

RAP-5WN Remote Access Point

Installation Guide

About the RAP-5WN

The Aruba RAP-5WN is part of a comprehensive remote network solution. This device works in conjunction with other Aruba products, such as Aruba Mobility Controllers, and provides the following capabilities:

- Can be deployed remotely as a Remote Access Point (RAP)
- Protocol-independent networking functionality
- IEEE 802.11 a/b/g/n operation as a wireless Access Point
- IEEE 802.11 a/b/g/n operation as a wireless Air Monitor
- Can be centrally managed, configured, and upgraded through an Aruba Mobility Controller
- Wireless Transceiver

Package Contents

- 1 x RAP-5WN Remote Access Point
- 1 x Installation Guide (this document)
- 1 x RJ-45 Ethernet Cable
- 1 x Power Adapter (12V 1.25A)
- 1 x Stand

Inform your supplier if there are any incorrect, missing or damaged parts. If possible, retain the carton, including the original packing materials. Use them to repack the product in case there is a need to return it.

Before You Begin

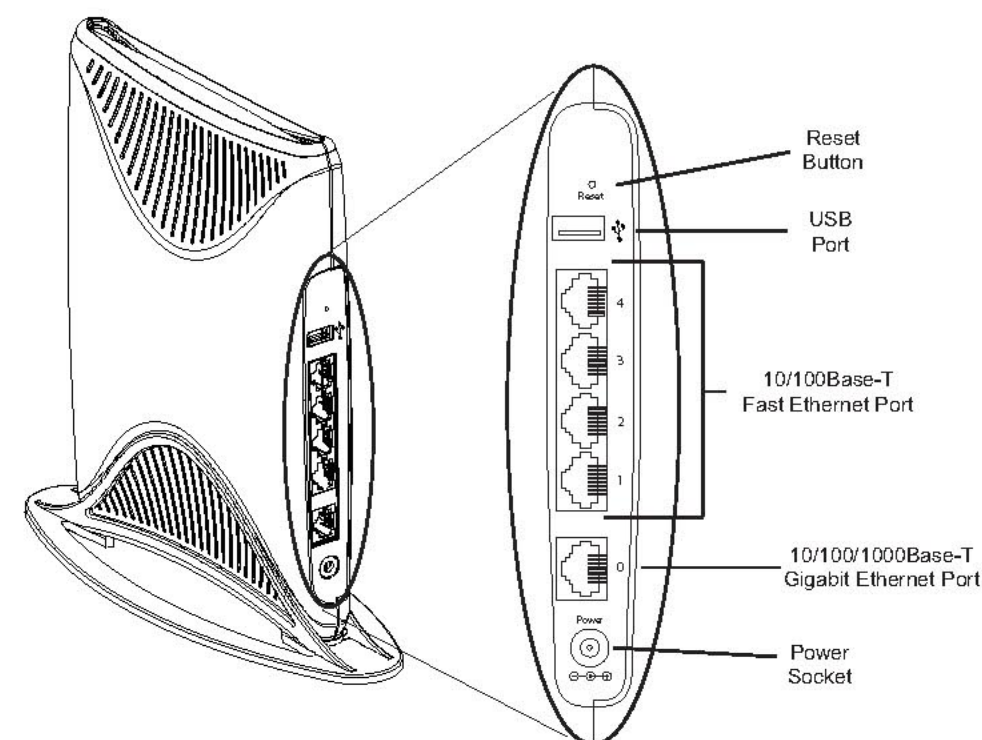
Before installing your RAP-5WN Remote Wireless Access Point, please ensure you have the following:

- 1 x RJ-45 Ethernet Cable
- 1 x Power Adapter
- 1 x RAP-5WN
- 1 x Stand

RAP-5WN Overview

Rear View

Figure 1 Rear View



10/100/1000Base-T Ethernet Port

The RAP-5WN has one 10/100/1000Base-T port used wired connectivity.

10/100Base-T Ethernet Ports

The RAP-5WN has four 10/100Base-T (RJ-45) ethernet ports for wired network connectivity. These are ports 1 through 4.

DC IN (Power Socket)

The device is turned on when the attached power adapter (included) is plugged into a power source (outlet). The device turns off by unplugging the device from the power source.

USB Port

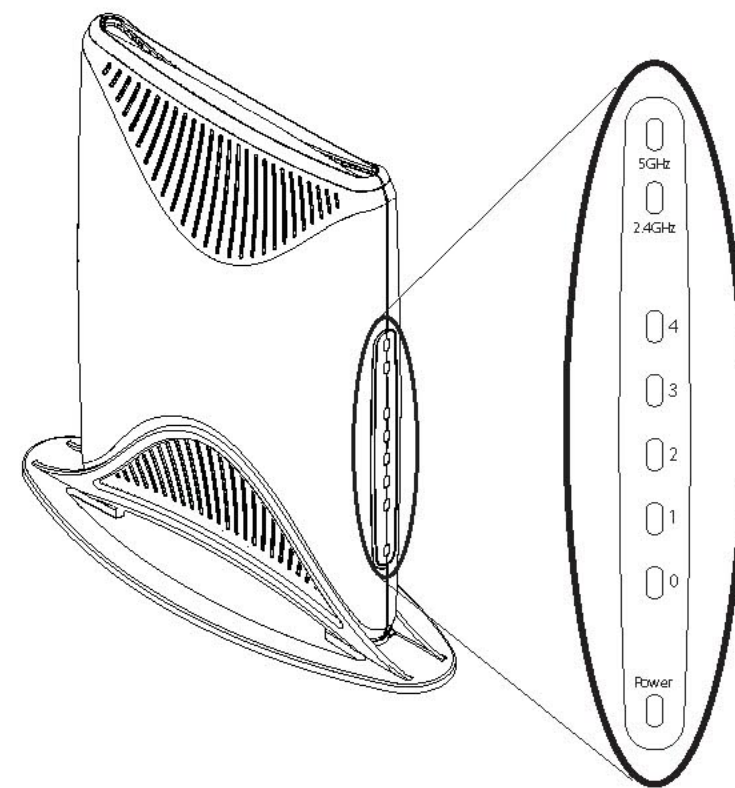
The purpose of this USB port is to support Cellular modems.

Reset Button

To reset the RAP-5WN, insert a small, narrow object, such as a pin or paperclip, into the hole indicated in Figure 1 and press and hold the button while powering on the RAP-5WN. This will return the device to factory default settings.

Front View

Figure 2 Front View



LEDs

The RAP-5WN has eight LED status indicators.

- POWER: Indicates whether or not the RAP-5WN is powered on.
- Gigabit Ethernet Port 0: Indicates activity and/or status on this port.
- Fast Ethernet Ports 1-4: Indicates activity and/or status on these ports
- 2.4 GHz Radio: Indicates status of the 2.4 GHz radio
- 5 GHz Radio: Indicates status of the 5 GHz radio.

LED	Color(s)	Activity	Action
POWER	Green, Red	Off	No Power
		On (Green)	Power on, device ready
		Flashing (Green)	Device booting, not ready
		On (Red)	Device is not booting.
Port 0 (WAN)	Green, Amber	Off	No link
		On (Amber)	Link established at 10/100 Mbps
		On (Green)	Link established at 1000 Mbps
		Flashing	Ethernet link activity
Ports 1 - 4 (LAN)	Green, Amber	Off	No link
		On (Amber)	Link established at 10 Mbps
		On (Green)	Link established at 100 Mbps
		Flashing	Ethernet link activity
2.4 GHz	Green, Amber	Off	2.4 GHz radio disabled
		On (Amber)	2.4 GHz radio enabled in 802.11b/g mode
		On (Green)	2.4 GHz radio enabled in 802.11n mode
		Flashing	2.4 GHz air monitor
5 GHz	Green, Amber	Off	5 GHz radio disabled
		On (Amber)	5 GHz radio enabled in 802.11a mode
		On (Green)	5 GHz radio enabled in 802.11n mode
		Flashing	5 GHz air monitor



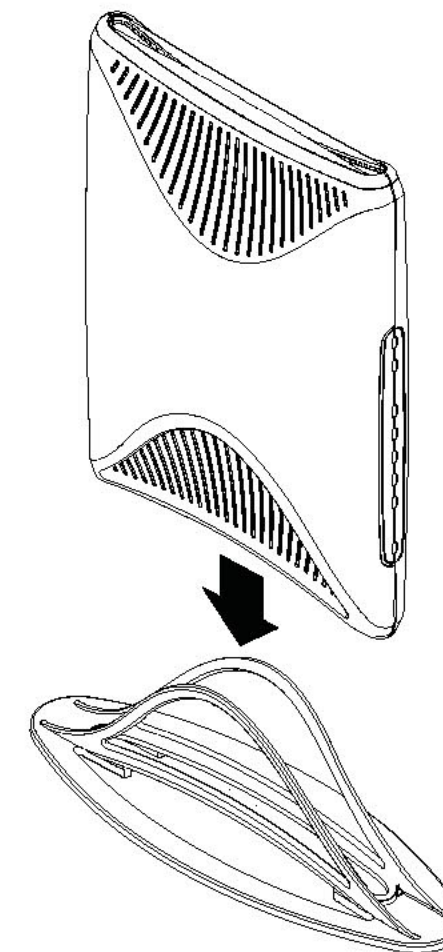
If the POWER LED remains RED for more than 10 seconds, please attempt to power cycle the device. If the LED remains RED, contact your IT administrator.

The Aruba AP Setup

Installation

The RAP-5WN is shipped with a stand to use on flat (i.e. table top) surfaces. Place the RAP-5WN in the stand (see Figure 3) and place the stand on a flat, level surface.

Figure 3 Stand Installation



Connecting the Cables

You must connect the RAP-5WN to a network device that has access to the Internet, such as a router or modem.

1. Connect one end of the provided RJ-45 cable to port 0 on the RAP-5WN.
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-5WN.
4. Connect the other end of the power adapter to a power outlet.

The POWER LED is lit (solid green) when the RAP-5WN is receiving power.

Verifying Successful Installation

Once the RAP-5WN's PWR LED has come up and the boot cycle is complete, you can connect to your company or corporate network.



See the Provisioning at Home section if you are unable to connect successfully.

Provisioning at Home

If your IT administrator instructed you to provision your RAP-5WN, complete the following steps after the RAP-5WN has been powered.

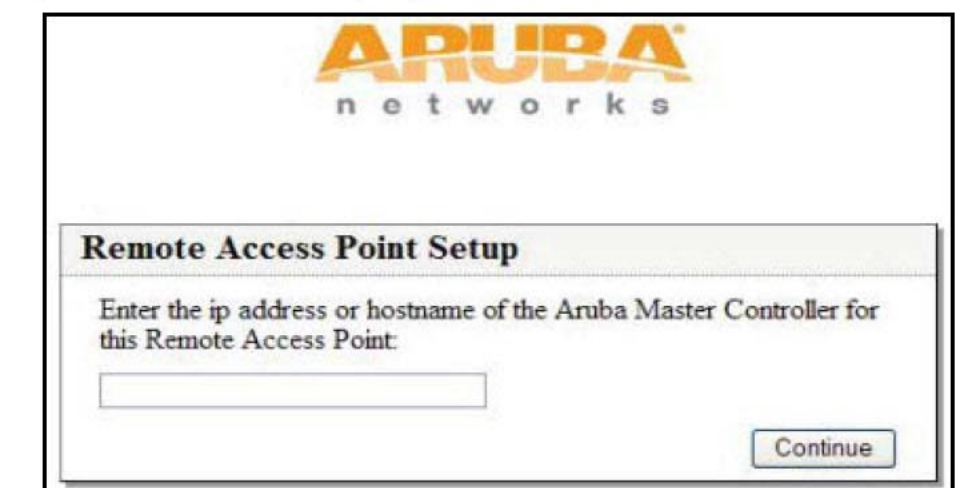
1. Connect one end of a second RJ-45 cable to port 1 on the RAP-5WN and the other end to your computer.
2. Open a web browser and navigate to any URL.
3. An Aruba web page will appear (see Figure 4), requesting the IP address of the master controller. Enter the IP address provided to you by your IT administrator.

The RAP-5WN will connect to the designated master controller and download the necessary provisioning information. When the RAP-5WN comes back up, it is ready to use.



Contact your IT administrator if you are still unable to connect successfully.

Figure 4 Manual Provisioning Page



Specifications

Mechanical

Device Dimensions (HxWxD):

- 177.8mm x 31.75mm x 241.3mm
- 7" x 1.25" x 9.5"

Device Weight:

- 1 lb. / 453.6 grams

Shipping Dimensions (HxWxD):

- 92mm x 300mm x 280mm
- 3.6" x 11.8" x 11"

Temperature:

- Operating: 0°C to 40°C (32°F to 104°F)
- Storage: -10°C to 70°C (14°F to 158°F)

Relative Humidity:

- 5% to 95% non-condensing

Mounting:

- Stand for a flat level surface (i.e. table top)

Antenna:

- Integrated, non-detachable articulating tri-band antenna

Visual Status Indicators (LEDs):

- POWER: Power / Status
- 0: 10/100/1000Base-T Ethernet Port
- 1 - 4: 10/100Base-T Ethernet Port
- 5 GHz
- 2.4 GHz

Electrical

Ethernet:

- 1 x 100/1000Base-T auto-sensing Ethernet RJ-45 Interface, MDI/MDX
- 4x 10/100 Base-T auto-sensing Ethernet RJ-45 Interface, MDI/MDX
- IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

Wireless LAN

Network Standards:

- IEEE 802.11a, IEEE 802.11b, IEEE 802.11g, and IEEE 802.11n

Antenna Type:

- Integral, dual, omni-directional multi-band dipole (supports up to 3x3 MIMO with spatial diversity)

Antenna Gain:

- 3 dBi at 2.4 GHz
- 5 dBi at 5 GHz

Radio Technology:

- Orthogonal Frequency Division Multiplexing (OFDM)
- Direct Sequence Spread Spectrum (DSSS)

Radio Modulation Type:

- 802.11a - CCK, BPSK, QPSK, 16-QAM, 64-QAM
- 802.11b - CCK, BPSK, QPSK
- 802.11g - CCK, BPSK, QPSK, OFDM
- 802.11n draft 2.0

Media Access Control:

- CSMA/CA with ACK

Supported Frequency Bands 2.4 GHz:

- 2.400 - 2.4835 GHz (Global), channels country specific

Support Frequency Bands 5 GHz

- 5.150 - 5.250 GHz (low band), country-specific
- 5.250 - 5.350 GHz (mid band), country-specific
- 5.470 - 5.725 GHz (Worldwide), country-specific
- 5.725 - 5.825 GHz (high band), country-specific

Supported Countries:

- Complete country list available at <http://www.arubanetworks.com/products/aps/certification>

Data Rates:

- 802.11b - 1, 2, 5.5, 11 Mbps per channel
- 802.11g - 6, 9, 12, 18, 24, 36, 48 and 54 Mbps per channel
- 802.11a - 6, 9, 12, 18, 24, 36, 48 and 54 Mbps per channel
- 802.11n - Data rate MCS0 - MCS15 (from 6.5 Mbps to 300 Mbps)

Output Transmit Power:

- 802.11a: 17 dBm at 6 Mbps; 15 dBm at 54 Mbps
- 802.11b: 18 dBm
- 802.11g: 17 dBm at 6Mbps; 15 dBm at 54 Mbps
- 802.11n: 19 dBm at MCS0; 11 dBm at MCS15

Miscellaneous Functionality**Maximum Clients:**

- 255 concurrent client sessions

Radio Band Selection:

- Via Mobility Controller in software

Manageability:

- Management of all 802.11 parameters
- Network Wide AP Management via CLI, WEB GUI and SNMPv3
- Access Point Profiles, managed by Geographical Location, BSSID and Radio Type

Encryption (AP and Mobility Controller):

- 40bit / 64bit / 128bit / 152bit WEP, TKIP, AES

Compliance

Aruba provides a multi-language document containing country-specific restrictions and additional safety and regulatory information for all Aruba hardware products. You can read or download this document, on our website at www.arubanetworks.com/safety_addendum.



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

Certifications**Electromagnetic Compatibility**

- FCC DOC Part 15 Class B (digital portion)
- FCC Part 15 Subpart C 15.247
- FCC Part 15 Subpart E 15.407
- ICES-003 Class B (Canada)
- RSS 210 (Canada)
- VCCI Class B (Japan)
- Telec ARIB STD-T66
- CE marked with NB letter of opinion (ETS 300 328 2.4 GHz, ETS 301 893 5GHz, EN 300 382-2, EN 301 489-1/489-17)
- R&TTE Directive
- MIC (Korea)
- SRRC (China)
- AS/NZS CISPR22: 2002 Class B
- AS/NZS 4268
- DGT (Taiwan)

Safety Compliance

- cULus Listed 60950
- IEC 60950
- EN 60950
- PSE Mark (Japan)

Disposal of the RAP-5WN

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



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

The WEEE Directive 2002/96/EC and RoHS (Restriction of Hazardous Substances) Directive 2002/95/EC sets collection, recycling and recovery targets for various categories of electrical products and their waste.

European Union RoHS

RoHS The Restriction on Hazardous Substances Directive (RoHS) (2002/95/EC), which accompanies the WEEE Directive, bans the use of heavy metals and brominated flame-retardants in the manufacture of electrical and electronic equipment. Specifically, restricted materials under the RoHS Directive are Lead (Including Solder used in PCB's), Cadmium, Mercury, Hexavalent Chromium, and Bromine.

Aruba declares compliance with the European Union (EU) WEEE Directive (2002/96/EC). For more information on WEEE, refer to: <http://www.dti.gov.uk/sustainability/weee>

China RoHS

Aruba products comply with China environmental declaration requirements and are labeled with the "EFUP 50" label shown at the left.



有毒有害物质声明
Hazardous Materials Declaration

部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substances)					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Chromium VI Compounds (Cr ⁶⁺)	多溴联苯 Polybrominated Biphenyls (PBB)	多溴二苯醚 Polybrominated Diphenyl Ether (PBDE)
电路板 PCA Board	X	O	O	O	O	O
机械组件 Mechanical Subassembly	X	O	O	O	O	O
O: 表示该有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。 This component does not contain this hazardous substance above the maximum concentration values in homogeneous materials specified in the SJ/T11363-2006 Industry Standard.						
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SJ/T11363-2006标准规定的限量要求。 This component does contain this hazardous substance above the maximum concentration values in homogeneous materials specified in the SJ/T11363-2006 Industry Standard.						
对销售之目的所售产品, 本表显示, 供应链中电子产品可能包含这些物质。 This table shows where these substances may be found in the supply chain of electronic information products, as of the date of sale of the enclosed product.						
此标志为针对所涉产品的环保使用期标志。 某些部件会有一个不同的环保使用期(例如, 电池单元模块)贴在其产品上。 此环保使用期只适用于产品是在产品手册中所规定的条件下工作。 The Environment-Friendly Use Period (EFUP) for all enclosed products and their parts are per the symbol shown here. The Environment-Friendly Use Period is valid only when the product is operated under the conditions defined in the product manual.						

Part Number: 0510303-01

Warranty

Standard warranty - 1 year return to manufacturer

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**Contacting Aruba Networks**

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

Telephone Support

Aruba Corporate	+1 (408) 227-4500
FAX	+1 (408) 227-4550
Support	
United States	800-WI-FI-LAN (800-943-4526)
Universal Free Phone Service Number (UIFN): Australia, Canada, China, France, Germany, Hong Kong, Ireland, Israel, Japan, Korea, Singapore, South Africa, Taiwan, and the UK	+800-4WIFI-LAN (+800-49434-526)
All Other Countries	+1 (408) 754-1200

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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 the standard Aruba warranty of one year parts/labor. For more information, refer to the ARUBACARE SERVICE AND SUPPORT TERMS AND CONDITIONS. Altering this device (such as painting it) voids the warranty.



www.arubanetworks.com
1344 Crossman Avenue
Sunnyvale, California 94089
Phone: 408.227.4500
Fax: 408.227.4550

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Part Number 0510580-01 | December 2008

Regulatory Approvals

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

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

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The antennas 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.

Channel

The Wireless Channel sets the radio frequency used for communication.

- Access Points use a fixed Channel. You can select the Channel used. This allows you to choose a Channel which provides the least interference and best performance. In the USA and Canada, 11 channels are available. If using multiple Access Points, it is better if adjacent Access Points use different Channels to reduce interference.
- In "Infrastructure" mode, Wireless Stations normally scan all Channels, looking for an Access Point. If more than one Access Point can be used, the one with the strongest signal is used. (This can only happen within an ESS.)
- If using "Ad-hoc" mode (no Access Point), all Wireless stations should be set to use the same Channel. However, most Wireless stations will still scan all Channels to see if there is an existing "Ad-hoc" group they can join.

Note: This equipment marketed in USA is restricted by firmware to only operate on 2.4G channel 1-11