ExtremeWireless 802.11ax AP460C, AP460S6C, AP460S12C Outdoor Access Points

AP460C, AP460S6C, AP460S12C Overview

AP460C, AP460S6C, and AP460S12C tri-radio 802.11ax access points are based on advanced radio technology and IP67 rated for harsh and extreme outdoor environments, with an extended temperature range. The tri-radio design delivers 802.11ax 2×2:2 and 4×4:4 data rates concurrently on the 2.4 GHz and 5 GHz radios, with a third radio as a dedicated dual-band sensor.

The access point can be installed on an outdoor environment on a vertical or horizontal pole, or to a flat surface.

Note: The installation procedures covered in this document is applicable to all three access points and they are collectively addressed as AP460C.

The AP460C, AP460S6C, AP460S12C access points have the following features:
- Radios:
  - Three 802.11a/b/g/n/ac/ax radios (one 4×4 radio, one 2×2 radio, and one 1×1 scanner radio)
  - One Bluetooth® Low Energy (BLE) radio
- Two RJ45 Ethernet ports (ETH0 and ETH1):
  - 100/1000/2500 Mbps auto-negotiation RJ45 Ethernet Power over Ethernet (PoE) port
  - 10/100/1000 Mbps auto-negotiation RJ45 Ethernet port
- One micro USB console port
- One reset button
  Remove the waterproof screw cap to access the micro USB port and the reset button.
- One standard USB port to connect beacons (iBeacon) and Internet of Things (IoT) devices
  Remove the waterproof cap to access the standard USB port.
- Antennas:
  - Three integrated single-band 5.1 GHz – 5.8 GHz omnidirectional antennas
  - Four integrated dual band 2.4 GHz – 2.5 GHz and 5.1 GHz – 5.8 GHz omnidirectional antennas
- Temperature:
  - Operating temperature: -40 °C to +60 °C (-40 °F to +140 °F)
  - Storage temperature: -40 °C to +70 °C (-40 °F to +158 °F)
  - Relative humidity: 0% to 95% (non-condensing)

Table 1   AP460C, AP460S6C, AP460S12C Power profile

AP460C, AP460S6C, AP460S12C	802.3af	802.3at
2.4G radio	2x2 (14 dBm)	2x2 (18 dBm)
5G radio	2x2 (17 dBm)	4x4 (18 dBM)
Sensor radio	2.4G and 5G (15 dBm)	2.4G and 5G (18 dBm)
BLE	Enabled	Enabled
USB	No	Yes
2.5G Ethernet	Yes	Yes
1G Ethernet	No	Yes

For detailed device and radio specifications, refer to the *AP460C, AP460S6C, AP460S12C Data Sheet*.

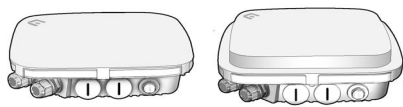**Figure 1   Front views of AP460C, AP460S6C, AP460S12C**

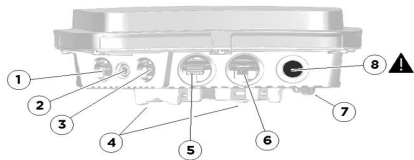**Figure 2   AP460C access point hardware components**

Table 2   Hardware ports on AP460C access point

Callout	Description
1	PoE - Ethernet 0
2	Status light
3	Ethernet 1
4	Built-in mounting brackets
5	USB port
6	Micro USB console and reset button
7	Ground
8	Air pressure vent

Status LED

The status light, located between the two Ethernet ports, conveys operational states for system power, firmware updates, Ethernet and wireless interface activity, and major alarms.
- Steady white: The device has successfully established a Control And Provisioning of Wireless Access Points (CAPWAP) connection to ExtremeCloud IQ and is operating normally.
- Slow-blinking white: The device has a CAPWAP connection to ExtremeCloud IQ, but is operating on 802.3af power instead of 802.3at power.
- Steady amber: The device is initializing, rebooting, or is running without a CAPWAP connection.
- Slow-blinking amber: The device has no CAPWAP connection to ExtremeCloud IQ, and is operating on 802.3af power instead of 802.3at power.
- Fast-blinking amber: The device is upgrading it's IQ Engine firmware.
- Dark: power is off.

AP460C, AP460S6C, AP460S12C Box Contents

Ensure that the following items are available:

Table 3   Contents of the AP460C, AP460S6C, AP460S12C Box

Quantity	Item
1	Read Me card
1	An access point you have ordered (AP460C or AP460S6C or AP460S12C)
1	Hardware bag containing: • M4 ground screw • Split washer • Lock washer

All optional brackets and accessories are sold separately. For detailed installation instructions about all mounting procedures, refer to the *ExtremeWireless AP460C, AP460S6C, AP460S12C Access Points Installation Guide* in the Extreme Networks Documentation Support site.

Install the Access Point

Electrical Hazard: Only qualified personnel must perform installation procedures.

Use these instructions as guidelines for mounting and connecting the AP460C, AP460S6C, AP460S12C access points easily and safely.
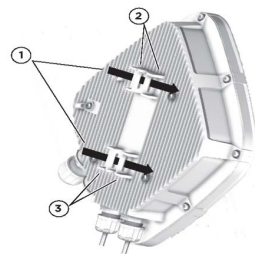
Install the Access Point on a Vertical Pole or a Horizontal Pole

Install the access point on a vertical or horizontal pole using the built-in access point bracket, two AH-ACC-STRP-MRN accessory, which is an outdoor access point stainless steel hose strap for 3 in. to 7 in. diameter poles.
1. Thread the cable clamp straps through the access point rear slots.
2. Position and insert the cable clamp straps around the pole.

Note: Ensure that the access point top slots face the sky and the bottom slots face the ground.

Figure 3   Pole mount strap slots on the back of the access point

Callout	Description
1	Pole mount cable clamp strap insert holes in the back of the access point
2	Top slots on the rear of the access point facing the sky
3	Bottom slots on the rear of the access point facing the ground

3. Using a slotted screwdriver, tighten the clamp screws to a minimum torque of 14 in-lbs. until the access point is securely mounted onto the pole.
   As an added security measure, you can thread a safety strap through one of the cable clamp slots in addition to the cable clamps. Connect the other end of the strap to a secure object.
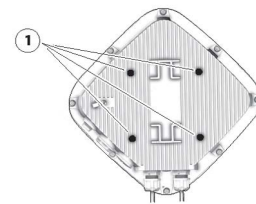
Note: The access point LAN glands must face down to eliminate water from entering the chassis.

Install the Access Point on a Flat Surface

Install the access point on a vertical or horizontal flat surface using the AH-ACC-BKT-ASM accessory.

Before beginning the mounting procedure, insert the four M5 bolts into the holes on the rear of the access point and torque the bolts to 16 in-lbs.
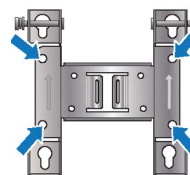
Figure 4   Wall mounting accessory M5 bolt holes

Callout	Description
1	M5 bolt attachment holes

Note: If you are mounting the access point horizontally, ensure that the ports are facing down to reduce the chance of water entering the chassis.

1. Using the ASM wall accessory as a template, mark and drill four mounting holes on a flat surface.

Figure 5   ASM accessory wall mounting hole markings

2. Attach the ASM accessory to the wall by using four M5 shoulder mounting screws.

Note: The best practice is to use screw-in anchors with the mounting screws on a wood surface and concrete anchors on a concrete surface.

3. Insert the M5 shoulder mounting screws into the mounting holes.
4. Torque the M5 shoulder mounting screws to 25 in-lbs.
5. Remove the two locking screws on the accessory.

Note: The access point will not go onto the accessory if the locking screws are not removed.

6. Insert the M5 bolt heads on the access point into the large end of the accessory keyholes and slide the access point down until the bolts rest in the narrow end of the keyholes.
7. Tighten the locking screws on the ASM accessory to secure the access point.
8. Ground the access point.

Ground Connection

When you install the access point on an outdoor environment, you must provide protective grounding to prevent the access point from damages and failures. Safely ground the access point using the grounding hardware.
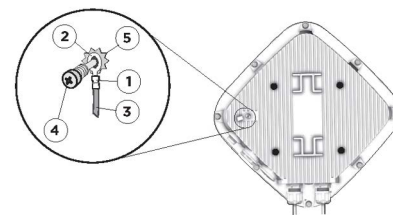The following hardware is required for ground connection:
- An access point
- One M4 ground screw
- One star washer
- One ground terminal
- One ground wire

Note: The installer must provide the ground wire.

1. Strip the insulation off one end of the ground wire and attach the stripped wire to the ring terminal. Use a 10 AWG electrical wire.
2. Attach the ground wire ring terminal to the access point using the M4 ground screw assembly with the star washer.
   The star washer must be in contact with both the ring terminal and the access point.

Figure 6   Ground connection on the access point

Callout	Description
1	Ground terminal edge area
2	Ground terminal

Callout	Description
3	10 AWG ground wire
4	M4 screw
5	Star washer

3. Tighten the screw to a torque of 12 in-lbs.
4. Connect the other end of the ground wire to an appropriate earthing location.

Note: For antenna specifications and installation information, refer to the *Wi-Fi 6 (802.11ax) Antenna Specifications Guide*.

Install the Weatherproof Ethernet Cable Housing

Use the waterproof Ethernet cable housing to ensure a weatherproof seal for the Ethernet cable. Install the waterproof Ethernet cable housing on the cable before connecting the RJ45 cable.
1. Remove the sealing nut, claw, and the 2-part seal from the main body of the waterproof housing.
   Assemble the pieces around the Ethernet cable as shown in Figure 7.

Figure 7   Weatherproof Ethernet cable housing

Callout	Description
1	Sealing nut
2	Claw
3	Seal
4	Ethernet connector
5	Main body

2. Insert the Ethernet cable through the sealing nut and the claw.
3. Take the seal apart, insert the cable between the two halves, and reassemble the seal.
4. Insert the seal into the claw.
5. Insert the Ethernet connector to the main access point body and into the connector until the locking
6. tab clicks into place.Insert the seal and the claw into the main body.
7. Screw the sealing nut onto the threaded main body.
8. Tighten it to a torque of 12 in-lbs.
9. Connect the other end of the Ethernet cable to a PoE injector or a PoE-enabled switch.
For more information about external antenna gains, removal of RJ45 cable, and power specifications, refer to the *ExtremeWireless AP460C, AP460S6C, AP460S12C Access Point Installation Guide*.

Micro USB Console Ports

Through the console port, you can make a serial connection between your management system and the access point. Use the SKU ACC-WIFI-MICRO-USB when you order the Micro USB cable.

Note: The best practice is to use the Extreme Networks micro USB cable (part number ACC-WIFI-MICRO-USB). When you connect to the device using the micro USB Console port, the management station from which you connect to the device must have a VT100 emulation program, such as TeraTerm Pro (a free terminal emulator) or Hilgraeve HyperTerminal. Set your baud rate to 115200.

Professional Installation Instruction

Installation personnel
This product is designed for specific application and needs to be installed by a qualified personnel who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

Installation procedure
Refer to the *ExtremeWireless AP460C, AP460S6C, AP460S12C Access Point Installation Guide*.

Warning: Select the installation position and ensure that the final output power does not exceed the limit set forth in relevant rules. The violation of the rule could lead to serious federal penalty.

Instructions d'installation professionnelle

Installation
Ce produit est destine a un usage specifique et doit etre installe par un personnel qualifie maitrisant les radiofrequences et les regles s'y rapportant. L'installation et les reglages ne doivent pas etre modifies par l'utilisateur final.

Procedure d'installation
Consulter le manuel d'utilisation *ExtremeWireless AP460C, AP460S6C, AP460S12C Access Point Installation Guide*.

Warning: Avertissement: Choisir avec soin la position d'installation et s'assurer que la puissance de sortie ne depasse pas les limites en vigueur. La violation de cette regle peut conduire a de serieuses penalites federales.

Regulatory and Compliance Information
Safety Guidelines

This section contains notices that are intended to protect your personal safety and to prevent damage to the equipment.

Qualified Personnel:

⚠ **Electrical Hazard:** Only qualified personnel must perform installation procedures. Within the context of the safety notes in this documentation, qualified persons are defined as persons who are authorized to commission grounding devices, systems, and circuits in accordance with established safety practices and standards. A qualified person understands the requirements and risks involved with installing outdoor electrical equipment in accordance with national codes.

Federal Communications Commission (FCC) Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

⚠ **Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

⚠ **Warning: FCC Radiation Exposure Statement:** This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 30 cm between the radiator and your body.

Country Code selection feature to be disabled for products marketed to the US/CANADA.

⚠ **Warning:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Japan Voluntary Control Council for Interference (VCCI) - Class B

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。　　VCCI−B

Conformitè Européenne (CE) Information

⚠ **Warning: CE co-location MPE Statement:** This equipment complies with CE radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

Selling Countries:

AT	BE	BG	HR	CY	CZ	DK
EE	FI	FR	DE	EL	HU	IE
IT	LV	LT	LU	MT	NL	PL
PT	RO	SK	SI	ES	SE	UK

CE Marking and European Area (EEA)

⚠ **Warning:** This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Brazil

Este produto está homologado pela ANATEL, de acordo com os procedimentos regulamentados pela Resolução n°. 242/2000 e atende aos requisitos técnicos aplicados.
Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para maiores informações, consulte o site da ANATEL – www.anatel.gov.br.

Mexico Compliance Statement

La operacion de este equipo esta sujeta a las siguientes dos condiciones
1   es posible que este equipo o dispositivo no cause interferencia perjudicial y

2   este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operacion no deseada.

Industry Canada Notice

⚠ **Warning:** For indoor use only.
Pour une utilisation en intérieur uniquement.

This device complies with ISED's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Le présent appareil est conforme aux CNR d' ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

⚠ **Caution:** The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

⚠ **Caution: Avertissement:** les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

This radio transmitter [IC: 4141B-AP460C, AP460S6C, AP460S12C] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed in *ExtremeWireless AP460C, AP460S6C, AP460S12C Access Point Installation Guide*, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.
Le présent émetteur radio [IC: 4141B-AP460C, AP460S6C, AP460S12C] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne répertoriés dans le Guide d'installation des points d'accès sans fil extrêmes AP460C, AP460S6C, AP460S12C, avec le un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Taiwan Regulatory Statement

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Taiwan Maximum Permissible Exposure (MPE) Warning

AP460C

電磁波曝露量 MPE 標準 1mW/cm²，本 品使用時建議距離人體 20 公分。送測品實 為 0.6262 mW/cm²。

AP460S6C and AP460S12C (AP460SC series)

電磁波曝露量 MPE 標準 1mW/cm²，本 品使用時建議距離人體 21 公分。送測品實 為 0.9484 mW/cm²。

Avoid affecting the operation of nearby radar systems. 應避免影響附近雷達系統之操作。

High-gain directional antennas can only be used in stationary point-to-point systems. 高增益指向性天線只得應用於固定式點對點系統。

European Waste Electrical and Electronic Equipment (WEEE) Notice

In accordance with Directive 2012/19/EU of the European Parliament on waste electrical and electronic equipment (WEEE):
1   The symbol above indicates that separate collection of electrical and electronic equipment is required.
2   When this product has reached the end of its serviceable life, it cannot be disposed of as unsorted municipal waste. It must be collected and treated separately.

3   It has been determined by the European Parliament that there are potential negative effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment.
4   It is the users' responsibility to utilize the available collection system to ensure WEEE is properly treated.
For information about the available collection system, please contact Extreme Environmental Compliance at Green@extremenetworks.com.

Declaration of Conformity in Languages of the European Community

English	Hereby, Extreme Networks declares that the radio equipment type (AP460C, AP460S6C, AP460S12C) is in compliance with Directive 2014/53/EU. For full text of the EU Declaration of Conformity, please contact Extreme Regulatory Compliance at compliancerequest@extremenetworks.com
Finnish	Täten Extreme Networks vakuuttaa, että Radio laite tyyppi (AP460C, AP460S6C, AP460S12C) on direktiivin 2014/53/EU mukainen.EU vaatimustenmukaisuusvakuutuksen täydellisestä tekstistä ota yhteyttä äärimmäisiin viranomais säädöksiin osoitteessa compliancerequest@extremenetworks.com
Dutch	Extreme Networks verklaart hierbij dat het type radioapparatuur (AP460C, AP460S6C, AP460S12C) in overeenstemming is met richtlijn 2014/53/EU.Voor de volledige tekst van de EU-conformiteitsverklaring u contact opnemen met extreme regelgeving op compliancerequest@extremenetworks.com
French	Par la présente, Extreme Networks déclare que le type d'équipement radio (AP460C, AP460S6C, AP460S12C) est conforme à la directive 2014/53/UE.Pour le texte intégral de la Déclaration de conformité de l'UE, veuillez communiquer avec Extreme Regulatory Compliance à compliancerequest@extremenetworks.com
Swedish	Härmed intygar Extreme Networks att radioutrustning typ (AP460C, AP460S6C, AP460S12C) överensstämmer med direktiv 2014/53/EU.För fullständig text av EU-försäkran om överensstämmelse, vänligen kontakta Extreme regelefterlevnad på compliancerequest@extremenetworks.com
Danish	Herved erklærer Extreme Networks, at radioudstyrs typen (AP460C, AP460S6C, AP460S12C) er i overensstemmelse med direktiv 2014/53/EU.For den fulde ordlyd af EU-overensstemmelseserklæringen bedes du kontakte Extreme Regulatory Compliance på compliancerequest@extremenetworks.com
German	Dabei erklärt Extreme Networks, dass der Funkgerätetyp (AP460C, AP460S6C, AP460S12C) mit der Richtlinie 2014/53/EU im Einklang steht.Für den vollständigen Wortlaut der EU-Konformitätserklärung wenden Sie sich bitte an extreme Regulatory Compliance unter compliancerequest@extremenetworks.com
Greek	Με την παρούσα, ακραία δίκτυα δηλώνουν ότι ο τύπος του ραδιοεξοπλισμού (AP460C, AP460S6C, AP460S12C) συμμορφώνεται με την οδηγία 2014/53/ΕΕ.Για το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ, παρακαλούμε επικοινωνήστε με την ακραία κανονιστική συμμόρφωση στο compliancerequest@extremenetworks.com
Icelandic	Hérlendis, Extreme Networks, lýsa því yfir að útvarpsbúnaðargerðin (AP460C, AP460S6C, AP460S12C) sé í samræmi við tilskipun 2014/53/ESB.Fyrir fullan texta í ESB yfirlýsingu um samræmi, vinsamlegast hafðu samband við Extreme Reglufylgni á compliancerequest@extremenetworks.com
Italian	Di conseguenza, Extreme Networks dichiara che il tipo di apparecchiature radio (AP460C, AP460S6C, AP460S12C) è conforme alla direttiva 2014/53/EU.Per il testo integrale della Dichiarazione di conformità dell'UE, contattare Extreme Regulatory Compliance presso compliancerequest@extremenetworks.com
Spanish	Por la presente, Extreme Networks declara que el tipo de equipo radioeléctrico (AP460C, AP460S6C, AP460S12C) cumple con la Directiva 2014/53/UE.Para obtener el texto completo de la Declaración de conformidad de la UE, póngase en contacto con Extreme Regulatory Compliance en compliancerequest@extremenetworks.com
Portuguese	Por este meio, a Extreme Networks declara que o tipo de equipamento de rádio (AP460C, AP460S6C, AP460S12C) está em conformidade com a Diretiva 2014/53/UE.Para obter o texto integral da Declaração de Conformidade da UE, contacte o cumprimento regulamentar extremo em compliancerequest@extremenetworks.com
Malti	B ' dan, netwerks estremi, jiddikjara li t-tip ta ' tagħmir tar-radju (AP460C, AP460S6C, AP460S12C) huwa konformi mad-Direttiva 2014/53/UE.Ghat-test sħiħ tad-dikjarazzjoni ta ' konformità tal-UE, jekk jogħġbok ikkuntattja lill-konformità regolatorja compliancerequest@extremenetworks.com

ExtremeWireless™ Access Points

Quick Reference

AP460C, AP460S6C, AP460S12C

Scan to Download the ExtremeCloud IQ Companion Mobile Application

Commission, monitor, and troubleshoot devices easily with **ExtremeCloud IQ Companion** Mobile Application (supported on iOS and Android). Use your mobile device camera to scan the serial number, capture installation images, assign or change device location, and network policy. The **ExtremeCloud IQ Companion** Mobile Application enables you to access the device CLI for troubleshooting and view device and client status.

ExtremeCloud IQ Companion
iOS Mobile Application

ExtremeCloud IQ Companion
Android Mobile Application

Scan for Product Support Details

ExtremeCloud IQ Companion
Mobile Application Onboarding

Documentation

Notice

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Documentation, Installation Videos, and Support

For product support, including Documentation and Installation Videos, visit: www.extremenetworks.com/documentation

P/N 9036949-00 Rev AC

Extreme networks