D-Link
Express EtherNetwork™
DSA-3100
Hotspot Gateway

Manual

January 2004
Fourth Edition

D-Link®

Building Networks for People

Contents

Package Contents

Contents of Package:

1. **D-Link DSA-3100 Hotspot Gateway**
2. CD-ROM (containing Manual and Warranty)
3. Quick Installation Guide
4. Two (2) CAT5 UTP/Straight-through (Ethernet) cables
5. One (1) CAT5 UTP/Cross-over cable
6. One (1) Console cable
7. 5V DC, 3A Power Adapter

If any of the above items are missing, please contact your reseller.

System Requirements for Configuration:

- Computers with Windows, Macintosh, or Linux-based operating systems with an installed Ethernet adapter
- Internet Explorer Version 6.0 or Netscape Navigator Version 6.0 and Above

Introduction

The D-Link DSA-3100 Hotspot Gateway is a simple-to-use network access control system supporting Ethernet, Fast Ethernet or an IEEE 802.11 wireless LAN (WLAN) separately and simultaneously.

The DSA-3100 can be configured with a standard HTML browser (i.e., Internet Explorer, Netscape Navigator) operating on Windows 98SE/Me/2000/XP, Macintosh OS 9, Mac OS X (v10.1.5 or later), Linux, or Pocket PC 2000/2002. The DSA-3100 allows the operator to offer wired or wireless networking services and access to the Internet when used with a switch or wireless access point respectively. The device features many management settings allowing for private and public access to the Internet and the necessary privilege mechanisms to permit this usage.

Front Panel

Power LED - a solid light indicates a proper connection to the power supply.

WAN LEDs - a solid light indicates connection on the WAN port. The LED below blinks during data transmission

Local Network LEDs - a solid light on the port indicates a connection from the Local Network port for a Private Network. The LED below blinks during data transmission.

Status LED - a solid light on the port indicates a connection to an Ethernet network.

Authentication LEDs - a solid light on the port indicates a connection from the Authentication port for a Public Network. The LED below blinks during data transmission.

The Power Indicator remains illuminated when the DSA-3100 is on. The indicators for WAN, Local Network, Authentication each have two LED indicators. When CAT5 (Ethernet) cables are plugged into the corresponding port, the upper LED will illuminate to indicate that a connection has been established. The lower LED will blink whenever data is transmitted or received.

Power	Green LED		System is ready
Status	Green LED		System is ready
	Blinking LED		System is rebooting or Firmware upgrading
Link	WAN	Green	On line
	Local Network	Green	On line
	Authentication	Green	On line
Activity	WAN	Blinking	Data is being transmitted
	Local Network	Blinking	Data is being transmitted
	Authentication	Blinking	Data is being transmitted

Rear Panel

Console Port -
For resetting to factory defaults, or reconfiguring the device. **For Advanced users only!**

Authentication Port (Public LAN or WLAN with Access Point) -
Connects to a switch or AP.

Receptor for **Power Adapter.**

Local Area Network Port (Private LAN)-
Connects to a switch for a private network. Does not require authentication to access the Internet.

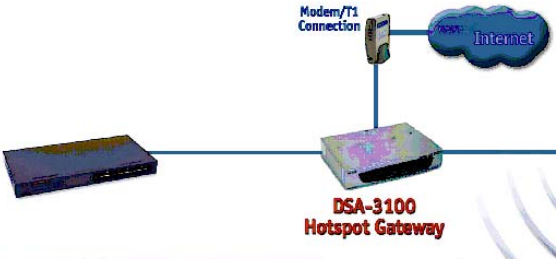
WAN Port -
The port that connects to your WAN connection providing Internet access to the Local and Managed Networks.

Features

- Creates two separate and discreet networks allowing the owner/ administrator to create a wired or wireless hotspot and provide Internet access to visitors, guests, or customers to your company or organization.
- Manages up to 250 user accounts with internal database.
- Supports at least 50 users accessing the Internet at any given time.
- Allows ID/Password-based authentication and authorization (can also be combined with MAC address locking for even stricter access control).
- Supports either POP3, RADIUS, or LDAP external authentication servers.
- Provides on-line status monitoring and historical traffic data.
- SSL-protected access to the administration interface and user authentication interface.
- Customizable user log-in and log-out Web interface.
- Customizable user log-out timer.
- Customizable target URL for users who successfully authenticate.
- Console mode administration interface via serial console port.
- Supports display of text messages on the log-in page. An administrator could use the administration interface to input mes sages (promotions, alerts, additional usage time/services with corresponding fees).
- Supports NAT for managed clients.
- Supports static IP, DHCP client and PPPoE client on the WAN interface.
- Built-in DHCP server to manage clients.
- Built-in, high-speed policy routing engine.
- Customizable peremptory traffic redirection (IP and Port-Redirect).
- Built-in NTP client.

Sample Scenarios

1



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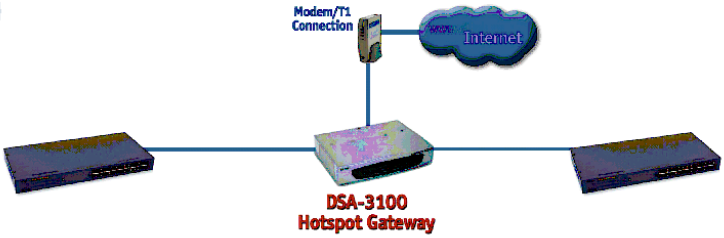
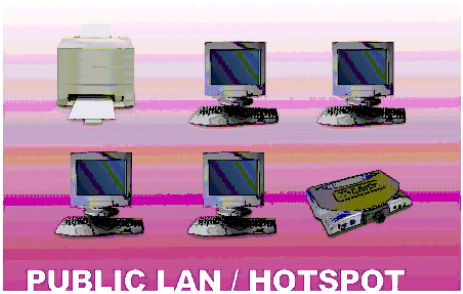
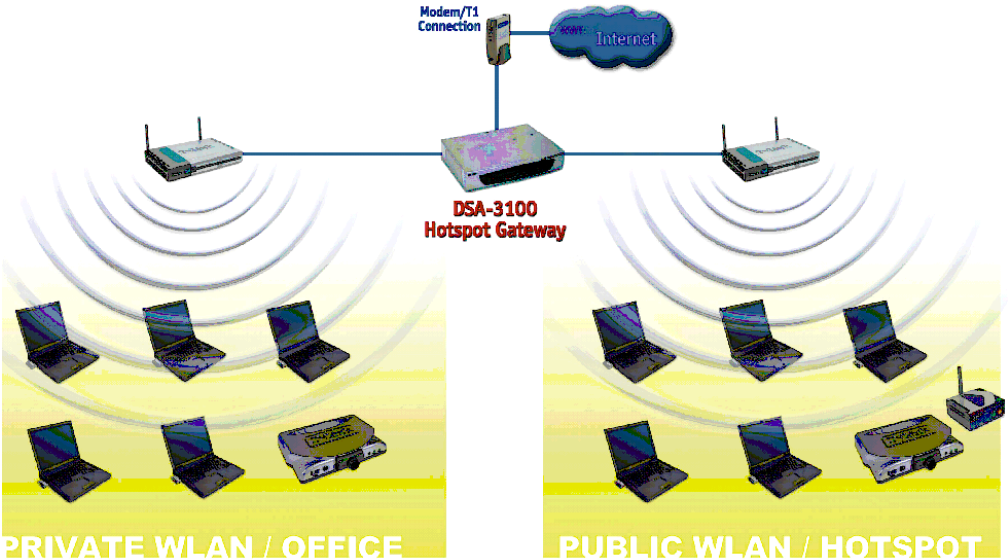




Sample Scenarios (continued)

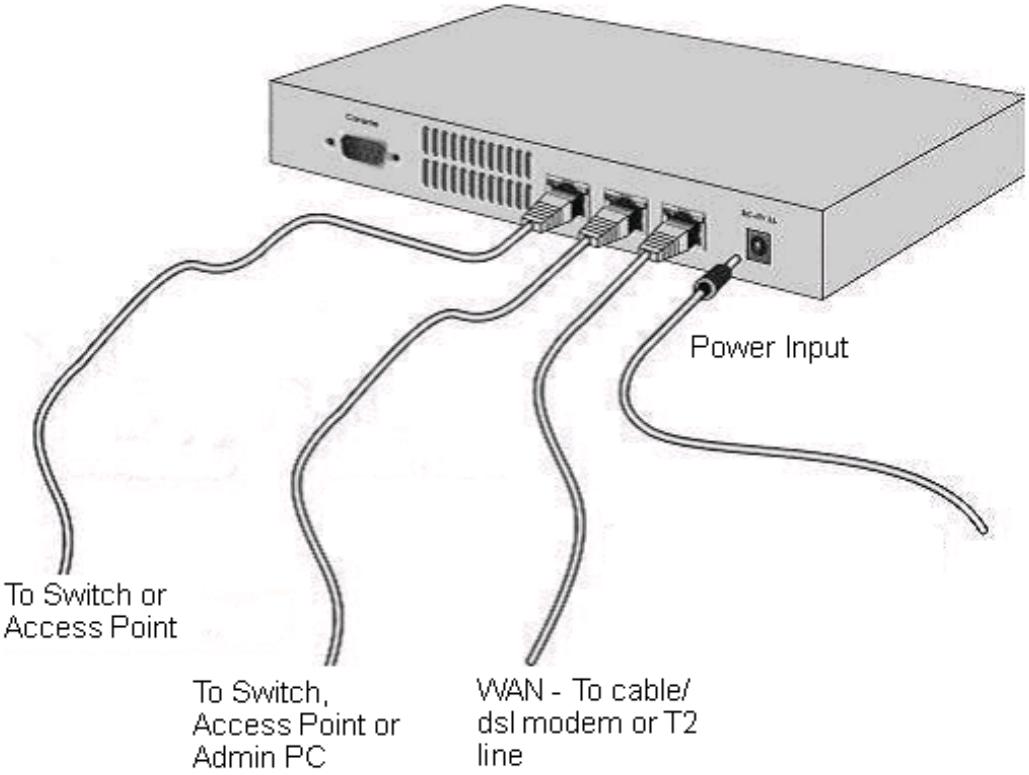
3



Installation

Requirements

- **Standard 10/100Base-T network (UTP/Cat5 Ethernet) cable with RJ45 connectors.**
- **TCP/IP network protocol must be installed on all networked computers and related devices.**



Setting up the DSA-3100

- **Make sure the DSA-3100 unit is not connected to the power adapter and is powered OFF.**

- **WAN port connection**

  Use 10/100BaseT connections to connect the unmanaged network. The unmanaged network's interface may be the ADSL router's LAN port, cable modem's LAN port or Intranet switch port.

- **Private LAN port connection**

  Use a straight-through cable to connect your admin PC with the internal switch or hub that is connected to the local network port on the DSA-3100. If you want to directly connect the DSA-3100 to this PC or the wireless AP, use a crossover cable.

- **Public LAN port connection**

  Use a straight-through cable to connect your client PC with the internal switch or hub that is connected to the authentication port on DSA-3100. If you want to directly connect the DSA-3100 to this PC or the wireless AP, use a crossover cable.

- **Power ON**

  Connect the supplied power adapter to the DSA-3100 and insert the plug on the other end into an electric outlet.

- **Check the LED**

  The power LED and WAN LED should be ON, if the corresponding WAN port is connected to an active cable/DSL modem or T1 line.

- The corresponding local network or authentication indicator should be ON if a network device is connected to the local network port or the authentication internal port.

Configure PCs on your LAN

After installing the DSA-3100, each computer's **TCP/IP network setting** and **Internet** access configuration may need to be re-configured:

TCP/IP network setting

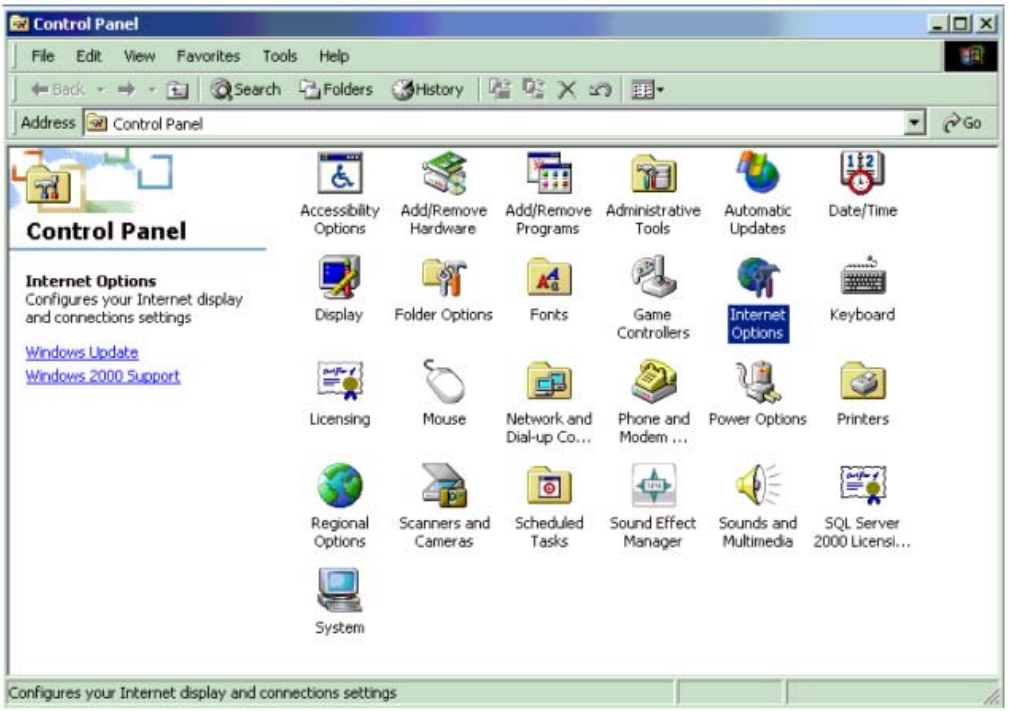
- If your PC uses the default Windows XP/2000/Me/98SE setting, no changes need to be made. Just start/restart your PC.
- If you are running Mac OS 9 or OS X, set your network settings to DHCP and select **Apply**.
- DSA-3100 will act as a DHCP Server, automatically providing a suitable IP address (and related information) to each computer when the computer reboots or when the network settings refresh.
- For all non-Server versions of Windows, the default TCP/IP setting is to act as a DHCP client. In Windows, this is called *Obtain an IP address automatically.*
- If you are using a fixed IP address on your LAN, or if you want to check your TCP/IP setting, refer to the **Networking Basics** section in this manual.

Internet Access Configuration

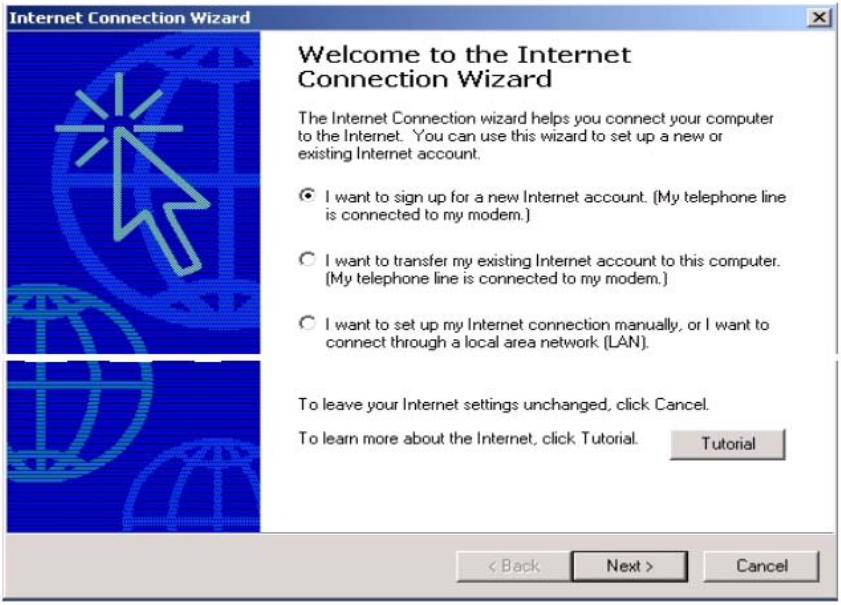
To configure your PCs to use the DSA-3100 for Internet access, follow this procedure.

For Windows 9x/2000

- Please select **Start Menu** - **Control Panel** - **Internet Options**.
- Select the Connection tab, and click the **Setup** button.
- Select "**I want to set up my Internet connection manually, or I want to connect through a local Area network (LAN)**" and click **next**.



Internet Access Configuration (continued)



- Select **"I connect through a local area network (LAN)**" and click **Next**.
- Ensure all of the boxes on the local area network Internet configuration screen are **unchecked**.
- Check **No**, when promoted "**Do you want to set up an Internet mail account now?**"
- Click **Finish** to close the Internet Connection Wizard. Setup is now completed.

For Windows XP

- Please select **Star Menu** - **Control Panel** - **Network and Internet Connection**.
- Select the Connection tab, and click the **Setup** button.
- Click **Next** on the **New Connection Wizard** screen.
- Select **Connect to the Internet** and click **Next**.
- Select **Set up my connection manually** and click **Next**.
- Check **Connect using a broadband connection this always on** and click **Next**.
- Click **Finish** to close the New Connection Wizard. Setup is now completed.

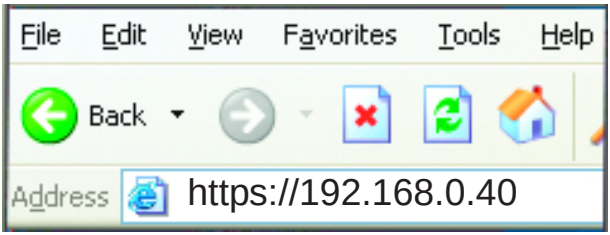
Using the Configuration Utility

To configure the DSA-3100, use a computer which is connected to the local network port of the DSA-3100 with an Ethernet cable.

- First, disable the **Access the Internet using a proxy server** function. To disable this function, go to **Control Panel > Internet Options > Connections > LAN Settings** and uncheck the enable box.

- Start your Microsoft Internet Explorer Web browser program.

- Type the IP address of the DSA-3100 (the default IP address is 192.168.0.40) in the address field and press Enter. Make sure that the IP addresses of the DSA-3100 and your computer are in the same subnet.



On the bottom of each configuration screen you will find the buttons shown below.

Click **Apply** in each screen of the **Configuration Utility** in which you have made changes.

Restart the DSA-3100 after completing any changes to its configuration.

Using the Configuration Utility (continued)

Log-in Screen

*You can log in as **admin** or as **manager**.*

admin - the administrator of the DSA-3100.

User Name: admin

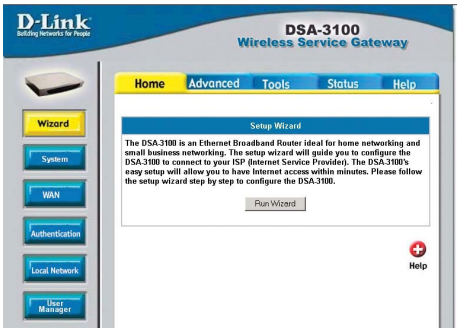
Password: admin

manager - access to the manager user account only.

User Name: manager

Password: manager

After you log in, click **Enter**.

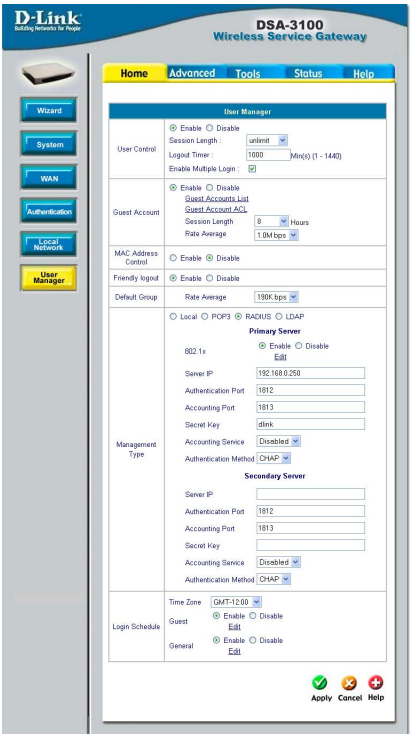


Home > Wizard

The **Home>Wizard** screen will appear if you logged in as an **admin**. For more information on the **Setup Wizard**, please see the *Quick Installation Guide*,included with your purchase. You can access the configuration features from this window.

Home > User Manager

The **Home>User Manager** screen will appear if you logged in as a **manager**. Please refer to the *Quick Installation Guide* for more information regarding the Setup Wizard. This screen will be explained in more detail in the following pages.



Using the Configuration Utility (continued)

System Name:

DSA-3100 is the default system name. You may wish to rename it to indicate your company, department, or the service you would like to provide.

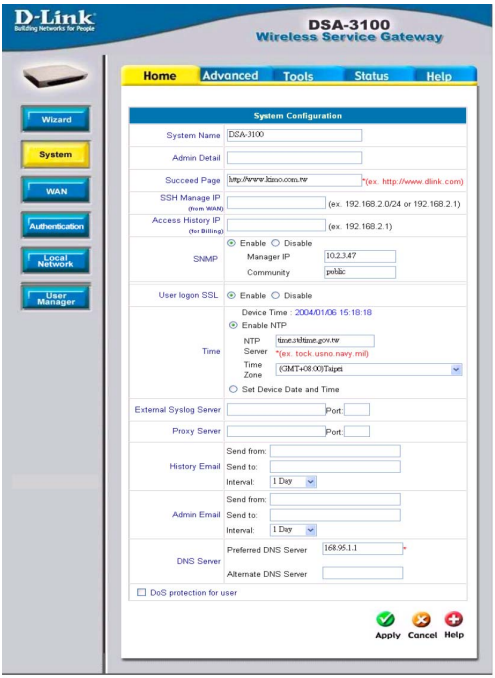
Admin Detail:

You can edit the System Administrator's information here (e.g., name, phone number, and e-mail). If a user encounters a problem connecting to the WAN Port of the DSA-3100, the system administrator's information will be shown on the user login page

Succeed Page:

Enter a URL for all users to be directed to after successful login, typically defined as the home page of the host company, for instance: http://www.dlink.com. No matter to which URL a user originally attempts to connect, he/she will be directed to the URL defined here first.

Home > System



SSH Manage IP:

Specify an IP address that connects to the WAN Port that will be allowed to configure the DSA-3100. For instance, if 10.2.3.1 is specified, then the user will be allowed to connect to the WAN Port and configure the DSA-3100 only from the specified address.

Access History IP:

Specify an IP address to be used by the billing system to connect to the DSA-3100 to get billing history information.

SNMP:

Simple **N**etwork **M**anagement **P**rotocol is a system for managing complex networks. The DSA-3100 provides SNMP v2 Read-only(RO) management.

Manager IP: A trap manager is a management station that receives and processes traps. When you configure a trap manager, assign the IP address to the management station.

Community: Community strings serve as passwords for SNMP messages. DSA-3100 allows Read-only (RO) as a password.

If you **Enable** SNMP, enter the IP address and the community string in the field.

continued -

Using the Configuration Utility (continued)

Home >System (continued)

User Logon SSL: Select **Enable** or **Disable**

Time: You may use **NTP** (Network Time Protocol) or you may input the time yourself. To use NTP please specify a timeserver's domain name and select the time zone.The time zone of the DSA-3100's internal clock is **UTC** (**C**oordinated **U**niversal **T**ime, formerly known as GMT, Greenwich Mean Time).

External Syslog Server: Specify the IP address and the Port of the External Syslog server.

Proxy Server: Specify the IP address and the Port of the Proxy server. (The DSA-3100 supports Http proxy.

History Email:
Send from: Indicate the IP address from which the email will be sent
Send to: Indicate the IP address to which the email will be sent
Interval: Indicate the interval at which the email will be sent

Admin Email:
Send from: Indicate the IP address from which the email will be sent
Send to: Indicate the IP address to which the email will be sent
Interval: Indicate the interval at which the email will be sent

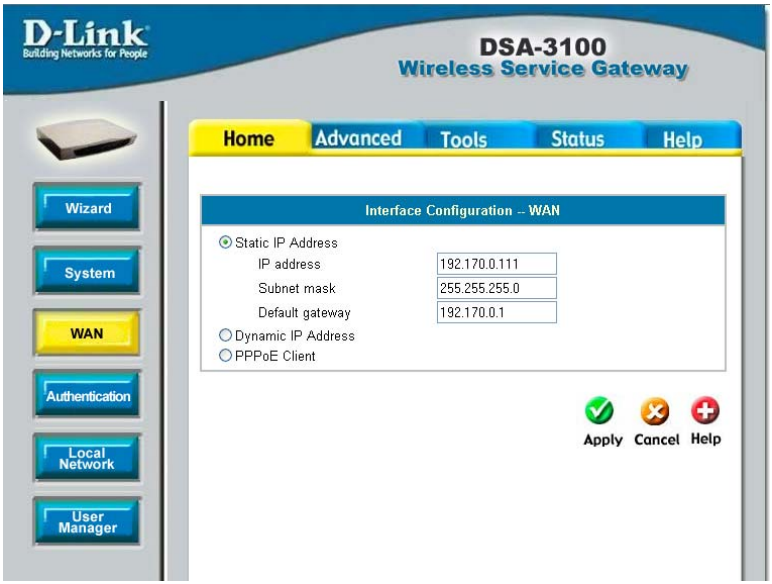
DNS: Specify DNS servers for the DSA-3100 for the Preferred DNS (preferred IP address) and Alternate DNS (alternate IP address).

DoS protection for user: The DSA-3100 protects users against various hacker attacks including:

- NMAP FIN/URG/PSH
- Xmas Tree
- SYN/RST,
- Ping of Death
- Null Scan
- SYN/FIN

Using the Configuration Utility (continued)

Home > WAN > Static IP Address



Static IP Address:

IP address: Enter the IP address provided to you by your ISP.

Subnet mask: Enter the subnetmask provided to you by your ISP. All devices on the network must share the same netmask.

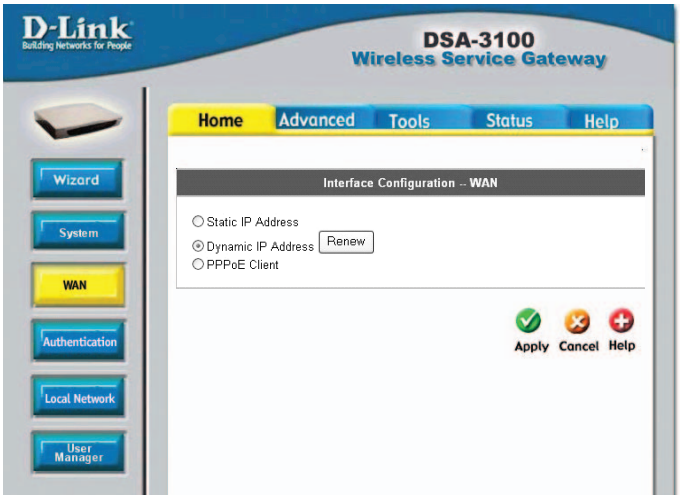
Default Gateway: Enter the IP address of the gateway, provided to you by your ISP.

Dynamic IP Address: Make this selection if there is a DHCP server in the network. (See the following pages.)

PPPoE Client: Make this selection if you connect to the Internet using DSL. (See the following pages.)

Using the Configuration Utility (continued)

Home > WAN > Dynamic IP Address



Select this option to obtain an IP address automatically from your ISP.

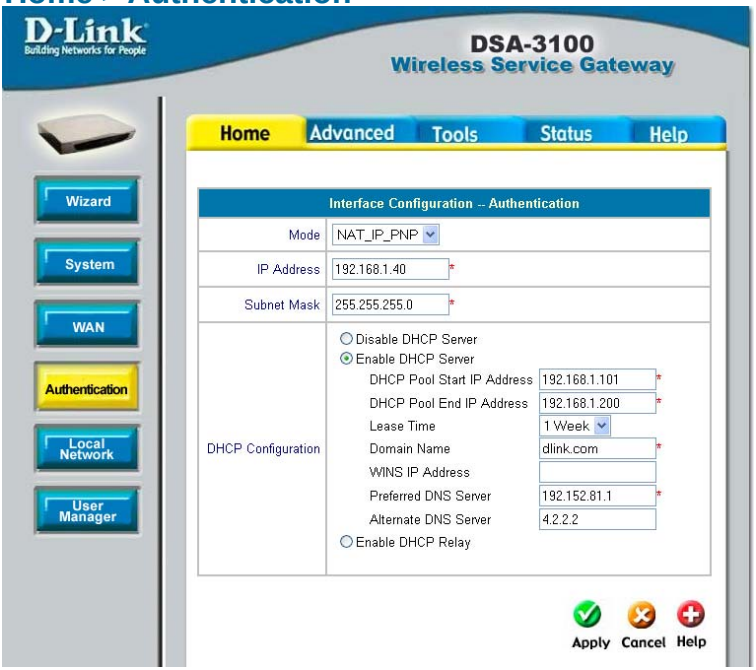
Home > WAN > PPPoE

User Name & Password: Enter the user name and password that is assigned by your ISP.

Maximum Idle Time & Dial on demand: These fields are optional.

Using the Configuration Utility (continued)

Home > Authentication



The DSA-3100 allows the gateway to be set to one of three Authentication modes.

Mode: Select **NAT**; **NAT_IP_PNP** or **Router**

NAT: This mode protects the identity of the devices within the LAN from those devices outside the network.

NAT_IP_PNP: All devices, regardless of their IP address, can gain access to the Internet through the DSA-3100 in this mode.

Router: In this mode, the DSA-3100 will **not** protect the identity of the connected devices by translating their IP addresses and shielding them from detection outside the LAN.

IP Address: Enter the IP address for the Authentication interface (e.g., the RADIUS server in the network).

Subnet Mask: Enter the subnet mask for the Authentication interface

Disable DHCP Server: Make this selection if you do not wish to use the built-in DHCP feature in the DSA-3100

continued -

Using the Configuration Utility (continued)

Home > Authentication (continued)

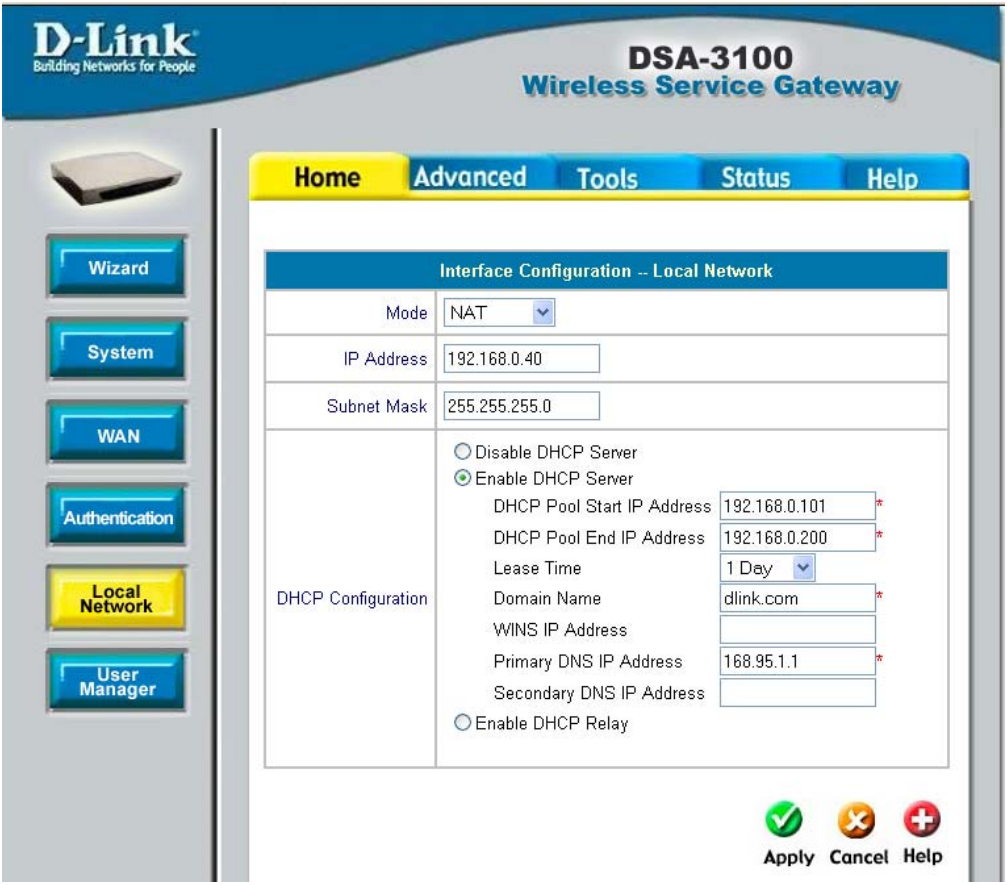
Enable DHCP Server: Selecting this option activates the device's built-in DHCP server. Configure the DHCP server with the following properties:

DHCP Pool Start IP Address:	Enter the starting IP address, from which group of addresses the DHCP server will assign IP addresses to the DHCP-enabled devices (clients) on the network.
DHCP Pool End IP Address:	Enter the last IP address in the sequence of addresses from which the DHCP server will assign addresses.
Lease Time:	Select the length of time during which the DHCP assigned address will be in effect.
Domain Name:	Enter the domain name.
WINS IP Address:	Enter the WINS server's IP address.
Preferred DNS Server:	Enter the IP address of the preferred DNS server.
Alternate DNS Server:	Enter the IP address of the alternate DNS server.

Enable DHCP Relay: Select this mode to specify another DHCP server's IP address.

Using the Configuration Utility (continued)

Home > Local Network



NAT and **Router** are the two local network port modes.

Nat mode: All outbound IP addresses on the local network port will be translated to the IP address of the WAN port to proceed.

Router mode: All outbound IP addresses on the local network port will retain their IP addresses.

For an explanation of each field on this screen, please see the previous screen:
Home > Athentication

Using the Configuration Utility (continued)

Home > User Manager

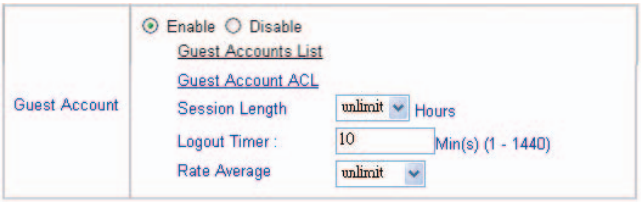
User Control: Select Enable to define **Logout TImer** and **Multiple Login**:

Session Length: Limit the duration of each session established by the general account from 5 minutes to an unlimited period.

Logout Timer: When enabled, on-line users who become inactive on the network after a specified period of time will be logged out automatically. The period can range from 1~1440. 10 minutes of time is the default value.

Multiple Login: Check this function to allow a single user account to log into the system multiple times.

Guest Account: Select **Enable** to activate the **Guest Account** feature for visitors

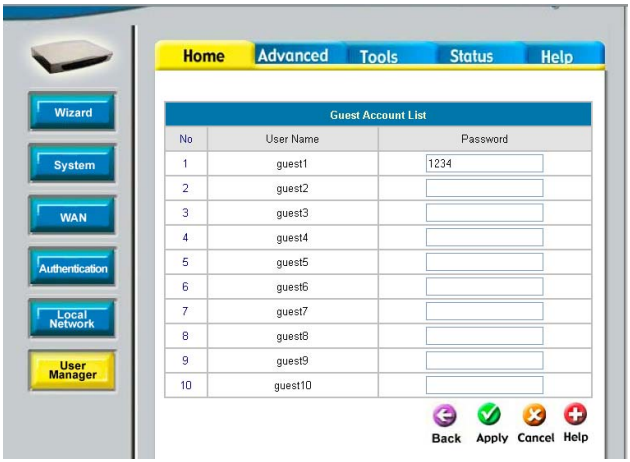


Using the Configuration Utility (continued)

Home > User Manager > Guest Accounts (continued)

Guest Account List:

Up to 10 guest accounts can be defined. To activate a particular **Guest Account**, simply enter the corresponding password in the **Password** column and click **Apply**.



Guest Account ACL:

Define network areas where **Guest Account** is disallowed access, for instance 10.2.3.0/24.

Session Length:

You have the option to limit the duration for each session established by **Guest Account**, from 1~12 hours. There is no limit to the duration by default.

Logout Timer:

Logouts user if guest didn't access the Internet for a certain period.

Rate Average:

Limit the outbound traffic bandwidth for each session established by a Guest Account. There is no limit by default.

Using the Configuration Utility (continued)

Home > User Manager > MAC ACL Control

MAC Address Control	◉ Enable ○ Disable MAC ACL Control

MAC Address Control:

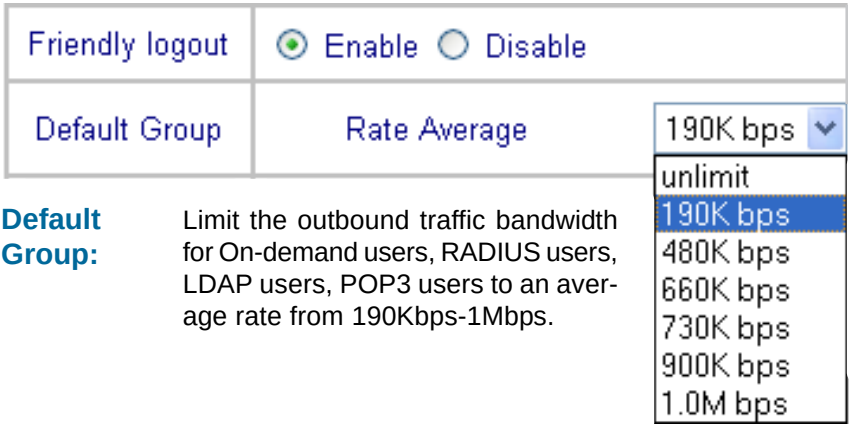
When MAC address control is enabled, users connected to the Authentication Port can not login to the DSA-3100 unless they have registered their MAC Address at MAC Address Control. In other words, only 40 users will be allowed to login when this function is enabled. Please refer to the configuration screen as follows.

Note: *MAC address format is* ***XX:XX:XX:XX:XX:XX or XX-XX-XX-XX-XX-XX****. A newly created user account will be valid instantly. Restarting the DSA-3100 is not necessary.*

Using the Configuration Utility (continued)

Home > User Manager (continued)

Friendly logout: If you enable Friendly logout, a pop-up window asking “Do you want to logout?” will appear after closing the login window. If you disable this function, no pop-up window will appear.

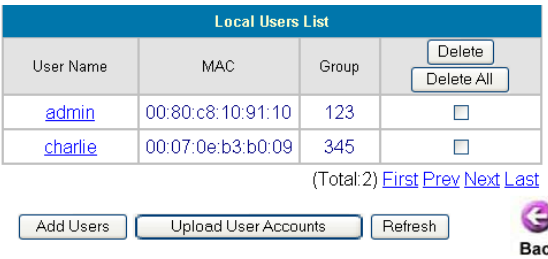


Default Group: Limit the outbound traffic bandwidth for On-demand users, RADIUS users, LDAP users, POP3 users to an average rate from 190Kbps-1Mbps.

Management Type: Supports multiple user authentication methods including **Local**, **POP3 Server**, **RADIUS Server**, and **LDAP Server**.

Local: User accounts are stored in the embedded database on the DSA-3100.

Local Users List: A list of all local user accounts stored in the embedded database for user account management.You can add, edit, and delete users. A sample list is shown here.



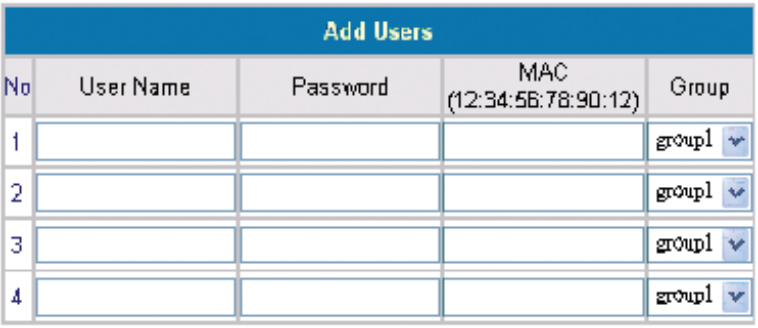
Delete User: Click the box next to the user name and click **Delete**.

Add Users: Click **Add User** to create new accounts. The screen on the following page will appear.

Using the Configuration Utility (continued)

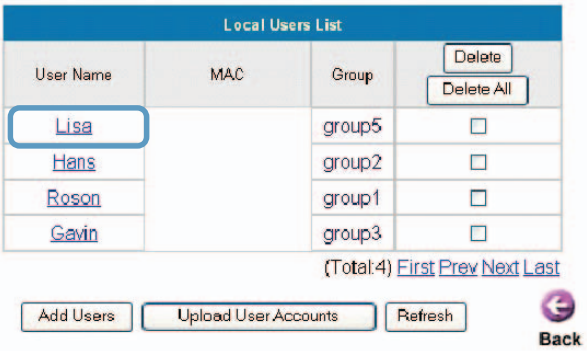
Home > User Manager > Management Type > Local > Local Users List

Add Users:

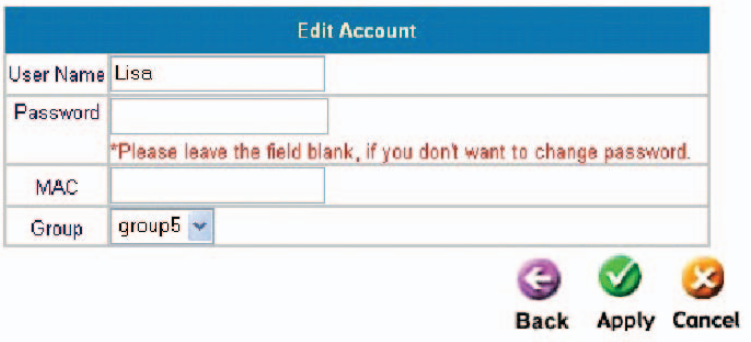


Create new accounts, including **Username** (mandatory), **Password** (mandatory), and **MAC** (optional), and assign to a user group as shown above.

Edit Account:



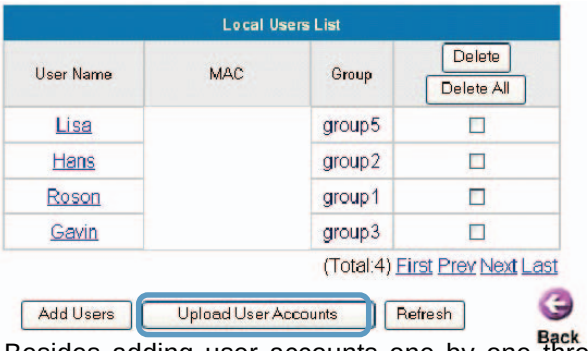
Make changes to the account by clicking on the User Name as indicated above. When the screen below appears, edit the account information.



Using the Configuration Utility (continued)

Home > User Manager > Management Type > Local > Local Users List

Upload User Accounts:

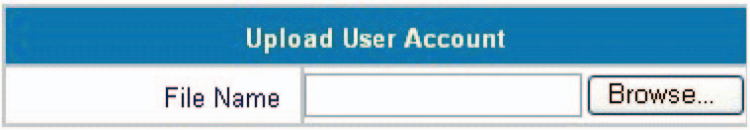


Besides adding user accounts one by one through the Web interface, you can prepare a text file, which contains user account information, store it on your hard drive and then upload it to the DSA-3100.

Each line of the text file can be in one of the following two formats:

UserID, Password, MAC
UserID, Password,

Please note that there must be no space or other characters between the user ID, password and the MAC address. The MAC address could be omitted, but the trailing comma must be retained. A user ID should be between 1 to 32 characters and the password should be between 0 to 20 characters. Special characters are not allowed for user name and password.



After you have created the text file for the user account as described above, click **Upload User Accounts** as shown in the illustration at the top of this page. Click Browse and highlight the text file you have created.

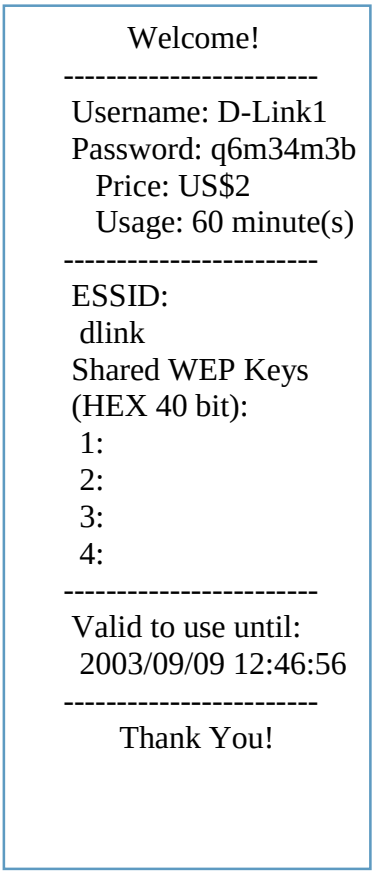
Click **Refresh** for the latest information. Click **Apply** to update your changes.

Caution: When adding user accounts by uploading a file, existing accounts with the same **ID** will be replaced by the new ones.

Using the Configuration Utility (continued)

Home > User Manager > Management Type > Local > On-demand User Configuration

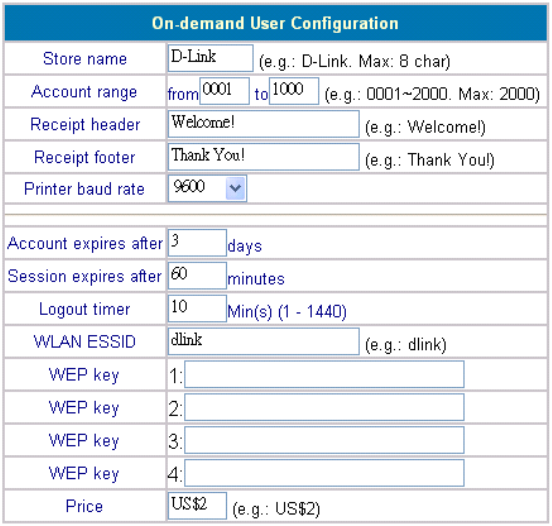
On-demand User: When you connect the DSA-3100P (the plug and play receipt printer) to the DSA-3100's console port, you can create a database of up to 2000 on-demand users. By default, the on-demand user database is empty. While you press the DSA-3100P's button, the on-demand user will be created in the database, a receipt will then be printed which will contain the on-demand user's information.



Shown above is an example of a an on-demand receipt.

Using the Configuration Utility (continued)

Home >User Manager >Management Type >Local >On-demand User Configuration (continued)



Field	Description
Store Name	You can specify the prefix of the user name. The maximum is 8 characters (e.g., D-Link).
Account Range	You can specify the maximum user amount which cannot exceed 2000.
Receipt Header	You can configure the receipt's header in this field.
Receipt Footer	You can configure the receipt's footer in this field.
Printer baud rate	You can specify the baud rate to support a specific printer. The default setting is 9600.
Account expires after __ days	You can specify the days before expiration in this field. After the expiration date the user account will no longer be available. A new session will be required.
Session expire after __ minutes	You can specify how many minutes this account will be available after successful login.
Logout timer	Logout user if the guest didn't access the Internet for a certain period.
WLAN ESSID	You can specify the access point's ESSID in this field.
WEP Key	You can specify the access point's WEP key in the WEP key field.
Price	You can specify the price in this field.

Using the Configuration Utility (continued)

Home > User Manager > Management Type > Local > On-demand User Configuration (continued)

User List

Click **User List** in the previous screen and the screen above will appear showing a list of the on-demand users. You can delete users in this window.

Local > Local User Group Configuration

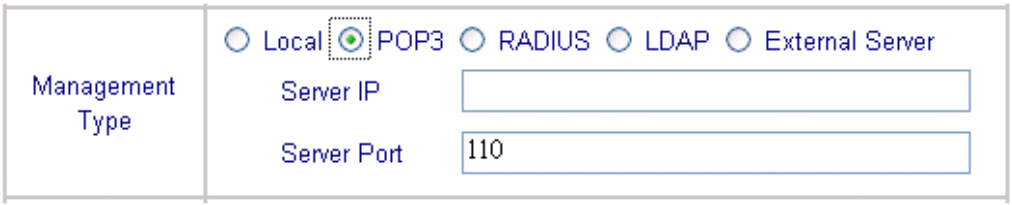
The DSA-3100 provides 5 local user groups; each group can designate a different outbound traffic bandwidth. The Logout Timer will logout a user that has not accessed the Internet for a certain time period. A sample list is shown below.

Local User Group Configuration

No	Group Name	Logout Timer Min(s) (1 - 1440)	Rate Average
1	group1	10	unlimited
2	group2	10	unlimited
3	group3	10	unlimited
4	group4	10	unlimited
5	group5	10	unlimited

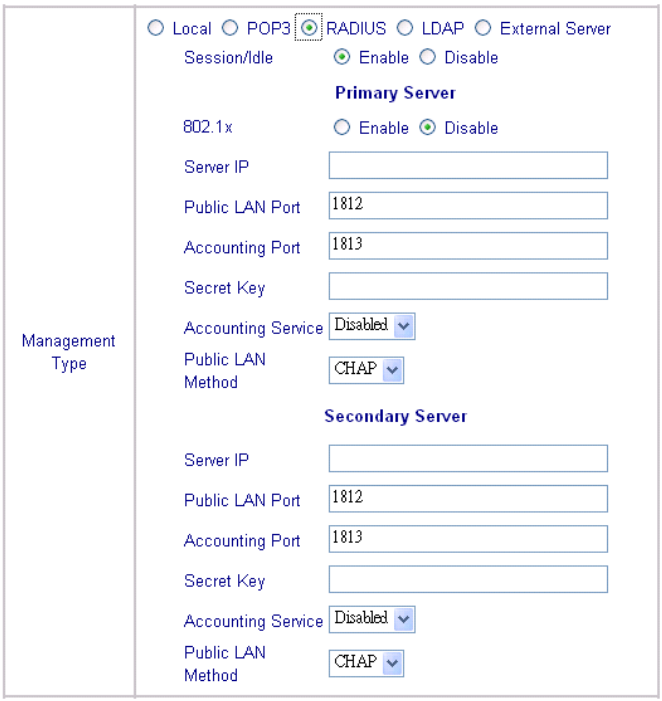
Using the Configuration Utility (continued)

Home > User Manager > Management Type > POP3



To use POP3 as the authentication method, input the **POP3** server IP address or domain name and its POP3 server port. The settings will take effect immediately after you click the **Apply** button. It is recommended that you restart the DSA-3100 after these changes if there are any online users.

Home > User Manager > Management Type > RADIUS



To use RADIUS as the authentication method, input the RADIUS server IP address or domain name, public LAN port, accounting Port, secret key and select the accounting service and public LAN method function. The settings will take effect immediately after you click the **Apply** button. It is recommended that you restart the DSA-3100 after these changes if there are any online users.

Using the Configuration Utility (continued)

Home > User Manager > Management Type > RADIUS > 802.1x

Select **Enable** to use the 802.1x feature. The DSA-3100 supports integrated single sign-on when using with 802.1x enabled access points. By using the integrated RADIUS proxy function in the DSA-3100, users can use the EAP methods such as EAP-MD5 or EAP-TLS to login and get the service depending on the authenticatio methods which the backend RADIUS server and APs support.

The assumption, for this scenario, is that the network administrator had configured an EAP-enabled RADIUS server like Microsoft Internet Authentication Service on Windows 2000 or .NET Server 2003. If EAP-TLS is required for the dynamic key exchange, Microsoft Certification is also required. It is also recommended that the system administrator perform an authentication test to make sure everything is correct before connecting the network to the DSA-3100. (802.1x is available only when RADIUS is selected here, under *Management Type* in the DSA-3100 Configuration).

To utilize 802.1x, all the devices on the network must be 802.1x and EAP enabled. The APs and the RADIUS server must share the same secret word; and the DSA-3100 and the RADIUS server must share the same secret word.

Configuring network devices for use with 802.1x:

To use 802.1x, please configure the RADIUS server, the access points and the DSA-3100 as follows :

RADIUS server:

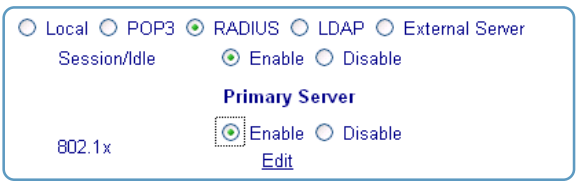
The system administrator should create a client account for the DSA-3100 first and define the required secret. (We suggest that you use a different one than the one the APs are using). The RADIUS server is capable of mulitple “secret keys” each assigned to a specific device. In order to participate in the network, each device must share the secret key that has been assigned to it in the RADIUS server’s configuration.

DSA-3100:

In the configuration utility, select Home>User Manager>Management Type and select RADIUS.

Access Points:

When configuring the access point, include the IP address of the RADIUS server in the appropriate field. The corresponding secrets for each AP should match the settings in DSA-3100. Click **Edit** (as shown below) to input the **IP addresses** and the **secret keys** of the access points in your network.



Using the Configuration Utility (continued)

Home > User Manager > Management Type > RADIUS > 802.1x (continued)

Input the IP addresses and secret keys for the devices on the network.

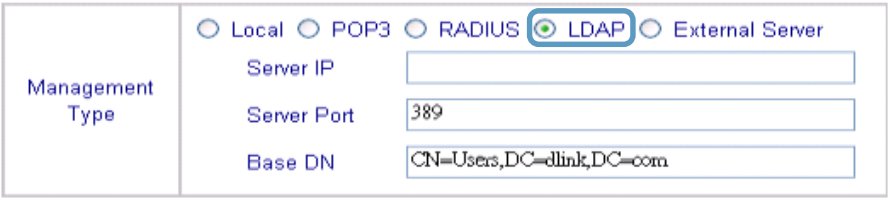
802.1x Device Configuration		
No	IP (Segment) Address	Secret
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

If you are using the 802.1x supplicant provided by Microsoft, the idle time out will be longer than the settings in RADIUS/AP and DSA-3100. Except for the idle timer, there is no way for the user to logoff from 802.1x Access Point in the current 802.1x implementation by Microsoft.

Using the Configuration Utility (continued)

Home > User Manager > Management Type > LDAP

LDAP:



To use LDAP as the authentication method, input the LDAP server IP address or domain name and its LDAP server port. The settings will take effect immediately after you click the **Apply** button. It is recommended that you restart the DSA-3100 after these changes if there are any online users.

Login Schedule:

Define the time zone where the DSA-3100 is located and login duration for **Guest** and **General accounts**. By default the time zone is GMT-07:00.

Define login duration for Guest accounts. Select **Enable** - **Edit** to enter the management interface (as shown above). After durations are defined, you need to click **Apply**, and then **Save All** to let the new functions take effect.

To define the login duration for General accounts use the same procedure as above.

Login Schedule -- Guest							
HOUR	SUN	MON	TUE	WED	THU	FRI	SAT
0	☑	☑	☑	☑	☑	☑	☑
1	☑	☑	☑	☑	☑	☑	☑
2	☑	☑	☑	☑	☑	☑	☑
3	☑	☑	☑	☑	☑	☑	☑
4	☑	☑	☑	☑	☑	☑	☑

Using the Configuration Utility (continued)

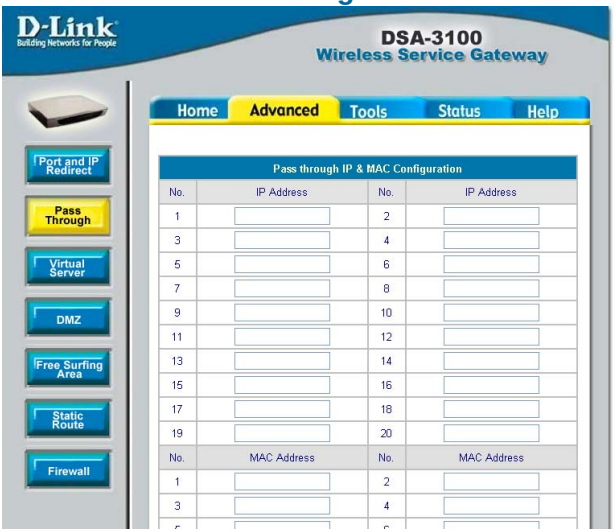
Advanced > Port and IP Redirect

Up to 10 sets of traffic redirection criteria could be defined through this interface. Clients who try to access a specific destination that matches one of the defined destinations will be forced to a matching redirection target. These settings will take effect immediately after you click the **Apply** button.

Using the Configuration Utility (continued)

Advanced > Pass-Through

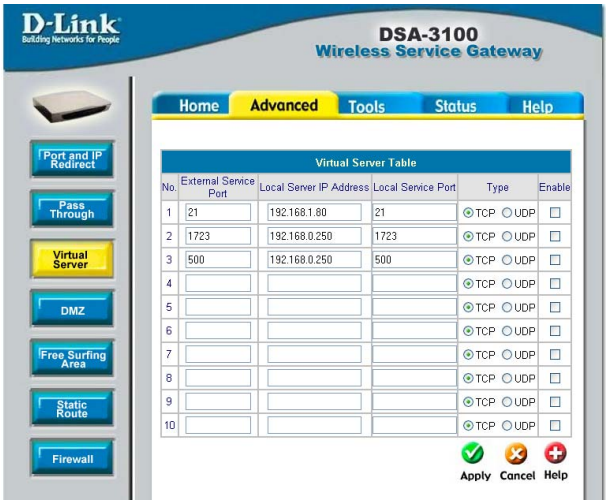
To maintain an adequate level of security, each client on the network can be managed. To allow some devices to be unmanaged, input their IP addresses or MAC addresses in this interface. Up to 20 IP addresses and 10 MAC addresses can be assigned unmanaged access. MAC address format is XX:XX:XX:XX:XX:XX



Caution: *Allowing unmanaged access from specific IP or MAC addresses could adversely affect the security of your network.*

Advanced > Virtual Server

This feature allows you to define up to 10 virtual servers to enable access to servers connected to the authentication and local network port from outside of the managed network. Depending on the service provided, the service might run on TCP ports, UDP ports or both. Click **Enable** to activate the rule. Changes to the settings of virtual servers will take effect immediately after you click the **Apply** button.



Note: *Each local server connected to the authentication port must also be allowed IP or MAC address pass-through. Please enter its IP or MAC address via the interface shown in the pass-through configuration screen.*

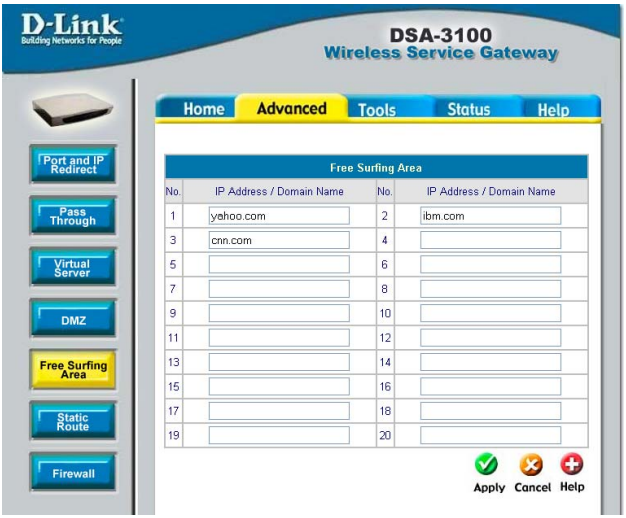
Using the Configuration Utility (continued)

Advanced > DMZ

If you have multiple IP addresses available to assign to the DSA-3100's WAN interface, you could define up to 10 pairs of Ethernet side (Private IP) and WAN side (Public IP) addresses. The WAN interface will bind the extra public IP addresses automatically.

Advanced > Free Surfing Area

To allow users access to a few websites before they log in, enter the IP addresses of those sites in the **Free Surfing Area** list. Up to 10 sites can be defined. For example, a website that provides introduction and guidance for local facilities and routes or sites with content suitable or appropriate for public viewing could be listed in the **Free Surfing Area.** Guest users of the network cannot access other parts of the network but could still connect to these sites.

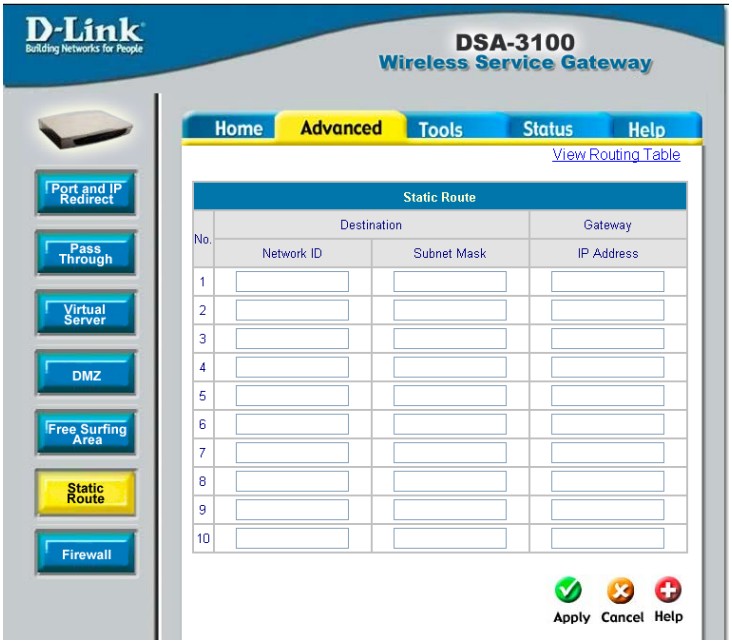


These sites provide a free experience but can also indicate other areas of the Internet that can be accessed for an additional fee.

Using the Configuration Utility (continued)

Advanced > Static Route

In this example, if you want the 192.168.202.0/24 and 192.168.100.0/24 network to have access to each other, you should add a static route in the DSA-3100 and also in the 192.168.200.253 IP router. The following settings show the DSA-3100's static route configurations.



Destination Network ID: Specifies the target network or host IP. In this example we use network 192.168.202.0 as the routed target.

Destination Subnet Mask: Specifies the target subnet mask. In the example, we use the subnet mask 255.255.255.0.

Gateway IP Address: Specifies the IP address of the next hop router. In the example, we set this to 192.168.0.253 as the 192.168.202.0 network is behind the router.

Click Apply: Always click **Apply** to save the changes/additions.

Note: *For the static route to work, the next hop route must also have added a static route to forward all 192.168.100.0/24 IP packets to the DSA-3100. After clicking the* ***Apply*** *button, you will see the added route is shown in the current running routing table. Click* ***" View Routing table "*** *to verify.*

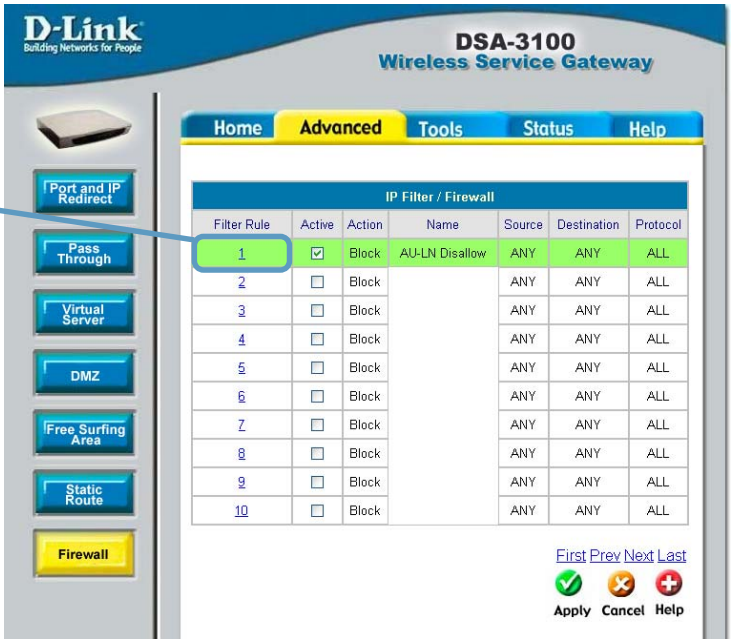
Every change to the static route settings must be stored by using the *Save Setting* function, and restarting the DSA-3100.

Using the Configuration Utility (continued)

Advanced > Firewall

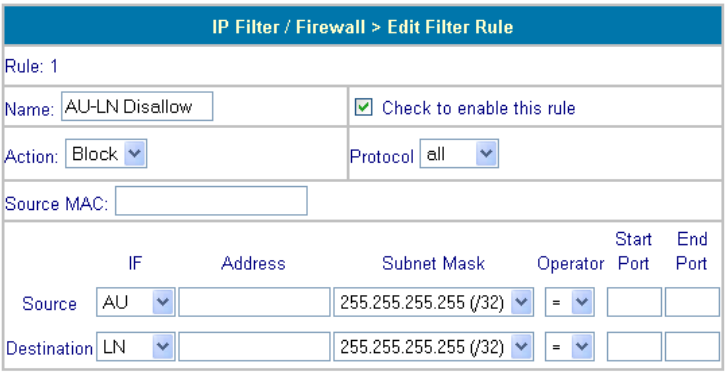
.

Click the **Filter Rule** number to enter the firewall page for each filter. The chart on the following page explains each configurable item in detail.



Edit the filter rule

Filter rule is a set of filters that determine whether traffic will be allowed to pass between the source and destination or whether it will be dropped. To display the detail, click the **index number** in the screen above.



On the following page please find an explanation of the fields in the above configuration screen.

Using the Configuration Utility (continued)

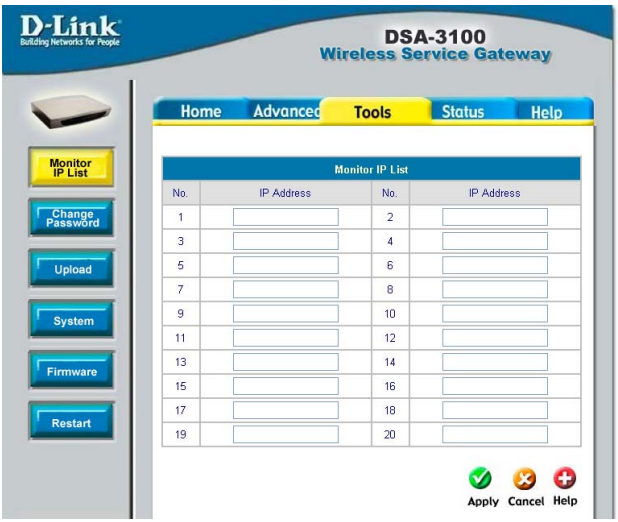
Advanced > Firewall (continued)

Filter	Description
Name	To give a name to an IP Filter rule
Check to enable this rule	Enable this rule if it is marked
Action	Specifies the action to be taken when packets match the rule Block: Packets matching the rule will be dropped immediately Pass: Packets matching the rule will be passed immediately
Protocol	Specifies the protocol(s) this filter rule will apply to
Source MAC	Source MAC address
Source/ Destination IF	Source/Destination Interface. You can select WAN port or LAN port or Authentication port or ALL ports
Source/ Destination IP Address	Source/Destination IP Address
Source/Destination Subnet Mask	Source/Destination Subnet Mask
Source/Destination Operator	Select =(equal), != (not equal),>(greater than), <(smaller than) operator rule
Source/Destination Start Port	Source/Destination Start Port
Source/Destination End Port	Source/Destination End Port

Using the Configuration Utility (continued)

Tools > Monitor IP List

DSA-3100 can monitor the IP address from anywhere; up to 20 IP addresses can be monitored. The system periodically sends out packets to check the status of the selected network nodes by pinging every 30 minutes. If the node cannot be reached, the DSA-3100 will send an E-mail to the admin. every 30 minutes. For example: if you specify a node which can't be reached, the DSA-3100 will send an E-mail to the admin. at 1:00, 1:30, 2:00, 2:30, 3:00..etc, until the problem is fixed.



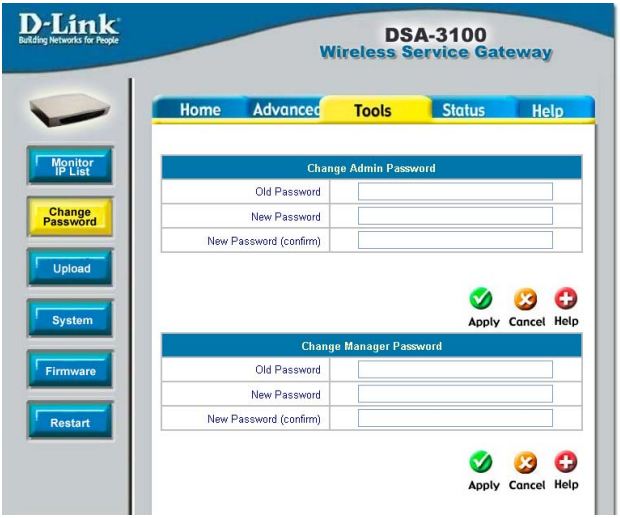
Tools > Change Password

DSA-3100 provides 2 built-in user accounts: **Admin** and **Manager**

Admin: This user is the administrator of the DSA-3100.

Manager: This user has the right to manage a user account, the admin. functions are denied.

The Admin and the Manager can change their passwords; specify the current password first. The new password must be entered twice.



Note: *If you lose the administrator's password, you can change the administrator's password from the console interface.*

Using the Configuration Utility (continued)

Tools > Upload customer Key

To provide a custom key page in order to support a specific certificate, please click **Browse** to search for the file name for the customer key. Click **Apply** to upload it onto the DSA-3100. If you want to get back to the default customer Key page, simply click the **Use Default KEY** button.

Tools > Upload customer certificate

To provide a custom key page in order to support a specific certificate, please click **Browse** to search for the file name for the customer certificate. Click **Apply** to upload it onto the DSA-3100. If you want to get back to the default customer certificate page, simply click the **Use Default CA** button.

Using the Configuration Utility (continued)

Tools > Upload Login Page

To provide a custom user login page, please specify the file name to upload onto the DSA-3100. If you want to get back to the default user login page, simply click the **Use Default Page** button. If you want to display the Login page, simply click the **Preview** button

The uploaded custom login page must contain the following HTML codes to provide users a place to input the user name and password.

Required HTML code

```
<form action="userlogin.shtml" method="post" name="Enter">
<input type="text" name="myusername">
<input type="password" name="mypassword">
<input type="submit" name="submit" value="Enter">
<input type="reset" name="clear" value="Clear">
</form>
```

Using the Configuration Utility (continued)

Tools > Upload Logout Page

To provide a custom user logout page, please click **Browse** to specify the file name and upload it onto the DSA-3100 by clicking **Apply.** If you want to get back to the default user logout page, simply click the **Use Default Page** button. If you want to display the Logout page, simply click the **Preview** button.

The uploaded custom logout page must contain the following HTML codes to provide users a place to input the user name and password.

Required HTML code

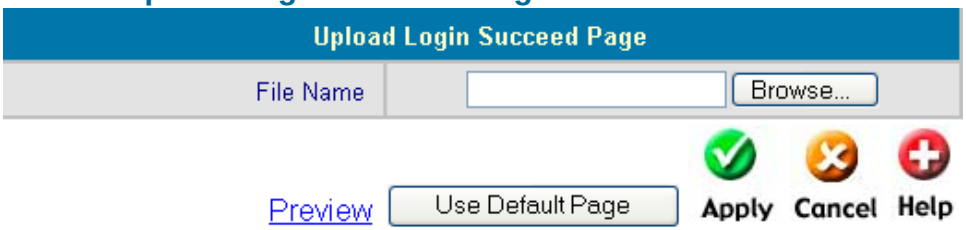
```
<form action="userlogout.shtml" method="post" name="Enter">
<input type="text" name="myusername">
<input type="password" name="mypassword">
<input type="submit" name="submit" value="Logout">
<input type="reset" name="clear" value="Clear">
</form>
```

Using the Configuration Utility (continued)

Tools > Upload Login error Page

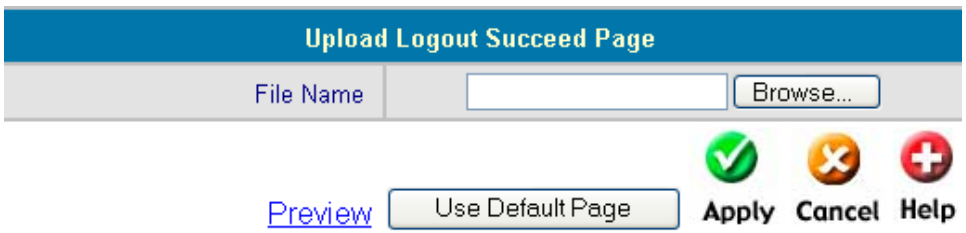
Upload Login error Page: To provide a custom user login error page, please specify the file name to upload it onto the DSA-3100. If you want to get back to the default user login page, simply click the **Use Default Page** button. If you want to display the Login error Page, simply click the **Preview** button.

Tools > Upload Login Succeed Page



Upload Login Succeed Page: To provide a custom user “login ok” page, please specify the file name to upload it onto the DSA-3100. If you want to get back to the default user login page, simply click the **Use Default Page** button. If you want to display the Login Succeed Page, simply click the **Preview** button.

Tools > Upload Logout Succeed Page

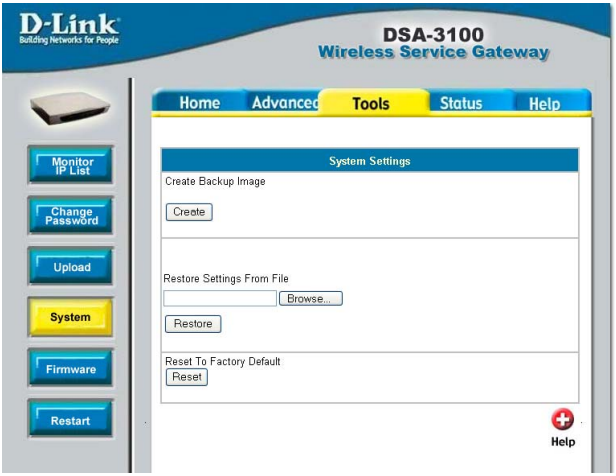


Upload Logout Succeed Page: To provide a custom user logout page, please specify the file name to upload it onto the DSA-3100. If you want to get back to the default user login page, simply click the **Use Default Page** button. If you want to display the Logout Succeed Page, simply click the **Preview** button.

Using the Configuration Utility (continued)

Tools > System

Allows you to make a backup and restore the backup copy to the DSA-3100. This function also enables you to restore the DSA-3100 back to the factory default settings.



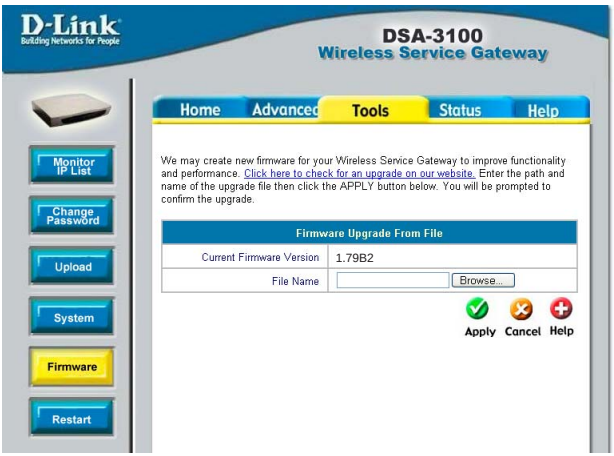
Create Backup Image: Make a backup Image file.

Restore Setting From File: **Browse** the hard drive to restore the backup image file. (Important:The image must be created by the DSA-3100.)

Reset To Factory Default: Click **Reset** to restore the DSA-3100 back to the factory default settings.

Tools > Firmware

Please click the link in the configuration screen shown here to check for firmware upgrades on the D-Link website. After you download the new firmware file to your hard drive, click **Browse** and then click **Apply** to upgrade the firmware.



Caution: *Firmware upgrades might result in configuration data loss. Some other restrictions might also apply. Please refer to the release notes of new firmware upgrades. When the system is upgrading its firmware, the Status LED blinks until done. When finished, the web interface will display a successful message.*

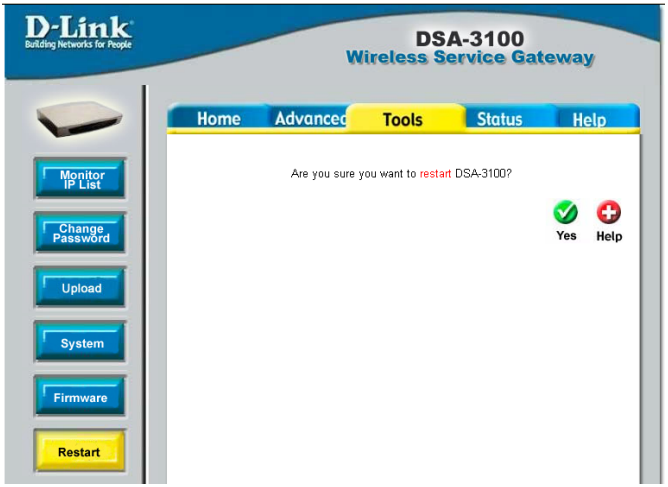
Please restart the DSA-3100 using the administration interface. Do not directly power it off and on. Restarting the DSA-3100 in this way after a firmware upgrade might result in corruption of the DSA-3100 firmware. (Online user sessions will be terminated when the system restarts.)

Using the Configuration Utility (continued)

Tools > Restart

Reboots the DSA-3100. It takes about 1 minute for the DSA-3100 to reboot. If you have to turn off the power of the DSA-3100 for some time, please reboot it and remove the power after you hear a beep from it.

Note:. *On-line user sessions will be terminated when the system restarts.*



Status > Device Info

This feature displays a system configuration summary. For a chart defining each term, please see the following page.

System Status		
	Current Firmware Version	1.79B2
	System Name	DSA-3100
	Admin Detail	Management
	Succeed Page	http://www.msn.com
	External Syslog Server	192.168.0.250:3500
	Console Port Baud Rate	9600 bps
Manage	SSH	192.170.0.132
History	Retain Days	3 Days
	Email To	cchiu@dlink.com
Time	External Time Server	tycho.usno.navy.mil
	Date Time (GMT+0:00)	Thu Oct 2 18:58:21 UTC 2003
User	Idle Logout Timer	1000 Min(s)
	Multiple Login	Enabled
	User Type	RADIUS
	Guest Account	Enabled
DNS	Preferred DNS Server	192.152.81.1
	Alternate DNS Server	4.2.2.2

Using the Configuration Utility (continued)

Status > Device Info (continued)

Item		Description
Current Firmware Version		The DSA-3100's current firmware version.
System Name		System name; DSA-3100 is the default.
Admin Detail		Information about the admin. If a user encounters a problem connecting to the WAN Port of the DSA-3100, the system admin. information will be shown on the user login page.
Succeed Page		The URL for all users to be directed to after successful login, usually defined as the home page of a corporation.
External Syslog Server		Specify the IP address and Port of the Syslog server.
Console Port baud Rate		Specify the console port's baud rate. The default setting is 9600.
Manage	SSH	The IP address that connects to the WAN Port for configuring the DSA-3100.
History	Retain Days	The system will keep login user information for 3 days.
	E-mail To	E-mail the traffic history file to this address.
Time	External Time server	The DSA-3100 use this timeserver for clock synchronization.
	Date Time (GMT+0:00)	The Date / Time found on this page is **Greenwich time (GMT+0:00)**
User	Idle Logout Timer	If the on-line user is idle for 10 minutes, the session will be ended.
	Multiple Login	Disable a single user account from logging into the system multiple times.
	User Type	User account authentication method: Local
	Guest Account	Enable guest account.
DNS	Preferred DNS serve	DNS server IP address (Primary).
	Alternate DNS server	DNS server IP address (secondary).

Using the Configuration Utility (continued)

With this feature, you can get Interface management information about the **WAN port**, **Authentication port**, **and Local Network port**. For more detail see the following page:

Status > Interface

WAN	**MAC Address**	WAN port's MAC address
	IP Address	WAN port's IP address
	Subnet Mask	WAN port's Subnet Mask
	DNS IP Address	WAN port's DNS IP address
Authentication	**Mode**	Authentication port modes: NAT mode
	MAC Address	Authentication port's MAC address
	IP Address	Authentication port's IP address
	Subnet Mask	Authentication port's Subnet Mask
	DNS	Authentication port's DNS IP address
Authentication DHCP Server	**Status**	Enable DHCP server on Authentication port
	WINS IP Address	Configure WINS server IP address on DHCP server
	Start IP Address	DHCP pool start IP address
	End IP address	DHCP pool end IP address
	Lease Time	IP address lease time
Local Network	**Mode**	Local Network port modes: NAT mode
	MAC Address	Local Network port's MAC address
	IP Address	Local Network port's IP address
	Subnet Mask	Local Network port's Subnet Mask
	DNS IP Address	Local Network port' DNS IP address
Local Network DHCP Server	**Status**	Enable DHCP function on Local Network port.
	WINS IP Address	Configure WINS server IP address on DHCP server
	Start IP Address	DHCP pool start IP address
	End IP address	DHCP pool end IP address
	Lease Time	IP address lease time

Using the Configuration Utility (continued)

Status > Interface (continued)

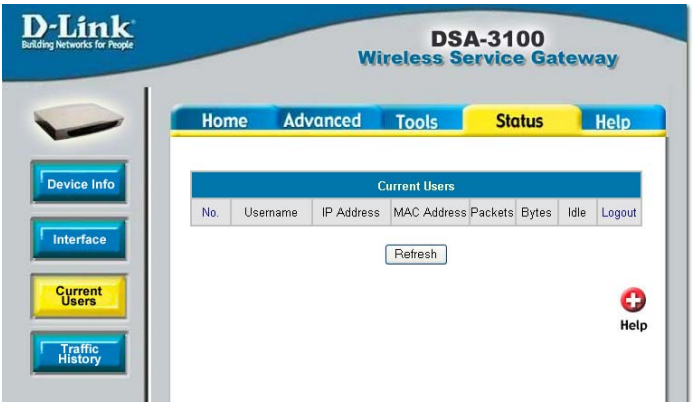
Below is an example of the Interface described on the previous page:

Interface Status		
WAN	MAC Address	00:4D:05:D7:5D:EC
	IP Address	10.2.3.101
	Subnet Mask	255.255.255.0
	DNS IP Address	168.95.1.1
Authentication	Mode	NAT
	MAC Address	00:4D:05:D7:5D:EE
	IP Address	192.168.1.40
	Subnet Mask	255.255.255.0
	DNS IP Address	168.95.1.1
Authentication DHCP Server	Status	Enabled
	WINS IP Address	N/A
	Start IP Address	192.168.1.101
	End IP Address	192.168.1.200
	Lease Time	1440 Min(s)
Local Network	Mode	NAT
	MAC Address	00:4D:05:D7:5D:ED
	IP Address	192.168.0.40
	Subnet Mask	255.255.255.0
	DNS IP Address	168.95.1.1
Local Network DHCP Server	Status	Enabled
	WINS IP Address	N/A
	Start IP Address	192.168.0.101
	End IP Address	192.168.0.200
	Lease Time	1440 Min(s)

Using the Configuration Utility (continued)

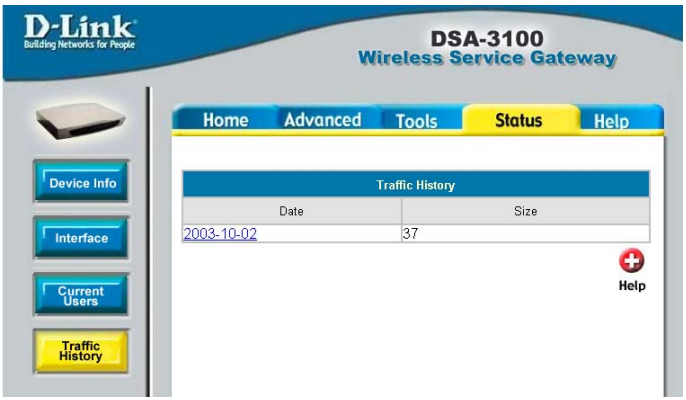
Status > Current Users

With this feature, you could get information about online users including **Username**, **IP**, **MAC**, **packet count**, **byte count** and **idle time**. It also allows the administrator to force an on-line user to get off-line by clicking the **kick out** link beside a user's data.



Status > Traffic History

This feature gives you access to network access history collected by the DSA-3100. Traffic histories are organized by day. The DSA-3100 will store up to 3 days of history data in its volatile memory.



Note: *Since the traffic history is stored in a volatile memory, please copy the log data manually if you need to reboot the DSA-3100 and want to keep the log data.*

If you have an e-mail address entered in the system configuration interface, you will have the log sent to that e-mail everyday.

The traffic history is a pure text log. The first line is the header. From line two onward, each line contains a single log record. Each record consists of seven fields. A tab separates each field from the other. This format allows easy import of the log data into other programs for further processing.

Using the Configuration Utility (continued)

Help

This feature provides online instructions for operating the DSA-3100, you can click the hyperlink for a more detailed description.

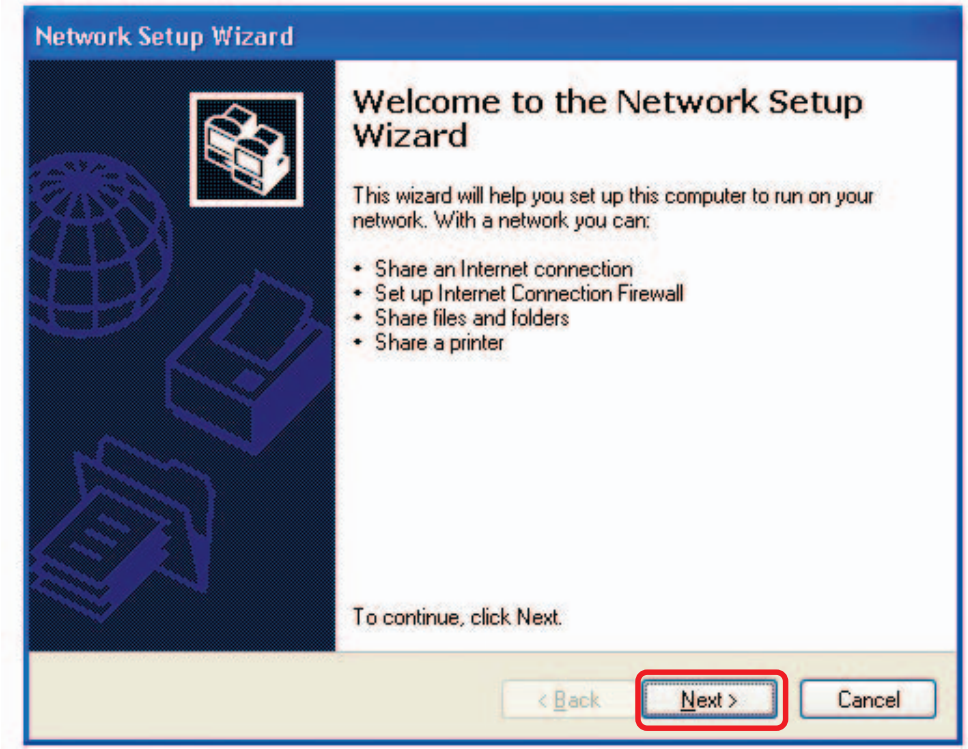
Networking Basics

Using the Network Setup Wizard in Windows XP

In this section you will learn how to establish a network at home or work, using **Microsoft Windows XP.**

Note: Please refer to websites such as http://www.homenethelp.com and http://www.microsoft.com/windows2000 for information about networking computers using Windows 2000, ME or 98.

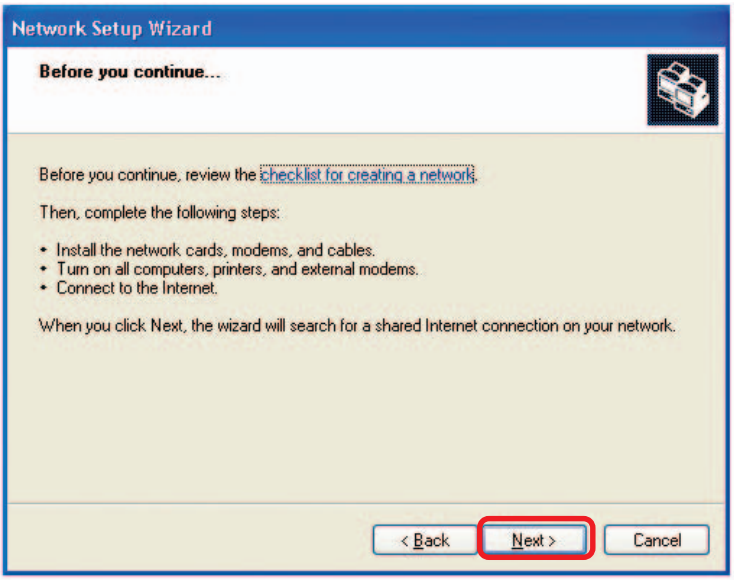
Go to **Start>Control Panel>Network Connections**
Select **Set up a home or small office network**



When this screen appears, click **Next.**

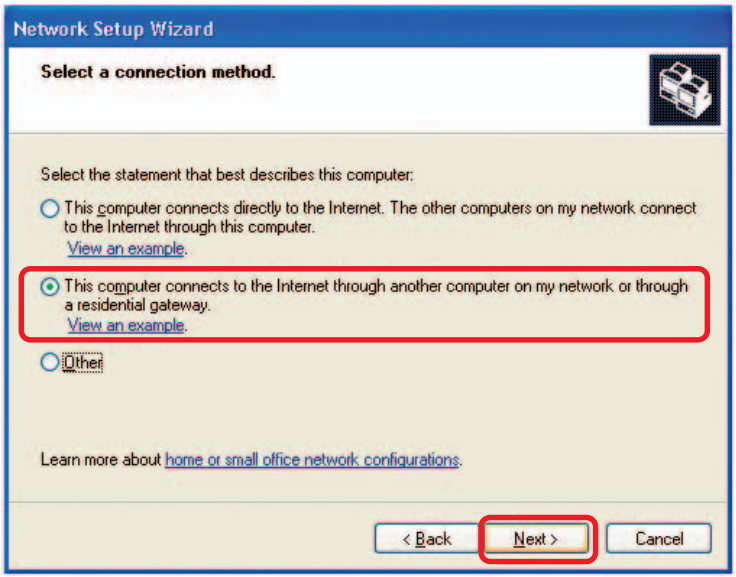
Networking Basics (continued)

Please follow all the instructions in this window:



Click **Next**

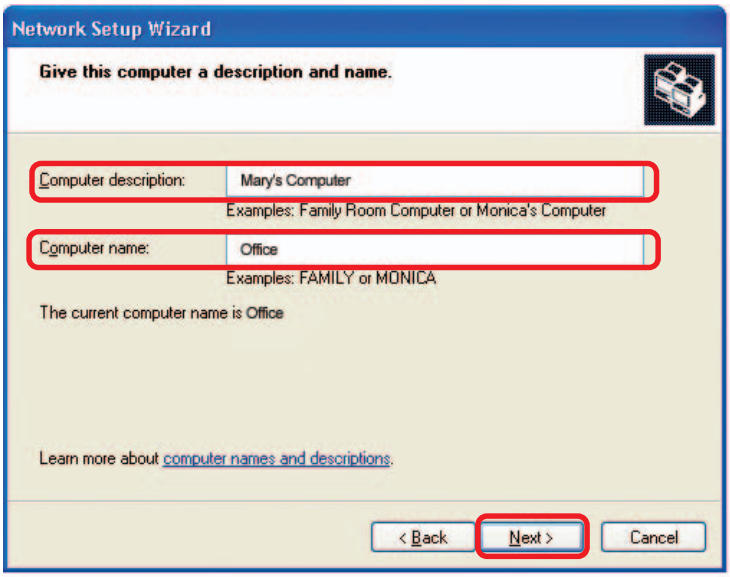
In the following window, select the best description of your computer. If your computer connects to the internet through a gateway/router, select the second option as shown.



Click **Next**

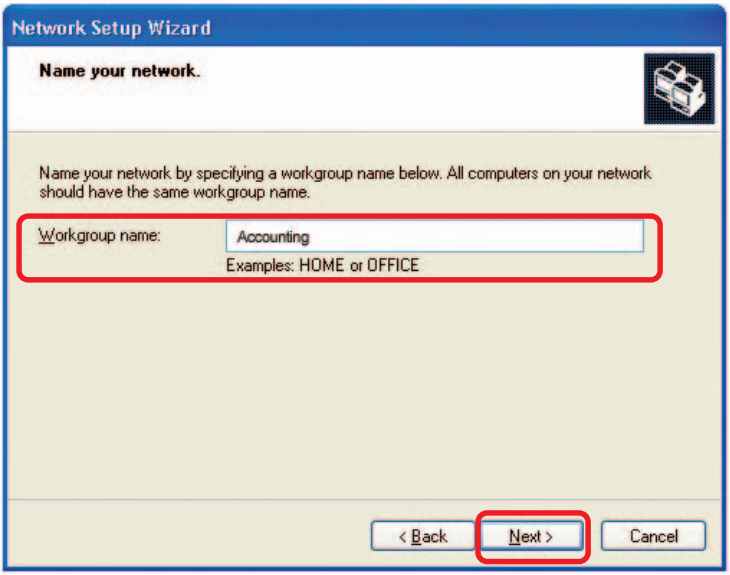
Networking Basics (continued)

Enter a **Computer description** and a **Computer name** (optional.)



Click **Next**

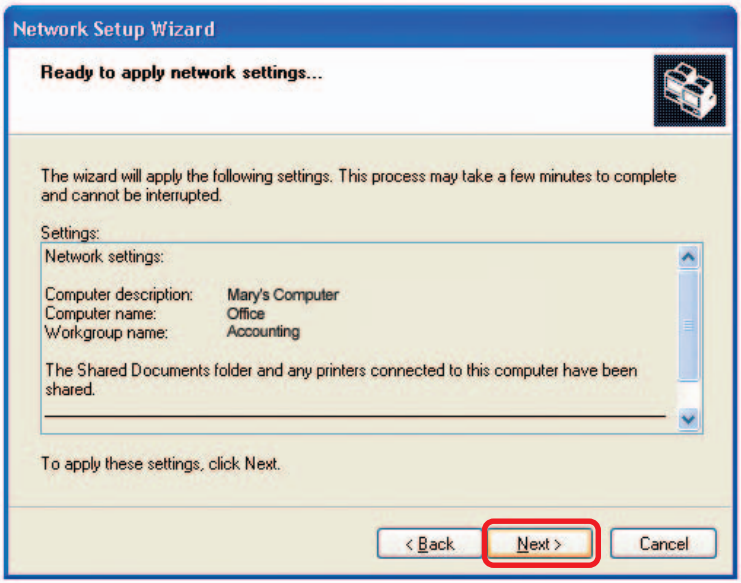
Enter a **Workgroup** name. All computers on your network should have the same **Workgroup name.**



Click **Next**

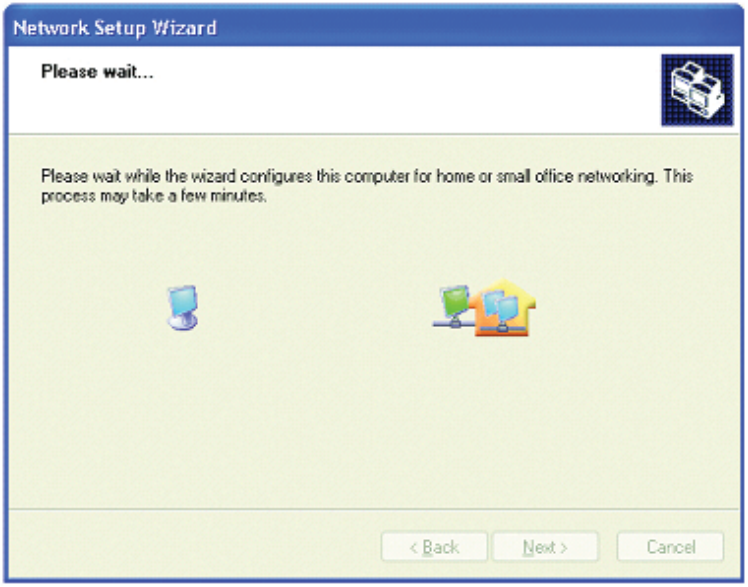
Networking Basics (continued)

Please wait while the **Network Setup Wizard** applies the changes.



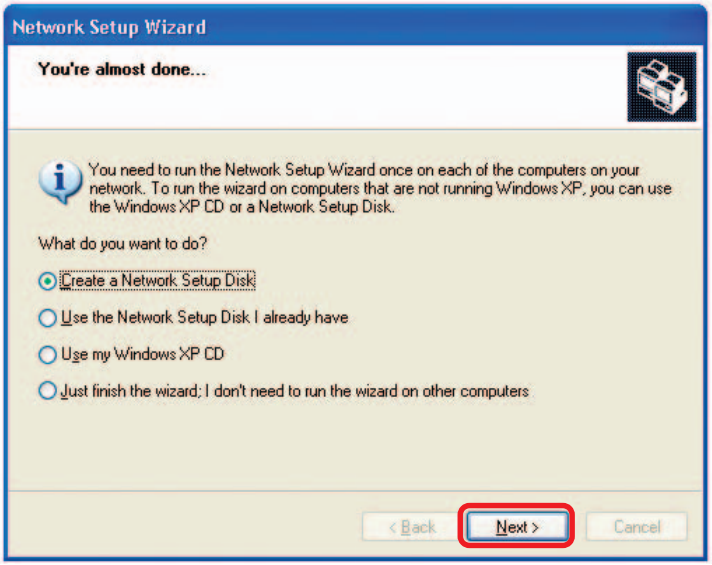
When the changes are complete, Click **Next**.

Please wait while the **Network Setup Wizard** configures the computer. This may take a few minutes.

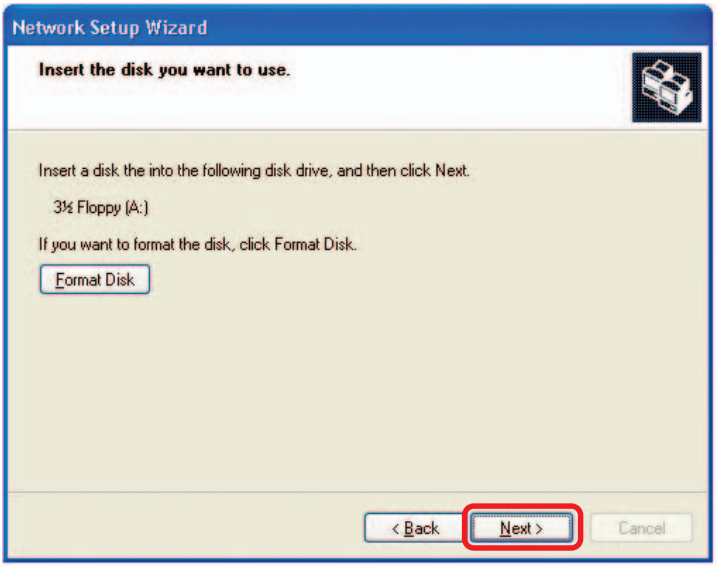


Networking Basics (continued)

In the window below, select the option that fits your needs. In this example, **Create a Network Setup Disk** has been selected. You will run this disk on each of the computers on your network. Click **Next**.

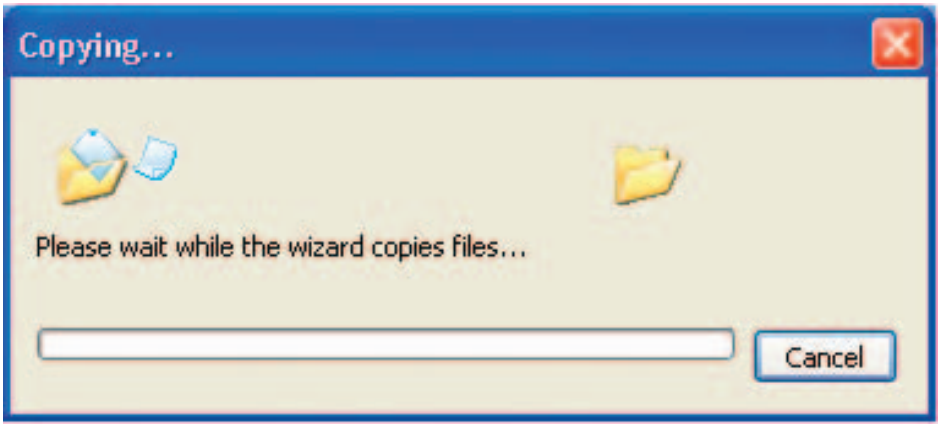


Insert a disk into the Floppy Disk Drive, in this case drive **A.**

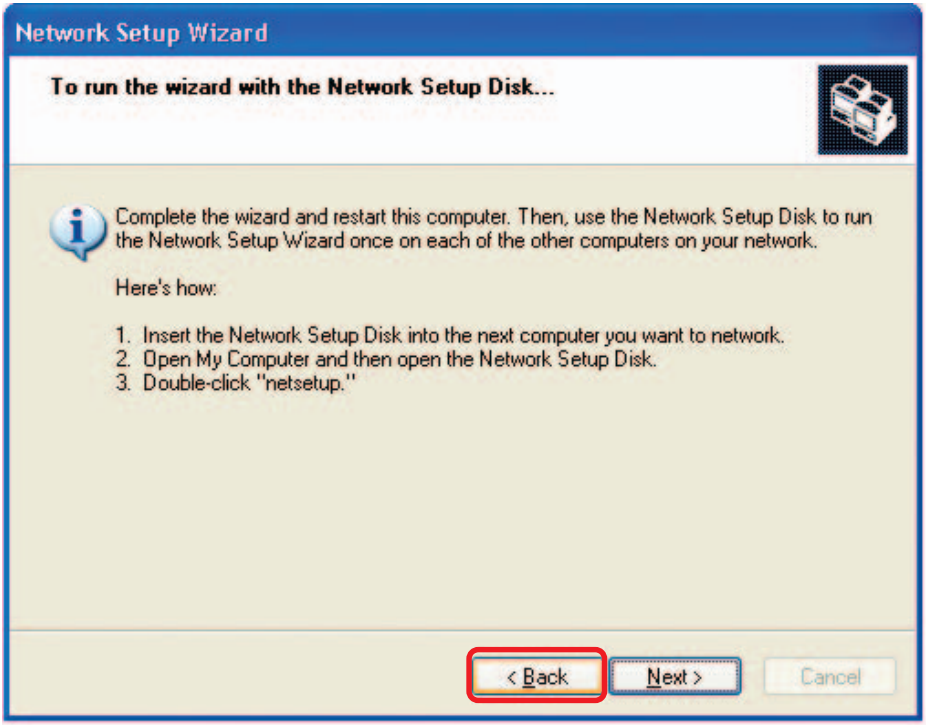


Click **Next**

Networking Basics (continued)

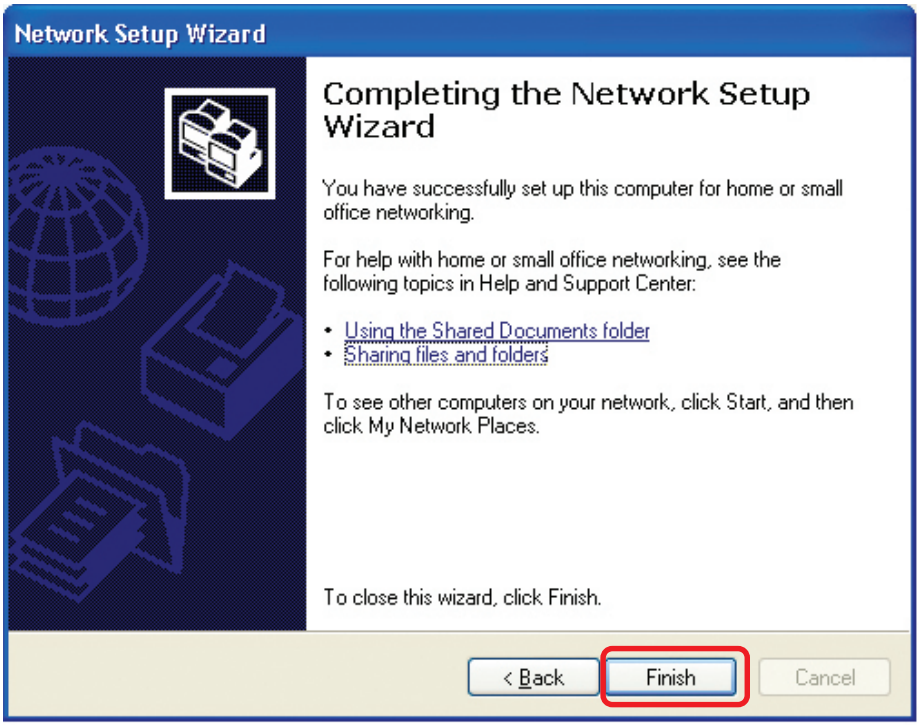


Please read the information under **Here's how** in the screen below. After you complete the **Network Setup Wizard** you will use the **Network Setup Disk** to run the **Network Setup Wizard** once on each of the computers on your network. Click **Next.**

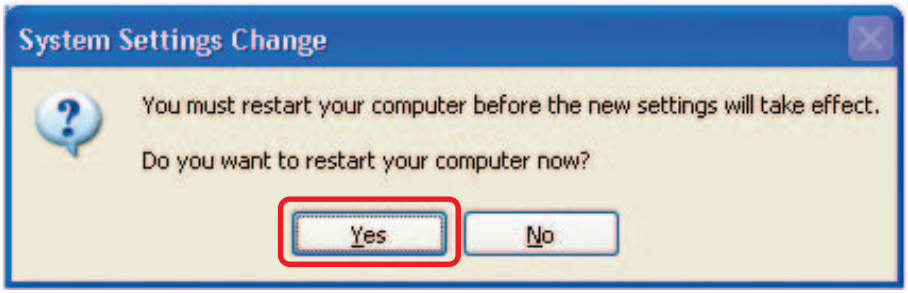


Networking Basics (continued)

Please read the information on this screen, then click **Finish** to complete the **Network Setup Wizard**.



The new settings will take effect when you restart the computer. Click **Yes** to restart the computer.



You have completed configuring this computer. Next, you will need to run the **Network Setup Disk** on all the other computers on your network. After running the **Network Setup Disk** on all your computers, your new wireless network will be ready to use.

Networking Basics (continued)

Naming your Computer

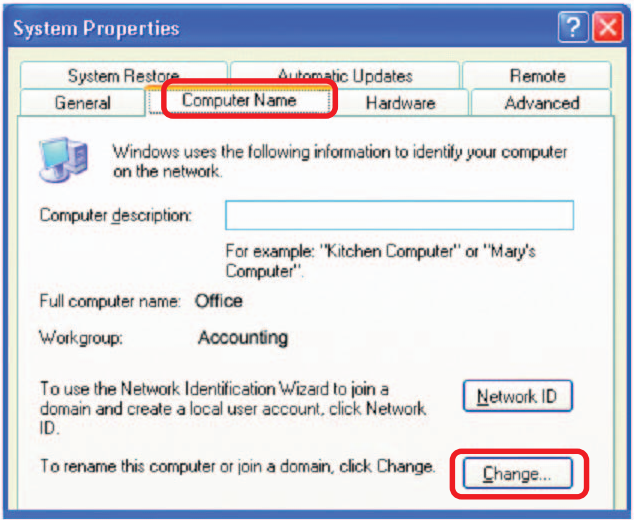
To name your computer In **Windows XP**, please follow these directions:

- Click **Start** (in the lower left corner of the screen)
- **Right-click** on **My Computer**
- Select **Properties**

- Select the **Computer Name Tab** in the System Properties window.

- You may enter a **Computer Description** if you wish; this field is optional.

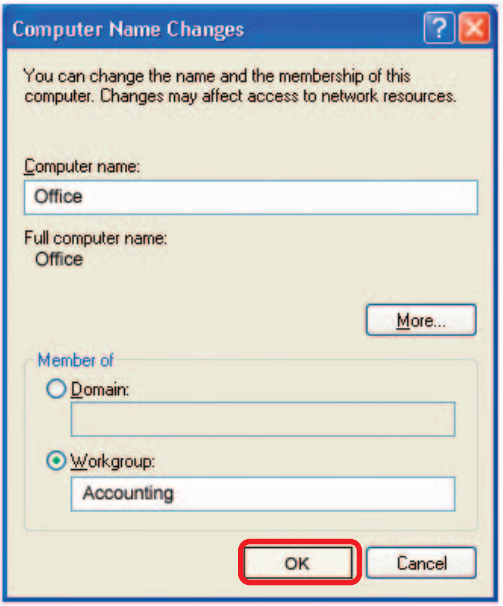
- To rename the computer and join a domain, click **Change**.



Networking Basics (continued)

Naming your Computer (continued)

- In this window, enter the **Computer name**.
- Select **Workgroup** and enter the name of the **Workgroup**.
- All computers on your network must have the same **Workgroup** name.
- Click **OK**



Checking the IP Address in Windows XP

The adapter-equipped computers in your network must be in the same IP Address range (see *Getting Started* in this manual for a definition of IP Address Range.) To check on the IP Address of the adapter, please do the following:

- Right-click on the ***Local Area Connection icon*** in the task bar
- Click on **Status**

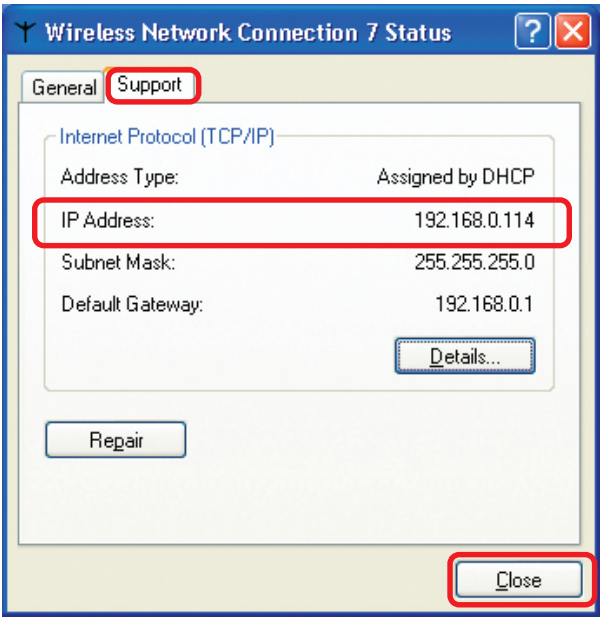
Networking Basics (continued)

Checking the IP Address in Windows XP (continued)

This window will appear.

- Click the **Support tab**

- Click **Close**



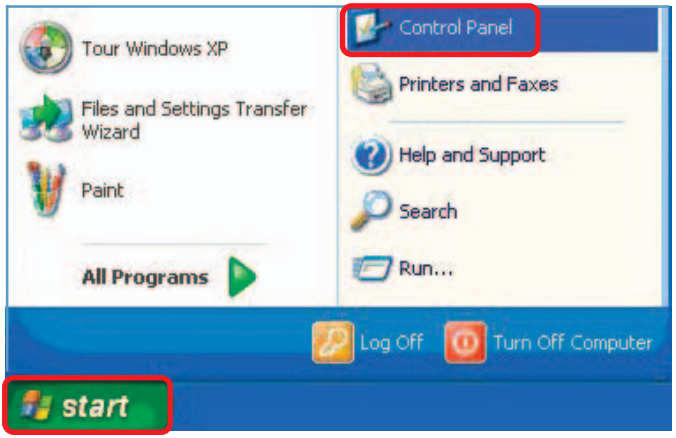
Assigning a Static IP Address in Windows XP/2000

Note: Residential Gateways/Broadband Routers will automatically assign IP Addresses to the computers on the network, using DHCP (Dynamic Host Configuration Protocol) technology. If you are using a DHCP-capable Gateway/Router you will not need to assign Static IP Addresses.

If you are not using a DHCP capable Gateway/Router, or you need to assign a Static IP Address, please follow these instructions:

- Go to **Start**

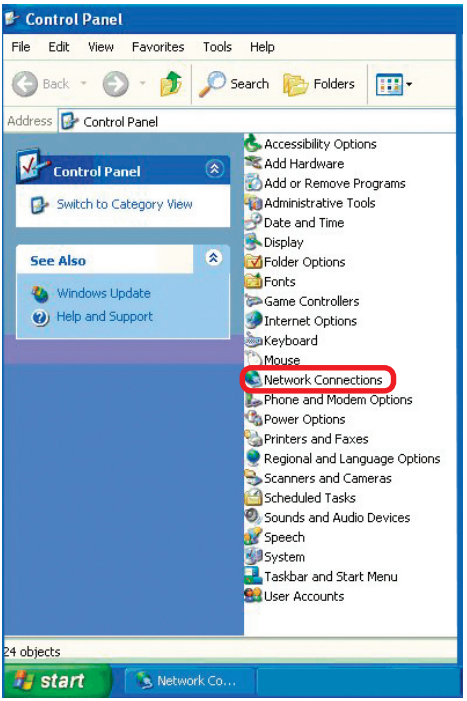
- Double-click on **Control Panel**



Networking Basics (continued)

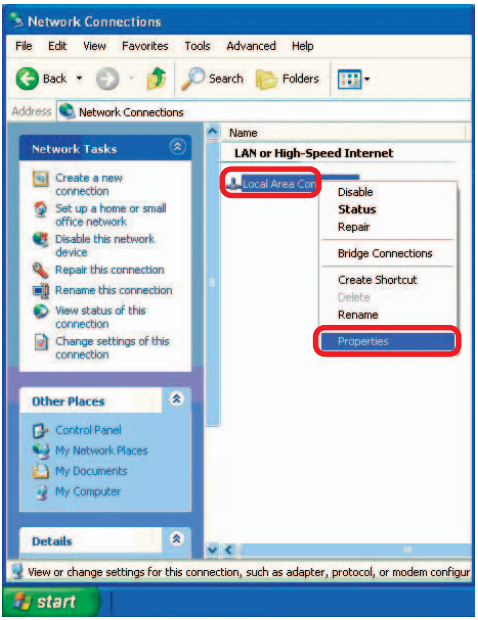
Assigning a Static IP Address in Windows XP/2000 (continued)

- Double-click on **Network Connections**



- Right-click on **Local Area Connections**

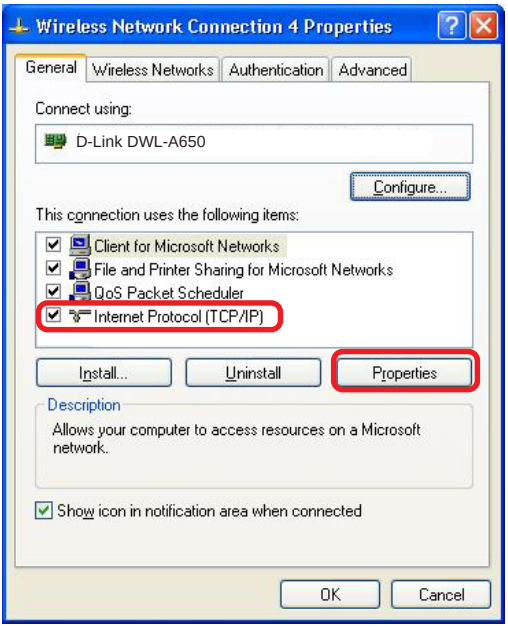
- Double-click on **Properties**



Networking Basics (continued)

Assigning a Static IP Address in Windows XP/2000

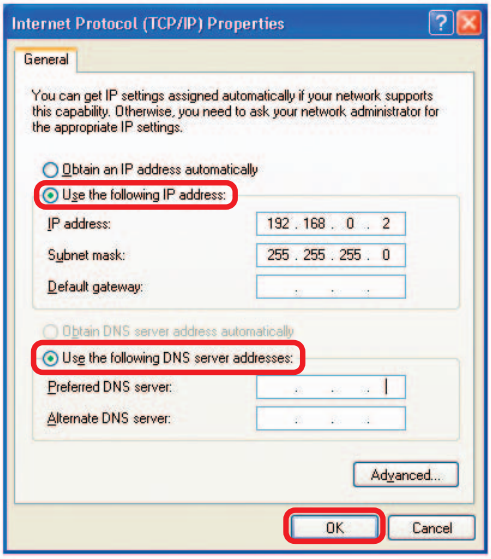
- Click on **Internet Protocol (TCP/IP)**
- Click **Properties**



- Input your **IP Address and subnet mask.** (The IP Addresses on your network must be within the same range. For example, if one computer has an IP Address of 192.168.0.2, the other computers should have IP Addresses that are sequential, like 192.168.0.3 and 192.168.0.4. The subnet mask must be the same for all the computers on the network.)

- Input your **DNS server addresses. (Note: If you are entering a DNS server, you must enter the IP Address of the Default Gateway.)**

The DNS server information will be supplied by your ISP (Internet Service Provider.)



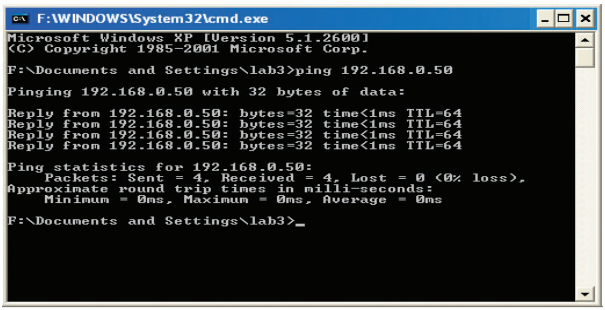
- Click **OK**

Networking Basics (continued)

Checking the Wireless Connection by Pinging in Windows XP/2000

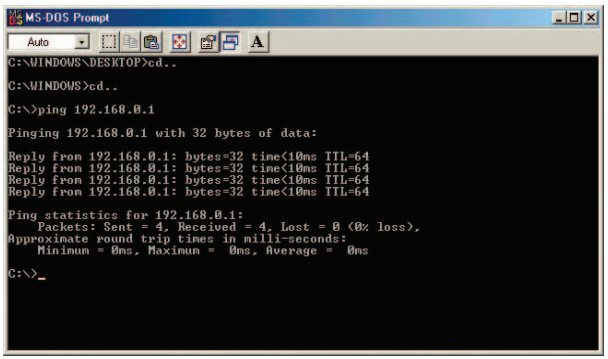
Note: The following illustrations are examples only. The IP Address that you are pinging may be different from those in the following examples.

- Go to **Start** > **Run** > type **cmd**. A window similar to this one will appear. Type **ping xxx.xxx.xxx.xxx**, where **xxx** is the **IP Address** of the Wireless Router or Access Point. A good wireless connection will show four replies from the Wireless Router or Acess Point, as shown.



Checking the Wireless Connection by Pinging in Windows Me/98

- Go to **Start** > **Run** > type **command**. A window similar to this will appear. Type **ping xxx.xxx.xxx.xxx** where **xxx** is the **IP Address** of the Wireless Router or Access Point. A good wireless connection will show four replies from the wireless router or access point, as shown.



Technical Specifications

Functions Provided

3 10/100Mbps Fast Ethernet ports for WAN connection, trusted LAN connection and untrusted LAN connection

Manages up to 250 user account data with internal user account database

Supports up to 50 on-line users

ID/Password based authentication and authorization- Can be combined with MAC Address locking to provide stricter access control

POP3, RADIUS and LDAP external authentication mechanism support - Only one of these can be selected at a time

On-line status monitoring and history traffic data review

SSL protected access to the administration interface and user authentication interface

Customizable user login, logout web interface

Customizable target URL for users who successfullly get authorization

Built-in DHCP server

High-speed policy routing engine

Customizable peremptory traffic redirection NTP client

Local network port for connecting a trusted network

Permits access to WAN and LAN from local network without authentication

Permits connection to wired Ethernet while connecting the wireless network to this Ethernet port

Technical Specifications (continued)

CPU

NS GX-1 300MHz

Memory

SDRAM 32 MB

Device Ports

WAN port: 10/100Mbps Fast Ethernet

LAN port: 10/100Mbps Fast Ethernet connects to workstations & servers that do not need authentication

LAN port: 10/100Mbps Fast Ethernet connects to workstations & devices that need authentication

Console port: RS-232 (default set to 115200, n, 8, 1, no flow control)

Power Supply

External Power Adapter

Power Input

DC 5V/3A

Power Input

DC 5V/3A

Dimensions

45 mm (H) x 163 mm (D) x 215 mm (W)

Power Input

DC 5V/3A

Dimensions

45mm (H) x 163 mm (D) x 215 mm (W)

Operating Temperature

0° - 50°C

Storage Temperature

-25° - 55°C

EMI Certification

FCC Class A
CE Class A
VCCI Class A
C-Tick

Safety

UL
CSA
TUV/GS
T-Mark

Technical Support

You can find software updates and user documentation on the D-Link website.

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

U.S. and Canadian customers can contact D-Link technical support through our web site, or by phone.

Tech Support for customers within the United States:

D-Link Technical Support over the Telephone:
(877) 453-5465
24 hours a day, seven days a week.

D-Link Technical Support over the Internet:
http://support.dlink.com
email:support@dlink.com

Tech Support for customers within Canada:

D-Link Technical Support over the Telephone:
(800) 361-5265
Monday to Friday 8:30am to 9:00pm EST

D-Link Technical Support over the Internet:
http://support.dlink.ca
email:support@dlink.ca

Limited Warranty (USA only)

Subject to the terms and conditions set forth herein, D-Link Systems, Inc. (“D-Link”) provides this Limited warranty for its product only to the person or entity that originally purchased the product from:

- D-Link or its authorized reseller or distributor and
- Products purchased and delivered within the fifty states of the United States, the District of Columbia, U.S. Possessions or Protectorates, U.S. Military Installations, addresses with an APO or FPO.

Limited Warranty: D-Link warrants that the hardware portion of the D-Link products described below will be free from material defects in workmanship and materials from the date of original retail purchase of the product, for the period set forth below applicable to the product type (“Warranty Period”), except as otherwise stated herein.

1-Year Limited Warranty for the Product(s) is defined as follows:

- Hardware (excluding power supplies and fans) One (1) Year
- Power Supplies and Fans One (1) Year
- Spare parts and spare kits Ninety (90) days

D-Link’s sole obligation shall be to repair or replace the defective Hardware during the Warranty Period at no charge to the original owner or to refund at D-Link’s sole discretion. Such repair or replacement will be rendered by D-Link at an Authorized D-Link Service Office. The replacement Hardware need not be new or have an identical make, model or part. D-Link may in its sole discretion replace the defective Hardware (or any part thereof) with any reconditioned product that D-Link reasonably determines is substantially equivalent (or superior) in all material respects to the defective Hardware. Repaired or replacement Hardware will be warranted for the remainder of the original Warranty Period from the date of original retail purchase. If a material defect is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to repair or replace the defective Hardware, the price paid by the original purchaser for the defective Hardware will be refunded by D-Link upon return to D-Link of the defective Hardware. All Hardware (or part thereof) that is replaced by D-Link, or for which the purchase price is refunded, shall become the property of D-Link upon replacement or refund.

Limited Software Warranty: D-Link warrants that the software portion of the product (“Software”) will substantially conform to D-Link’s then current functional specifications for the Software, as set forth in the applicable documentation, from the date of original retail purchase of the Software for a period of ninety (90) days (“Warranty Period”), provided that the Software is properly installed on approved hardware and operated as contemplated in its documentation. D-Link further warrants that, during the Warranty Period, the magnetic media on which D-Link delivers the Software will be free of physical defects. D-Link’s sole obligation shall be to replace the non-conforming Software (or defective media) with software that substantially conforms to D-Link’s functional specifications for the Software or to refund at D-Link’s sole discretion. Except as otherwise agreed by D-Link in writing, the replacement Software is provided only to the original licensee, and is subject to the terms and conditions of the license granted by D-Link for the Software. Software will be warranted for the remainder of the original Warranty Period from the date or original retail purchase. If a material non-conformance is incapable of correction, or if D-Link determines in its sole discretion that it is not practical to replace the non-conforming Software, the price paid by the original licensee for the non-conforming Software will be refunded by D-Link; provided that the non-conforming Software (and all copies thereof) is first returned to D-Link. The license granted respecting any Software for which a refund is given automatically terminates.

Non-Applicability of Warranty: The Limited Warranty provided hereunder for hardware and software of D-Link’s products will not be applied to and does not cover any refurbished product and any product purchased through the inventory clearance or liquidation sale or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product and in that case, the product is being sold “As-Is” without any warranty whatsoever including, without limitation, the Limited Warranty as described herein, notwithstanding anything stated herein to the contrary.

Submitting A Claim: The customer shall return the product to the original purchase point based on its return policy. In case the return policy period has expired and the product is within warranty, the customer shall submit a claim to D-Link as outlined below:

- The customer must submit with the product as part of the claim a written description of the Hardware defect or Software nonconformance in sufficient detail to allow D-Link to confirm the same.

- The original product owner must obtain a Return Material Authorization ("RMA") number from the Authorized D-Link Service Office and, if requested, provide written proof of purchase of the product (such as a copy of the dated purchase invoice for the product) before the warranty service is provided.

- After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. Do not include any manuals or accessories in the shipping package. D-Link will only replace the defective portion of the Product and will not ship back any accessories.

- The customer is responsible for all in-bound shipping charges to D-Link. No Cash on Delivery ("COD") is allowed. Products sent COD will either be rejected by D-Link or become the property of D-Link. Products shall be fully insured by the customer and shipped to **D-Link Systems, Inc., 17595 Mt. Herrmann, Fountain Valley, CA 92708**. D-Link will not be held responsible for any packages that are lost in transit to D-Link. The repaired or replaced packages will be shipped to the customer via UPS Ground or any common carrier selected by D-Link, with shipping charges prepaid. Expedited shipping is available if shipping charges are prepaid by the customer and upon request.

D-Link may reject or return any product that is not packaged and shipped in strict compliance with the foregoing requirements, or for which an RMA number is not visible from the outside of the package. The product owner agrees to pay D-Link's reasonable handling and return shipping charges for any product that is not packaged and shipped in accordance with the foregoing requirements, or that is determined by D-Link not to be defective or non-conforming.

What Is Not Covered: This limited warranty provided by D-Link does not cover: Products, if in D-Link's judgment, have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; Initial installation, installation and removal of the product for repair, and shipping costs; Operational adjustments covered in the operating manual for the product, and normal maintenance; Damage that occurs in shipment, due to act of God, failures due to power surge, and cosmetic damage; Any hardware, software, firmware or other products or services provided by anyone other than D-Link; Products that have been purchased from inventory clearance or liquidation sales or other sales in which D-Link, the sellers, or the liquidators expressly disclaim their warranty obligation pertaining to the product. Repair by anyone other than D-Link or an Authorized D-Link Service Office will void this Warranty.

Disclaimer of Other Warranties: EXCEPT FOR THE LIMITED WARRANTY SPECIFIED HEREIN, THE PRODUCT IS PROVIDED "AS-IS" WITHOUT ANY WARRANTY OF ANY KIND WHATSOEVER INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT. IF ANY IMPLIED WARRANTY CANNOT BE DISCLAIMED IN ANY TERRITORY WHERE A PRODUCT IS SOLD, THE DURATION OF SUCH IMPLIED WARRANTY SHALL BE LIMITED TO NINETY (90) DAYS. EXCEPT AS EXPRESSLY COVERED UNDER THE LIMITED WARRANTY PROVIDED HEREIN, THE ENTIRE RISK AS TO THE QUALITY, SELECTION AND PERFORMANCE OF THE PRODUCT IS WITH THE PURCHASER OF THE PRODUCT.

Limitation of Liability: TO THE MAXIMUM EXTENT PERMITTED BY LAW, D-LINK IS NOT LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR ANY LOSS OF USE OF THE PRODUCT, INCONVENIENCE OR DAMAGES OF ANY CHARACTER, WHETHER DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF GOODWILL, LOSS OF REVENUE OR PROFIT, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, FAILURE OF OTHER EQUIPMENT OR COMPUTER PROGRAMS TO WHICH D-LINK'S PRODUCT IS CONNECTED WITH, LOSS OF INFORMATION OR DATA CONTAINED IN, STORED ON, OR INTEGRATED WITH ANY PRODUCT RETURNED TO D-LINK FOR WARRANTY SERVICE) RESULTING FROM THE USE OF THE PRODUCT, RELATING TO WARRANTY SERVICE, OR ARISING OUT OF ANY BREACH OF THIS LIMITED WARRANTY, EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOLE REMEDY FOR A BREACH OF THE FOREGOING LIMITED WARRANTY IS REPAIR, REPLACEMENT OR REFUND OF THE DEFECTIVE OR NON-CONFORMING PRODUCT. THE MAXIMUM LIABILITY OF D-LINK UNDER THIS WARRANTY IS LIMITED TO THE PURCHASE PRICE OF THE PRODUCT COVERED BY THE WARRANTY. THE FOREGOING EXPRESS WRITTEN WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ANY OTHER WARRANTIES OR REMEDIES, EXPRESS, IMPLIED OR STATUTORY

Governing Law: This Limited Warranty shall be governed by the laws of the State of California. Some states do not allow exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the foregoing limitations and exclusions may not apply. This limited warranty provides specific legal rights and the product owner may also have other rights which vary from state to state.

Trademarks: D-Link is a registered trademark of D-Link Systems, Inc. Other trademarks or registered trademarks are the property of their respective manufacturers or owners.

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.

FCC Statement: 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 communication. 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.

01/28/04