

COMMAND LINE REFERENCE MANUAL

PRODUCT MODEL: **DWL-8600AP**
UNIFIED WIRED & WIRELESS ACCESS SYSTEM
RELEASE 3.0

JULY 2010

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Section 1: About this Document

In addition to the Web-based user interface, the D-Link Unified Access Point (UAP) includes a command-line interface (CLI) for administering the access point. The CLI lets you view and modify status and configuration information.

DOCUMENT ORGANIZATION

The following topics provide an introduction to the class structure upon which the CLI is based, CLI commands, and examples of using the CLI to get or set configuration information on an access point:

- [Section 2: “Accessing the UAP CLI”](#)
- [Section 3: “Commands and Syntax”](#)
- [Section 4: “Interface Naming Conventions”](#)
- [Section 5: “Saving Configuration Changes”](#)
- [Section 6: “Access Point CLI Commands”](#)
- [Section 7: “CLI Classes and Properties Reference”](#)

AUDIENCE

This guide is intended for the following audience:

- System administrators who are responsible for configuring and operating the UAP
- Software engineers who develop D-Link Unified Wireless Switch products
- Level 1 and/or Level 2 support providers

To obtain the greatest benefit from this guide, you should also have basic knowledge of Ethernet and wireless networking concepts.

ADDITIONAL DOCUMENTATION

The following documents are also available for the D-Link UAP.

- The *Administrator's Guide* describes how to configure the UAP by using the Web interface and contains examples of how to configure the UAP by using the Web UI, CLI, and SNMP.
- The *Release Notes* describe known issues and limitations.

DOCUMENT CONVENTIONS

This section describes the conventions this document uses.



Note: A note provides more information about a feature or technology and cross-references to related topics.



Caution! A caution provides information about critical aspects of AP configuration, combinations of settings, events, or procedures that can adversely affect network connectivity, security, and so on.

Table 1 describes the typographical conventions used in this guide.

Table 1: Typographical Conventions

Symbol	Example	Description
Bold	Click Update to save your settings.	Menu titles, page names, and button names.
Blue Text	See “Document Conventions” on page 2.	Hyperlinked text.
courier font	WLAN-AP# show network	Screen text, file names, commands, user-typed command-line entries.
<i>courier font italics</i>	<i>value</i>	Command parameter, which might be a variable or fixed value.
<> Angle brackets	<i><value></i>	Indicates a parameter is a variable. You must enter a value in place of the brackets and text inside them.
[] Square brackets	[<i>value</i>]	Indicates an optional fixed parameter.
[< >] Angle brackets within square brackets	[<i><value></i>]	Indicates an optional variable.
{ } curly braces	{ <i>choice1 choice2</i> }	Indicates that you must select a parameter from the list of choices.
 Vertical bars	<i>choice1 choice2</i>	Separates the mutually exclusive choices.
[{}] Braces within square brackets	[{ <i>choice1 choice2</i> }]	Indicate a choice within an optional element.

Section 2: Accessing the UAP CLI

You can use any of the following methods to access the CLI for the access point or wireless network:

- Serial Port Connection to the AP
- Telnet Connection to the AP
- SSH Connection to the AP

SERIAL PORT CONNECTION TO THE AP

You can create a direct physical connection into the access point by connecting a cable from a laptop or desktop PC to a serial port on the access point. Then, using terminal emulation software on your PC, you can access the AP system console.

To emulate the AP system console on a serial port connection, you will need to have terminal emulation software installed on your PC, such as HyperTerminal or TeraTerm.

Use the following steps to set up the serial port connection, configure the terminal emulation software, and access the CLI.

1. Using a null-modem cable, connect a VT100/ANSI terminal or a workstation to the console (serial) port.
 - If you attached a PC, Apple, or UNIX workstation, start a terminal-emulation program, such as HyperTerminal or TeraTerm.
2. Configure the terminal-emulation program to use the following settings:
 - Baud rate: 115200 bps
 - Data bits: 8
 - Parity: none
 - Stop bit: 1
 - Flow control: none



Note: By default, the serial port baud rate is 115200. You can also configure the serial port to use a baud rate of 9600, 19200, 28400, or 57600 from the Web interface **Basic Settings** page or by using the `set serial baud-rate <rate>` command.

3. Press the return key, and a login prompt should appear.
 - The login name is **admin**, and the default password is **admin**.
 - After a successful login, the screen shows the `(Access Point Name)#` prompt. You are now ready to enter CLI commands at the command line prompt.

TELNET CONNECTION TO THE AP

If you already deployed the network and know the IP address of your access point, you can use a remote Telnet connection to the access point to view the system console over the network.

Using Telnet tends to be more convenient than a serial port connection because it gives you remote access the AP system console. The only disadvantage of using Telnet (versus the direct serial port connection) is that with Telnet you cannot access the system console until the AP is fully initialized. Therefore, you cannot view AP startup messages. However, once the AP is operational you can use a Telnet connection to view the AP system console and enter CLI commands in exactly the same way as you would with a serial port connection. To use Telnet, you need a Telnet client, such as PuTTY.

To use the Microsoft Windows command window for Telnet access to the AP, use the following instructions:

1. Open a command window on your PC.

For example, from the system tray on the desktop choose **Start > Run** to bring up the Run dialog, type **cmd** in the Open property, then click **OK**.

2. At the command prompt, type the following:

```
telnet <ip_address>
```

- where *<ip_address>* is the address of the access point you want to monitor.
- (If your Domain Name Server is configured to map domain names to IP addresses via DHCP, you can also telnet to the domain name of the AP.)

3. When the login prompt appears, enter the username and password.

- The login name is **admin**, and the default password is **admin**.
- After a successful login, the screen shows the *(Access Point Name)#* prompt. You are now ready to enter CLI commands at the command line prompt.

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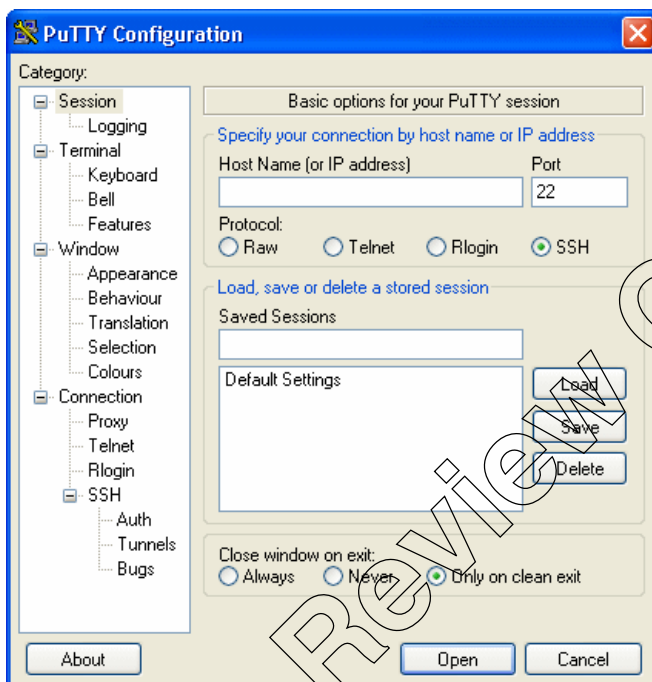
SSH CONNECTION TO THE AP

If you already deployed your network and know the IP address of your access point, you can use a remote Secure Shell (SSH) connection to the access point to view the system console over the network.

Using an SSH connection to the access point is similar to “Telnet” in that it gives you remote access to the system console and CLI. SSH has the added advantage of being a secure connection traffic encrypted.

To use an SSH connection, you need to have SSH software installed on your PC. The examples in this guide use PuTTY, which is available as a free download from the Internet.

1. Start your SSH application.



2. Enter the IP address of access point and click Open.
 - (If your Domain Name Server is configured to map domain names to IP addresses via DHCP, you can enter the domain name of the AP instead of an IP address.)
 - This brings up the SSH command window and establishes a connection to the access point. The login prompt is displayed.
3. When the login prompt appears, enter the username and password.
 - The login name is **admin**. If you did not change the default password, press ENTER when you are prompted for a password. The default password is blank.
 - After a successful login, the screen shows the *(Access Point Name)#* prompt. You are now ready to enter CLI commands at the command line prompt.

Section 3: Commands and Syntax

The CLI for the UAP provides the following commands for manipulating objects:

- get
- set
- add
- remove



Caution! Settings updated from the CLI (with get, set, add, remove commands) will not be saved to the startup configuration unless you explicitly save them via the save-running command. For a description of configurations maintained on the AP and details on how to save your updates, see [“Saving Configuration Changes” on page 12](#).

USING THE GET COMMAND

The “get” command allows you to get the property values of existing instances of a class. Classes can be “named” or “unnamed.” The command syntax is:

```
get unnamed-class [ property ... | detail ]
get named-class [ instance | all [ property ... | name detail ] ]
```

The rest of the command line is optional. If provided, it is either a list of one or more *properties*, or the keyword **detail**.

The following example uses the “get” command on an unnamed class with a single instance:

```
get log
```

There is only one log on the AP, so the command returns information on the log file.

The following example uses the “get” command on an unnamed class with multiple instances:

```
get log-entry
```

There are multiple log entries but they are not named, so this command returns all log entries.

The following example uses the “get” command on a named class with multiple instances: `get bss wlan0bssvap0`

There are multiple BSSes and they are named, so this command returns information on the BSS named “wlan0bssvap0.”

The following example uses the “get” command on a named class to get all instances:

```
get mac-acl all mac
get mac-acl all
```



Note: wlan0bssvap0 is the name of the basic service set (BSS) on the wlan0 interface. For information on interfaces, see [“Interface Naming Conventions” on page 11](#).

USING THE SET COMMAND

The “set” command allows you to set the property values of existing instances of a class and has the following syntax

```
set unnamed-class [ with qualifier-property qualifier-value ... to ] property value . . .
```

The first argument is an unnamed class in the configuration.

After this is an optional qualifier that restricts the set to only some instances. For singleton classes (with only one instance) no qualifier is needed. If there is a qualifier, it starts with the keyword **with**, then has a sequence of one or more *qualifier-property* *qualifier-value* pairs, and ends with the keyword **to**. If these are included, then only instances whose present value of *qualifier-property* is *qualifier-value* will be set. The *qualifier-value* arguments cannot contain spaces. Therefore, you cannot select instances whose desired *qualifier-value* has a space in it.

The rest of the command line contains *property-value* pairs.

```
set named-class instance | all [ with qualifier-property qualifier-value ... to ] property value...
```

The first argument is either a named class in the configuration.

The next argument is either the name of the *instance* to set, or the keyword **all**, which indicates that all instances should be set. Classes with multiple instances can be set consecutively in the same command line as shown in Example 4 below. The *qualifier-value* arguments cannot contain spaces.

The following examples show set commands.

1. set interface wlan0 ssid "Vicky's AP"
2. set radio all beacon-interval 200
3. set tx-queue wlan0 with queue data0 to aifs 3
4. set tx-queue wlan0 with queue data0 to aifs 7 cwmin 15 cwmax 1024 burst 0
5. set vap vap2 with radio wlan0 to vlan-id 123



Note: For information on interfaces used in this example (such as wlan0 or vap2) see [“Interface Naming Conventions” on page 11](#).

USING THE ADD COMMAND

The “add” command allows you to add a new instance or group of instances of a class and has the following syntax:

```
add unique-named-class instance [ property value ... ]  
add group-named-class instance [ property value ... ]  
add anonymous-class [ property value ... ]
```

For example:

```
add mac-acl default mac 00:01:02:03:04:05
```



Note: If you’re adding an instance to a unique-named class, you must assign the instance a name not already in use by any other instance of that class. If you add instances to group-named classes, you can form groups by creating instances and assigning them identical names. All instances of a group-named class that have the same name form a group of instances.

USING THE REMOVE COMMAND

The “remove” command allows you to remove an existing instance of a class and has the following syntax:

```
remove unnamed-class [ property value . . . ]  
remove named-class instance | all [ property value . . . ]
```

For example:

```
remove mac-acl default mac 00:01:02:03:04:05
```

ADDITIONAL CLI COMMANDS

The CLI also includes the following commands for maintenance tasks:

Table 2: Additional CLI Commands

Command	Description
save-running	The save-running command saves the running configuration as the startup configuration. For more information, see “Saving Configuration Changes” on page 12 .
reboot	The reboot command restarts the access point (a “soft” reboot).
factory-reset	The factory-reset command resets the AP to factory defaults and reboots.
firmware-upgrade	Use the firmware-upgrade command to upload a new AP image.
config	Use the config command to upload or download the AP configuration file.

For information about classes, instances, and properties, see [“CLI Classes and Properties Reference” on page 20](#).

GETTING HELP ON COMMANDS AT THE CLI

The CLI provides keyboard shortcuts to help you navigate the command line and build valid commands, along with “tab completion” hints on available commands that match what you have typed so far. Using the CLI will be easier if you use the tab completion help and learn the keyboard shortcuts.

TAB COMPLETION

Help on commands can be requested at the CLI by using the Tab key. This is a quick way to see all valid completions for a class. Entering Tab once will attempt to complete the current command.

If multiple completions exist, a beep will sound and no results will be displayed. Enter **Tab** again to display all available completions.

Example 1: At a blank command line, enter **Tab** twice to get a list of all commands.

```
D-Link-WLAN-AP#
add          Add an instance to the running configuration
config      Upload/Download the running configuration
factory-reset  Reset the system to factory defaults
firmware-upgrade  Upgrade the firmware
get         Get property values of the running configuration
reboot     Reboot the system
remove     Remove instances in the running configuration
save-running  Save the running configuration
set       Set property values of the running configuration
```

Example 2: Type `remove Tab Tab` (including a space after `remove`) for a list of all property options for the `remove` command.

```
D-Link-WLAN-AP# remove
acl          Create ACL
basic-rate  Basic rates of radios
bridge-port  Bridge ports of bridge interfaces
bss         Basic Service Set of radios
class-map   Creates a Diffserv class.
interface   Network interface
policy-map  Creates a Diffserv policy.
snmp-group  SNMP user groups
snmp-user   SNMPv3 users
snmp-view   SNMP MIB views
supported-rate  Supported rates of radios
traphost    Destination host for SNMP trap
```

Example 3: Type `get system v Tab`. This will result in completion with the only matching property, `get system version`. Press **Enter** to display the output results of the command.

KEYBOARD SHORTCUTS

The CLI provides keyboard shortcuts to help you navigate the command line and build valid commands. [Table 3](#) describes the keyboard shortcuts available from the CLI.

Table 3: Keyboard Shortcuts

Keyboard Shortcut	Action on CLI
Ctrl-a	Move the cursor to the beginning of the current line.
Ctrl-e	Move the cursor to the end of the current line.
Ctrl-b Left Arrow key	Move the cursor back on the current line, one character at a time.
Ctrl-f Right Arrow Key	Move the cursor forward on the current line, one character at a time.
Ctrl-c	Start over at a blank command prompt (abandons the input on the current line).
Ctrl-h Backspace	Remove one character on the current line.
Ctrl-w	Remove the last word in the current command. (Clears one word at a time from the current command line, always starting with the last word on the line.)
Ctrl-k	Remove characters starting from cursor location to end of the current line. (Clears the current line from the cursor forward.)
Ctrl-u	Remove all characters before the cursor. (Clears the current line from the cursor back to the CLI prompt.)
Ctrl-p Up Arrow key	Display previous command in history. (Ctrl-p and Ctrl-n let you cycle through a history of all executed commands like Up and Down arrow keys typically do. Up/Down arrow keys also work for this.)
Ctrl-n Down Arrow key	Display next command in history. (Ctrl-p and Ctrl-n let you cycle through a history of all executed commands like Up and Down arrow keys typically do. Up/Down arrow keys also work for this.)
Ctrl-d	Exit the CLI. (At a blank command prompt, typing Ctrl-d closes the CLI.) (Typing Ctrl-d within command text also removes characters, one at a time, at cursor location like Ctrl-h.)

Section 4: Interface Naming Conventions

The following summary of interface names is provided to help clarify the related CLI commands and output results. These names are not exposed on the Web UI, but are used throughout the CLI. You get and set many configuration values on the AP by referring to interfaces. In order to configure the AP through the CLI, you need to understand which interfaces are available on the AP, what role they play (corresponding settings on the Web UI), and how to refer to them. To view a list of the interface names and an associated description, use `get interface all description`.

Table 4 describes the interface naming conventions for the WLAN AP.



Note: Use the `get interface` command to display common information on all interfaces, including IP addresses.

Table 4: Interface Naming Convention

Interface	Description
brtrunk	Internal bridge trunk interface.
lo	Local loopback for data meant for the access point itself.
eth0	The Ethernet interface connected to the Internal network.
wlan0	The default wireless interface on radio 1. This is the interface for virtual access point (VAP) 0.
wlan1	The default wireless interface on radio 2. This is the interface for VAP 0.
wlan0vapx	The wireless interface for the x VAP on radio 1. The value for x ranges from 1–15.
wlan1vapx	The wireless interface for the x VAP on radio 2. The value for x ranges from 1–15.
wlan0bssvapx	The basic service set interface for the x VAP on radio 1. The value for x ranges from 0–15.
wlan1bssvapx	The basic service set interface for the x VAP on radio 2. The value for x ranges from 0–15.
wlan0wdsx	A wireless distribution system (WDS) interface where x indicates the number of the WDS link. The WDS interface allows you to configure wireless bridging and repeating. The value for x ranges from 0–3.



Note: The commands and examples in this appendix use radio 1. To configure and view information about the second radio, replace the “wlan0” portion of the interface name with wlan1. Use the command `get radio all` to view information about the radios on the WLAN AP.

Section 5: Saving Configuration Changes

The UAP maintains three different configurations.

- **Factory Default Configuration**—This configuration consists of the default settings shipped with the access point.
 - You can always return the AP to the factory defaults by using the `factory-reset` command.
- **Startup Configuration**—The startup configuration contains the settings with which the AP will use the next time it starts up (for example, upon reboot).
 - To save configuration updates made from the CLI to the *startup* configuration, you must execute the `save-running` or `set config startup running` command from the CLI after making changes.
- **Running Configuration**—The running configuration contains the settings with which the AP is currently running.
 - When you view or update configuration settings through the CLI using `get`, `set`, `add`, and `remove` commands, you are viewing and changing values on the *running* configuration only. If you do not save the configuration (by executing the `save-running` or `set config startup running` command at the CLI), you will lose any changes you submitted via the CLI upon reboot.
 - The `save-running` command saves the *running* configuration as the *startup* configuration. (The `save-running` command is a shortcut command for `set config startup running`, which accomplishes the same thing)
 - Settings updated from the CLI (with `get`, `set`, `add`, `remove` commands) will not be saved to the startup configuration unless you explicitly save them via the `save-running` command. This gives you the option of maintaining the *startup* configuration and trying out values on the *running* configuration that you can discard (by not saving).
 - By contrast, configuration changes updated from the Web UI are automatically saved to both the *running* and *startup* configurations. If you make changes from the Web UI that you do not want to keep, your only option is to reset to factory defaults. The previous startup configuration will be lost.

Section 6: Access Point CLI Commands

This section describes some of the commands you use to view and configure the UAP.



Note: This section does not describe every command available from the UAP CLI. The UAP is intended to be configured primarily from the Web interface.

The CLI performs validation on individual property values in a `set` or `add`, but does not check to see if different property values are consistent with each other. For example, it would not provide any error if a radio's mode was set to "a" and its channel was set to "1". (Even though "1" is not a valid channel in "a" mode, it is a valid channel in "g" mode.) In cases where the configuration is left in an inconsistent state, the services associated with the configuration may not be operational. Therefore, it is important to consult the class and property reference to understand the acceptable values for properties given the values of other properties. For more information, see ["CLI Classes and Properties Reference" on page 20](#).

CONFIGURING BASIC SETTINGS

The following CLI command examples correspond to tasks you can accomplish on the Basic Settings tab of the Web UI for access points.



Note: Before you configure the basic settings, make sure you are familiar with the names of the interfaces as described in ["Interface Naming Conventions" on page 11](#). The interface name you reference in a command determines whether a setting applies to a wired or wireless interface, the Internal network, or to radio "one" or radio "two".

Table 5: Basic Setting Commands

Action	Command
View the following information about the management interface on the AP: <ul style="list-style-type: none"> • VLAN ID • Interface name • Static IP address (if DHCP is not used) • Static subnet mask • IP Address • Subnet mask • MAC address • DHCP status • IPv6 status • IPv6 auto configuration status • Static IPv6 address • Static IPv6 prefix length 	<code>get management</code>
View the firmware version	<code>get system version</code>
View the serial number	<code>get system serial-number</code>

Table 5: Basic Setting Commands (Cont.)

Action	Command
Set the password	set system password <password> Example: set system password test1234
Set the baud rate for the serial port	set serial baud-rate
Set the system name	set system system-name <name> Example: set system system-name "AEO AP"
Set the system location	set system system-location <location>
Set the administrator's contact information	set system system-contact <contact_info>

STATUS

Use the commands in this section to view various AP status information.



Note: Make sure you are familiar with the names of the interfaces as described in [“Interface Naming Conventions” on page 11](#). The interface name you reference in a get command determines whether the command output shows a wired or wireless interface, the Internal network, or to radio “one” or radio two.”

Table 6: Status Commands

Action	Command
Global command to get all detail on a Basic Service Set (BSS). This is a useful command to use to get a comprehensive picture of how the AP is currently configured.	get bss all detail
Get information about the wired and WLAN interfaces	get interface
Get the MAC Address for the Wired Internal Interface	get interface wlan0 mac
Get the VLAN ID for the wired interface	get management vlan-id
Get the Network Name (SSID) for the default virtual access point.	get interface wlan0 ssid
Get the Current IEEE 802.11 Radio Mode	get radio wlan0 mode
Get the Channel the AP is Currently Using	get radio wlan0 channel
Get Basic Radio Settings for the Internal Interface	get radio wlan0 get radio wlan0 detail
Get Client Associations	get association detail
Get neighboring access points	get detected-ap detail
Get information about switches that can discover and manage the AP	get managed-ap

ETHERNET SETTINGS

Use the commands in this section to view and set values for the Ethernet (wired) interface.



Note: Before configuring this feature, make sure you are familiar with the names of the interfaces as described in “[Interface Naming Conventions](#)” on page 11. The interface name you reference in a command determines whether a setting applies to a wired or wireless interface, the Internal network, or to radio “one” or radio “two”

Table 7: Ethernet Setting Commands

Action	Command
Get Summary View of Internal Interfaces	<code>get bss</code>
Get the DNS Name	<code>get host id</code>
Set the DNS Name	<code>set host id <host_name></code> For example: <code>set host id vicky-ap</code>
Get Current Settings for the Ethernet (Wired) Internal Interface	<code>get management</code>
Set the management VLAN ID	<code>set management vlan-id <1-4096></code>
View untagged VLAN information	<code>get untagged-vlan</code>
Enable the untagged VLAN	<code>set untagged-vlan status up</code>
Disable the untagged VLAN	<code>set untagged-vlan status down</code>
Set the untagged VLAN ID	<code>set untagged-vlan vlan-id <1-4096></code>
View the connection type	<code>get management dhcp-status</code>
Use DHCP as the connection type	<code>set management dhcp-client status up</code>
Use a Static IP as the connection type	<code>set management dhcp-client status down</code>
Set the Static IP address	<code>set management static-ip <ip_address></code> Example: <code>set management static-ip 10.10.12.221</code>
Set a Subnet Mask	<code>set management static-mask <netmask></code> Example: <code>set management static-mask 255.255.255.0</code>
Set the Default Gateway	<code>set static-ip-route gateway <ip_address></code> Example: <code>set static-ip-route gateway 10.10.12.1</code>
View the DNS Nameserver mode Dynamic—up Manual—down	<code>get host dns-via-dhcp</code>
Set DNS Nameservers to Use Static IP Addresses (Dynamic to Manual Mode)	<code>set host dns-via-dhcp down</code> <code>set host static-dns-1 <ip_address></code> <code>set host static-dns-2 <ip_address></code> Example: <code>set host static-dns-1 192.168.23.45</code>
Set DNS Nameservers to Use DHCP IP Addressing (Manual to Dynamic Mode)	<code>set host dns-via-dhcp up</code>

Table 7: Ethernet Setting Commands

Action	Command
Set the IPv6 Admin Mode	<code>set management ipv6-status {up down}</code>
Set the IPv6 Auto Config Admin Mode	<code>set management ipv6-autoconfig-status {up down}</code>
Set the Static IPv6 Address	<code>set management static-ipv6 <ipv6_address></code>
Set the Static IPv6 Prefix Length	<code>set management static-ipv6-prefix-length <0-128></code>
View the IPv6 Autoconfigured Global Addresses	<code>get management autoconfig-ipv6-global-all</code>
Set the Default IPv6 Gateway	<code>set static-ipv6-route gateway <ipv6_address></code>

RADIO SETTINGS

Table 8 shows the Radio commands. The commands in this table use radio one (wlan0). To change the wireless settings for radio two, use wlan1.

Table 8: Radio Settings Commands

Action	Command
View a description of the radio interfaces	<code>get radio all description</code>
Turn the radio on	<code>set radio wlan0 status on</code>
Turn the radio off	<code>set radio wlan0 status off</code>
Enable or Disable 802.11d regulatory domain support	<code>set dot11 dot11d up</code> <code>set dot11 dot11d down</code>
Enable or Disable Station Isolation	<code>set radio wlan0 station-isolation on</code> <code>set radio wlan0 station-isolation off</code>
View the current radio mode	<code>get radio wlan0 mode</code>
Set the radio mode to IEEE 802.11a	<code>set radio wlan0 mode a</code>
Set the radio mode to IEEE 802.11a/n	<code>set radio wlan0 mode a-n</code>
Set the radio mode to IEEE 802.11b/g	<code>set radio wlan0 mode bg</code>
Set the radio mode to IEEE 802.11b/g/n (wlan1 only)	<code>set radio wlan1 mode bg-n</code>
Set the radio mode to 2.4 GHz IEEE 802.11n	<code>set radio wlan0 mode n-only-g</code>
Set the radio mode to 5 GHz IEEE 802.11n	<code>set radio wlan0 mode n-only-a</code>
View the radio channel.	<code>get radio wlan0 channel</code>
Set the radio channel to a static channel.	<code>set radio wlan0 channel-policy static</code> <code>set radio wlan0 static-channel <channel></code>
Set the radio channel to "Auto"	<code>set radio wlan0 channel-policy best</code>
Set the channel bandwidth.	<code>set radio wlan0 n-bandwidth {20 40}</code>
Set the primary channel	<code>set radio wlan0 n-primary-channel {lower upper}</code>
Set the channel protection	<code>set radio wlan0 protection {auto off}</code>
Set the Beacon Interval	<code>set radio wlan0 beacon-interval <20-1000></code>
Set the DTIM Interval	<code>set radio wlan0 dtim-period <1-255></code>

Table 8: Radio Settings Commands (Cont.)

Action	Command
Set the Fragmentation Length Threshold	set radio wlan0 fragmentation-threshold <256-2346>
Set the RTS Threshold	set radio wlan0 rts-threshold <0-2347>
Set the maximum number of clients allowed to associate (VAP 0 radio 0)	set bss wlan0bssvap0 max-stations <0-200>
Set the power transmission level (percent)	set radio wlan0 tx-power <0-100>
Set the fixed multicast rate	set radio wlan0 fixed-multicast-rate {54 48 36 24 18 12 9 6 auto}
Add a basic rate set	add basic-rate wlan0 rate <i>integer</i>
Get current basic rates	get basic-rate
Add supported rate	add supported-rate wlan0 rate <i>integer</i>
Get current supported rates	get supported-rate wlan0
Enable or disable broadcast/multicast rate limiting	set radio wlan0 rate-limit-enable {on off}
Set the rate limit (packets per second)	set radio wlan0 rate-limit <limit>
Set the rate limit burst (packets per second)	set radio wlan0 rate-limit-burst <limit>
Set the STBC	set radio wlan0 stbc-mode {on off}
Set the Short Guard Interval	set radio wlan0 short-guard-interval-supported {yes no}
Note:	

MANAGED ACCESS POINT

You can use a D-Link Wireless Switch to manage one or more access points on your network. To allow a switch to manage the AP the switch and AP must discover each other. The commands in Table 9 show how to change the AP mode from Standalone to Managed and how to configure the IP address of a D-Link Wireless Switch so that the AP can discover it. You can configure a pass phrase on the AP and on the switch so that only authenticated APs can associate with the switch.

Table 9: Managed Access Point Commands

Action	Command
View Managed AP settings	get managed-ap
Set the AP to Managed mode	set managed-ap mode up
Set the AP to Standalone mode	set managed-ap mode down
Set the pass phrase for AP-to-switch authentication	set managed-ap pass-phrase <password>
<p>Note: The password you enter must match the local authentication password you configure for Valid APs on the D-Link Wireless Switch.</p> <p>To remove the password, enter the command without the password variable.</p>	

Table 9: Managed Access Point Commands

Action	Command
Configure the IP address of up to four D-Link Wireless Switches on your network.	<pre>set managed-ap switch-address-1 <ip_address> set managed-ap switch-address-2 <ip_address> set managed-ap switch-address-3 <ip_address> set managed-ap switch-address-4 <ip_address></pre>
Example:	<pre>set managed-ap switch-address-1 192.168.2.123</pre>

IEEE 802.1X SUPPLICANT AUTHENTICATION

Use the 802.1X Supplicant Authentication settings to configure the access point to authenticate to a secured wired network.

Table 10: IEEE 802.1X Supplicant Commands

Action	Command
Enable 802.1X supplicant	<code>set dot1x-supplicant status up</code>
Disable 802.1X supplicant	<code>set dot1x-supplicant status down</code>
Set the 802.1X user name	<code>set dot1x-supplicant user <name></code>
Set the 802.1X password	<code>set dot1x-supplicant password <password></code>

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SYSTEM MANAGEMENT

Table 11 shows the commands you use to manage the configuration file and firmware on the AP.

Table 11: System Management

Action	Command
Restore the factory default settings	<code>factory-reset</code>
Save the configuration to a backup file	<code>config download <url></code> Example: <code>config download tftp://1.2.3.4/defaultcfg.xml</code>
Restore the configuration from a previously saved file	<code>config upload <url></code> Example: <code>config upload tftp://1.2.3.4/defaultcfg.xml</code>
Reboot the system	<code>reboot</code>
Upgrade the firmware (requires a reboot)	<code>firmware-upgrade <url></code> Example: <code>firmware-upgrade tftp://1.2.3.4/upgrade.tar</code> <code>firmware-upgrade file://1.2.3.4/tmp/upgrade.tar</code>

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Section 7: CLI Classes and Properties Reference

Configuration information for the UAP is represented as a set of classes and objects. The following is a general introduction to the CLI classes and properties.

Different kinds of information uses different classes. For example, information about a network interface is represented by the “interface” class, while information about an NTP client is represented by the “ntp” class.

Depending on the type of class, there can be multiple instances of a class. For example, there is one instance of the “interface” class for each network interface the AP has (Ethernet, radio, and so on), while there is just a singleton instance of the “ntp” class, since an AP needs only a single NTP client. Some classes require their instances to have names to differentiate between them; these are called *named classes*. For example, one interface might have a name of `eth0` to indicate that it is an Ethernet interface, while another interface could have a name of `wlan0` to indicate it is a wireless LAN (WLAN) interface. Instances of singleton classes do not have names, since they only have a single instance. Classes that can have multiple instances but do not have a name are called anonymous classes. Together, singleton and anonymous classes are called unnamed classes. Some classes require their instances to have names, but the multiple instances can have the same name to indicate that they are part of the same group. These are called group classes.

Table 12: CLI Class Instances

<i>has name? \ # of instances?</i>	<i>one</i>	<i>multiple</i>
no	singleton	anonymous
yes - unique	n/a	unique named
yes - non-unique	n/a	group named

Each class defines a set of properties that describe the actual information associated with a class. Each instance of a class has a value for each property that contains the information. For example, the interface class has properties such as “ip” and “mask.” For one instance, the `ip` property might have a value of 192.168.1.10 while the `mask` property has a value of 255.255.255.0; another instance might have an `ip` property with a value of 10.0.0.1 and `mask` property with a value of 255.0.0.0. To view the IP address and mask for a specific interface, you must identify the instance in the command.

The following table is a comprehensive list of all classes and their properties. Some of the commands allow you to view or configure settings that are not available from the Web interface. Use `get` or `set` to build commands based on the class and property. If the class is a named class, you must include the name. For example, `interface` is a named class.

Table 13: UAP CLI Commands

Class	Property
acl	acl-type
	rule-count
association	interface
	station
	authenticated
	associated
	rx-packets
	tx-packets
	rx-bytes
	tx-bytes
	listen-interval
	last-rssi
	client-qos-enabled
	bw-limit-up
	bw-limit-down
	acl-type-up
	acl-type-down
	acl-up
	acl-down
policy-up	
policy-down	
basic-rate	rate
bridge-port	interface
	path-cost
	priority
	stp-state
bss	status
	description
	radio
	ignore-broadcast-ssid
	radius-accounting
	radius-ip-network
	radius-ip
	radius-ipv6
	radius-key
	vlan-tagged-interface
	open-system-authentication
	shared-key-authentication
	wpa-allow-non-wpa-stations
wpa-cipher-tkip	
wpa-cipher-ccmp	

Table 13: UAP CLI Commands (Cont.)

Class	Property
bss (continued)	wpa-allowed
	wpa2-allowed
	rsn-preauthentication
	session-key-refresh-rate
	broadcast-key-refresh-rate
	radius-backupone-ip
	radius-backuptwo-ip
	radius-backupthree-ip
	radius-backupone-key
	radius-backuptwo-key
	radius-backupthree-key
channel-planner	status
	change-threshold
	interval
	locked-ips
class-map	every
	dst-mac
	dst-mac-mask
	dst-ip
	dst-ip-mask
	dst-port
	ethertype
	cos
	ip-tos
	ip-tos-mask
	ip-dscp
	ip-precedence
	protocol
	src-mac
	src-mac-mask
	src-ip
	src-ip-mask
	src-port
	vlan-id
	src-ipv6
	src-ipv6-prefix
	dst-ipv6
	dst-ipv6-prefix
l3-protocol	
ipv6-flow-label	
client-qos	mode

Table 13: UAP CLI Commands (Cont.)

Class	Property
cluster	clustered
	location
	cluster-name

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Table 13: UAP CLI Commands (Cont.)

Class	Property
detected-ap	radio
	beacon-interval
	capability
	type
	privacy
	ssid
	wpa
	phy-type
	band
	channel
	rate
	signal
	erp
	beacons
	last-beacon
	supported-rates
	security
	hi-rate
	noise
	nmode
wired	
device-info	wds
	device-description
	device-name
	product-id
	version-id
dot11	status
	debug
	dot11d
dot1x-supplicant	status
	user
	password
firmware-upgrade	upgrade-url
global-radius-server	radius-accounting
	radius-ip-network
	radius-ip
	radius-key
	radius-ipv6
	radius-nas-identifier

Table 13: UAP CLI Commands (Cont.)

Class	Property
global-radius-server (continued)	radius-backupone-ip
	radius-backuptwo-ip
	radius-backupthree-i
	radius-backupone-key
	radius-backuptwo-key
	radius-backupthree-key
	detail
host	detail
	id
	dns-1
	dns-2
	static-dns-1
	static-dns-2
	dns-via-dhcp
interface	type
	status
	operational-status
	description
	mac
	static-mac
	ip
	mask
	static-ip
	static-mask
	rx-bytes
	rx-packets
	rx-errors
	tx-bytes
	tx-packets
	tx-errors
	stp
	fd
	hello
	priority
	port-isolation
	ssid
	bss
	security
	wpa-personal-key
	wep-key-ascii
wep-key-length	

Table 13: UAP CLI Commands (Cont.)

Class	Property
interface (continued)	wep-default-key
	wep-key-1
	wep-key-2
	wep-key-3
	wep-key-4
	wep-key-mapping-length
	vlan-interface
	vlan-id
	radio
	remote-mac
	wep-key
	wds-ssid
	wds-security-policy
	wds-wpa-psk-key
ip-route	destination
	mask
	gateway
ipv6-route	destination
	prefix-length
	gateway
keepalive	ip-address
log	persistence
	severity
	remove
	relay-enabled
	relay-host
	relay-port
log-entry	number
	priority
	time
	daemon
	message

Table 13: UAP CLI Commands (Cont.)

Class	Property
managed-ap	mode
	ap-state
	switch-address-1
	switch-address-2
	switch-address-3
	switch-address-4
	pass-phrase
	dhcp-switch-address-1
	dhcp-switch-address-2
	dhcp-switch-address-3
dhcp-switch-address-4	
management	vlan-id
	interface
	static-ip
	static-mask
	ip
	mask
	mac
	dhcp-status
	ipv6-status
	ipv6-autoconfig-status
	static-ipv6
	static-ipv6-prefix-length
	autoconfig-ipv6-global-all
autoconfig-link-local	
mgmt-acl	mgmt-address-1
	mgmt-address-2
	mgmt-address-3
	mgmt-address-4
	mgmt-address-5
	mode
	mgmt-ipv6-address-1
	mgmt-ipv6-address-2
	mgmt-ipv6-address-3
	mgmt-ipv6-address-4
mgmt-ipv6-address-5	
ntp	status
	server

Table 13: UAP CLI Commands (Cont.)

Class	Property	
policy-attr	policy-map-name	
	class-map-name	
	drop	
	send	
	mark-cos	
	mark-ip-dscp	
	mark-ip-precedence	
	police-simple	
	committed-rate	
	committed-burst	
policy-map	attr-count	
qos-mac-acl	rule-count	
qos-mac-rule	acl-name	
	acl-type	
	action	
	every	
	dst-mac	
	dst-mac-mask	
	src-mac	
	src-mac-mask	
	ethertype	
	cos	
	vlan-id	
	radio	status
		description
channel-policy		
mode		
static-channel		
channel		
tx-power		
beacon-interval		
rts-threshold		
fragmentation-threshold		
rate-limit-enable		
rate-limit		
rate-limit-burst		
wlan-util		
n-bandwidth		
n-primary-channel		
protection		
fixed-multicast-rate		
short-guard-interval-supported		

Table 13: UAP CLI Commands (Cont.)

Class	Property
	stbc-mode
rule	acl-name
	acl-type
	action
	every
	protocol
	src-ip
	src-ip-mask
	src-port
	dst-ip
	dst-ip-mask
	dst-port
rule (continued)	ip-dscp
	ip-precedence
	ip-tos
	ip-tos-mask
	src-ipv6
	src-ipv6-prefix
	dst-ipv6
	dst-ipv6-prefix
	ipv6-flow-label
serial	status
snmp	status
	ro-community
	rw-community
	rw-status
	port
	source-status
	source
	detail
snmp-group	secur-level
	write-view
	read-view
snmp-target	host
	port
	user-name
snmp-user	group
	auth-type
	auth-pass
	priv-type
	priv-pass

Table 13: UAP CLI Commands (Cont.)

Class	Property	
snmp-view	type	
	oid	
	mask	
snmpv1	status	
ssh	status	
static-ip-route	destination	
	mask	
	gateway	
static-ip6-route	destination	
	prefix-length	
	gateway	
supported-rate	rate	
	mac	
system	password	
	detail	
	model	
	version	
	platform	
	country	
system (continued)	nmode-supported	
	dfs-supported	
	forty-mhz-supported-a	
	forty-mhz-supported-g	
	base-mac	
	base-mac-status	
	serial-number	
	country-code-is-configurable	
	system-name	
	system-contact	
	system-location	
	dfs-supported	
	band-plan	
	telnet	status
	traphost	host
community		
untagged-vlan	vlan-id	
	status	
vap	radio	
	status	
	vlan-id	
	global-radius	
	description	

Table 13: UAP CLI Commands (Cont.)

Class	Property
	redirect-mode
	redirect-url
	qos-mode
	def-bwmax-up
	def-bwmax-down
	def-acltype-up
	def-acltype-down
	def-acl-up
	def-acl-down
	def-policy-up
	def-policy-down
web-server	http-status
	https-status
	http-port
	session-timeout
	session-max
	ssl-cert-generate

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