ExtremeCloud™ IQ Controller

Highlights

Simplified Management

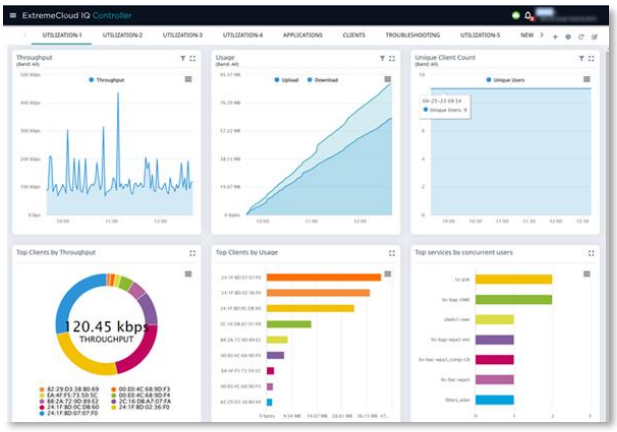
- Unified management of up to 20,000 wired and wireless devices with support of Internet of Things (IoT) functions, such as Bluetooth low energy (BLE) beacons
- Efficient workbenches make routine network activities more methodical
- Enhanced visibility and monitoring are facilitated through detailed reporting on 32 application categories and optional connection to cloud-based management

Ensuring Security

- Extensive policy and control features to securely manage users and devices
- Flexible topology options to consolidate network access
- Certified integrations with many of Extreme's powerful security applications enhances the access and control capabilities

Location Services

- Integrated location analytics to understand visitor footfall, density, and traffic flow
- Unique Radio Frequency Quality Indicator (RFQI) provides more intuitive visualization of Wi-Fi
- Added support of IoT functions for client location and asset tracking facilitate additional use cases
- Open APIs facilitate business insights through integration with third-party applications



A Highly Scalable Controller for Managing High Density Networks

The growth of new business services, security threats, and the adoption of IoT connected devices is driving an array of wireless network management requirements. This dynamic environment creates challenges for IT teams attempting to adapt to business and user requirements while ensuring security. Large scale deployments and configuration of wireless APs require simplified management with extensive visibility, policy, and control capabilities. In addition, organizations outside of IT want to understand visitor and location analytics along with guest and asset activity, as they implement new business services.

ExtremeCloud IQ Controller delivers unified wired and wireless management of up to 20,000 devices (including up to 1,000 switches) and high-density deployments of up to 100,000 users. It includes tightly integrated services and features that help to simplify the deployments by providing a single point of access for trusted authentication. Controller also provides topology options to consolidate network access at a central location, overlaying and abstracting the interconnecting network.

This highly scalable application is a component of the ExtremeCloud IQ portfolio of network management products. It is deployed as a physical or virtual appliance on-premises. The application supports seamless roaming with centralized and distributed data forwarding. ExtremeCloud IQ Controller can be connected to ExtremeCloud IQ for cloud-based network management with virtualized management and control planes for cloud deployments. The Cloud Visibility feature facilitates reporting of wired and wireless metrics, including client application metrics, into ExtremeCloud IQ.

Simplified Management

ExtremeCloud IQ Controller provides management, network access control (NAC), and routing for mobile, PCs, and IoT devices that use wireless access points (APs) to connect to the network. This highly scalable controller includes comprehensive critical network services for wireless and wired connectivity in campus environments or centralized sites. It provides secure wireless device onboarding, distributed and centralized data paths, role-based access control (RBAC) through the Application Layer, integrated location services, and IoT device onboarding through a single platform to help streamline network management activities.

Each ExtremeCloud IQ Controller provides the following functionality:

- Controls and configures wireless APs, providing centralized management.
- Authenticates wireless devices that request connection to a wireless AP.
- Assigns each wireless device to basic network services, such as address resolution protocol (ARP), dynamic host configuration protocol (DHCP), domain name system (DNS), and hypertext transfer protocol (HTTP) when it connects.
- Routes traffic from wireless devices to the wired network.
- Applies network access roles to the wireless device session.
- Provides session logging and accounting capability.
- Configures, monitors, and helps troubleshoot switches.

Advanced Management Features

This unified management solution is deployed worldwide in critical, high-density networks, for example, pro-sports/collegiate stadiums, arenas, healthcare environments, airports, and educational institutions. Support of IoT functions, such as BLE beacons, detection or transmission is also enabled for use cases of client location or asset tracking. The ExtremeCloud IQ Controller user interface is divided into workbenches that correspond to a network administration workflow. This includes configure, onboard, monitor, dashboard, tools, and administration workbenches that expedite routine activities and guest management. The Onboard workbench helps configure network access, including Authentication, Authorization, and Accounting (AAA) configuration, captive portal configuration, access control groups, and a rules engine.

Self-Monitoring At Run Time Radio Frequency (SMART RF) management is designed to simplify radio frequency (RF) configurations for new deployments, while optimizing radio performance. An RF policy can reduce deployment costs by scanning the RF environment to determine the best channel and transmit power configuration for each radio, allowing APs to respond dynamically to changing RF conditions. After gathering information from the RF environment, RF management makes intelligent configuration choices. It monitors the network for external interference, neighbor interference, non-Wi-Fi interference, and client connectivity. It then intelligently applies algorithms determining optimal channel and power selection for all APs in the network and constantly reacts to changes in the RF environment.

The Automatic Frequency Coordination (AFC) explorer tool can be used to generate a pre-assessment of an outdoor channel plan (and power) available at a specific location, according to AFC reporting. Administrators can draw a representative polygon of the expected coverage, similar to drawing boundary walls when configuring a floor plan.

The Fabric topology type allows an AP to attach to a Shortest Path Bridging (SPB) Network. Extreme Fabric can be configured on the ExtremeCloud IQ Controller anywhere a bridge at access point (B@AP) topology can be configured. The client component on the AP communicates directly with the server on an edge switch (or it can communicate with the server through a proxy) to allow the AP to request virtual local area network (VLAN) to a backbone service instance identifier (I-SID).

All product functions can be managed through the ExtremeCloud IQ Controller REST API. This capability helps to streamline management and facilitate integration. For example:

- Scripts can be used to automate the upgrade of APs, so that administrators do not have to login to the user interface (UI) to trigger firmware upgrades.
- The API can be used to obtain real-time and historical data on client association to wireless as it feeds into contact and proximity monitoring infrastructure.
- Integrations with value-add utilities, such as the Stadium Tool, which is used by large venues to automate the provisioning of Wi-Fi parameters (APs, names, locations, radio modes, Wi-Fi settings, etc.)

Deployment Flexibility

The ExtremeCloud IQ Controller can be deployed as a physical or virtual appliance, and it can be deployed on ExtremeCloud Edge. The application facilitates secure onboarding, distributed and centralized data paths, role-based access control (RBAC) through the Application Layer (Layer 7), integrated location services, Hotspot 2.0/WBA OpenRoaming, and IoT device onboarding through a single platform. The Controller reports metrics on 32 application categories, including the transmit and receive (Tx and Rx) bytes for each application category, and the number of mobile users in each category, per network.

When an ExtremeCloud IQ Controller physical or virtual appliance is securely connected to ExtremeCloud IQ, it provides a data stream of information to ExtremeCloud IQ for consolidated reporting. This capability facilitates reporting of wired and wireless metrics, including client application metrics, into ExtremeCloud IQ. The connection to Controller also extends the simplified workflows of the ExtremeCloud IQ cloud applications to on-premises deployments. On-premises deployments with ExtremeCloud IQ Site Engine provide additional capabilities. ExtremeCloud IQ Site Engine reaches beyond ports, VLANs, and SSIDs and provides detailed control of individual users, applications, and protocols. When coupled with wireless and Identity and Access Management products, ExtremeCloud IQ Site Engine becomes the central location for monitoring and managing all the components in the infrastructure. The ExtremeAnalytics component of ExtremeCloud IQ Site Engine provides more comprehensive location analytics, as described below.

The ExtremeCloud Edge portfolio supports enterprise wireless controller managed deployments from small configurations targeting up to 250 or 500 APs, all the way to large deployments of 100,000 wireless devices and 20,000 APs. Appliances can be configured as a High Availability pair for increased resilience.

Simplified Licensing

ExtremeCloud IQ Controller uses Extreme's Universal Licenses at the Navigator or Pilot license tiers. Extreme's Universal Licensing is designed to be simple and transparent, and it allows customers to leverage the same subscription license across multiple deployment modes:

- Standalone on-premises
- On-premises with ExtremeCloud IQ Site Engine, adds third-party device management and detailed analytics
- On-premises plus ExtremeCloud IQ, adds multi-site health dashboards, analytics, reporting and configuration

Ensuring Security

Providing a centralized and consistent method of managing network access is critical to ensure security. ExtremeCloud IQ Controller incorporates extensive policy and control to securely manage users and devices. The Controller includes the necessary flexibility so that IT organizations can onboard mobile devices, PCs, guest users on campus with proper credentials, and IoT devices. It helps to simplify deployment by providing a single point of access for trusted authentication. This includes secure wireless device onboarding, distributed and centralized data paths, RBAC through the application layer, and IoT device onboarding through a single platform.

Enforcing Policy and Control

Powerful embedded policy and control also ensures that devices are identified and securely segmented. Administrators can define policy rules for a role to specify network access. The ExtremeCloud IQ Controller Rules Engine creates default rules for network policy rules that define the Accept Policy for a client before authentication and after authentication. Additional rules can be created that apply to a user role upon authentication. Policies are a set of rules, defined in a specific order, that determine how connections are authorized or denied. A role is a set of network access services usually named for a type of user that can be applied at various points in a policy-enabled network. Flexible topology configurations ranging from centralized data plane to local and Fabric provide options to best match the requirements of the enterprise towards user segmentation and points of network access.

Profiles are used to configure APs and individual radios. A device group is composed of APs with the same model, configuration profile, and RF Management profile. Administrators can associate a single profile to one or many device groups within a site, or device groups within one site can have separate profiles. A profile can also be shared across sites and device groups. RF policies are defined at the device group level. These are policies that are assigned to devices groups that are associated with the site.

Figure 1: ExtremeCloud IQ Controller Wi-Fi Location Assessment

Enhanced Location Services

ExtremeCloud IQ Controller helps administrators understand the detailed performance of Wi-Fi by providing expert views, and it includes an integrated location management system. This embedded capability enables location coverage, generates real-time and responsive heat maps, and understands visitor activities. Floor plans help administrators visualize AP performance based on signal strength and channel assignment, and to verify network readiness within a floor plan. The floor plan represents placed devices and associated badges that show configuration and performance data for the device. They can illustrate how the location of the AP affects network performance within a floor plan. Users can toggle between floors, filter data, and further fine-tune the map display.

Heat maps illustrate network readiness, performance, and optimum positioning. The positioning heat maps illustrate optimal device location and client foot traffic. The Site default dashboard offers reports on location, site utilization, RF management, application visibility, captive portal, clients, and switches. In addition, the following readiness maps are available: BLE, received signal strength (RSS), channels map, link speed, and RFQI.

One of the key characteristics in providing a more intuitive management experience is visualization of the RF performance at each managed site. The ExtremeCloud IQ Controller helps users understand the detailed performance of Wi-Fi by providing Expert Views of the RF State, including: RxRate, TxRates, RSS, WirelessRTT, and NetworkRTT. The unique RF Quality Indicator (RFQI) assigns a multi-dimensional score to indicate how well a particular AP is serving its associated clients and paints it over the AP's coverage area. Planning views are also available to help users understand the channel plan and the live RF coverage across a floor plan. Support for management of IoT functions, such as BLE and beacon detection or transmission, are also supported for use cases of client location and asset tracking.

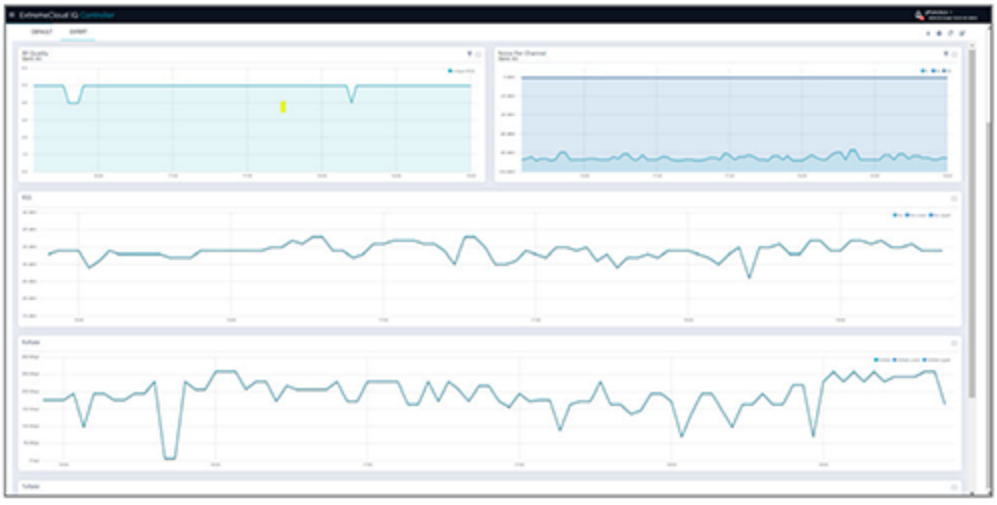


Figure 2: Expert Views of the RF State

Location Analytics and Analysis

ExtremeCloud IQ Controller supports a range of location use cases in stadiums and arenas, healthcare environments, educational institutions, and other environments via an integrated location analytics and management system. A Real-Time Location System (RTLS) profile must be configured and enabled within ExtremeCloud IQ Controller before the controller will communicate with the location-based server and before the APs will perform location-based functionality. This embedded capability enables location coverage, generates heatmaps, and understands visitor activities. The Venue dashboard offers venue-specific reports that are based on customer-defined user groups. Location analytics help organizations and businesses understand trends, such as visitor footfall, density, and traffic flow. Many businesses and organizations use these features to monitor traffic flow and understand where resources may reside at peak times to help improve efficiency or user experience.

Extending the Capabilities

The ExtremeCloud IQ Controller API facilitates integration with other NAC and analytics products in the ExtremeCloud IQ portfolio as well as related third-party tools. This includes a certified integration with ExtremeCloud IQ Site Engine. It can work in conjunction with ExtremeAnalytics, a component of Site Engine, to provide more comprehensive user traffic analytics. ExtremeAnalytics captures and analyzes context-based application traffic to deliver meaningful intelligence about applications, users, locations, and devices. Each AP can be configured using ExtremeCloud IQ Controller to support ExtremeAnalytics profiles. The consolidated data and reporting shows how applications are being used. It provides a better understanding of customer behavior on the network, identifies the level of user engagement, and assures business application delivery to optimize the user experience.

The APIs also support integration with the ExtremeGuest™ service in ExtremeCloud IQ Essentials. This provides additional location and guest capabilities, and it extends location-related business insights. The ExtremeGuest server can be assigned from ExtremeCloud IQ Controller.

The external captive portal resides on the ExtremeGuest server, and ExtremeCloud IQ Controller initiates the client network connections. ExtremeCloud IQ Controller also supports the following third-party location-based solutions: AeroScout, Ekahau, Centrak, and Sonitor.

Device access control can be further enhanced with ExtremeControl, another component of Site Engine. ExtremeControl includes a wide range of NAC features, such as captive portal support, automatic endpoint discovery, and location tracking. It houses the external captive portal, handling client authentication. The portal resides on the ExtremeControl engine and ExtremeCloud IQ Controller handles the client network connections. This provides complimentary role-based NAC for all devices, including third-party networking and IoT devices.

Extreme AirDefense simplifies the protection, monitoring and compliance of Wireless LAN networks. The AirDefense base application offers a free wireless intrusion prevention system (WIPS), so ports can be configured for WIPS. It is installed as a container application on ExtremeCloud IQ Controller, and the application runs and is upgraded independently from the appliance. When an AP is integrated with the Extreme AirDefense, ExtremeCloud IQ offers an additional profile option that allows the AP to function as an AirDefense sensor, or it can act as a sensor and retain the ability to forward traffic. AirDefense listens to the AP connections and interacts with ExtremeCloud IQ Controller to gather the status of the AP.

Specifications

- Control and Provisioning of Wireless Access Points (CAPWAP) Pre-Standard
- Multi-Site support
- Auto-adoption of new managed devices
- Rules Based Adoption of Access Points (Assign to Site based on device model, IP address, name)
- Visibility through ExtremeCloud IQ or ExtremeCloud IQ Site Engine
- Visibility and control on nearly 3,000 applications
- Integration with Extreme AirDefense
- Integrated RF visibility (Coverage, Channel, Quality)
- Integrated Site occupancy view (Associated, non-associated and presence traffic)
- Integrated Enrollment control (Device Grouping and Rules based policy assignment)
- Integrated Policy management (Roles, filters, VLANs)
- Inter-Controller mobility extension for Extreme Wireless migrations
- High availability with automatic failover to a backup controller
- Client mobility with fast failover and session availability (for Centralized Sites)
- SmartRF for Dynamic Radio and Power management
- Dynamic Radio Management (DRM), Band-steering
- REST API interface/SDK
- Python SDK for ExtremeCloud IQ Controller, enhances programmability of the solution. Available at: https://test.pypi.org/project/pyxccsdk/
- Client load balancing with 802.11k
- Management Frame Protection (802.11w)
- Automatic discovery of networks by pre-authenticated devices (802.11u)
- Flexible hybrid traffic forwarding: local switching at AP or controller-based switching (for Centralized Sites)
- Flexible network access topologies, including Bridged-Through-Appliance, Bridge-at-AP, Fabric or Tunnel through VxLAN
- Robust standards-based security: WPA3
- 802.1x Authentication: EAP-TLS, EAP-SIM, EAP-TTLS, EAP-AKA, PEAP, EAP-MD5, EAP-FAST
- RADIUS Authentication and Accounting
- Active Directory Authentication
- Encryption Algorithms: AES (CCMP)
- Guest Services (captive portal, URL redirect and Control) and Walled Garden (unauthorized access to URL)
- Voice-over-WLAN Optimization: 802.11e/WMM, U-APSD, TSPEC, CAC, QBSS
- Wired-Wireless (DSCP/TOS-to-WMM) QoS Mapping
- SNMP v2c/v3
- 802.11-802.3 bridging
- IEEE 802.1D-compliant bridging
- IEEE 802.1Q VLAN tagging and trunking
- Proxy ARP

ExtremeCloud IQ Controller Virtual

Supported Features	VE6120 (VMware)/VE6120H (Hyper-V)/VE6120K (KVM)			VE6125 (VMware)	VE6125K (KVM)
Capacity	Small	Medium	Large	X-Large	X-Large
Total APs managed in Standalone mode	50	250	500	2000	2000
Additional APs supported in high-availability mode	50	250	500	2000	2000
Total managed APs per Appliance Pair	100	500	1,000	4000	4000
Total Switches managed per Appliance	50/100	100/200	200/400	200/400	200/400
Total simultaneous users in Standalone mode	1,000	4,000	8,000	16000	16000
Additional simultaneous users in high-availability mode	1,000	4,000	8,000	16000	16000
Total Simultaneous Users per Appliance Pair	2,000	8,000	16,000	32,000	32,000
Hardware Requirements					
CPU[1]	4	6	8	32 (physical or hyperthreading cores)	20
RAM (GB)	8	16	24	32	32
Hard Disk (GB)	80	80	80	512	250
Maximum Throughput (Mixed RFC2544)* Open/Encrypted					
2x1 Gbps Host	1,870/1,800	1,870/1,800	1,870/1,800	–	–
2x10 Gbps Host	5,000/1,870	10,800/5,000	10,800/5,000	2x10 Gbps Host: 8,400/8,000	2x10 Gbps Host: 8,400/6,500

AP Count Legend: Standalone/HA

1 Consult VMware ESXi for minimum host performance requirements for virtual environment

*Performance depends on network interface characteristics of underlying host and on utilization on shared interfaces by other virtual appliances. Follow VMware minimum installation requirements. 10 Gbps host recommended for best results. Supports VMware ESXi 6.0 or higher.

VMware vMotion or Hyper-V Clustering not supported

ExtremeCloud IQ Controller Hardware

Supported Features	E1120	E2122 (-1)	E3120 (-1) / E3125
Total APs managed per appliance pair	250	4,000	20,000
Total APs managed in standalone mode per appliance	125	2,000	10,000
Additional APs supported in high-availability mode	125	2,000	10,000
Total Switches managed per appliance (S/P)	50/100	400/800	1,000/2,000
Total simultaneous users per appliance pair	4,000	32,000	Scales up to 100,000
Total simultaneous users in standalone mode per appliance	2,000	16,000	Scales up to 50,000
Additional simultaneous users in high-availability mode	2,000	16,000	Scales up to 50,000
Dual, hot swappable power supplies	N/A	Sold Separately	Sold Separately
Maximum Throughput (Mbps): Mixed (RFC2544)/Encrypted	3730/2140	18500/18000	54,000/25,500

Technical Specifications	E1120	E2120	E2122-1	E3120-1	E3125
Length	30.5 cm (12 in)	76.84 cm (32.25 in)	79.38 cm (31.25 in)	79.38 cm (31.25 in)	79.38 cm (31.25 in)
Width	43.1 cm (16.9 in)	43.82 cm (17.25 in)	43.85 cm (17.25 in)	43.85 cm (17.25 in)	43.85 cm (17.25 in)
Height	4.4 cm (1.7 in)	4.45 cm (1.75 in) – 1U	4.38 cm (1.7 in)	4.38 cm (1.7 in)	4.38 cm (1.7 in)
Weight	4.3 kg (9.5 lbs.)	21.6 kg (47.75 lbs.)	13.26 kg	13.26 kg	13.26 kg
Operating Temperature	0° C to 40° C (32° F to 104° F)	10° C to 35° C (50° F to 95° F)	10 ° C to 35° C (50 ° F to 95° F)	10 ° C to 35° C (50 ° F to 95° F)	10 ° C to 35° C (50 ° F to 95° F)
Storage Temperature	-20° C to 70° C (-4° F to 158° F)	-40° C to 70° C (-40° F to 158° F)	-40 ° C to 70 ° C (-40 ° F to 158° F)	-40 ° C to 70 ° C (-40 ° F to 158° F)	-40 ° C to 70 ° C (-40 ° F to 158° F)
Humidity	5% to 90%, non-condensing	5% to 90%, non-condensing	5% to 90%, non-condensing	5% to 90%, non-condensing	5% to 90%, non-condensing
19" Rack Mountable	1U configuration to fit standard 19" rack (mounting kit included)	1U configuration to fit standard 19" rack (mounting kit included)	1U configuration to fit standard 19" rack (mounting kit included)	1U configuration to fit standard 19" rack (mounting kit included)	1U configuration to fit standard 19" rack (mounting kit included)
Front and Rear Mount	I/O cabling at back of unit; power cabling and power switch at the rear	I/O cabling and power cabling at back of unit; power switch at the front	I/O cabling and power cabling at back of unit; power switch at the front	I/O cabling and power cabling at back of unit; power switch at the front	I/O cabling and power cabling at back of unit; power switch at the front
Data Ports	4 x 10/100/1000 Base-T	2 x SFP+ (Optics sold separately) 2 x 10/100/1000 Base-T	2 x 1/10 Gbps SFP+ (Optics Sold Separately) 2x 1/10 Gbps BASE-T	2x 10/25/40/50 Gbps QSFP28 (Optics Sold Separately) 2x 1/10 Gbps BASE-T	2x10/25/50/100 Gbps QSFP28 (Optics Sold Separately) 2x 1/10 Gbps BASE-T
Management Ports	1 x 10/100/1000 Base-T 1 x USB Port Console Port DB9	1 x 10/100/1000 Base-T 5x USB Ports available. Use one. Console Port RJ4	1 x 10/100/1000 Mbps Base-T 5 x USB 3.0 ports. Use one. RJ45 Console Port	1 x 10/100/1000 Mbps Base-T 5 x USB 3.0 ports. Use one. RJ45 Console Port	1 x 10/100/1000 Mbps Base-T 5 x USB 3.0 ports. Use one. RJ45 Console Port
Power Specifications	Power (max): 150W Voltage: 100-240 VAC Frequency: 50-60 Hz	Power (max): 750 W (Redundant Power Supply Sold Separately) Voltage: 110/240 VAC Frequency: 47-63 Hz	Power (max) : 1300 W (Redundant Power Supply Sold Separately) Voltage: 110/240 VAC	Power (max) : 1300 W (Redundant Power Supply Sold Separately) Voltage: 110/240 VAC Frequency: 47-63 Hz	Power (max) : 1300 W (Redundant Power Supply Sold Separately) Voltage: 110/240 VAC Frequency: 47-63 Hz
Regulatory/ Safety	• UL 60950-1, 2nd Edition CSA C22.2 No. 60950-1-07,2nd Edition • CB scheme: IEC 60950-1 AS/ NZS 60590-1 (Australia/New Zealand) • Mexico via NRTL • BSMI CNS 14336-1 99 (Taiwan) • CCC GB4943.1-2011, GB9254- 2008 • GB 176251-2012 (China)	• UL60950 - CSA 60950 (USA/Canada) • EN60950 (Europe) • IEC60950 (International) • CB Certificate and Report, IEC60950 GS Certification (Germany) • GOST R 50377-92 - Certification (Russia) • Ukraine Certification (Ukraine) • CE - Low Voltage Directive- 2011/65/EU (Europe) • IRAM Certification (Argentina)	• UL60950 – CSA 60950 (USA/Canada) • EN60 950 (Europe) • IEC60 950 (International) • CB Certificate and Report • IEC60 950 GS Certification (Germany) • GOST R 50 377-92 - Certification (Russia) • Ukraine Certification (Ukraine) • CE - Low Voltage Directive • 2011/65/EU (Europe)	• UL60950 - CSA 60950 • (USA/Canada) • EN60 950 (Europe) • IEC60 950 (International) • CB Certificate and Report • IEC60950 GS • Certification (Germany) • GOST R 50 377-92 - Certification (Russia) • Ukraine Certification (Ukraine) • CE - Low Voltage Directive • 2011/65/EU (Europe)	• UL60950 - CSA 60950 • (USA/Canada) • EN60950 (Europe) • IEC60950 (International) • CB Certificate and Report • IEC60950 GS Certification (Germany) • GOST R 50 377-92 - Certification (Russia) • Ukraine Certification (Ukraine) • CE - Low Voltage Directive • 2011/65/EU (Europe)
Emissions/ Immunity	• FCC Part 15,Subpart B, Class A • ICES-003: 2012, Class A • CISPR22:2010, Class A • EN 55022: 2010/AC:2011, Class A • EN 61000-3-2:2006+A2:2009 • EN 61000-3-3:2008 • EN 61000-6-4:2007+A1:2011 • RCM (Australia) • VCCI Class A (Japan) • MSIP KCC (Korea) • BSMI CNS 13438:2006 95 (Taiwan) • ANATEL Res. 442, Category III (Brazil) • CISPR24:2010 • EN 55024:2010 • MSIP KCC (Korea) • EN/IEC 61000-4-2:2008 • EN/IEC 61000-4-3:2010 • EN/IEC 61000-4-4:2012 • EN/IEC 61000-4-5:2005 • EN/IEC 61000-4-6:2008 • EN/IEC 61000-4-11:2004	• FCC/ICES-003 - Emissions (USA/Canada) • CISPR 22 - Emissions (International) • EN55022 - Emissions (Europe) • EN55024 - Immunity (Europe) • EN61000-3-2 - Harmonics (Europe) • EN61000-3-3 - Voltage Flicker (Europe) • CE - EMC Directive 2004/108 EC (Europe) • VCCI Emissions (Japan) • AS/NZS 3548 Emissions (Australia/New Zealand) • BSMI CNS13438 Emissions (Taiwan) • GOST R 29216-91 Emissions (Russia) • GOST R 50628-95 Immunity (Russia) • Ukraine Certification (Ukraine) • KC Certification (Korea)	• FCC/ICES-0 0 3 - Emissions (USA/Canada) • CISPR 22 -Emissions (International) • EN55022 - Emissions (Europe) • EN550 24 - Immunity (Europe) • EN610 0 0 -3-2 - Harmonics (Europe) • EN610 0 0 -3-3 - Voltage Flicker (Europe) • CE - EMC Directive 20 0 4/10 8 EC (Europe) • VCCI Emissions (Japan) • AS/NZS 3548 Emissions (Australia/New Zealand) • BSMI CNS13438 Emissions (Taiwan) • GOST R 29216-91Emissions (Russia) • GOST R 50 628-95 Immunity (Russia) • Ukraine Certification (Ukraine) • KC Certification (Korea)	• FCC/ICES-0 0 3 - Emissions (USA/Canada) • CISPR 22 - Emissions (International) • EN55022 - Emissions (Europe) • EN550 24 - Immunity (Europe) • EN610 0 0 -3-2 - Harmonics (Europe) • EN610 0 0 -3-3 – Voltage Flicker (Europe) • CE - EMC Directive 20 0 4/10 8 EC (Europe) • VCCI Emissions (Japan) • AS/NZS 3548 Emissions (Australia/New Zealand) • BSMI CNS13438 Emissions (Taiwan) • GOST R 29216-91 Emissions (Russia) • GOST R 50 628-95 Immunity (Russia) • Ukraine Certification (Ukraine) • KC Certification (Korea)	• FCC/ICES-0 0 3 - Emissions (USA/Canada) • CISPR 22 - Emissions (International) • EN55022 - Emissions (Europe) • EN550 24 - Immunity (Europe) • EN610 0 0 -3-2 - Harmonics (Europe) • EN610 0 0 -3-3 - Voltage Flicker (Europe) • CE - EMC Directive 20 0 4/10 8 EC (Europe) • VCCI Emissions (Japan) • AS/NZS 3548 Emissions (Australia/New Zealand) • BSMI CNS13438 Emissions (Taiwan) • GOST R 29216-91 Emissions (Russia) • GOST R 50 628-95 Immunity (Russia) • Ukraine Certification (Ukraine) • KC Certification (Korea)

ExtremeCloud IQ Controller on ExtremeCloud Edge

Application	Host	Standalone		High Availability (Pair)		Maximum Throughput (Mbps)
		AP Capacity	End-system Capacity	AP Capacity	End-system Capacity	Mixed (RFC2544) Open/Encrypted
ExtremeCloud IQ Controller CE1000 (Self-Orchestrated) install	UCP 1130C Appliance (Small) for ExtremeCloud Edge	250	2,000	500	4,000	3750/3600
ExtremeCloud IQ Controller CE2000 (Self-Orchestrated) install	UCP 2130C Appliance (Medium) for ExtremeCloud Edge	2,000	16,000	4,000	32,000	TBD
ExtremeCloud IQ Controller CE3000 (Self-Orchestrated) install	UCP 3150C Appliance (Large) for ExtremeCloud Edge	10,000	50,000	20,000	100,000	TBD

Requires purchase of Activation key for ExtremeCloud EDGE – Self Orchestration application.
For additional information regarding the Universal Compute Platform see here

Ordering Information

Product SKU	Short Description	Long Description
E3120-1	E3120-1 Appliance	Expandable management of up to 20,000 APs (HA). Requires Activation key (XIQ-CACT-HW) and device Adoption Capacity Licenses
E2122-1	E2122-1 Appliance	Expandable management for up to 4000 APs (HA). Requires Activation License (XIQ-CACT-HW) and device Adoption Capacity Licenses
E3125	E3125 Appliance	ExtremeCloud IQ Controller E3125 – Large Venues edition, Expandable management for up to 20,000 APs (HA). Version 10 and above requires separate activation key (XIQ-CACTHW) and ExtremeCloud IQ Pilot or ExtremeCloud IQ Navigator right-to-use licenses per managed device.
Licensing		
XIQ-CACT-HW	HW Appliance – V10 Activation Key	Activation for ExtremeCloud IQ Controller hardware appliances — Applicable to E1120, E2120, E2122, E3120 (Excludes Egypt).
XIQ-CACT-HW-EGY	HW Appliance – V10 Activation Key	Activation for ExtremeCloud IQ Controller hardware appliances — Applicable to E1120, E2120, E2122, E3120 (Restricted for Egypt).
XIQ-CACT-VT	VT Appliance – V10 Activation Key	Activation for ExtremeCloud IQ Controller virtual Appliances — Applicable to VE6120/H/K. VE6125/K (Excludes Egypt).
XIQ-CACT-VT-EGY	VT Appliance – V10 Activation Key	Activation for ExtremeCloud IQ Controller virtual Appliances — Applicable to VE6120/H/K. VE6125/K (Restricted for Egypt).
XIQ-CACT-APP	ExtremeCloud IQ Controller	ExtremeCloud IQ Controller Application Activation Key for ExtremeCloud Edge (Self-Orchestrated) installs
XIQ-CACT-APP -EGY	ExtremeCloud IQ Controller	ExtremeCloud IQ Controller Application Activation Key for ExtremeCloud Edge (Self-Orchestrated) installs - Restricted for Egypt
Capacity Licensing		
XIQ-NAV-S-EW	ExtremeCloud IQ Navigator Subscription	ExtremeCloud IQ Navigator SaaS Subscription EW SaaS Support for one (1) device (1 year).
XIQ-NAV-S-C-PWP	ExtremeCloud IQ Navigator Subscription	ExtremeCloud IQ Navigator SaaS Subscription PWP SaaS Support for one (1) device (1 year).
XIQ-PIL-S-EW	ExtremeCloud IQ Pilot Subscription	ExtremeCloud IQ Pilot SaaS Subscription and EW SaaS Support for one (1) device (1 year).
XIQ-PIL-S-C-PWP	ExtremeCloud IQ Pilot Subscription	ExtremeCloud IQ Pilot SaaS Subscription and PWP SaaS Support for one (1) device (1 year).

Ordering Information (cont.)

Part Numbers	Transceivers for E2120 (-1)
MGBIC-02	1 Gb, 1000BASE-T, IEEE 802.3 Cat5, Copper Twisted Pair, 100 m, RJ 45 SFP
MGBIC-LC01	1 Gb, 1000BASE-SX, IEEE 802.3 MM, 850 nm Short Wavelength, 220/550 m, LC SFP
MGBIC-LC03	1 Gb, 1000BASE-LX, MM, 1310 nm Long Wavelength, 2 km, LC SFP
10GB-LR-SFPP	10 Gb, 10GBASE-LR, IEEE 802.3 SM, 1310 nm Long Wavelength, 10 km, LC SFP+
10GB-SR-SFPP	10 Gb, 10GBASE-SR, IEEE 802.3 MM, 850 nm Short Wavelength, 33/82 m, LC SFP+
10GB-LW-SFPP	10Gb, Laserwire® SFP+ adapter for use with Laserwire cable assembly
10GB-C10-SFPP	10 Gb, pluggable copper cable assembly with integrated SFP+ transceivers, 10 meters
10GB-C03-SFPP	10 Gb, pluggable copper cable assembly with integrated SFP+ transceivers, 3 meters
10GB-C01-SFPP	10 Gb, pluggable copper cable assembly with integrated SFP+ transceivers, 1 meter
10GB-USR-SFPP	10 Gb, Ultra Short Reach Multi-mode, 850 nm, 100m on OM3/150m on OM4, LC SFP+ (requires V9.01 or higher)

Optional Redundant Power Supply Option for E2122-1 and E3122-1	
PSI-1300W-APL	1300W Redundant power supply for network appliances (validate supported model numbers before ordering)

Part Number	E3120 (-1) Connectivity Accessories
40 Gb QSFP	
10319	QSFP+ SR4 module
40GB-ESR4-QSFP	QSFP+ ESR4
10320	QSFP+ LR4
QSFP-SFPP-ADPT	QSFP+ to SFP+ Adapter
10311	QSFP+ passive copper cable, 0.5M
10312	QSFP+ passive copper cable, 1.0M
10313	QSFP+ passive copper cable, 3.0M
10323	QSFP+ passive copper cable, 5.0M
10336	3m QSFP+ Active Optical Cable
10337	5m QSFP+ Active Optical Cable
10315	10m QSFP+ Active Optical Cable
10316	20m QSFP+ Active Optical Cable
10318	100m QSFP+ Active Optical
25 Gb SFP28	
10501	25GBASE-SR SFP28 SR 850nm
10502	25G SFP28 SR Lite-FEC 850nm
10503	25G SFP28 ESR
10504	SFP28 LR 10Km 1310 nm

Part Number	E3120 (-1) Connectivity Accessories
10Gb SFP+	
10GB-SR-SFPP	10Gb SR MMF
10GB-LR-SFPP	10Gb LR SMF
10GB-C01-SFPP	10Gb DAC 1m
10GB-C03-SFPP	10Gb DAC 3m
10Gb-C10-SFPP	10Gb DAC 10m
10301	10Gb SR MMF
10302	10Gb LR SMF
10304	10Gb DAC 1m
10305	10Gb DAC 3m
10307	10Gb DAC 10m
10338	10Gb 10GBASE-T
10303	10Gb LRM MMF
10GB-F10-SFPP	10Gb Active Optical Cable 10m
10GB-F20-SFPP	10Gb Active Optical Cable 20m

Ordering Information (cont.)

Power Cords			
In support of the Extreme Networks Green initiatives, power cords can be ordered separately but need to be specified at the time order. Please refer to www.extremenetworks.com/product/powercords/ for details on power cord availability for this product.			
Straight Cord Part #	# Cords	Reference Country	Straight Cord Description
5601313-U1	1	America	USA, CORD, NEMA 5-15, C13, 125V, 16AWG
10036	1	Australia	Pwr Cord, 10A, AS3112, IEC320-C13, 250V, 0.75MMSQ
10034	1	Britain	Pwr Cord, 10A, BS1363, IEC320-C13, 250V, 0.75MMSQ
5601513-F	1	Brazil	BRAZIL, CORD NBR 14136, 20A, C13, 250V, 1.5MMSQ
5601013-D	1	Denmark	Pwr Cord, 10A, SRAF, IEC320-C13, 250V, 0.75MMSQ
10033	1	Europe	Pwr Cord, 10A, CEE 7/7, IEC320-C13, 250V, 0.75MMSQ
10062	1	Japan	Pwr Cord, 12A, JISC8303, IEC320-C13, 125V, 1.25MMSQ
10035	1	South Africa	Pwr Cord, 10A, BS546, IEC320-C13, 250V, 0.75MMSQ
10037	1	Switzerland	Pwr Cord, 10A, SEC1011, IEC320-C13, 250V, 0.75MMSQ

Service and Support

Extreme Networks provides comprehensive service offerings that range from Professional Services to design, deploy, and optimize customer networks, to customized technical training, to service and support tailored to individual customer needs. Please contact your Extreme Networks account executive for more information about Extreme Networks Service and Support.

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