Aruba 610 Series Campus Access Points

Installation Guide

The 610 Series Campus Access Points Access Points are high-performance, multi-radio wireless devices that can be deployed in either controller-based (AOS-W) or controller-less (AOS-W Instant) modes in hospitality and branch or teleworker deployments. The Aruba 610 Series campus Access Points support the full 802.11ax (Wi-FI 6) featureset with dual 2x2 MIMO radios, deliver locationing functions, and can serve as a flexible IOT gateway, delivered through the built-in BLE and 802.15.4 radio.

A variety of mounting scenarios are supported by a range of mount kits (sold separately). Make sure to purchase the correct mount kit for the intended deployment of the AP.

Hardware Overview

The following sections describe the hardware components of the 610 Series access point.

Figure 1 AP-615 (front view)

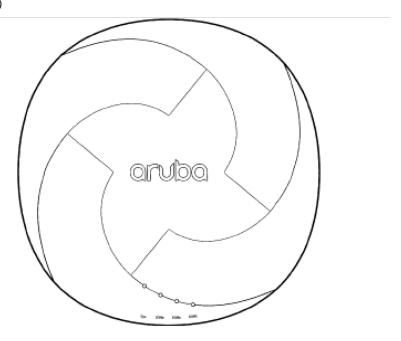


Figure 2 610 Series Campus Access Points (side view)

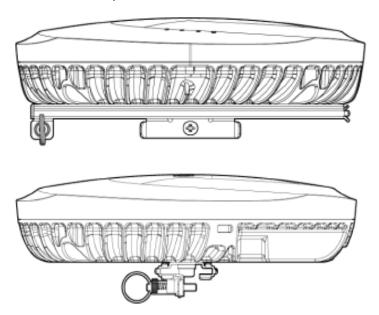
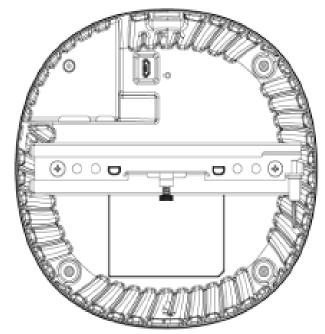


Figure 3 AP-615 Access Point Bottom View

1	E0 Ethernet Port
2	E1 Ethernet Port

Figure 4 Access Point Rear View



LEDs

The hidden LED displays located on the front panel of the access point indicate the following functions:

System Status (i)



The System Status LED indicates the operating condition of the access point. See Table 1.

Table 1 System Status LED

Color/State	Meaning
Off	Device powered off
Green- blinking ¹	Device booting; not ready
Green- solid	Device ready; fully functional, no network restrictions
Green- flashing pattern 1 ²	Device ready; fully functional, uplink negotiated in sub-optimal speed (<1Gbps)
Green- flashing pattern 2 ³	Deep sleep mode
Amber- solid	Device ready, restricted power mode (IPM restrictions applied), no network restrictions
Amber- flashing pattern 1	Device ready, restricted power mode (IPM restrictions applied), uplink negotiated in sub-optimal speed (<1Gbps)
Red- solid	System error condition - Immediate action required

- Blinking: one second on/one second off, 2 second cycle.
- Flashing Pattern 1: mostly on, briefly off, 2 second cycle.
- 3 Flashing Pattern 2: mostly off, briefly on, 2 second cycle.

Radio Status LED

The Radio Status LED table below is applicable to 2G, 5G, and 6G labels.

Color/State	Meaning	
Off	Device powered off, or radio disabled	
Green- solid	Radio enabled in access (AP) mode	
Green- flashing off	Radio enabled in uplink or mesh mod	
Amber- solid	Radio enabled in monitor or spectrum analysis mode	

LED Display Settings

The LEDs have three operating modes that can be selected in the system management software:

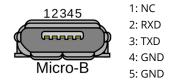
- Default mode: Refer to Table 1 and Table 2
- Off mode: LEDs are off

 Blink mode: all LEDs blink green (synchronized)

To force the LEDs into off mode or back to software defined mode, press the reset button for a short duration (less than 10 seconds).

Console Port

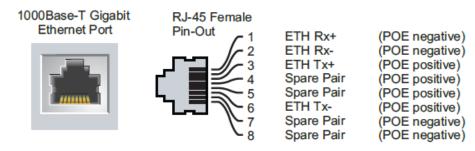
The console port is a Micro-B connector is located on the back of this device. Use the proprietary AP-CBL-SERU cable or AP-MOD-SERU module (sold separately) for direct management of this device when connected to a serial terminal or laptop.



Ethernet Ports

The 610 Series access points are equipped with two active Ethernet ports (E0 and E1). Both ports are 100/1000/2500/5000 Base-T, auto-sensing MDI/MDX, which supports uplink connectivity when linked by an Ethernet cable. Refer to Figure 6 for a detailed port pin-out.

Figure 6 *Ethernet Port Pin-Out)*



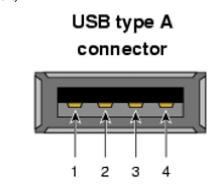
Kensington Lock Slot

The 610 Series is equipped with a Kensington lock slot for additional physical security.

USB Interface

The USB 2.0 interface located on the top of the is 610 Series compatible with selected cellular modems and other peripherals. When active, this port can supply up to 5W/1A to a connected device.

Figure 7 610 Series (USB port)



Reset Button

The reset button located on the bottom of the device can be used to reset the access point to factory default settings or turn off/on the LED display.

Use one of the following methods to reset the access point to factory default settings:

- To reset during normal operation:
 - 1. Hold the reset button for more than 10 seconds while the access point is running.
 - 2.Release the reset button.
- To reset during power up, hold the reset button while the access point is powering up.

The system status LED will flash again within 15 seconds indicating that the reset is completed. The access point will now continue to boot with the factory default settings.

To toggle the LED display between Off and Normal:

During the normal operation of the access point, shortly press and release the reset button using a small, narrow object, such as a paperclip.

Power

Both Ethernet ports support PoE-in, allowing the AP to draw power from an 802.3at/802.3bt PoE power source. When the AP is powered by both E0 and E1 ports simultaneously, the AP can be configured by management software to source PoE power from either port, or to combine power from both ports an 802.3af source may be used.



PoE input rating is 57V max | 0.3A. 0.3A is per pair of wires in Ethernet cable. Ethernet cable has 4 pair of wires totally.

Before You Begin

Refer to the sections below before beginning the installation process.



FCC Statement: Improper termination of access points installed in the United States configured to non-US model controllers will be in violation of the FCC grant of equipment authorization. Any such wilful or intentional violation may result in a requirement by the FCC for immediate termination of operation and may be subject to forfeiture (47 CFR 1.80).

Pre-Installation Checklist

Before installing your 610 Series access point, be sure that you have the following (not included with the access point):

- A mount kit compatible with the AP and mount surface
- A Cat5E or better UTP cable with network access

Optional items:

- A compatible power adapter with cord
- A compatible PoE midspan injector with power cord
- An AP-CBL-SERU console cable
- An AP-MOD-SERU console module

Also, make sure at least one of the following network services is supported:

- Alcatel-Lucent Enterprise Discovery Protocol (ADP)
- DNS server with an "A" record
- DHCP Server with vendor-specific options



Aruba, in compliance with governmental requirements, has designed the 610 Series access points so that only authorized network administrators can change configuration settings. For more information about AP configuration, refer to the AP Software Quick Start Guide

Identifying Specific Installation Locations

Use the access point placement map generated by the Aruba 6540 Series RF Plan software application to determine the proper installation location(s). Each location should be as close as possible to the center of the intended coverage area and should be free from obstructions or obvious sources of interference. These RF absorbers/reflectors/interference sources will impact RF propagation and should be accounted for during the planning phase and adjusted for in RF plan.

Identifying Known RF Absorbers/Reflectors/Interference Sources

Identifying known RF absorbers, reflectors, and interference sources while in the field during the installation phase is critical. Make sure that these sources are taken into consideration when you attach an access point to its fixed location. RF absorbers include:

Cement/concrete—Old concrete has high levels of water dissipation, which dries out the concrete, allowing for
potential RF propagation. New concrete has high levels of water concentration in the concrete, blocking RF signals.

- Natural Items—Fish tanks, water fountains, ponds, and trees
- Brick

RF reflectors include:

- Metal Objects—Metal pans between floors, rebar, fire doors, air conditioning/heating ducts, mesh windows, blinds, chain link fences (depending on aperture size), refrigerators, racks, shelves, and filing cabinets.
- Do not place an access point between two air conditioning/heating ducts. Make sure that access points are placed below ducts to avoid RF disturbances.

RF interference sources include:

- Microwave ovens and other 2.4 or 5 GHz objects (such as cordless phones)
- Cordless headset such as those used in call centers or lunch rooms

RF Radiation Exposure Statement: This equipment complies with RF radiation exposure limits. This equipment should be installed and operated with a minimum distance of 7.87 inches (20cm) between the radiator and your body for 2.4 GHz and 5 GHz operations. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



Déclaration sur les limites d'exposition aux radiofréquences : cet équipement est conforme aux limites d'exposition aux rayonnements radioélectriques spécifiées. Il doit être installé et utilisé à une distance minimale de 35 cm par rapport à votre corps pour les fréquences de 2,4 et 5 GHz. Cet émetteur-récepteur ne doit pas être utilisé ou situé à proximité d'autres antennes ou émetteurs-récepteurs.



Portable RF communications equipment should be used no closer than 30 cm (12 inches) to any part of the access point. Otherwise, degradation of the performance of this equipment could result.

Access Point Installation

All Aruba access points should be professionally installed by an Aruba-Certified Mobility Professional (ACMP). The installer is responsible for ensuring that grounding is available and meets applicable national and electrical codes. Failure to properly install this product may result in physical injury and/or damage to property.



Tous les points d'accès Alcatel-Lucent Enterprise doivent impérativement être installés par un professionnel agréé. Ce dernier doit s'assurer que l'appareil est mis à la terre et que le circuit de mise à la terre est conforme aux codes électriques nationaux en vigueur. Le fait de ne pas installer correctement ce produit peut entraîner des blessures corporelles et / ou des dommages matériels.



For indoor use only. The access point, AC adapter, and all connected cables are not to be installed outdoors. This stationary device is intended for stationary use in partly temperature controlled weather-protected environments (class 3.2 per ETSI 300 019).

Software

Aruba 610 Series requires ArubaOS or Aruba Instant8.10.0.0 or later. For instructions on choosing operating modes and initial software configuration, refer to the AP Software Quick Start Guide.



Aruba access points are classified as radio transmission devices, and are subject to government regulations of the host country. The network administrator(s) is/are responsible for ensuring that configuration and operation of this equipment is in compliance with their country's regulations. For a complete list of approved channels in your country, refer to the Aruba Downloadable Regulatory Table at https://www.arubanetworks.com/techdocs/DRT/Default.htm.

Verifying Post-Installation Connectivity

The integrated LED on the access point can be used to verify that the access point is receiving power and initializing successfully (see Table 1 and Table 2). Refer to the **Access Point Software Quick Start Guide** for further details on verifying post-installation network connectivity.

- E0: 100/1000/2500/5000 Base-T auto-sensing Ethernet RJ-45 Interfaces
- E1: 100/1000/2500/5000 Base-T auto-sensing Ethernet RI-45 Interfaces

POWER

- Power over Ethernet (IEEE 802.3at and 802.3bt compliant)
- 12V DC power interface, support powering through AC-to-DC power adapter

Electrical and Environmental Specifications

For additional specifications on this product, please refer to the product data sheet at www.arubanetworks.com/safety_addendum.

Environmental

- Operating:
 - Temperature: 0°C to +50°C (+32°F to +122°F)
 - Humidity: 5% to 95% non-condensing
- Storage and transport:
 - Temperature: -40° C to $+70^{\circ}$ C (-40° F to $+158^{\circ}$ F)
 - Humidity: 5% to 95% non-condensing

BLE Radio Default State

When the Access Point is in factory default state the integrated BLE radio is enabled. This applies to the non-TAA/FIPS product SKUs only. On the TAA/FIPS products, the BLE radio is disabled when the unit is in factory default conditions. Once the AP has established a connection with its management platform, the BLE radio state is updated to match what's configured there. This state is maintained if the AP is power-cycled or rebooted.

Console Port Default State

When the Access Point is in factory default state the console interface (both physical port and BLE) is enabled with default credentials (username is "admin" and password is the serial number of the unit). Once the AP has established a connection with its management platform, the console port state (enabled/disabled) and access credentials are updated to match what's configured there. State and credentials are maintained if the AP is power-cycled or rebooted.

USB Host Interface Default State

When the Access Point is in factory default state the USB host interface is powered and enabled, assuming the AP is not in a restricted power mode. On some AP models the USB port may be disabled when a POE source with insufficient power budget is used. Once the AP has established a connection with its management platform, the USB host interface state is updated to match what's configured there. This state is maintained if the AP is power-cycled or rebooted.

Regulatory Information

For the purpose of identification needed for regulatory compliance certifications, this product has been assigned a unique regulatory model number (RMN). The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

AP-615 RMN: APIN0615

Aruba Networks provides a multi-language document that contains country-specific restrictions and additional safety and regulatory information for all Alcatel-Lucent Enterprise access points. This document can be viewed or downloaded at arubanetworks.com.

Changes or modifications to this unit not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate this equipment.



Toute modification effectuée sur cet équipement sans l'autorisation expresse de la partie responsable de la conformité est susceptible d'annuler son droit d'utilisation.

Brazil

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

O uso deste equipamento é restrito a ambientes fechados e proibido em plataformas petrolíferas, carros, trens, embarcações e no interior de aeronaves abaixo de 3.048 m (10.000 pés).

Safety and Regulatory Compliance



RF Radiation Exposure Statement: This equipment complies with RF radiation exposure limits. This equipment should be installed and operated with a minimum distance of 7.87 inches (20cm) between the radiator and your body for 2.4 GHz, 5 GHz, and 6GHz operations. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



Déclaration e la concernant l'exposition aux rayonnements à fréquence radioélectrique (FR): Cet appareil est con-forme aux limites d'exposition aux rayonnements FR établies par la FCC. Il doit être installé et utilisé à une distance minimale de 20 cm (7,87 pouces) entre le radiateur et votre corps, qu'il opère sur la bande 2,4 GHz, 5 GHz, ou 6GHz. Cet émetteur ne doit pas être installé ou utilisé à proximité immédiate d'une autre antenne ni d'un autre trans-metteur.



The device could automatically discontinue transmission in case of absence of information to transmit, or operational failure. Note that this is not intended to prohibit transmission of control or signaling information or the use of repet-itive codes where required by the technology.

Industry Canada

This Class B digital apparatus meets all of the requirements of the Canadian Interference-Causing Equipment Regulations

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

When operated in 5.15 to 5.25 GHz frequency range, this device is restricted to indoor use to reduce the potential for harmful interference with co-channel Mobile Satellite Systems.

- (a) Operation shall be limited to indoor use only;
- (b) Operation on oil platforms, cars, trains, boats and aircraft shall be prohibited except for on large air-craft flying above 10,000 ft.

Déclaration d'Industrie Canada

Cet appareil numérique de classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada. Cet appareil contient des émetteurs / récepteurs exemptés de licence qui sont conformes aux RSS exempts de licence d'Innovation, Sciences et Développement économique Canada. Son fonctionnement est soumis aux deux conditions suivantes: (1) ce périphérique ne doit pas provoquer d'interférences, et (2) ce périphérique doit accepter toute interférence, y compris les interférences susceptibles de provoquer un dysfonctionnement.

En cas d'utilisation dans la plage de fréquences de 5,15 à 5,25 GHz, cet appareil doit uniquement être utilisé en intérieur afin de réduire les risques d'interférence avec les systèmes satellites mobiles partageant le même canal.

(a) Le fonctionnement doit être limité à une utilisation en intérieur uniquement ;

(b) L'exploitation sur les plates-formes pétrolières, les voitures, les trains, les bateaux et les aéronefs est interdite, sauf pour les gros aéronefs volant au-dessus de 10 000 pieds.

EU & UK Regulatory Conformity

The Declaration of Conformity made under Radio Equipment Directive 2014/53/EU as well as the United Kingdom's Radio Equipment Regulations 2017/UK is available for viewing at: www.hpe.com/eu/certificates. Select the document that corresponds to your device's model number as it is indicated on the product label.

Compliance is only assured if the Aruba approved accessories as listed in the ordering guide are used. https://www.arubanetworks.com/assets/og/OG_610Series.pdf.

Wireless Channel Restrictions

5150-5350MHz band is limited to indoor only in the following countries; Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Hungary (HU), Iceland (IS), Ireland (IE), Italy (IT), Latvia (LV), Liechtenstein (LI), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Norway (NO), Poland (PL), Portugal (PT), Romania (RO), Slovakia (SK), Slovenia (SL), Spain (ES), Sweden (SE), Switzerland (CH), Turkey (TR), United Kingdom (UK).

Table 2 RF Power Limits for BLE, Zigbee, and WiFi

Radio	Frequency Range MHz	Max EIRP
BLE/Zigbee	2402-2480	9 dBm
	2412-2472	20 dBm
	5150-5250	23 dBm
	5250-5350	23 dBm
W-Fi	5470-5725	30 dBm
	5725-5850	14 dBm
	5945-6425	23 dBm



Lower power radio LAN product operating in 2.4 GHz and 5 GHz bands. Please refer to the Alcatel-Lucent Enterprise OS User Guide/Instant User Guide for details on restrictions.

Japan

ご使用になっている装置に VCCI マークが付いていましたら、次の説明文をお読み下さい。

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

Korean

8급 기기 (가정용 방송통신기기) 이 기기는 가정용(B급)으로 전자파적합등록을 한 기기로서 주 로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사 용할 수 있습니다.

México

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debeaceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

Нормативные требования Евразийского Экономического Союза

Russia

НРЕ Russia: ООО "Хь Ленинградское шос 'HPE Belarus': ИООО Интернациональна:

HPE Russia: ООО "Хьюлетт Паккард Энтерпрайз" Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16A, стр.3, Телефон: +7 499 403 4248 Факс: +7 499 403 4677

'HPE Belarus': ИООО «Хьюлетт-Паккард Бел», Республика Беларусь, 220030, г. Минск, ул. Интернациональная, 36-1, Телефон/факс: +375 17 392 28 20

'HPE Kazakhstan': TOO «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7, Телефон/факс: +7 727 355 35 50

Kazakhstan

ЖШС "Хьюлетт Паккард Энтерпрайз" Ресей Федерациясы, 125171, Мәскеу, Ленинград тас жолы, 16А блок 3, Телефон: +7 499 403 4248 Факс: +7 499 403 4677

«HEWLETT-PACKARD Bel» ЖШС, Беларусь Республикасы, 220030, Минск қ., Интернациональная көшесі, 36/1, Телефон/факс: +375 17 392 28 20

ЖШС «Хьюлетт-Паккард (К)», Қазақстан Республикасы, 050040, Алматы к., Бостандык ауданы, Әл-Фараби даңғылы, 77/7, Телефон/факс: +7 (727) 355 35 50

Ukraine

Hereby, Hewlett Packard Enterprise Company declares that the radio equipment type [The Regulatory Model Number [RMN] for this device can be found in the Regulatory Information section of this document] is in compliance with Ukrainian Technical Regulation on Radio Equipment, approved by resolution of the CABINET OF MINISTERS OF UKRAINE dated May 24, 2017, No. 355. The full text of the UA declaration of conformity is available at the following internet address:

https://certificates.ext.hpe.com/public/certificates.html.

Х'ЮЛЕТТ ПАКАРД ЕНТЕРПРАЗ, 6280 АМЕРИКА ЦЕНТР Д-Р, САН-ХОСЕ, КАЛІФОРНІЯ 95002, США

Taiwan

第十二條

經型式認證合格之低功率射頻電機, 非經許可, 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。

第十四條

低功率射頻電機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。

前項合法通信,指依電信法規定作業之無線電通信。低功率射頻電機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。

- 1. 應避免影響附近雷達系統之操作。
- 高增益指向性天線只得應用於固定式點對點系統
- 3. 電磁波暴露量 MPE 標準? 1 mW/cm2. 送測?品實測?為 : X. xxmW/cm2

UKCA



United States

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 or more 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 that is different from that to which the receiver is connected. Consult the dealer or an experienced radio or television technician for help.

Improper termination of access points installed in the United States configured to a non-US model controller is a violation of the FCC grant of equipment authorization. Any such willful or intentional violation may result in a requirement by the FCC for immediate termination of operation and may be subject to forfeiture (47 CFR 1.80).

The network administrator(s) is/are responsible for ensuring that this device operates in accordance with local/regional laws of the host domain.

FCC regulations restrict the operation of this device to indoor use only



The operation of this device is prohibited on oil platforms, cars, trains, boths, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet.

Operation in the 5.9725-7.125GHz band is prohibited for control or communication with unnamed aircraft systems.

Medical

- 1. Equipment not suitable for use in the presence of flammable mixtures.
- 2. Connect to only IEC 60950-1 or IEC 60601-1 3rd edition certified products and power sources. The end user is responsible for the resulting medical system complies with the requirements of IEC 60601-1 3rd edition.

- 3. Wipe with a dry cloth, no additional maintenance required.
- 4. No serviceable parts, the unit must be sent back to the manufacturer for repair.
- 5. No modifications are allowed without Alcatel-Lucent Enterprise approval.

This product has not been qualified as a Medical Device under EU Directive 92/42/EEC. When deployed in medical environments it must be inaccessible to patients. If integrated as a component into a Medical Device, the integrator is responsible for ensuring that the requirements of 92/42/EEC are met.

Contact Aruba

Main Site	arubanetworks.com
Support Site	asp.arubanetworks.com
Airheads Social Forums and Knowledge Base	community.arubanetworks.com
North American Telephone	1-800-943-4526 (Toll Free) 1-408-754-1200
International Telephones	arubanetworks.com/support-services/contact-support/
Software Licensing Site	hpe.com/networking/support
End-of-life Information	arubanetworks.com/support-services/end-of-life
Security Incident Response Team (SIRT)	Site: arubanetworks.com/support-service/security-bulletins/ Email: sirt@arubanetworks.com

Copyright

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Open Source Code

This product includes code licensed under certain open source licenses which require source compliance. The corresponding source for these components is available upon request. This offer is valid to anyone in receipt of this information and shall expire three years following the date of the final distribution of this product version by Hewlett Packard Enterprise Company. To obtain such source code, please check if the code is available in the HPE Software Center at https://myenterpriselicense.hpe.com/cwp-ui/software but, if not, send a written request for specific software version and product for which you want the open source code. Along with the request, please send a check or money order in the amount of US \$10.00 to:

Hewlett Packard Enterprise Company Attn: General Counsel WW Corporate Headquarters 1701 E Mossy Oaks Rd Spring, TX 77389 United States of America.

Warranty

This hardware product is protected by an Aruba warranty. For more details visit www.hpe.-com/us/en/support.html