

1

Package Contents

- Indoor unit
- Outdoor unit with integrated antenna
- Pole mounting kit for the Outdoor unit (includes two brackets and four sets of screws, nuts and washers)
- 110/220V AC Power Cord
- 20 meter Indoor to Outdoor cable
- 3 shielded RJ-45 connectors
- CD containing: Manual and Configuration Utility
- Quick Installation Guides

This Quick Installation Guide is intended for experienced installers and network administrators. Please refer to the D-Link AirPremier DWL-1800 Manual on the CD for further details and information regarding the installation procedures.

The Base Unit Station DWL-1800B is a required product in all installations, whether PtP or PtMP architecture; the remote stations can't communicate to each other without DWL-1800B.



ONLY experienced installers who are familiar with local building and safety codes and, wherever applicable, are licensed by the appropriate authorities should install outdoor units and antennae. Failure to do so may void the D-Link product warranty and may expose the end user or the service provider to legal and financial liabilities.

D-Link and its resellers or distributors are not liable for injury, damage or violation of regulations associated with the installation of outdoor units or antennae.

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System Description

The products come in two options: the basic DWL-1800B (BU) and DWL-1800R (RB) units come with a high gain flat antenna integrated on the front cover of the Outdoor unit. In this model, the front cover also functions as a protective sun cover.

The installation process should follow these general steps:

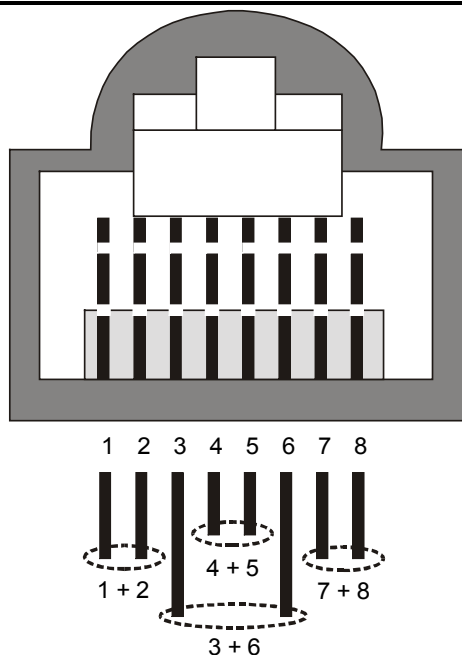
1. Select an appropriate locations for the Outdoor unit, the antenna (if using an external antenna) and the Indoor unit.
2. Connect a ground cable between the Outdoor unit and an appropriate grounding point.
3. Remove the service box assembly of the Outdoor unit, unscrew the top nut and route the indoor-outdoor cable through the top nut and the service box. Assemble an RJ-45 connector on the cable, connect it to the Ethernet connector, replace the service box and tighten the nut. Make sure that the external jack of the cable is well inside the service box to guarantee a good sealing. Route the cable to the location selected for the Indoor unit.

Preparing the Indoor-to-Outdoor Cable

The Indoor-to-Outdoor cable provides pin-to-pin connection on both sides.

It is supplied open-ended, to allow the installer to conveniently route the cable through the service box of the Outdoor unit and through a wall into the building.

The following diagram shows the wire pair connections required for the Indoor-to-Outdoor cable.



4. Mount the Indoor unit. Assemble an RJ-45 connector with a protective cover on the indoor side of the Indoor-to-Outdoor cable and connect it to the Indoor unit's **Radio** port. Prepare the power cable (if supplied open ended) and use it to connect the Indoor unit to the AC mains.

Note: The Indoor unit should be connected to the power source only after it has been connected to the Outdoor unit.

Note: If the power cord supplied with the unit is open ended, connect to it a power plug appropriate to the country in which the unit is being installed. The color codes of the cable are:

brown	phase ~
blue	neutral 0
yellow/green	grounding ≡

The operating AC mains voltage of the Indoor unit is marked on the rear panel of the unit

5. Connect the Indoor unit **Ethernet** port to the Ethernet hub using a **straight** Ethernet cable or directly to the PC's NIC using **crossed** cable.
6. Align the antenna and verify connectivity with the other unit(s).

To perform antenna alignment:

1. Power on both units.
2. Synchronize the units by aligning the antennas at the main and remote sites until maximum signal quality is obtained. Check the signal strength RSSI bar on the bottom panel of the DWL-1800R (RB) bottom panel. If the received signal quality is lower than expected for this antenna/range combination, change antenna height and verify RF cables connections.

Verifying Correct Operation

To verify proper operation of the Outdoor unit, view the LED indicators located on the bottom panel of the unit as shown in the following table:

Outdoor Unit LEDs

Name	Description	Functionality
WLAN	Wireless Link Indicator	<i>Blinking Green</i> – Data received or transmitted on wireless link. Blinking rate is lower when there is no wireless traffic.
DC Power	Self Test and Power indication	<i>Green</i> – Self test passed and 48VDC power is received by the outdoor unit <i>Red</i> – Self test failed. Firmware did not loaded successfully.
ETH	Ethernet activity / Connectivity indication	<i>OFF</i> –Ethernet connectivity is OK. No traffic activity detected on the port. <i>Blinking Green</i> –Ethernet connectivity is OK, with traffic on the port. <i>Red</i> – No Ethernet connectivity.
RSSI BAR		<i>DWL-1800R (RB)</i> : Received Signal Strength Indication <i>DWL-1800B (BU)</i> : Number of associated RB units

To verify proper operation of the Indoor unit, view the LED indicators located on the front panel of the unit as shown in the following table:

Indoor Unit LEDs

Name	Description	Functionality
POWER	Power indication	<i>Green</i> -The Indoor unit supplies 48VDC to the Radio port <i>Off</i> - No power is supplied to the Radio port.
LINK	Self Test and Remote Ethernet Link indication	<i>Off</i> – No Ethernet connectivity has been detected between the outdoor unit and the device connected to the indoor unit. <i>Orange</i> – Self-test passed and Ethernet connection between the outdoor unit and the device connected to the indoor units is detected. Note: The LINK LED indicates end-to-end connection between the outdoor unit and the Ethernet connection to the indoor unit.

Quick Start to Wireless Networking

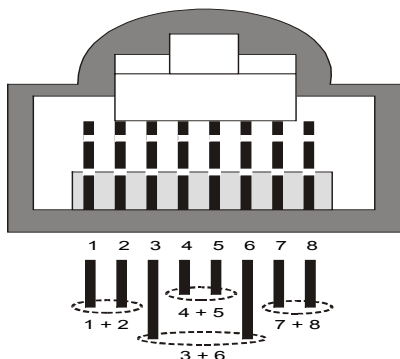
Perform the following steps to configure a WLAN for the first time:

1. Physically connect the DWL-1800B/DWL-1800R units to the Ethernet LAN. Make sure they are switched on. The D-Link AirPremier DWL-1800 wireless network will be up and running immediately. If you are content with the default settings of the DWL-1800B/DWL-1800R units, you can stop right here. It is more likely however, that you want to assign different radio frequencies to each DWL-1800B/DWL-1800R, or impose some restrictions on the use of your wireless network.
2. To be able to manage the DWL-1800B/DWL-1800R units via SNMP, each DWL-1800B/DWL-1800R needs a unique IP address. If you provide a DHCP or BOOTP service on your LAN (and have sufficient free IP addresses available) this will be taken care of automatically. If not, refer to User's Guide for further information on assigning IP addresses.
3. Use the D-Link AirPremier DWL-1800 Configuration utility to configure the network settings according to your needs.
4. Select the radio channels of the DWL-1800B/DWL-1800R units according to your cell plan. See the User's Guide for further details and information regarding cell planning and channel selection.

3 Preparing The Indoor To Outdoor Cable

The Indoor-to-Outdoor cable provides pin-to-pin connection on both sides. It is supplied open-ended at both sides, to allow the installer to conveniently route the cable into the waterproof seal off the Outdoor unit and through holes in walls.

The figure below shows the wire pair connections required for the Indoor-to-Outdoor cable.

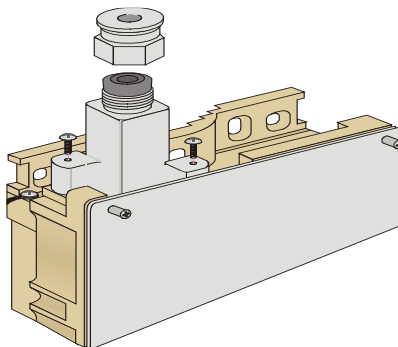


Use a standard crimp tool for RJ45 connectors to prepare the wires, insert them into the appropriate pins and use the crimp tool to crimp the connector. Make sure to do the following:

- Remove as smaller length as possible of the external jacket to verify that the external jacket will be well inside the service box when connected to the Outdoor unit to ensure good sealing.
- Take back the shield drain wire before inserting the cable into the RJ-45 connector, to ensure a good connection with the connector's shield after crimping.

4 Connecting the Indoor-to-Outdoor Cable

- Remove the two screws holding the waterproof seal assembly to the Outdoor unit and remove the waterproof seal.
- Unscrew the top nut from the waterproof seal.



Routing the Indoor-to-Outdoor Cable through the Waterproof Seal

3. Route an uncrimped straight Ethernet cable (8-wire, 24 AWG pin-to-pin) through the top nut and the waterproof seal.
Note: The 8-wire cable should be shielded.
4. Insert and crimp an RJ45 connector.
5. Connect the cable to the outdoor unit RJ45 connector.
6. Replace the waterproof seal assembly to the Outdoor unit and then replace the top nut. Make sure that the external jack of the cable is well inside the service box to guarantee a good sealing.
7. Route the cable to the location selected for the Indoor unit.
8. Assemble an RJ-45 connector with a protective cover on the indoor side of the Indoor-to-Outdoor cable and connect it to the Indoor unit's Radio port.



Configuration Utility

The D-Link Air Premier DWL-1800 Configuration Utility is an SNMP-based utility that provides a consistent view of the wireless network. Using the Configuration Utility you can:

- Assign radio channels for optimal cell operation.
- Configure units with a specified IP address.
- Set the SNMP Read/Write Community strings.
- Verify the status of all units in the network.
- Configuration of a wide range of operational parameters, including WLAN, IP and Security parameters.
- View Tx and Rx counters.
- Obtain general information such as the Firmware version and system name.

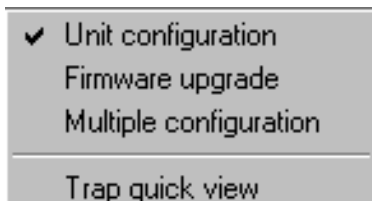
Installing and Running the Configuration Utility

The Configuration Utility is provided for installation on a CD.

1. Insert the provided CD into the computer where you wish to install the Configuration Utility.
2. Run Brzmgr mgr.exe.
3. Follow all instructions until you are informed that the Utility was installed successfully.
4. Run the Configuration Utility from the Start menu by selecting it in the D-Link AirPremier DWL-1800 Configuration Utility folder under Programs.

Configuration Utility Modes

There are several D-Link AirPremier DWL-1800 Configuration Utility modes of operation. The selected mode(s) is indicated by a check mark in the menu.



- **Unit configuration** - This is the default mode and is used for setting parameters as detailed in this manual.
- **Firmware upgrade** – Used for upgrading the embedded software in managed units; refer to Section 0 for instructions on using this feature.
- **Multiple configurations** – Used for setting configuration parameters for more than one unit simultaneously; refer to Section 0 for instructions on using this feature.
- **Trap quick view** - When set to this mode, the PC (if set as described in Section 0) switches automatically to the Trap Monitor tab when Unit Configuration mode is selected.

Unit Configuration Mode

The Control Window Section

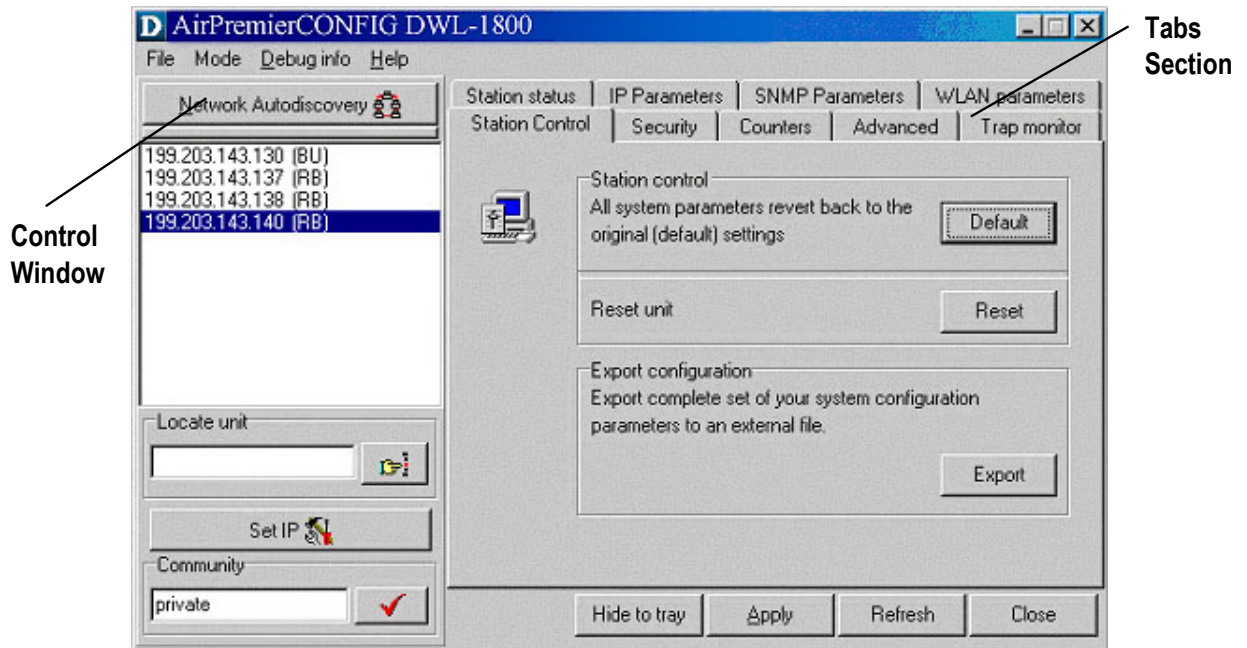
In this section, you can:

- Discover the units that are connected to the network.
- View DWL-1800 units that have been discovered by their IP address.
- Select the units you wish to manage.
- Locate units behind a router that cannot be detected by the autodiscovery feature
- Assign unit IP addresses based on unit MAC addresses.
- Set the SNMP Community string.

If there are many units in the managed network, you can enlarge the list box by clicking on the horizontal line above the list; click again to toggle back the default display state. The list box also displays the Location of each unit, as set in the Station Status dialog box.

The Tabs Section

This section consists of several tabs, each containing parameters required for the management of the selected unit; the number of tabs displayed varies between the type of managed unit. The different tabs are described in the following sections. When you switch between the tabs, the unit selection section with the selected unit address remains displayed.




D-Link AirPremier DWL-1800 Configuration Utility Main Window (Station Control Tab)


The Control Window

Selecting Units

You can select a unit to manage in one of the following ways:

- Click the Network Autodiscovery button. All the IP addresses of units in the same domain but not hidden behind a router (under the selected community) are displayed in the list box underneath the button. Click on an address to select the corresponding unit for viewing and configuration.
- Type the unit's IP address in the Locate Unit field (for stations which are located behind a router) and click . This will add the unit information to the selection list.

Setting the SNMP Community String

Type the known Read/Write Community string in the Community field (the default string is public for read and private for read/write) and click the  button to confirm.

Assigning and Editing IP Addresses Manually (based on MAC addresses)

1. Click the **Set IP** button. The Set IP dialog box appears.



The Set IP dialog box is a window with a title bar that says "Set IP" and a close button. It contains two main sections for input. The first section has a label "Mac-address" followed by six input fields containing the values "00", "20", "d6", "e1", "a6", and "d2". Below this is a label "IP-Address" followed by four input fields containing the values "198", "121", "200", and "132". The second section has a label "Subnet mask" followed by four input fields containing the values "255", "255", "255", and "00". Below this is a label "Default gateway" followed by four input fields containing the values "00", "00", "00", and "00". At the bottom of the dialog box are two buttons: "OK" and "Cancel".



The Set IP Dialog Box

2. Type the parameters in the appropriate fields and click OK; the MAC address is shown on the bottom label of the Indoor and Outdoor units. A message box is displayed notifying you when the changes are to take affect. This feature can be used only if the D-Link AirPremier DWL-1800 Configuration Utility is on the same Ethernet segment as the unit and not behind the router.

NOTE: In order to see the unit after assigning the IP address, the PC with the Configuration utility should be on the same IP subnet as the assigned IP address. Units receive auto IP address if there is no DHCP server and the unit is configured to work in the Smart mode. The IP address will be chosen randomly in the 169.254.x.x range with a subnet mask of 255.255.0.0.

Application Control Buttons

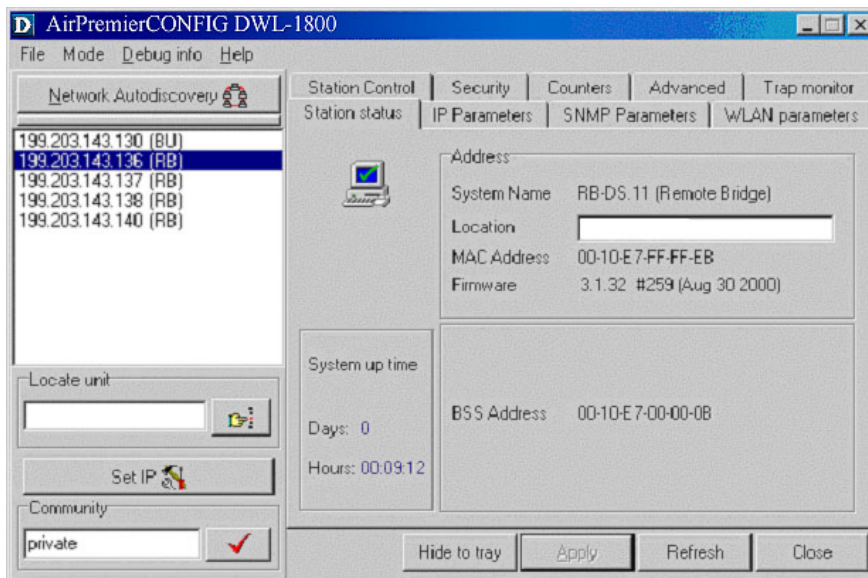
The following buttons always appear at the bottom of the Configuration Utility window. Additional buttons, specific to certain tabs, are explained when relevant.

- **Hide to Tray** – Minimizes the application into the  icon, placed in the Windows task bar (at the bottom of the Windows desktop). To restore the application, click the  icon.
- **Apply** – Implements any changes you made.
- **Refresh** – Refreshes the window with the most recent data from the unit.
- **Cancel** – Closes the window without implementing any changes you made.

Configuration Utility Tabs

Station Status Tab

The Station Status tab displays general information regarding the unit's firmware and hardware versions as well as general unit address information.

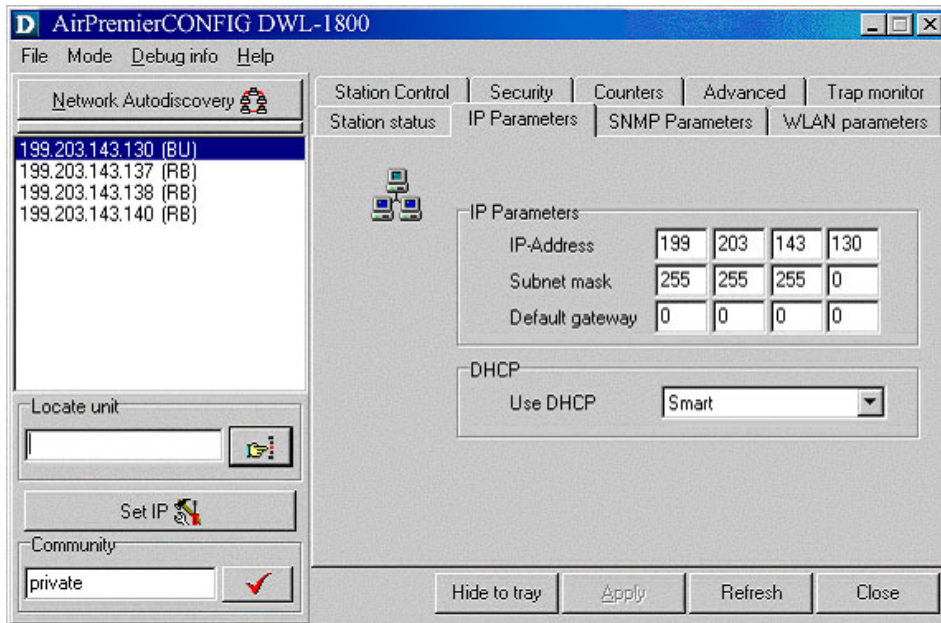


Station Status Tab

- **System Name** - The name of the selected unit.
- **Location** - A user-defined description of the location of the selected unit, up to 28 ASCII characters long (optional).
- **MAC Address** - MAC address of the selected unit.
- **Firmware** - The current firmware version.
- **BSS Address** (DWL-1800R units only) - Defines the MAC address of the BSS, which is the DWL-1800B the unit is associated with.

IP Parameters Tab

The IP Parameters tab allows you to define or edit the IP parameters of units.



IP Parameters Tab

- **IP Address** - The IP address of the selected unit.
- **Subnet mask** - The Subnet mask of the selected unit.
- **Default gateway** - The default gateway of the selected unit.
- **DHCP** - Sets the way your system utilizes the Dynamic Host Configuration Protocol (DHCP, used for automatic IP assignment).

Always - The system searches for a DHCP server each time the unit is turned on.

Smart - The system searches for a DHCP server only if no IP address was assigned. If an IP address was assigned manually, the system will not search for a DHCP server.

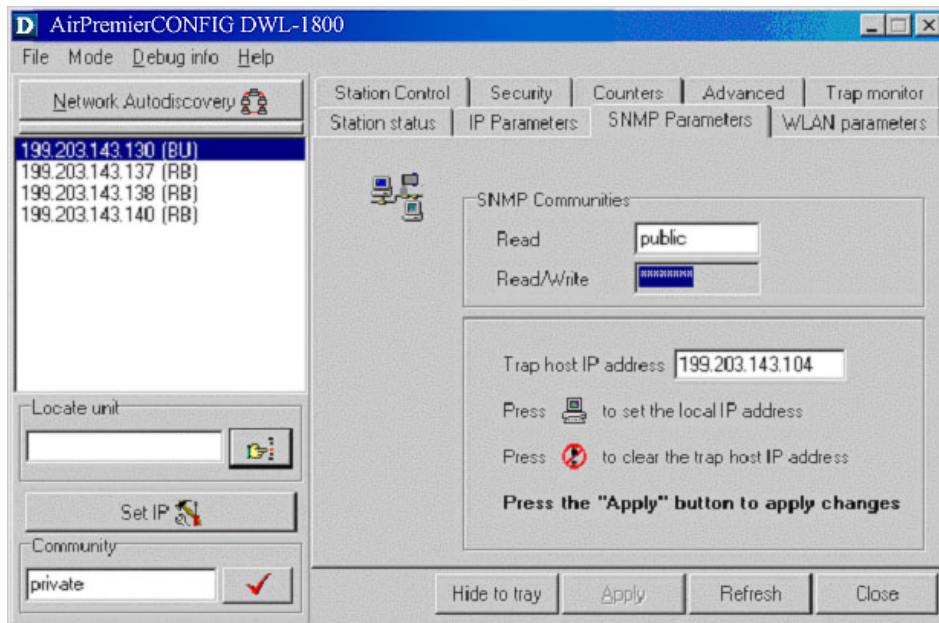
Never - The system never searches for a DHCP server.

The default value is **Smart**.



NOTE: When the unit is configured to use a DHCP server and none exists, the unit will assign itself an automatic class B address in the range 169.254.X.X; this can be used with Auto Discovery when the MAC address is not available.

SNMP Parameters Tab

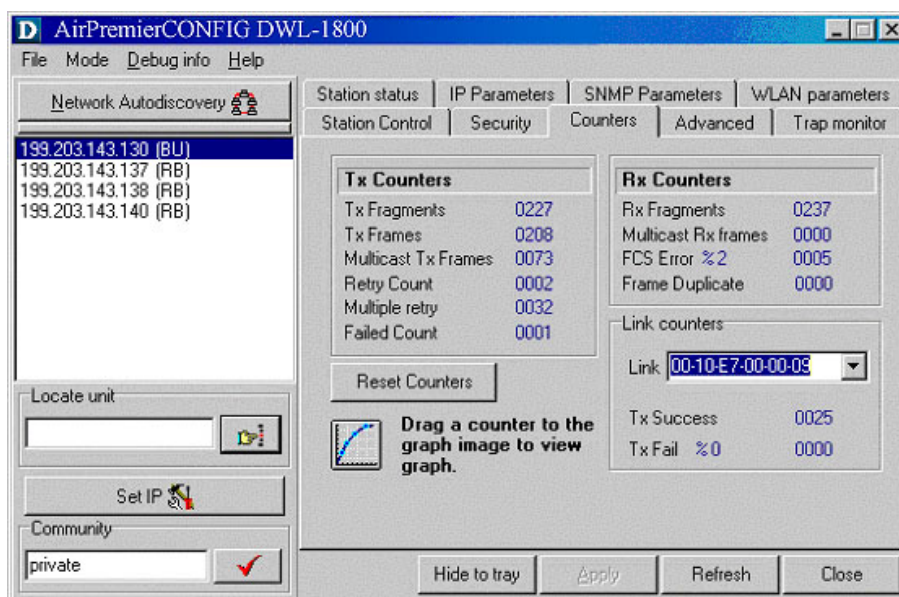
The SNMP parameters tab allows you to define or edit the SNMP community strings and the SNMP-related parameters.



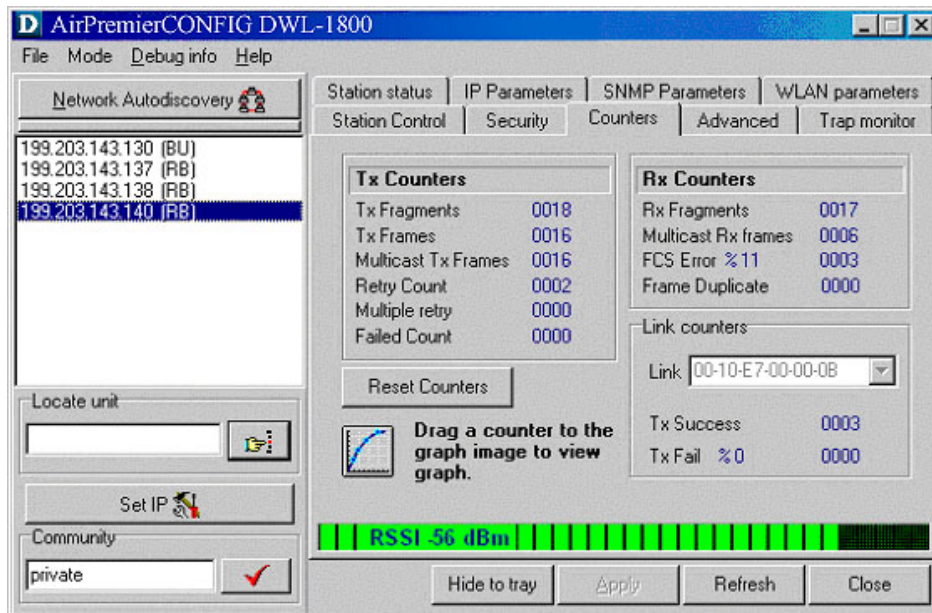
SNMP Parameters Tab

- **Read** - The read-only community string of the unit. Default is public.
- **Read/Write** - The read/write community string of the unit. Default is private. This value is displayed as asterisks for security purposes.
- **Trap Host IP Address** - The IP address of the host to which SNMP traps are sent. Click the  icon directly beneath this field to apply the defined Trap Host IP address. Click the  icon directly beneath this field to disable the sending of traps (inserts a value of 255.255.255.255).

Counters Tab




Counters Tab (BU/DWL-1800B Units)



Counters Tab (RB/DWL-1800R Units)

Using the Counters windows, you can view a wide range of performance data at both sides of the link. For RB units, you can monitor the received signal strength through the RSSI (Received Signal Strength Indication) bar indicator at the bottom of the window. This RSSI bar can be used to optimize antenna alignment and improve link quality.

Additional performance counters displayed in this window include the following. To obtain a graph that displays the counter values, select a counter and drag it to the  icon.

- **Tx Counters**

Tx Fragments - The number of transmitted frames. The count includes data, control, management frames and the number of retransmissions of data frames (for example, if the same data frame is retransmitted ten times then the count will increase ten times).

Tx Frames - The number of frames transmitted to the wireless media. The count includes the first transmission of data frames (without retransmissions), and the number of control and management frames.

Multicast Tx Frames- The number of transmitted multicast frames.

Retry Count - The number of retransmissions.

Multiple Retry - This counter is incremented when a packet is successfully transmitted after more than one retransmission.

Failed Count - This counter is incremented when a packet is not transmitted successfully due to the number of transmit attempts exceeding either the Short Retry Limit or Long Retry Limit.

- **Rx Counters**

Rx Fragments - The number of frames received, including data, control, and duplicate data frames.

Multicast Rx - The number of received multicast frames.

FCS Error - The number of CRC errors, in addition to the percentage of CRC errors out of the total frames.

Frame Duplicate - The number of duplicate frames that were sent or received.

- **Link Counters**

The Tx Success and Tx Fail counters displayed at the end of the counters list are link-specific; to activate these counters for a specific link, select the MAC address of the unit at the other end of the link and click Apply.

When you click the Reset Counters button, these counters are actually reset (unlike the other counters which are only reset on screen).

Tx Success - The number of successfully sent Request To Send frames.

Tx Fail - The number of frames which the station failed to send.

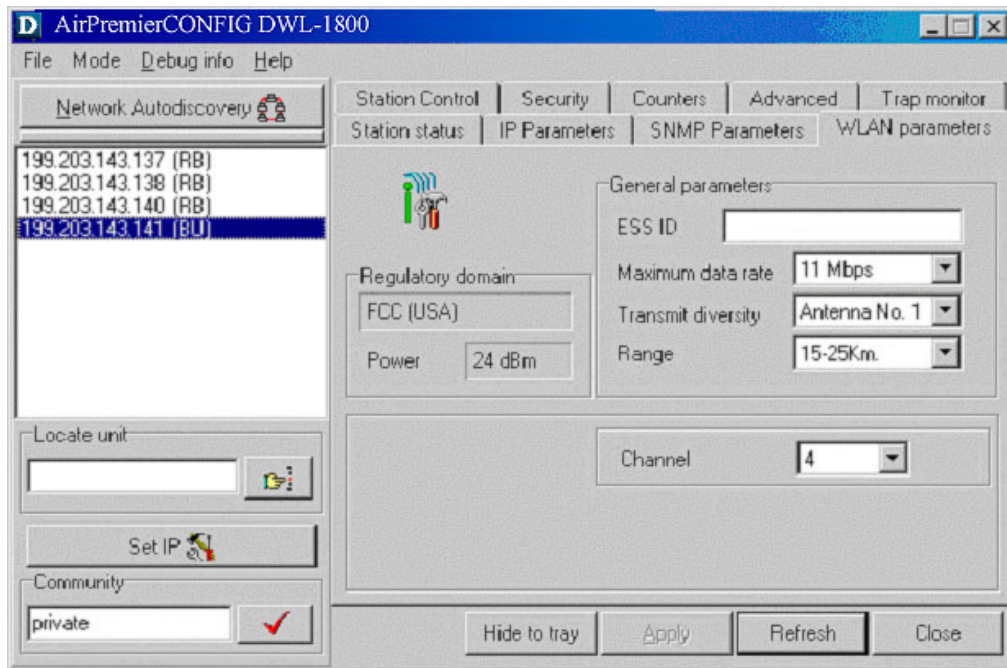
- **Resetting Counters**

You can reset the counters displayed in the Counters tab by clicking the **Reset Counters** button. All displayed values are reset to display zero.

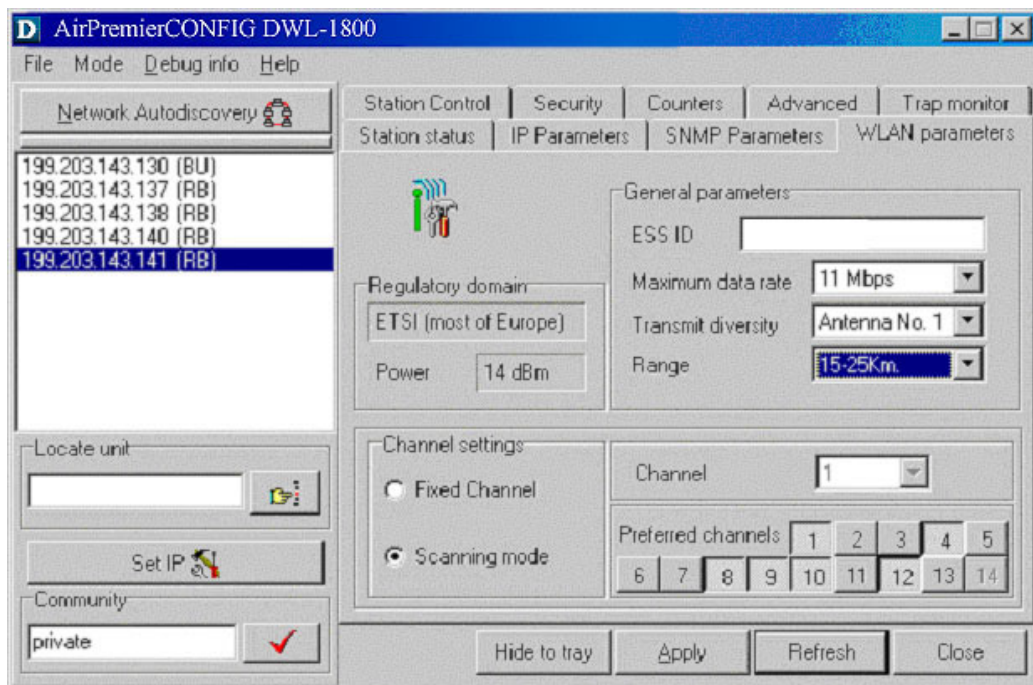
Note that this action does not reset the counters stored in the actual unit, but just resets the values displayed in the screen (an exception to this are the Link Counters). Therefore, if you exit the Counters tab, after performing a reset and reopen it at a later time the counter values are displayed to reflect the values stored in the unit. To reset the counters in the unit, turn off the unit and then turn it back on.

WLAN Parameters Tab

The WLAN parameters tab allows you to define or edit parameters related to the Wireless LAN environment in which the selected unit is operating. The window displayed varies depending on the type of unit selected.



WLAN Parameters Tab (BU/DWL-1800B)



WLAN Parameters Tab (RB/DWL-1800R)

- **Regulatory Domain** - Displays the regulatory authorities in the relevant country of use (e.g., Canada, ETSI, FCC, Japan).
- **Power** - Displays the current output power level at the antenna port.
- **ESSID** - An ASCII string of up to 32 characters used to identify a WLAN that prevents the unintentional merging of two co-located WLANs. It is essential that the

ESSID is set to the same value in all Remote Bridges and Base Units that should communicate with each other. The ESSID field is case-sensitive.

- **Maximum data rate** - By default, the unit adaptively selects the highest possible rate for transmission. Under certain conditions (for range/speed trade-off) you may decide not to use the higher rates. Possible values are 2, 5.5 or 11 Mbps. The default value is 11 Mbps.
- **Transmit diversity** - The antenna diversity option, which must be set to Antenna No. 1.

NOTE: *In the present product release, antenna diversity is not supported; therefore, always select Antenna No. 1.*

- **Range** - The operative range of your WLAN or Wireless Link in the drop down list. This parameter affects the acknowledge delay time which needs to be increased in long links. The default value is up to 5 km.
- **Channel** - Channel selection varies, depending on the type of unit.
For DWL-1800B units, select the channel that the unit will use by selecting a value (range: 1-13, depending on your regulatory domain) from the Channel drop down menu. Refer to the below table for the list of corresponding frequencies.
For DWL-1800R units, there are two channel setting options: if you select the *Fixed Channel* option by clicking the appropriate radio button, then the DWL-1800R will search for the DWL-1800B unit on the selected channel (from the Channel pull down field) and synchronize with it. The channel you select must match the channel selected in the DWL-1800B unit at the other end of the link.
If you select the *Scanning Mode* option (by selecting the appropriate radio button), you can specify preferred channels by clicking one or more of the buttons displayed at the bottom of the window. In this mode, the DWL-1800R will first search for the DWL-1800B unit on the channel you select in the Channel pull down field and synchronize with it if the link is established. If the DWL-1800R does not find the DWL-1800B, it will scan and search for one of the preferred channel frequencies you selected. If it does not find the DWL-1800B on any of the preferred channels, it will continue to scan until it finds the DWL-1800B on one of the channels permitted according to the regulatory domain.
The Table describes the channels used in each regulatory domain, the default channel, the maximum output power and the default output power.

Regulatory Domain	Lowest Channel	Highest Channel	Default Channel	Max. Output Power	Default Output Power
ETSI	1	13	7	14	4
FCC	1	11	6	24	24
TELEC	1	13	7	14	6
France	10	13	11	14	4
Canada	1	11	6	24	24

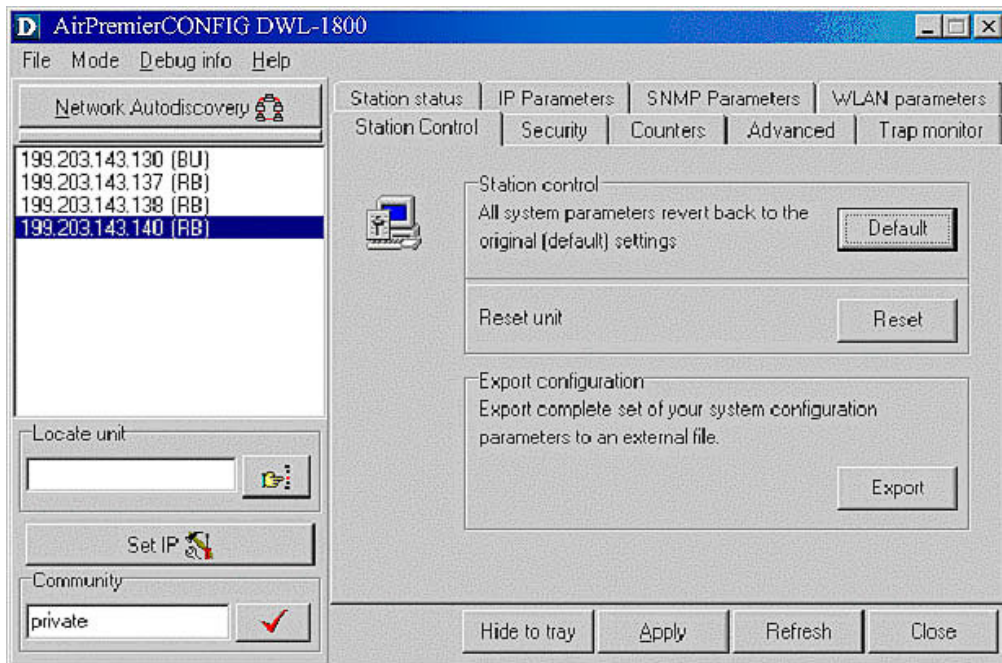
Regulatory Domains Specifications

Channel	Frequency
1	2412 MHz
2	2417 MHz
3	2422 MHz
4	2427 MHz
5	2432 MHz
6	2437 MHz
7	2442 MHz
8	2447 MHz
9	2452 MHz
10	2457 MHz
11	2462 MHz
12	2467 MHz
13	2472 MHz

Frequency List

NOTE: *The frequencies listed in the table are at the center of the channel. Each channel occupies 22MHz, therefore each channel occupies -11MHz to +11 MHz from the frequency specified.*

Station Control Tab



The Station Control Tab

- **Station Control** - Click the Default button for all parameters to revert to the factory defaults.
- **Reset Unit** - Click the Reset button to reset the unit and apply any changes made to the system parameters.
- **Export Configuration** - Click the Export button to export the current basic configuration of this unit to a file. A popup window is displayed prompting you to specify the name of the file. The created file can be used to save the configuration information or to send it to tech support as a reference for troubleshooting.

Security Tab



Security Tab

This tab displays information regarding the unit's security configuration. Wired Equivalent Privacy (WEP) is an authentication algorithm that protects authorized Wireless LAN users against eavesdropping and is implemented in D-Link AirPremier DWL-1800 units. WEP is defined in the IEEE 802.11b standard. This encryption is applicable for both authentication and data and the key length is 40 bits.

D-Link AirPremier DWL-1800 units can use one of the following authentication algorithms (as defined in the IEEE 802.11b standard).

- **Open System** – Any station in the WLAN can associate with any other unit and receive and transmit data freely(null authentication).
- **Shared Key** – Only stations using a shared key encryption are allowed to associate.

The default authentication algorithm is **Open System**.

If you select the Shared Key algorithm, set the following parameters:

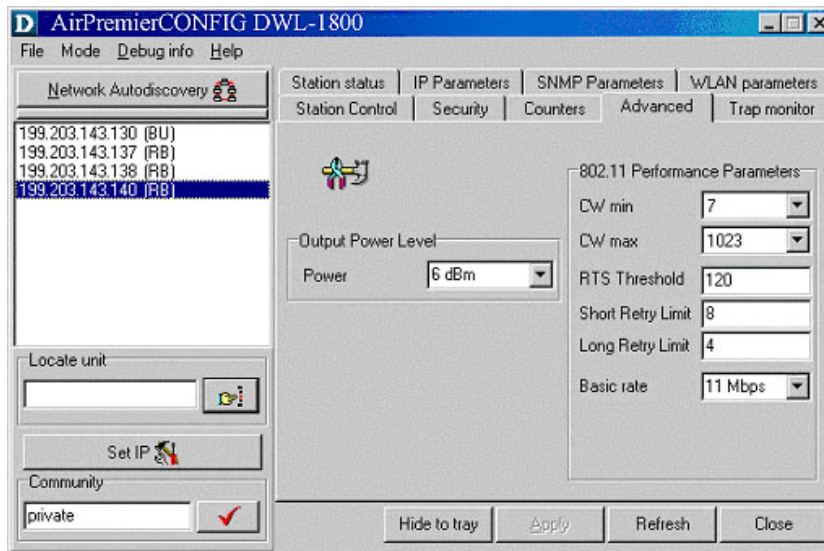
- **Default Key ID** – Sets the key for encryption.
- **WEP Key** – Defines the encryption keys used. Define each key by clicking the appropriate WEP Key row and entering ten hexadecimal characters (five sets of two characters each) for each of the four keys. After clicking Apply, the WEP Key values are displayed as zeros for security reasons.

The default WEP key is the first key.

NOTE: All units in the same cell should use the same key.

Advanced Tab

The Advanced tab provides additional performance parameters.



Advanced Tab

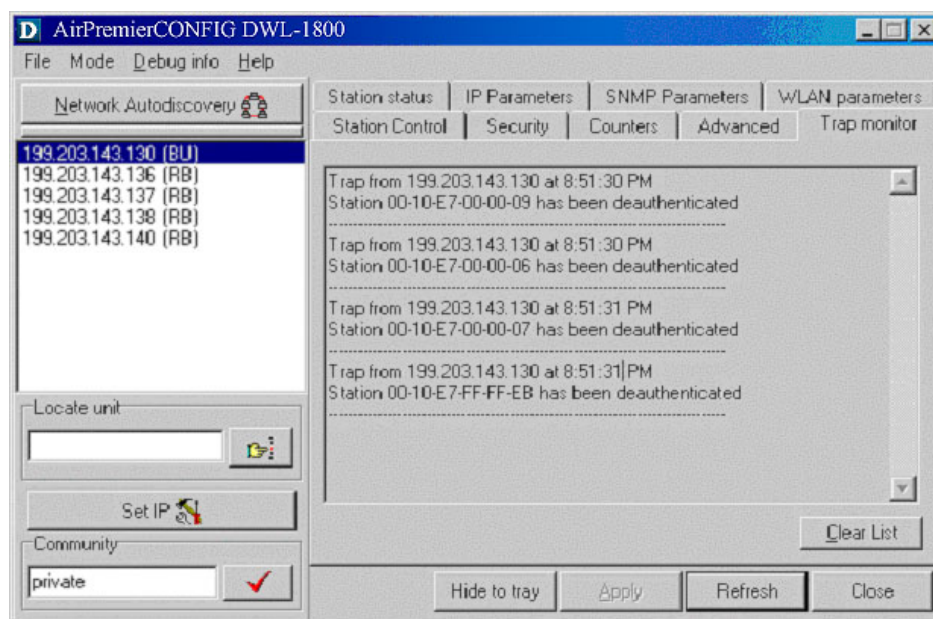
- **CW Min/Max** - The size of the contention window. The contention window backoff algorithm is a method used to resolve contention between different stations trying to access the medium. The valid range is from 7 to 1023.
Defaults are 31 for CW Min and 1023 for CW Max.
- **RTS Threshold** - The minimum packet size required for an RTS (Request to Send) to be sent. For packets with a size below the RTS Threshold value, an RTS is not sent and the data packet is transmitted directly to the WLAN.
- **Short Retry Limit** - The maximum number of transmission attempts for a frame that is shorter than or equal to the RTS Threshold. The default value is 8.
- **Long Retry Limit** - The maximum number of transmission attempts for a frame that is longer than the RTS Threshold. The default value is 4.
- **Basic Rate** - The maximum rate of multicast, broadcast and control frames transmissions. Multicast and broadcast transmissions are not acknowledged; therefore there is a chance that such transmissions will not be properly received without the possibility of using the acknowledgement mechanism for retransmission. Therefore, it is recommended to use a lower rate for transmission of broadcast, multicast and control frames, to increase the probability that they will be received without errors. Enter the data rate at which broadcast, multicast and control frames are transmitted. The default value is 2 Mbps.

NOTE: The Basic Rate parameter should be changed only if you are sure that all units in the cell can handle the defined rate. Use this parameter with caution, as it may bring the link down.

- **Power** – The transmit power level. The possible range is from -4dBm to +24dBm.

NOTE: The Power setting should not exceed the maximum output allowed in the applicable regulatory domain according to on page 17.

Trap Monitor Tab

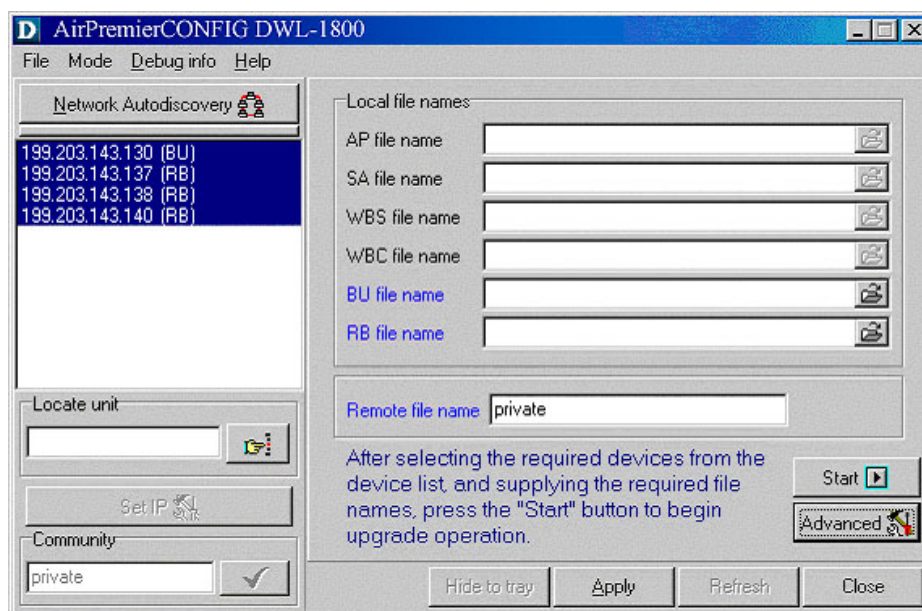


Trap Monitor Tab

When an event occurs, a trap is sent to the defined host address (the setting is made in the SNMP Parameters tab described in Section 0). This window displays the recorded traps. Click the **Clear List** button to clear the display area.

Firmware Upgrade Mode

This mode allows the embedded software in managed units to be upgraded. When you select this mode from the Options menu, the following dialog box is displayed.



Firmware Upgrade Mode dialog box

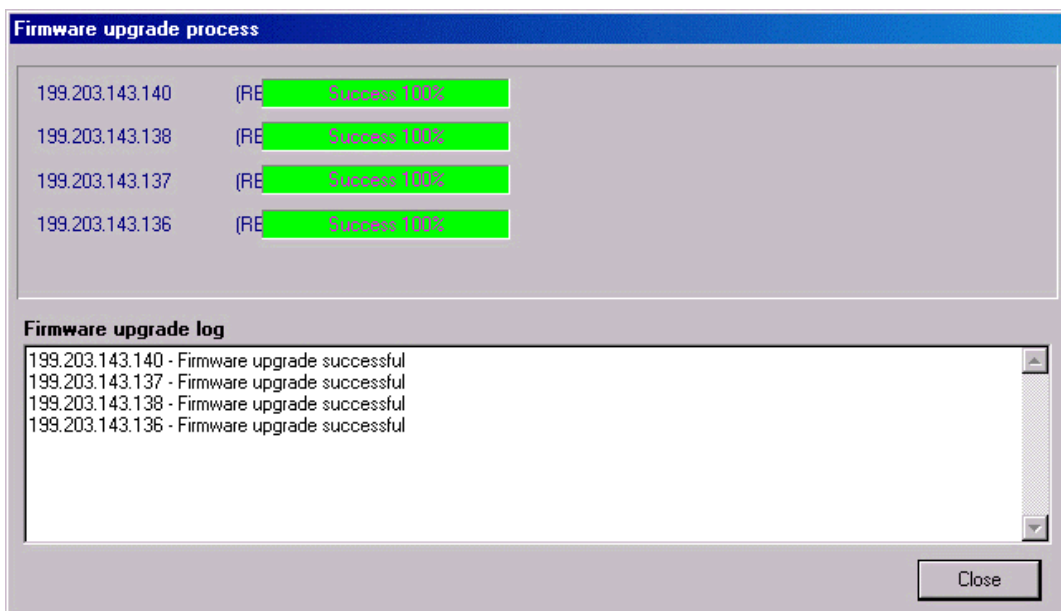
NOTE: *The Configuration utility does not resolve the topology of the cell. Therefore, firmware upgrades should be made from the central point where the BU/DWL-1800B are located.*

The list box on the left-hand side of the dialog box displays the managed units; it is sorted sequentially by DWL-1800B followed by DWL-1800R units.

To upgrade firmware:

1. Select the units that you wish to upgrade from the list box. Use Shift-click and/or Ctrl-click to select multiple units, or select multiple units by dragging with the mouse.
2. Specify the firmware file you wish to use in the *Local file name* fields; there are separate fields for files of different device type. The field text is displayed in blue when corresponding unit types are selected in the list box.
3. In the Remote File Name field, enter the Read/Write community string of the unit(s).
4. Click **Advanced** if you wish to change the settings of the TFTP session used in the upgrade download
5. Click **Start** to initiate the firmware upgrade; progress bars are displayed indicating the progress of the operation. If both DWL-1800B and DWL-1800R devices are selected, the program will upgrade DWL-1800R units first.

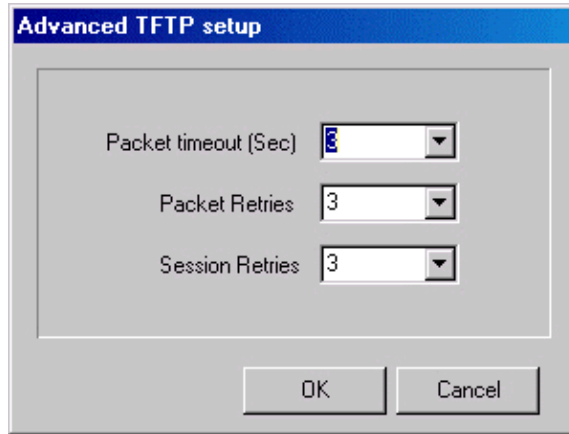
At the end of the upgrade session, the following window is displayed indicating that the operation was successful.



Firmware Upgrade Process

NOTE: Do not disconnect any cables or try to stop the process before downloading is completed.
All configured parameters are saved during the upgrade/download procedure.

Advanced TFTP Settings



Advanced TFTP Setup dialog box

The Advanced TFTP Setup window enables you to tune the TFTP session parameters for a more efficient firmware upgrade, depending on your actual deployment.

- **Packet timeout** - Defines the time (in seconds) it takes for a packet to timeout. The range is from 1 to 30 seconds with a default of 3 seconds.
- **Packet Retries** - Defines the number of times that a packet will be sent after it timeouts in a TFTP session. The range is from 1 to 5 retries with a default of 3 retries.
- **Session Retries** - Defines the number of times a TFTP session will be repeated before the firmware upgrade operation is designated a failure. The range is 1-5 retries with a default of 3 retries.

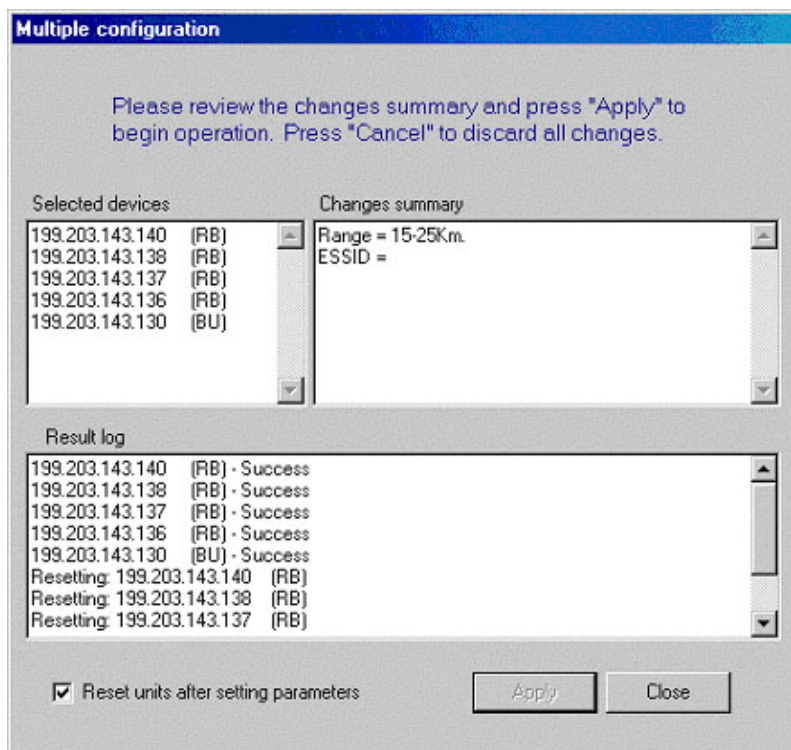
Multiple Unit Configuration Mode

This feature allows configuration parameters to be downloaded to multiple units simultaneously. When you select this option in the Options menu, all configuration windows become write-only. Irrelevant parameters are disabled.

NOTE: *The Configuration Utility does not resolve the topology of the cell. Therefore, multiple unit configuration operations should be done at the location where the DWL-1800B is are located.*

Select the units that you wish to upgrade from the list box on the left-hand side of any dialog box tabs. Use Shift-click and/or Ctrl-click to select multiple units.

Enter the configuration parameter values and click Apply. The following dialog box is displayed.



Multiple Configuration Mode dialog box

This dialog box lists the selected units and displays the configuration changes to be made during the multiple configuration session. Select the Reset units after setting parameters check box to reset all selected units.

A log of the multiple configuration session is displayed during and after the operation.

Resetting the SNMP Community Strings

The SNMP Read/Write Community strings are an SNMP security feature to restrict management access to authorized persons only.

To reset the SNMP community strings, insert a paper clip or another suitable tool into the Reset button on the top panel of the unit while the unit is operating. The community strings are reset to the default values, private (Write) and public (Read).

Reloading Factory Default Settings

To reset the unit to the factory defaults:

1. Disconnect the power cable from the indoor unit.
2. Insert a paper clip or another suitable tool into the Reset button on the top panel of the unit. Keep the Reset button pressed while inserting the power cable back into its socket.



System Troubleshooting

The following troubleshooting guide provides answers to some of the more common problems that may occur when installing and using the D-Link Air Premier DWL-1800. If problems not mentioned in this guide should arise, checking the Ethernet and WLAN counters may help. If the problem persists, please feel free to contact your local distributor or the D-Link Technical Support Department.

Troubleshooting Guide

Problem and Indication	Possible Cause	Corrective Action
No power to unit. Power LED is off.	Power cord is not properly connected.	Verify power cord is properly connected to the DWL-1800 unit and to the power outlet.
Failure to establish wireless link. WIRELESS LINK LED is off and unit resets every few minutes.	1. Power supply to units may be faulty 2. The DWL-1800R units may not have the same ESSID as the DWL-1800B.	1. Verify power to units. 2. Verify that all units in the network have the same ESSID (ESSID must be identical in all units in the WLAN; the ESSID is case sensitive). Check that the units are on the same channel. 3. Verify wireless link <ul style="list-style-type: none">• Set DWL-1800B and DWL-1800R units side by side.• Power on each unit and see if a wireless link is established• If the units fail to associate, reset units to factory default values. The units should now establish a wireless link.

Problem and Indication	Possible Cause	Corrective Action
Failure to establish wireless link (“D” models/external antennas)	<ol style="list-style-type: none"> 1. Power supply to units may be faulty. 2. Cables may be improperly connected 3. There may be some problem with antenna installation. 	<ol style="list-style-type: none"> 1. Verify power to units. 2. Verify that all cables are connected securely. 3. Refer to previous Section and verify wireless link between the units. 4. Verify that the antenna(s) are properly installed (see relevant section in this manual): <ul style="list-style-type: none"> • Check antenna alignment. • Verify that antenna polarization is the same at both ends. • Verify that the range matches specifications. • Verify line-of-sight/antenna alignment/antenna height.
Wireless link established, but there is no Ethernet activity (DWL-1800B and DWL-1800R units).	<ol style="list-style-type: none"> 1. Ethernet hub port or UTP cable is faulty. 2. Ethernet port in unit is faulty. 3. The DWL-1800R is associated to a DWL-1800B unit that is not connected correctly to the LAN. 	<ol style="list-style-type: none"> 1. Check that the LINK LED is lighted Green. If this is not the case, the port is inactive. Try another port on the hub or another UTP cable. 2. Verify that Ethernet port in unit is working. Ping unit to verify Ethernet connection. 3. Verify that you are using a cross-over UTP cable (pins 1 & 3, 2 & 6) if connected directly to a workstation, or a straight-through cable if connected to a hub. 4. Check the unit’s LINK LED indicator and check the Ethernet counters in the monitor to verify Ethernet activity (see manual section 3.3.4). 5. Check that the DWL-1800B is correctly connected to the LAN.



DWL-1800 FAQ

General

Can the DWL-1800R indoor unit be placed outdoors?

It is not recommended. The DWL-1800 indoor units are specified to operate between 0°C and 40°C and is not weather proof so it is best to mount the DWL-1800R indoors or in a protective cabinet.

Do DWL-1800 units support 802.1Q VLAN?

Yes, but the support is limited to transparent operation. This means that the DWL-1800 does not take any action on 802.1Q frames, but will transparently pass them within a VLAN network.

What is the maximum number of networked PCs the DWL-1800B/ DWL-1800R can learn?

1024 network MAC addresses can be learned by the DWL-1800B/DWL-1800R from the LAN side.

Can the DWL-1800B/DWL-1800R be used for multi-point as well as point-to-point links?

Yes. The DWL-1800B can support multiple DWL-1800R units creating a point-to-multi-point network.

How many DWL-1800R units can one DWL-1800B support?

The maximum number of associations is 128.

What is the practical limit to the number of DWL-1800R units per DWL-1800B? And, what performance can I expect for a multi-point link?

This depends upon average throughput expectations. All clients would have the maximum throughput available for burst traffic, however the overall average would depend on the utilization of the network. For example, in a heavily utilized network needing about 350Kbps to 500kbps average net throughput per site, 9 to 12 DWL-1800R's would be the limit. For a moderately utilized network needing about 175Kbps to 258Kbps average, 18 to 24 DWL-1800R's should be used, and for a lightly used network needing 32Kbps to 48Kbps average net throughput per site could use up to 128 DWL-1800R's.

What is the range of the DWL-1800B/ DWL-1800R Bridges?

15 miles/24Km (FCC) or 10 KM (ETSI) can be achieved using the UNI-24 antenna kit for a point-to-point link. Consult the antenna and accessory guide range tables for distances using other antennas.

Does the DWL-1800B supports 802.1d spanning tree protocol?

No, the DWL-1800B/DWL-1800R does not support spanning tree.

What is the normal PER (Packet Error Rate) for the DWL-1800B/DWL-1800R?

The error rate will be about 4%-6% (transmitted fragments vs. retry count). This is typical when operating in a non-interference environment at maximum range for bi-directional traffic loads. If the traffic load is more uni-directional, then the PER will be less.

What is the best value for the CW min parameter on the DWL-1800?

Setting the CW min parameter to 31 for heavy bi-directional traffic loads will minimize the PER. Setting the CW min to 15 will improve performance for more uni-directional traffic loads. CW min 7 should only be used for short-range point-to-point links, and 63 should be used for large, long-range multi-point links.

Is the D-Link AirPremier DWL-1800 compatible with other D-Link wireless equipment from other vendors?

Yes. However, for the outdoor bridges, interoperability can vary from vendor to vendor and in some cases it may not operate if the manufacturer's implementation is not pure 802.11b. The DWL-1800B/DWL-1800R can operate at 1, 2Mbps 5.5Mbps and 11Mbps with D-Link Air and Air Plus wireless family products. D-Link Air Premier DWL-1800 units are fully WI-FI compliant.

How many DWL-1800B or DWL-1800R units can be collocated on the same building or tower?

You can collocate up to 3 DWL-1800B or DWL-1800R units on the same structure. Each unit is assigned to one of the non-overlapping channels, 1, 6, or 11.

Can a Frequency Hopping network operate in the same area as the D-Link Air Premier DWL-1800?

Yes, but in a collocated network both products will suffer some a decrease in performance. The degree of performance loss depends on network utilization. For example, the higher the utilization of the Frequency Hopping network, the higher the level of impact on the Direct Sequence (DWL-1800) network, and vice versa. Typically, in light to moderately utilized networks, the performance loss is not significant.

Can I use D-Link Air Premier DWL-1800 Bridges to feed a Frequency Hopping distribution point?

Yes, bandwidth sharing between the Direct Sequence and Frequency Hopping products can be minimized if the network is designed using cross-polarized directional antennas with as much spatial separation as possible. Contact technical support for more information.

Performance

What is the throughput of the D-Link Air Premier DWL-1800?

The DWL-1800B/DWL-1800R bridge link typical performance is 4.2Mbps using TCP and 6.2Mbps using UDP. For long-range links, the performance drops by about 5%.

What if the D-Link Air Premier DWL-1800 link experiences interference?

If interference is affecting the DWL-1800 link, one of the other channels may be selected to operate away from the frequency of the interference. Also, physically re-locating the antennas may help.

What is the typical latency of a DWL-1800B/DWL-1800R?

A point-to-point link would realize about 3mS latency.

Firmware

Can the DWL-1800B/ DWL-1800R firmware be upgraded?

Yes, the firmware in the DWL-1800B/DWL-1800R is stored in flash and is upgraded using the built in Configuration Utility or the TFTP server.

Can the DWL-1800B/DWL-1800R flash be erased or the firmware changed by an unauthorized person?

No, the TFTP server in the DWL-1800B/DWL-1800R requires the SNMP write community name (password) to perform an upgrade.

Can the firmware flash be corrupted when upgrading to a new version?

Yes, if the TFTP file transfer is interrupted during a flash update the firmware may be corrupted. The D-Link Air Premier DWL-1800 has a backup flash, which contains the previous version for firmware. If the primary flash is corrupt, then the backup is automatically used to return the unit to an operating state.

When does the back up flash image get upgraded?

After completing a firmware upgrade, the backup flash containing the old firmware version is overwritten with the new version on the new power on cycle.

Can D-Link Air Premier DWL-1800 firmware be downgraded?

Yes, an earlier version of firmware can overwrite a newer version.

Can the previous version of firmware be kept?

The previous version of firmware cannot be kept on the DWL-1800 itself, but can be stored on your PC and loaded if needed.

Configuration

Can the regulatory domain (country) of a DWL-1800 unit be changed?

No. The regulatory domain is factory set.

How can the DWL-1800 be configured or managed if the SNMP Community name has been forgotten?

Press the reset button on the top panel with a paper clip. This will set the read and write Community names to public and private, respectively.

How can the DWL-1800 unit be returned to factory default settings?

There are two ways. One way is to use the Default button on the Station Control Tab in the DWL-1800 Configuration Utility. The other is to press and hold the reset button on the back of the unit while powering on the unit. Remember that all settings including IP addresses will be lost when setting defaults.

Management

What management options are available for the DWL-1800?

The DWL-1800B/DWL-1800R comes with a graphical Configuration Utility that operates on any Windows based network ready PC. With this utility you can configure and monitor every DWL-1800 on your network. You can also use the DWL-1800 SNMP MIB on standard management platforms like SNMPc, and HP Openview.

Does the DWL-1800 offer out-of-band management?

No, the DWL-1800 does not offer out-of-band management, such as a serial port. The DWL-1800 is managed in-band only via the DWL-1800 Configuration Utility or SNMP.

What installation and site survey tools are available for DWL-1800/DWL-1800?

The DWL-1800 comes with a Windows based manager utility. With this utility you can configure link parameters and monitor signal quality and RSSI (received signal strength indication). Optimizing antenna alignment is done using the signal quality and RSSI display. Any computer on the network can use this utility to manage the DWL-1800B/DWL-1800R.



Technical Support

The most recent software and user documentation is on the **D-Link** website.

D-Link provides free technical support for customers during the warranty period on this product.

Customers can contact **D-Link Technical Support** through the web site.

www.dlink.com.tw

Please also *refer to the list of **D-Link** locations that is in the next page.*

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures

Warnung!

Dies ist in Produkt der Klasse B. Im Wohnbereich kann dieses Produkt Funkstoerungen verursachen. In diesem Fall kann vom Benutzer verlangt werden, angemessene Massnahmen zu ergreifen.

Advertencia de Marca de la CE

Este es un producto de Clase B. En un entorno doméstico, puede causar interferencias de radio, en cuyo case, puede requerirse al usuario para que adopte las medidas adecuadas.

Attention!

Ceci est un produit de classe B. Dans un environnement domestique, ce produit pourrait causer des interférences radio, auquel cas l'utilisateur devrait prendre les mesures adéquates.

Attenzione!

Il presente prodotto appartiene alla classe B. Se utilizzato in ambiente domestico il prodotto può causare interferenze radio, nel cui caso è possibile che l'utente debba assumere provvedimenti adeguati.

FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

AVERTISSEMENT AUX UTILISATEURS

La décision N° 01-480 en date du 23 mai 2001 prise par l'Autorité de Régulation des Télécommunications (ART) autorise l'utilisation d'une partie de la bande de fréquences 2400-2483,5 MHz pour les réseaux locaux radioélectriques (RLAN)

Au niveau national, seule la bande 2446,5-2483,5 MHz est autorisée pour des produits ayant une puissance limitée à 100 mW

Cette bande de fréquences correspond aux canaux 10,11,12 et 13.

En installant et utilisant les produits réseaux sans fils de la gamme proposée par D-Link, vous vous engagez donc à respecter cette réglementation et à n'utiliser que ces 4 canaux.

WARNING

The Decision N° 01-480 taken by ART (Autorité de Régulation de Télécommunications) on May 23, 2001 authorizes the utilisation of a part of the 2400-2483.5MHz band for Radio Local Area Network (RLAN) in France.

Only the 2446.5-2483.5MHz band is authorized for RLAN with products with a limited power to 100mW.

This band concerns the channels 10, 11, 12 and 13.

Using and installing D-Link Wireless solutions for RLAN, you commit to respect this regulation et to use only these four channels.

D-Link® Offices

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