



Dell PowerConnect W-Series ArubaOS 6.1 Quick Start Guide

This document describes the initial setup of a Dell user-centric network that consists of a Dell controller and Dell Access Points (APs). The installation consists of the following steps:

1. Launch the WebUI or Console Setup Wizard to configure the controller.
2. Connect the controller to the wired network.
3. Configure the controller to allow APs, when installed and powered on, to be able to locate and connect to the controller. If you are configuring mesh, define the mesh cluster profile, mesh radio profile, before installing APs in a mesh networking environment.
4. Install and connect your APs to the network.

Before you begin, read the *ArubaOS End User License Agreement* and review the contents of your controller shipment to ensure that you have received the following:

- Dell controller with appropriate power cord and accessories
- The *Dell PowerConnect W-Series Quick Start Guide* included with your controller.
- The *ArubaOS End User License Agreement*

Install the Controller

The WebUI Startup Wizard allows you to configure access to the controller, install software licenses, and configure wireless local area networks (WLANs) for internal or guest users. The Startup Wizard is available the first time you connect to and log into the controller or whenever the controller is reset to its factory default configuration. The serial console setup dialog allows you to configure basic controller settings through a serial port connection to the controller. After you complete the Startup Wizard or serial console setup procedure, the controller reboots using the new configuration information you entered.

Do not connect the controller to your network when running the Setup Wizard or serial console setup dialog. The factory-default controller boots up with a default IP address and both DHCP server and spanning tree functions enabled. Once you have completed setup and rebooted the controller, you can use the controller CLI or WebUI to complete its configuration before connecting the controller to your network.

Initial Setup Using the WebUI Setup Wizard

The following browsers are officially supported for use with the Dell PowerConnect W-Series Setup wizard and WebUI:

- Microsoft Internet Explorer
- Mozilla Firefox on Windows XP, Windows Vista, Windows 7, and MacOS
- Apple Safari on MacOS

You can launch the setup wizard using any PC or workstation that can run a supported Web browser. The PC or workstation must either be configured to obtain its IP address using DHCP, or configured to have a static IP address on the 172.16.0.0/24 subnetwork. The default IP address of the controller is 172.16.0.254. Connect a PC or workstation to a line port on the controller, then enter this IP address into a supported Web browser to launch the Setup Wizard.

To run the Setup Wizard:

1. Make sure that the controller is not connected to any device on your network.

2. Boot up the controller.
3. Connect your PC or workstation to a line port on the controller.
4. On your PC or workstation, open a Web browser and connect to <https://172.16.0.254>.
5. The controller contains a default server certificate to validate the device on the network. At the Security Alert, click Yes to proceed with the Setup Wizard.



NOTE: The default certificate installed in the controller does not guarantee security in production networks. Dell strongly recommends that you replace the default certificate with a custom certificate issued for your site or domain by a trusted Certificate Authority. See the *Dell PowerConnect W-Series ArubaOS User Guide* for more information about certificates.

6. Enter the required information described in the table below, and, if desired, the optional configuration information described in [“Optional Information” on page 2](#).

Table 1 *Controller Setup Information*

Requirement	Description
System Name	A user-defined name by which the controller will be referenced. You can specify a name of up to 63 characters.
Country Code	The country in which the controller will operate. The country code determines the 802.11 wireless transmission spectrum. NOTE: You cannot change the country code for controllers designated for certain countries, such as the U.S. or Israel. Improper country code assignment can disrupt wireless transmissions. Most countries impose penalties and sanctions for operators of wireless networks with devices set to improper country codes.
Admin Password	Password of up to 32 characters for the admin user to log in to the controller.
Enable Mode Password	Password of up to 15 characters for the admin user to access the Enable mode in the CLI.
Date and Time	You can either manually set the date, time, and GMT time zone or specify the IP address of an NTP server from which the controller will obtain its date and time settings.
Controller Mode	<ul style="list-style-type: none"> • Standalone: If this is the only controller on the network. • Master: If this controller will manage other controllers on the network. You are prompted for a key that will be used by all controllers on the network. • Local: If this controller will be managed by a master controller. You are prompted for a key that will be used by all controllers on the network. (You need to provide the IP address of the master controller.)
VLAN 1	The controller takes its IP address from VLAN 1. The controller uses the configured IP address to communicate with other controllers and with APs.
Default Gateway	This is usually the IP address of the interface on the upstream switch or router to which you will connect the controller. The default gateway and the VLAN 1 IP address need to be in the same network.

Optional Information

The Setup Wizard also allows you to:

- Create virtual local area networks (VLANs) into which wireless users are placed after authentication
- Modify default port settings
- Install licenses for ArubaOS software modules
- Configure internal and guest WLANs

If you plan on adding controller licenses or configuring additional VLANs, WLANs, or port settings on our controller, make a note of the desired licenses or settings before you launch the Setup wizard.



NOTE: These optional configuration settings cannot be configured when running initial setup on a serial port connection.

Initial Setup on a Serial Port Connection

The serial port is located on the front panel of the controller. You can start the Initial Setup dialog when you connect a terminal, PC or workstation running a terminal emulation program to the serial port on the controller.

The serial port connection only allows you to configure the basic configuration required to connect the controller to the network. The recommended browser-based Setup Wizard allows you to also install software licenses and configure internal and guest WLANs (see “Initial Setup Using the WebUI Setup Wizard” on page 1). If you use the Initial Setup dialog to configure the controller, the browser-based Setup Wizard will not be available unless you reset the controller to its factory default configuration.

To run the Initial Setup dialog from a serial connection:

1. Configure your terminal or terminal emulation program to use the following communication settings:

Table 2 Terminal Connection Settings

Baud Rate	Data Bits	Parity	Stop Bits	Flow Control
9600	8	None	1	None

2. Connect your terminal or PC/workstation to the serial port on the controller using an RS-232 serial cable. All accessory kits shipped with Dell controllers contain an RJ-45 cable and DB-9 to RJ-45 adapter. You may need to provide a USB adapter to connect the serial cable to your PC.
3. Boot up the Dell controller. After the controller has booted up, you should see a screen similar to the following:

Figure 1 Initial Setup for Serial Port Connection

```
***** Welcome to the Dell W-651 setup dialog *****
This dialog will help you to set the basic configuration for the switch.
These settings, except for the Country Code, can later be changed from the
Command Line Interface or Graphical User Interface.

Commands: <Enter> Submit input or use [default value], <ctrl-l> Help
<ctrl-B> Back, <ctrl-F> Forward, <ctrl-A> Line begin, <ctrl-E> Line end
<ctrl-D> Delete, <BackSpace> Delete back, <ctrl-K> Delete to end of line
<ctrl-P> Previous question <ctrl-X> Restart beginning
```

4. The Serial Port Configuration Dialog displays the configuration prompts described in Table 3. Enter the required information at each prompt, then press Enter to continue to the next question.

Table 3 Console Configuration Setup Information

Console Prompt	Description
Enter System Name	Enter a name for the controller, or press Enter to use the default system name. You can specify a name of up to 63 characters.
Enter VLAN 1 interface IP address	The controller takes its IP address from VLAN 1 and uses this IP address to communicate with other controllers and with APs. Enter the VLAN 1 interface IP address, or press Enter without specifying an IP address to use the default address 172.16.0.254.

Table 3 Console Configuration Setup Information (Continued)

Console Prompt	Description
Enter VLAN 1 interface subnet mask	Enter the VLAN 1 interface IP subnet mask, or press Enter without specifying an IP address to use the default address 255.255.255.0.
Enter IP Default gateway	This is usually the IP address of the interface on the upstream switch or router to which you will connect the controller. The default gateway and the VLAN 1 IP address need to be in the same network. To continue without specifying an IP gateway, press Enter.
Enter Switch Role, (master local)	Enter one of the following switch roles: <ul style="list-style-type: none"> • Master: This controller will manage other controllers on the network. This is the default setting. • Local: This controller will be managed by a master controller. You are prompted for a key that will be used by all controllers on the network. (You need to provide the IP address of the master controller.)
(For US controllers only) This controller is restricted to Country code US for United States, please confirm (yes no)	If your controller has a country code that restricts its usage, enter yes to confirm this code.
Enter Time Zone	Enter the time zone for the controller, or press Enter to select the default time zone.
Enter Time in UTC	Enter the current time in UTC format, or press Enter to select the default time.
Enter Date (MM/DD/YYYY)	Enter the current date, or press Enter to select the default date.
Enter Password for admin login (up to 32 chars)	Enter a password to allow the admin user to login to the controller WebUI, CLI and console interfaces. This password can be up to 32 alphanumeric characters long.
Enter Password for enable mode (up to 15 chars)	Enter a password for the admin user to access Enable mode in the controller WebUI, CLI and console interfaces. This password can be up to 15 alphanumeric characters long.
Do you wish to shutdown all the ports (yes no)? [no]	Enter yes to shut down all ethernet ports on the controller, or press Enter to allow all ports to remain active.

- At the end of the Initial Setup, you are asked to review and confirm your configuration changes. Enter y to accept the changes. The controller reboots.



NOTE: If you want to complete optional configuration options (e.g. disabling spanning tree or installing software licenses) before connecting the controller to the network, refer to the *Dell PowerConnect W-Series ArubaOS User Guide* for additional information on controller configuration.

Connect the Controller to the Wired Network

Once controller setup is complete, connect a port on the controller to the appropriately-configured port on a Layer-2 switch or router. Make sure that you have the correct cables and that the port LEDs indicate proper connections. Refer to the *Installation Guide* for your Dell controller for port LED and cable descriptions.

Configure the Controller to Support APs

Before you install APs in a network environment, you must ensure that the APs will be able to locate and connect to the controller when powered on. Specifically, you need to ensure the following:

- When connected to the network, each AP is assigned a valid IP address
- APs are able to locate the controller

Each Dell AP requires a unique IP address on a subnetwork that has connectivity to a controller. Dell recommends using the Dynamic Host Configuration Protocol (DHCP) to provide IP addresses for APs; the DHCP server can be an existing network server or a Dell controller configured as a DHCP server.

If an AP is on the same subnetwork as the master controller, you can configure the controller as a DHCP server to assign an IP address to the AP. The controller must be the only DHCP server for this subnetwork.

Enable DHCP Server Capability

Use the following procedure to use the controller WebUI to enable DHCP server capability.

1. Enter the IP address of the controller in the URL of a browser window to access the controller WebUI.
2. At the WebUI login page, enter the admin user name and the password you entered during the Initial Setup.
3. Navigate to the Configuration > Network > IP > DHCP Server page.
4. Select the Enable DHCP Server checkbox.
5. In the Pool Configuration section, click Add.
6. Enter information about the subnetwork for which IP addresses are to be assigned. Click Done.
7. If there are addresses that should not be assigned in the subnetwork:
 - a. Click Add in the Excluded Address Range section.
 - b. Enter the address range in the Add Excluded Address section.
 - c. Click Done.
8. Click Save Configuration at the top of the page to save this configuration to the controllers flash memory.

Controller Discovery

An Dell AP can discover the IP address of the controller in one of several ways. The Aruba Discovery Protocol (ADP) is enabled by default on all Dell APs and controllers. If all APs and controllers are connected to the same Layer-2 network, APs will use ADP to discover their controllers. If the devices are on different networks, you must configure the AP to use a Layer-3 compatible discovery mechanism such as DNS, DHCP, or IGMP forwarding after installing the AP on the network. For details, refer to the *Dell PowerConnect W-Series ArubaOS User Guide*.

With ADP, APs send out periodic multicast and broadcast queries to locate the master controller. If the APs are in the same broadcast domain as the master controller, the controller automatically responds to the APs' queries with its IP address. If the APs are not in the same broadcast domain as the master controller, you need to enable multicast on the network. If multicast is not an option, then the APs can be configured to use DNS or DHCP based provisioning to contact the controller.

Run the RF Plan Utility

RF Plan is a wireless deployment modeling tool available in the controller WebUI. RF Plan helps you design an efficient Wireless Local Area Network (WLAN) that optimizes coverage and performance, allows you to specify how much wireless coverage you want to provide for each area, and generates coverage maps with AP and AM placement.

Unlike other static site survey tools that require administrators to have intricate knowledge of building materials and other potential radio frequency (RF) hazards, RF Plan calibrates coverage in real-time through a sophisticated RF calibration algorithm. This real-time calibration lets you characterize indoor RF signals to determine the best channel and transmission power settings for each AP. For complete information on running the RF plan utility, refer to the "RF Plan" chapter in the *Dell PowerConnect W-Series ArubaOS User Guide*.

Plan for a Mesh Network Environment



NOTE: The information in this section applies only if you are configuring and deploying APs in a mesh networking environment. If you are not, proceed to ["Install the APs" on page 6](#).

Before you install APs in a mesh networking environment, you must do the following:

- Define and configure the mesh cluster profile and mesh radio profile before configuring an AP to operate as a mesh node. An AP configured for mesh is also known as a mesh node.
- Provision one of the following mesh roles on the AP:
 - Mesh portal: The gateway between the wireless mesh network and the enterprise wired LAN.
 - Mesh point: APs that can provide traditional Dell WLAN services (such as client connectivity, intrusion detection system (IDS) capabilities, user roles association, LAN-to-LAN bridging, and Quality of Service (QoS) for LAN-to-mesh communication) to clients on one radio and perform mesh backhaul/network connectivity on the other radio. Mesh points provides LAN-to-LAN bridging through their Ethernet interfaces. It can now provide backhaul and access BSSIDs on the same radio.

For detailed provisioning guidelines, caveats, and instructions, see the “Secure Enterprise Mesh” chapter in the *Dell PowerConnect W-Series ArubaOS User Guide*.

Install the APs

Refer to the AP placement map generated by RF Plan to identify the locations in which to physically install your APs. You can either connect the AP directly to a port on the controller, or connect the AP to another switch or router that has Layer-2 or Layer-3 connectivity to the controller.

If the Ethernet port on the controller is an 802.3af Power over Ethernet (PoE) port, the AP automatically uses it to power up. If a PoE port is not available, contact your Dell vendor to obtain an AC adapter for the AP.

Once an AP is connected to the network and powered up, it will automatically attempt to locate the controller. You can view a list of all APs connected to the controller by accessing the Configuration > Wireless > AP Installation page in the controller WebUI.

Figure 2 Viewing APs Connected to the Controller

Wireless > AP Installation > Provisioning

Provisioning								
Provisioning Profile								
RAP Whitelist								
Campus AP Whitelist								
Search								Search
<input type="checkbox"/>	AP Name ▲	AP Group ▲	AP IP ▲	AP Type ▲	AP MAC Address ▲	AP Serial Number ▲	Flags ▲	Status ▲
<input type="checkbox"/>	00:24:6c:c0:0c:89	default	10.4.62.152	105	00:24:6c:c0:0c:89	AL000000		Up 3d:6h:30m:30s
<input checked="" type="checkbox"/>	00:24:6c:c7:d6:1c	default	10.4.62.150	93	00:24:6c:c7:d6:1c	AN00000C		Up 3d:5h:5m:5s

1 | 1-2 of 2 | 10

An AP installed on the network advertises its default SSID. Wireless users can connect to this SSID, but will not have access to the network until you configure authentication policies and user roles for your wireless users. For complete details on authentication policies and user roles, refer to the *Dell PowerConnect W-Series ArubaOS User Guide*.

Contacting Support

Table 4 Support Information

Web Site Support	
Main Site	http://www.dell.com
Support Site	http://www.support.dell.com
Documentation Site	http://www.support.dell.com/manuals

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