OAW-RAP108 and OAW-RAP109 Instant Access Points

Installation Guide

The Alcatel-Lucent OAW-RAP108 and OAW-RAP109 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 OAW-RAP108/OAW-RAP109 ships with Alcatel-Lucent Instant software. Therefore, out of the box, the OAW-RAP108/OAW-RAP109 will operate as a Virtual Controller (VC) or an Instant AP. However, the OAW-RAP108/OAW-RAP109 can be converted to operate as a Remote AP (RAP). For information about the IAP to RAP conversion, see RAP Conversion.

NOTE: The OAW-RAP108/OAW-RAP109 requires Alcatel-Lucent Instant 3.2 or Alcatel-Lucent Instant 6.2.

The Alcatel-Lucent OAW-RAP108/OAW-RAP109 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

- OAW-RAP108 or OAW-RAP109 Remote Access Point
- OAW-RAP108/OAW-RAP109 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.

OAW-RAP108/OAW-RAP109 Hardware Overview

Figure 1 *Ports*
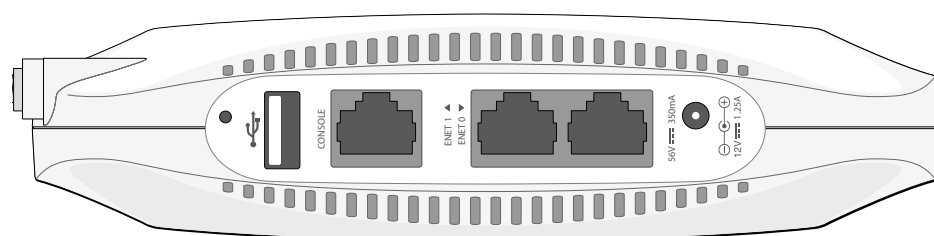
Reset Button

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 OAW-RAP108/OAW-RAP109 is equipped with a USB interface for connectivity with cellular modems.

NOTE: The USB interface is disabled when the OAW-RAP108/OAW-RAP109 is powered from 802.3af PoE.

Console Port

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

ENET 0

For primary network connectivity, OAW-RAP108/OAW-RAP109 is equipped with a 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

For secondary network connectivity, OAW-RAP108/OAW-RAP109 is equipped with a 10/100BASE-T (RJ-45) auto-sensing, MDI/MDX Fast Ethernet port.

DC Power Socket

If PoE is not available, an optional Alcatel-Lucent AP AC-DC adapter kit (sold separately) can be used to power the OAW-RAP108/OAW-RAP109.

External Antenna Connectors (OAW-RAP108 Only)

The OAW-RAP108 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 OAW-RAP108. 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 OAW-RAP109 is hardcoded to the correct values already, so there is no need for any additional action on that platform.

Figure 2 *LEDs*
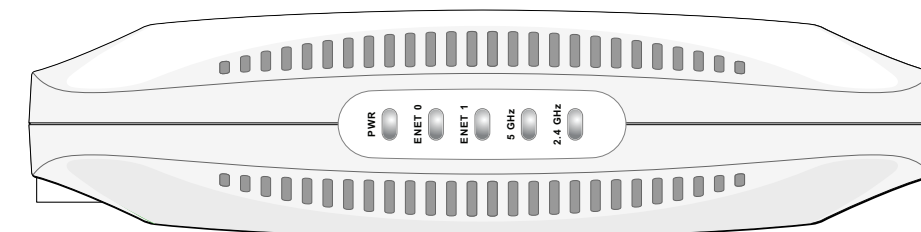
LEDs

- PWR: Indicates whether or not the OAW-RAP108/OAW-RAP109 is powered-on
- ENET0 and ENET1: Indicates the status of the OAW-RAP108/OAW-RAP109'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 *OAW-RAP108/OAW-RAP109 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

Table 1 *OAW-RAP108/OAW-RAP109 Series LED Meanings (Continued)*

| LED	Color/State	Meaning
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 OAW-RAP108/OAW-RAP109 is shipped with a stand to use on flat (i.e. table top) surfaces. Place the OAW-RAP108/OAW-RAP109 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*
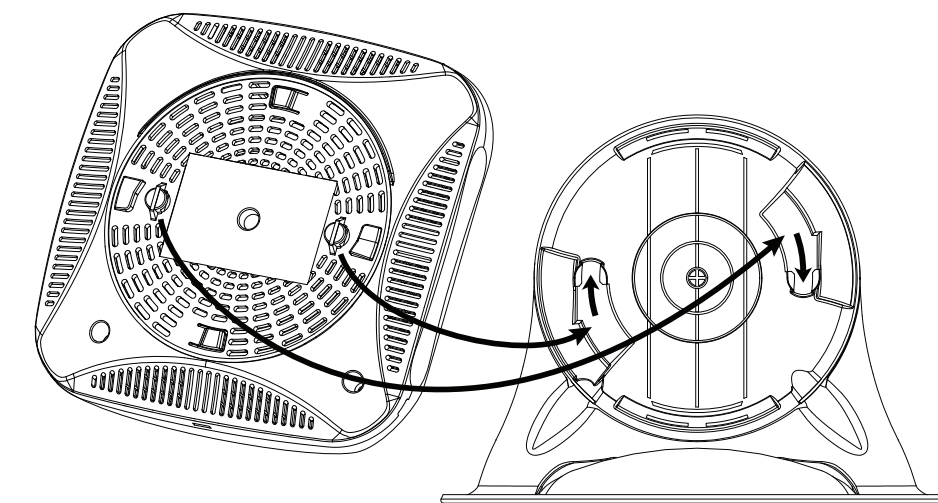
Connecting the Required Cables

The OAW-RAP108/OAW-RAP109 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 OAW-RAP108/OAW-RAP109:

1. Connect one end of the provided RJ-45 cable to port E0 on the OAW-RAP108/OAW-RAP109.
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 OAW-RAP108/OAW-RAP109.
4. Connect the other end of the power adapter to a power outlet.

The OAW-RAP108/OAW-RAP109 is now powered on. To verify this, ensure that the PWR LED is solid green.

Verifying Successful Installation

Once the OAW-RAP108/OAW-RAP109'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 OAW-RAP108/OAW-RAP109 to work in RAP mode, follow the process below to complete the RAP conversion.

1. Power up the OAW-RAP108/OAW-RAP109.
2. Connect to **Instant** SSID.
3. Login to the OAW-RAP108/OAW-RAP109 by navigating to http://www.alcatel-lucent.com/enterprise and login to the Instant WebUI. The default username is **admin** and the default password is **admin**. See the included *Alcatel-Lucent 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 Switch** from the drop down menu.
7. Enter the IP address of the switch. This is provided by your network administrator.
8. Click **Convert Now** to complete the conversion (see Figure 4).
9. The OAW-RAP108/OAW-RAP109 will reboot and begin operating in RAP mode.

Figure 4 *IAP-RAP Conversion over the Internet*
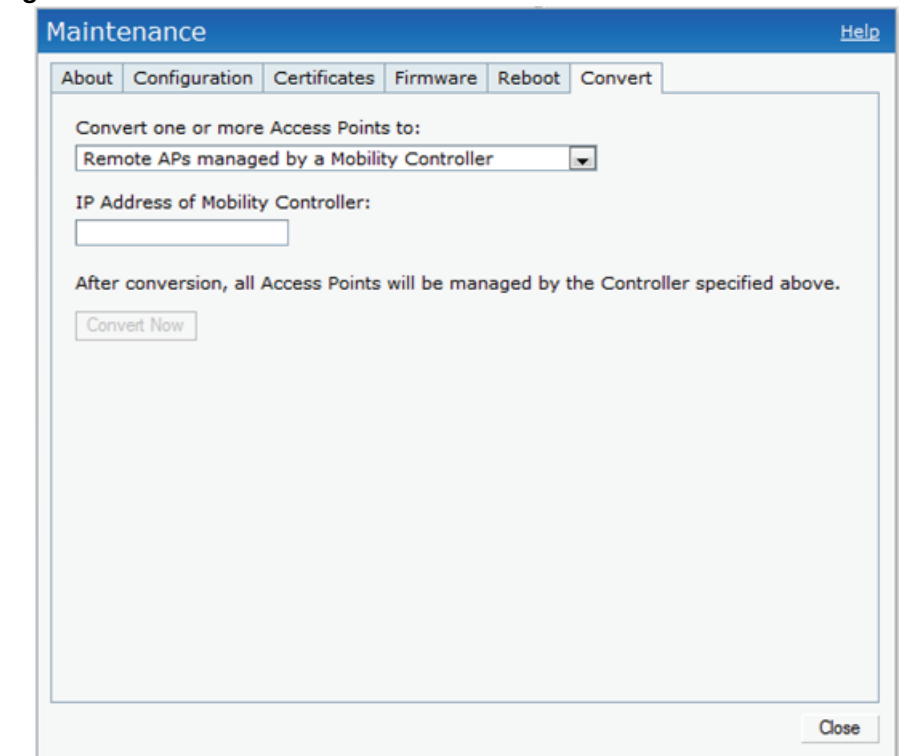
Product Specifications

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 Alcatel-Lucent 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 http://www.alcatel-lucent.com/enterprise.

Proper Disposal of Alcatel-Lucent Equipment

For the most current information about Global Environmental Compliance and Alcatel-Lucent products, see our website at http://www.alcatel-lucent.com/enterprise.

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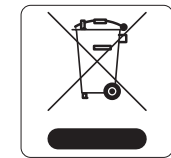
Alcatel-Lucent products at end of life are subject to separate collection and treatment in the EU Member States, Norway, and Switzerland and therefore are marked with the symbol shown at the left (crossed-out wheelie bin). The treatment applied at end of life of these products in these countries shall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

European Union RoHS

Alcatel-Lucent 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 Alcatel-Lucent 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.

China RoHS

Alcatel-Lucent products also comply with China environmental declaration requirements and are labeled with the "EFUP 10" label shown at the left.

<table>
<tr><td colspan="7" align="center">产品内含危害物质揭露表</td></tr>
<tr><td rowspan="3">零部件名称</td><td colspan="6" align="center">危害物质项目</td></tr>
<tr><td>铅</td><td>镉</td><td>汞</td><td>六价铬</td><td>PBB</td><td>PBDE</td></tr>
<tr><td>(Pb)</td><td>(Cd)</td><td>(Hg)</td><td>(Cr⁶⁺)</td><td>(多溴联苯)</td><td>(多溴二苯乙醚)</td></tr>
<tr><td>含铜及铜材金属件</td><td>×</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td></tr>
<tr><td>含玻璃电阻</td><td>×</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td></tr>
<tr><td>高温锡材</td><td>×</td><td>○</td><td>○</td><td>○</td><td>○</td><td>○</td></tr>
<tr><td colspan="7">○：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。</td></tr>
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Safety and Regulatory Compliance

Alcatel-Lucent Networks provides a multi-language document that contains country-specific restrictions and additional safety and regulatory information for all Alcatel-Lucent access points. This document can be viewed or downloaded from the following location: https://service.esd.alcatel-lucent.com/.

Regulatory Model Names

The following regulatory model names apply to the OAW-RAP108/OAW-RAP109:

- OAW-RAP108: APINR108
- OAW-RAP109: APINR109

> **CAUTION** Alcatel-Lucent 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, Alcatel-Lucent, Inc. 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).

OAW-RAP108 and OAW-RAP109 Instant Access Points

Installation Guide

Contacting Alcatel-Lucent

Table 1

Web Site Support	
Main Site	http://www.alcatel-lucent.com/enterprise
Support Site	https://service.esd.alcatel-lucent.com/

Table 2

Telephone Support	
North America	1-800-995-2696
Latin America	1-877-919-9526
Europe	+33 (0) 38 855 6929
Asia Pacific	+65 6240 8484
Worldwide	1-818-878-4507

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