Aruba RAP-108 and RAP-109 Remote Access Point

Installation Guide

The Aruba RAP-108 and RAP-109 are dual-radio, dual-band remote access points that supports the IEEE 802.11n standard for high-performance WLAN. These access point uses MIMO (Multiple-in, Multiple-out) technology and other high-throughput mode techniques to deliver high-performance, 802.11n 2.4 GHz and 5 GHz functionality while simultaneously supporting existing 802.11a/b/g wireless services.

The RAP-108/RAP-109 ships with Aruba Instant software. Therefore, out of the box, the RAP-108/RAP-109 will operate as a Virtual Controller (VC) or an Instant AP. However, the RAP-108/RAP-109 can be converted to operate as a Remote AP (RAP). For information about the IAP to RAP conversion, see RAP Conversion.

NOTE

The RAP-108/RAP-109 requires Aruba Instant 3.2 or ArubaOS 6.2.

The Aruba RAP-108/RAP-109 remote access point provides the following capabilities:

- Wireless transceiver
- Protocol-independent networking functionality
- IEEE 802.11a/b/g/n operation as a wireless access point
- IEEE 802.11a/b/g/n operation as a wireless air monitor
- Compatibility with IEEE 802.3af and 802.3at

Package Contents

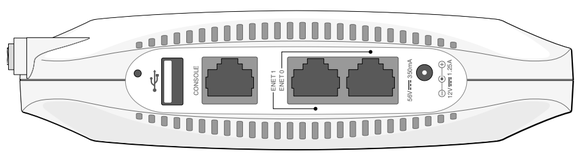
- RAP-108 or RAP-109 Remote Access Point
- RAP-108/RAP-109 Mounting Stand
- Installation Guide

NOTE

Inform your supplier if there are any incorrect, missing, or damaged parts. If possible, retain the carton, including the original packing materials. Use these materials to repack and return the unit to the supplier if needed.

RAP-108/RAP-109 Hardware Overview

Figure 1 *Ports*



Reset Button

The reset button can be used to return the AP to factory default settings. To reset the AP:

1. Power off the AP.
2. Press and hold the reset button using a small, narrow object, such as a paperclip.
3. Power-on the AP without releasing the reset button. The power LED will flash within 5 seconds.
4. Release the reset button.

The power LED will flash again within 15 seconds indicating that the reset is completed. The AP will now continue to boot with the factory default settings.

USB Interface

The RAP-108/RAP-109 is equipped with a USB interface for connectivity with cellular modems.

NOTE

The USB interface is disabled when the RAP-108/RAP-109 is powered from 802.3af PoE.

Console Port

Use the console port to connect to a terminal for direct local management.

ENET 0 (Yellow)

For primary network connectivity, RAP-108/RAP-109 is equipped with a yellow 10/100/1000BASE-T (RJ-45) auto-sensing, MDI/MDX Gigabit Ethernet port. This port supports IEEE 802.3af Power over Ethernet (PoE) compliance, accepting 48VDC as a standard defined Powered Device (PD) from a Power Sourcing Equipment (PSE) such as a PoE midspan injector, or network infrastructure that supports PoE.

ENET 1 (Blue)

For secondary network connectivity, RAP-108/RAP-109 is equipped with a blue 10/100BASE-T (RJ-45) auto-sensing, MDI/MDX Fast Ethernet port.

DC Power Socket

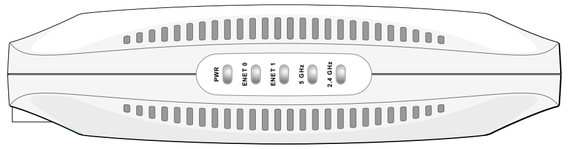
If PoE is not available, an optional Aruba AP AC-DC adapter kit (sold separately) can be used to power the RAP-108/RAP-109.

External Antenna Connectors (RAP-108 Only)

The RAP-108 is equipped with two RP-SMA external antenna connectors and requires the use of two dual-band antennas. These ports are marked ANT0 and ANT1, matching radio chains 0 and 1.

In order to ensure accurate RF power level setting and reporting in software, as well as compliance with any regulatory restrictions, the correct gain for antennas used (adjusted for any additional cabling loss, if applicable) needs to be entered in software when provisioning the RAP-108. Two antenna gain numbers are needed for this; one for each supported band (2.4GHz and 5GHz). These numbers can be obtained from the antenna datasheet or specifications. Antenna gain for RAP-109 is hardcoded to the correct values already, so there is no need for any additional action on that platform.

Figure 2 *LEDs*



LEDs

- PWR: Indicates whether or not the RAP-108/RAP-109 is powered-on
- ENET0 and ENET1: Indicates the status of the RAP-108/RAP-109's Ethernet ports
- 5 GHz: Indicates the status of the 802.11a/n radio
- 2.4 GHz: Indicates the status of the 802.11b/g/n radio

Table 1 *RAP-108/RAP-109 Series LED Meanings*

LED	Color/State	Meaning
PWR	Off	No power to AP
	Red steady	System initializing
	Green flashing	Device booting, not ready
	Green steady	Device ready
ENET0	Off	No link
	Amber	10/100 Mbps link
	Green	1000 Mbps link
	Flashing	Ethernet link activity
ENET1	Off	No link
	Green	10/100 Mbps link
	Flashing	Ethernet link activity
5 GHz	Off	5 GHz radio is disabled
	Amber steady	5 GHz radio enabled in WLAN mode
	Green steady	5 GHz radio enabled in 11n mode
	Green flashing	5 GHz Air Monitor mode
2.4 GHz	Off	2.4 GHz radio disabled
	Amber steady	2.4 GHz radio enabled in WLAN mode
	Green steady	2.4 GHz radio enabled in 11n mode
	Green flashing	2.4 GHz Air Monitor mode

Installing the AP

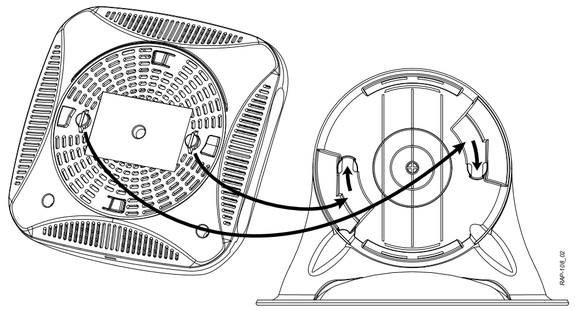
Tabletop Mounting

The RAP-108/RAP-109 is shipped with a stand to use on flat (i.e. table top) surfaces. Place the RAP-108/RAP-109 in the stand (see Figure 3) and place the stand on a flat, level surface.

To attach the RAP to the stand:

1. Align the center peg of the stand with recessed hole on the unit.
2. Align the mounting posts on the back of the AP with corresponding openings on the stand.
3. Rotate the AP clockwise until it clicks into place.

Figure 3 *Stand Installation*



Connecting the Required Cables

The RAP-108/RAP-109 must be connected to a network device that has access to the Internet, such as a router or modem. To complete the installation of the RAP-108/RAP-109:

1. Connect one end of the provided RJ-45 cable to yellow ENET 0 port on the RAP-108/RAP-109.
2. Connect the other end of the RJ-45 cable to a free RJ-45 port on your modem or router.
3. Attach the provided power adapter to the DC IN port on the RAP-108/RAP-109.
4. Connect the other end of the power adapter to a power outlet.

The RAP-108/RAP-109 is now powered on. To verify this, ensure that the PWR LED is solid green.

Verifying Successful Installation

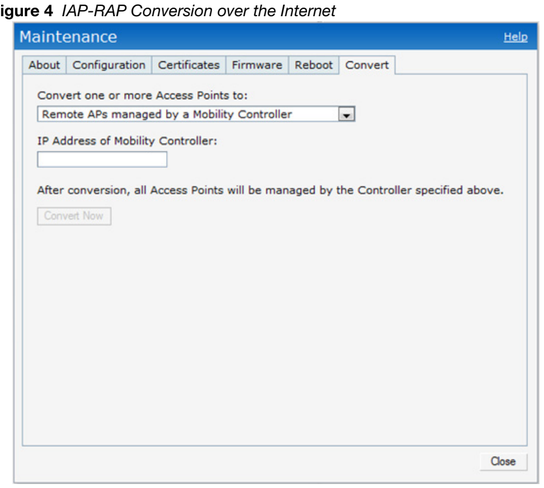
Once the RAP-108/RAP-109's PWR LED has come up, the device will take 2 to 3 minutes to complete the boot cycle. Once the boot cycle is complete, you can connect to your company or corporate network.

RAP Conversion

If your network administrator has instructed you to convert the RAP-108/RAP-109 to work in RAP mode, follow the process below to complete the RAP conversion.

1. Power up the RAP-108/ RAP-109.
2. Connect to **Instant** SSID.
3. Login to the RAP-108/RAP-109 by navigating to http://instant.arubanetworks.com and login to the Instant WebUI. The default username is **admin** and the default password is **admin**. See the included *Aruba Instant Quick Start Guide* for more information.
4. Navigate to the **Maintenance** tab in the top right.
5. Click on the **Convert** tab.
6. Select **Remote APs managed by a Mobility Controller** from the drop down menu.
7. Enter the IP address of the controller. This is provided by your network administrator.
8. Click **Convert Now** to complete the conversion (see Figure 4).
9. The RAP-108/RAP-109 will reboot and begin operating in RAP mode.

Figure 4 *IAP-RAP Conversion over the Internet*



Product Specifications

Electrical

- Ethernet:
  - 1 x 10/100/1000Base-T auto-sensing Ethernet RJ-45 Interface
  - 1x 10/100Base-T auto-sensing Ethernet RJ-45 Interface
  - MDI/MDX
  - IEEE 802.3 (10Base-T), IEEE 802.3u (100Base-T). IEEE 802.3ab (1000Base-T)
  - Power over Ethernet (IEEE 802.3af and 802.3at compliant), 56V DC/ 350mA
- Power: 12 VDC power interface, supports powering through an AC-to-DC power adapter

NOTE

If a power adapter other than the one provided by Aruba Networks is used in the US or Canada, it should be cULus (NRTL) Listed, with an output rated 12 VDC, minimum 1.25A, marked “LPS” or “Class 2,” and suitable for plugging into a standard power receptacle in the US and Canada.

For additional specifications on this product, please refer to the data sheet. The data sheet can be found at www.arubanetworks.com.

Proper Disposal of Aruba Equipment

For the most current information about Global Environmental Compliance and Aruba products, see our website at www.arubanetworks.com.

China RoHS

Aruba products also comply with China environmental declaration requirements and are labeled with the “EFUP 10” label shown at the left.

产品内含危害物质揭露表						
零部件名称	危害物质项目					
	铅 (Pb)	镉 (Cd)	汞 (Hg)	六价铬 (Cr^{6+})	PBB (多溴联苯)	PBDE (多溴二苯乙醚)
含銅及鋼材金屬件	×	○	○	○	○	○
含玻璃电阻	×	○	○	○	○	○
高温锡材	×	○	○	○	○	○
○：表示此部件使用的所有同类材料中此种有毒或有害物质的含量均低于 SJ/T11363-2006 规定的限制要求。 ×：表示此部件使用的至少一种同类材料中，此种有毒或有害物质的含量高于 SJ/T11363-2006 规定的限制要求。						

European Union RoHS

Aruba products also comply with the EU Restriction of Hazardous Substances Directive 2002/95/EC (RoHS). EU RoHS restricts the use of specific hazardous materials in the manufacture of electrical and electronic equipment. Specifically, restricted materials under the RoHS Directive are Lead (including Solder used in printed circuit assemblies), Cadmium, Mercury, Hexavalent Chromium, and Bromine. Some Aruba products are subject to the exemptions listed in RoHS Directive Annex 7 (Lead in solder used in printed circuit assemblies). Products and packaging will be marked with the “RoHS” label shown at the left indicating conformance to this Directive.

India RoHS

This product complies with RoHS requirements as prescribed by E-Waste (Management & Handling) Rules, governed by the Ministry of Environment & Forests, Government of India.

Waste of Electrical and Electronic Equipment

Aruba products at end of life are subject to separate collection and treatment in the EU Member States, Norway, and Switzerland and therefore are marked with the symbol shown at the left (crossed-out wheelie bin). The treatment applied at end of life of these products in these countries shall comply with the applicable national laws of countries implementing Directive 2002/96EC on Waste of Electrical and Electronic Equipment (WEEE).

Safety and Regulatory Compliance

Aruba Networks provides a multi-language document that contains country-specific restrictions and additional safety and regulatory information for all Aruba access points. This document can be viewed or downloaded from the following location: www.arubanetworks.com/safety_addendum.

Regulatory Model Names

The following regulatory model names apply to the RAP-108/109:

- RAP-108: APINR108
- RAP-109: APINR109

CAUTION

Aruba access points must be installed by a professional installer. The professional installer is responsible for ensuring that grounding is available and it meets applicable local and national electrical codes.

FCC

CAUTION

RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

CAUTION

When operated in the 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.

This device is electronically labeled and the FCC ID is displayed in the WebUI under the **About** menu.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. 1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Modifications not expressly approved by, Aruba Networks could void the user's authority to operate the equipment.

NOTE

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.

EMC Compliance and Warning Statement

- IEC 60601-1-2: 2007
- EN 60601-1-2: 2007

This equipment has been tested and found to comply with the limits of the standard for medical devices, IEC 60601-1-2:2007. The unit also complies with the requirements of EN 60601-1-2:2007, providing the presumption of compliance to the European Union’s Medical Device Directive 2007/47/EC. The limits are designed to provide reasonable protection against harmful interference in a typical medical installation. This equipment generates, uses and can radiate radio frequency energy, and, if not installed and used in accordance with the manufacturer’s instructions may cause harmful interference to other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes interference with other devices, which may be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the device receiving the interference.
- Increase the separation between the equipment.
- Connect the equipment into an outlet on a circuit different from that to which the other device(s) are connected.
- Consult the manufacturer or field service technician for help.

The Models APINR108 and APINR109 do not have an Applied Part as defined in IEC 60601-1. The protection against electric shock is Class ll.

Device is not protected against ingress of liquids and has a protection class of IPX0 as defined by IEC 60601-1 and IEC 60529. Equipment not suitable for use in the presence of flammable mixtures.

The unit is considered “Continuous Operation” equipment as defined by IEC 60601-1.

Power Consumption – 56 VDC 802.3at power over Ethernet or 12VDC, 1.25A for external AC supplied power (adapter sold separately); Maximum power consumption - 12.5W (without USB device connected); 15W (with USB device connected).

Mechanical Dimensions: 160mm x 160mm x 41mm; 300g.

Environmental: Operating Temp: 0° C to +40° C (+32° F to +104° F); Humidity: 5 to 95% non-condensing. Storage Temp: -40° CS to +70° C (-40°F to +158°F).

Medical

1. Equipment not suitable for use in the presence of flammable mixtures.
2. End product system, including power supply, must be evaluated to IEC 60601-1-1 and IEC 60601-1 by the end user.
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.

Brazil

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.

Hong Kong

Certified for use in Hong Kong
經驗證可在香港使用
Certificate No. 證書號碼
HK0042300009
通訊事務管理局 COMMUNICATIONS AUTHORITY

Certified for use in Hong Kong
經驗證可在香港使用
Certificate No. 證書號碼
HK0041300010
通訊事務管理局 COMMUNICATIONS AUTHORITY

Singapore

Complies with IDA Standards 200202320G

UAE

TRA
REGISTERED No: ER0102630/13
DEALER No: DA0039425/10

Indonesia

33136/SDPPI/2014
1912

32898/SDPPI/2014
1912

Taiwan

Table-APINR108/APINR109-20180220
無線接收盒：802.11a/b/g/n/ac Wireless LANAccess Point
Type Designation: APINR108-APINR109

台灣限用物質含有情況標示

單元	限用物質及其化學符號					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr(VI))	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
傳輸線和網路線	○	○	○	○	○	○
斷路器	–	○	○	○	○	○
冷卻及加熱系統	○	○	○	○	○	○
磁碟控制器	–	○	○	○	○	○
外殼	–	○	○	○	○	○
風扇	○	○	○	○	○	○
液晶顯示器	–	○	○	○	○	○
存取裝置(HDD)	–	○	○	○	○	○
液壓/氣壓系統	○	○	○	○	○	○
鍵盤	○	○	○	○	○	○
影音設備（CD/DVD/光碟機）	○	○	○	○	○	○
記憶體	○	○	○	○	○	○
滑鼠	○	○	○	○	○	○
其他機械組裝設備	–	○	○	○	○	○
變壓器/電源供應器	–	○	○	○	○	○
印刷電路零組件 (PCAs)	–	○	○	○	○	○
無線網路線	–	○	○	○	○	○
備考1. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 備考2. “–” 係指該項限用物質為排除項目。						

Aruba RAP-108 and RAP-109 Remote Access Point

Installation Guide

aruba
a Hewlett Packard Enterprise company

Contacting Aruba Networks

Web Support	
Main Site	http://www.arubanetworks.com
Support Site	https://support.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/aruba-support-program/contact-support/
Software Licensing Site	licensing.arubanetworks.com/login.php
Wireless Security Incident Response Team (WSIRT)	arubanetworks.com/support/wsirt.php
Support Email Addresses	
Americas and APAC	support@arubanetworks.com
EMEA	emea.support@arubanetworks.com
Americas and APAC Support Email	support@arubanetworks.com
WSIRT Email Please email details of any security problem found in an Aruba product.	wsirt@arubanetworks.com

Copyright

© 2018 Aruba Networks, Inc. AirWave®, Aruba Networks®, Aruba Mobility Management System®, Bluescanner, For Wireless That Works®, Mobile Edge Architecture, People Move. Networks Must Follow., RFProtect®, The All Wireless Workplace Is Now Open For Business, and The Mobile Edge Company® are trademarks of Aruba Networks, Inc. All rights reserved. All other trademarks are the property of their respective owners.

Open Source Code

Certain Aruba products include Open Source software code developed by third parties, including software code subject to the GNU General Public License (“GPL”), GNU Lesser General Public License (“LGPL”), or other Open Source Licenses. The Open Source code used can be found at this site:

http://www.arubanetworks.com/open_source

Legal Notice

The use of Aruba Networks, Inc. switching platforms and software, by all individuals or corporations, to terminate other vendors’ VPN client devices constitutes complete acceptance of liability by that individual or corporation for this action and indemnifies, in full, Aruba Networks, Inc. from any and all legal actions that might be taken against it with respect to infringement of copyright on behalf of those vendors.

Warranty

This hardware product is protected by an Aruba warranty. For details, see Aruba Networks standard warranty terms and conditions.

aruba
a Hewlett Packard Enterprise company
www.arubanetworks.com
3333 Scott Blvd
Santa Clara, California 95054
Phone: 1-800-943-4526

Aruba RAP-108 and RAP-109 Remote Access Point | Installation Guide
Part Number 0511191-04 | April 2014
0511191-04