

DWS-1008

Release 1.0



Wireless Switch

8 Port 10/100 Wireless Switch
With Power over Ethernet

Installation Guide

Business Class Networking

System Requirements

Minimum System Requirements:

- Existing 10/100 Ethernet Network
- Windows® XP/2000 or Mac® OSX for Web View
- DWL-8220AP Access Points

Package Contents

- DWS-1008 8-Port Wireless Switch
- Install Guide
- Power Supply
- Serial Cable for Connection to Console
- Rack-Mount Brackets (2)
- Screws (6)
- Rubber Feet (4)
- Manual and Reference Guide on CD

Caution: The DWS-1008 switch has been designed and tested to be installed in an operating ambient temperature of 0° C to +40° C (32° F to 104° F). To reduce the risk of equipment damage, install equipment with consideration to these ambient conditions.

Hardware Overview

Front Panel

Console Port:

The serial console port provides a direct management connection to a DWS-1008 switch's command-line interface (CLI).

Ethernet Ports (1-6):

The 10/100 Ethernet ports on the DWS-1008 switch provide automatic MDI/MDX, which automatically crosses over the send and receive signals if required. Ports 1-6 also support PoE (Power over Ethernet).

Uplink Ports (7 & 8):

Ports 7 & 8 on the switch are uplink ports only and do not support PoE.

LEDS:

Power Solid light indicates proper connection to power source.

Link (1-8):

Solid Link is operational.
(Amber - 10Mbps, Green - 100Mbps)

Blinking Traffic is active. (Amber - 10Mbps, Green - 100Mbps)

MP (1-6):

Solid green For a DWL-8220AP's active link, with PoE enabled, all the following are true:

- Access point has booted.
- Access point has received a valid configuration from the switch.
- Management link with an access point is operational.

Alternating green and amber Access point is booting with an image received from the switch. If the LED remains in this state indefinitely, the boot or configuration attempt has failed.

Solid amber PoE is on but no access point is connected to the link.

Blinking amber Access point is not connected or is unresponsive, or there is a PoE problem.

Unlit Port is not configured as an AP access port, or PoE is off.

Installation Overview

Serial Console Cable

The serial console port has a female DB-9 connector and supports the EIA-232D signaling standard. You need a standard DB-9-male-to-DB-9-female PC modem cable.

Serial Console Pin Signals

Switch Pin	Usage	PC Pin	Usage
2	Receive	3	Transmit
3	Transmit	2	Receive
5	Ground	5	Ground

10/100 Ethernet Cable Wiring

Connections on the 10/100 ports require CAT5 cable based on the EIA/TIA-586 standard. The 10/100 Ethernet ports on the DWS-1008 switch provide automatic MDI/MDX, which automatically crosses over the send and receive signals if required.

The table below lists the pin signals for 10/100 Ethernet straight-through wiring. Pins 4, 5, 7, and 8 are used only when Power over Ethernet (PoE) is enabled on the port. RD means Receive Data and TD means Transmit Data.

DWS Switch		Other Device	
Pin	Function	Pin	Function
1	RD+	1	TD+
2	RD-	2	TD-
3	TD+	3	RD+
4	PoE+	4	PoE+
5	PoE+	5	PoE+
6	TD-	6	RD-
7	PoE-	7	PoE-
8	PoE-	8	PoE-

Installation Overview (continued)

Caution: To reduce the risk of equipment damage, make sure the switch is installed so that the mechanical load on the device is evenly distributed. For example, make sure the switch is level in the equipment rack, is evenly fastened by screws on either side, and does not have a heavy object resting on one side of the switch.

Mounting Option	Required Hardware and Tools	Included
Front-mount	Mounting brackets	Yes
	Four rack-mount screws	No*
	Screwdriver	No
	Power cord	Yes
	Serial console cable	Yes
Tabletop	Four adhesive rubber feet	Yes
	Power cord	Yes
	Serial console cable	Yes

* Equipment racks vary, and the screw and screwdriver type depend on the equipment rack.

You can mount the DWS-1008 switch in a standard 48.26-cm (19-inch) equipment rack or on a tabletop. Each switch is shipped with two brackets for rack mounting and four adhesive rubber feet for tabletop mounting. The mounting brackets support front mounting only.

Warning: Earth grounding is required for a DWS-1008 switch installed in a rack. If you are relying on the rack to provide ground, the rack itself must be grounded with a ground strap to the earth ground. Metal screws attaching the switch to the rack provide ground attachment to the rack.

In the U.S., overcurrent protection must be provided by the installation. Branch circuit protection in accordance with National Fire Protection Association (NFPA) 70, National Electrical Code (NEC) is required. Consideration must be given to the electrical ratings on the switch and branch circuit protection. Do not install equipment such that the branch circuit current and voltage protection is exceeded. Pay particular attention to the earthing connection for the supply connections. When using an extension cord or power strip, pay attention to the grounding type.

Getting Started

Please read the following before you begin:

Mobility System Software* (MSS) operates a D-Link Mobility System Wireless LAN (WLAN) consisting of DWS-1008 switches, and DWL-8220AP access points (AP). MSS has a command-line interface (CLI) on the switch that you can use to configure and manage the switch and its attached access points.

You configure the DWS-1008 switch and DWL-8220AP access points primarily with set, clear, and show commands. Use set commands to change parameters. Use clear commands to reset parameters to their defaults. In many cases, you can overwrite a parameter with another set command. Use show commands to display the current configuration and monitor the status of network operations.

* The Mobility System Software is built-in to the firmware on the DWS-1008 switch. No additional software is required.

The switch supports two connection modes:

- Administrative access mode, which enables the network administrator to connect to the switch and configure the network.
- Network access mode, which enables network users to connect through the switch to access the network.

The D-Link Mobility System consists of the following components:

- One or more DWS-1008 switches - Distributed, intelligent machines for managing user connectivity, connecting and powering DWL-8220AP access points, and connecting the WLAN to the wired network backbone.
- DWL-8220AP access points - Wireless access points (APs) that transmit and receive radio frequency (RF) signals to and from wireless users and connect them to a DWS-1008 switch.
- Mobility System Software™ (MSS™) - The operating system (firmware) that runs all D-Link DWS-1008 switches and DWL-8220 access points in a WLAN, and is accessible through a command-line interface (CLI) or the Web View interface.

Getting Started (continued)

Equipment Rack Installation

1. Remove the four bracket screws from each side of the switch.
2. Align a bracket over the screw holes:
 - For a front-mount equipment rack, align the bracket so that the bracket flange is flush with the switch's front panel and extends away from the switch.
 - For a center-mount equipment rack, align the bracket so that the bracket flange is located near the center screw holes.
3. Reinsert the screws to secure the brackets to the switch.
4. Repeat for the other bracket.
5. Lift the switch into position in the equipment rack.
6. Insert the bottom rack-mount screws into the bracket flanges to secure the switch to the equipment rack, then insert the top screws.

Warning: To prevent the switch from slipping, do not release the switch until all the rack-mount screws are tight.

Tabletop Installation

1. On a clean work surface with no debris, carefully turn the switch upside down.
2. Wipe the four placement locations for the rubber feet to clear away any oil or dust. The location areas are marked by X's and attach the four rubber adhesive feet over the X's.
3. Turn the switch right-side up, and place the switch in position on the table.

Powering On a DWS-1008 Switch

Warning: The switch relies on the building's installation for overcurrent protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15 A U.S. (240 VAC, 10 A international) is used on the phase conductors.

1. Make sure any insertable power supply is fully seated in the switch. Attach a power cord to an AC power source.
2. Plug the power cord into the power supply. The switch will begin booting as soon as you plug in the power cord(s).

Getting Started (continued)

3. Observe the power supply LED for each connected power supply to verify that the LED is steadily glowing green. This indicates normal power supply operation.

Connecting to a Serial Management Console

Initial configuration of the DWS-1008 switch requires a connection to the switch's CLI through the serial console port.

To connect a PC to the serial console port:

1. Insert the serial cable into the PC port.
2. Insert the other end of the cable into the serial console port on the switch.
3. Start a standard VT100 terminal emulation application on the PC, and configure the following modem settings:
 - 9600 bps
 - 8 bits
 - 1 stop
 - No parity
 - Hardware flow control off or disabled
4. Open a connection on a serial port. If the switch is already powered on, press Enter three times to display a command prompt. Refer to the "Accessing the CLI" for more information.

Troubleshooting a Serial Management

Connection

1. Verify that the switch is powered on.
2. Verify that the serial cable is fully inserted in the PC and switch's console ports.
3. Verify that the correct modem settings are configured in the terminal emulation application as shown in step 3 above.
4. Verify that you opened the connection on the PC port connected to the switch. For example, if you inserted the cable in PC port COM1, make sure you open the connection on COM1 instead of COM2 or another port. If none of the previous steps results in a management connection, use another serial cable.

Getting Started (continued)

Connecting to the Network

Use the following procedures to connect a DWS-1008 switch to DWL-8220AP access points or other 10/100 Ethernet devices.

Connecting to a DWL-8220AP or Other 10/100 Ethernet Devices

Note: The 10/100 Ethernet ports are configured as wired network ports by default. You must change the port type for locally connected DWL-8220AP access points, and for wired end stations that use AAA through the DWS-1008 switch to access the network.

For installations in Japan: Provide an earthing connection before you connect the mains plug to the mains. When disconnecting the earthing connection, make sure to disconnect only after you pull out the mains plug for the mains.

1. Insert a CAT5 cable with a standard RJ-45 connector. The 10/100 Ethernet ports on the DWS-1008 switch provide automatic MDI/MDX.
2. If the cable is directly attached to a DWL-8220AP access point:
 - For a first-time installation, set the port type to activate the link.
 - If the port type is already set for an access point, observe the appearance of the MP LED for the port.
3. If the cable is attached to a wired end station that uses AAA through the switch to access the network:
 - For a first-time installation, set the port type to activate the link.
 - If the port type is already set for a wired authentication port, go on to step 4.
4. If the cable is directly attached to a device other than an DWL-8220AP access point:
 - Observe the appearance of the Link LED for the port.
 - If the Link LED is unlit, check the cable and verify that the device at the other end of the link is operating.

Configuration

You can use either quick-start method to configure a switch to provide wireless service. You also can use any of the following management applications to configure a new switch or to continue configuration of a partially configured switch:

Web Quick Start Wizard

The Web Quick Start Wizard enables you to easily configure a DWS-1008 switch to provide wireless access to up to ten users. The Web Quick Start Wizard is accessible only on unconfigured switches. The interface is not available on any switch that is already configured.

Web View

You can use a switch's web management interface, Web View, to configure the switch.

Note: Web View is different from the Web Quick Start Wizard application. Web View is a web based management application that is available at any time on a switch that already has IP connectivity. Web View access also requires the switch's HTTPS server to be enabled. The Web Quick Start Wizard application is accessible only on unconfigured switches.

CLI (Command Line Interface)

You can configure a switch using the CLI by attaching a PC to the switch's Console port. After you configure the switch for SSH or Telnet access, you also can use these protocols to access the CLI.

Configuration (continued)

Web Quick Start Wizard

You can use the Web Quick Start to configure the switch to provide wireless access to up to ten network users. To access the Web Quick Start Wizard, attach a PC directly to a port (1-6) on the switch and use a web browser on the PC to access IP address 192.168.100.1.

Web Quick Start Wizard Requirements

To use the Web Quick Start Wizard, you need the following:

- AC power source for the switch
- PC with an Ethernet port that you can connect directly to the switch
- Category 5 (CAT5) or higher Ethernet cable

If the PC is connected to the network, power down the PC or disable its network interface card (NIC), then unplug the PC from the network.

Accessing the Web Quick Start Wizard

To access the Web Quick Start Wizard

1. Use a Category 5 (CAT5) or higher Ethernet cable to connect the switch directly to a PC that has a web browser.

Note: You can use a Layer 2 device between the switch and the PC. However, do not attach the switch to your network yet. The switch requires the PC you attach to it for configuration to be in the 192.168.100.x subnet, and uses the MSS DHCP server to assign the PC an address from this subnet. If you attach the unconfigured switch to your network, the switch disables the MSS DHCP server, if the switch detects another DHCP server on the network. If the network does not have a DHCP server, the switch's DHCP server remains enabled and will offer IP addresses in the 192.168.100.x subnet in response to DHCP Requests.

2. Connect the switch to an AC power source. If the green power LED is lit, the switch is receiving power.
3. Enable the PC's NIC that is connected to the switch, if not already enabled.
4. Use a web browser to access IP address 192.168.100.1. This is a temporary address assigned to the unconfigured switch when you power it on. The Web Quick Start Wizard enables you to change this address.

Configuration (continued)



The first page of the Quick Start Wizard appears.



5. Click **Next** to begin. The wizard screens guide you through the configuration steps.

Caution: Use the wizard's Next and Back buttons to navigate among the wizard pages. Do not use the web browser's navigation buttons.

6. Enter a System Name to identify the DWS-1008 switch. Select your country code from the drop-down menu. Click **Next** to continue.



Configuration (continued)

7. Enter a username and password for administrative access. Click **Next** to continue.

The screenshot shows the 'Set up Administrative User' screen. At the top left is the D-Link Business Solutions logo. The title is 'Set up Administrative User'. Below the title, there is a note: 'Enter a user username and password for administrative access. Note: The password is case sensitive.' There are three input fields: 'Enter administrative username', 'Enter administrative password', and 'Re-enter administrative password'. At the bottom, there are three buttons: 'Back', 'Cancel', and 'Next'.

8. Enter an IP address, subnet mask, and default gateway for the DWS-1008 switch. The IP address you enter will need to be used to access the web view configuration in the future. Click **Next** to continue.

The screenshot shows the 'Configure IP' screen. At the top left is the D-Link Business Solutions logo. The title is 'Configure IP'. Below the title, there is a note: 'This step sets a host IP address, subnet mask and default gateway address for the device. This is the host address information that the device uses to communicate with other devices in the network.' There are three input fields: 'Enter IP address' (with example 192.168.1.90), 'Enter subnet mask' (with example 255.255.255.0), and 'Enter default gateway' (with example 192.168.1.90). At the bottom, there are three buttons: 'Back', 'Cancel', and 'Next'.

9. If your network supports a Network Time Protocol (NTP) server, enter the IP address and it will be used to set the time and date. You may manually enter the time and date. Click **Next** to continue.

The screenshot shows the 'Set System Time and Date' screen. At the top left is the D-Link Business Solutions logo. The title is 'Set System Time and Date'. Below the title, there is a note: 'This step sets the system time, date and timezone. The system clock must be correct in order for various security features to function properly. If your network supports a Network Time Protocol (NTP) server, it will be used to set the date and time.' There is a checkbox for 'Enable NTP' which is checked. Below it is an input field for 'Enter NTP server IP address' (with example 192.168.1.90). There are input fields for 'Enter date' (with a calendar icon and example 12/28/2015) and 'Enter time' (with a clock icon and example 11:20:49). There is a dropdown menu for 'Select timezone' (with example NONE) and a checkbox for 'Enable daylight savings' which is checked. At the bottom, there are three buttons: 'Back', 'Cancel', and 'Next'.

Configuration (continued)

10. Select the services you want to use for remote management. Click **Next** to continue.



11. Select the ports (1-6) that you want to enable PoE (Power over Ethernet). Click **Next** to continue.



12. Enter SSIDs and authentication types. The Web Quick Start enables you to configure one secure SSID and one clear SSID. You can configure additional SSIDs using the CLI or Web View. Click **Next** to continue.



Configuration (continued)

13. Create user accounts by entering a username and password for each user. Click **Next** to continue.

D-Link
Business Solutions

Create Wireless Users

Create wireless usernames and passwords in the device's local user database.

User	Name	Password
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Back Cancel Next

14. Review the configuration settings, then click **Finish** to save the changes or click **Back** to change settings. If you want to quit for now and start over later, click **Cancel**.

If you click Finish, the wizard saves the configuration settings into the switch's configuration file. If the switch is rebooted, the configuration settings are restored when the reboot is finished. The switch is ready for operation. You do not need to restart the switch.

D-Link
Business Solutions

Apply Configured Values

Selecting **Finish** will apply the configuration to the device. If you do not wish to apply the changes and would like to start over again press **Cancel**. If you wish to modify the choices, use the **Back** button to reach the step.

If you have changed the IP address of the device from the default value, you will see no response. If web management is enabled you can point your browser to <https://192.168.100.1>, see your documentation for more information.

Parameter	Value
System Name	DWS-1008-08D053
Country Code	US
Administrative User Name	admin
System IP Address	192.168.100.1
System Netmask	255.255.255.0
Default Gateway	
Enable NTP	NO
NTP Server	
System Date	September 26 2005
System Time	15:25:49

Back Cancel Finish

15. Initial setup is complete. Click on the URL with the IP address to access the Web View configuration utility.

Configuration (continued)

CLI Quickstart Command

The quickstart command runs a script that interactively helps you configure the following items:

- System name
- Country code (regulatory domain)
- System IP address
- Default route
- Administrative users and passwords
- Unencrypted (clear) SSID names
- Usernames and passwords for guest access using WebAAA
- Encrypted (crypto) SSID names and dynamic WEP encryption for encrypted SSIDs' wireless traffic
- Usernames and passwords for secure access using 802.1X authentication using PEAP-MSCHAP-V2 and secure wireless data encryption using dynamic Wired Equivalent Privacy (WEP)
- Directly connected DWL-8220AP access points
- Distributed access points

The quickstart command displays a prompt for each of these items, and lists the default if applicable. You can advance to the next item, and accept the default if applicable, by pressing Enter. Depending on your input, the command also automatically generates the following key pairs and self-signed certificates:

- SSH key pair (always generated)
- Admin key pair and self-signed certificate (always generated)
- EAP (802.1X) key pair and self-signed certificate (generated if you type usernames and passwords for users of encrypted SSIDs)
- WebAAA key pair and self-signed certificate (generated if you type usernames and passwords for users of unencrypted SSIDs)

The command automatically places all ports that are not used for directly connected access points into the default VLAN (VLAN 1).

Caution: The quickstart command is for configuration of a new switch only. After prompting you for verification, the command erases the switch's configuration before continuing. If you run this command on a switch that already has a configuration, the configuration will be erased. In addition, error messages such as Critical AP Notice for directly connected APs can appear.

Configuration (continued)

To run the quickstart command:

1. Attach a PC to the DWS-1008 switch's serial console port. Use the following modem settings: 9600 bps, 8 bits, 1 stop, no parity, hardware flow control disabled.
2. Press **Enter** three times, to display a username prompt (Username:), a password prompt (Password:), and then a command prompt such as the following:

```
DWS-1008-aabbcc>
```

Each switch has a unique system name that contains the model number and the last half of the switch's MAC address (aabbcc)

3. Access the enabled level (the configuration level) of the CLI:

```
DWS-1008-aabbcc> enable
```

4. Press **Enter** at the Enter password prompt.
5. Type **quickstart**. The command asks you a series of questions. You can type **?** for more help. To quit, press **Ctrl+C**.

One of the questions the script asks is the country code. For a list of valid country codes, refer to the section "Appendix: Country of Operation".

Another question the script asks is, "Do you wish to configure wireless?" If you answer **y**, the script goes on to ask you for SSID and user information, for unencrypted and encrypted SSIDs. If you answer **n**, the script generates key pairs for SSH and the administrative users you entered, generates a self-signed administrative certificate, and then ends.

Quickstart Example

This example configures the following parameters:

- System name: DWS-1008-Corp
- Country code (regulatory domain): US
- System IP address: 10.10.10.4, on IP interface 10.10.10.4 255.255.255.0

Configuration (continued)

Note: The quickstart script asks for an IP address and subnet mask for the system IP address, and converts the input into an IP interface with a subnet mask, and a system IP address that uses that interface. Likewise, if you configure this information manually instead of using the quickstart command, you must configure the interface and system IP address separately.

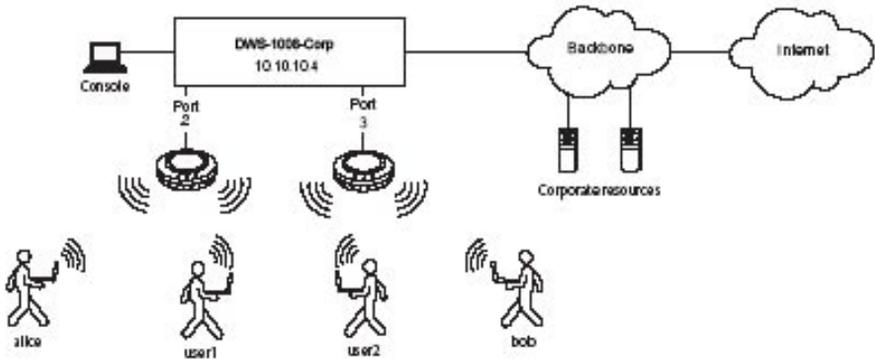
- Default route: 10.10.10.1
- Administrative user admin1, with password letmein. The only management access the switch allows by default is CLI access through the serial connection.
- System Time and date parameters:
 - Date: 15th of August, 2005
 - Time: 6:58 PM
 - Timezone: PST (Pacific Standard Time), with an offset of -8 hours from Universal Coordinated Time (UTC)
- Unencrypted SSID name: public
- Username user1 and password pass1 for WebAAA; username user2 and password pass2 for WebAAA
- Encrypted SSID name: corporate
- Username alice and password alicepass for 802.1X authentication; username bob and password bobpass for 802.1X authentication
- Directly connected DWL-8220AP access points on port 2 and 3

The IP addresses, usernames, and passwords in this document are examples. Use values that are appropriate for your organization.

If you configure time and date parameters, you will be required to enter a name for the timezone, and then enter the value of the timezone (the offset from UTC) separately. You can use a string of up to 32 alphabetic characters as the timezone name.

The image below shows an example. Users bob and alice can access encrypted SSID corporate on either of the DWL-8220AP access points. Users user1 and user2 can use the same APs to access unencrypted SSID public. Although the same hardware supports both SSIDs and sets of users, AAA ensures that only the users who are authorized to access an SSID can access that SSID. Users of separate SSIDs can even be in the same VLAN, as they are in the example on the next page.

Configuration (continued)



6. Optionally, enable Telnet.

```
DWS-1008-aabbcc# set ip telnet server enable
```

7. Verify the configuration changes.

```
DWS-1008-aabbcc# show config
```

8. Save the configuration changes.

```
DWS-1008-aabbcc# save config
```

Technical Support

D-Link's website contains the latest user documentation and software updates for D-Link products.

D-Link provides free technical support for customers within the United States and Canada for the duration of the product's warranty period.

U.S. and Canadian customers can contact D-Link Technical Support through our website or by phone.

United States

Telephone

(877) 453-5465

Monday through Friday 8:00am to 5:00pm PST

World Wide Web

<http://support.dlink.com>

E-mail

support@dlink.com

Canada

Telephone

(800) 361-5265

Monday through Friday, 7:30am to 9:00pm EST.

World Wide Web

<http://support.dlink.ca>

E-mail

support@dlink.ca



Version 1.0

Revised 10/05/2005

6DWS1008ML01G

©2005 D-Link Systems, Inc. All rights reserved. Trademarks are the property of their respective holders.
Software and specifications subject to change without notice.