

# Customer Release Notes

## ExtremeCloud IQ Controller

Firmware Version V.10.06.07.0002

May 8, 2024

### INTRODUCTION:

The ExtremeCloud IQ Controller is a next generation orchestration application offering all the mobility services required for modern unified access deployments. The ExtremeCloud IQ Controller includes comprehensive critical network services for wireless and wired connectivity, wireless device secure onboarding, distributed and centralized data paths, role-based access control through the Application Layer (Layer 7), integrated location services, and IoT device onboarding through a single platform. Built on field proven architectures with the latest technology, the embedded operating system supports containerization of applications enabling future expansion of value-added applications for the unified access edge.

The E3120 is a large application appliance meeting the needs of high-density and mission critical deployments with support for up to 20,000 APs/Defenders, 2000 switches, and 100,000 mobility sessions in high-availability mode. An optional redundant power supply is available for ordering separately.

The E3125 is a large application appliance meeting the needs of high-density and mission critical deployments with support for up to 20,000 APs/Defenders, 2000 switches, and 100,000 mobility sessions in high-availability mode. An optional redundant power supply is available for ordering separately.

The E2120 is an application appliance meeting the needs of medium sized high-density and mission critical deployments with support for up to 4,000 APs/Defenders, 800 switches and 32,000 mobility sessions in high-availability mode. An optional redundant power supply is available for ordering separately.

The E2122 is an application appliance meeting the needs of medium sized high-density and mission critical deployments with support for up to 4,000 APs/Defenders, 800 switches and 32,000 mobility sessions in high-availability mode. An optional redundant power supply is available for ordering separately.

The E1120 is an entry to mid-level platform expandable to 250 APs/Defenders, 100 switches, and 4,000 mobility sessions in high-availability mode.

The VE6120 is an elastic virtual appliance that supports up to 1,000 APs/Defenders, up to 400 switches and 16,000 mobility sessions in high-availability mode depending on the hosting hardware.

The VE6120 and VE6120K offer elastic capacities to cover the full range of offering as VMWare/MS Hyper-V/Linux KVM, ranging from VE6120/VE6120K-Small to VE6120/VE6120K-Large.

Note: MS Hyper-V is not endorsed in this release. This is a provisional measure, and support for it will be reinstated in a future release.

The VE6125/VE6125K XL are virtual appliances that support up to 4,000 APs/Defenders, up to 400 switches and 32,000 mobility sessions in high-availability mode, depending on the hosting hardware.

The ExtremeCloud IQ Controller offers the ability to expand capacity to meet any growing business needs. The hardware and virtual packages are available for purchase. The customer purchases adoption capacity as a Right-

To-Use Subscription model, supporting flexible quantities (per managed device) and term (multiple-year extended term) option.

<b>Enhancements in 10.06.07.0002</b>	
Resolved an issue where fast transition roaming could inadvertently overwrite role filters with default WLAN filters.	CFD-10986
Enhanced fast transition EAP/802.1X reauthentication timer expiration behavior.	CFD-11070
Implemented system security enhancements by performing ADSP message validity checks.	CFD-11102
Improved the resilience of Windows+Intel AC/AX clients multicast streaming.	CFD-11021

<b>Enhancements in 10.06.06.0004</b>	
Addressed an issue when using the "admin only" option for a custom field in the authenticated registration captive portal. The field did not appear when creating the user in the pre-registration administrator page.	CFD-9483
Improved resilience of Mac Address groups by better protecting against duplicate entries.	CFD-10111
Addressed a corner case issue with AP transmission of client traffic to the wired network.	CFD-10752
Fixed icon color for groups of sites on the map view.	CFD-10753
Improved 6GHz WLAN authentication configuration for WPA3-Compatibility mode. Client devices can decide to connect on 5GHz or 6GHz.	CFD-10806
Improved resiliency and error handling for External Captive Portal interactions to better process abnormal session termination occurrences.	CFD-10820

<b>Enhancements in 10.06.05.0004</b>	
Addressed an issue with potential instability of packet flow analytics processing at high traffic volumes.	CFD-9674
Improved connectivity stability for AP500 series firmware by addressing potential issue with task locking	CFD-10085
Improved safeguard logic in Access Point firmware to ensure integrity of communications with radio driver.	CFD-10244
Corrected the issue where modifications to a newly created floor plan were not retained following the initial save attempt.	CFD-10331
Improved data consistency for timeline series representation in generated Reports framework.	CFD-10086
Adjusted Access Point firmware to improve resiliency and integrity of hardware accelerated encryption functions.	CFD-10009

<b>Enhancements in 10.06.04.0004</b>	
Improved the robustness of the RADIUS client component by verifying configuration changes before finalizing the commitment.	CFD-9994
Eliminated an extra search step when the initial attempt to locate the session context of a wireless client was unsuccessful.	CFD-9933
Enhanced the durability of the Multiband Operation configuration, ensuring its retention after an upgrade.	CFD-10267
Enhanced the user experience for manually defining access points for onboarding by providing feedback on successful operation.	CFD-9858
Adjusted the logic of the System Health assessment process to alleviate synchronization issues between REDIS databases within the availability pair.	CFD-10262
Addressed a condition that could result in failures to retrieve Access Point Trace logs for AP500 series.	CFD-9485
Addressed an issue with the retention of WLAN network setup order for service initialization when 'session persistence' is enabled.	CFD-9778
Improved the state of reporting to avoid duplication in reporting of "tag" frames for Securitas/Aeroscout RTLS when APs have one radio configured for service (3.4 GHz) and another radio configured as a full-band sensor.	CFD-10058

<b>Enhancements in 10.06.03.0005</b>	
Enhanced the parser for Ekahau Floor Plan models to support additional wall segment formats.	CFD-9852
Improved validation of proper destination IP address for Radius Accounting.	CFD-8472
Improved logic for indexing of varying length Access Point serial numbers for Securitas/Aeroscout RTLS status reporting.	CFD-9843
Adjusted the logic for session tracking in Captive Portal sessions for better resilience to handling incomplete authentication exchanges which could lead to resource exhaustion.	CFD-9732
Improved memory management efficiency and reduced consumption footprint of statistics aggregation.	CFD-9323
Improved the radio firmware startup and re-initialization logic on AP500 series models to ensure proper radio operation in the 5Ghz band, whether in full-band or dual-5Ghz modes.	CFD-9822
Corrected an issue where the configured DFS fallback channel would not consistently be applied to the driver, resulting in APs choosing different channel in cases of DFS hits.	CFD-9849
Addressed ARP table management issues on the Access Point (AP).	CFD-9692
Corrected a disparity in bandwidth data between Radius Accounting and Extreme Analytics.	CFD-9280

<b>Enhancements in 10.06.02.0018</b>	
Introduced easy configuration for Wireless Broadband Alliance (WBA) OpenRoaming as a Hotspot method selection and improved integrated support for NAI routing.	XCC-3486
Added a new privacy option for WPA3 to support Hash-to-Element (H2E) only mode.	XCC-3347
Extended upgrade support for KVM based platforms VE6120K and VE6125K.	XCC-3354
Introduced support for AP3000-IL. AP3000-IL will only onboard to sites with country set to Israel. Note: AP reported as AP3000-WW with Israel (IL) region code.	XCC-3644
Adjusted Smart RF for Site and AP contexts to represent information based on radio band (2.4, 5.0, and 6.0 GHz).	XCC-3581
Provided the option to enable / disable SSH access per AP as an override.	XCC-3524
Enhanced reporting with summary widgets for peak and total clients.	XCC-2556

<b>Changes in 10.06.02.0018</b>	<b>I.D</b>
Increased the supported resolution of SVG image in Ekahau models to have floor maps loaded properly and displayed clearly.	CFD-9300
Improved the telemetry component to handle memory resource more efficiently.	CFD-9381
Addressed the issue where expiration of Registered role prompted Apple wireless devices to authenticate even though they had been already connected and authenticated through a Captive Portal.	CFD-9398
Hardened the Historian database by preventing overloading, and ensuring that purging of old statistics is done in a timely manner.	CFD-9620
Improved the accuracy of radio statistics representation by addressing an issue with counter encodings.	CFD-9058

<b>Enhancements in 10.06.01.0021</b>	
Introduced support for AP3000 series 6E capable value tier access points. Available in two form factors: * AP3000-WW - integrated tri-band OMNI pattern ** AP3000-TN variant SKU specific for deployments in Tunisia * AP3000X-WW - External antenna support for 2.4Ghz and 5Ghz operation - 6GHz antennas are pre-attached and not removable.	XCC-2397
GoldDisk: New E3125 Controller model (Intel 100G) Introducing E3125, a new model variant of the E3120, with data port speed support for 10/25/50/100Gps.	XCC-3379
Allow indoor mode for AP5050 for service on 2.4GHz, 5GHz, and 6GHz bands (where allowed by compliance). Note: Indoor use of 6GHz band for AP5050 is not allowed/available for U.S. (FCC) and Canada (CAN).	XCC-3531

<b>Enhancements in 10.06.01.0021</b>	
Allowed the overwrite of an existing subscription license without the need of a full system reset. Air Gap license override will be supported in a future release.	XCC-3402
Exposed the option to control whether to clear client sessions on receiving a disconnect message from the AP.	XCC-3577
Augmented the processing of dynamic radius requests CoA, re-authentication and disconnect messages even if they do not include the "Event-Timestamp" RADIUS attribute.	XCC-356123
Improved the user experience regarding statistics and system information.	XCC-3558
Improved visual indication of method for channel selection for AP radios: * S = SmartRF * F = Fixed Channel (Manual Selection) * M = Mesh ACS * B = Client Bridge	XCC-3318
Refreshed captive portal certificate on access points to extend validity to June 2024.	WOS-5265

<b>Changes in 10.06.01.0021</b>	<b>I.D</b>
Addressed a race condition in logic to report state of security state of access points connection link, which could result in links reported without security even though security (IPSEC) is enabled and operational.	XCC-3699
Fixed an issue with the Smart RF channel change event reporting in the user interface.	XCC-3316
Corrected an issue where the Aeroscout engine could not parse the AP status data when the 6 GHz radio was enabled.	XCC-3763
Corrected the process of importing floor plans by adding missing wall types.	XCC-3765
Improved the accuracy in reporting of connected wireless clients on the dashboard.	XCC-3273
Adjusted background processing logic to remove UI performance impact of external connection timeouts for isolated/Air Gap installations.	XCC-1954
Corrected the encapsulation process by removing unnecessary AP information from the content of the ICMP packet sent back to the server.	XCC-3773
Corrected AP410i/e and AP460i/e transmit powers for Brazil.	WOS-5064
Adjusted an issue with connection descriptor management that could lead to the inability to connect to SSIDs.	WOS-5154
ExtremeCloud IQ Controller v10.06.01 does not support VE6120H. Support will be added in a future release.	

**Extreme Networks recommends that you thoroughly review this document prior to installing or upgrading this product.**

**For the latest firmware versions, visit the download site at:**  
[www.extremenetworks.com/support/](http://www.extremenetworks.com/support/)

**FIRMWARE SPECIFICATION:**

Status	Version No.	Type	Release Date
Current Version	V.10.06.07.0002	Maintenance Release	May 08, 2024
Previous Version	V.10.06.06.0004	Maintenance Release	April 09, 2024
Previous Version	V.10.06.05.0004	Maintenance Release	February 03, 2024
Previous Version	V.10.06.04.0004	Maintenance Release	November 24, 2023
Previous Version	V.10.06.03.0005	Maintenance Release	October 05, 2023
Previous Version	V.10.06.02.0018	Maintenance Release	August 02, 2023
Previous Version	V.10.06.01.0021	Feature Release	June 19, 2023

**SUPPORTED APPLIANCES, ACCESS POINTS AND SWITCHES:**

Product Name	Image
ExtremeCloud IQ Controller VE6120 VMware Min Supported ESXi version 5.1 or later, (tested 7.0)	XIQC-10.06.07.0002-1.dle
ExtremeCloud IQ Controller VE6120K Linux KVM	XIQC-10.06.07.0002-1.dve
ExtremeCloud IQ Controller VE6125 Min Supported ESXi version 5.5 or later, (tested 7.0)	XIQC-10.06.07.0002-1.rse
ExtremeCloud IQ Controller VE6125K Linux KVM	XIQC-10.06.07.0002-1.mfe
ExtremeCloud IQ Controller E1120	XIQC-10.06.07.0002-1.sme
ExtremeCloud IQ Controller E2120	XIQC-10.06.07.0002-1.jse
ExtremeCloud IQ Controller E2122	XIQC-10.06.07.0002-1.wze
ExtremeCloud IQ Controller E3120	XIQC-10.06.07.0002-1.ose
ExtremeCloud IQ Controller E3125	XIQC-10.06.07.0002-1.dze
AP3000-WW	AP3xxx-LEAN-10.6.7.0-003R.img
AP3000X-WW	AP3xxx-LEAN-10.6.7.0-003R.img
AP302W-CAN AP302W-FCC	AP302W-LEAN-10.6.7.0-003R.img

Product Name	Image
AP302W-IL AP302W-WR	
AP305C-1-CAN AP305C-1-FCC AP305C-1-IL AP305C-1-WR AP305C-CAN AP305C-FCC AP305C-IL AP305C-WR AP305CX-CAN AP305CX-FCC AP305CX-IL AP305CX-WR	AP3xxC-LEAN-10.6.7.0-003R.img
AP310e-1-WR AP310e-CAN AP310e-FCC AP310e-IL AP310e-WR AP310i-1-WR AP310i-CAN AP310i-FCC AP310i-IL AP310i-WR	AP3xx-LEAN-10.6.7.0-003R.img
AP360e-CAN AP360e-FCC AP360e-IL AP360e-WR AP360i-CAN AP360i-FCC AP360i-IL AP360i-WR	AP3xx-LEAN-10.6.7.0-003R.img
AP3912i-FCC AP3912i-ROW	AP391x-10.51.25.0001.img
AP3915e-FCC AP3915e-ROW AP3915i-FCC AP3915i-ROW	AP391x-10.51.25.0001.img
AP3916ic-FCC AP3916ic-ROW	AP391x-10.51.25.0001.img
AP3916-camera	AP3916IC-V1-0-14-1.dlf
AP3917e-FCC AP3917e-ROW AP3917i-FCC AP3917i-ROW AP3917k-FCC AP3917k-ROW	AP391x-10.51.25.0001.img
AP3935e-FCC AP3935e-ROW	AP3935-10.51.25.0001.img

Product Name	Image
AP3935i-FCC AP3935i-IL AP3935i-ROW	
AP3965e-FCC AP3965e-ROW AP3965i-FCC AP3965i-ROW	AP3935-10.51.25.0001.img
AP4000-1-WW AP4000-WW	AP4000x-LEAN-10.6.7.0-003R.img
AP410C-1-CAN AP410C-1-FCC AP410C-1-IL AP410C-1-WR AP410C-CAN AP410C-FCC AP410C-IL AP410C-WR	AP4xxC-LEAN-10.6.7.0-003R.img
AP410e-CAN AP410e-FCC AP410e-IL AP410e-WR AP410i-1-FCC AP410i-1-WR AP410i-CAN AP410i-FCC AP410i-IL AP410i-WR	AP4xx-LEAN-10.6.7.0-003R.img
AP460C-CAN AP460C-FCC AP460C-IL AP460C-WR AP460S12C-CAN AP460S12C-FCC AP460S12C-IL AP460S12C-WR AP460S6C-CAN AP460S6C-FCC AP460S6C-IL AP460S6C-WR	AP4xxC-LEAN-10.6.7.0-003R.img
AP460e-CAN AP460e-FCC AP460e-IL AP460e-WR AP460i-CAN AP460i-FCC AP460i-IL AP460i-WR	AP4xx-LEAN-10.6.7.0-003R.img
AP5010-WW	AP5xxx-LEAN-10.6.7.0-003R.img
AP5050D-WW	AP5xxx-LEAN-10.6.7.0-003R.img



Product Name	Image
AP5050U-WW	AP5xxx-LEAN-10.6.7.0-003R.img
AP505i-FCC AP505i-WR	AP5xx-LEAN-10.6.7.0-003R.img
AP510e-FCC AP510e-WR AP510i-1-FCC AP510i-1-WR AP510i-FCC AP510i-WR	AP5xx-LEAN-10.6.7.0-003R.img
AP560h-FCC AP560h-WR AP560i-FCC AP560i-WR	AP5xx-LEAN-10.6.7.0-003R.img
SA201	AP391x-10.51.25.0001.img
Switches	
210-12p-10GE2 210-24p-10GE2 210-48p-10GE2 210-12p-10GE2 POE 210-24p-10GE2 POE 210-48p-10GE2 POE	210-series_V1.02.05.0013.stk fp-connector-3.3.0.4.pyz (cloud connector)
220-12p-10GE2 220-24p-10GE2 220-48p-10GE2 220-12p-10GE2 POE 220-24p-10GE2 POE 220-48p-10GE2 POE	220-series_V1.02.05.0013.stk fp-connector-3.3.0.4.pyz (cloud connector)
X435-24P/T-4S	summitlite_arm-30.7.1.1.xos summitlite_arm-30.5.0.259-cloud_connector-3.4.2.6.xmod
X440G2-12t-10G4 X440G2-24t-10G4 X440G2-48t-10G4 X440G2-12t-10G4 POE X440G2-24t-10G4 POE X440G2-48t-10G4 POE	summitX-30.2.1.8-patch2-5.xos summitX-30.2.1.8-cloud_connector-3.4.1.8.xmod (cloud connector)
X465_24W X465_48T X465_48P X465_48W X465_24MU X465_24MU_24W	onie-30.2.1.8-patch2-5-vpex_controlling_bridge.lst onie-30.2.1.8-cloud_connector-3.4.1.20.xmod
X620-16x	summitX-30.2.1.8-patch2-5.xos summitX-30.2.1.8-cloud_connector-3.4.1.8.xmod (cloud connector)

**NETWORK MANAGEMENT SOFTWARE SUPPORT**

Network Management	Version
ExtremeControl™	22.3 or higher
ExtremeAnalytics™	22.3 or higher
ExtremeCloud™ A3	4.0
ExtremeCloud™ IQ-Site Engine	22.3 or higher

Air Defense	Version
Extreme AirDefense™	10.5
ExtremeGuest	Version
ExtremeGuest™	6.0.1.0-001

**Note:**

Platform and AP Configuration functions are not supported by ExtremeManagement™. ExtremeCloud™ IQ Site Engine v21.9 or greater is required.

**INSTALLATION INFORMATION:**

Appliance Installations	
E1120	<a href="#">Extreme Campus Controller E1120 Installation Guide</a>
E2120	<a href="#">Extreme Campus Controller E2120 Installation Guide</a>
E2122	<a href="#">Extreme Campus Controller E2122 Installation Guide</a>
E3120	<a href="#">Extreme Campus Controller E3120 Installation Guide</a>
E3125	<a href="#">Extreme Campus Controller E3125 Installation Guide</a>
VE6120/VE6125	<a href="#">Extreme Campus Controller VE6120/VE6125 Installation Guide</a>
VE6120K/VE6125K	<a href="#">Extreme Campus Controller VE6120K/VE6125K Installation Guide</a>

**Known Restrictions and Limitations:**

Known Restriction or Limitation	I.D
<p>From 10.06.02, privacy settings on a setting are persisted upon creation. While privacy mode settings can still be adjusted, the system no longer allows for changing the privacy mode for a saved network. A new network is required if you intend to define an SSID with different privacy modes.</p>	
<p>Certain wireless clients (such as Qualcomm Killer Wireless 1535 and Intel 7265D/8260/8265) have been known to not complete the 4-way handshake to fulfill the association process in networks that have both PMF/MFP (802.11w) and Fast-Transition (802.11r [FT]) enabled.</p> <p>The currently recommended workaround is to not enable PMF/MFP configuration on a service that is also using 802.11r. Such clients have been demonstrated to work correctly on services with just 802.11r (FT) enabled.</p>	nse0003416
<p>For the Access Point Test feature, when using the wireless client option for the 5GHz band, if the access point is operating in dual-5GHz mode, and radio 1 is set to 5GHz low (not 2.4GHz), the AP as a client will operate on the 5GHz low band. This may limit the test client's capability to connect to the infrastructure APs that operate in the 5GHz high band.</p> <p>Recommendation: Only exercise wireless AP Test on devices that are configured for full-band mode.</p>	XCC-3284
<p>Controller functions, including internal communications and containerized applications, require the usage of reserved address space. Two subnets are reserved internally to the controller:</p> <ul style="list-style-type: none"> <li># {{172.17.0.0/24}}</li> <li># 172.31.0.16/28</li> </ul> <p>The user interface prevents assigning IP addresses to local interfaces (physical or virtual) that conflict with these ranges.</p>	XCC-3121
<p>For ExtremeCloud IQ Controller (v5) systems previously onboarded into an ExtremeCloud IQ account for visibility, following an upgrade to ExtremeCloud IQ Controller (v10), you must remove and redeclare the controller to ExtremeCloud IQ. This will facilitate the re-synchronization of the controller with the ExtremeCloud IQ account.</p>	XCC-2463
<p>Before installing a new ExtremeCloud IQ Controller license, you must configure Network Time Protocol (NTP) Server settings. Licensing management is dependent on accurate NTP configuration. Configure NTP via the ExtremeCloud IQ Controller initial Configuration Wizard, or go to Admin &gt; System &gt; Network Time to configure and verify the NTP settings.</p>	XCC-2353
<p>For ExtremeCloud IQ Controller configured for authentication of administrators over RADIUS server, the GUI responsiveness may be slow, possibly over 30 seconds if the target server(s) are unavailable or unreachable at login time. If the outage is extensive, the system will eventually timeout to validate against local credentials when provisioned.</p>	XCC-2350

Known Restriction or Limitation	I.D
ExtremeCloud IQ-Site Engine 22.3.10 is the minimum required revision for representation of ExtremeCloud IQ Controller 10.01.01 or later revisions. Extreme Management Center (8.5.x or later) does NOT recognize a controller running ExtremeCloud IQ Controller 10.01.01 or later.	XCC-2348
To improve stability of mesh when SmartRF is used with a mesh root AP: * Use fixed channel width. * Set SmartRF sensitivity to "Low" to decrease the time that the AP will abandon the channel for scanning.	XCC-1684
When an infrastructure WLAN (used for connecting client bridge APs) has Quiet IE enable, the client bridge link becomes unstable. It is a best practice to disable Quiet IE when a WLAN is used for a client bridge connection.	XCC-1570
The ADSP spectral analysis function may not work on AP5010x models. This issue will be addressed in a future release.	WOS-4694
With 11r enabled on an 802.1x network, a Windows 10 PC with an Intel Wi-Fi card (ax200, ax210), running driver version 22.170.0.3 cannot reconnect automatically after an MU is disconnected. The workaround is to toggle the Wi-Fi off and on from the PC.	WOS-4480
Allow UTF-8 characters in JSON payload for all Rest API so non-ASCII / Unicode characters are accepted in Rest API requests to comply with current Rest API standards.	ECA-321
AP3900 series requires a minimum firmware revision of 10.41.01 (or later) for onboarding into ExtremeCloud IQ Controller. Customers migrating from ExtremeWireless installations or onboarding new AP3900 inventory to ExtremeCloud IQ Controller must ensure APs are running at least the minimum revision prior to onboarding. Depending on the age of the inventory, this may require a manual upgrade of the unit firmware outside of the management framework.	XCC-3178
Upgrade failure will occur when using special characters (escape back slash) in topology.	ECA-466
In Smart RF mode, the AP510 power may temporarily drop to 0dBm and returns to 4dBm.	ECA-469
With on-air-busy channel conditions, it is possible for the ACS not to produce the expected results. In this instance, perform manual channel selection.	ECA-528
Widgets do not show tooltips for lower and upper values. This issue will be addressed in a future release.	ECA-567
Firmware for ExtremeWireless AP3900 series access points does not currently support Smart RF. No Smart RF data is displayed.	ECA-1484
Default router/gateway should be configured with a next-hop associated with one of the physical interfaces. Pointing the default route to the Admin interface will lead to issues because access points will not get the correct services from the data plane. We recommend setting the default route via data ports, and if necessary, configuring static routes on the Admin port for administration level access.	Info

Known Restriction or Limitation	I.D
<p>For AP deployments in remote locations where access points and controllers may need to be discovered and connected over firewalls, a best practice is to leverage DNS or DHCP Option 60/43 methods for zero-touch-provisioning discovery. These methods provide direct connectivity to the defined IP address. DHCP Option 78, which refers to the controller as a Service Location Protocol – Directory Agent (SLP- DA), requires the exchange of SLP protocol between the AP and the appliance at the core, necessitating that UDP 427 be allowed by any firewall in the path. For such installations, discovery over DHCP Option 78 assist is not recommended.</p> <p>When using SLP, for an AP to establish connection with a controller, it must first exchange SLP Directory Agent registration before IPSEC establishment with the eventual controller. That means that SLP UDP 427 must be open along the path. Further issues can occur if Network Address Translation (NAT) is involved. While this method is popular and widely deployed within a homogenous campus, it may result in inadvertent complications for remote connections. Therefore, it should not be used in favor of an alternate method (DHCP 60/43, DNS, or static override).</p>	<p>Info</p>
<p>When configuring system for NTP time assignment, ensure that the NTP server is properly configured. Incorrect time settings (like timestamps far in the future) may adversely affect system operation, such as certificate expiration that may trigger failures in device registration or system instability.</p>	<p>Info nse0003696</p>
<p>Appliances in a High-Availability pair must be of the same model and at the same exact software revision (and time synched) for configuration synchronization to propagate to the peer. During the upgrade process of a High-Availability pair, any configuration changes made while only one appliance has been upgraded (and therefore resulting in a version mismatch) will not be propagated until the peer is correspondingly upgraded to the same revision. We recommend that you NOT perform configuration changes to one of the members of a High-Availability pair while the peer has a different software revision.</p>	<p>Info nse0005086</p>
<p>For High-Availability configurations, during upgrade phases or configuration restore operations, wait until the availability link is established and synchronized before attempting to make any new configuration changes. The Availability status will only re-establish to Synched status when both appliances are running the exact same firmware revision.</p> <p>During upgrade periods, the Availability link will only re-establish when both the appliance status of availability link and synchronization status can be found.</p> <p>Go to:</p> <ul style="list-style-type: none"> <li>· "Network Health" widget on the Dashboard, or</li> <li>· Administration -&gt; System -&gt; Availability</li> </ul>	<p>Info ECA-776</p>
<p>Recommendation settings for setup of redundant RADIUS server authentication:</p> <ul style="list-style-type: none"> <li>· Response Window to 5s [Default: 20s]</li> <li>· Revival Interval to 10s [Default: 60s]</li> </ul>	<p>Info ECA-875</p>

**SUPPORTED WEB BROWSERS**

For ExtremeCloud IQ Controller management GUI, the following Web browsers were tested for interoperability:

- Firefox 81.0
- Google Chrome Version 115.0.5790.110 (Official Build) (64-bit)
- Microsoft Edge - Version 115.0.1901.188 (Official build) (64-bit)

Note: Microsoft IE browser is not supported for UI management.

The Wireless Clients (Captive Portal, AAA):

Browsers	Version	OS
Chrome	75.0.37770.142	Windows 7 Windows 10
Microsoft IE	11	Windows 7 Windows 8.1 Windows 10
Microsoft Edge	42.17134	Windows 10
Firefox	68.0	Windows 10
Safari	Preinstalled with iOS 12.2	iOS 12.2
Safari	Preinstalled with iOS 9.3.5	iOS 9.3.5

**PORT LIST**

The following list of ports may need to remain open so that the Appliances and APs will function properly on a network that includes protection equipment like a firewall.

**ExtremeCloud IQ Controller TCP/UDP Port Assignment Reference**

Comp. Source	Comp. Dest	Protocol (TCP/UDP)	Src Port	Dest Port	Service	Remark	Open Firewall Req'd
<b>Ports for AP/Appliance Communication</b>							
Appliance	Access Point	UDP	Any	13910	WASSP	Management and Data Tunnel between AP and Appliance	Yes
Access Point	Appliance	UDP	Any	13910	WASSP	Management and Data Tunnel between AP and Appliance	Yes
Appliance	Access Point	UDP	4500	Any	Secured WASSP	Management Tunnel between AP and Appliance	Optional

Comp. Source	Comp. Dest	Protocol (TCP/UDP)	Src Port	Dest Port	Service	Remark	Open Firewall Req'd
Access Point	Appliance	UDP	Any	4500	Secured WASSP	Management Tunnel between AP and Appliance	Optional
Access Point	Appliance	UDP	Any	13907	WASSP	AP Registration to Appliance	Yes
Access Point	Appliance	UDP	Any	67	DHCP Server	If Appliance is DHCP Server for AP	Optional
Access Point	Appliance	UDP	Any	68	DHCP Server	If Appliance is DHCP Server for AP	Optional
Access Point	Appliance	UDP	Any	427	SLP	AP Registration to Appliance	Optional
Appliance	Access Point	TCP/UDP	Any	69	TFTP	AP image transfer	Yes
Access Point	Appliance	TCP/UDP	Any	69	TFTP	AP image transfer	Yes
Appliance	Access Point	TCP/UDP	Any	22	SCP	AP traces	Yes
Any	Access Point	TCP	Any	2002, 2003	RCAPD	AP Real Capture (if enabled)	Optional
Any	Access Point	TCP/UDP	Any	22	SSH	Remote AP login (if enabled)	Optional
Any	Access Point	TCP/UDP	Any	445	Microsoft CIFS	LDAP support	Optional
Any	Access Point	TCP/UDP	Any	137, 138, 139	NetBIOS	LDAP support	Optional
<b>Ports for Appliance Management</b>							
Any	Appliance	TCP/UDP	Any	22	SSH	Appliance CLI access	Yes
Any	Appliance	TCP/UDP	Any	5825	HTTPS	Appliance GUI access	Yes
Any	Appliance	TCP/UDP	Any	161	SNMP	Appliance SNMP access	Yes
Any	Appliance	TCP/UDP	Any	162	SNMP Trap	Appliance SNMP access	Yes

Comp. Source	Comp. Dest	Protocol (TCP/UDP)	Src Port	Dest Port	Service	Remark	Open Firewall Req'd
Any	Appliance	TCP	Any	80	HTTP	Appliance SNMP access ICP Self Registration	Yes
Any	Appliance	TCP	Any	443	HTTPS	ICP Self Registration	Yes
Any	Appliance	UDP	500	500	IKE	IKE phase 1	Yes
Any	Appliance	TCP/UDP	Any	69	TFTP	TFTP support	Yes
Any	Appliance	UDP	Any	4500	IPSec	IPSec NAT traversal	Yes
Any	Appliance	UDP	Any	13907	Discovery	Used by Discovery	Yes
Any	Appliance	UDP	Any	13910	WASSP	Used by L3 WASSP	Yes
<b>Ports for Inter Controller Mobility<sup>1</sup> and Availability</b>							
Appliance	Appliance	UDP	Any	13911	WASSP	Mobility and Availability Tunnel	Yes
Appliance	Appliance	TCP	Any	427	SLP	SLP Directory	Yes
Appliance	Appliance	TCP	Any	20506	Langley	Remote Langley Secure	Yes
Appliance	Appliance	TCP	Any	60606	Mobility	VN MGR	Yes
Appliance	Appliance	TCP	Any	123	NTP	Availability time sync	Yes
Appliance	DHCP Server	UDP	Any	67	SLP	Asking DHCP Server for SLP DA	Yes
DHCP Server	Appliance	UDP	Any	68	SLP	RespoECA from DHCP Server for SLP DA request	Yes
<b>Core Back-End Communication</b>							
Appliance	DNS Server	UDP	Any	53	DNS	If using DNS	Optional
Appliance	Syslog Server	UDP	Any	514	Syslog	If Appliance logs to external syslog server	Optional
Appliance	RADIUS Server	UDP	Any	1812	RADIUS Authentication and Authorization	If using RADIUS AAA	Optional

<sup>1</sup>For extension of ExtremeWireless deployment via Inter Controller Mobility.



Comp. Source	Comp. Dest	Protocol (TCP/UDP)	Src Port	Dest Port	Service	Remark	Open Firewall Req'd
Appliance	RADIUS Server	UDP	Any	1813	RADIUS Accounting	If enabled RADIUS accounting	Optional
Appliance	RADIUS server	UDP	Any	1814	RADIUS Authentication and Authorization	If using RADIUS AAA	Optional
Appliance	RADIUS server	UDP	Any	1815	RADIUS Accounting	If enabled RADIUS Accounting	Optional
Dynamic Auth. Server (NAC)	Appliance	UDP	Any	3799	DAS	Request from DAS client to disconnect a specific client	Optional
Appliance	AeroScout Server	UDP	1144	12092	Location Based Service Proxy	Aeroscout Location-Based Service	Optional
AeroScout Server	Appliance	UDP	12092	1144	Location Based Service Proxy	Aeroscout Location-Based Service	Optional
Appliance	Extreme Cloud IQ	TCP	Any	443	NSight	Statistics Report into ExtremeCloud IQ	Yes

**IETF STANDARDS MIB SUPPORT:**

RFC No.	Title	Groups Supported
Draft version of 802.11	IEEE802dot11-MIB	
1213	RFC1213-MIB	Most of the objects supported
1573	IF-MIB	ifTable and interface scalar supported
1907	SNMPv2-MIB	System scalars supported
1493	BRIDGE-MIB	EWC supports relevant subset of the MIB
2674	P-BRIDGE-MIB	EWC supports relevant subset of the MIB
2674	Q-BRIDGE-MIB	EWC supports relevant subset of the MIB

**EXTREME NETWORKS PRIVATE ENTERPRISE MIB SUPPORT**

Extreme Networks Private Enterprise MIBs are available in ASN.1 format from the Extreme Networks website at: <https://extremeportal.force.com/>.

**Standard MIBs**

Title	Description
IEEE802dot11-MIB	Standard MIB for wireless devices
RFC1213-MIB.my	Standard MIB for system information
IF-MIB	Interface MIB
SNMPv2-MIB	Standard MIB for system information
BRIDGE-MIB	VLAN configuration information that pertains to EWC
P-BRIDGE-MIB	VLAN configuration information that pertains to EWC
Q-BRIDGE-MIB	VLAN configuration information that pertains to EWC

**Siemens Proprietary MIB**

Title	Description
HIPATH-WIRELESS-HWC-MIB.my	Configuration and statistics related to EWC and associated objects
HIPATH-WIRELESS-PRODUCTS-MIB.my	Defines product classes
HIPATH-WIRELESS-DOT11-EXTNS-MIB.my	Extension to IEEE802dot11-MIB that complements standard MIB
HIPATH-WIRELESS-SMI.my	Root for Chantry/Siemens MIB

**802.11AC AND 802.11N CLIENTS**

Please refer to the latest release notes for ExtremeWireless™ 10.41.09 or later and/or ExtremeWireless WiNG 5.9.02 or later for the list of compatibility test devices.

**RADIUS SERVERS AND SUPPLICANTS**

**RADIUS Servers Used During Testing**

Vendor	Model OS	Version
FreeRADIUS	1.1.6	FreeRADIUS
FreeRADIUS IAS	1.0.1	FreeRADIUS
	5.2.3790.3959	Microsoft Server 2003 IAS
SBR50	6.1.6	SBR Enterprise edition
NPS	6.0.6002.18005	Microsoft Server 2008 NPS

### 802.1x Supplicants Supported

Vendor	Model OS	Version
Juniper Networks® / Funk	Odyssey client	Version 5.10.14353.0
		Version 5.00.12709.0
		Version 4.60.49335.0
Microsoft®	Wireless Zero Configuration	Version Windows XP-4K-891859-Beta1
	Wireless Network Connection Configuration	Version Microsoft Window Server 2003, Enterprise Edition R2 SP2
	Wi-Fi Protected Access 2 (WPA2)/Wireless Provisioning Services Information Element (WPS IE) update for Windows XP with Service Pack 2	Version WindowsXP-KB893357-v2-x86-ENU.exe
Intel®	Intel PRO Set/Wireless	Version 13.0.0.x (with Windows® Intel® driver version 13.0.0.x)
Microsoft® Wireless Zero	Windows 7, 8, 8.1 Pro, 10 Pro Windows Phone 8.1, Windows Mobile 10	Provided with Windows®

### Appliance LAN Switch Verification

Vendor	Model OS	Version	Role
Extreme	X-460-G2	12.5.4.5	XIQC connection
Extreme	X440G2-48p-10G4	21.1.1.4	XIQC connectivity
Extreme	Summit 300-48	7.6e1.4	XIQC connection
Extreme	VSP-4850GTS-PWR	(6.0.1.1_B003) (PRIVATE) HW Base: ERS 4850	XIQC connection
Extreme	K6	08.63.02.0004	XIQC connection
Extreme	K6	08.42.03.0006	XIQC connection
Extreme	X440G2-48p-10GE4	21.1.5.2	XIQC connection
Extreme	X440-G2-12p	21.1.1.4	XIQC connection
Extreme	X460-48p	12.5.4.5	XIQC connection
Cisco	Catalyst 3550	12.1(19) EA1c	XIQC connection

**CERTIFICATION AUTHORITY**

Server Vendor	Model OS	Version
Microsoft CA	Windows Server 2003 Enterprise Edition	5.2.3790.1830
Microsoft CA	Windows Server 2008 Enterprise Edition	6.0
OpenSSL	Linux	1.1.1g

**RADIUS ATTRIBUTES SUPPORT****RADIUS Authentication and Authorization Attributes**

Attribute	RFC Source
Called-Station-Id	RFC 2865, RFC 3580
Calling-Station-Id	RFC 2865, RFC 3580
Class	RFC 2865
EAP-Message	RFC 3579
Event-Timestamp	RFC 2869
Filter-Id	RFC 2865, RFC 3580
Framed-IPv6-Pool	RFC 3162
Framed-MTU	RFC 2865, RFC 3580
Framed-Pool	RFC 2869
Idle-Timeout	RFC 2865, RFC 3580
Message-Authenticator	RFC 3579
NAS-Identifier	RFC 2865, RFC 3580
NAS-IP-Address	RFC 2865, RFC 3580
NAS-IPv6-Address	RFC 3162
NAS-Port	RFC 2865, RFC 3580
NAS-Port-Id	RFC 2865, RFC 3580
NAS-Port-Type	RFC 2865, RFC 3580
Password-Retry	RFC 2869
Service-Type	RFC 2865, RFC 3580
Session-Timeout	RFC 2865
State	RFC 2865
Termination-Action	RFC 2865, RFC 3580
Tunnel Attributes	RFC 2867, RFC 2868, RFC 3580
User-Name	RFC 2865, RFC 3580

Attribute	RFC Source
Vendor-Specific	RFC 2865

### RADIUS Accounting Attributes

Attribute	RFC Source
Acct-Authentic	RFC 2866
Acct-Delay-Time	RFC 2866
Acct-Input-Octets	RFC 2866
Acct-Input-Packets	RFC 2866
Acct-Interim-Interval	RFC 2869
Acct-Output-Octets	RFC 2866
Acct-Output-Packets	RFC 2866
Acct-Session-Id	RFC 2866
Acct-Session-Time	RFC 2866
Acct-Status-Type	RFC 2866
Acct-Terminate-Cause	RFC 2866

### GLOBAL SUPPORT:

By Phone: +1 800-998-2408 (toll-free in U.S. and Canada)

For the toll-free support number in your country:

<https://extremeportal.force.com/>

By Email: [support@extremenetworks.com](mailto:support@extremenetworks.com)

By Web: <https://extremeportal.force.com/>

For information regarding the latest software release, recent release note revisions and documentation, or if you require additional assistance, please visit the Extreme Networks Support website.

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