D-Link
DVG-1120S
VoIP Residential Gateway with Two Voice Ports

Manual

D-Link ®

Building Networks for People

Contents

Package Contents

Contents of Package:

- **D-Link DVG-1120S**
  VoIP Residential Gateway with Two Voice Ports

- A/C Power Adapter

- Manual on CD

- Quick Installation Guide

Note: Using a power supply with a different voltage rating than the one included with the DVG-1120S will cause damage and void the warranty for this product.

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

System Requirements For Configuration:

- Computer with Windows, Macintosh, or Linux-based operating system with an installed Ethernet adapter

- Internet Explorer or Netscape Navigator version 4.0 or above, with JavaScript enabled

- At least 128 MB of memory and a 500 MHz processor

Introduction

The D-Link DVG-1120S VoIP Station Gateway links traditional telephone networks to IP networks with conventional telephone devices such as analog phones or fax machines.

The DVG-1120S includes two Foreign Exchange Subscriber (FXS) interfaces with normal RJ-11 telephone connectors that provide voice/fax communication over the IP network.

Two Ethernet ports are also provided. One Ethernet port is for a DSL/Cable Modem or other WAN device, and the other is for connection to create a home or small office LAN network.

The built-in DHCP server and Network Address Translation (NAT) function automatically assigns IP addresses for LAN users, allowing multiple users to share a single Internet connection. You can configure and monitor the DVG-1120S via the Console or the Web browser. Telnet and SNMP management is also supported.

By routing calls over the Internet or any IP network, the DVG-1120S can reduce or eliminate long distance or inter-office phone charges. Corporations can also enjoy the benefits of network consolidation and reduction of leased lines by relying on the Internet service providers to deliver toll-quality voice communications over the IP networks.

Connections - Back Panel of Unit

> ⚠️ **Warning!** *Using a different power adapter than the one included with your purchase will damage the DVG-1120S and void the warranty.*

Reset Switch Used to return the device to its original configuration. This is the same as performing a factory reset.

Diagnostic Port An RJ-14 port used to configure the device. (User needs a RJ-14 to RS-232 converter). Plug one end of a straight-through wired RJ-14 cable to the device and the other end to a serial port of a PC running a terminal emulation program (such as Microsoft HyperTerminal) or a VT-100 terminal.

AC Power Connector Use the included power adapter. If you use a power adapter other than the one included with the product you will damage the device and void the warranty on this product.

MAC label | 12V === 1A | PSTN ▲ ▼ VoIP | ○ RESET | CONSOLE | WAN | ETHERNET | 2 ☎ 1 | LINE
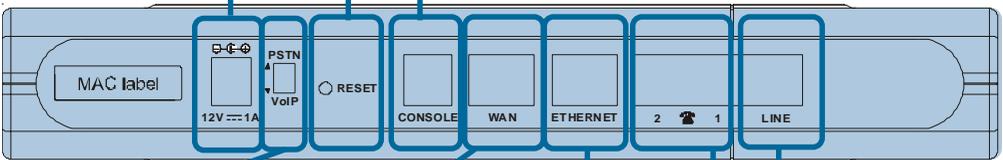
PSTN/VoIP Switch to select PSTN or VoIP mode When the switch is in the down position, Phone1/2 will be in VoIP Mode.

When the switch is in the up position, Phone1/2 will be configured to PSTN Mode.

Ethernet WAN A 10Mbps Ethernet port fitted with an RJ-45 connector used to connect the VoIP gateway to a WAN device (e.g. Cable/ADSL Modem). This port accepts Category 3, 4 or 5 UTP cabling with an RJ-45 connector.

Ethernet LAN A 10/100Mbps dual-speed Fast Ethernet port fitted with an RJ-45 connector used to connect the VoIP gateway to a LAN device (hub, switch, PC, etc.). This port accepts Category 5 or better UTP cabling with an RJ-45 connector.

Line RJ 11 phone jack for connecting to a standard telephone wall outlet through an approved (No. 26 AWG or larger) telecommunications line cord.

Phone 1 to 2 Normal RJ-11 phone jacks used to connect telephones and fax machines. Plug your normal telephone(s) and/or fax machine directly into any of these jacks.

Features & Benefits

- Two analog FXS interface ports accepting RJ-11 connectors to facilitate two VoIP connections

- One analog POTS interface for PSTN Life Line (standard phone line)

- One 10Mbps WAN port for connecting to a DSL/Cable Modem or other WAN devices

- One 10/100Mbps LAN port for connecting to a local network

- IP address assignment using DHCP (Dynamic Host Configuration Protocol) or static configuration

- IP Routing support (RIP1, RIP2 and Static Routing)

- Remote software download/update

- Supports IP sharing to allow multiple users to access the Internet via a single IP address

- Built-in PPPoE function to support dial-up connection for broadband technology

- Supports Caller ID

- Supports QoS to guarantee voice quality

- Automatic Call Redirection (ACR) function support

  - PSTN or VoIP line automatic selection (e.g. 110, 119)

  - PSTN/ VoIP routing table support

  - Call will automatically redirect to PSTN in case of getting the "4xx, 5xx and 6xx" error message from SIP server.

- Life Line support

  - Automatic fall back to PSTN mode in case of power failure

  - PSTN/VoIP line selection manually (VoIP/PSTN Call alternation via configurable prefix number)

  - Listening of incoming call from PSTN

LEDS - Front Panel of Unit

Power This LED is lit when the device is receiving power; otherwise, it is unlit.

Status/Alarm This LED will remain dark when the CPE is either performing a self-test/booting up or not registered to the SIP server. The LED will remain green when the system is already registered to the SIP server. It will flash slowly during registration, until all ports have been registered.

WAN This LED displays the link status and activity on the 10M Ethernet port that is used to connect to your WAN device (usually a Cable or ADSL Modem). When a good link to a powered-up but idle device is detected on a port, the WAN indicator shines steadily. When packets are received from the device, the indicator blinks off and on.
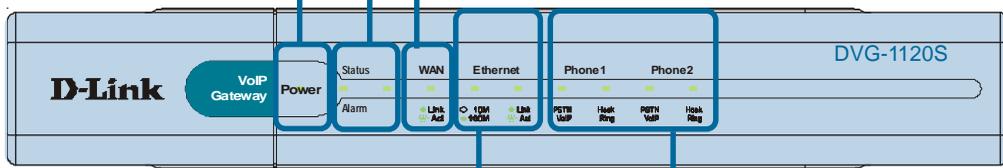
Ethernet This LED displays the connection speed, link status, and activity on the 10/100 dual-speed Ethernet port that is used to connect to your LAN.

10/100M - This indicator remains unlit when there is no connection, or the port is operating at 10Mbps through a connection to a 10BASE-T device. It is lit when the port is operating at 100Mbps through a connection to a dual-speed or 100BASE-TX Fast Ethernet device.

Link/Act - When a good link to a powered-up but idle device is detected on a port, this indicator shines steadily. When packets are received from the device, the indicator blinks off and on.

Phone 1 to 2 This LED displays the PSTN status and Hook/Ringing activity on the RJ-11 port that is used to connect to your normal telephone(s)/fax machine and PSTN line.

PSTN/VoIP - Lights when PSTN line is in use. It is dark during VoIP communication.

Hook/Ringing - When an off-hook action is detected on a phone port, this indicator shines steadily. When a ringing signal is received from the device, the indicator blinks off and on.
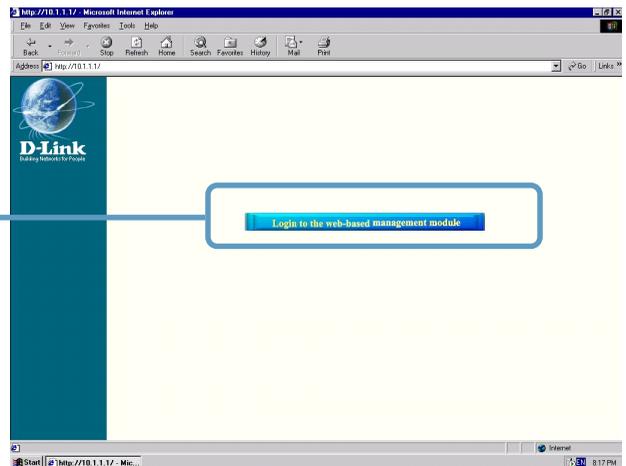
Web-based Management

In order to use a web browser to configure the VoIP gateway, you must make sure it has a valid Ethernet connection to a PC or LAN via its LAN port.

Access the configuration utility to check the LAN port by entering the IP Address into your web browser address field.

Type **192.168.15.1** (the IP Address) into the address field of your browser.
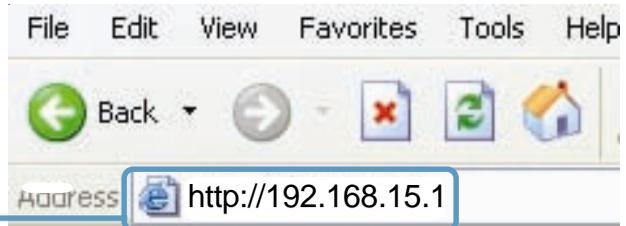
Click on **Login to the Web-based Management module.**

Initially, the VoIP gateway does not have a **Username** or **Password**. To log in, simply click on the **OK** button.

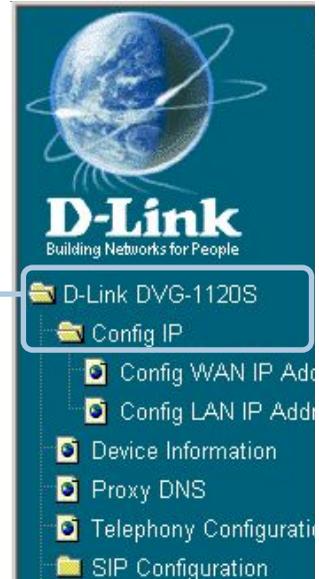After logging in, the **Device Info** screen on the following page will be displayed.

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Web-based Management (continued)

Setting Up the Connection

To configure the WAN port, please do the following:

Click on **Config WAN IP Address**.

Manually input the WAN IP Address here.

Then go to **Start**>**Control Panel**>**Network Connections**>**Right-click local area connection** >select **Properties**> double click **Internet Protocol (TCP/IP).** The screen at right will appear.

The VoIP gateway's WAN port comes with **DHCP** as the default IP setting. If the VoIP gateway cannot get the assigned DHCP IP, it will use the manual IP (default is 10.1.1.1) as it's default IP.

Make sure the PC is in the same IP domain as the VoIP gateway. You can do this by changing the IP Address of the PC as shown here.

Web-based Management (continued)

More WAN IP Configuration settings include:

Config IP - Config WAN IP Address

Get IP From -
Choose the method that the VoIP gateway will use to obtain its IP settings once it is restarted. Choices include:

> **Manual -** When *Manual* is chosen, the VoIP gateway will obtain its IP settings from the fields located just below.

> **BOOTP -** When *BOOTP* is chosen, the VoIP will attempt to obtain its IP settings from a BOOTP server located on your WAN.

> **DHCP -** When *DHCP* is chosen, the VoIP will attempt to obtain its IP settings from a DCHP server located on your WAN.

> **PPPoE -** When *PPPoE* is chosen, the VoIP will attempt to obtain its IP settings through PPPoE on your WAN.

IP Address - Enter a WAN port IP Address for the VoIP gateway.

Subnet Mask - Enter a WAN port subnet mask for the VoIP gateway.

Default Gateway - Enter the IP Address of the WAN devices you are using to make the WAN connection.

Host Name - This is a user-defined host name for this VoIP Gateway.

DNS1 Server IP - Enter the IP Address of the first DNS Server.

DNS2 Server IP - Enter the IP Address of the second DNS Server.

User Name - Enter the User Name for the PPPoE function.

Authentication Password - Enter the Password for the PPPoE function.

Confirm Password - Enter the Password again for confirmation.

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Web-based Management (continued)
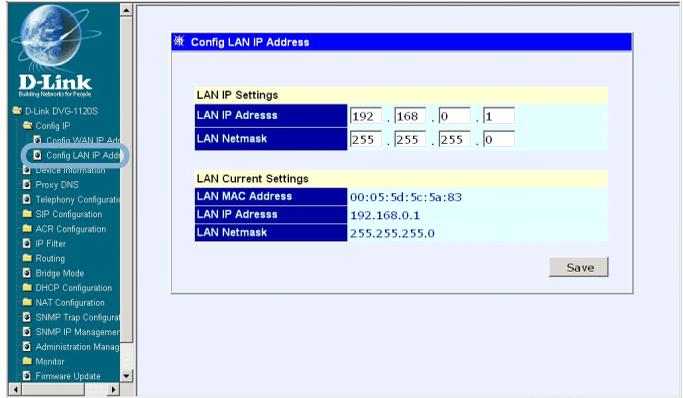
Config IP – Config LAN IP Address

LAN IP Address - Enter a LAN IP Address for the VoIP gateway.

LAN Netmask - Enter a LAN netmask for the VoIP gateway.

Click **Save** to save the settings.

Device Type - The model name of this device.

MAC Address - The MAC address of this device.

Boot PROM Version - The version number of the device's startup code.

Device Information

Firmware Version - The version number of the device's runtime code.

DSP Version - The Digital Signal Processor version, if any.

Serial Number - A user-determined identification number.

System Name - A user-defined name for this device.

Country Code - A user-defined country code for this device. < 0:USA (Default), 1:Japan, 2:Hong Kong, 3:Sweden, 4:China>

Web Port Number- A user-defined web port number. (From 1024 to 29999, and 80)

Click **Save** to save the settings.

Web-based Management (continued)

Proxy DNS
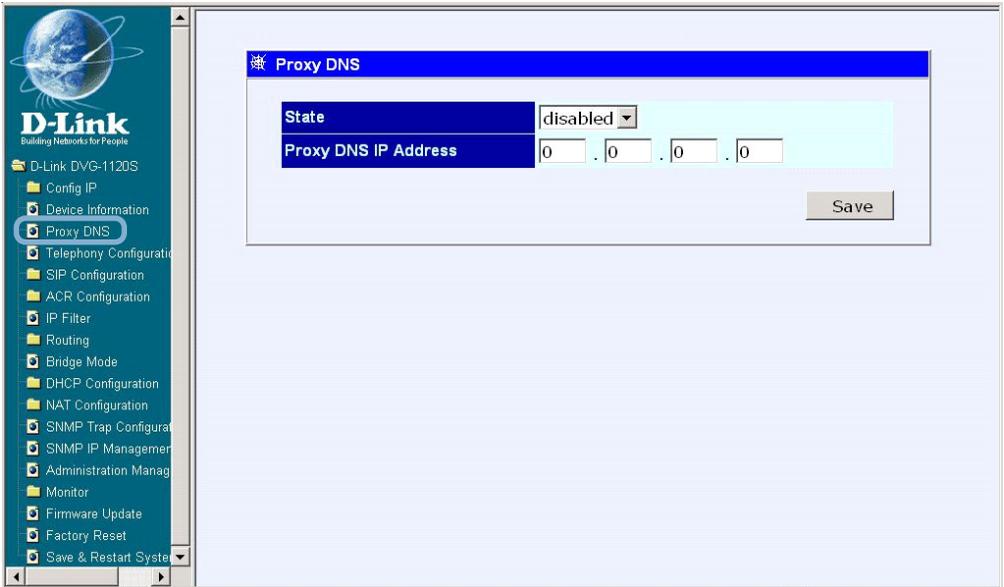
State - Enables or disables the Proxy DNS function.

Proxy DNS IP Address - Enter the Proxy DNS IP Address.

Click **Save** to save the settings.

Web-based Management (continued)

Telephony Configuration

Signaling ToS - Set the *Type of Service* value for VoIP signaling

RTP ToS - Set the *Type of Service* value for RTP packets

Receive Gain - Set the Receive gain of the device. (-14 to +14 dB)
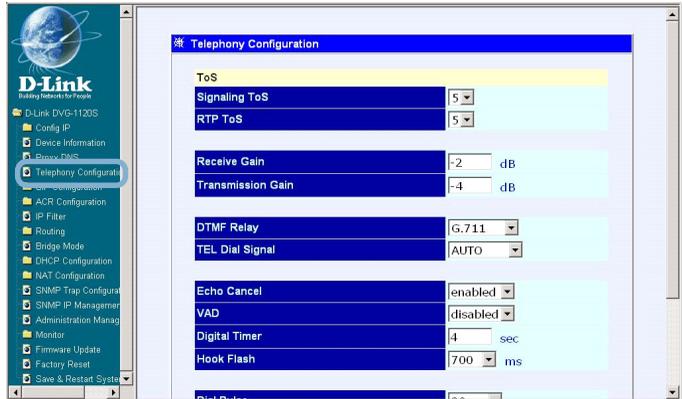
Transmission Gain - Set the Transmit gain of the device. (-14 to +14 dB)

DTMF Relay - Select either G.711 or RFC2833. DTMF is short for *Dual Tone Multi Frequency,* used in touch-tone phones.

TEL Dial Signal - Set the dial signal of telephone.

Echo Cancel - Enable or disable the Echo Canceller function.

VAD - This is used to enable or disable the VAD (Voice Activity Detector) function.

Digital Timer - A user-defined digital interval timer to determine the end of user dialing.

Hook Flash - Set the hook flash timer. (Default: 700 ms)

Dial Pulse - Set the dial pulse value of the analog phone. (Default: 20pps)

Call Waiting Alert Tone - Enable or disable the call waiting alert tone.

Area Code - Automatically insert the area code when a user dials a local number via the VoIP.

Click **Save** to save the settings.

Web-based Management (continued)

SIP Configuration - Server

Server FQDN - *Fully Qualified Domain Name.* Enable or disable the FQDN function of the SIP server.

IP Address - Enter the IP Address of the SIP server.

Domain Name - Enter the domain name if you have enabled the *Server FQDN* function.

Port - Enter the port number of the SIP server. (Default is 5060).

Service Domain - A user-defined service domain for the SIP server.

URL Format - A user-defined URL format for the SIP server.

User Parameter - Enable or disable the "user=phone" parameter in SIP-URL.

Timer T2 - The user-defined T2 timer of SIP protocol. (Range: 4, 8, 16, 32 sec).

Initial Unregister - Enable or disable this function.

Register Expiration - Enter the expiration time.

Session Expires - Enter the session expiration.

Min-SE - Enter the Min-SE time.

Session Expires Refresher - Choose uac or uas.

Click on the **Save** button at the bottom right of the screen to save the settings.

SIP (Session Initiated Protocol) is the type of call management for VoIP that is used by the DVG-1120S.

Web-based Management (continued)

SIP Configuration - User Agent

Same Phone Number- Enable or disable.

Index - Choose Phone 1 or Phone 2.

Phone Number - A user-defined phone number for each phone port.

Display Name - A user-defined display name for each phone port.

Caller ID Delivery - Enable or disable this function.

Display CID - Enable or disable the Caller ID display function.

User Agent Port - A user-defined unique port number for each phone port.

Authentication Username - Enter the Username for SIP server authentication.

Authentication Password - Enter the Password for SIP server authentication.

Confirm Password - Enter the Password again for confirmation.

Click on the **Save** button at the bottom right of the screen to save the settings.

Web-based Management (continued)

SIP Configuration - Peer to Peer

This window displays the Peer to Peer setting for non-SIP server mode. It lists the ten numbers, which support Peer to Peer communication.
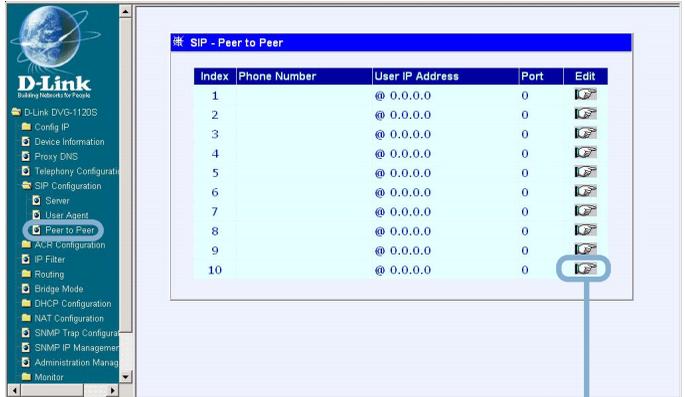
Click the **Edit** icon to access the second **SIP Configuration-Peer to Peer** window, shown below:

2nd SIP Configuration screen - Peer to Peer

Index - Choose the index number that you would like to edit (From 1 to 10).

Phone Number - This is a user-defined phone number for the destination endpoint.

User IP Address - Enter the phone number and IP

Address of the destination endpoint. (Format: <Destination Phone number>@<Destination IP Address X.X.X.X>

Port - Enter the port number of the destination endpoint.

Click **Save** to save the settings.
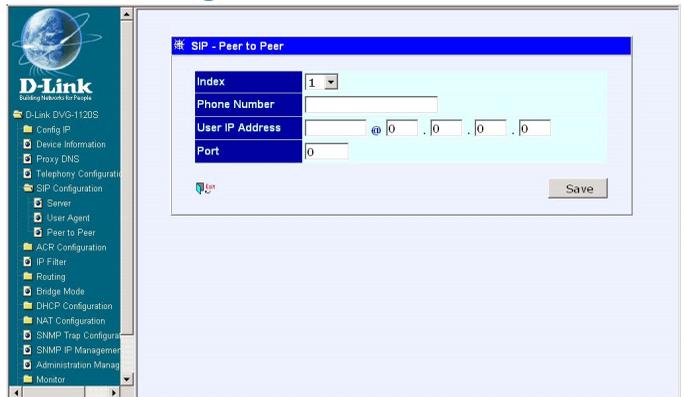
Web-based Management (continued)

ACR Configuration - Generic Configuration

This is a user-defined ACR (Automatic Call Redirection) table. The user can choose and setup the default line through VoIP or PSTN. If the default is VoIP, the ACR table will be used to redirect to PSTN. And if the default is PSTN, the ACR table will be used to redirect to VoIP.
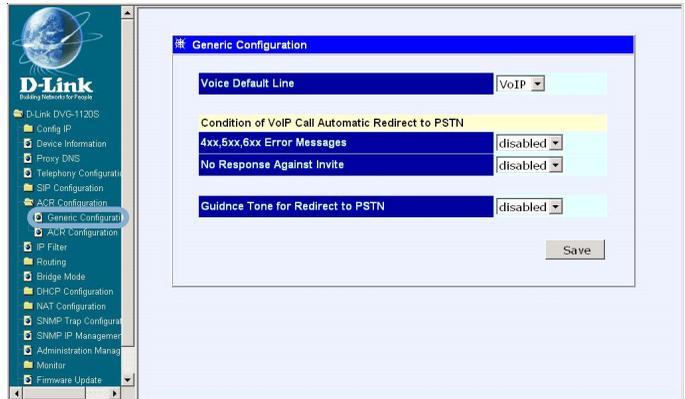
The items on this window are described below:

Voice Default Line - Choose and setup the default line through VoIP or PSTN.

Conditions under which a VoIP Call would automatically be redirected to PSTN:

4xx, 5xx, 6xx Error Message - Enable or disable the automatic redirection of a VoIP call to PSTN whenever the "4xx, 5xx, 6xx" error message is received from the SIP server.

No Response Against Invite - Enable or disable the redirection of the call to PSTN when no response is received from the SIP server.

Guidance Tone for Redirect to PSTN - Enable or disable the guidance tone during a redirection to PSTN.

Click **Save** to save the settings.

Web-based Management (continued)

ACR Configuration - ACR Configuration

The first ACR Configuration window lists thirty numbers, each supports a maximum of 31 digits in one number. When the first dialed digits match the table, the system will store all the digits and forward them to the non-default line.
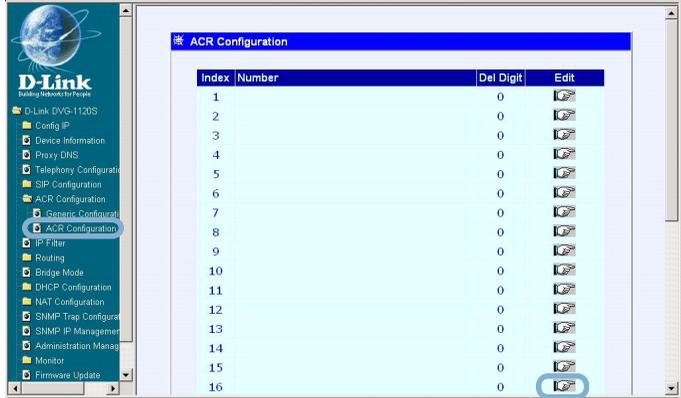
Click the **Edit** icon on the window above to access the second **ACR Configuration** window, shown below:

2nd window - ACR Configuration

Index-
Choose the index number that you would like to edit (From 1 to 30).

Number-
This is a user-defined telephone number that you would like to call using VoIP or PSTN. There are three kind of number formats that can be used:

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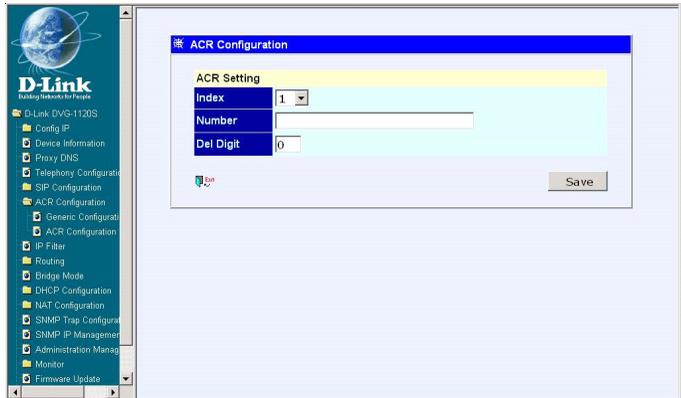
Web-based Management (continued)

2nd window - ACR Configuration (continued)

1. **A full telephone number**, e.g., 555-5555: The system will transmit the number to the non-default line, when the user's first dialed digits match the number.

2. **Any combination of a telephone number and "x" character. "x" means any one digit**, e.g. 55xx: The System will transmit all of the numbers with the same first two digits to the non-default line. (Ex: 5511, 5594,…etc.)

3. **Any combination of a telephone number and "T" character. "T" must be capital and it means a random number,** e.g., 55T. The system will transmit all of the numbers that begin with 55 to the non-default line (Ex: 553-5551, 557-5555…etc.)

Del Digit - Enter the number of digits that will be deleted from the front of the number when the system transmits the number above. (Ex: The number is 505-555-5555, Del Digit is 3. System will only transmit 555-5555.)

Click on the **Save** button at the bottom right of the window to save the settings.

Another way to access the non-default line is to input a prefix when dialing. Whenever you use a prefix (Ex: "#", "," or "0000," ...etc.), the system will automatically revert to the non-default line.*

Web-based Management (continued)

IP Filter

The first IP Filter
window lists the eight
filtering sets, to edit
the filter, click on the
edit icon.
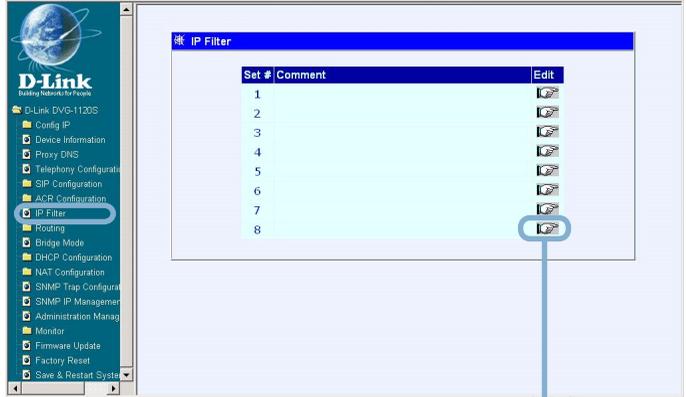
Click the **Edit** icon on the window above to access the second **IP Filter**
window, shown below:

2nd IP Filter window

After you have clicked
on an edit icon, this
window will appear.
Type in an appropriate
identifying comment for
the IP Filter set.

For more editing
options, click the icon
once again and the
3rd IP Filter window
will appear. When you
are finished defining
the rules for each set, select enabled or disabled to enable or disable the
listed filtering sets.
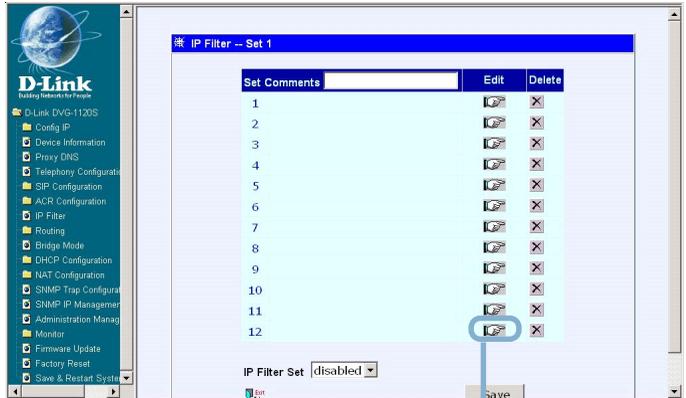
Click the **Edit** icon on the window above to access the third **IP Filter**
window, shown on the next page.

Web-based Management (continued)

3rd IP Filter window

Comment - Type in an appropriate identifying comment for the rule.

Pass or Block- *Pass* or *Block* the action defined in this filter rule.

Direction - Select *In* or *Out* to pass or block packets coming in or going out of the network.

Protocol - Select *ICMP*, *TCP, UDP* or *All* to pass or block packets of that protocol type.

IP Address Filter Rule

Source - Type in the source IP Address and select the Subnet Mask to pass or block packets form that IP Address.

Destination - Type in the destination IP Address and select the Subnet Mask to pass or block packets destined to that IP Address.

Port Filter Rule - UDP and TCP packets only. Select a range of ports to pass or block.

Use the following guide to define the port or port range (Start Port and End Port):

< : Specifies the port numbers less than and equal to the Start Port number.

> : Specifies the port numbers greater than and equal to the Start Port number.

= : Sets the port number equal to the Start Port if there is no End Port specified; if an End Port number is specified, this defines a range of ports to filter. The range is defined as the port numbers between the Start Port and End Port, including the Start and End Port numbers.

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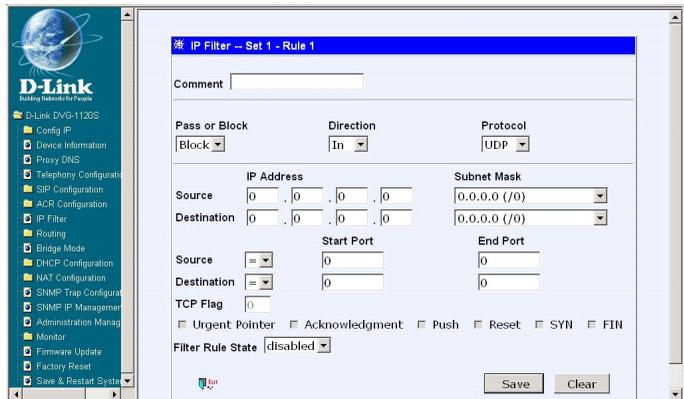
Web-based Management (continued)

3rd IP Filter window (continued)

TCP Flag - This is a decimal number, representing the six flag bits in the TCP header.

Filter Rule State - Enable or disable the filter rule as defined in the menu

Click on the **Save** button at the bottom right of the window to save the settings.

Click on the **Clear** button at the bottom right of the window to clear the settings.

Select to use *RIPv1, RIPv2 or On* (both versions) for the LAN and WAN interface. To disable both versions of RIP select *Off*.

Click on the **Save** button at the bottom right of the window to save the settings.

Use Static Routing to specify a route used for data traffic within your WAN or LAN. This can be used to specify that all packets destined for a particular subnet use a predetermined gateway.

Click the **Edit** icon in this window to access the second **Static Route Configuration** window, shown on the next page:

Routing - RIP

Routing - Static Route Configuration

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Web-based Management (continued)

Static Route Configuration-2nd window

The items on this window are described below:

IP Address - Type in the IP Address of the subnet or device where packets are routed.

Subnet Mask - Type in an appropriate subnet mask that allows the static route to function.

Gateway - Type in the IP Address of the gateway used for traffic destined for the specified subnet or device.

Interface - Select WAN or LAN Interface.

Metric - Type in the maximum number of hops allowed for the static route.

State - Enable of disable the route.

Click on the **Save** button at the bottom right of the window to save the settings.

Click on the **Clear** button at the bottom right of the window to clear the settings.
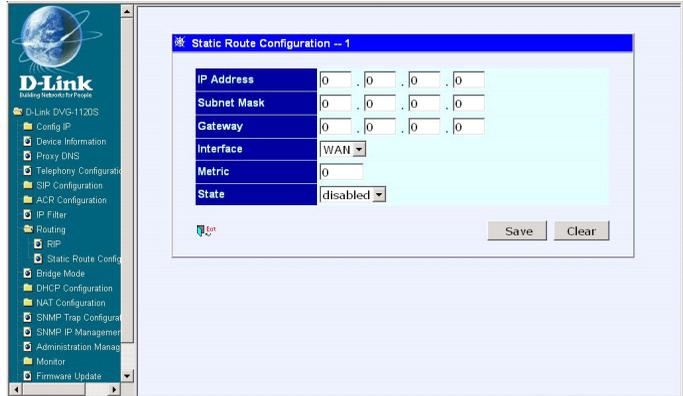
Bridge Mode

To enable Bridge Mode, select ON; to disable Bridge Mode, select OFF.

Click on the **Save** button at the bottom right of the window to save the settings.
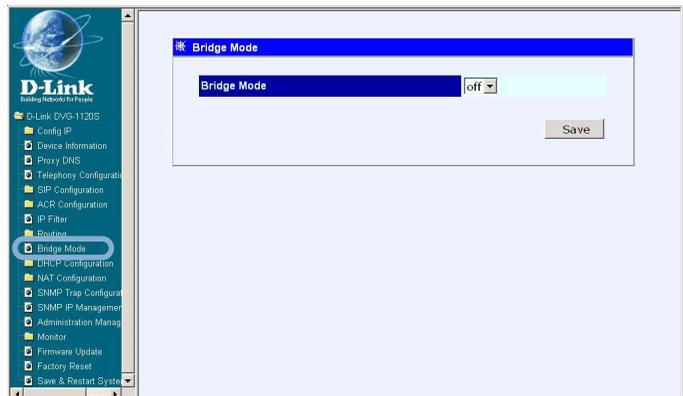
Web-based Management (continued)

DHCP Configuration - Dynamic IP Assignment

Start IP Address -
Enter the starting IP
Address for the pool
of unassigned IP
Addresses.

IP Range - This is
the range of
contiguous, IP
Addresses that are
available for
assignment.

Netmask - Enter the
appropriate Netmask for the environment.

Default Gateway - Enter the IP Address of the Default Gateway

Leased Time - This specifies the amount of time (in hours) a client can
lease an IP Address, from the dynamically allocated IP pool.

DNS1/2 Server IP - This specifies the Domain Name System server, used
by the DHCP clients to translate host names into IP Addresses or vice-
versa.

WIN Server IP - Some LANs may require using WINS servers, enter the IP
Address of the WINS server or leave blank.

Domain Name - Enter a domain name for the network group or leave blank.

State - This toggles Disable and Enable for the DHCP function.

Click on the **Save** button at the bottom right of the window to save the
settings.

Web-based Management (continued)

DHCP Configuration - Static IP Assignment

The Static IP Assignment functions in much the same way as the Dynamic IP Assignment. The only difference is that a particular IP Address can be assigned to a particular host. The host is identified by the MAC Address of its NIC which must be entered on the next screen.
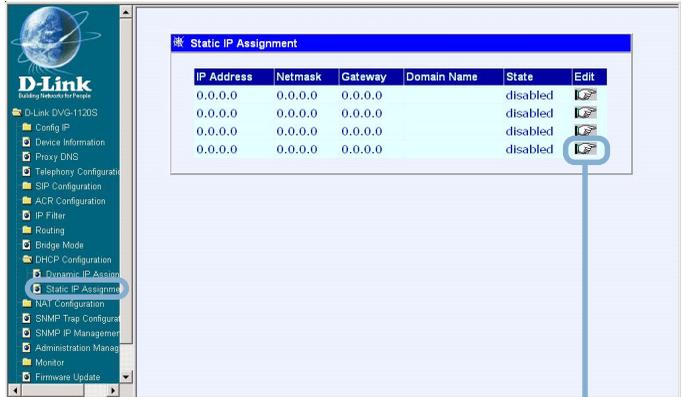
Click the **Edit** icon on the window above to access the second **Static IP Assignment** window:

Static IP Assignment- 2nd window

The items in this window are described below:

Index - Choose the index number that you would like to edit (From 1 to 4).

MAC Address - This specifies the physical address of the particular host that will receive the IP Address.

IP Address - This is the static IP Address to be assigned.

All other parameters (Netmask, Gateway, DNS Server IP, WINS Server IP, Domain Name and State) are identical to those in the Dynamic IP Assignment, in the previous section.
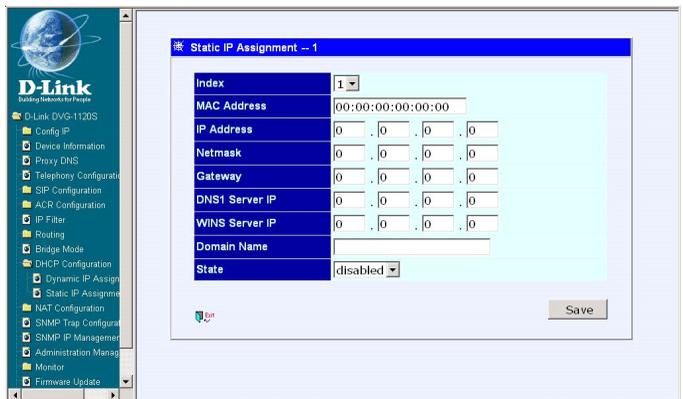
Click **Save** to save the settings.

Web-based Management (continued)

NAT Configuration - NAT Configuration

Select **enabled** or **disabled** at the **NAT function** pull-down menu.

Click on **Save** to save the settings.

NAT Configuration - Local Server Configuration
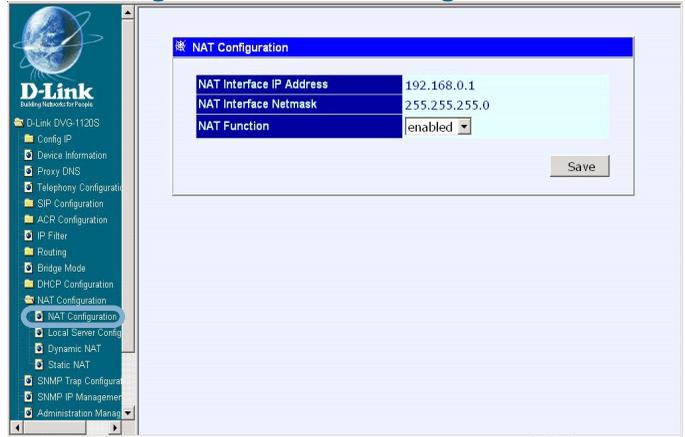
This window allows you to view the current local server configuration settings.
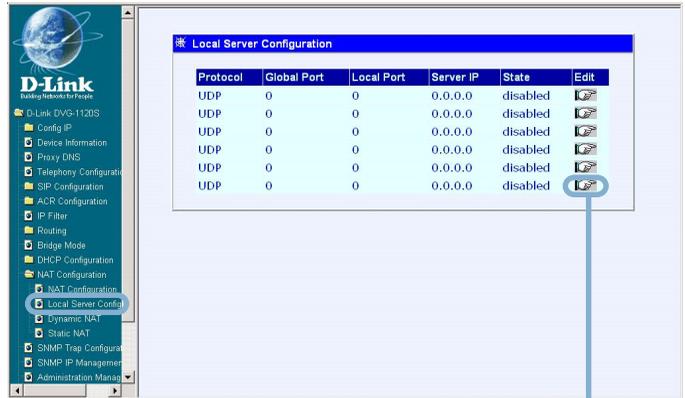
Click the **Edit** icon on the window above to access the second **Local Server Configuration** window, shown on the next page:

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Web-based Management (continued)

Local Server Configuration - 2nd window

Index- Choose the index number that you would like to edit (From 1 to 6).

Protocol- Choose either TCP or UDP protocol .

Global Port - Enter the designated TCP or UDP protocol port number for the particular protocol packet you wish to redirect.

Local Port- Enter the port number used by the designated host on the LAN or use a well-known port.

Server IP- Enter the IP Address of the local designated host computer or device.

State- Disable or Enable the Local Server Configuration function.

Click **Save** to save the settings.

Web-based Management (continued)

NAT Configuration - Dynamic NAT

This window allows
you to view the
current Dynamic
NAT settings when
Dynamic NAT is
chosen. Each entry,
in this configuration,
can be used to map
multiple, contiguous
global addresses
and local addresses
to each other.
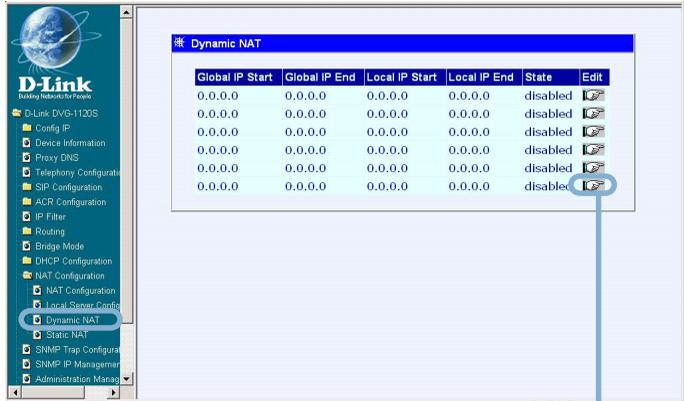
Click the **Edit** icon on the window above to access the second
Dynamic NAT window:

Dynamic NAT- 2nd window

Index- Choose the
index number that you
would like to edit (From
1 to 6).

Global IP Start- Enter
the starting global IP
Address.

Global IP End- Enter
the ending global IP
Address.

Local IP Start- Enter
the starting local IP
Address.

Local IP End- Enter the ending local IP Address.

State- Select Disable or Enable Dynamic NAT function.

Click **Save** to save the settings.
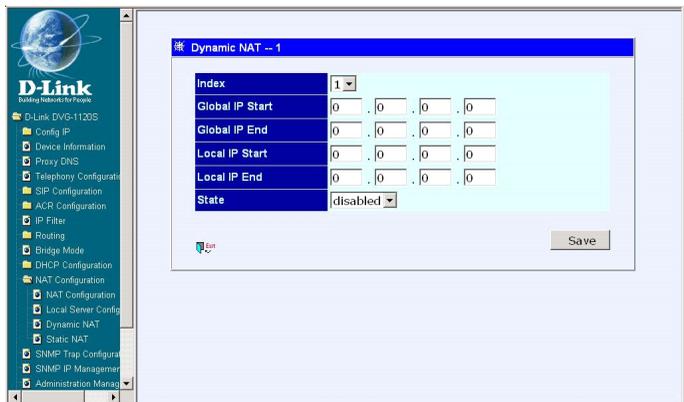
Web-based Management (continued)

NAT Configuration - Static NAT

This window allows you to view the current Static NAT settings when Static NAT is chosen.
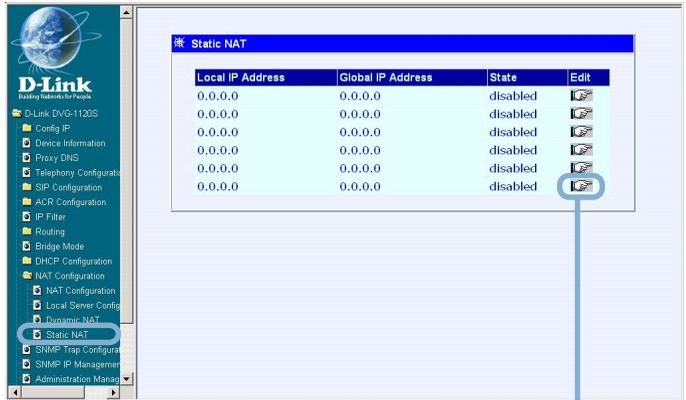
> Click the **Edit** icon on the window above to access the second **Static NAT** window, shown below:

Static NAT - 2nd window

Index- Choose the index number that you would like to edit (From 1 to 6).

Local IP Address- This is a single, local IP Address that is not valid on the Internet.

Global IP Address- This is a single, global IP Address that is valid on the Internet, or on the same subnet of the global interface.

State- Select Disable or Enable Static NAT function.

Click **Save** to save the settings.

Web-based Management (continued)

SNMP Trap Configuration

Trap Manager IP Address - The IP Address of the trap receiving station.

Community Name - A user-defined SNMP community name.

SNMP AuthTrap - Enable or disable the SNMP trap.

Click **Save** to save the settings.

SNMP IP Management Address

This window supports two SNMP manager IP Addresses for accessing this device, and only these managers can manage this device.

IP Address 1- Enter the first SNMP manager IP Address.

IP Address 2- Enter the Second SNMP manager IP Address.

Click **Save** to save the settings.

Web-based Management (continued)

Administration Management

To add or change a User Account, fill in the appropriate information in the User Name, Old Password (if applicable), New Password, and Confirm New Password fields.

Click **Save** to save the settings.

Monitor - Ethernet Statistics

Rx Packets- The total number of packets received by the device.

Rx Bytes- The total number of bytes contained in packets received by the device.

Rx Non Ucast Packets- The number of non-unicast packets received by the device.

Rx Discard Packets- The number of packets dropped by the device.

Rx Frame Too Long- The number of packets that are larger than the 1514 Ethernet packet limit.

Rx Non-Aligned Errors- The number of packets that are not aligned properly.

Rx Collision Errors- The number of collision errors.

Rx Short Frames- The number of packets smaller than the 64-octet minimum.

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Web-based Management (continued)

Monitor - Ethernet Statistics (continued)

Rx CRC Errors - The number of packets received that failed the CRC checksum test.

Rx Overrun Packets - The number of packets received that exceed the 1518 octet maximum length imposed on Ethernet packets. (Overrun packets are generated by some proprietary software applications.)

Tx Packets - The total number of valid packets transmitted by the device since the last reset.

Tx Bytes - The total number of bytes transmitted by the device.

Tx Non Ucast Packets - The number of non-unicast packets sent.

Tx Discard Packets - The number of packets dropped by the device.

Tx Heartbeat Errors - The number of heartbeat errors. (This relates to an internal timing function.)

Tx Late Collision - The number of late collisions.

Tx Retransmission Limit - The number of times the device had to retransmit packets.

Tx Underrun Packets - This counter shows the number of runt packets transmitted by the device that are less than the allowed 64-octet minimum length. (Underrun packets occur due to jam signals generated by collisions, backpressure, etc.)

Tx Carrier Sense Lost - The number of times packets were lost due to carrier sense lost.

Web-based Management (continued)

Monitor - DSP Statistics

This window displays a variety of DSP statistics.

Firmware Update

Software Update Mode - Image files down through TFTP.

TFTP Server Address - The IP Address of the TFTP server where the runtime or configuration file is located. This entry is used only if the Firmware Update is set to *Enable.*

Firmware Update - Determines whether or not the device will try to look for a runtime image file on the TFTP server.

File Name - The complete path and filename of the runtime image file on your TFTP server to be uploaded to the device.

Last Update Status - This is a read-only field that displays the Update Status.

Click **Save** to save the settings.

Web-based Management (continued)

Factory Reset

Before performing a Factory Reset, be absolutely certain that this is what you want to do. Once the reset is done, all of the device's settings stored in NV-RAM will be erased and restored to values present when the device was purchased.
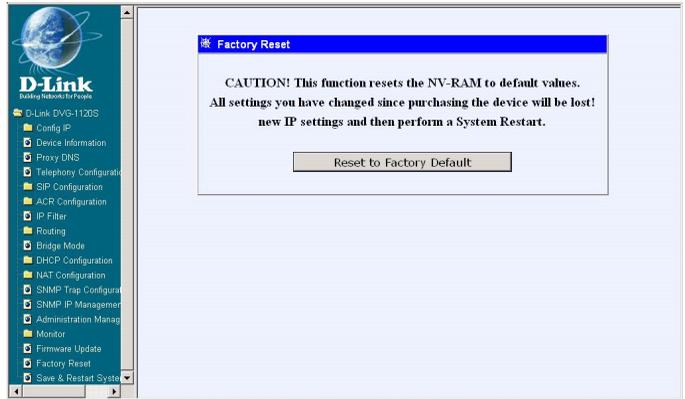
> *Note:* After performing the Factory Reset, make sure to redefine the IP settings for the device. Then perform a Save & Restart System on the device. After these procedures are performed, your Factory Reset is complete.

Click on **Reset to Factory Default** in this window to reset the NV-RAM to the default values that were present when you purchased the device.

Save & Restart System

After the settings have been saved to NV-RAM, they will become the default settings for the device, and they will be used every time it is powered on, reset or rebooted. The only exception to this is a factory reset, which will clear all settings and restore them to their initial values, which were present when the device was purchased.
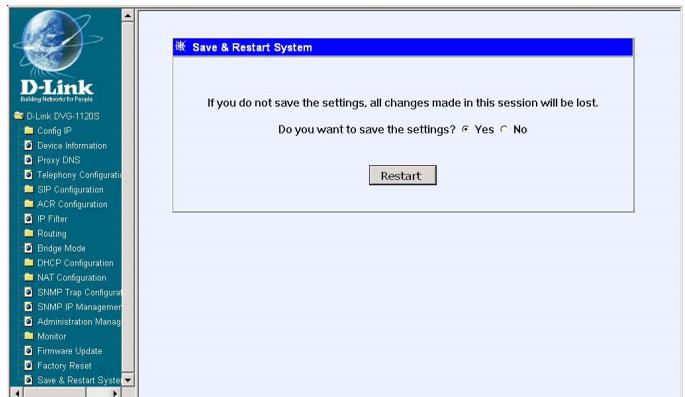
Click **Restart** to save and reboot the system.

Configuration Using a Console

Setting up a Console

First-time configuration can be carried out through a "console," that is, either (a) a VT100-type serial data terminal, or (b) a computer running communications software set to emulate a VT100. The console must be connected to the Diagnostics port. This is an RS-232 port with a 9-socket D-shell connector and DCE-type wiring. Make the connection as follows:

1. Obtain suitable cabling for the connection.

   You can use either (a) a "null-modem" RS-232 cable or (b) an ordinary RS-232 cable and a null-modem adapter. One end of the cable (or cable/adapter combination) must have a 9-pin D-shell connector suitable for the Diagnostics port; the other end must have a connector suitable for the console's serial communications port.

2. Power down the devices, attach the cable (or cable/adapter combination) to the correct ports, and restore power.

3. Set the console to use the following communication parameters for your terminal:

   - 9600 baud
   - VT-100/ANSI compatible
   - No parity checking (sometimes referred to as "no parity")
   - 8 data bits (sometimes called a "word length" of 8 bits)
   - 1 stop bit (sometimes referred to as a 1-bit stop interval)
   - No Flow control
   - Arrow keys enabled

Configuring the VoIP Gateway Using Telnet

Once you have set an IP address for your device, you can use a Telnet program (in a VT-100 compatible terminal mode) to access and configure it. Most of the screens are identical, whether accessed from the console port or from a Telnet interface.

First Time Connecting to the VoIP Gateway

First make the console connection to the device and then power it on. If your terminal (or terminal emulation program) is properly configured according to the specifications defined above, you will see the POST test and the boot up process. After the process is completed, you will see the window shown below.

```
000000307 SIP: (1) Server Address= 0.0.0.0
000000307 SIP: (1) Server Port= 5060
000000307 SIP: (1) Phone Number =
000000307 SIP: (1) User Agent Address = 10.1.1.1
000000307 SIP: (1) User Agent Port = 5061
000000307 SIP: (1) Display Name =
After Sip_create
After ProxyDns_create
After gg_app_create
After unlock
After reboot system trap
Start watchdog timer
000000308 SIP network task started.
000000309 SIP main task started.
000000318 SIP User Agent task started.
000000338 NMM: 0, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 0, Channel Config Done (SUCCESS)
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 1, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Channel Config Done (SUCCESS)
000000338 NMM: 1, Set Channel State Done (SUCCESS)
Username: _
```

Initial Screen, First Time Connecting to the device

Initially, the VoIP gateway has a default Username and Password: admin. To log in, enter "admin" for the usernamd and passowrd and click <Enter>. The following window will be displayed

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Configuration Using a Console
First Time Connecting to the VoIP Gateway

```
000000307 SIP: (1) User Agent Address = 10.1.1.1
000000307 SIP: (1) User Agent Port = 5061
000000307 SIP: (1) Display Name =
After Sip_create
After ProxyDns_create
After gg_app_create
After unlock
After reboot system trap
Start watchdog timer
000000308 SIP network task started.
000000309 SIP main task started.
000000318 SIP User Agent task started.
000000338 NMM: 0, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 0, Channel Config Done (SUCCESS)
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 1, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Channel Config Done (SUCCESS)
000000338 NMM: 1, Set Channel State Done (SUCCESS)
Username: admin
Password:

192.168.0.1>_
```

Configuration Commands

You can type "**nwdbg**" to see all of the configuration commands. (Shown Below)

```
000000307 SIP: (1) User Agent Address = 10.1.1.1
000000307 SIP: (1) User Agent Port = 5061
000000307 SIP: (1) Display Name =
After Sip_create
After ProxyDns_create
After gg_app_create
After unlock
After reboot system trap
Start watchdog timer
000000308 SIP network task started.
000000309 SIP main task started.
000000318 SIP User Agent task started.
000000338 NMM: 0, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 0, Channel Config Done (SUCCESS)
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 1, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Channel Config Done (SUCCESS)
000000338 NMM: 1, Set Channel State Done (SUCCESS)
Username: admin
Password:

192.168.0.1>nwdbg_
```

Configuration Using a Console
Configuration Commands

```
nwdbg ether_status            - display the current linking status of LAN and WAN
 ports.
nwdbg host <STRING OF HOST NAME> - set the host name
nwdbg web port <PORT NUMBER> - set the web port number from 1024 to 29999 and 80

***** reboot the device to make the above setting activate *****
-------------------------------------------------------------------------------

nwdbg ca <NOTIFY ENTITY>          - set the notify entity, the format can be :
                                  -       [domainName|ip]:port
                                  -       [domainName|ip]
nwdbg rgw <STRING OF RGW NAME> - set the gateway raw name
nwdbg dns [DNS IP]                - set the dns ip
nwdbg dns [disable|enable]       - set the dns state
***** use save-changes command to activate the above setting
-------------------------------------------------------------------------------

nwdbg bridge [on|off]      - on/off software bridge
nwdbg bridge 0 [10 to 60] - 10M rx watermark
nwdbg bridge 1 [26 to 60] - N-way rx watermark
-------------------------------------------------------------------------------

nwdbg [config|mac|ip|...] - show [all|mac|...] configuration
192.168.0.1>_
```

This **192.168.0.1>** command line allows you to enter the related commands for the inital configuration of this device.

Configure IP

Type "**nwdbg ipgw**" to show the IP setting of th edevice (default is PPoE).

```
nwdbg ca <NOTIFY ENTITY>          - set the notify entity, the format can be :
                                  -       [domainName|ip]:port
                                  -       [domainName|ip]
nwdbg rgw <STRING OF RGW NAME> - set the gateway raw name
nwdbg dns [DNS IP]                - set the dns ip
nwdbg dns [disable|enable]       - set the dns state
***** use save-changes command to activate the above setting
-------------------------------------------------------------------------------

nwdbg bridge [on|off]      - on/off software bridge
nwdbg bridge 0 [10 to 60] - 10M rx watermark
nwdbg bridge 1 [26 to 60] - N-way rx watermark
-------------------------------------------------------------------------------

nwdbg [config|mac|ip|...] - show [all|mac|...] configuration
192.168.0.1>nwdbg ipgw
Default gateway:  10.1.1.254
WAN IF:  IP 10.1.1.1,  Mask 255.0.0.0
         pppoe: 0 (1:PADI, 2:PADO, 3:PADR, 4:SESSION, 5:TERMINATED)
         ipncp: 0 (0:DOWN, 1:UP)
LAN IF:  IP 192.168.0.1,  Mask 255.255.255.0
OK
192.168.0.1>_
```

Configuration Using a Console
Configure IP

The following commands are use for device's IP setting:

- ■ **nwdbg ip <dhcp|bootp|manual|pppoe>** - set to DHCP, BOOTP, Manual (static IP) or PPPoE mode.

If Manual mode:

- ■ **nwdbg ip <IP ADDRESS>** - set device ip to d.d.d.d
- ■ **nwdbg mask <SUBNET MASK>** - set device subnet mask to d.d.d.d
- ■ **nwdbg gw <GATEWAY IP>** - set device default gateway to d.d.d.d
- ■ **nwdbg lan_ip <x.x.x.x>** - set LAN IP Address.
- ■ **nwdbg lan_mask <x.x.x.x>** - set LAN IP MASK.

Type "**nwdbg ip manual**" to setup your device's WAN IP to manual mode. After you have finished, type "**nwdbg save changes**" to save your settings and re-start the device. The following window will appear.

```
nwdbg [config|mac|ip|...] - show [all|mac|...] configuration
192.168.0.1>nwdbg ipgw
Default gateway:  10.1.1.254
WAN IF:   IP 10.1.1.1,   Mask 255.0.0.0
          pppoe: 0 (1:PADI, 2:PADO, 3:PADR, 4:SESSION, 5:TERMINATED)
          ipncp: 0 (0:DOWN, 1:UP)
LAN IF:   IP 192.168.0.1,   Mask 255.255.255.0
OK
192.168.0.1>nwdbg ip manual
OK
192.168.0.1>nwdbg save changes


    Wait and don't power off !!!
No PPPoE session established yet, do nothing...


   Initializing Device OS
   ----------------------------------------------------------------


 -> DOWNLOAD RUN TIME IMAGE FROM FLASH:
    .. Decompress Run Time Image : 100%(STOP system boot/load )_
```

Now your device's WAN IP is in the manual mode with a default IP addres of 10.1.1.1.

Using the Console Port

The DVG-1120S VoIP gateway features a Console Port for debugging, which is described in this section.

To access the console mode, you must first make sure the console is connected to the Diagnostics port and the appropriate cabling for the connection is being used. (You need a RJ-14 to RS-232 converter, RJ-14 and RS-232 cable.) Please see the previous section for additional information. Next, power the device on by simply plugging it in. You will see the boot up process. After the process is complete, you will see the window shown below:

```
000000307 SIP: (1) Server Address= 0.0.0.0
000000307 SIP: (1) Server Port= 5060
000000307 SIP: (1) Phone Number =
000000307 SIP: (1) User Agent Address = 10.1.1.1
000000307 SIP: (1) User Agent Port = 5061
000000307 SIP: (1) Display Name =
After Sip_create
After ProxyDns_create
After gg_app_create
After unlock
After reboot system trap
Start watchdog timer
000000308 SIP network task started.
000000309 SIP main task started.
000000318 SIP User Agent task started.
000000338 NMM: 0, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 0, Channel Config Done (SUCCESS)
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 1, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Channel Config Done (SUCCESS)
000000338 NMM: 1, Set Channel State Done (SUCCESS)
Username: _
```

Initially, the VoIP gateway has a default Username and Password: admin. To log in, enter "admin" for the username and password, and then click on the OK button. The following window will be displayed:

Using the Console Port

```
000000307 SIP: (1) User Agent Address = 10.1.1.1
000000307 SIP: (1) User Agent Port = 5061
000000307 SIP: (1) Display Name =
After Sip_create
After ProxyDns_create
After gg_app_create
After unlock
After reboot system trap
Start watchdog timer
000000308 SIP network task started.
000000309 SIP main task started.
000000318 SIP User Agent task started.
000000338 NMM: 0, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 0, Channel Config Done (SUCCESS)
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 1, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Channel Config Done (SUCCESS)
000000338 NMM: 1, Set Channel State Done (SUCCESS)
Username: admin
Password:

192.168.0.1>_
```

Configuration Commands

You can type "**nwdbg**" and press <Enter> to see all of the configuration com-
mands. (Shown below)

```
000000307 SIP: (1) User Agent Address = 10.1.1.1
000000307 SIP: (1) User Agent Port = 5061
000000307 SIP: (1) Display Name =
After Sip_create
After ProxyDns_create
After gg_app_create
After unlock
After reboot system trap
Start watchdog timer
000000308 SIP network task started.
000000309 SIP main task started.
000000318 SIP User Agent task started.
000000338 NMM: 0, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 0, Channel Config Done (SUCCESS)
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 1, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Channel Config Done (SUCCESS)
000000338 NMM: 1, Set Channel State Done (SUCCESS)
Username: admin
Password:

192.168.0.1>nwdbg_
```

Using the Console Port
Configuration Commands

```
nwdbg ether_status          - display the current linking status of LAN and WAN
 ports.
nwdbg host <STRING OF HOST NAME> - set the host name
nwdbg web port <PORT NUMBER> - set the web port number from 1024 to 29999 and 80

***** reboot the device to make the above setting activate *****
-----------------------------------------------------------------------

nwdbg ca <NOTIFY ENTITY>          - set the notify entity, the format can be :
                                  -      [domainName|ip]:port
                                  -      [domainName|ip]
nwdbg rgw <STRING OF RGW NAME> - set the gateway raw name
nwdbg dns [DNS IP]                - set the dns ip
nwdbg dns [disable|enable]        - set the dns state
***** use save-changes command to activate the above setting
-----------------------------------------------------------------------

nwdbg bridge [on|off]     - on/off software bridge
nwdbg bridge 0 [10 to 60] - 10M rx watermark
nwdbg bridge 1 [26 to 60] - N-way rx watermark
-----------------------------------------------------------------------

nwdbg [config|mac|ip|...] - show [all|mac|...] configuration
192.168.0.1>_
```

The **192.168.0.1>** command line allows you to enter the related commands for the initial configuration of this device.

Configure IP

Type "**nwdbg ipgw"** and press <Enter> to show the IP setting of the device (default is PPPoE).

```
nwdbg ca <NOTIFY ENTITY>          - set the notify entity, the format can be :
                                  -      [domainName|ip]:port
                                  -      [domainName|ip]
nwdbg rgw <STRING OF RGW NAME> - set the gateway raw name
nwdbg dns [DNS IP]                - set the dns ip
nwdbg dns [disable|enable]        - set the dns state
***** use save-changes command to activate the above setting
-----------------------------------------------------------------------

nwdbg bridge [on|off]     - on/off software bridge
nwdbg bridge 0 [10 to 60] - 10M rx watermark
nwdbg bridge 1 [26 to 60] - N-way rx watermark
-----------------------------------------------------------------------

nwdbg [config|mac|ip|...] - show [all|mac|...] configuration
192.168.0.1>nwdbg ipgw
Default gateway:  10.1.1.254
WAN IF:  IP 10.1.1.1,  Mask 255.0.0.0
         pppoe: 0 (1:PADI, 2:PADO, 3:PADR, 4:SESSION, 5:TERMINATED)
         ipncp: 0 (0:DOWN, 1:UP)
LAN IF:  IP 192.168.0.1,  Mask 255.255.255.0
OK
192.168.0.1>_
```

Using the Console Port
Configure IP

The following commands are use for device's IP setting:

- **nwdbg ip <dhcp|bootp|manual|pppoe>** - set to DHCP, BOOTP, Manual (static IP) or PPPoE mode.

If Manual mode:

- **nwdbg ip <IP ADDRESS>** - set device ip to d.d.d.d

- **nwdbg mask <SUBNET MASK>** - set device subnet mask to d.d.d.d

- **nwdbg gw <GATEWAY IP>** - set device default gateway to d.d.d.d

- **nwdbg lan_ip <x.x.x.x>** - set LAN IP Address.

Type "**nwdbg ip manual**" to setup your device's WAN IP to manual mode. After you have finished, type "**nwdbg save changes**" to save your settings and re-start the device. The following window will appear:

```
nwdbg [config|mac|ip|...] - show [all|mac|...] configuration
192.168.0.1>nwdbg ipgw
Default gateway:   10.1.1.254
WAN IF:   IP 10.1.1.1,  Mask 255.0.0.0
          pppoe: 0 (1:PADI, 2:PADO, 3:PADR, 4:SESSION, 5:TERMINATED)
          ipncp: 0 (0:DOWN, 1:UP)
LAN IF:   IP 192.168.0.1,  Mask 255.255.255.0
OK
192.168.0.1>nwdbg ip manual
OK
192.168.0.1>nwdbg save changes


    Wait and don't power off !!!
No PPPoE session established yet, do nothing...


   Initializing Device OS
   ----------------------------------------------------------------


 -> DOWNLOAD RUN TIME IMAGE FROM FLASH:
    .. Decompress Run Time Image : 100%(STOP system boot/load )_
```

Now, your device's WAN IP is in manual mode with a default IP address of 10.1.1.1.

Firmware Upgrade

New software can be downloaded from a TFTP server.

You can type **TFTP** to see the TFTP update commands. (Shown below)

```
000000318 SIP User Agent task started.
000000338 NWM: 0, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NWM: 0, Set Channel State Done (SUCCESS)
000000338 NWM: 0, Channel Config Done (SUCCESS)
000000338 NWM: 0, Set Channel State Done (SUCCESS)
000000338 NWM: 1, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NWM: 1, Set Channel State Done (SUCCESS)
000000338 NWM: 1, Channel Config Done (SUCCESS)
000000338 NWM: 1, Set Channel State Done (SUCCESS)
Username: admin
Password:

192.168.0.1>tftp
tftp srvip <IP ADDRESS> - set the IP address of TFTP server
tftp get <FILENAME>      - get the remote image file
                          if <FILENMAE> is not specified, the
                          image file name in EEPROM will be
                          employed.
tftp update             - update the image in flash

Current Settings :
TFTP Server IP Address : 0.0.0.0
Image File Name :
192.168.0.1>_
```

Console mode--TFTP Update Firmware Commands Screen

The items on this window are described below:

- **tftp srvip <IP ADDRESS>** - set the IP address of TFTP server

- **tftp get <FILENAME>** - get the remote image file, if <FILENMAE> is not specified, the image file name in EEPROM will be employed.

- **tftp update** - update the image in flash

After you have finished the firmware upgrade, type the "**nwdbg system reboot**" command on the **192.168.0.1>** command line and press <Enter>. The following window will appear:

Using the Console Port
Firmware Upgrade

```
TFTP Server IP Address : 0.0.0.0
Image File Name :
192.168.0.1>tftp srvip 10.38.48.14
OK
192.168.0.1>tftp get 1120SLOd_1a1.b24
Download 1120SLOd_1a1.b24 ...¥
OK
192.168.0.1>tftp update
   .. Erase Runtime Flash Memory     ... Done
   .. Program Runtime Flash Memory   ... Done
OK
192.168.0.1>nwdbg system reboot


   Wait and don't power off !!!



  Initializing Device OS
  ---------------------------------------------------------------------


 -> DOWNLOAD RUN TIME IMAGE FROM FLASH:
    .. Decompress Run Time Image : 100%(STOP system boot/load )_
```

Console mode--nwdbg System Reboot Command Screen

After booting complete, type "**nwdbg factory reset**" on the **192.168.0.1>** command line and press <Enter>. The following window will appear:

```
000000338 NMM: 0, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 0, Channel Config Done (SUCCESS)
000000338 NMM: 0, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Signaling: xGCP, Protocol: FXS Loop Start
000000338 NMM: 1, Set Channel State Done (SUCCESS)
000000338 NMM: 1, Channel Config Done (SUCCESS)
000000338 NMM: 1, Set Channel State Done (SUCCESS)
Username: admin
Password:

192.168.0.1>nwdbg factory reset


   Wait and don't power off !!!



  Initializing Device OS
  ---------------------------------------------------------------------


 -> DOWNLOAD RUN TIME IMAGE FROM FLASH:
    .. Decompress Run Time Image : 100%(STOP system boot/load )_
```

Console mode--nwdbg Factory Reset Command Screen

Once the reset is done, all of the device's settings stored in NV-RAM will be erased and restored to values present when the device was purchased.

The firmware upgrade procedure is complete.

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Command Line Interface

The DVG-1120S VoIP Gateway offers a line-at-a-time prompt and response scheme to execute various configuration instructions. The interface displays a single prompt character **192.168.0.1>** when it is ready to accept a command (ex. **192.168.0.1>set** or **192.168.0.1>show**).

Typing a question mark after the **192.168.0.1>** prompt will display a list of helpful user commands. Please note that all characters must be entered in lower case. All command line examples in this chapter are in **bold** type.

Listed below are some of the most commonly used commands, parameter(s), and examples of their usage.

General Setup Commands

nwdbg system reboot

Definition:	This command is used to restart the device.
Parameter(s):	None.
Example:	**nwdbg system reboot**

nwdbg save changes

Definition:	This command is used to save the configuration changes into flash memory and restart the device.
Parameter(s):	None.
Example:	**nwdbg save changes**

nwdbg factory reset

Definition:	This command is used to set the DVG-1120S back to its default settings and then restart the device.
Parameter(s):	None.
Example:	**nwdbg factory reset**

Command Line Interface
General Setup Commands

nwdbg un <USERNAME>

Definition:	This command sets the username if there is a username string, or shows the username/password if only **nwdbg un** is typed.
Parameter(s):	<USERNAME, maximum string length is 12 characters>
Example:	**nwdbg un 123456789012**

nwdbg pw <PASSWORD>

Definition:	This command sets the password if there is a password string, or shows the username/password if only **nwdbg pw** is typed.
Parameter(s):	<PASSWORD, maximum string length is 12 characters>
Example:	**nwdbg pw**

nwdbg slic <0|1>

Definition:	This command changes the Subscriber Line Interface Circuit (SLIC) state to standby or active, or shows the SLIC state if only **nwdbg slic** is typed.
Parameter(s):	<slic state, 0 : standby, 1 : active >
Example:	**nwdbg slic 0**

Command Line Interface
General Setup Commands

nwdbg dtmf_relay <0|1>

Definition:	This command turns the Dual Tone Multiple Frequency (DTMF) relay function on or off, or shows the DTMF relay state if only **nwdbg dtmf_relay** is typed.
Parameter(s):	<0 : off, 1 : on>
Example:	**nwdbg dtmf_relay 0**

nwdbg mac <MAC ADDRESS>

Definition:	This command sets the MAC address of the voice link, or shows the MAC address if only **nwdbg mac** is typed.
Parameter(s):	<MAC ADDRESS, the format is XX:XX:XX:XX:XX:XX>
Example:	**nwdbg mac 00:50:ba:08:24:56**

nwdbg ip <dhcp|bootp|manual>

Definition:	This command sets the software boot mode to DHCP, BOOTP, or Manual mode. If only **nwdbg ip** is typed, this command shows the IP configuration.
	DHCP: While the system is booting, the system acts as a DHCP client.
	BOOTP: While the system is booting, the system acts as a BOOTP client. This mode is used to set the device's IP address and upgrade the software.
	Manual: While the system is booting, the system uses a fixed IP address. The fixed IP address can be set by **nwdbg ip** <IP ADDRESS>.
Parameter(s):	<dhcp|bootp|manual>
Example:	**nwdbg ip dhcp**

Command Line Interface
General Setup Commands

nwdbg ip <IP ADDRESS>

Definition: This command sets the fixed IP address, which is used as the system's IP address if the software boot mode is Manual mode. If only **nwdbg ip** is typed, this command shows the IP configuration.

Parameter(s): <IP ADDRESS>

Example: **nwdbg ip 10.1.1.120**

nwdbg mask <SUBNET MASK>

Definition: This command sets the fixed subnet mask, which is used as the system's subnet mask if the software boot mode is Manual mode. If only **nwdbg mask** is typed, this command shows the IP configuration.

Parameter(s): <SUBNET MASK>

Example: **nwdbg mask 255.0.0.0**

nwdbg gw <GATEWAY IP>

Definition: This command sets the fixed GW address, which is used as the system's GW address if the software boot mode is Manual mode. If only **nwdbg gw** is typed, this command shows the IP configuration.

Parameter(s): <GATEWAY IP>

Example: **nwdbg gw 10.1.1.254**

Command Line Interface
General Setup Commands

nwdbg tftp <0|1>

Definition:	This command sets the software download link to either a WAN link or a LAN link. If only **nwdbg tftp** is typed, this command shows the download link.
Parameter(s):	<0:WAN link, 1:LAN link>
Example:	**nwdbg tftp 0**

nwdbg lan_ip <IP ADDRESS>

Definition:	This command sets the LAN IP address. If only **nwdbg lan_ip** is typed, this command shows the LAN IP configuration.
Parameter(s):	<IP ADDRESS>
Example:	**nwdbg lan_ip 10.1.1.120**

nwdbg lan_mac <MAC ADDRESS>

Definition:	This command sets the LAN MAC address, or shows the LAN address if only **nwdbg lan_mac** is typed.
Parameter(s):	<MAC ADDRESS, the format is XX:XX:XX:XX:XX:XX>
Example:	**nwdbg lan_mac 00:50:ba:08:24:56**

nwdbg dns <DNS IP>

Definition:	This command sets the Domain Name Server's IP address. If only **nwdbg dns** is typed, this command shows the DNS IP/ STATE.
Parameter(s):	<DNS IP>
Example:	**nwdbg dns 10.1.1.5**

Command Line Interface
General Setup Commands

nwdbg dns <disable|enable>

Definition:	This command turns on/off the DNS function. If only **nwdbg dns** is typed, this command shows the DNS IP/STATE.
Parameter(s):	[disable | enable]
Example:	**nwdbg dns disable**

nwdbg country <code>

Definition:	This command provides country code setting interface to config the tone frequency for different country. If only **nwdbg country** is typed, this command shows the COUNTRY CODE.
Parameter(s):	<0:USA (Default), 1:Japan, 2:Hong Kong, 3:Sweden>
Example:	**nwdbg country 1**

nwdbg gain <RX GAIN> <TX GAIN>

Definition: This command sets the receive and transmit gain, or shows the <RXGAIN> <TX GAIN> state if only nwdbg gain is typed.

Parameter(s): <RX|TX GAIN, : Range -14 to +13dB>

Example: **nwdbg gain -2-4**

Command Line Interface
General Setup Commands

ping <DEST IP> <OPTIONS>

Definition: This command lets the user ping an IP address from the device.

Parameter(s):   <DEST IP: The host ip address>

                        <OPTIONS, -t : Ping the specifed host until stopped (type SPACE).

                        -n count: Number of echo requests to send.

                        -w timeout: Timeout in seconds to wait for each reply.

                        -i interval: The interval in half-seconds between two echo requests.>

Example: **ping 10.1.1.6 -n 100 -w 2 -i 1**

TFTP Client Setup Commands

When the user enters **tftp**, the screen will show all commands about the TFTP client:

ggdbg>tftp

tftp srvip <IP ADDRESS>   **– set the IP address of TFTP server**

tftp get <FILENAME>   **– get the remote image file**

                                 If <FILENAME> is not specified, the image file name in EEPROM will be employed.

tftp update   **– update the image in flash**

Current Settings :

TFTP Server IP Address : 172.16.6.245

Image File Name : 102nmm01.tfp

Command Line Interface
TFTP Client Setup Commands

tftp srvip <IP ADDRESS**>**

Definition: This command sets the IP address of the TFTP server. The image must be resident on that TFTP server. If the IP address is invalid, the message **ERROR** will be displayed.

Example: **ggdbg>tftp srvip 172.16.6.245**

                           OK

tftp get <FILENAME**>**

Definition: Gets the image from the TFTP server. The <FILENAME> is the name of the image on the TFTP server. If any error occurs during the image download, the message **ERROR** will be displayed. When the user enters **tftp get**, the file name in EEPROM will be employed.

Example: **ggdbg>tftp get c:\102nmm.tfp**

                           Download d:\project\dg102\102nmm.tfp ...

                           OK

tftp update

Definition: This command updates the image in FLASH. The image is downloaded for storage in DRAM. If any error occurs during the image update, the message **ERROR** will be displayed.

Example: **ggdbg>tftp update**

                           .. Erase Runtime Flash Memory   ... Done

                           .. Program Runtime Flash Memory ... Done

                           OK

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**

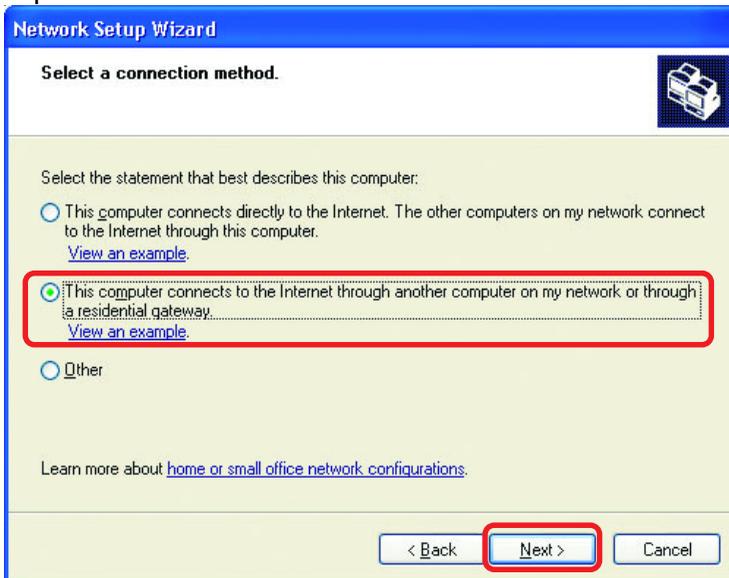When this screen appears, **Click Next.**

Networking Basics (continued)

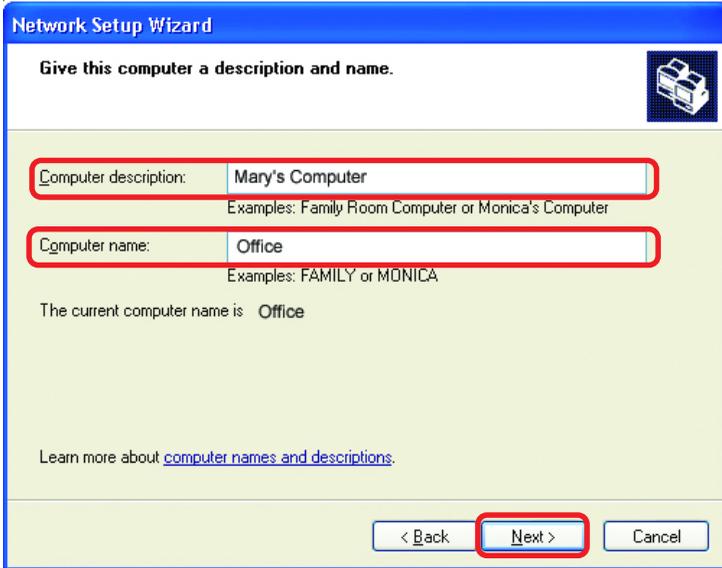Please follow all the instructions in this window:
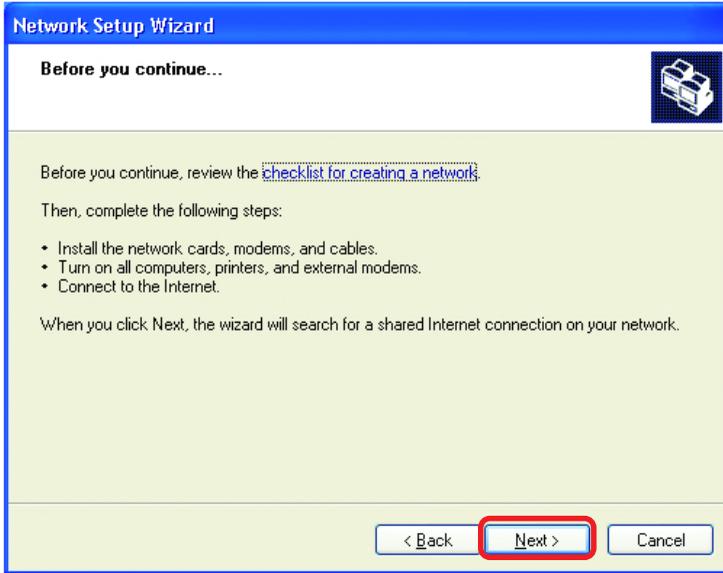
Click **Next**

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**
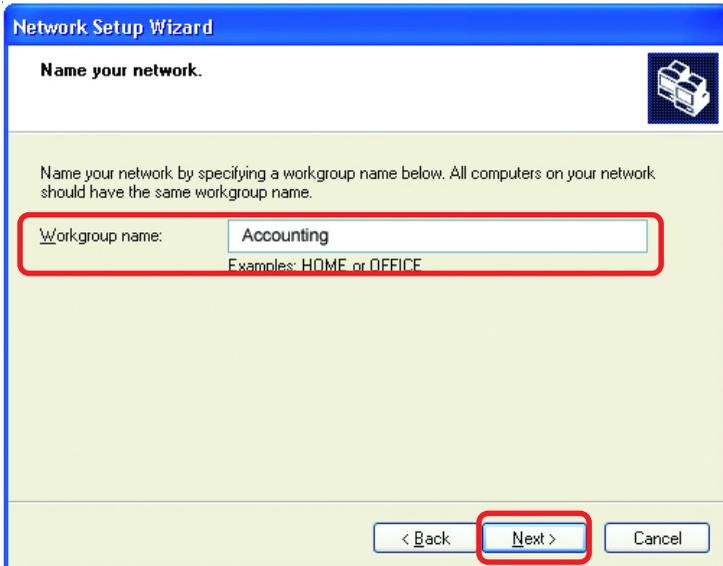
Networking Basics (continued)

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**

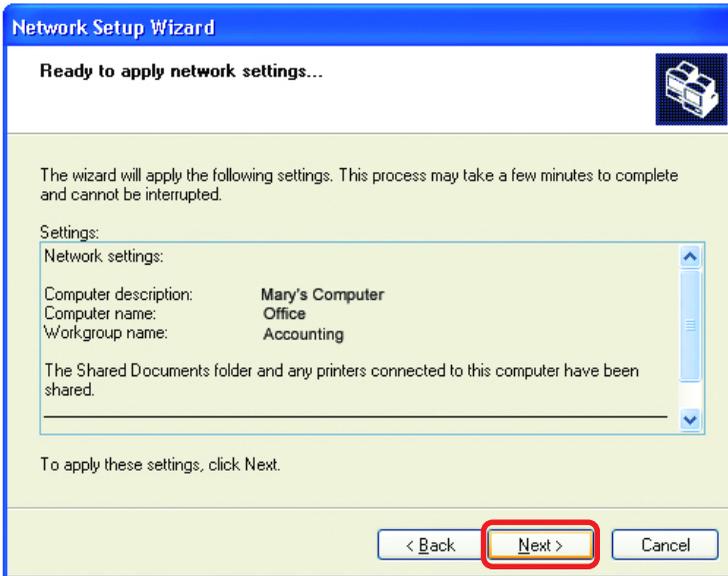Please wait while the **Network Setup Wizard** applies the changes.

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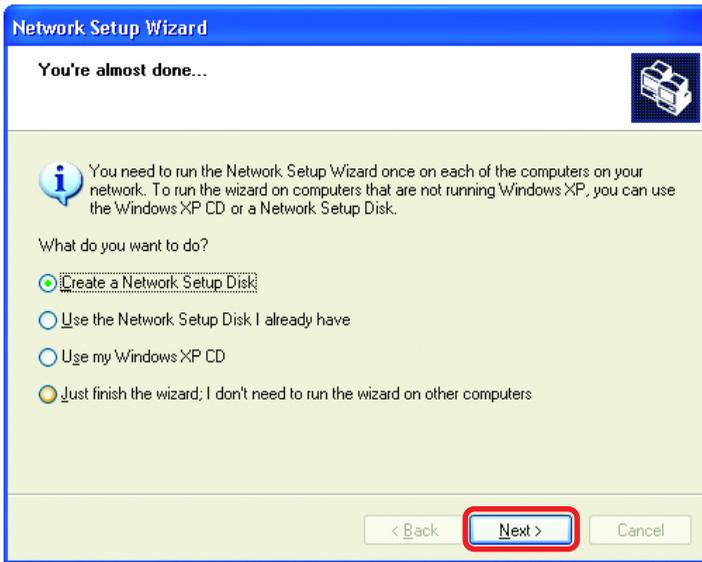
Insert a disk into the Floppy Disk Drive, in this case drive **A.**

Format the disk if you wish, and click **Next.**

Networking Basics (continued)

Please wait while the **Network Setup Wizard** copies the files.

Copying...

Please wait while the wizard copies files...

Cancel

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. To continue click **Next.**

Network Setup Wizard

To run the wizard with the Network Setup Disk...

Complete the wizard and restart this computer. Then, use the Network Setup Disk to run the Network Setup Wizard once on each of the other computers on your network.

Here's how:

1. Insert the Network Setup Disk into the next computer you want to network.
2. Open My Computer and then open the Network Setup Disk.
3. Double-click "netsetup."

< Back   Next >   Cancel

Networking Basics (continued)

Please read the information on this screen, then click **Finish** to complete the **Network Setup Wizard**.
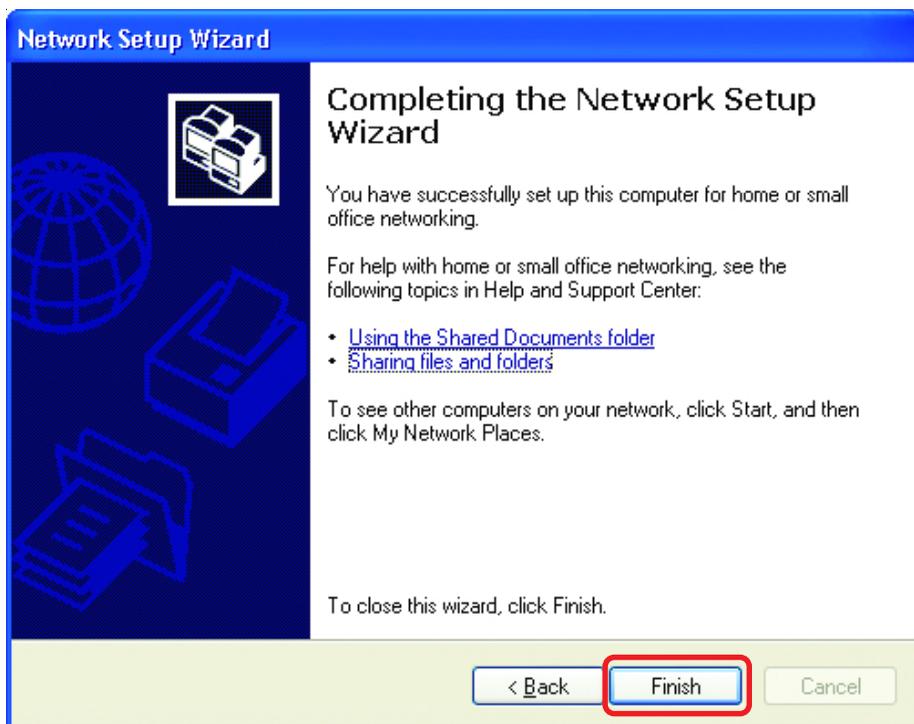
The new settings will take effect when you restart the computer. Click **Yes** to restart the computer.

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.

Naming your Computer

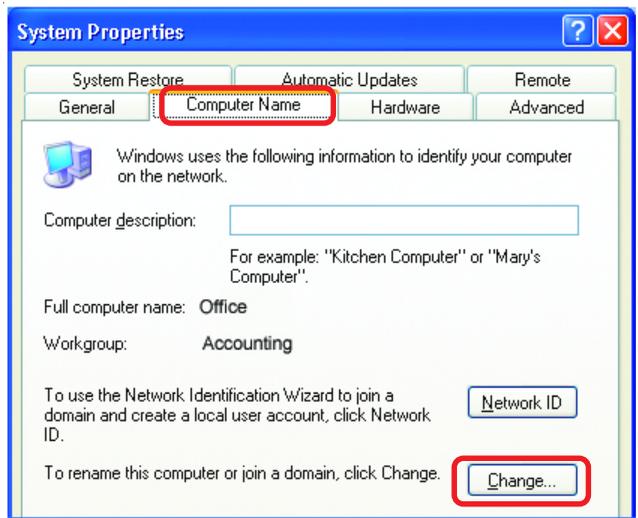To name your computer, in **Windows XP**, please follow these directions:

- ■ Click **Start** (in the lower left corner of the screen)

- ■ **Right-click** on **My Computer**

- ■ Select **Properties** and click

- ■ 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

- 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**
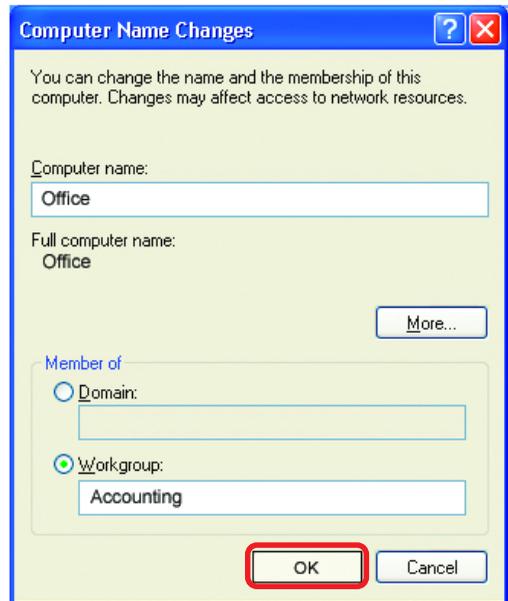
Checking the IP Address in Windows XP

The wireless 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**

This window will appear.

■ Click the
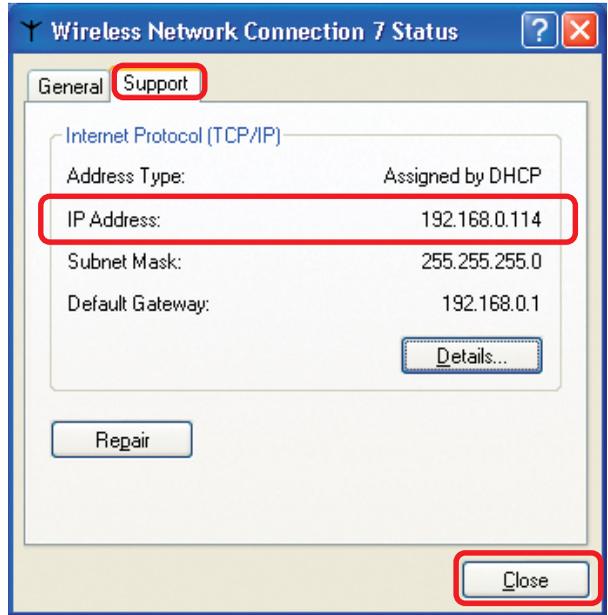**Support tab**

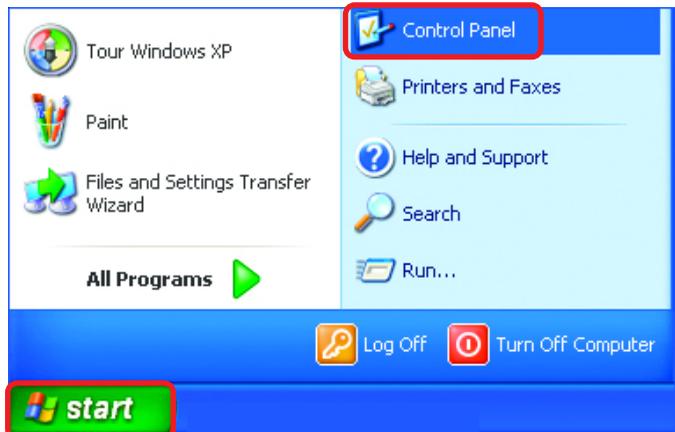| Wireless Network Connection 7 Status		
General Support		
Internet Protocol (TCP/IP)		
Address Type:		Assigned by DHCP
IP Address:		192.168.0.114
Subnet Mask:		255.255.255.0
Default Gateway:		192.168.0.1
		Details...
Repair		
		Close

■ 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**

Tour Windows XP
Paint

■ Double-click
on **Control
Panel**

Files and Settings Transfer
Wizard

All Programs ▶

Control Panel
Printers and Faxes
Help and Support
Search
Run...

Log Off   Turn Off Computer

start

Networking Basics (continued)
Assigning a Static IP Address in <u>Windows XP/2000</u>

■ Double-click
on **Network
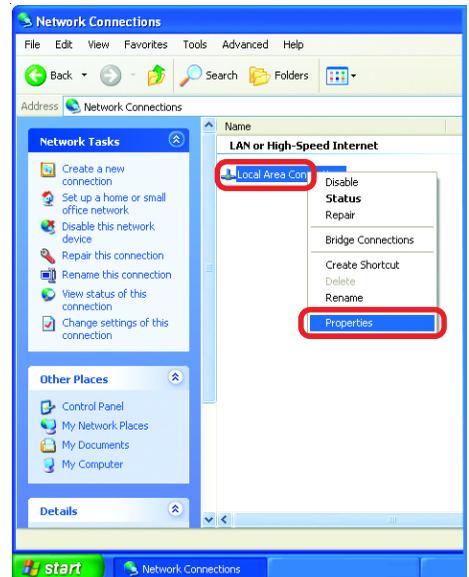Connections**
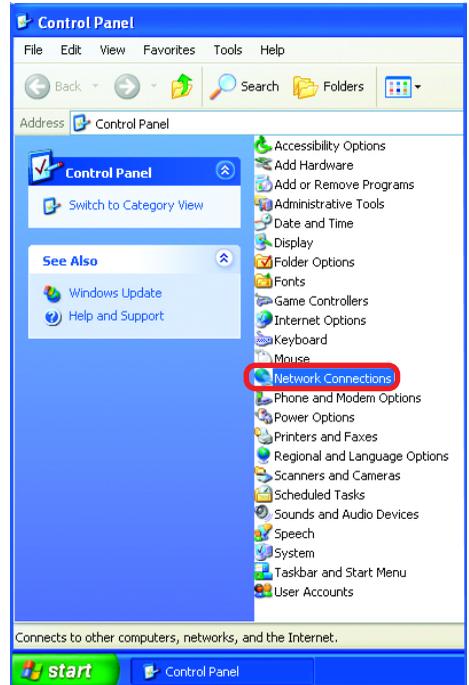
■ Right-click on **Local Area
Connections**

■ Double-click on
Properties

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

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

- ■ Click **Properties**

- ■ In the window below, select **Use the following IP address**. 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).
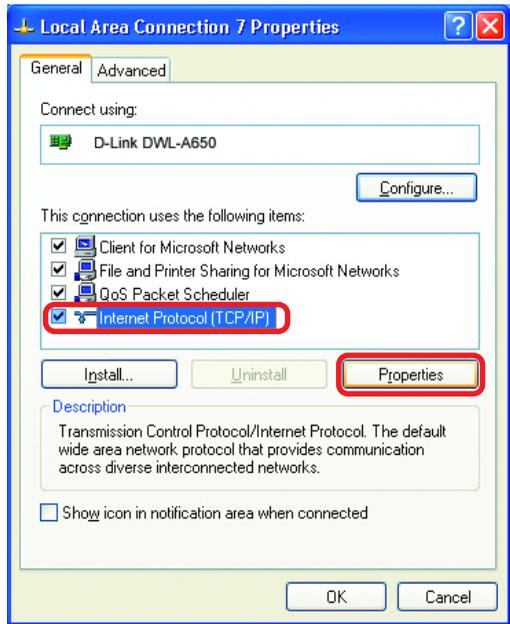
IP Address:
e.g., 192.168.0.2

Subnet Mask:
255.255.255.0

Default Gateway:
Enter the LAN IP address of the wireless router. (D-Link wireless routers have a LAN IP address of 192.168.0.1)

- ■ Select **Use the following DNS server addresses**. Enter the LAN IP address of th Wireless Router. (D-Link wireless routers have a LAN IP address of 192.168.0.1)

- ■ Click **OK**
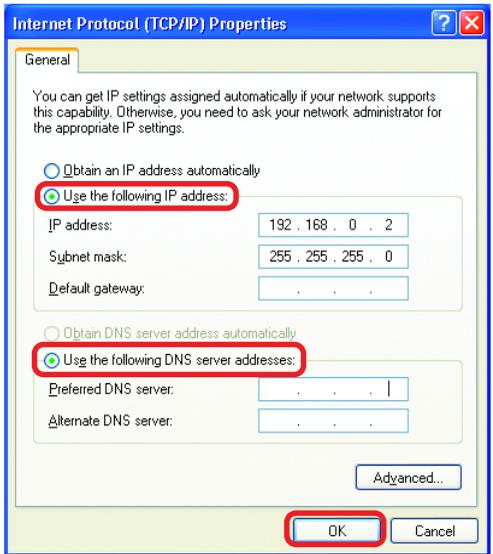
You have completed the assignment of a Static IP Address. (You do not need to assign a Static IP Address if you have a DHCP-capable Gateway/Router).

■ Go to the **Apple Menu** and se-
lect **System Preferences**

■ Click on **Network**

■ Select **Built-in Ethernet** in
the **Show** pull-down menu

■ Select **Manually** in the
Configure pull-down
menu
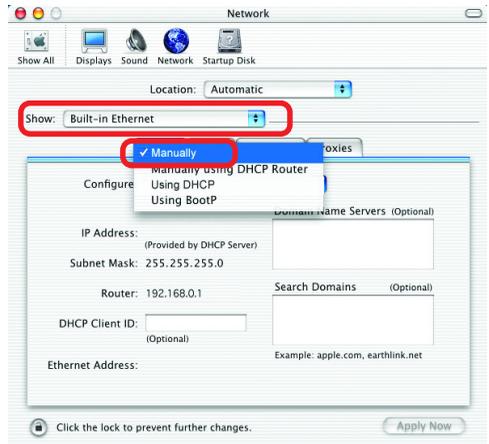
■ Input the **Static IP Ad-
dress**, the **Subnet Mask**
and the **Router IP Ad-
dress** in the appropriate
fields

■ Click **Apply Now**

■ Go to the **Apple Menu** and se-
lect **System Preferences**

■ Click on **Network**

■ Select **Built-in Ethernet** in
the **Show** pull-down menu

■ Select **Using DHCP** in the
Configure pull-down menu
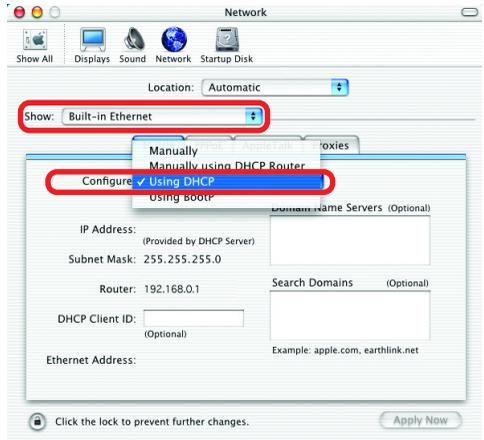
■ Click **Apply Now**

■ The **IP Address, Subnet
mask**, and the **Router's IP
Address** will appear in a
few seconds
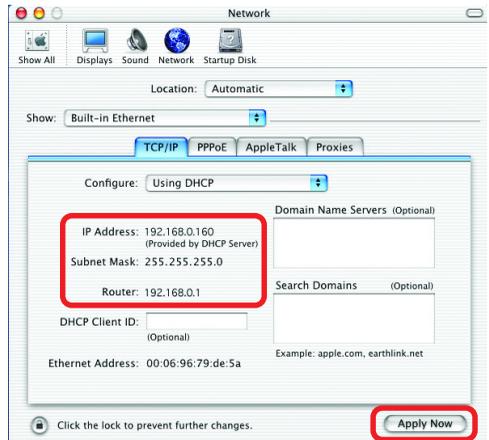
Checking the Wireless Connection
by Pinging in Windows XP and 2000

■   Go to **Start** >
    Run > type
    cmd. A window
    similar to this
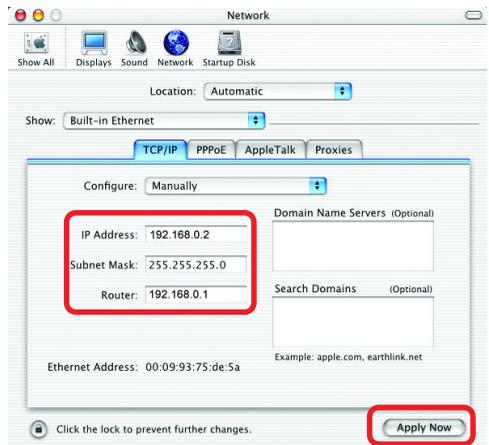   one will appear.
    Type **ping**
    xxx.xxx.xxx.xxx,
    where **xxx** is the
    IP Address of
    the Wireless
    Router or

Access Point. A good wireless connection will show four replies
from the Wireless Router or Access Point, as shown.

Checking the Wireless Connection
by Pinging in Windows Me and 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
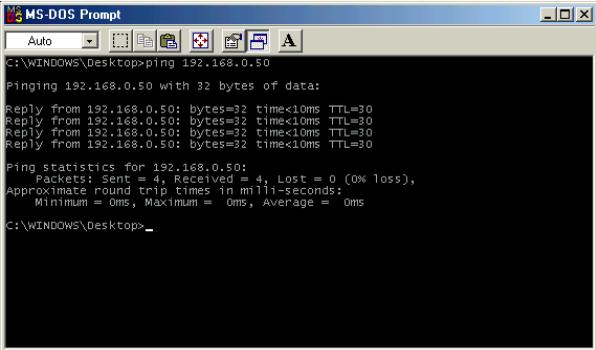
Access Point. A good wireless connection will show four replies
from the wireless router or access point, as shown.

Technical Specifications

Call Control Protocols Compliance:
- SIP

Voice Compression:
- G.711 (A-law and u-law), G.723.1, G.729a

Analog Voice Ports:
- Type: Loop-Start FXS interfaces
- DTMF tone detection/generation
- V.21/V.25 Modem/Fax tone detection
- Echo Cancellation: G.165/G.168

Ethernet Ports:
- WAN: 10BASE-T Ethernet port (MDI-II)
- LAN: NWay 10/100BASE-TX Fast Ethernet ports (MDI-X)
- IEEE 802.3 10BASE-T Ethernet compliance
- IEEE 802.3u 100BASE-TX Fast Ethernet compliant

Quality of Service:
- Voice service is prioritized over the data traffic

FAX support:
- V.21, V.27ter, V.29, V.17 Modulation/Demodulation

Network Protocols:
- TCP/IP, UDP, ARP, ICMP, TFTP, Telnet, SNMP, HTTP, RIP1/RIP2
- DHCP: Dynamic Host Configuration Protocol server and client
- NAT: Network Address Translation
- PPP over Ethernet Client

Technical Specifications (continued)

Network Management:
- ◼ SNMP management agent base MIB II
- ◼ Telnet provisioning
- ◼ Manage functions through an intuitive web-based graphical user interface
- ◼ TFTP: The built-in Trivial File Transfer Protocol provides firmware upgrade

Security:
- ◼ Password Authentication Protocol/Challenge Handshake Authentication Protocol (PAP/CHAP)
- ◼ Administrative password through Web, Telnet and SNMP
- ◼ Packet filter by IP Address, port number and protocol

LEDs:
- ◼ **General:**
  Power
  Status/Alarm
- ◼ **Ethernet:**
  WAN: Link/Act
  LAN: 10/100M, Link/Act
- ◼ **Phone 1 to 2:**
  PSTN/VoIP
  Hook/Ringing

Dimensions:
- ◼ 6.78" (W) x 6.165" (D) x 1.339" (H) (172mm x 156.6mm x 34mm)

Number of Ports:
- ◼ One 10BASE-T Ethernet port (WAN)
- ◼ One 10/100BASE-TX Fast Ethernet port (LAN)
- ◼ Two loop-start FXS RJ-11 ports
- ◼ One PSTN POTS RJ-11 port for Life Line
- ◼ One RJ-14 Console port

Technical Specifications (continued)

Power Supply:
- AC-to-DC power adapter (provided)
- DC Input: 12VDC/1A

Operating Temperature:
- 0-50°C

Storage Temperature:
- -10-55°C

Humidity:
- 5% - 95% non-condensing

Safety:
- UL/CUL

Emission (EMI):
- FCC part 68
- VCCI Class B

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 website, 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 7:30am to 12:00am EST

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

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. 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.

- Return Merchandise Ship-To Address
USA: 17595 Mt. Herrmann, Fountain valley, CA 92708
Canada: 2180 Winston Park Drive, Oakville, ON, L6H 5W1 (Visit http://www.dlink.ca for detailed warranty information within Canada)

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.

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FCC Statement: This equipment has been tested and found to comply with part 68 of the FCC Rules.

For a detailed warranty outside the United States, please contact the corresponding local D-Link office.

Registration

Register your D-Link product online at http://support.dlink.com/register/

(10/08/04)