30 seconds.<br><br>**Note:** Service Connectors and Agents must upgrade to latest 24.2.1 once released. The prior versions of agent will not work once the service connector is upgraded to the new version. |
| ZTNA-26354 | Device acknowledgment and Handshakes completes for 1500 devices policy enforcement and 300 apps in 2-3 min | 1,000 users connecting within 1 minute: All 1,000 devices connected successfully, achieving a 100% success rate with an average connection time of 25 seconds.<br>1,000 users connecting within 15 minutes: All 1,000 devices connected successfully, achieving a 100% success rate with an average connection time of 5 seconds. |
| ZTNA-26966 & ZTNA-27011 | Changing the Wifi connection apps got stuck in connecting state | With this update, the tunnel now auto-recovers in most cases. If you encounter similar issues, simply wait for 1 minute, and the service should restore itself without requiring a manual reconnection. |

**Table 4: Addressed Issues in Release 24.2.1 (continued)**

| Issue ID | Issue | Description |
|---|---|---|
| ZTNA-27037 | Agent could become stuck in a loading state after being inactive for 1–2 days | The agent now auto-recovers in most scenarios. If you encounter similar issues, simply wait for about 1 minute, and the service should restore itself without needing any manual action. |
| ZTNA-27181 | Disable PENDO for end users | Pendo has been disabled for mobile and desktop agent to avoid tracking end user data. |
| ZTNA-27466 | IPSEC Policy enforcement, client had to be restarted for policy to be added | Up to 1000 Peer connections can be successfully established on a single Service Connector instance on initial policy enforcement. A simple toggle-off/toggle-on can be used to connect to Service Connector as recovery mechanism if connection breaks. |
| ZTNA-27495 | Proxy logging enhancements | 1. Logging Verbosity is reduced.<br>2. Timestamp appended to proxy<br>3. Log Rotation Enabled ( Log file max size will be 50 mb after that it will be rotated. A max of 30 backup log files will be stored)<br>4. By Default, proxy starts in non debug mode. If required to start proxy in debug/non debug mode. Then following command can be used.<br>Debug Mode: / root/.proxy/scripts/ run_proxy_debug.sh true<br>Non Debug Mode: / root/.proxy/scripts/ run_proxy_debug.sh false |

**Table 4: Addressed Issues in Release 24.2.1 (continued)**

| Issue ID | Issue | Description |
|---|---|---|
| ZTNA-27507 | RadSec Proxy Down due to certificates permission issues | This issue is due to umask, when the value is set to 0027. A manual fix will be required until resolved in the script. |
| ZTNA-27512 | Connector Configuration File Becomes Empty, Causing Downtime | With safe writing enabled, when the storage space reached its limit, the configuration file update was not triggered, preventing the file data from being cleared. |
| ZTNA-27523 | Kafka events storage is getting fully consumed due to policy flows | Kafka message retention is 8 hours now, with segment retention of 4 hours. It will take 8-12 hours for a message to be removed from Kafka. |
| ZTNA-27527 | Connectors intermittently enter a panic state and go down. | After applying the fix, the issue was no longer reproducible for 1,000 devices and 300 applications. Issue was due to race condition where error was not reinitialized inside go routine. |
| ZTNA-27536 | User agent connection retries are not reset once they get exhausted | This has not been reproduced for 1000 devices and 300 apps in 1 min. Now once it retries the connection 5 times it is reset and refresh works as a recovery mechanism. Fixed retries update on connection disconnect and connect reset. |

**Table 4: Addressed Issues in Release 24.2.1 (continued)**

| Issue ID | Issue | Description |
|---|---|---|
| ZTNA-27540 | Policy not getting removed properly from Service Connector | The config.json refresh_policy_interval is set to 180 (3 minutes) for large policies with a higher number of devices and services. Increase the refresh interval for policies with higher number of devices and services because 1 cron can take more than 3 minutes and next cron will be scheduled after and the cron jobs will stack up.<br>This issue was due to cron job on SC, service details flag is ServiceAddedToMatchSet was being updated to false and during the removal process IPs were not being cleared from nft table set. |
| ZTNA-27542 | Zero Peers on Service Connector | A 4-core Service Connector can handle up to 1000 connections/ disconnections in 1 minute. In cases where a client does not connect automatically, they can toggle-off and on to connect. There were some race conditions in code causing the connector to crash. Fixed the race conditions. |

## Switch Onboarding Options

### Option 1 – Managed

- Supported NOSs: Switch Engine only
- Supported Switches: 4120, 4220, 5320, 5420, 5520, 5720, x435
- Minimum NOS version: 32.6.3
- Summary: Switch configuration is fully managed by ExtremeCloud IQ. The Instant Secure Port workflow is used to provision RADIUS/authentication and Universal ZTNA policy is provisioned via static policy.

### Option 2 – Locally Managed

- Supported NOSs: Fabric Engine and Switch Engine
- Supported Switches: 5320, 5420, 5520, 5720, 7520, 7720, x435

- Minimum NOS version: Fabric Engine 9.0.2, Switch Engine 32.6.3
- Summary: Switch is onboarded but switch configuration is managed outside of cloud. Universal ZTNA network policy is provisioned via dACLs by RADIUS VSAs

## Firewall Considerations

Outbound access to the following IP Addresses are required in any firewall configurations:

- 13.248.199.77
- 76.223.79.155

# Previous Release 24.2.0

New Features in 24.2.0 on page 16
Addressed Issues in 24.2.0 on page 17

## New Features in 24.2.0

**Table 5: New Features in 24.2.0**

| Feature ID | Feature | Description |
|---|---|---|
| ZTNA-18723 | Discovery of Private Applications | Application Discovery finds and enlists those applications that are used by our users/customers and usually are not present in the system. Go to **Insights** > **Application Discovery**. |
| ZTNA-18727 | Additional Roles for Admin Portal | Monitor Role - This role has view access to all menu items. The Monitor role is unable to create, edit, or delete anything in Universal ZTNA. This role can use the Troubleshooting tool to generate and download logs.<br>Observer Role - This role has view access to all menu items. he Observer role is unable to create, edit, or delete anything in Universal ZTNA. This role does not have access to the Troubleshooting tool. |
| ZTNA-23125 | Application Troubleshooting | Troubleshooting applications end-to-end connectivity and easy log collection. |

**Table 5: New Features in 24.2.0 (continued)**

| Feature ID | Feature | Description |
|---|---|---|
| ZTNA-24115 | [Entra ID] Support user login for both UPN & Email | Enables support for login via UPN and Email Address when UPN & Email Addresses do not match. |
| ZTNA-24116 | EAP-TLS: Support Additional Options for Certificate Comparison | Support the implementation of an option in the certificate management screen to address this decision point for 'Distinguished Name' or 'Common Name'. |

## Addressed Issues in 24.2.0

**Table 6: Addressed Issues in 24.2.0**

| Issue ID | Issue | Description |
|---|---|---|
| CFD-12199 | Universal ZTNA Agent assigning DNS server 8.8.8.8 even though not seen in configurations | Issue has been resolved with code changes. |
| CFD-12215 | Invalid RADIUS certificate in Universal ZTNA showing N/A | Now N/A values in certificates will have **Reset** option. |
| CFD-12255 | Universal ZTNA pushes policy to switch even though there are no matching location | SSID location condition enforcement is now supported along with switch and site location conditions. |
| CFD-12256 | Universal ZTNA Oops screen appears during normal operations. | Screen no longer appearing. |
| CFD-12302 | Device state for a non-compliant device in Identities tab is showing as NON_COMPLIANT (not user friendly) | Device states are "Compliant" and "Non Compliant". |
| CFD-12310 | Unable to highlight information in Identities "View History" page | Copy/Paste is now supported for fields in identities view. |

**Table 6: Addressed Issues in 24.2.0 (continued)**

| Issue ID | Issue | Description |
|---|---|---|
| CFD-12316 | Universal ZTNA - User Group search is slow. | • Replaced API call for fetching user groups to be paginated<br>• The options in the drop-downs will load successively as the user scrolls. |
| CFD-12413 | Universal ZTNA client shows 'You are connected' but Applications are still connecting status | Front-end solution by waiting for the next chunk of data if the previous one was incomplete, ensuring the correct display of data on the UI. |
| CFD-12482 | Universal ZTNA profiles add 3 rules instead of 1 in ExtremeCloud IQ. | Universal ZTNA is no longer creating duplicate user profile common objects. |
| CFD-12498 | If SSID Object name and broadcast name are different, the Universal ZTNA rule will not match | The location condition was passing "ssid_id" (SSID Name) as the broadcast name. Updated "ssid_id" to "ssid_name" (SSID Broadcast Name) to resolve the issue. |
| UZ-2189 | Eula keep getting presented for tenant on chrome browser (intermittent) | EULA keeps getting presented for tenant on Chrome browser. The issue was caused by EULA was being tracked by local storage. EULA is now being tracked by the database. |
| UZ-2204 | If location condition based rule added in policy, it is not getting enforced on the switch | Location condition is now getting enforced on the switch. |
| ZTNA-15902 | [Device Posture] Posture Check frequency attribute issue | Users who fail the posture check show up as 'accepted' in the identities table when in reality they have been 'rejected'. |
| ZTNA-21709 | SSID status does not change or display to Ready to Connect even after configuring the Network profile on MAC client for BYOD | To get an updated state, refresh manually. Also, after connecting or disconnecting, refresh after 30s as there is throttling implemented on refresh action. |
| ZTNA-22085 | Universal ZTNA Agents do not support redirection to other RDCs | Redirection to other RDCs is now supported. |
| ZTNA-22446 | Data is not getting auto-refreshed on Universal ZTNA pages | Universal ZTNA now has auto-refresh. |

**Table 6: Addressed Issues in 24.2.0 (continued)**

| Issue ID | Issue | Description |
|---|---|---|
| ZTNA-23458 | Create Button in Add User Group and Device Group Modal Isn't Visible | Create button is now visible. |
| ZTNA-23462 | In Agentless, for VNC access, username is set to optional but when not added the application stays in connecting state | In Agentless, for VNC access, username is set to optional, but when not added the application stays in connecting state if the credentials are incorrect.<br>To resolve this issue, refresh and confirm correct username password. |
| ZTNA-23482 | 2 or more devices with the same MAC Address can be imported if formats are changed. | The file content validation API was checking for duplicates before normalizing the MAC addresses, only normalized MAC addresses will be stored in the database. |
| ZTNA-26030 | WireGuard Connector Keeps Going Down Intermittently | Upgrade the Service connector. |
| ZTNA-26068 | On Service Connector restart or new instance creation the Service connector is stuck in service initialization process | Upgrade the Service connector. |
| ZTNA-26235 | Service connector upgrade is not happening | New upgrades are rolled out by Super Admin only. |

# Known Issues in 24.2.1

The following table listsUniversal ZTNA known product issues. Issues are grouped according to ID prefix and sorted within their group with the most recently logged issue listed first. Issue IDs are in descending order.

**Table 7: Known Issues in 24.2.1**

| Issue Name | Description |
|---|---|
| CFD-11975 | Identity shows up as MAC address with EAP-TLS if Certificate is set to SAN \| Email Address. |
| CFD-12203 | FQDN Applications are only retrieving the first A record of the application. |
| CFD-12357 | Universal ZTNA Apps in Agent are slow to connect. |
| UZ-2954 | Each Group Name that is imported or synced to Universal ZTNA must be unique. There are frequent scenarios with Entra ID customers where they may have two of the same group name because one is a Security Group and another is an Office 365 or Distribution group.<br>Entra ID allows this, however Universal ZTNA does not. If multiple groups with the same name attempt to be synchronized an error will occur in the synchronization. |
| UZ-3129 | Device login or posture failures are not reported on the insights table. |
| UZ-3171 | Applications with SSO enabled are not accessible through agentless web access. |
| UZ-3566 | Application Discovery will not work on first attempt. Attempt will timeout. A second attempt is required. |
| UZ-3818 | Network Resources connection prematurely closes before a response is sent. If anything in network resources page is out of sync, "Resync All" needs to be manually run to force a sync. |
| UZ-4987 | When using Just-In-Time (JIT) provisioning, adding a synced user to a local user group may lead to an unexpected behavior. If the user logs into the agentless portal, they are automatically removed from the local user group. |

**Table 7: Known Issues in 24.2.1 (continued)**

| Issue Name | Description |
|---|---|
| XCD-677 | If Universal ZTNA is set as the default application on the applications page, XCD redirects to the wrong URL.<br>Workaround:<br>Don't select the Universal ZTNA application as the default application. |
| XCD-679 | License SKU description is not displayed on XCD user interface. |
| XIQ-36836 | Client table no longer showing "Unknown" as the **OS Type** MAC OS "Sequoia". |
| XIQ-36842 | For Limited Availability customers who are upgrading to General Availability: XIQ policies created prior to the upgrade will not see wireless clients populated in identities table. Work-around is to disable and enable the UZTNA slider and push the XIQ policy to the access point. |
| XIQ-33843 | EAP-TLS auth is not working with IDM in ExtremeCloud IQ. |
| ZTNA-15224 | No entries in activity log are created for actions performed in Device Posture admin screen. |
| ZTNA-21536 | Unregistered devices and network location conditions both show up stale SSIDs in the desktop agent and Universal ZTNA, respectively. |
| ZTNA-23480 | When using the agent and shifting from IPSec to Wireguard a delete and reinstall of the application is required. |
| ZTNA-27078 | For Limited Availability customers who are upgrading to General Availability: VLAN IDs show empty after upgrade, however VLAN assignment is still enforced as configured prior to upgrade. |
| ZTNA-27150 & ZTNA-27145 | Wireless authentication fails on SSIDs that have 'UZTNA Managed' and BYOD Enabled' enabled. |
| ZTNA-27147 | When new service connector build is rolled out, the upgrade service connector banner is not shown and the user is unable to upgrade to the latest build. Manual intervention is required. |
| ZTNA-27149 | macOS Sequoia 15.0.1 fails with error "Failed to configure ssid" when 'Click to Configure' is selected in the networks section of the agent. |

**Table 7: Known Issues in 24.2.1 (continued)**

| Issue Name | Description |
|---|---|
| ZTNA-27442 | High Peer Connection Time with Agent (Over 1 Minute Delay). 1,000 users connecting within 1 minute: All 1,000 devices connected successfully, achieving a 100% success rate with an average connection time of 25 seconds. 1,000 users connecting within 15 minutes: All 1,000 devices connected successfully, achieving a 100% success rate with an average connection time of 5 seconds. |
| ZTNA-27571 | Applications are not accessible on the Agent. The socket-win socket plugin by default binds to UDP ports 500 and 4500. To receive any packets, the Windows native IKE service must be disabled by stopping/disabling the IKEEXT service. If you see any WFP MM failure errors, the IKEEXT service is probably running. |

# Device Support Information

Access Points on page 23
Switches on page 26
Supported Browsers and Display Settings on page 34

This section lists the devices that Universal ZTNA supports and includes the latest version of the software that each device supports.

## Access Points

Access Point information is provided in the following sections:

- Universal Hardware on page 23
- IQ Engine (Cloud Native) on page 24
- Extreme Wireless on page 26

### Universal Hardware

| Device Model | Latest Supported Release | Comments |
|---|---|---|
| AP302W | IQ Engine 10.7.3.0<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.3.1 |
| AP305C | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.1 |
| AP305C-1 | IQ Engine 10.7.3.0<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.4.6 |
| AP305CX | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.1 |
| AP3000 | IQ Engine 10.7.3.0<br>AP 10.8.1 | Platform support introduced with IQ engine 10.6.1 |
| AP3000X | IQ Engine 10.6.6 | Platform support introduced with IQ Engine 10.6.1 |

| Device Model | Latest Supported Release | Comments |
|---|---|---|
| AP4000 | IQ Engine 10.7.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.4.1 |
| AP4000-1 | IQ Engine 10.6.6<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.4.2 |
| AP410C | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.2 |
| AP410C-1 | IQ Engine 10.7.3.0<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.4.6 |
| AP460C | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.2 |
| AP460S6C | IQ Engine 10.7.3.0<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.2 |
| AP460S12C | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.2 |
| AP5010 | IQ Engine 10.6.6<br>AP 10.8.1<br>WiNG OS 7.9.3.0 | Platform support introduced with IQ Engine 10.5.1 |
| AP5050U | IQ Engine 10.7.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.5.3 |
| AP5050D | IQ Engine 10.6.6<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.5.3 |
| AP510C/CX | IQ Engine 10.6.6 | Platform support introduced with IQ Engine 10.0.8 |

## IQ Engine (Cloud Native)

| Device Model | Latest Supported Release |
|---|---|
| SR2024<br>End of Life | IQ Engine 6.5.12 |
| SR2024P<br>End of Life | IQ Engine 6.5.12 |
| SR2124P<br>End of Life | IQ Engine 6.5.12 |

| Device Model | Latest Supported Release |
|---|---|
| SR2148P<br>End of Life | IQ Engine 6.5.12 |
| SR2208P | FASTPATH 8.2.0.2 v1.0.1.29<br>1.1.31 |
| SR2224P | FASTPATH 8.2.0.2 v1.0.1.29<br>1.1.31 |
| SR2324P | FASTPATH 8.2.0.2 v1.0.1.29<br>1.1.31 |
| SR2348P | FASTPATH 8.2.0.2 v1.0.1.29<br>1.1.31 |

## ExtremeWireless WiNG

| Device Model | Latest Supported Release | Comments |
|---|---|---|
| AP560i | WiNG OS 7.9.3.0 | Monitor only |
| AP560h | WiNG OS 7.9.3.0 | Monitor only |
| AP505 | WiNG OS 7.9.3.0 | Monitor only |
| AP510i | WiNG OS 7.9.3.0 | Monitor only |
| AP510i-1 | WiNG OS 7.9.3.0 | Monitor only |
| AP460i/e | WiNG OS 7.9.3.0 | Monitor only |
| AP410i/e | WiNG OS 7.9.3.0 | Monitor only |
| AP410i-1 | WiNG OS 7.9.3.0 | Monitor only |
| AP360i/e | WiNG OS 7.9.3.0 | Monitor only |
| AP310i/e | WiNG OS 7.9.3.0 | Monitor only |
| AP310i/e-1 | WiNG OS 7.9.3.0 | Monitor Only |
| AP3000 | WiNG OS 7.9.3.0 | Monitor Only |
| AP8533 | WiNG OS 7.7.1.8 | Monitor only |
| AP8432 | WiNG OS 7.7.1.8 | Monitor only |
| AP8232 | WiNG OS 5.9.1.8 | Monitor only |
| AP8222 | WiNG OS 5.8.6.11 | Monitor only |
| AP8163 | WiNG OS 5.9.7.1 | Monitor only |
| AP8132 | WiNG OS 5.9.1.8 | Monitor only |
| AP8122 | WiNG OS 5.9.1.8 | Monitor only |
| AP7662 | WiNG OS 7.7.1.8 | Monitor only |
| AP7632 | WiNG OS 7.7.1.8 | Monitor only |
| AP7622 | WiNG OS 5.9.7.1 | Monitor only |

| Device Model | Latest Supported Release | Comments |
|---|---|---|
| AP7612 | WiNG OS 7.7.1.8 | Monitor only |
| AP7602 | WiNG OS 5.9.7.1 | Monitor only |
| AP7562 | WiNG OS 7.7.1.8 | Monitor only |
| AP7532 | WiNG OS 7.7.1.8 | Monitor only |
| AP7522 | WiNG OS 7.7.1.8 | Monitor only |
| AP7502 | WiNG OS 5.9.7.1 | Monitor only |
| AP7161 | WiNG OS 5.9.1.8 | Monitor only |
| AP7131 | WiNG OS 5.8.6.11 | Monitor only |
| AP6562 | WiNG OS 5.9.1.8 | Monitor only |
| AP6532 | WiNG OS 5.9.1.8 | Monitor only |
| AP6522 | WiNG OS 5.9.1.8 | Monitor only |
| AP6521 | WiNG OS 5.9.1.8 | Monitor only |
| AP6511 | WiNG OS 5.8.6.11 | Monitor only |

### Extreme Wireless

| Device Model | Latest Supported Release | Comments |
|---|---|---|
| AP3965 | ExtremeWireless 10.51 | Monitor only |
| AP3935 | ExtremeWireless 10.51 | Monitor only |
| AP3917 | ExtremeWireless 10.51 | Monitor only |
| AP3916C | ExtremeWireless 10.51 | Monitor only |
| AP3915 | ExtremeWireless 10.51 | Monitor only |
| AP3912 | ExtremeWireless 10.51 | Monitor only |
| SA201 | ExtremeWireless 10.51 | Monitor only |

## Switches

Switch information is provided in the following sections:


- Universal Hardware on page 23
- ExtremeXOS on page 28
- VOSS on page 31
- IQ Engine (Cloud Native) on page 24
- Dell EMC on page 33


For the latest release notes for Fabric Engine and Switch Engine, see the Extreme Networks Documentation Site.

## Universal Hardware

| Device Model | Latest Supported Release | Comments |
|---|---|---|
| AP302W | IQ Engine 10.7.3.0<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.3.1 |
| AP305C | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.1 |
| AP305C-1 | IQ Engine 10.7.3.0<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.4.6 |
| AP305CX | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.1 |
| AP3000 | IQ Engine 10.7.3.0<br>AP 10.8.1 | Platform support introduced with IQ engine 10.6.1 |
| AP3000X | IQ Engine 10.6.6 | Platform support introduced with IQ Engine 10.6.1 |
| AP4000 | IQ Engine 10.7.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.4.1 |
| AP4000-1 | IQ Engine 10.6.6<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.4.2 |
| AP410C | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.2 |
| AP410C-1 | IQ Engine 10.7.3.0<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.4.6 |
| AP460C | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.2 |
| AP460S6C | IQ Engine 10.7.3.0<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.2 |
| AP460S12C | IQ Engine 10.6.6<br>WiNG OS 7.9.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.1.2 |
| AP5010 | IQ Engine 10.6.6<br>AP 10.8.1<br>WiNG OS 7.9.3.0 | Platform support introduced with IQ Engine 10.5.1 |

| Device Model | Latest Supported Release | Comments |
|---|---|---|
| AP5050U | IQ Engine 10.7.3.0<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.5.3 |
| AP5050D | IQ Engine 10.6.6<br>AP 10.8.1 | Platform support introduced with IQ Engine 10.5.3 |
| AP510C/CX | IQ Engine 10.6.6 | Platform support introduced with IQ Engine 10.0.8 |

## ExtremeXOS

| Device Model | Latest Supported Release | Standalone Support | Stack Support |
|---|---|---|---|
| X435-8P-2T-W | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | N/A |
| X435-24T-4S | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | N/A |
| X435-24P-4S | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | N/A |
| X435-8T-4S | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | N/A |
| X435-8P-4S | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | N/A |

| Device Model | Latest Supported Release | Standalone Support | Stack Support |
|---|---|---|---|
| X440-G2-12p-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* |
| X440-G2-12t-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* |
| X440-G2-24p-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* |
| X440-G2-24t-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* |
| X440-G2-48p-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* |
| X440-G2-48t-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* |

| Device Model | Latest Supported Release | Standalone Support | Stack Support |
|---|---|---|---|
| X450-G2-24p-GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |
| X450-G2-24p-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |
| X450-G2-48p-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |
| X460-G2-24p-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |
| X460-G2-48p-10GE4 | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |
| X465-24W | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |
| X465-48W | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |
| X465-24MU | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |

| Device Model | Latest Supported Release | Standalone Support | Stack Support |
|---|---|---|---|
| X465-48P | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |
| X465-24MU-24W | ExtremeXOS 32.6.3 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Monitor |

**Note**
***** SSH Proxy and Supplemental CLI can be used for configuring additional parameters not currently available within template or device-level configurations.

## VOSS

| Device Model | Latest Supported Release | Standalone Support | Stack Support |
|---|---|---|---|
| VSP7432CQ | VOSS 9.0 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Not supported |
| VSP7400-48Y | VOSS 9.0 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Not supported |
| VSP4900-48P | VOSS 9.0 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Not supported |
| VSP4900-24XE | VOSS 9.0 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Not supported |

| Device Model | Latest Supported Release | Standalone Support | Stack Support |
|---|---|---|---|
| VSP4900-24S | VOSS 9.0 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Not supported |
| VSP4900-12MXU-12XE | VOSS 9.0 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Not supported |
| XA1480 | VOSS 8.10 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Not supported |
| XA1440 | VOSS 8.10 | • Monitor<br>• Template- and device-level configuration<br>• SSH Proxy*<br>• Supplemental CLI* | Not supported |

**Note**
***** SSH Proxy and Supplemental CLI can be used for configuring additional parameters not currently available within template or device-level configurations.

## IQ Engine (Cloud Native)

| Device Model | Latest Supported Release |
|---|---|
| SR2024<br>End of Life | IQ Engine 6.5.12 |
| SR2024P<br>End of Life | IQ Engine 6.5.12 |
| SR2124P<br>End of Life | IQ Engine 6.5.12 |
| SR2148P<br>End of Life | IQ Engine 6.5.12 |
| SR2208P | FASTPATH 8.2.0.2 v1.0.1.29<br>1.1.31 |

| Device Model | Latest Supported Release |
|---|---|
| SR2224P | FASTPATH 8.2.0.2 v1.0.1.29<br>1.1.31 |
| SR2324P | FASTPATH 8.2.0.2 v1.0.1.29<br>1.1.31 |
| SR2348P | FASTPATH 8.2.0.2 v1.0.1.29<br>1.1.31 |

## Dell EMC

| Device Model | Latest Supported Release |
|---|---|
| N3132PX | IQAgent 1.1.29 |
| N3024EF | IQAgent 1.1.29 |
| N3024EP | IQAgent 1.1.29 |
| N3024ET | IQAgent 1.1.29 |
| N3048EP | IQAgent 1.1.29 |
| N3048ET | IQAgent 1.1.29 |
| N3024 | IQAgent 1.1.29 |
| N3024F | IQAgent 1.1.29 |
| N3024P | IQAgent 1.1.29 |
| N3048 | IQAgent 1.1.29 |
| N3048P | IQAgent 1.1.29 |
| N2128PX | IQAgent 1.1.29 |
| N2024 | IQAgent 1.1.29 |
| N2024P | IQAgent 1.1.29 |
| N2048 | IQAgent 1.1.29 |
| N2048P | IQAgent 1.1.29 |
| N1524 | IQAgent 1.1.29 |
| N1524P | IQAgent 1.1.29 |
| N1548 | IQAgent 1.1.29 |
| N1548P | IQAgent 1.1.29 |
| N1108T-ON | IQAgent 1.1.29 |
| N1108P-ON | IQAgent 1.1.29 |
| N1124T-ON | IQAgent 1.1.29 |
| N1124P-ON | IQAgent 1.1.29 |
| N1148T-ON | IQAgent 1.1.29 |
| N1148P-ON | IQAgent 1.1.29 |

# Supported Browsers and Display Settings

## Desktop and Mobile Browser Support

**Note**
Universal ZTNA does not support 32-bit browsers.

**Table 8: Desktop Browsers**

| Desktop Browsers | Version Supported |
|---|---|
| Chrome | v116 |
| Edge | v115 |
| Firefox | v115 |
| Opera | v60 |
| Safari | v13 |

**Table 9: Mobile Browsers**

| Mobile Browsers | Version Supported |
|---|---|
| Android Webview | v73 |
| Chrome for Android | v116 |
| Edge | v79 |
| Firefox for Android | v67 |
| Opera for Android | v52 |
| Safari for iOS | v13 |

## Display Settings

Universal ZTNA supports display resolutions of 1280 x 1024 or higher.