ExtremeWireless™ WiNG™ AP-8163 Installation Guide

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Preface

Text Conventions

The following tables list text conventions that are used throughout this guide.

Table 1: Notice Icons

Icon	Notice Type	Alerts you to...
	General Notice	Helpful tips and notices for using the product.
	Note	Important features or instructions.
	Caution	Risk of personal injury, system damage, or loss of data.
	Warning	Risk of severe personal injury.
	New	This command or section is new for this release.

Table 2: Text Conventions

Convention	Description
`Screen displays`	This typeface indicates command syntax, or represents information as it appears on the screen.
The words **enter** and **type**	When you see the word "enter" in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says "type."
[Key] names	Key names are written with brackets, such as **[Return]** or **[Esc]**. If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press **[Ctrl]**+**[Alt]**+**[Del]**
Words in italicized type	Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles.

Providing Feedback to Us

We are always striving to improve our documentation and help you work better, so we want to hear from you! We welcome all feedback but especially want to know about:

- Content errors or confusing or conflicting information.
- Ideas for improvements to our documentation so you can find the information you need faster.
- Broken links or usability issues.

If you would like to provide feedback to the Extreme Networks Information Development team about this document, please contact us using our short online feedback form. You can also email us directly at internalinfodev@extremenetworks.com.

Getting Help

If you require assistance, contact Extreme Networks using one of the following methods:

- **GTAC (Global Technical Assistance Center) for Immediate Support**
  - **Phone:** 1-800-998-2408 (toll-free in U.S. and Canada) or +1 408-579-2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact
  - **Email:** support@extremenetworks.com. To expedite your message, enter the product name or model number in the subject line.
- **GTAC Knowledge** — Get on-demand and tested resolutions from the GTAC Knowledgebase, or create a help case if you need more guidance.
- **The Hub** — A forum for Extreme customers to connect with one another, get questions answered, share ideas and feedback, and get problems solved. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.
- **Support Portal** — Manage cases, downloads, service contracts, product licensing, and training and certifications.

Before contacting Extreme Networks for technical support, have the following information ready:

- Your Extreme Networks service contract number and/or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any action(s) already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

Extreme Networks Publications

General

Product documentation is available at: www.extremenetworks.com/documentation/. Release notes are available at: www.extremenetworks.com/support/release-notes

Open Source Declarations

Some software files have been licensed under certain open source licenses. More information is available at: www.extremenetworks.com/support/policies/software-licensing

1 Overview

The AP-8163 is designed for extending network coverage to outside areas with the latest 802.11n 3x3:3 Multiple Input Multiple Output (MIMO) tri-radio design together with rugged outdoor performance. True perimeter security is provided using either a dedicated dual band sensor or software mode for both 2.4GHz and 5GHz bands to deliver 24x7 rogue detection and termination.

The AP-8163 is optimized with WiNG 5 intelligence, extending QoS, security, and mobility services to the Access Point to support better capacity and performance. Deployments can be managed using the WiNG 5 architecture. The WiNG 5 architecture leverages the best aspects of independent and dependent architectures to create a smart network that meets the connectivity, quality, and security needs of each user and their applications based on the availability of network resources, including wired networks. Once adopted by a WLAN controller or service platform running WiNG 5.6 or higher firmware, the AP-8163 is managed as an Adaptive AP, running the WiNG 5 network management protocol. WiNG 5 networks extend the current differentiation that Adaptive APs offered to the next level by now having the services and security available at every point in the network. The traffic flow is optimized to prevent wired congestion. Traffic flows dynamically, based on user and application, and finds alternate routes to work around any possible network choke points. Mixed-media application optimization is the hallmark of WiNG 5 networks.

AP-8163 Hardware

The following are the current AP-8163 Access Point models:

Table 3: AP-8163 Hardware Models

Model Part Number	Description
AP-8163-66S40-US	AP-8163 Access Point outdoor dual radio 3x3:3 802.11n with sensor radio SKU: US
AP-8163-66S40-1-WR	AP-8163 Access Point outdoor dual radio 3x3:3 802.11n with sensor radio SKU: WR

Note

All AP-8163 Access Points ship with one weatherized Ethernet adapter. The AP-8163 Access Points do not ship with the Mounting Kit/Antenna and POE injector. These items must be ordered separately.

AP-8163 Antenna Accessories

Note

Antennas must be ordered separately and are not included with the AP-8163.

The AP-8163 antenna suite includes the following optional antenna accessories. The antennas do not ship with the AP-8163 Access Points must be ordered separately.

For more information on antennas which can optionally be used with the AP-8163 Access Point, refer to the *Wireless LAN Antenna Specification Guide* at: www.extremenetworks.com/documentation/

AP-8163 2.4 GHz Antennas

Table 4: AP-8163 2.4 GHz Antenna Models

Part Number	Antenna Type
ML-2499-APA2-01	Dipole
ML-2499-FHPA9-01R	Dipole
ML-2499-HPA3-01R	Dipole
ML-2499-HPA3-02R	Dipole
ML-2499-HPA4-01	Dipole
ML-2499-HPA8-01	Dipole
ML-2452-HPAG4A6-01	Dipole
ML-2452-APA2-01	Dipole
ML-2452-HPA5-036	Dipole
ML-2452-HPA6M6-072	Dipole
ML-2452-HPA6X6-036	Dipole
ML-2452-HPAG5A8-01	Dipole
ML-2452-APAG2A1-01	Dipole

Table 4: AP-8163 2.4 GHz Antenna Models (continued)

Part Number	Antenna Type
ML-2499-5PNL-72-N	Panel
ML-2452-PNA5-01R	Panel
ML-2452-PNA7-01R	Panel
ML-2452-PNL9M3-036	Panel
ML-2452-PTA6M6-036	Panel
ML-2452-PNL3M3-1	Panel
ML-2499-SD3-01R	Patch

AP-8163 5 GHz Antennas

Table 5: AP-8163 5 GHz Antenna Models

Part Number	Antenna Type
ML-5299-APA1-01R	Dipole
ML-5299-HPA1-01R	Dipole
ML-5299-HPA5-01	Dipole
ML-2452-APA2-01	Dipole
ML-2452-APAG2A1-01	Dipole
ML-2452-HPA5-036	Dipole
ML-2452-HPA6M6-072	Dipole
ML-2452-HPA6X6-036	Dipole
ML-5299-HPA10-01	Dipole
ML-2452-HPAG4A6-01	Dipole
ML-2452-HPAG5A8-01	Dipole
ML-5299-FHPA10-01R	Dipole
ML-2452-PNA5-01R	Panel
ML-2452-PNA7-01R	Panel
ML-2452-PTA6M6-036	Panel
ML-2452-PNL3M3-1	Panel
ML-2452-PNL9M3-036	Panel
ML-5299-WPNA1-01R	Panel
ML-5299-PTA1-01R	Panel
ML-5299-BYGA15-012	Yagi

Hardware and Mounting Accessories

The AP-8163 is a Power over Ethernet (PoE) device. When deployed, the use of an outdoor rated PoE power supply and mounting bracket may be required. The recommended PoE accessories are listed in the following table:

Table 6: AP-8163 Hardware and Mounting accessories

Part Number	Description
AP-PSBIAS-7161-US	Outdoor IP66 802.3AT gigabit Ethernet power injector, 100-240 VAC US
AP-PSBIAS-7161-WW Outdoor IP66 802.3AT gigabit	Ethernet power injector, 100-240 VAC International
KT-153143-01	AP 7161 outdoor PoE mounting kit

AP-8163 Mounting Accessories

The AP-8163 has a flexible three piece mounting kit (KT-147407-01), together with an optional standoff extension arm (KT-150173-01) for pole mounting.

Table 7: AP-8163 Mounting accessories

Part Number	Description
KT-147407-01	AP 7161 mounting hardware kit
KT-150173-01	AP 7161 12 inch extension arm for mounting kit

AP-8163 Weatherized Ethernet Accessory

One RJ45 weatherized connector plug is included with each AP-8163 Access Point. If additional plugs are required, they can be ordered using the part number listed in the following table:

Table 8: AP-8163 Weatherized Ethernet accessory

Part Number	Description
KT-153676-01	AP 7161 RJ45 weatherized connector plug

LED Indicators

AP-8163 Access Points have LED activity indicators on the front of the enclosure. The LEDs provide a status display indicating error conditions, transmission, and network activity for the 2.4 GHz radio (green) and the 5 GHz radio (amber).

Table 9: AP-8163 LED Indicators

Task	2.4 GHz Activity LED (Green)	5 GHz Activity LED (Amber)
Unconfigured Radio	On	On
Normal Operation	• If this radio band is enabled: Blink at 5 second interval • If this radio band is disabled: Off • If there is activity on this band: Blink interval at 1 time per second	• If this radio band is enabled: Blink at 5 second interval • If this radio band is disabled: Off • If there is activity on this band: Blink interval at 1 time per second
Firmware Update	Off	On
Locate AP Mode	LEDs blink in an alternating green, red and amber pattern using an irregular blink rate. This LED state in no way resembles normal operating conditions.	LEDs blink in an alternating green, red and amber pattern using an irregular blink rate. This LED state in no way resembles normal operating conditions.

AP-8163 Power Options Using Power over Ethernet

Power over Ethernet (PoE) is the power source for an AP-8163 Access Point. For optimal performance, an AP-8163 can be powered by the following injectors and RFS controllers that support 802.AT PoE.

For installations requiring an outdoor PoE injector, the following options are recommended:
- AP-PSBIAS-7161-US
- AP-PSBIAS-7161-WW

The AP-PSBIAS-7161 is a 1-Port 802.3at PoE Gigabit Ethernet injector. The injector is IP66 rated for outdoor deployments when used with the weatherproof kit supplied.

There are two power cord options for the AP-PSBIAS-7161 models. The AP-PSBIAS-7161-US comes equipped with a cable with a standard three prong power plug. This plug can be removed by the installer if required when connecting to an AC source. The AP-PSBIAS-7161-WW comes equipped with a cable with open leads. Mounting kits are not supplied (see Hardware and Mounting Accessories for mounting kit part numbers).

> **Note**
> Product installation and mounting instructions are provided with the outdoor power injector. Refer to the AP-PSBIAS-7161 Install Guide.

If located within 100 meters of the controller and a PoE port is available, the AP-8163 Access Point can also be connected directly to a controller or service platform running WiNG 5.6 or higher.

A standard CAT5E cable can be used to provide the connection to the AP-8163. The GE1/POE port on the AP-8163 is where the standard CAT5E cable will connect to the Access Point and use of the weatherproof RJ45 plug kit that comes with the unit will maintain a weatherproof seal for outdoor installation at the ethernet port.

If a CAT5E cable is used to connect the Access Point to an RFS controller through a building egress, a suitable lightning protection system should be considered. A professional installer should be consulted to identify an appropriate system.

Caution

When using controllers, the total power limits for the AP-8163 must be considered. The two radio configuration draws less power than a three radio configuration. If sufficient power is not available, the AP-8163 software will disable the third radio and throttle back performance on all radio and Ethernet interfaces.

2 Installation Process

AP-8163 Ports and Connections
AP-8163 Antenna Connectors
AP-8163 Grounding Post
Verifying the Box Contents
Safety Guidelines
Access Point Placement
AP-8163 Hardware Mounting and Installation
Basic Access Point Configuration

AP-8163 models have two band unlocked radios that can operate across the 2.4GHz and 5GHz bands, subject to country regulatory approval and outdoor/band use.

> **Note**
> An AP-8163 must be installed by trained professionals familiar with RF planning and regulatory limits defined by the regulatory bodies of the country where the devices are being deployed.

All common precautions for grounding and Electrostatic Discharge (ESD) protection should be observed during deployment and installation. AP-8163 Access Points must be installed such that no harmful interference results from device operation.

Follow these procedures to install AP-8163:

1   Verify the box contents.
2   Review the precautions and warnings.

AP-8163 Ports and Connections

The AP-8163 Access Point has the following port designations:
- Antenna ports R1-A, B and C, R2-A, B and C, and R3-A and B
- Console port
- GE1/POE - LAN port
- GE2 - WAN port

AP-8163 Antenna Connectors

AP-8163 two radio models (AP-8163-66S40-US and AP-8163-66S40-WR) are configured with six N type connectors to support two active WLAN data radios.

Figure 1: AP-8163 Antenna Connector 1

When mounting antennas to ports R1-A, R1-B, and R1-C, ensure you have selected the appropriate band for the configured radio that uses ports R1-A, R1-B, and R1-C. In this instance, R1 ports relate to the software configured radio 1 settings.

When mounting antennas to connectors marked R2-A, R2-B and R2-C, these antenna ports relate to the software settings of radio 2. Care must be taken to provide the correct antenna for the operating band of each port.

AP-8163 three radio models (AP-8163-66S40-US and AP-8163-66S40-WR) are configured with eight N type connectors to support two active WLAN data radios and a dedicated sensor radio as the third.

Figure 2: AP-8163 Antenna Connector 2

As with the two radio models, R1 ports relate to the software configured radio 1 settings. When mounting antennas to connectors marked R2-A, R2-B and R2-C, the antenna ports relate to the software configured radio 2 settings. Care must be taken to provide the correct antenna for the operating band of each port.

Ports R3-A and R3-B are reserved for the sensor radio. An appropriate multi band antenna should be mounted on the unit for sensor operation.

Note
The sensor radio does not function as a WLAN data radio.

> ⚠ **Warning**
> Antenna ports where no antenna is mounted must be properly terminated using an approved IP67 terminator.

> ⚠ **Warning**
> All antenna connectors should be covered with weatherproofing tape.

AP-8163 Grounding Post

The grounding post is located on the bottom of the Access Point above the GND symbol.
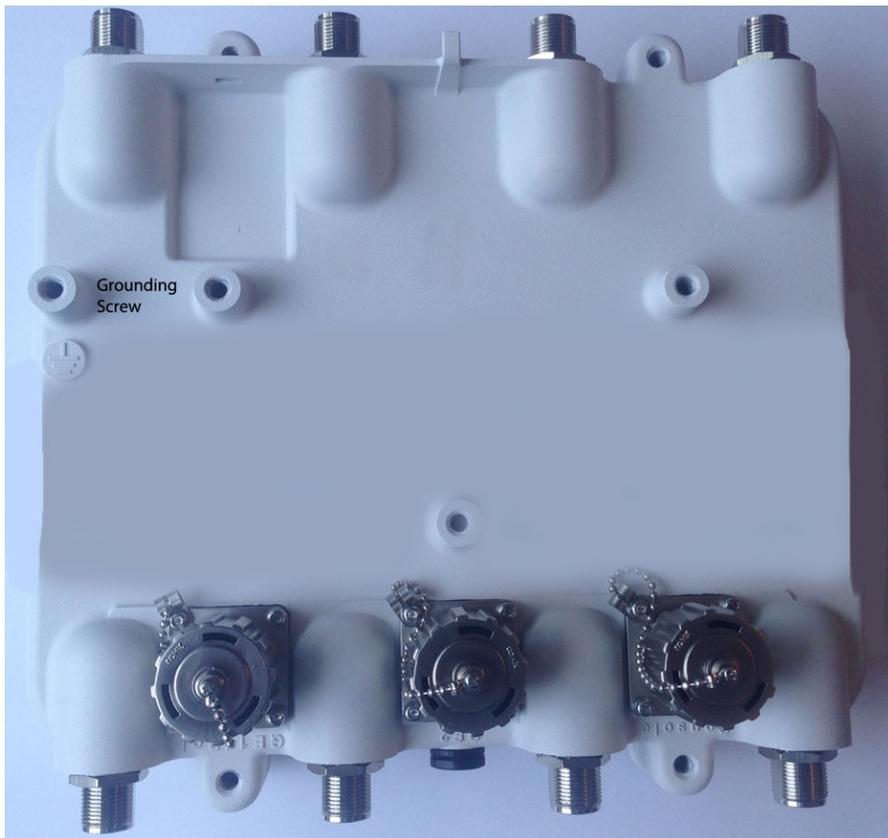
Figure 3: AP-8163 Grounding post

> ⚠ **Warning**
> The grounding cable for an AP-8163 must be at a minimum a #10 gauge wire cross section.

The grounding cable can be attached to the unit using one of the following methods:

- Use a grounding screw to securely attach the grounding cable to the grounding post. Use an 8mm socket and driver to tighten the grounding screw to 30 inch pounds (lbf-in).
- Attach a ring lug to the grounding cable and use a grounding screw to securely attach the ring lug to the Access Point. Use an 8mm socket and driver to tighten the grounding screw to 30 inch pounds (lbf-in).

Verifying the Box Contents

Carefully remove all protective packing material from around the AP-8163 Access Point and save the container for later storage and shipping. Refer to AP-8163 Hardware on page 6 when verifying all AP-8163 hardware has been received. Record the serial numbers on the shipping cartons and AP-8163 Access Points for warranty claims and reference during software download procedures.

> **Note**
> Record the serial numbers on the shipping cartons and AP-8163 Access Points for warranty claims and reference during software download procedures.

1 Verify that the box contains the following items:
   - AP-8163 Access Point
   - Weatherproof RJ45 plug kit
2 Perform a visual inspection of the AP for any signs of physical damage. Contact Extreme Networks if there are any signs of damage.

> **Note**
> Before mounting the AP-8163, read Safety Guidelines.

Safety Guidelines

This section contains notices that you must adhere to ensure your personal safety and to prevent any damage to the equipment.

> **Caution**
> All device wiring must comply with the National Electric Code (NEC) or regulations and procedures defined by the regulatory bodies of the country or region where the devices are being deployed. All local building and structure codes must be observed.

Qualified Personnel

> **Danger**
> Only qualified personnel should perform installation procedures.

Precautions

Before installing an AP-8163 model Access Point, verify the following grounding and lightning protection guidelines:
- The installation professional should be familiar with all grounding requirements and regional codes and ensure the Access Point and mounting asset are properly grounded. The grounding cable for an AP-8163 must be at a minimum a #10 gauge wire cross section. The cable can be attached to the unit using one of the following methods:
  - Loosen the grounding screw, insert the grounding cable into the hole below it, and tighten the screw.
  - Loosen the grounding screw, wind the grounding cable around it, and tighten the screw.

- Attach a ring lug to the grounding cable and secure it to the unit using the grounding screw.
- To properly attach the grounding cable to the Access Point, refer to AP-8163 Grounding Post on page 15.
- For Ethernet and lightning protection, it is recommended that a commercially available off-the-shelf Lightning Protection Unit (LPU) be used on all shielded CAT5E Ethernet connections. The LPU should be rated for outdoor use.
  - For the best possible protection, each Access Point requires an LPU be installed adjacent to the Access Point. If there is a LAN connection to an indoor network, a second LPU is required at the cable entry point to the building.

> **Caution**
> Lightning damage is not covered under the conditions of a standard product warranty. When installed correctly, Lightning Protection Units (LPUs) provide the best protection from the harmful effects of lightning. Observe all regional and national codes that apply for lightning protection.

- Verify the deployment environment has a continuous temperature range compatible with the operating temperature range of the device.

Warnings

- Read all installation instructions and site survey reports, and verify correct equipment installation before connecting the Access Point to its power source.
- Remove jewelry and watches before installing this equipment.
- Verify the unit is grounded before connecting it to the power source.
- Verify any device connected to this unit is properly wired and grounded.
- Connect all power cords to a properly wired and grounded electrical circuit. Verify the electrical circuits have appropriate overload protection.
- Attach only approved power cords to the device.
- Verify the power connector and socket are accessible at all times during the operation of the equipment.
- Do not hold any component containing a radio such that it is very close to or touching any exposed parts of the body, especially the face or eyes, while transmitting.
- Do not work with power circuits in dimly lit spaces.
- Do not install this equipment or work with its power circuits during thunderstorms or other weather conditions that could cause a power surge.
- Verify there is adequate ventilation around the device, and that ambient temperatures meet equipment operation specifications.
- Avoid contact with overhead power lines.
- Take precautions to avoid injury from falling tools and equipment. Crews should wear hard hats in and around the installation work site.
- Be aware of vehicular traffic in and around the installation work site.
- Do not operate a portable transmitter near unshielded blasting caps or in an environment where explosives are present unless the transmitter is especially certified for such use.
- Refer to your site survey and network analysis reports to determine specific requirements for each deployment.

- Assign installation responsibility to the appropriate personnel.
- Identify and document where all installed components are located.
- Identify and prepare Ethernet and console port connections.
- Verify cable lengths are within the maximum allowable distances for optimal signal transmission.

> ⚠️ **Caution**
> The maximum length allowed for PoE cables is 100 meters.

Access Point Placement

Observe the following recommended guidelines to help ensure a successful network deployment:

1 Identify each piece of the mounting bracket and mounting extension arm hardware and ancillary hardware.
2 Mount the device with the black gore vent down.

Figure 4: AP-8163 Gore Vent

- Mounting height for network devices should not exceed 30 to 35 feet. Mounting height should vary to accommodate the topography of the deployment area, foliage, and other obstructions.
- Devices can be deployed using any of the recommended outdoor deployment procedures.
- *Line of Sight* (LoS) guidelines should be given special consideration when deploying devices.

AP-8163 Hardware Mounting and Installation

Its recommended the AP-8163 mounting bracket kit (KT-147407-01) for most deployments. When a standoff distance is required for a pole mounted or wall mounted installation, use the extension arm kit (KT-150173-01).

The following sections detail the installation procedure for deploying an AP-8163 Access Point.

Mounting Bracket Kit

The AP-8163 mounting bracket kit (KT-147407-01) includes the Access Point bracket (left), angle adapter bracket (center), and pole mount bracket (right) sections:
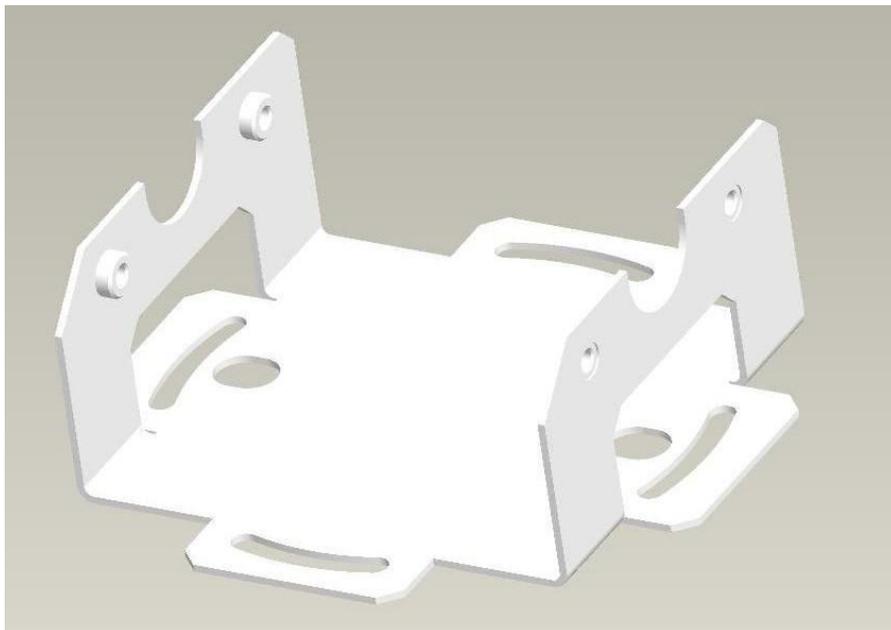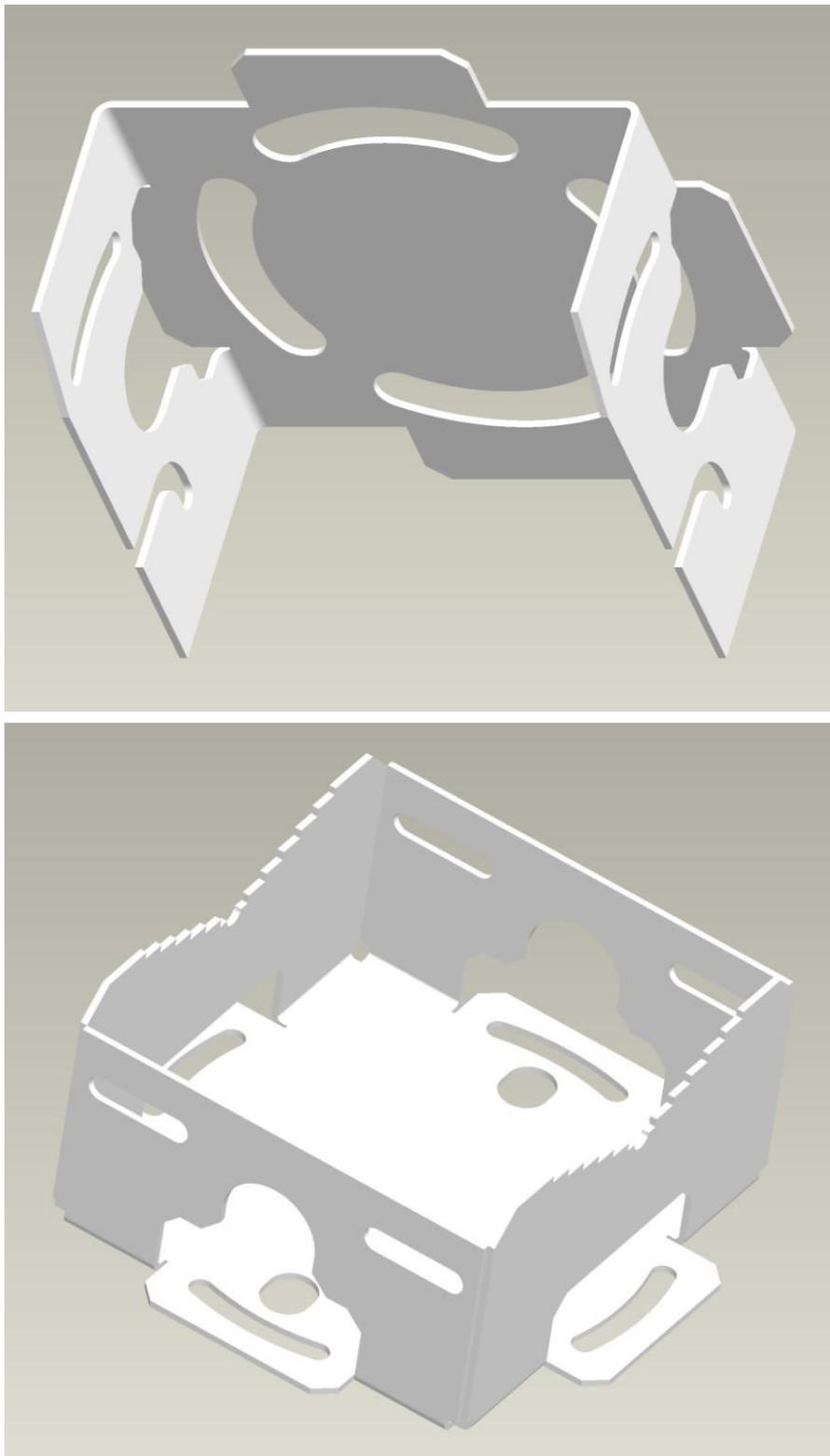
The Access Point bracket and angle adapter bracket can be rotated (plus or minus 15 degrees) and tilted (up to 45 degrees) to orient the unit for optimal positioning.

The following ancillary hardware to assemble the mounting bracket sections is included in the kit:

Table 10: AP-8163 Mounting Bracket Kit contents

Description	Quantity
M6 serrated hex flanged screws	7
1/2 inch hex head nut	2
1/2 inch x 3/4 inch hex head bolt	2

A torque wrench or ratchet with a 10mm adapter, or an adjustable wrench, can be used to assemble the mounting brackets.

Extension Arm Kit

When mounting an AP-8163 on poles more than 3 inches in diameter, use the extension arm kit (KT-150173-01) to provide a minimum standoff distance of twelve inches to avoid interference with the antennas.
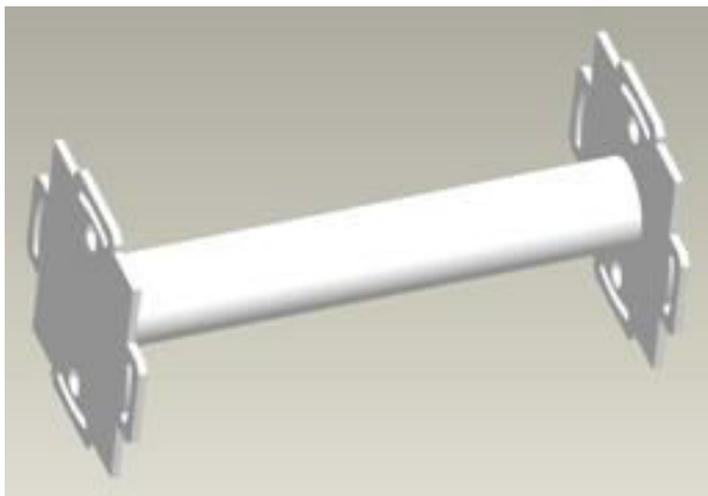

Figure 5: AP-8163 Extension Bracket

The extension arm kit can also be used in combination with the any of the brackets from the mounting bracket kit.
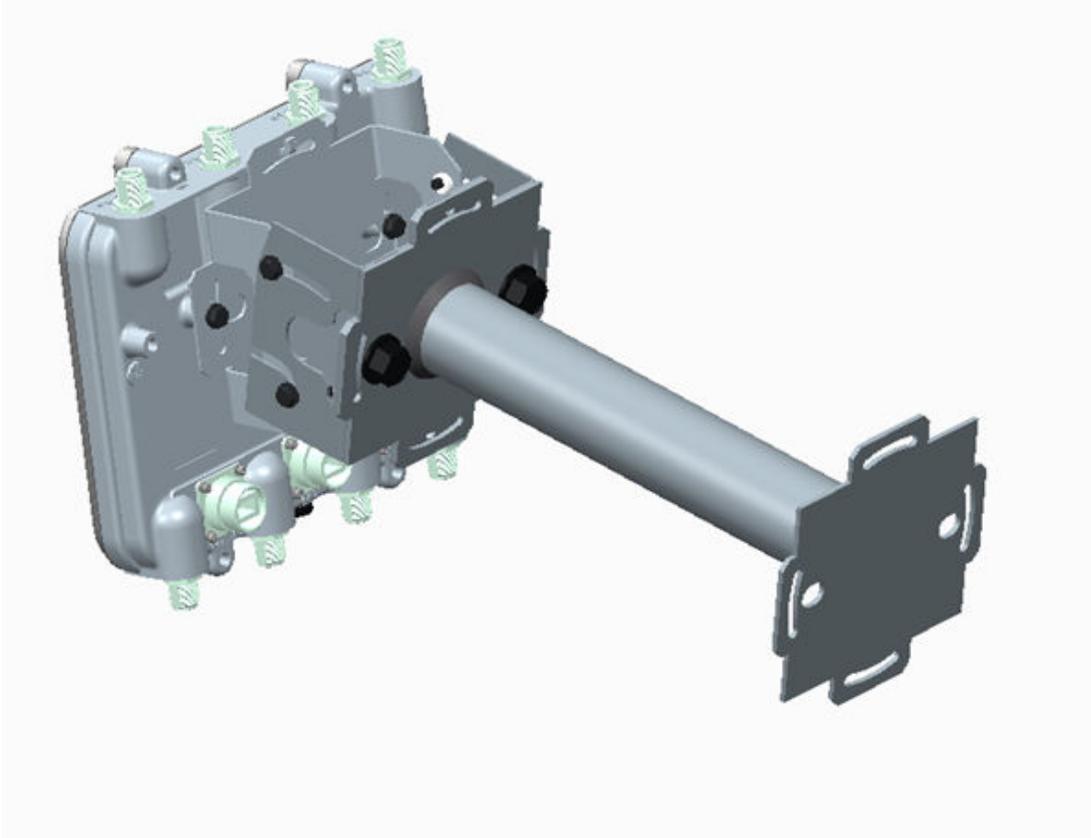
Figure 6: AP-8163 Wall Mount Extension Arm
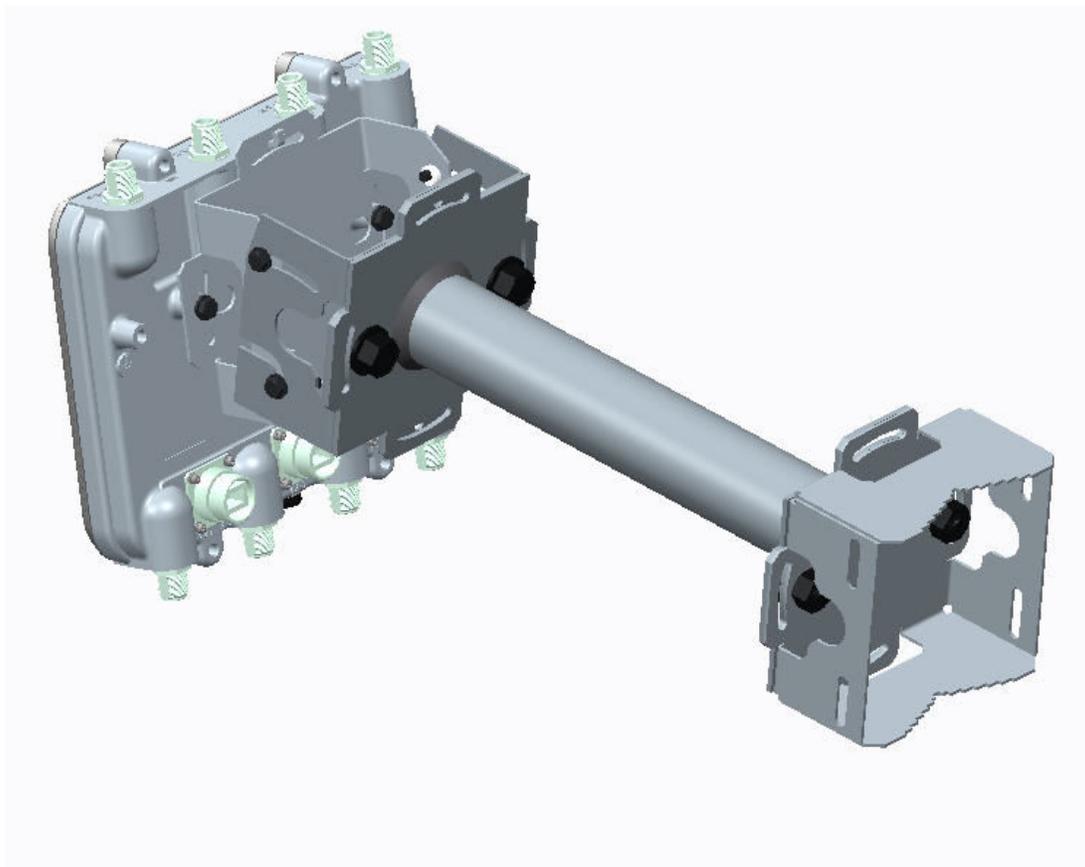
Figure 7: AP-8163 Mounting Hardware Extension Arm 2

The following ancillary hardware to attach the extension arm to the mounting bracket kit sections is included in the extension arm kit:

Table 11: AP-8163 Extension Arm Kit contents

Description	Quantity
1/2 inch hex head nut	2
1/2 inch x 3/4 inch hex head bolt	2

Installating the AP on a Pole

The mounting hardware kit and extension arm can be used in various combinations to properly install the AP-8163 on a pole. For poles of up to 3 inches in diameter, attach the pole mount bracket of the mounting hardware kit at the desired position on the pole using band clamps up to 3/4 inch width, or a 1/2 inch x 4 inch wide U-bolt and nuts. For poles greater than 3 inches in diameter, attach the pole mount bracket using band clamps.

⚠️ **Caution**
Always mount the AP-8163 with the black gore vent facing down.

> **Note**
> The U-bolt and band clamps are not included in the mounting bracket kit.

> **Note**
> Use of the extension arm is recommended for installations on poles greater than 3 inches in diameter.

Vertical Pole Mount

Use the following procedure for vertical pole mount installations. The extension arm is recommended when mounting the Access Point to poles greater than 3 inches is diameter.

For poles up to 3 inches in diameter when using a U-bolt:

1 Thread two 1/2 inch nuts onto the U-bolt.
2 Position the U-bolt on the pole and place the pole mount bracket section on the U bolt. Adjust the two 1/2 inch inner nuts until the pole mount bracket section is against the pole and the U-bolt can be secured tightly to the pole at the desired mounting location.
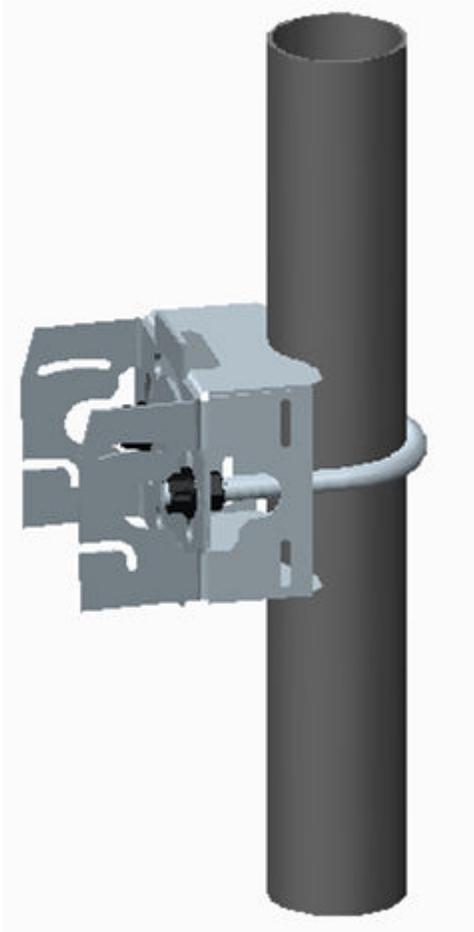
Figure 8: Mounting Harware Pole Ubolt 1

3   Place the angle adapter bracket section on the U-bolt with the open slot connections on the bottom and align it with the pole mount section. Attach with two 1/2 inch nuts. Tighten all nuts to 300 inch pounds (lbf-in).

4   Position the Access Point bracket section so the bottom of the section with the straight (not bevel cut) side is oriented toward the bottom side of the AP with the gore vent. Using a torque wrench or a ratchet and a 10mm socket, or an adjustable wrench, attach (but don't tighten) the Access Point bracket section to the AP-8163 with the four M6 flange screw.
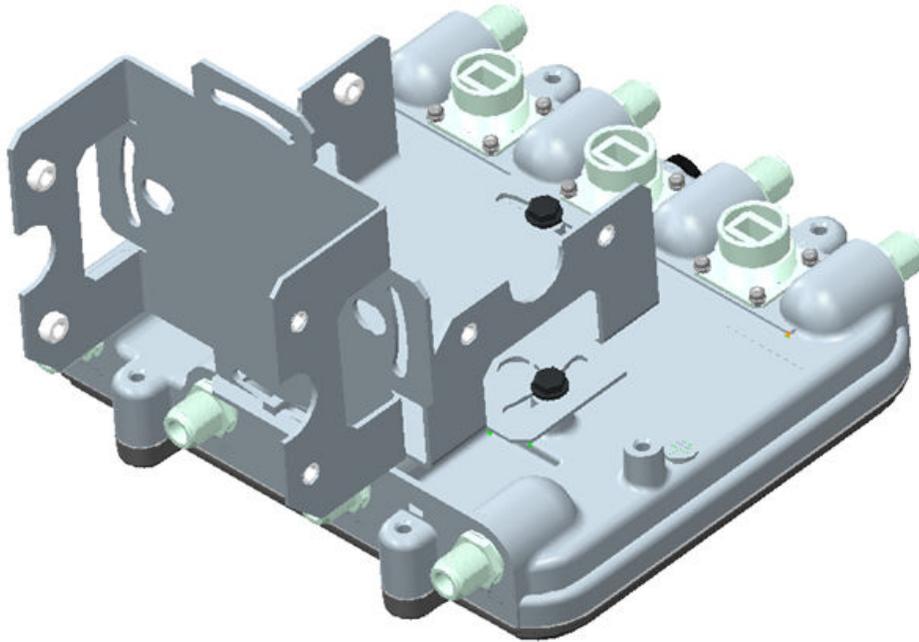
Figure 9: AP-8163 Mounting Hardware Bracket (Horizontal)

5   Insert two M6 hex flange screws into the bottom holes on the sides of the Access Point bracket section.

Figure 10: AP-8163 Mounting Hardware Bracket (Vertical)

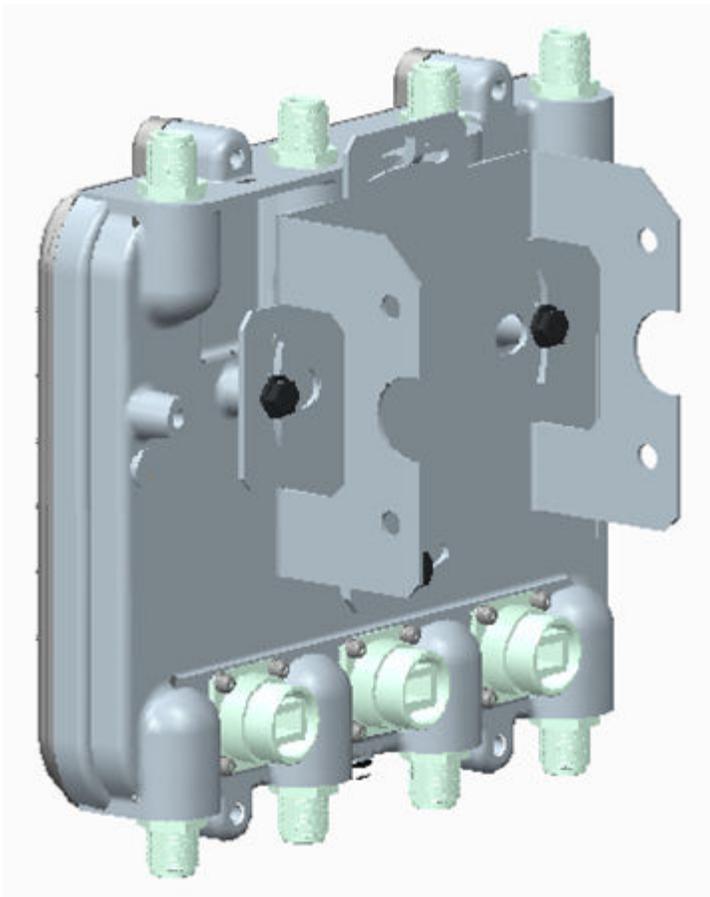6 With the Access Point positioned so the gore vent is facing down, insert the two M6 hex flange screws in the bottom holes on the sides of the Access Point bracket section into the open slot connections on the bottom of the angle adapter bracket section.
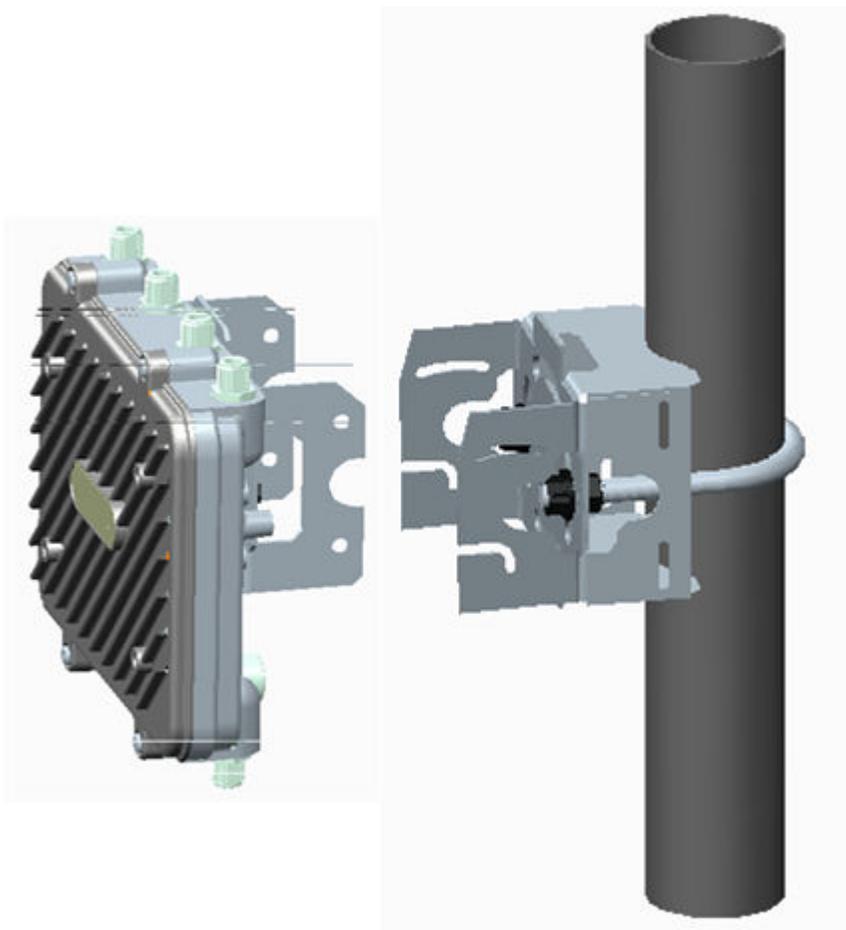
7   Rotate the Access Point bracket section upward and align the top holes on the sides with the top holes on the angle adapter bracket section. Insert two M6 hex flange screws into the top holes on the angle adapter bracket section.
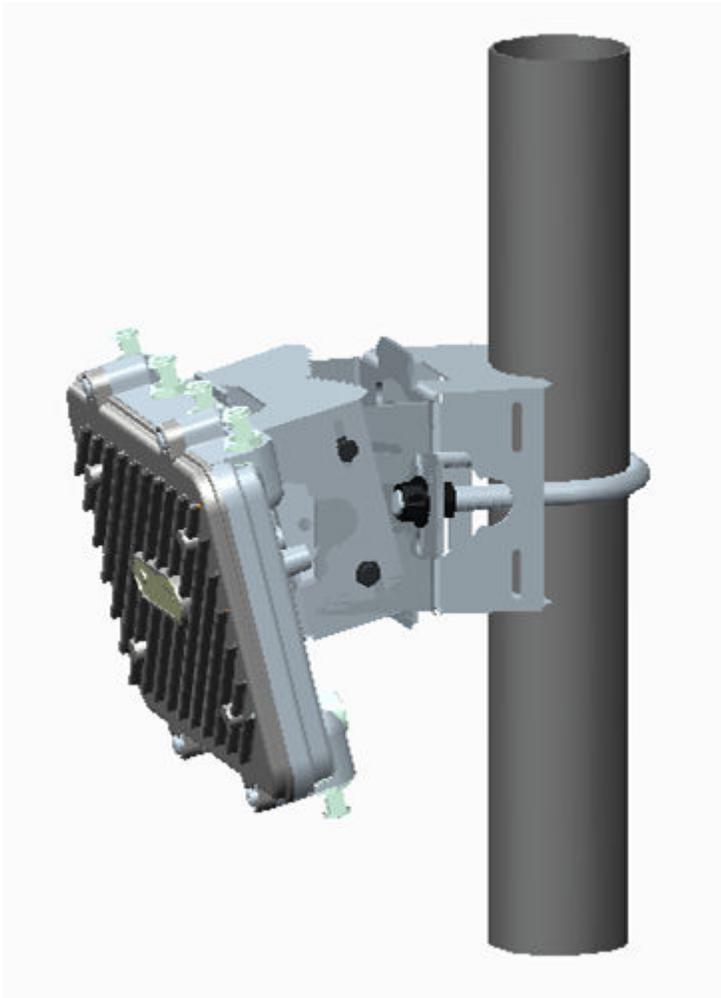
8   Use a torque wrench or a ratchet and a 10mm socket, or an adjustable wrench, to finish attaching the Access Point bracket section to the angle adapter bracket section with the M6 hex flange screws in the open slot connections and the top holes on the angle adapter bracket section. Do not tighten the screws until all rotation and tilt adjustments are complete.

9   To adjust the position of the Access Point, rotate the Access Point bracket section (plus or minus 15 degrees) and tilt the angle adapter bracket section (up to 45 degrees).

10   Tighten all hex flange screws to 60 inch pounds (lbf-in).

Pole Mounting AP-8163 with Band Clamps

Use the following procedure for mounting an AP-8163 with band clamps:

1   Attach the pole mount bracket section at the desired mounting location using band clamps.
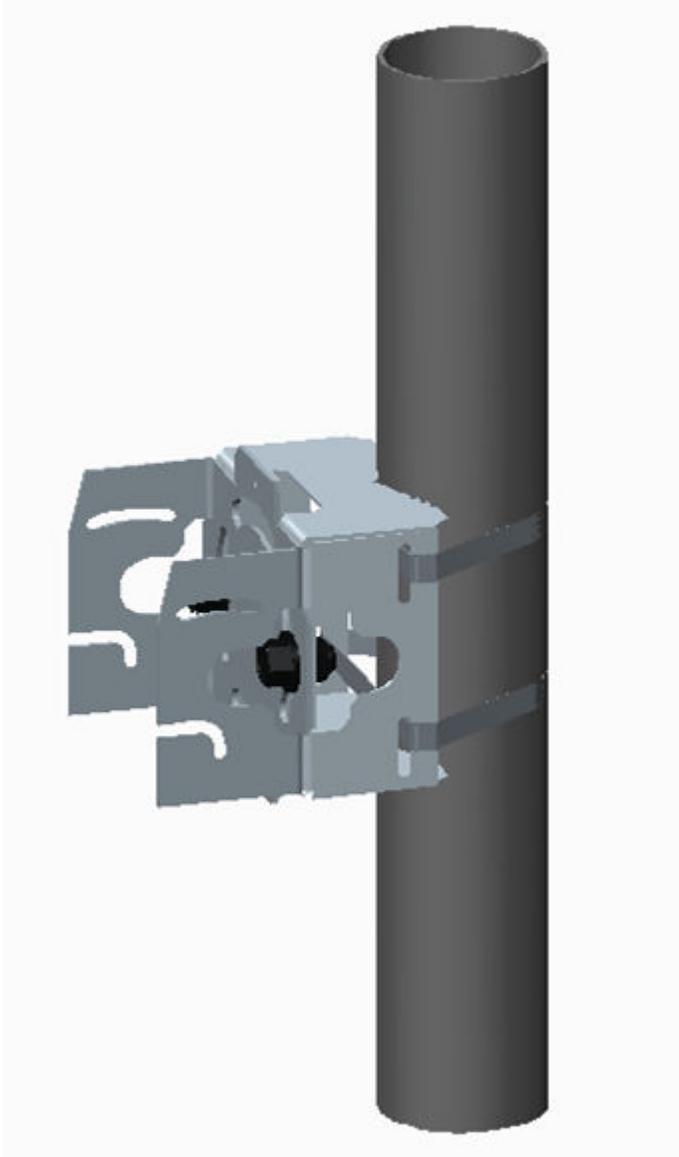
Figure 11: AP-8163 Band Clamps

2   With the angle adapter bracket section positioned so the open connector slots are on the bottom, attach the angle adapter bracket section to the pole mount bracket section using two 1/2 inch bolts and nuts. Tighten the nuts to 300 inch pounds (lbf-in).

3   Position the Access Point bracket section so the bottom of the section with the straight (not bevel cut) sides is oriented toward the bottom side of the AP with the gore vent. Using a torque wrench or a ratchet and a 10mm socket, or an adjustable wrench, attach (but don't tighten) the Access Point bracket section to the AP-8163 with the four M6 hex flange screws.

4   Insert two M6 hex flange screws into the bottom holes on the sides of the Access Point bracket section.

5   With the Access Point positioned so the gore vent is facing down, insert the two M6 hex flange screws in the bottom holes on the sides of the Access Point bracket section into the open slot connections on the bottom of the angle adapter bracket section.

6   Rotate the Access Point bracket section upward and align the top holes on the sides with the top holes on the angle adapter bracket section. Insert two M6 hex flange screws into the top holes on the angle adapter bracket section. Use a torque wrench or a ratchet and a 10mm socket, or an adjustable wrench, to finish attaching the Access Point bracket section to the angle adapter bracket section with the M6 hex flange screws in the open slot connections and the top holes on the angle adapter bracket section. Do not tighten the screws until all rotation and tilt adjustments are complete.

7   To adjust the position of the Access Point, rotate the Access Point bracket section (plus or minus 15 degrees) and tilt the angle adapter bracket section (up to 45 degrees).

8   Tighten all hex flange screws to 60 inch pounds (lbf-in).

Pole Mounting AP-8163 using Extension Arms

To use the extension arm with the mounting hardware kit:

1   Attach the pole mount section at the desired mounting location using a U-bolt or band clamps.
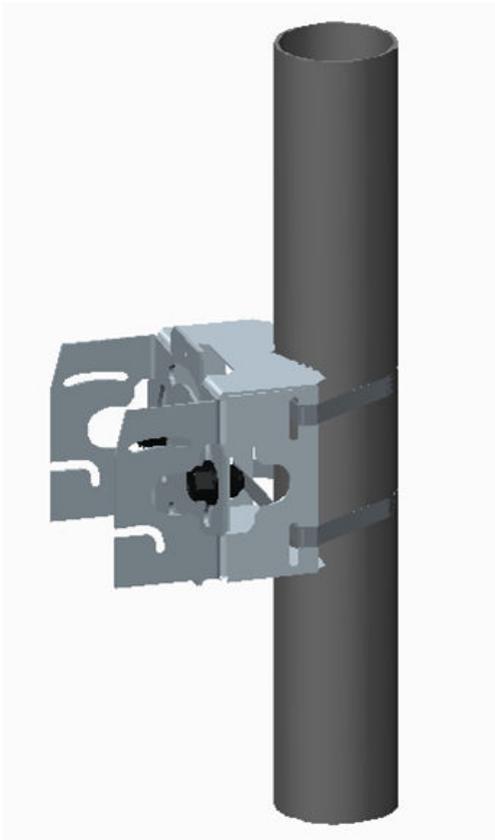
Figure 12: AP-8163 Band Clamps

2   Complete the steps for assembling and positioning the mounting bracket sections for poles less than or greater than 3 inches. See Vertical Pole Mount.

3   Using a torque wrench or a ratchet and a 10mm socket, or an adjustable wrench, attach the extension arm to the Access Point bracket section with four M6 hex flange screws. The two oval holes must be positioned on the short sides of the Access Point. Tighten the hex flange screws to 60 inch pounds (lbf-in) the unit.
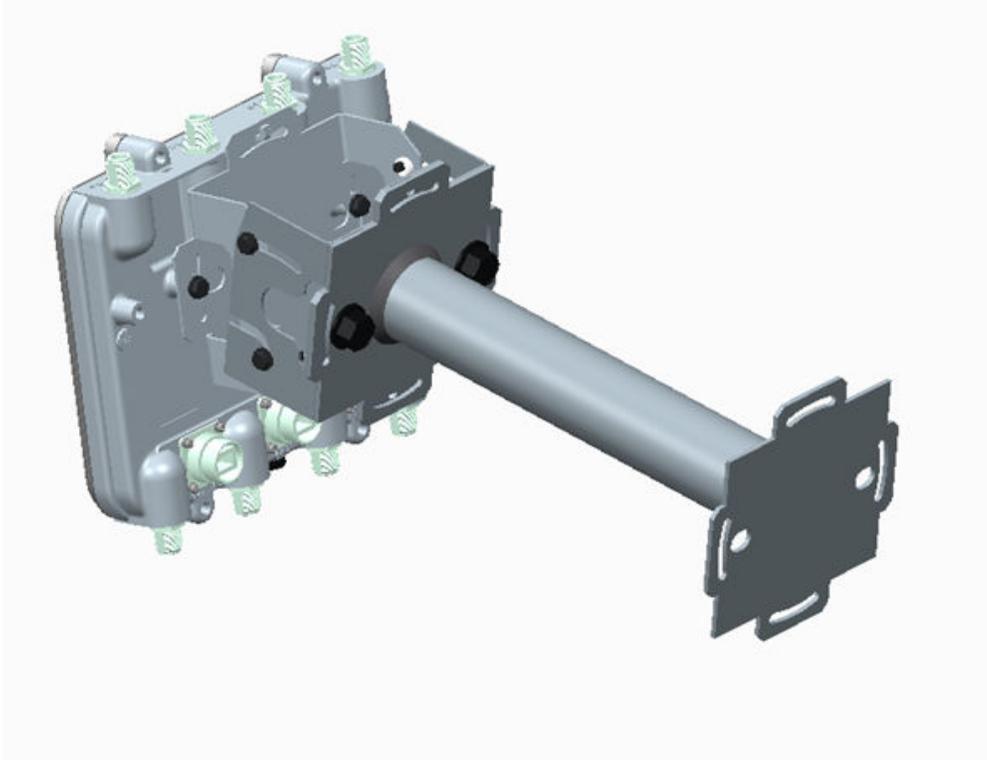
Figure 13: AP-8163 Extension Arm

4 With the Access Point positioned so the gore vent is facing down, attach the extension arm to the Access Point bracket section with two 1/2 inch bolts and nuts. Tighten the nuts to 300 inch pounds (lbf-in).
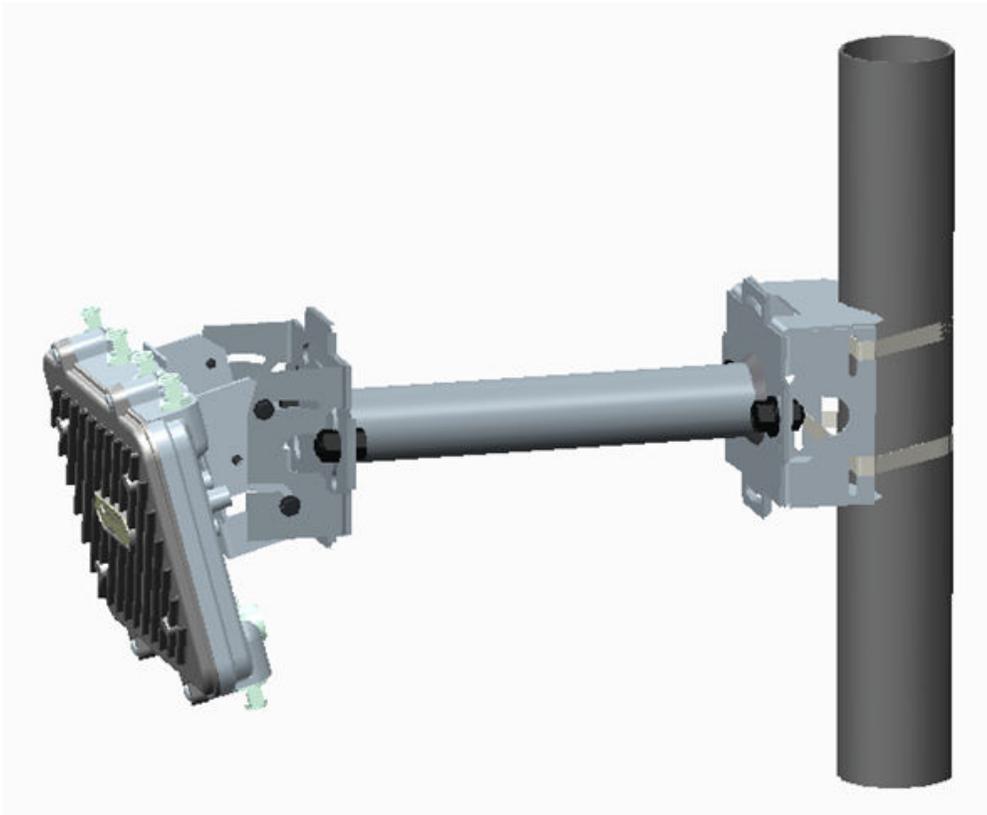
Figure 14: AP-8163 Mounting Hardware Band Clamps

Mounting the AP-8163 on a Wall

For wall mounted installations, use only the Access Point bracket section and angle adjust bracket section if required.

> ⚠️ **Caution**
> Always mount the AP-8163 with the black gore vent facing down.

> 📌 **Note**
> The U-bolt and band clamps are not included in the mounting bracket kit.

> 📌 **Note**
> The lag bolts are not included in the mounting bracket kit.

1 With the open slot connections facing down, attach the angle adjust bracket section at the desired mounting location using four #10/32 lag bolts.

2   Using a torque wrench or a ratchet and a 10mm socket, or an adjustable wrench, attach (but don't tighten) the Access Point bracket section to the AP-8163 with four M6 hex flange screws and insert two M6 hex flange screws into the bottom holes on the sides of the Access Point bracket section.
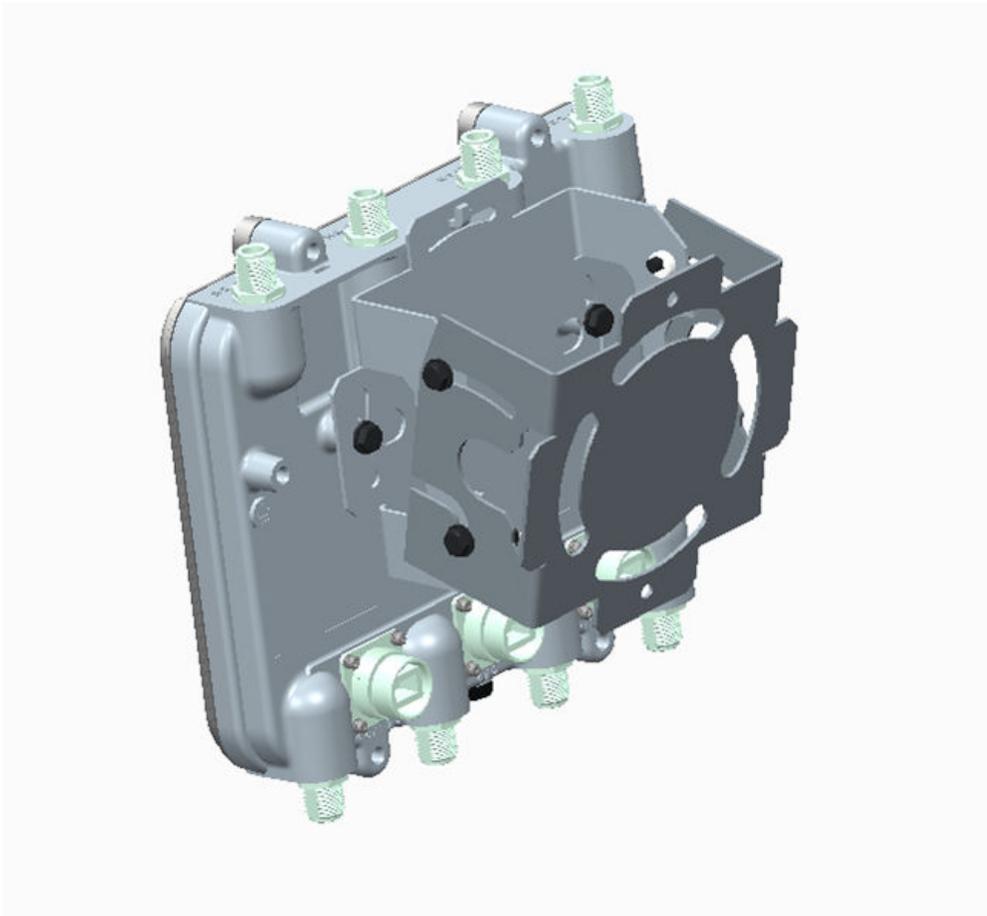
Figure 15: AP-8163 Mounting Hardware Wall Mount

3   With the Access Point positioned so the gore vent is facing down, insert the two M6 hex flange screws in the bottom holes on the sides of the Access Point bracket section into the open slot connections on the bottom of the angle adapter bracket section. Rotate the Access Point bracket section upward and align the top holes on the sides with the top holes on the angle adapter bracket section. Insert two M6 hex flange screws into the top holes on the angle adapter bracket section.

4   Use a torque wrench or a ratchet and a 10mm socket, or an adjustable wrench, to finish attaching the angle adapter bracket section to the Access Point bracket section with the four M6 hex flange screws in the open slot connections and the top holes on the angle adapter bracket section. Do not tighten the screws until all rotation and tilt adjustments are complete.

5   To adjust the position of the Access Point, rotate the Access Point bracket section (plus or minus 15 degrees) and tilt the angle adapter bracket section (up to 45 degrees).

6   Use a torque wrench or a ratchet and a 10mm socket, or an adjustable wrench, to tighten all screws when all adjustments are complete.

7   Tighten all hex flange screws to 60 inch pounds (lbf-in).

Wall Mounting AP-8163 using Extension Arms

To use the extension arm with the mounting hardware kit:

1 With the open slot connections facing down, attach the angle adjust bracket section at the desired mounting location using four #10/32 lag bolts.
2 Complete the steps for assembling and positioning the angle adapter bracket and Access Point bracket sections outlined above. See Vertical Pole Mount.
3 With the Access Point positioned so the gore vent is facing down, attach the extension arm to the Access Point bracket section with two ½ inch bolts and nuts. Tighten bolts to 300 inch pounds (lbf-in).
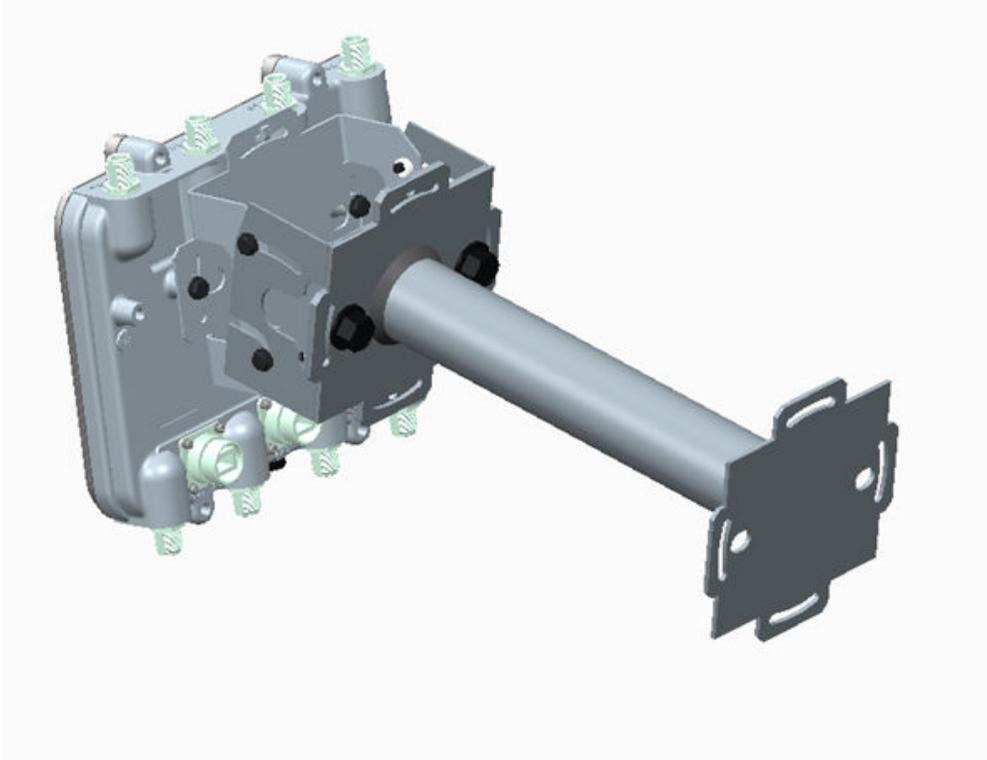
Basic Access Point Configuration

Once the Access Point is installed and powered on, complete the following steps to get the device up and running and access management functions:

1 Attach an Ethernet cable from the Access Point to a controller with an 802.3af compatible power source or use the PWRS-14000-148R power supply to supply power to the AP-8162 (once fully cabled).

   If your host system is a DHCP server, an IP address is automatically assigned to the AP-8162 and can be used for device connection. However, if a DHCP server is not available, you'll need to derive the IP address from the AP MAC address. Using this method, the last two bytes of the MAC address become the last two octets of the IP address.

   MAC address - 00:C0:23:00:F0:0A

   Zero-Config IP address - 169.254.240.10

   To derive the Access Point's IP address using its MAC address:

   1 Open the Windows calculator be selecting **Start > All Programs > Accessories > Calculator**. This menu path may vary slightly depending on your version of Windows.
   2 With the Calculator displayed, select **View > Scientific**. Select the **Hex** radio button.
   3 Enter a hex byte of the Access Point's MAC address. For example, F0.
2 Select the **Dec** radio button.The calculator converts F0 into 240. Repeat this process for the last Access Point MAC address octet.Point the Web browser to the Access Point's IP address. The following login screen displays:
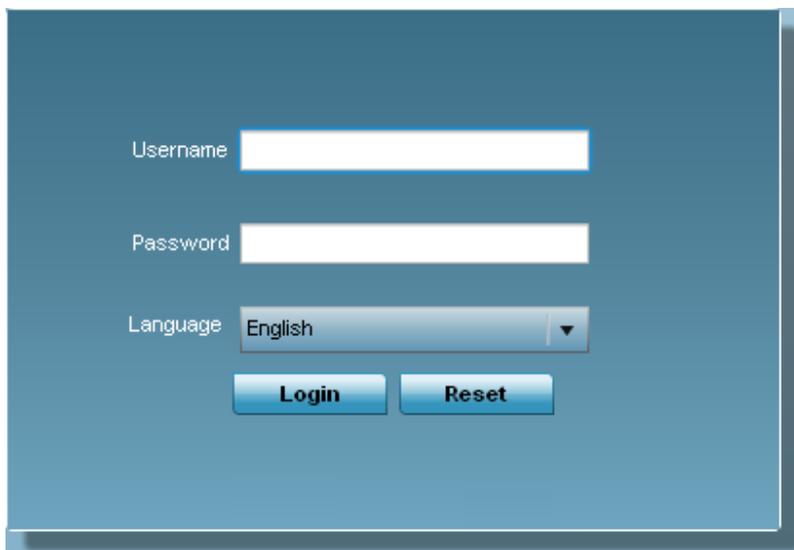
Figure 16: Login Screen

3 Enter the default username `admin` in the **Username** field.
4 Enter the default password `admin123` in the **Password** field.

5 Click the **Login** button to load the management interface.

> **Note**
> When logging in for the first time, you're prompted to change the password to enhance device security in subsequent logins.

> **Note**
> If you get disconnected when running the wizard, you can connect again with the Access Point's actual IP address (once obtained) and resume the wizard.

6 If this is the first time the management interface has been accessed, the Initial Setup Wizard automatically displays.

Figure 17: Initial Setup Wizard

> **Note**
> The Initial Setup Wizard displays the same pages and content for each Access Point model supported. The only difference being the number of radios configurable by model, as an AP7131 model can support up to three radios, AP6522, AP6532, AP6562, AP8132 and AP7161 models support two radios and AP6511 and AP6521 models support a single radio.

a The **Introduction** screen displays the various actions that can be performed using the wizard under the **Function Highlight** field.

b Use the **Choose One type to Setup the Access Point** field options to select the type of wizard to run. The **Typical Setup** is the recommended wizard. This wizard uses the default parameters for most of the configuration parameters and sets up a working network with the least amount of manual configuration.

c The **Advanced Setup** wizard is for administrators who prefer more control over the different configuration parameters. A few more configuration screens are available for customization when the **Advanced Setup** wizard is used.

d The first page of the **Initial Setup Wizard** displays the **Navigation Panel** and **Function Highlights** for the configuration activities comprising the Access Point's initial setup. This page also displays options to select the typical or advanced mode for the wizard.

e The **Navigation Panel** for the **Typical Setup Wizard** displays the basic configuration options.

```
Navigation Panel

✔  Introduction

🖳  Access Point Settings

🖳  Network Topology

🖧  LAN Configuration

🖧  Wireless LAN Setup

📄  Summary and Commit
```
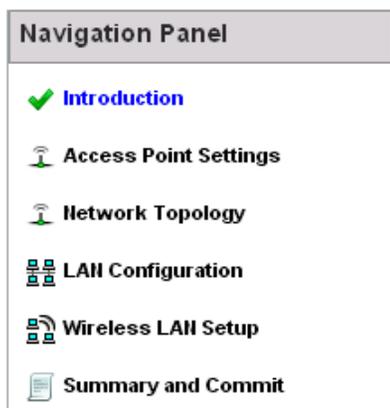
Figure 18: Navigation Panel

A green checkmark to the left of an item in the **Navigation Panel** defines the task as having its minimum required configuration set correctly. A red **X** defines a task as still requiring at least one parameter be defined correctly.

7 Select **Save/Commit** within each page to save the updates made to that page's configuration. Select **Next** to proceed to the next page listed in the **Navigation Panel** without saving your updates.

> **Note**
> While you can navigate to any page in the navigation panel, you cannot complete the **Initial AP Setup Wizard** until each task in the **Navigation Panel** has a green checkmark.

For the purposes of this guide, use the **Typical Setup** (Recommended) option to simplify the process of getting the Access Point up and running quickly with a minimum number of changes to the Access Point's default configuration.

For information on using the Access Point's Advanced Setup option, refer to the WiNG Access Point System Reference Guide to familiarize yourself with the feature set supported by the WiNG operating system. The guide is available at www.extremenetworks.com/documentation/.

Configuring the Access Point using the Typical Setup Wizard

To configure the Access Point using the Typical Setup Wizard:

1 Select **Typical Setup** from the **Choose One type to Setup the Access Point** field on the **Initial Setup Wizard**.

The **Typical Setup Wizard** displays the **Access Point Settings** screen to define the Access Point's Standalone versus Virtual Controller AP functionality. This screen also enables selection of the country of operation for the Access Point.

Access Point Type Selection

○ Virtual Controller AP - When more than one access point is deployed, a single access point can function as a Virtual Controller AP and manage Dependent mode access points. The Virtual Controller AP can adopt and configure other like APs in a 24-cell deployment.

◉ Standalone AP - Select this option to deploy this access point as an autonomous "fat" access point. A standalone AP isn't managed by a Virtual Controller AP, or adopted by a controller.

Country [Choose a Country Code ▼]

Figure 19: Access Point Type selection

2 Select an **Access Point Type** from the following options:

- **Virtual Controller AP** - When more than one Access Point is deployed, a single Access Point can function as a Virtual Controller AP. Up to 24 Access Points can be connected to, and managed by, a single Virtual Controller AP of the same Access Point model. These connected Access Points must be the same model as the Virtual Controller AP.

- **Standalone AP** - Select this option to deploy this Access Point as an autonomous fat Access Point. A Standalone AP isn't managed by a Virtual Controller AP, or adopted by a controller.

> **Note**
> If wanting to adopt the Access Point to a controller or service platform, use the controller or service platform's resident UI to connect to the Access Point, provision its configuration and administrate the Access Point's configuration.

> **Note**
> If designating the Access Point as a Standalone AP, its recommended the Access Point's UI be used exclusively to define its device configuration, and not the CLI. The CLI provides the ability to define more than one profile and the UI does not. Consequently, the two interfaces cannot be used collectively to manage profiles without an administrator encountering problems.

3 Select the Country Code of the country where the Access Point is deployed. Selecting a proper country is a critical task while configuring the Access Point, as it defines the correct channels of operation and ensures compliance to the regulations of the selected country. This field is only available for the Typical Setup Wizard.

4 Select **Next** to set the Access Point's network mode.

The **Typical Setup Wizard** displays the **Network Topology** screen to define how the Access Point handles network traffic.

Figure 20: Initial Setup Wizard Networking mode

5 Select an Access Point Mode from the available options.

- **Router Mode** -In Router Mode, the Access Point routes traffic between the local network (LAN) and the Internet or external network (WAN). Router mode is recommended in a deployment supported by just a single Access Point.
- **Bridge Mode** - In Bridge Mode, the Access Point depends on an external router for routing LAN and WAN traffic. Routing is generally used on one device, whereas bridging is typically used in a larger density network. Select Bridge Mode when deploying this Access Point with numerous peer Access Points supporting clients on both the 2.4GHz and 5GHz radio bands.

> **Note**
> When Bridge Mode is selected, WAN configuration cannot be performed and the Typical Setup Wizard does not display the WAN configuration screen.

6   Select **Next**.

The **Typical Setup Wizard** displays the **LAN Configuration** screen to set the Access Point's LAN interface configuration.

Figure 21: Initial Setup Wizard LAN Configuration

7   Set the following DHCP and Static IP Address/Subnet information for the LAN interface:

- **Use DHCP** - Select the checkbox to enable an automatic network address configuration using the Access Point's DHCP server.

- **Static IP Address/Subnet** - Enter an IP Address and a subnet for the Access Point's LAN interface. If Use DHCP is selected, this field is not available. When selecting this option, define the following **DHCP Server** and Domain Name Server (DNS) resources, as those fields will become enabled on the bottom portion of the screen.
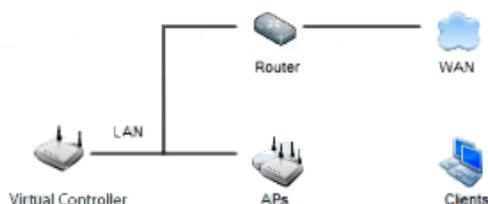
  - **Use on-board DHCP server to assign IP addresses to wireless clients** - Select the checkbox to enable the Access Point's DHCP server to provide IP and DNS information to clients on the LAN interface.

  - **Range** - Enter a starting and ending IP Address range for client assignments on the LAN interface. Avoid assigning IP addresses from `x.x.x.1 – x.x.x.10` and **x.x.x.255**, as they are often reserved for standard network services. This is a required parameter.

  - **Default Gateway** - Define a default gateway address for use with the default gateway. This is a required parameter.

- **DNS Forwarding** - Select this option to allow a DNS server to translate domain names into IP addresses. If this option is not selected, a primary and secondary DNS resource must be specified. DNS forwarding is useful when a request for a domain name is made but the DNS server, responsible for converting the name into its corresponding IP address, cannot locate the matching IP address.

  - **Primary DNS** - Enter an IP Address for the main **Domain Name Server** providing DNS services for the Access Point's LAN interface.

  - **Secondary DNS** - Enter an IP Address for the backup **Domain Name Server** providing DNS services for the Access Point's LAN interface.

8   Select **Next**.

The **Typical Setup Wizard** displays the **Wireless LAN Setup** screen to set the Access Point's Wireless LAN interface configuration.

Figure 22: Typical Setup Wizard WLAN Steup

9   Set the following WLAN1 Configuration parameters:

a   **SSID** - Configure the SSID for the WLAN.

b   **WLAN Type** - Configure the encryption and authentication to use with this WLAN.

- **No Authentication and No Encryption** - Configures a network without any authentication. This option also configures the network without encryption. This means that any data transmitted through the network is in plain text. Any device between end points can see the information transmitted. This is the least secure of all network configurations.

- **Captive Portal Authentication and No Encryption** - Configures a network that uses a RADIUS server to authenticate users before allowing them on to the network. Once on the network, no encryption is used for the data being transmitted through the network. Select this option to use a Web page (either internally or externally hosted) to authenticate users before access is granted to the network.

- **PSK authentication, WPA2 encryption** - Configures a network that uses PSK authentication and WPA2 encryption. Select this option to implement a pre-shared key that must be correctly shared between the Access Point and requesting clients using this WLAN.

10 Select **Next**.

The **Typical Setup Wizard** displays the **RADIUS Server Configuration** screen if required. Otherwise, the **Typical Setup Wizard** displays the **Summary and Commit** screen.

11 Use the **Radius Server Configuration** screen to configure the users for the onboard RADIUS server. Use the screen to add, modify, and remove RADIUS users.

Some WLANs require authentication using the on-board RADIUS server. User accounts must be added for all users that should be authorized by the server.

Username	Description

Figure 23: Radius Server Configuration

12 Select **Add User** to display the dialog to enter user information to add to the RADIUS server user database.

Figure 24: Radius Server User database

13 Enter the following user information:

- **Username** - Provide a user name used to authenticate the user.
- **Password** - Provide a password used to authenticate the user.
- **Confirm Password** - Confirm the password by entering the same password as entered in the Password field.
- **Description** - Provide a description to identify the user created in the RADIUS server database.

14 To create the entry in the RADIUS server database and add another user, select **Create**. To create the entry in the RADIUS server database and close the **Add User** dialog, select **Create & Close**.

15 Select **Modify User** on the **RADIUS Server Configuration** screen to modify information for an existing user from the RADIUS database. Highlight the user entry then select **Modify User**.

> **Note**
> The Username cannot be modified with this dialog.

16 Select **Delete User** on the **RADIUS Server Configuration** screen to remove information for an existing user from the RADIUS database. Highlight the user entry and select **Delete User**.

17 Select **Confirm** on the dialog displayed. The entry for the user is removed from the RADIUS database.

18 To dismiss the dialog without adding, modifying or removing entries in the RADIUS server database, select **Cancel**.

19 Select **Next**.

The **Typical Setup Wizard** displays the **Summary and Commit** screen to summarize the screens (pages) and settings updated using the **Typical Setup Wizard**.
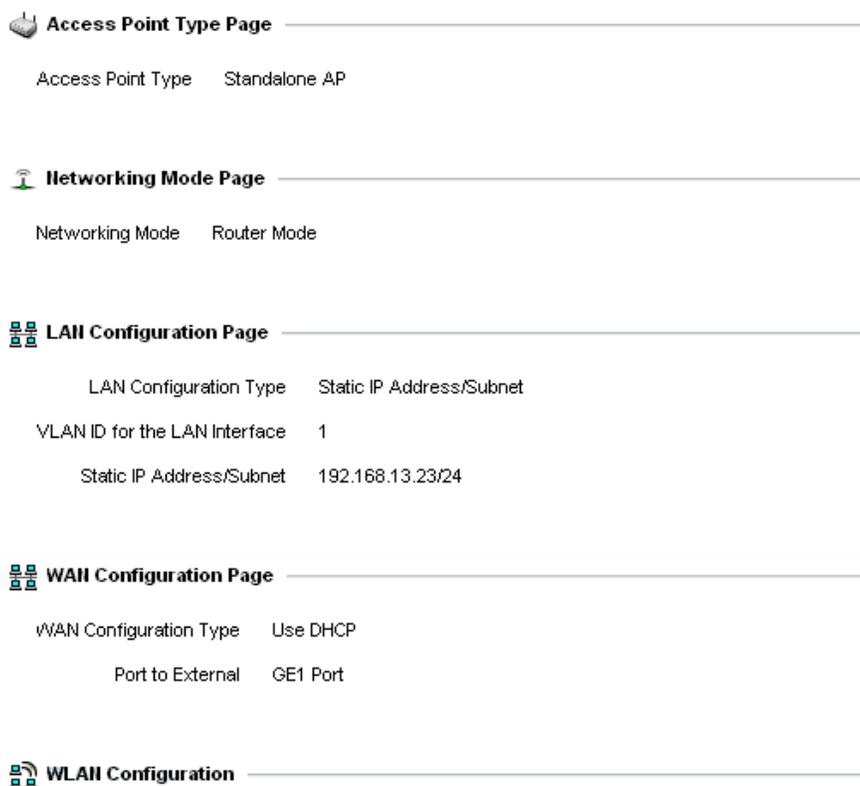
Figure 25: Initial Setup Wizard Summary

No user intervention or additional settings are required. Its an additional means of validating the Access Point's updated configuration before it's deployed. However, if a screen displays settings not intended as part of the initial configuration, then any screen can be selected again from within the Navigation Panel and its settings modified accordingly.

20 If the configuration displays as intended, select **Save/Commit** to implement these settings to the Access Point's configuration. If additional changes are warranted based on the summary, either select the target page from the **Navigational Panel**, or use the **Back** and **Next** buttons to scroll to the target screen.

3 Specifications

This appendix lists the specifications for the ExtremeWireless™ WiNG™ Access Point AP-8163.

Table 12: Physical Characteristics

Item	Specification
Dimensions	9.0 in. L x 10.0 in. W x 2.6 in. H 22.8 cm L x 25.4 cm W x 6.6 cm H
Weight (Unit)	5.6lbs / 2.54 Kg
Housing	Outdoor IP67 rated, die-cast aluminum, corrosion resistant enclosure, salt, fog, rust per ASTM B117
LED activity indication	2 top mounted LEDs
Uplink	2 ports (GE1/GE2) auto-sensing 10/100/1000BaseT Ethernet; 802.3at on GE1 LAN port
Antenna Connectors	8 N-Type console ports
Console Port	Outdoor rated RJ45 console port
Multi Band Security Sensor	Outdoor 24x7 Wireless Intrusion Prevention System (WIPS)

Table 13: Environmental Characteristics

Item	Specification
Operating Temperature	-22° F to 140° F/-30° C to 60° C
Storage Temperature	-40° F to 185° F/-40° C to 85° C
Operating Humidity	5 to 95% RH non-condensing
IP Sealing	IP 67
Operating Altitude	8,000 ft. at 12 °C
Storage Altitude	30,000 ft. at 28 °C
Wind Rating	150 mph
Electrostatic Discharge	15kV air, 8kV contact
Operational Shock	IEC60721-3-4, Class 4M3, MIL STD 810F
Operational Vibration	IEC60721-3-4, Class 4M3

Table 14: Power Characteristics

Item	Specification
Operating Voltage	36-57 VDC
Operating Current	625mA at 48V in 802.3at mode
Integrated PoE	802.3at

4 Regulatory Information

Wireless Country Approvals

Frequency of Operation - FCC and IC

Canada

Health and Safety Recommendations

RF Exposure Guidelines

Power Supply

Radio Frequency Interference Requirements

CE Marking and European Economic Area (EEA)

Statement of Compliance

TURKISH WEEE Statement of Compliance

Other Countries

Waste Electrical and Electronic Equipment

AP-8163 Series ROHS Compliance

Wireless Country Approvals

Regulatory markings are applied to the device signifying the radio(s) are approved for use in the following countries: United States, Canada, Australia, and Europe.

Please refer to the Declaration of Conformity (DoC) for details of other country markings. This is available at: www.extremenetworks.com

> **Note**
>
> Europe includes, Austria, Belgium, Bulgaria, Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Operation of the device without regulatory approval is illegal.

Country Selection

Select only the country in which you are using the device. Any other selection will make the operation of this device illegal.

Frequency of Operation - FCC and IC

2.4 GHz Only

The available channels for 802.11bg operation in the US are Channels 1 to 11. The range of channels is limited by firmware.

Canada

Industry Canada Statement

> **Caution**
> The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-Channel mobile satellite systems. High power radars are allocated as primary users (meaning they have priority) of 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

Avertissement

Le dispositive fonctionnant dans la bande 5150-5250 MHz est réservé uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bands 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

Health and Safety Recommendations

Warnings for the Use of Wireless Devices

Please observe all warning notices with regard to the usage of wireless devices.

Potentially Hazardous Atmospheres

Wireless devices transmit radio frequency energy and may affect medical electrical equipment. When installed adjacent to other equipment, it is advised to verify the adjacent equipment is not adversely affected.

Pacemakers

Pacemaker manufacturers recommended that a minimum of 15cm (6 inches) be maintained between a handheld wireless device and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with independent research and recommendations by Wireless Technology Research.

Persons with Pacemakers:

1 Should ALWAYS keep the device more than 15cm (6 inches) from their pacemaker when turned ON.
2 Should not carry the device in a breast pocket.
3 Should use the ear furthest from the pacemaker to minimise the potential for interference.
4 If you have any reason to suspect that interference is taking place, turn OFF your device.

Other Medical Devices

Please consult your physician or the manufacturer of the medical device, to determine if the operation of your wireless product may interfere with the medical device.

RF Exposure Guidelines

Reduce RF Exposure - Use Properly

Only operate the device in accordance with the instructions supplied.

International

The device complies with internationally recognized standards covering human exposure to electromagnetic fields from radio devices. For information on "International" human exposure to electromagnet fields refer to the Declaration of Conformity (DoC) at www.extremenetworks.com.

Europe

Remote and Standalone Antenna Configurations

To comply with EU RF exposure requirements, antennas that are mounted externally at remote locations or operating near users at stand-alone desktop of similar configurations must operate with a minimum separation distance of 26 cm from all persons.

US and Canada

Co-located statement

To comply with FCC RF exposure compliance requirement, the antenna used for this transmitter must not be co-located or operating in conjunction with any other transmitter/antenna except those already approved in this filling.

To satisfy US and Canadian RF exposure requirements, a transmitting device must operate with a minimum separation distance of 35 cm or more from a person's body.

Pour satisfaire aux exigences Américaines et Canadiennes d'exposition aux radiofréquences, un dispositif de transmission doit fonctionner avec une distance de séparation minimale de 35 cm ou plus de corps d'une personne.

Power Supply

This device must be powered from a 802.3af or 802.3at compliant power source which has been certified by the appropriate agencies, or by a approved UL LISTED Type no. PWRS-14000-247R or AP-PSBIAS-2P3-ATR, direct plug-in power supply, marked Class 2 or LPS (IEC60950-1,SELV). Use of alternative Power Supply will invalidate any approvals given to this unit and may be dangerous

Radio Frequency Interference Requirements

FCC
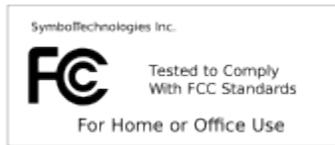
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate 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 different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Australia

Use of 5 GHz RLAN's in Australia is restricted in the following band: 5.50 – 5.65 GHz.

Canada

For RLAN Devices

The use of 5 GHz RLAN's, for use in Canada, have the following restrictions:

- Restricted Band 5.60 - 5.65 GHz

This device complies with RSS 247 of Industry Canada. Operation is subject to the following two conditions: (1) this device may not causeharmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-247 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet 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.

Label Marking: The Term "IC:" before the radio certification only signifies that Industry Canada technical specifications were met.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that permitted for successful communication.

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

The maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

In compliance with respective local regulatory law, the AP software provides professional installers the option to configure the antenna type and antenna gain for approved antennas.

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Refer to section x.x of this guide for a listing of the 2.4 and 5 GHz antennas initially approved for use with the AP-8163.

CE Marking and European Economic Area (EEA)

CE

The use of 2.4 GHz RLAN's, for use through the EEA, have the following restrictions:
- Maximum radiated transmit power of 100 mW EIRP in the frequency range 2.400 -2.4835 GHz
- Italy requires a user license for outside usage.

Statement of Compliance

Extreme Networks hereby declares that this radio equipment is in compliance with Directive 2011/65/EU and 1999/5/EC or 2014/53/EU (2014/53/EU supersedes 1999/5/EC from 13thJune 2017). A Declaration of Conformity may be obtained from www.extremenetworks.com.

TURKISH WEEE Statement of Compliance

EEE Yönetmeliğine Uygundur

Other Countries

Australia

Use of 5 GHz RLAN's in Australia is restricted in the following band: 5.50 – 5.65 GHz.

Brazil (UNWANTED EMISSIONS - ALL PRODUCTS)

Regulatory Declarations for AP-8163 - BRAZIL

For more information consult the website http://www.anatel.gov.br.

Declarações Regulamentares para AP-8163 - Brasil

Note

A marca de certificação se aplica ao Transceptor, modelo AP-8163. Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário. Para maiores informações sobre ANATEL consulte o site: http://www.anatel.gov.br.

Chile

Este equipo cumple con la Resolución No 403 de 2008, de la Subsecretaria de telecomunicaciones, relativa a radiaciones electromagnéticas.

China

通过访问以下网址可下载当地语言支持的产品说明书

www.extremenetworks.com/documentation/

确认进网标贴和证书真伪可查询网址

http://www.tenaa.com.cn/

Hong Kong

In accordance with HKTA1039, the band 5.15GHz - 5.35GHz is for indoor operation only.

Mexico

Restrict Frequency Range to: 2.450 – 2.4835 GHz.

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 debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

S. Korea

For a radio equipment using 2400~2483.5MHz or 5725~5825MHz, the following two expression should be displayed:

무선설비는 운용 중 전파혼신 가능성이 있음

당해 무선설비 는전파혼 신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없습니다.

Taiwan

臺灣

低功率電波輻射性電機管理辦法

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。

在 5.25-5.35 秭赫頻帶內操作之無線資訊傳輸設備，限於室內使用。

無線接入點 (專業安裝)

1.　　「本公司於說明書中提供所有必要資訊以指導使用者/安裝者正確的安裝及操作」警語。

並於該中文使用說明書及器材上標示

2.　　「本器材須經專業工程人員安裝及設定，始得設置使用，且不得直接販售給一般消費者」警語。

Ukraine

Дане обладнання відповідає вимогам технічного регламенту №1057, № 2008 на обмеження щодо використання деяких небезпечних речовин в електричних та електронних пристроях.

Thailand

เครื่องโทรคมนาคมและอุปกรณ์นี้ มีความสอดคล้องตามข้อกำหนดของ กทช.

Waste Electrical and Electronic Equipment

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 Customer Support at +353 61 705500 (Ireland).

AP-8163 Series ROHS Compliance

部件名称 (Parts)	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
			有害物质			15
金属部件 (Metal Parts)	X	O	O	O	O	O
电路模块 (Circuit Modules)	X	O	O	O	O	O
电缆及电缆组件 (Cables and Cable Assemblies)	X	O	O	O	O	O
塑料和聚合物部件 (Plastic and Polymeric Parts)	O	O	O	O	O	O
光学和光学组件 (Optics and Optical Components)	O	O	O	O	O	O
电池 (Batteries)	O	O	O	O	O	O

本表格依据 SJ/T 11364 的规定编制。

O: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

X: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。
(企业可在此处，根据实际情况对上表中打 "×" 的技术原因进 行进一步说明。)

This table was created to comply with China RoHS requirements for the AP-8163 model Access Point.

Glossary

Chalet

Chalet is a web-based user interface for setting up and viewing information about a switch, removing the need to enter common commands individually in the CLI.

CLI

Command Line Interface. The CLI provides an environment to issue commands to monitor and manage switches and wireless appliances.

Data Center Connect

DCC, formerly known as DCM (Data Center Manager), is a data center fabric management and automation tool that improves the efficiency of managing a large virtual and physical network. DCC provides an integrated view of the server, storage, and networking operations, removing the need to use multiple tools and management systems. DCC automates VM assignment, allocates appropriate network resources, and applies individual policies to various data objects in the switching fabric (reducing VM sprawl). Learn more about DCC at http://www.extremenetworks.com/product/data-center-connect/.

Extreme Access Control

EAC, formerly NAC™, featuring both physical and virtual appliances, is a pre- and post-connect solution for wired and wireless LAN and VPN users. Using Identity and Access appliances and/or Identity and Access Virtual Appliance with the *EMC (Extreme Management Center)* software, you can ensure only the right users have access to the right information from the right place at the right time. EAC is tightly integrated with the Intrusion Prevention System (IPS) and Security Information and Event Manager (SIEM) to deliver best-in-class post-connect access control. Learn more about EAC at http://www.extremenetworks.com/product/extreme-access-control/.

Extreme Application Analytics

EAA, formerly Purview™, is a network powered application analytics and optimization solution that captures and analyzes context-based application traffic to deliver meaningful intelligence about applications, users, locations, and devices. EAA provides data to show how applications are being used. This can be used to better understand customer behavior on the network, identify the level of user engagement, and assure business application delivery to optimize the user experience. The software also provides visibility into network and application performance allowing IT to pinpoint and resolve performance issues in the infrastructure whether they are caused by the network, application, or server. Learn more about EAA at http://www.extremenetworks.com/product/extremeanalytics/.

Extreme Management Center

EMC, formerly Netsight™, is a web-based control interface that provides centralized visibility into your network. EMC reaches beyond ports, VLANs, and SSIDs and provides detailed control of individual users, applications, and protocols. When coupled with wireless and Identity & Access Management products, EMC becomes the central location for monitoring and managing all the components in the infrastructure. Learn more about EMC at http://www.extremenetworks.com/product/management-center/.

ExtremeCloud

ExtremeCloud is a cloud-based network management Software as a Service (SaaS) tool. ExtremeCloud allows you to manage users, wired and wireless devices, and applications on corporate and guest

networks. You can control the user experience with smarter edges – including managing QoS, call admission control, secure access policies, rate limiting, multicast, filtering, and traffic forwarding, all from an intuitive web interface. Learn more about ExtremeCloud at http://www.extremenetworks.com/product/extremecloud/.

ExtremeSwitching

ExtremeSwitching is the family of products comprising different switch types: **Modular** (X8 and 8000 series [formerly BlackDiamond] and S and K series switches); **Stackable** (X-series and A, B, C, and 7100 series switches); **Standalone** (SSA, X430, and D, 200, 800, and ISW series); and **Mobile Backhaul** (E4G). Learn more about ExtremeSwitching at http://www.extremenetworks.com/products/switching-routing/.

ExtremeWireless

ExtremeWireless products and solutions offer high-density WiFi access, connecting your organization with employees, partners, and customers everywhere they go. The family of wireless products and solutions includes APs, wireless appliances, and controller software. Learn more about ExtremeWireless at http://www.extremenetworks.com/products/wireless/.

ExtremeXOS

ExtremeXOS, a modular switch operating system, is designed from the ground up to meet the needs of large cloud and private data centers, service providers, converged enterprise edge networks, and everything in between. Based on a resilient architecture and protocols, ExtremeXOS supports network virtualization and standards-based SDN capabilities like VXLAN gateway, OpenFlow, and OpenStack Cloud orchestration. ExtremeXOS also supports comprehensive role-based policy. Learn more about ExtremeXOS at http://www.extremenetworks.com/product/extremexos-network-operating-system/.