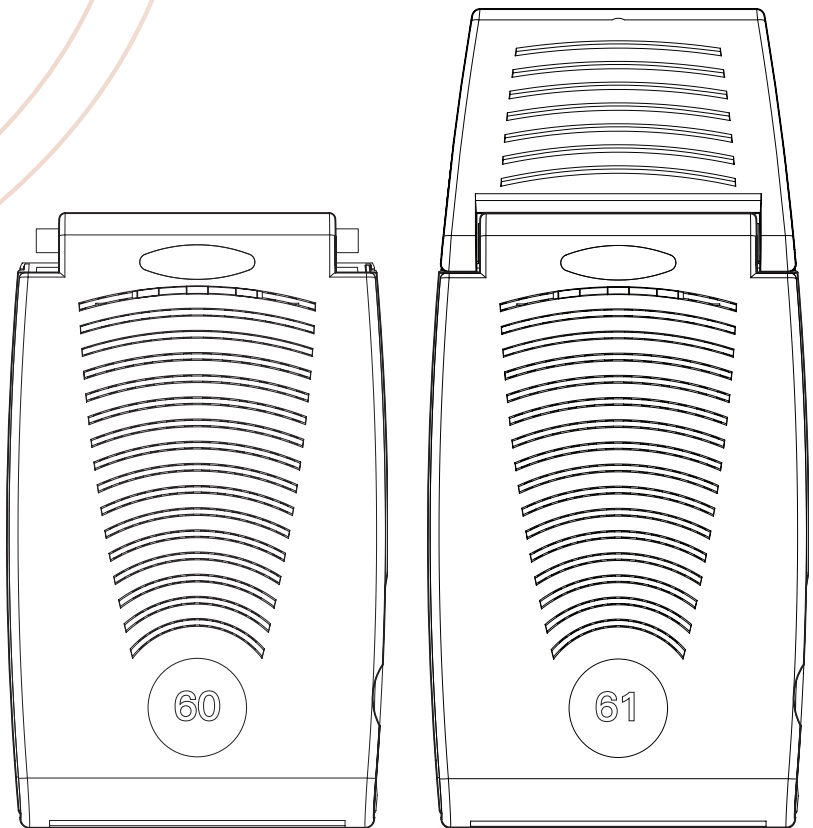


Aruba 60/61™

Wireless Access Point

Installation Guide



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CHAPTER 1

Introduction

The Aruba 60/61 (also known as the AP 60/61) is part of a comprehensive wireless network solution. The device works in conjunction with the Aruba WLAN Switch and can act as a wireless access point or air monitor.

As a wireless Access Point (AP), the Aruba 60/61 provides transparent, secure, high-speed data communications between wireless network devices (fixed, portable, or mobile computers with IEEE 802.11a or IEEE 802.11b/g wireless adapters) and the wired LAN.

As a wireless Air Monitor (AM), a feature unique to Aruba products, the Aruba 60/61 enhances wireless networks by collecting statistics, monitoring traffic, detecting intrusions, enforcing security policies, balancing wireless traffic load, self-healing coverage gaps, and more.

Note Installing the AP 60/61 requires setting the antenna power, which requires professional training. The AP60/61 installer must be trained to perform this configuration.

Front View

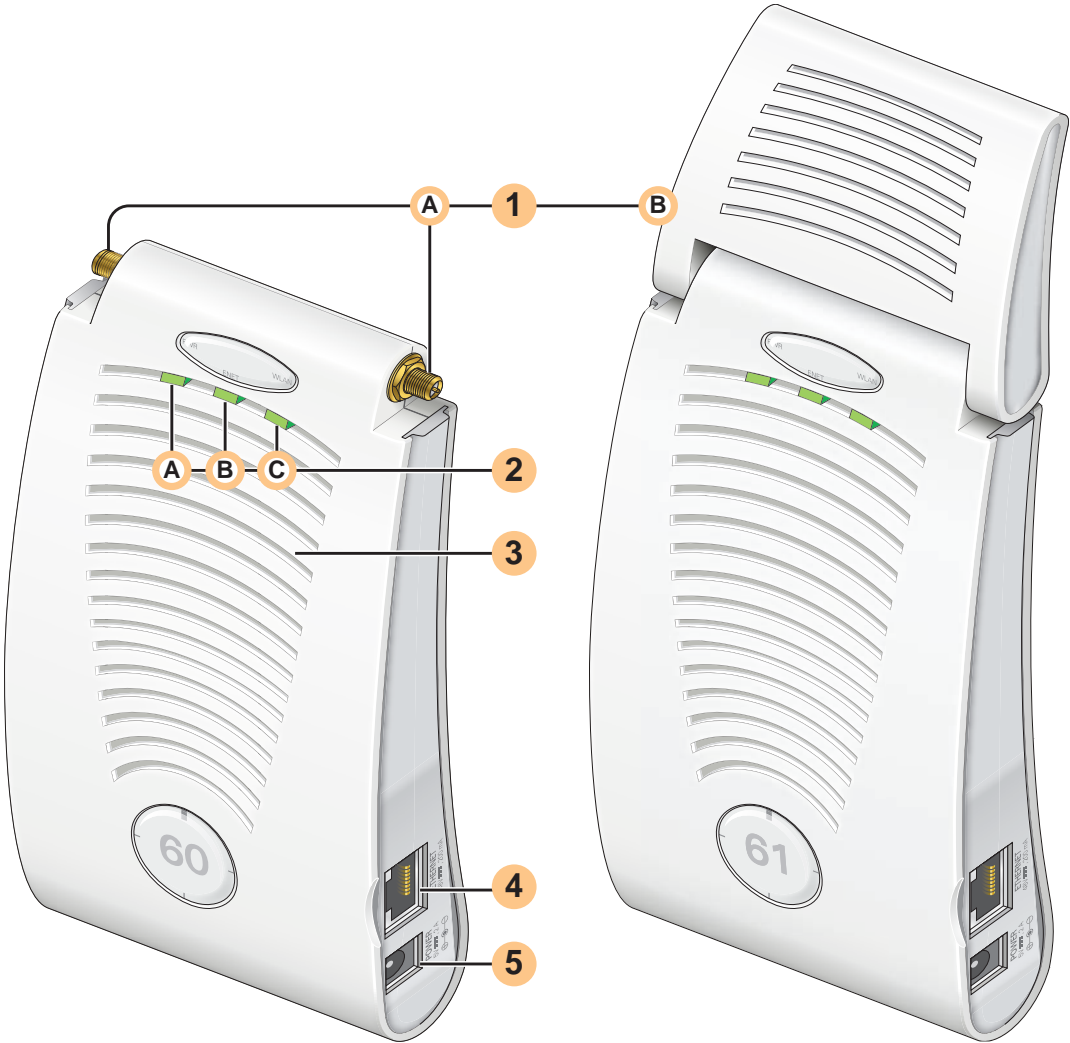


FIGURE 1-1 Aruba 60/61 Front View

1 Antenna fixtures for Wireless Communications

Depending on the model, the AP will have one of the following:

- Ⓐ Aruba AP60—Two Reverse Polarity SMA (RP-SMA) connectors for attaching separate antennas (not included). For details, see “[Aruba AP 60 Detachable Antennas](#)” on [page 24](#).
- Ⓑ Aruba AP61—Built-in swivel array with dual, tri-band, omnidirectional antennas

2 Indicator LEDs

During operation, the Aruba 60/61 LEDs provide the following information:

TABLE 1-1 Aruba 60/61 LEDs

LED	State	Description
Ⓐ PWR	Off	The device is off - no power.
	Green-Solid	The device is powered and operating.
Ⓑ ENET	Off	No link on the FE port. No connection to the network.
	Green-Solid	Ethernet link detected on the FE port.
	Green-Flashing	Transmitting or receiving data across the FE port. Flashing rate is proportional to network activity.
Ⓒ WLAN	Off	The wireless interface is disabled or down.
	Green-Solid	The wireless interface is enabled and functioning as an Access Point.
	Green-Flashing	The wireless interface is enabled and functioning as an Air Monitor.

Note LEDs on the Aruba WLAN Switch provide additional status and security information about connected APs. See the *Aruba AirOS User Guide* for more information.

3 Air Vents

These vents promote proper air circulation for cooling the device. Do not allow these vents to be obstructed by mounting equipment, network cables, or any other material.

4 FE Port

This port attaches the Aruba 60/61 to a 10Base-T/100Base-TX (twisted-pair) Ethernet LAN segment. This port also supports Serial and Power Over Ethernet (SPOE).

See [Appendix A](#) for port and cable specifications.

5 DC Power Socket

This socket is used to connect the optional AC power adapter (not included). If POE is being used to supply power to the Aruba 60/61, the power adapter is not necessary.

Back View

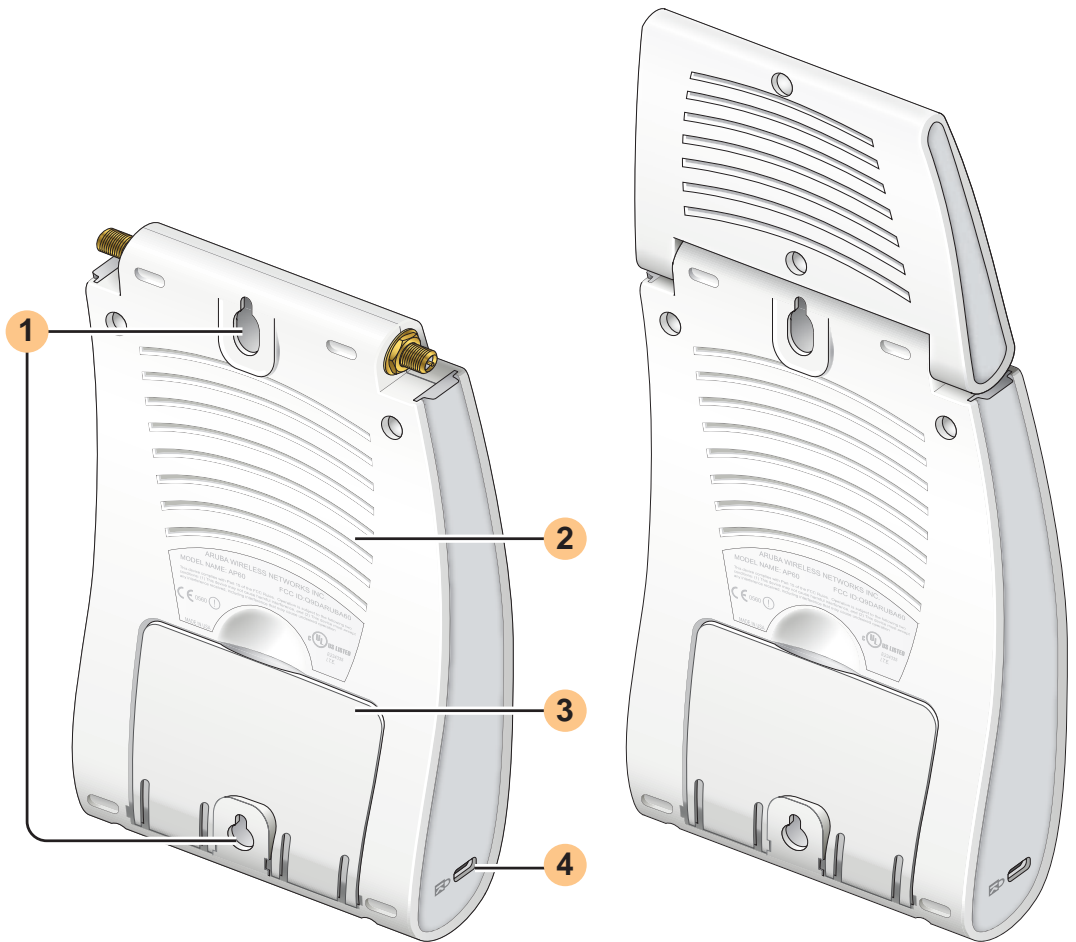


FIGURE 1-2 Aruba 60/61 Back View

1 Mounting Slots

The keyhole-shaped slots on the back of the chassis are used for mounting the Aruba 60/61.

2 Air Vents

These vents promote proper air circulation for cooling the device. Do not allow these vents to be obstructed by mounting equipment, network cables, or any other material.

3 Fold-Out Stand

This fold-out stand allows the Aruba 60/61 to be stood upright on a table or shelf.

4 Kensington Security Slot

This slot is compatible with a Kensington MicroSaver Security Cable (not included) which can be used to prevent the unauthorized removal of the Aruba 60/61 from its installed location. To secure the Aruba 60/61, wrap a security cable around an immovable object, insert the cable's lock into the Kensington Security Slot, and turn the key.

Note The serial number and model number are on the bottom of the unit.

The Aruba AP Setup Process

Setting up an Aruba AP typically consists of four stages:

- 1 **WLAN Planning**—The administrator determines how many Aruba APs will be needed for their wireless network strategy and where they will be deployed. This can be easily accomplished using Aruba's automated RF Plan site-survey software (available separately).
- 2 **AP Provisioning**—Provisioning provides each Aruba AP with initial settings that allow it to locate the host Aruba WLAN Switch. Depending on the network topology and services, AP provisioning can be performed manually for each AP or plug-and-play for batches of APs.

AP provisioning is discussed in [Chapter 2](#).

- 3 **AP Deployment**—Once provisioned, the AP can be physically installed at its intended place of operation.

AP deployment is covered in [Chapter 3](#).

- 4 AP Configuration—The administrator defines the operational behavior for each Aruba AP, such as RF characteristics and security features.

For AP configuration information, refer to the *Aruba AirOS User Guide*.

CHAPTER 2

Provisioning Access Points

Access Points are radio broadcast devices and as such are subject to governmental regulation. Network administrators responsible for the configuration and operation of Access Points must comply with local broadcast regulations. Specifically, Access Points must use channel assignment and antenna gain settings (for detachable antennas) appropriate to the location in which the Access Point will be used. Aruba Networks, in compliance with governmental requirements, has designed the AP60 and AP61 such that only authorized network administrators can change these settings. For more information on Access Point configuration, refer to the *AirOS User Guide*.

Provisioning provides the AP with initial network settings that allow it to locate the host Aruba WLAN Switch. The following provisioning methods (listed in the order of preference recommended by Aruba Networks) are available:

- **Plug and Play**—Also known as the Aruba Discovery Protocol. This is the easiest method for AP provisioning. With plug and play, Aruba APs can be connected to the network and brought into operation automatically. Although plug and play requires no manual intervention for the APs, this method does require specific services to be configured on your network in advance.
- **AP Provisioning**—Using this AP programming mode, AP configuration parameters are defined on the WLAN switch (using the CLI or Web interface) and then uploaded to the APs.

This method can be used for adding Aruba APs to a highly customized network, or greatly simplified for the most common provisioning.

- Manual Provisioning—APs can be individually provisioned using a serial console terminal connected to the AP. Although this method is complex and requires considerable care, manual provisioning can be used in almost any scenario, with or without access to the WLAN switch.

Note Manual provisioning is intended for use when no Aruba WLAN Switch is available, and is not generally recommended as the primary method of AP provisioning. Plug and play or AP programming mode are the preferred provisioning methods.

Each of these three methods is explained in the following sections. Use these procedures for initial provisioning of APs. To change the configuration for APs that have already been provisioned, go to Maintenance > Program AP > Re-Provision. See the *AirOS User Guide* for more information on reprovisioning existing APs.



CAUTION—When an AP60 powers up for the first time, the WLAN switch will recognize that it is detachable-antennas capable. The network administrator must set the antenna gain manually before the AP60 can function as an Access Point. Until the antenna gain is set, the AP60 with detachable antennas will function as an Air Monitor but will not process wireless packets as an Access Point. Refer to the *AirOS User Guide* for instructions on manually setting antenna gain.

Aruba Discovery Protocol

Aruba Discovery Protocol (ADP) is a plug and play provisioning tool for AP60/61 Access Points. ADP performs two tasks:

- Obtains the IP address of the TFTP server from which it downloads the AP boot image
- It discovers the IP address of the master Aruba WLAN switch in the network from which the AP can download its configuration.

The address of the TFTP server that ADP discovers is the equivalent of the BOOTROM environment variable *serverip*. The IP address of the Aruba master switch is the equivalent of the environment variable *master*.

ADP can discover these values using DHCP or by discovery. In the case of DHCP, ADP relies on a DHCP server which is configured to return the IP address of the Master switch using the Vendor Specific Options in DHCP. To facilitate ADP, Aruba APs include this Vendor Specific

Option in the requested Option list, and if the DHCP server is configured to return the IP address of the Master switch, the IP address will be a part of the DHCP response. This is used by the AP to get its image as well as its configuration.

Discovery of the *serverip* and *master* variables is necessary when the DHCP response does not include the Vendor Specific option. The AP attempts to discover an Aruba Master switch by sending multicast packets and broadcast packets on its subnet. To use the ADP discovery method, the ADP discovery mechanism needs to be enabled on the Aruba Master Switch (using the **adp discovery enable** command).

If multicast routing is enabled in the IP network between the AP and the Master switch (which can be any one or more Aruba WLAN switches in the network), the IGMP-Join option should be enabled on the Aruba WLAN switch (using the **adp igmp-join enable** command). If multicast routing is not enabled on the network, the Aruba WLAN switches need to be on the same broadcast domain as the AP or an “IP Helper” must be configured to direct the broadcast ADP packets to the Aruba WLAN switch.

Once these discovery prerequisites are met, the switch will respond to APs with the IP address of the Master Aruba switch. The APs can then obtain their image and configuration.

To enable ADP on an Aruba WLAN switch, enter:

```
(A5000) (config) #adp discovery enable
```

To enable IGMP-Join on an ADP multicast group on an Aruba WLAN switch, enter:

```
(A5000) (config) #adp igmp-join enable
```

Note If you have location-specific configurations for your Access Points, you will need to apply this configuration information using AP Reprovisioning. Refer to the *AirOS User Guide* for details on AP Reprovisioning and see the feature description below.

AP Reprovisioning

AP Reprovisioning is the process by which APs are assigned, for example, location codes. Location codes are important for recalibration and triangulation. For details on AP Reprovisioning, see the *AirOS User Guide*.

AP Provisioning

AP Provisioning is useful for brand new APs with default configurations. To perform AP Provisioning from the GUI:

- 1 Go to **Maintenance > Program AP**.

On this window, there are two tabs: **Provisioning** and **Reprovisioning**. The Provisioning tab is selected by default.

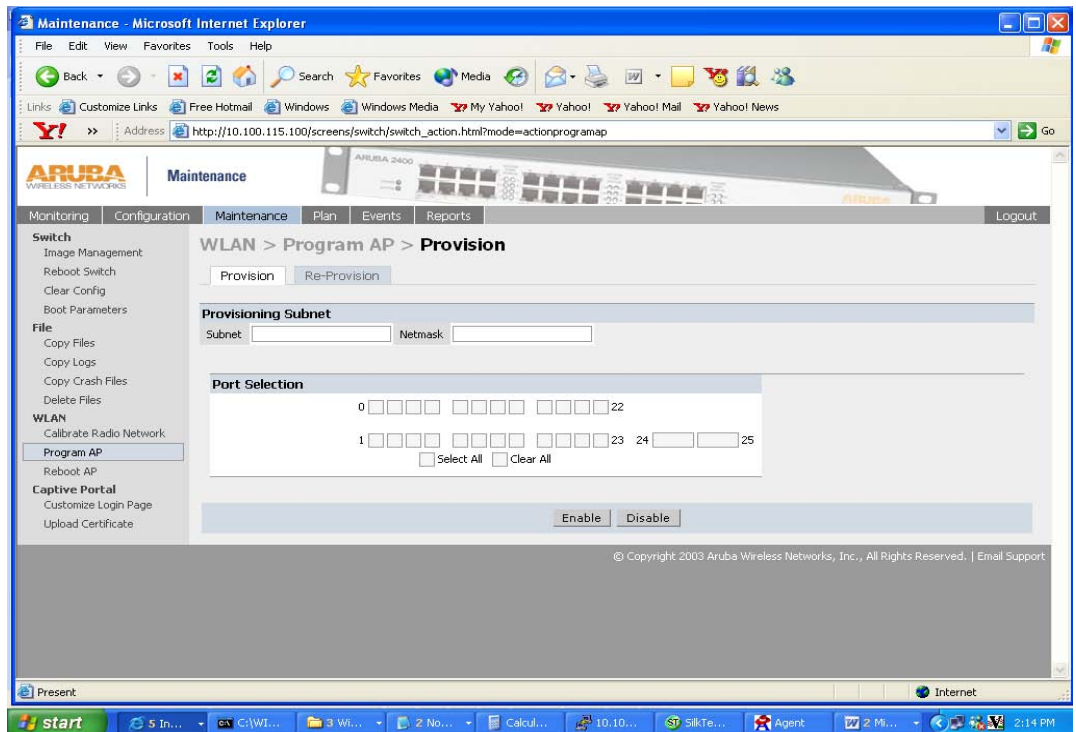


FIGURE 2-1 Provisioning Tab

- 2 Configure the APs Subnet and Netmask.

This is the subnet from which the AP gets an IP during provisioning. (This is not the IP address the AP will use when deployed.)