

**D-Link<sup>®</sup>**

# **DVA-G3340S**

High-Speed 2.4 GHz  
Wireless ADSL VOIP Router

Manual

**D-Link<sup>®</sup>**

Building Networks for People

Ver 1.01

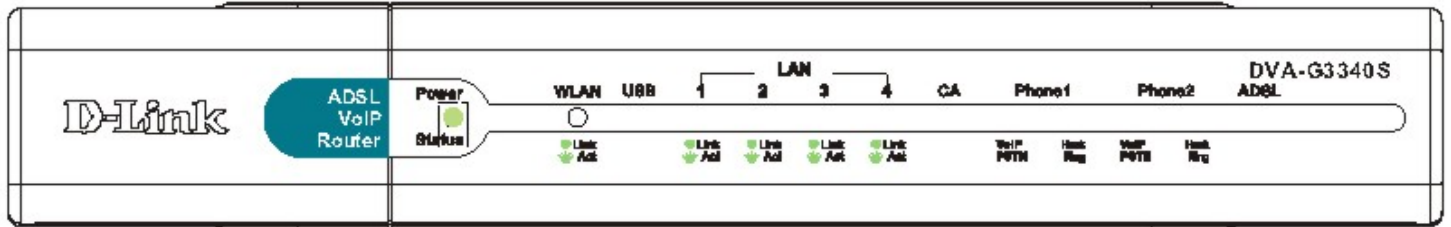
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<p>To add a static IP address to the list of available IP addresses, type an IP address that falls within the range a available IP addresses and click on the Add button. In the example above, available addresses range from 10.0.0.1 to 10.255.255.254. Any addresses added will appear in the list of Static Addresses available for advanced configuration. These addresses can then be used in the other Port Forwarding, Access Control and Advanced Security menus. To delete an IP address from the list of Static Addresses, click the Delete box for the address or addresses you want to eliminate and click on the Apply button.</p>	
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# Package Contents



## Contents of Package:

- D-Link DVA-G3340S High-Speed 2.4GHz Wireless ADSL VOIP Router
- Power Adapter-AC 12V, 1200mA
- Manual and Warranty on CD
- RJ-11 Cable
- Ethernet Cable
- USB Cable

Note: Using a power supply with a different voltage rating than the one included with the DVA-G3340S 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:

- Ethernet-Based Cable or DSL Modem
- 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 DVA-G3340S High-Speed Wireless Router is an 802.11g high-performance, wireless router that supports high-speed wireless networking at home, at work or in public places.

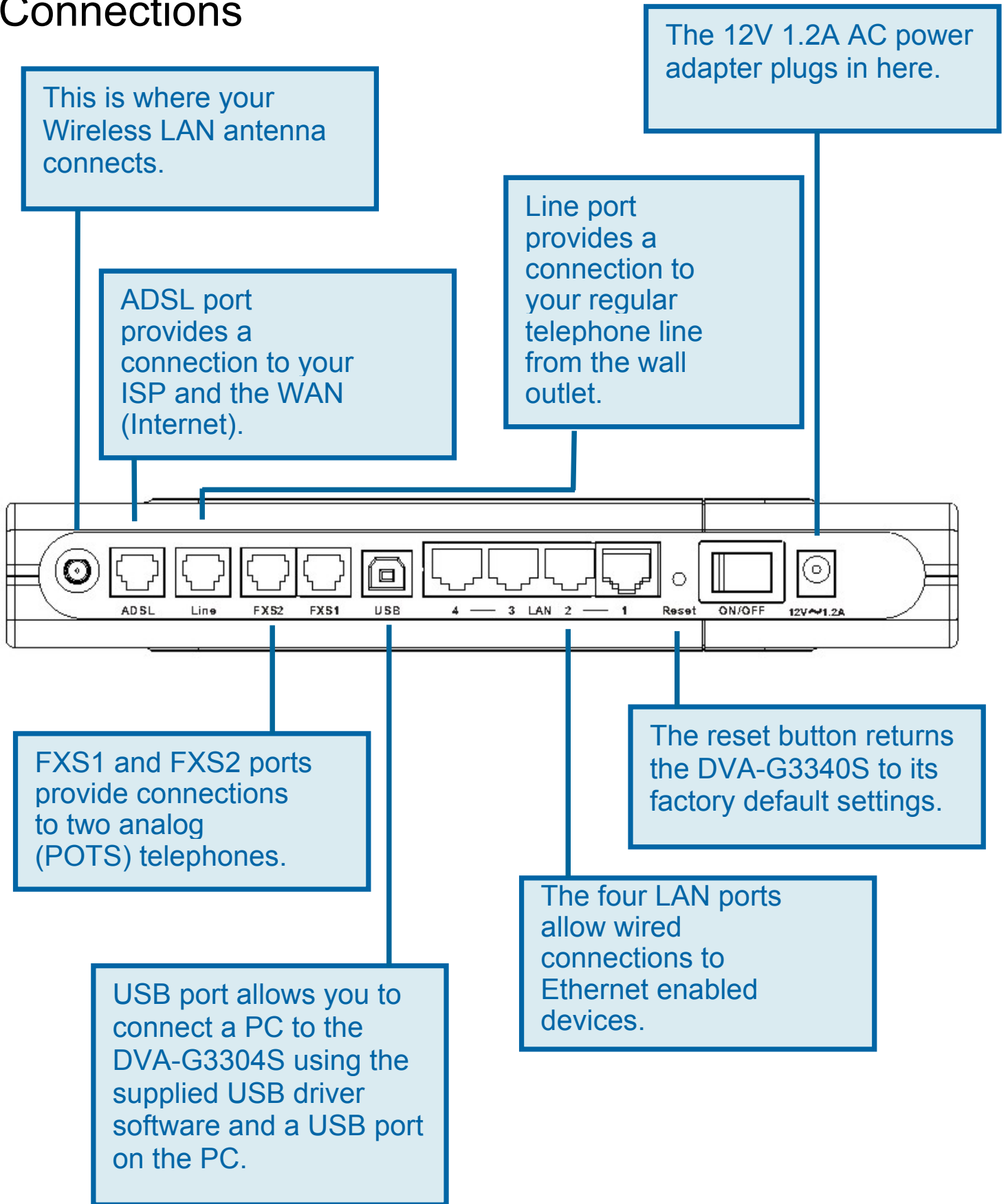
Unlike most routers, the DVA-G3340S provides data transfers at up to 8X (compared to the standard 11 Mbps) when used with other D-Link AirPlus G products. The 802.11 g standard is backwards compatible with 802.11 b products. This means that you do not need to change your entire network to maintain connectivity. You may sacrifice some of 802.11 g's speed when you mix 802.11 b and 802.11 g devices, but you will not lose the ability to communicate when you incorporate the 802.11g standard into your 802.11 b network. You may choose to slowly change your network by gradually replacing the 802.11 b devices with 802.11 g devices .

In addition to offering faster data transfer speeds when used with other 802.11g products, the DVA-G3340S has the newest, strongest, most advanced security features available today. When used with other 802.11 g WPA (WiFi Protected Access) and 802.1x compatible products in a network with a RADIUS server, the security features include:

WPA \*Available around Q4/2003 as a free download.: Wi-Fi Protected Access authorizes and identifies users based on a secret key that changes automatically at a regular interval. WPA uses TKIP (Temporal Key Integrity Protocol) to change the temporal key every 10,000 packets (a packet is a kind of message transmitted over a network.) This insures much greater security than the standard WEP security. (By contrast, the older WEP encryption required the keys to be changed manually.)

For home users that will not incorporate a RADIUS server in their network, the security for the DVA-G3340S, used in conjunction with other 802.11g products, will still be much stronger than ever before. Utilizing the Pre Shared Key mode of WPA, the DVA-G3340S will obtain a new security key every time it connects to the 802.11g network. You only need to input your encryption information once in the configuration menu. No longer will you have to manually input a new WEP key frequently to ensure security, with the DVA-G3340S, you can automatically receive a new key every time you connect, vastly increasing the safety of your communications.

# Connections

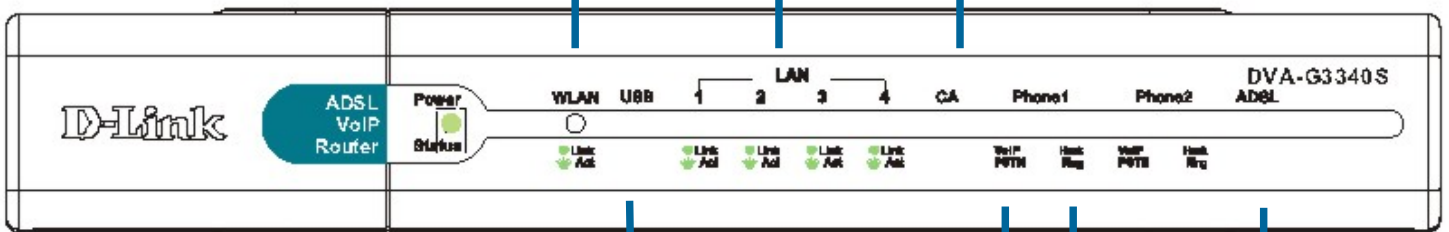


# LEDs

WLAN – This LED will be lit green when a Wireless LAN connection is detected. It will blink when there is data activity on the connection.

LAN – These LEDs will be lit green when a LAN connection is detected. They will blink when there is data activity on the connection.

CA (Call Agent) – This LED will blink when you are connected to a VOIP SIP Server.



USB – This LED will light green when a USB connection is detected. It will blink when there is data activity on the connection.

VoIP – LED will light green when you are making a VoIP call.

PSTN (Public Switched Telephone Network) – LED will not be lit when the telephone is making a PSTN telephone call.

Hook LED will light green when the telephone is off the hook. Ring LED will flash quickly when an incoming call is detected

ADSL – This LED will light green when an ADSL connection is detected. It will blink when there is data activity on the connection.



# Features

- Fully compatible with the 802.11 g standard to provide a wireless data rate of up to 54Mbps
- Backwards compatible with the 802.11 b standard to provide a wireless data rate of up to 11 Mbps
- WPA (Wi Fi Protected Access) authorizes and identifies users based on a secret key that changes automatically at a regular interval, for example:
  - Pre Shared Key mode means that the home user, without a RADIUS server, will obtain a new security key every time the he or she connects to the network, vastly improving the safety of communications on the network.
- 802.1x Authentication in conjunction with the RADIUS server verifies the identity of would be clients
- Utilizes OFDM technology (Orthogonal Frequency Division Multiplexing)
- User-friendly configuration and diagnostic utilities
- Operates in the 2.4GHz frequency range
- Connects multiple computers to a Broadband (Cable or DSL) modem to share the Internet connection
- Advanced Firewall features
  - Supports NAT with VPN pass-through, providing added security
  - MAC Filtering
  - IP Filtering
  - URL Filtering
  - Domain Blocking
  - Scheduling
- DHCP server supported enables all networked computers to automatically receive IP addresses
- Web-based interface for Managing and Configuring
- Access Control to manage users on the network
- Supports special applications that require multiple connections
- Equipped with 4 10/100Mbps Ethernet ports, 1 WAN port, Auto MDI/MDIX

# Using the Configuration Menu

Whenever you want to configure your network or the DVA-G3340S, you can access the Configuration Menu by opening the web-browser and typing in the IP Address of the DVA-G3340S. The DVA-G3340S default IP Address is

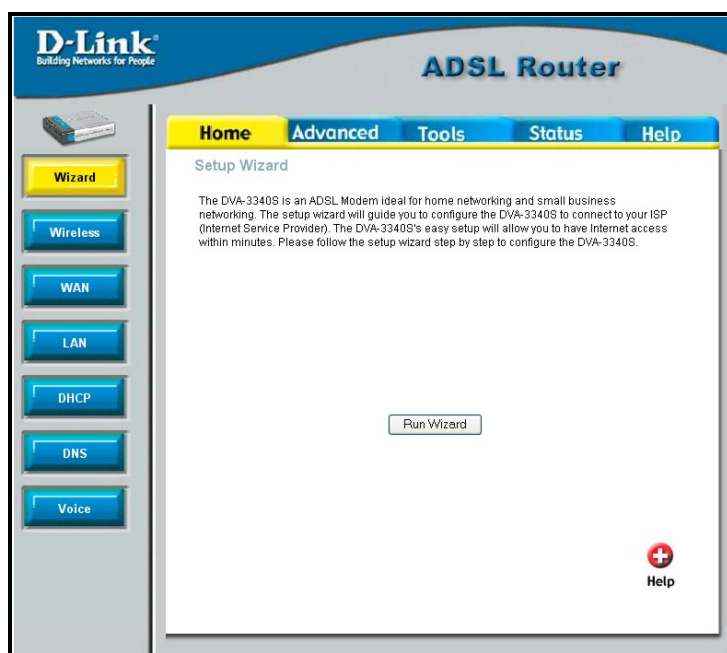
shown at right:

- Open your web browser
- Type in the IP Address of the Router  
(<http://192.168.1.1>)

Note: if you have changed the default IP Address assigned to the DVA-G3340S, make sure to enter the correct IP Address.

- Type **admin** in the User Name field
- Type **admin** in the Password field
- Click OK

Home > Wizard



The Home>Wizard screen will appear. Please refer to the Quick Installation Guide for more information regarding the Setup Wizard.

These buttons appear on most of the configuration screens in this section. Please click on the appropriate button at the bottom of each screen after you have made a configuration change.



## Home > WAN > PPPoE/PPPoA Configure WAN Connection



To configure the Router's basic configuration settings without running the Setup Wizard, you can access the menus used to configure WAN, LAN, DHCP and DNS settings directly from the **Home** directory. To access the WAN Settings menu, click on the **WAN** link button on the left side of the first window that appears when you successfully access the web manager. The WAN Settings menu is also used to configure the Router for multiple virtual connections (Multiple PVCs).

**Home** Advanced Tools Status Help

### ATM VC Setting

PVC: Pvc0  
VPI: 8  
VCI: 35  
Virtual Circuit: Enabled  
WAN Setting: PPPoE/PPPoA

### PPPoE/PPPoA

User Name: username  
Password: ●●●●  
Connection Type: PPPoE LLC  
MTU: 1400 bytes  
MRU: 1492 bytes  
Default Route: Enabled  
NAT: Enabled  
Firewall: Enabled  
IP Control: Dynamic IP  
Static IP: 192.168.1.1

### ATM

Service Category: UBR  
PCR: kbps  
SCR: kbps

Apply Cancel Help

### WAN Settings Menu – PPPoE / PPPoA

Select the connection type used for your account. The menu will display settings that are appropriate for the connection type you select. Follow the instruction below according to the type of connection you select in the WAN Settings menu. The new settings must be saved and the Router must be restarted for the settings to go into effect. To save the new settings and restart the Router, click on the **Tools** directory tab and then click the **System** menu button. Click the **Reboot** button under **Force the DVA-G3340S to system restart**. The Router will save the new WAN settings, restart and attempt to establish the WAN connection.

## PPPoE and PPPoA Connection for WAN

Follow the instructions below to configure the Router to use a PPPoE or PPPoA for the Internet connection. Make sure you have all the necessary information before you configure the WAN connection.

1. If not already selected, choose the **PPPoE/PPPoA** option from the **WAN Settings** pull-down menu. PPPoE/PPPoA is selected by default if you are configuring the Router for the first time.
2. Under the **ATM VC Settings** at the top of the menu should not be changed unless you have been instructed to change them. However, if you are instructed to change the **VPI** or **VCI** values, type in the values assigned for your account. Leave the **PVC** and **Virtual Circuit** setting at the default (*Pcv0* and *Enabled*) values for now. This can be used later if you are configuring multiple virtual circuits for your ADSL service. For more information on ATM VC Settings, see the table on page 25 below.
3. Under the **PPPoE/PPPoA** heading, type the **User Name** and **Password** used for your ADSL account. A typical User Name will be in the form user1234@isp.co.uk, the Password may be assigned to you by your ISP or you may have selected it when you set up the account with your ISP.
4. Choose the **Connection Type** from the pull-down menu located under the User Name and Password entry fields. This defines both the connection protocol and encapsulation method used for your ADSL service. The available options are *PPPoA VC-MUX*, *PPPoA LLC* and *PPPoE LLC*. If have not been provided specific information for the Connection Type setting, leave the default setting.
5. Leave the **MTU** value at the default setting (default = 1400) unless you have specific reasons to change this (see table below).
6. Leave the **MRU** value at the default setting (default = 1492) unless you have specific reasons to change this (see table below).
7. Leave the **Default Route** enabled if you want to use the Router as the default route to the Internet for your LAN. Whenever a computer on the LAN attempts to access the Internet, the Router becomes the Internet gateway to the computer. If you have an alternative route for Internet traffic you may disable this without effecting the Router's connection.
8. **NAT** should remain enabled. If you disable NAT, you not be able to use more than one computer for Internet connections. NAT is enabled and disabled system-wide, therefore if you are using multiple virtual connections, NAT will disabled on all connections.
9. The **Firewall** should remain enabled for most users. If you choose to disable this

you will not be able to use the features configured in the Firewall and Filters menus located in the Advanced directory. See the next chapter for more details on these menus.

10. Typically the globally IP settings (i.e. IP address for the WAN interface) for a PPPoA or PPPoA connection will use Dynamic IP assignment from the ISP. Some accounts may be assigned a specific global IP address. If you have been give an IP address for you PPPoE/PPPoA connection, select the **Static IP** option from the **IP Control** pull-down menu. This menu can be used to configure the WAN port as an Unnumbered IP interface. (See table below for Unnumbered IP)
11. Most users will not need to change **ATM** settings. If this is the first time you are setting up the ADSL connection it is recommended that you leave the **Service Category** settings at the default values until you have established the connection. See the table on page 23 for a description of the parameters available for ATM traffic shaping.
12. When you are satisfied that all the WAN settings are configured correctly, click on the **Apply** button.
13. The new settings must be saved and the Router must be restarted for the settings to go into effect. To **Save & Reboot** the Router, click on the **Tools** directory tab and then click the **Save & Reboot** menu button. In the Save and Reboot menu, click the **Reboot** button under **Force the DVA-G3340S to system restart**. The Router will save the new settings and restart. Upon restarting the Router will automatically establish the WAN connection.

Additional settings for PPPoE/PPPoA connections:

PPPoE/PPPoA Parameters	Description
<b>User Name</b>	For PPP connections, a User Name and Password are used to identify and verify your account to the ISP. Enter the User Name for your ADSL service account. User names and passwords are case-sensitive, so enter this information exactly as given to you by your ISP.
<b>Password</b>	Together with the User Name, this is used to verify your account to the ISP. Enter the Password exactly as given to you by your ISP.
<b>Connection Type</b>	This specifies the protocol (PPPoE or PPPoA) and the encapsulation method (LLC or VC-MUX) used for your connection. The options available are <i>PPPoE LLC</i> , <i>PPPoA LLC</i> or <i>PPPoA VC-MUX</i> .

<p><b>MTU</b></p>	<p>The Maximum Transmission Unit size may be changed if you want to optimize efficiency for uploading data through the WAN interface. The default setting (1400 bytes) should be suitable for most users. Some user may want to adjust the setting to optimize performance for wireless traffic or when low latency is desired (such as with Internet gaming). It is highly recommended that the user research how adjusting the MTU may effect network traffic for better or worse.</p>
<p><b>MRU</b></p>	<p>Similar to the MTU, except this applies to Maximum Received Unit size for downloading data. Most users will be happy with the default setting (1492 bytes). However this may also be optimized for fast downloads of general bulk Internet traffic, for low latency or for downloading to computers on the Wireless LAN. As with the MTU setting, the user should carefully consider how changing the MRU may effect Internet downloads for all systems on your LAN.</p>
<p><b>Default Route</b></p>	<p>When this is enabled, the Router will be considered to be the primary gateway to the Internet and WAN for systems on your network. If you are using the Router on a network with one or more alternative gateway routers, you may prefer to disable this if you will use another router as the primary gateway.</p>
<p><b>NAT</b></p>	<p>Network Address Translation may be enabled or disabled with the pull-down menu. Keep in mind that disabling NAT allows on a single computer to be used for Internet access through the Router. NAT is enabled and disable for the Router on all connections (i.e. Pvc0 – Pvc7) if your Router is set up for multiple virtual connections.</p>
<p><b>Firewall</b></p>	<p>Use this to universally enable or disable the Firewall and Filter features available in the Router. If you disable this you will not be able to configure settings in the Firewall or Filters menus in the Advanced directory.</p>
<p><b>IP Control</b></p>	<p>This is used to determine how global IP settings are handled for the WAN interface. Typically PPPoE or PPPoA connections will use the default setting for <i>Dynamic IP</i>. Some users will be given a specific IP address for the WAN interface. In this case you need to change this setting to <i>Static IP</i>. When Static IP is</p>

	<p>selected in the IP Control menu, you need to type in the global IP address provided to you by your ISP. The <i>IP Unnumbered</i> option is used if you want to set up a non-TCP/IP port protocol link through the WAN interface. An IP Unnumbered interface does not have an IP address and therefore cannot be managed via Telnet or any other TCP/IP application.</p>
<b>Static IP</b>	<p>If you have selected the <i>Static IP</i> option in the IP Control menu, type in the global IP address used for your WAN interface. This should be given to you by your ISP.</p>



## Dynamic IP Address Connection for WAN

Home > WAN > Dynamic IP Address

A Dynamic IP Address connection configures the Router to automatically obtain its global IP address from a DHCP server on the ISP's network. The service provider assigns a global IP address from a pool of addresses available to the service provider. Typically the IP address assigned has a long lease time, so it will likely be the same address each time the Router requests an IP address. To configure a Dynamic IP Address connection, perform the steps listed below. Some of the settings do not need to be changed the first time the device is set up, but can be changed later if you choose. See the table below for a description of all the settings available in this menu.

Section	Setting	Value
ATM VC Setting	PVC	Pvc0
	VPI	8
	VCI	35
	Virtual Circuit	Enabled
	WAN Setting	Dynamic IP Address
Dynamic IP	Connection Type	1483 Bridged IP LLC
	Cloned MAC Address	0:0:0:0:0:0
	Clone MAC Address	
	MTU	1400 bytes
	NAT	Enabled
	Firewall	Enabled
ATM	Service Category	UBR
	PCR	kbps
	SCR	kbps

**WAN Settings for Dynamic IP Address Connection**

1. Choose the **Dynamic IP Address** option from the **WAN Settings** pull-down menu.
2. Under the **ATM VC Settings** at the top of the menu should not be changed unless you have been instructed to change them. However, if you are instructed to change the **VPI** or **VCI** values, type in the values assigned for your account. Leave the **PVC** and **Virtual Circuit** setting at the default (*Pvc0* and *Enabled*) values for now. This can be used later if you are configuring multiple virtual circuits for your ADSL service. For more information on ATM VC Settings, see the table on page 25 below.
3. Under the **Dynamic IP** heading, choose the **Connection Type** from the pull-down menu. This defines both the connection type and encapsulation method used for your ADSL service. The available options are *1483 Bridged IP LLC* and *1483 Bridged IP VC-Mux*. If have not been provided specific information for the Connection Type setting, leave the default setting.



4. Some ISPs record the unique MAC address of your computer's Ethernet adapter when you first access their network. This can prevent the Router (which has a different MAC address) from being allowed access to the ISP's network (and the Internet). To clone the MAC address of your computer's Ethernet adapter, type in the MAC address in the **Cloned MAC Address** field and click the **Clone MAC Address** button.
5. Leave the **MTU** value at the default setting (default = 1400) unless you have specific reasons to change this (see table below).
6. **NAT** should remain enabled. If you disable NAT, you will not be able to use more than one computer for Internet connections. NAT is enabled and disabled system-wide, therefore if you are using multiple virtual connections, NAT will be disabled on all connections.
7. The **Firewall** should remain enabled for most users. If you choose to disable this you will not be able to use the features configured in the Firewall and Filters menus located in the Advanced directory. See the next chapter for more details on these menus.
8. Most users will not need to change **ATM** settings. If this is the first time you are setting up the ADSL connection it is recommended that you leave the **Service Category** settings at the default values until you have established the connection. See the table on page 23 for a description of the parameters available for ATM traffic shaping.
9. When you are satisfied that all the WAN settings are configured correctly, click on the **Apply** button.
10. The new settings must be saved and the Router must be restarted for the settings to go into effect. To **Save & Reboot** the Router, click on the **Tools** directory tab and then click the **Save & Reboot** menu button. In the Save and Reboot menu, click the **Reboot** button under **Force the DVA-G3340S to system restart**. The Router will save the new settings and restart. Upon restarting the Router will automatically establish the WAN connection.

Additional settings for Dynamic IP Address connections:

Dynamic IP Parameters	Description
<b>Connection Type</b>	This specifies the connection type and encapsulation method used for your Dynamic IP Address connection. The options available are <i>Bridged IP LLC</i> or <i>Bridged IP VC-MUX</i> .
<b>Cloned MAC Address</b>	This is not always necessary, but may be required for some ISPs. Type in the MAC address of your computer's Ethernet adapter in the Cloned MAC Address field and click the <b>Clone MAC Address</b> button. This will copy the information to a file used by the Router to present to the ISP's server used for

	<p>DHCP. Some ISPs record the unique MAC address of your computer's Ethernet adapter when you first access their network. If you want to later replace the cloned MAC address with the factory default setting, type in all zeros - 0:0:0:0:0:0 - and click the Clone MAC Address button.</p>
<b>MTU</b>	<p>The Maximum Transmission Unit size may be changed if you want to optimize efficiency for uploading data through the WAN interface. The default setting (1400 bytes) should be suitable for most users. Some user may want to adjust the setting to optimize performance for wireless traffic or when low latency is desired (such as with Internet gaming). It is highly recommended that the user research how adjusting the MTU may effect network traffic for better or worse.</p>
<b>NAT</b>	<p>Network Address Translation may be enabled or disabled with the pull-down menu. Keep in mind that disabling NAT allows on a single computer to be used for Internet access through the Router. NAT is enabled and disable for the Router on all connections (i.e. Pvc0 – Pvc7) if your Router is set up for multiple virtual connections.</p>
<b>Firewall</b>	<p>Use this to universally enable or disable the Firewall and Filter features available in the Router. If you disable this you will not be able to configure settings in the Firewall or Filters menus in the Advanced directory.</p>

## Bridged Connection for WAN

Home > WAN > Dynamic IP Address

For Bridged connections it will be necessary for most users to install additional software on any computer that will the Router for Internet access. The additional software is used for the purpose of identifying and verifying your account, and then granting Internet access to the computer requesting the connection. The connection software requires the user to enter the User Name and Password for the ISP account. This information is stored on the computer, not in the Router. Follow the instructions below to configure a Bridged connection for the WAN interface.

Section	Setting	Value
ATM VC Setting	PVC	Pvc0
	VPI	8
	VCI	35
	Virtual Circuit	Enabled
	WAN Setting	Bridge Mode
Bridge Mode	Connection Type	1483 Bridged IP LLC
ATM	Service Category	UBR
	PCR	kbps
	SCR	kbps

**WAN Settings Menu – Bridge Mode**

To configure a Dynamic IP Address connection, perform the steps listed below. Some of the settings do not need to be changed the first time the device is set up, but can be changed later if you choose. See the table below for a description of all the settings available in this menu.

1. Choose the **Bridge Mode** option from the **WAN Settings** pull-down menu.
2. Under the **ATM VC Settings** at the top of the menu should not be changed unless you have been instructed to change them. However, if you are instructed to change the **VPI** or **VCI** values, type in the values assigned for your account. Leave the **PVC** and **Virtual Circuit** setting at the default (*Pvc0* and *Enabled*) values for now. This can be used later if you are configuring multiple virtual circuits for your ADSL service. For more information on ATM VC Settings, see the table on page 25 below.
3. Under the **Bridge Mode** heading, choose the **Connection Type** from the pull-down menu. This defines both the connection type and encapsulation

method used for your ADSL service. The available options are *1483 Bridged IP LLC* and *1483 Bridged IP VC-Mux*. If have not been provided specific information for the Connection Type setting, leave the default setting.

4. Most users will not need to change **ATM** settings. If this is the first time you are setting up the ADSL connection it is recommended that you leave the **Service Category** settings at the default values until you have established the connection. See the table on page 23 for a description of the parameters available for ATM traffic shaping.
5. When you are satisfied that all the WAN settings are configured correctly, click on the **Apply** button.
6. The new settings must be saved and the Router must be restarted for the settings to go into effect. To **Save & Reboot** the Router, click on the **Tools** directory tab and then click the **Save & Reboot** menu button. In the Save and Reboot menu, click the **Reboot** button under **Force the DVA-G3340S to system restart**. The Router will save the new settings and restart. Upon restarting the Router will automatically establish the WAN connection.

## Static IP Address for Connection WAN

[Home](#) > [WAN](#) > [Static IP Address](#)

When the Router is configured to use Static IP Address assignment for the WAN connection, you must manually assign a global IP Address, Subnet Mask and Gateway IP Address used for the WAN connection. Most users will also need to configure DNS server IP settings in the DNS Settings configuration menu (see below). Follow the instruction below to configure the Router to use Static IP Address assignment for the WAN connection. To configure a Dynamic IP Address connection, perform the steps listed below. Some of the settings do not need to be changed the first time the device is set up, but can be changed later if you choose. See the table below for a description of all the settings available in this menu.

Home	Advanced	Tools	Status	Help		
<b>ATM VC Setting</b>						
PVC	Pvc0 <input type="button" value="v"/>					
VPI	8 <input type="button" value="x"/>					
VCI	35 <input type="button" value="x"/>					
Virtual Circuit	Enabled <input type="button" value="v"/>					
WAN Setting	Static IP Address <input type="button" value="v"/>					
<b>Static IP</b>						
Connection Type	1483 Bridged IP LLC <input type="button" value="v"/>					
IP Address	0.0.0.0 <input type="button" value="x"/>					
Subnet Mask	<input type="button" value="x"/>					
Gateway Address	<input type="button" value="x"/>					
Primary DNS Address	168.95.1.1 <input type="button" value="x"/>					
Secondary DNS Address	<input type="button" value="x"/>					
MTU	1400 <input type="button" value="x"/> bytes					
NAT	Enabled <input type="button" value="v"/>					
Firewall	Enabled <input type="button" value="v"/>					
<b>ATM</b>						
Service Category	UBR <input type="button" value="v"/>					
PCR	<input type="button" value="x"/> kbps					
SCR	<input type="button" value="x"/> kbps					
				<input type="button" value="check"/>	<input type="button" value="cancel"/>	<input type="button" value="help"/>
				Apply	Cancel	Help

### WAN Settings - Static IP

Additional settings for Static IP Address connections:

Static IP Parameters	Description
<b>Connection Type</b>	This specifies the connection type and the encapsulation method used for your Static IP Address connection. The options available are <i>Bridged IP LLC</i> , <i>Bridged IP VC-MUX</i> , <i>Routed IP LLC</i> , <i>Routed IP</i>

	<i>VC-MUX or IPoA.</i>
<b>IP Address</b>	This is the permanent global IP address for your account. This is the address that is visible outside your private network. Get this from your ISP.
<b>Subnet Mask</b>	This is the Subnet mask for the WAN interface. Get this from your ISP.
<b>Gateway Address</b>	This is the IP address of your ISP's Gateway router. It provides the connection to the Router for IP routed traffic that is outside your ISP's network. That is, this will be the primary connection from the Router to most of the Internet. Get this IP address from your ISP.
<b>ARP Server Address</b> (for IPoA connection only)	This is not required for all IPoA connections. Check with your ISP for an ARP server IP address if this is necessary for your IPoA connection.
<b>Primary DNS Address</b>	This is the IP address of the first choice for Domain Name Service (DNS) used to match the named URL web address used by most browsers with the actual global IP address used for a web server. Usually this will be a server owned by the ISP. Get this IP address from your ISP.
<b>Secondary DNS Address</b>	This is the second choice for a DNS server. Get this IP address from your ISP.
<b>MTU</b>	The Maximum Transmission Unit size may be changed if you want to optimize efficiency for uploading data through the WAN interface. The default setting (1400 bytes) should be suitable for most users. Some user may want to adjust the setting to optimize performance for wireless traffic or when low latency is desired (such as with Internet gaming). It is highly recommended that the user research how adjusting the MTU may effect network traffic for better or worse.
<b>MRU</b>	Similar to the MTU, except this applies to Maximum Received Unit size for downloading data. Most users will be happy with the default setting (1492 bytes). However this may also be optimized for fast downloads of general bulk Internet traffic, for low latency or for downloading to computers on the Wireless LAN. As with the MTU setting, the user should carefully consider how changing the MRU may effect Internet downloads for all systems on your LAN.

<b>Firewall</b>	Use this to universally enable or disable the Firewall and Filter features available in the Router. If you disable this you will not be able to configure settings in the Firewall or Filters menus in the Advanced directory.
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**ATM Traffic Shaping**  
[Home](#) > [WAN](#)

The ATM settings in the WAN configuration menus for the different connection types can be used to adjust QoS parameters for ADSL clients. This may not be available to all ADSL accounts. Ask your ISP if ATM Traffic Shaping is available for your account.

**ATM**

Service Category UBR

PCR  kbps

SCR  kbps

**ATM Settings for WAN connection (PPPoE/PPPoA menu)**

Additional ATM settings for PPPoE or PPPoA connections:

ATM QoS Parameters	Description
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<p><b>Service Category</b></p>	<p>The ATM settings allows the user to adjust ATM Quality of Service (QoS) or traffic parameters to suit specific traffic requirements. For applications or circumstances where packet loss or packet delay are a concern, ATM QoS can be adjusted to minimize problems. For most accounts, it will not be necessary to change these settings. Altering QoS settings can adversely affect performance of some commonly used Internet applications.</p> <p>If you plan to change QoS or traffic parameters, contact your ISP or network services provider for information on what types of adjustment are available or possible for your account. Your ISP may not support the class of service you want to use.</p> <p>To adjust ATM QoS parameters, select one of the Service Categories listed here and type in the PCR value in the entry field below. For the VBR service category, an additional parameter (SCR) must also be</p>
--------------------------------	--

	<p>defined.</p> <p><i>UBR</i> – Unspecified Bit Rate, this is the default category used for general-purpose Internet traffic where normal levels of packet loss and delay are acceptable. For some applications or for multiple connection accounts, it may be desirable to specify the PCR.</p> <p><i>CBR</i> – Constant Bit Rate, usually used in circumstances where very low packet loss and very low Cell Delay Variable (CDV) are desirable.</p> <p><i>VBR</i> – Variable Bit Rate, usually used when network traffic is characterized by bursts of packets at variable intervals, and some moderate packet loss and delay is acceptable. This category is typically used for audio and video applications such as teleconferencing. The network must support QoS Class 2 to use VBR.</p>
<p><b>PCR</b></p>	<p>Peak Cell Rate – The PCR is inversely related to the time interval between ATM cells. It is specified for all three service categories (UBR, CBR and VBR) in Kbps.</p>
<p><b>SCR</b></p>	<p>Sustainable Cell Rate – The SCR is defined for the VBR service category. This is the rate that can be sustained for “bursty”, on-off traffic sources. It is a function of Maximum Burst Size (MBS) and the time interval (between cells).</p>



## ATM Traffic Shaping

[Home](#) > [WAN](#)

The ATM settings in the WAN configuration menus for the different connection types can be used to adjust QoS parameters for ADSL clients. This may not be available to all ADSL accounts. Ask your ISP if ATM Traffic Shaping is available for your account.

### ATM VC Setting

PVC Pvc0 ▾

VPI 8

VCI 35

Virtual Circuit Enabled ▾

WAN Setting PPPoE/PPPoA ▾

**ATM VC Settings in WAN connection menu**

The table below describes the ATM VC settings used to configure a connection for an ADSL account.

ATM VC Parameters	Description
<b>PVC</b>	The Router supports using up to eight multiple virtual connections. This menu allows the user to configure WAN settings for all the available connections (see instructions below on how to set up Multiple Virtual Connections). Use the PVC menu to select the connection (Pvc0 to Pvc7) you want to configure. Since most users will use only a single connection, the default setting Pvc0 can be used for any changes made to the WAN settings.
<b>VPI</b>	The Virtual Path Identifier is used with the VCI to define a dedicated circuit on the ATM network portion of the connection to the Internet and WAN. Most users will not need to change this setting.
<b>VCI</b>	The Virtual Channel Identifier is used with the VPI to define a dedicated circuit on the ATM network portion of the connection to the Internet and WAN. Most users will not need to change this setting.
<b>Virtual Circuit</b>	As with the PVC setting, this is mainly for use by clients who are configuring the Router for multiple virtual connections. Use this to enable or disable the PVC you are currently configuring. By default, the Pvc0 is enabled and the remaining PVCs are

disabled.

**WAN Setting**

Use this to change the type of connection used. The options are: *PPPoE/PPPoA*, *Dynamic IP Address*, *Static IP Address* and *Bridge Mode*. Each option will offer a different settings for configuration.

## LAN IP Settings

[Home](#) > LAN

You can configure the LAN IP address to suit your preference. Many users will find it convenient to use the default settings together with DHCP service to manage the IP settings for their private network. The IP address of the Router is the base address used for DHCP. In order to use the Router for DHCP on your LAN, the IP address pool used for DHCP must be compatible with the IP address of the Router. The IP addresses available in the DHCP IP address pool will change automatically if you change the IP address of the Router. See the next section for information on DHCP setup.



The screenshot shows a web interface for configuring LAN IP settings. At the top, there is a navigation bar with tabs for 'Home', 'Advanced', 'Tools', 'Status', and 'Help'. The 'Home' tab is selected. Below the navigation bar, the page title is 'Management IP'. A paragraph of text explains that these are the IP settings for the LAN interface of a DSL-G604T router and that they can be referred to as 'Private settings'. Below this text, there are two input fields: 'IP Address' with the value '192.168.1.1' and 'Subnet Mask' with the value '255.255.255.0'. At the bottom right of the form, there are three buttons: 'Apply' (with a green checkmark icon), 'Cancel' (with an orange 'X' icon), and 'Help' (with a red plus icon).

### Configure LAN IP settings

To change the **LAN IP Address** or **LAN Network Mask**, type in the desired values and click the **Apply** button. Your web browser should automatically be redirected to the new IP address. You will be asked to login again to the Router's web manager.

## DHCP Settings

Home > DHCP

The DHCP server is enabled by default for the Router's Ethernet LAN interface. DHCP service will supply IP settings to workstations configured to automatically obtain IP settings that are connected to the Router through an Ethernet port. When the Router is used for DHCP it becomes the default gateway for DHCP client connected to it. Keep in mind that if you change the IP address of the Router the range of IP addresses in the pool used for DHCP on the LAN will also be changed. The IP address pool can be up to 253 IP addresses.

To display the **DHCP Server** menu, click the **DHCP** button in the **Home** directory. Any active DHCP Clients appear listed in the **DHCP Client List** below the configuration menu. The IP address and MAC address for active DHCP clients are displayed in the list.

**Home** **Advanced** **Tools** **Status** **Help**

### DHCP Settings

The device can be setup as a DHCP Server to distribute IP addresses to the LAN network.

No DHCP      Choose this option. The IP address must be manually assigned at each device connected to DVA-G3340S.

DHCP Server      Choose this option to setup as a DHCP server to distribute IP addresses to the LAN network.

#### DHCP Server

Starting IP Address	<input type="text" value="192.168.1.2"/>
Ending IP Address	<input type="text" value="192.168.1.254"/>
Lease Time	<input type="text" value="3600"/> seconds
DNS Mode	<input checked="" type="radio"/> Auto <input type="radio"/> Manual
Primary DNS	<input type="text" value="192.168.1.1"/>
Secondary DNS	<input type="text"/>
Static IP Assignment	

#### DHCP Server

Starting IP Address	<input type="text" value="192.168.1.2"/>
Ending IP Address	<input type="text" value="192.168.1.254"/>
Lease Time	<input type="text" value="3600"/> seconds
DNS Mode	<input checked="" type="radio"/> Auto <input type="radio"/> Manual
Primary DNS	<input type="text" value="192.168.1.1"/>
Secondary DNS	<input type="text"/>
Static IP Assignment	

	MAC Address	IP Address
Static IP1:	<input type="text"/>	<input type="text"/>
Static IP2:	<input type="text"/>	<input type="text"/>
Static IP3:	<input type="text"/>	<input type="text"/>
Static IP4:	<input type="text"/>	<input type="text"/>
Static IP5:	<input type="text"/>	<input type="text"/>

Enter MAC Address format as xx-xx-xx-xx-xx-xx, i.e: 00-0C-6E-D5-11-22, and IP Address format as yy.yy.yy.yy, i.e: 192.168.1.2

Apply    Cancel    Help

**Configure DHCP server settings for the LAN**

The two options for DHCP service are as follows:

- You may use the Router as a DHCP server for your LAN.
- You can disable DHCP service and manually configure IP settings for your workstations.

You may also configure DNS settings for the LAN when using the Router in DHCP mode. In Auto **DNS Mode**, the Router will automatically relay DNS settings to properly configured DHCP clients. To manually enter DNS IP addresses, select the **Manual DNS Mode** option and type in a **Primary** and **Secondary DNS** IP Address in the field provided. The manually configured DNS settings will be supplied to clients that are configured to request them from the Router.

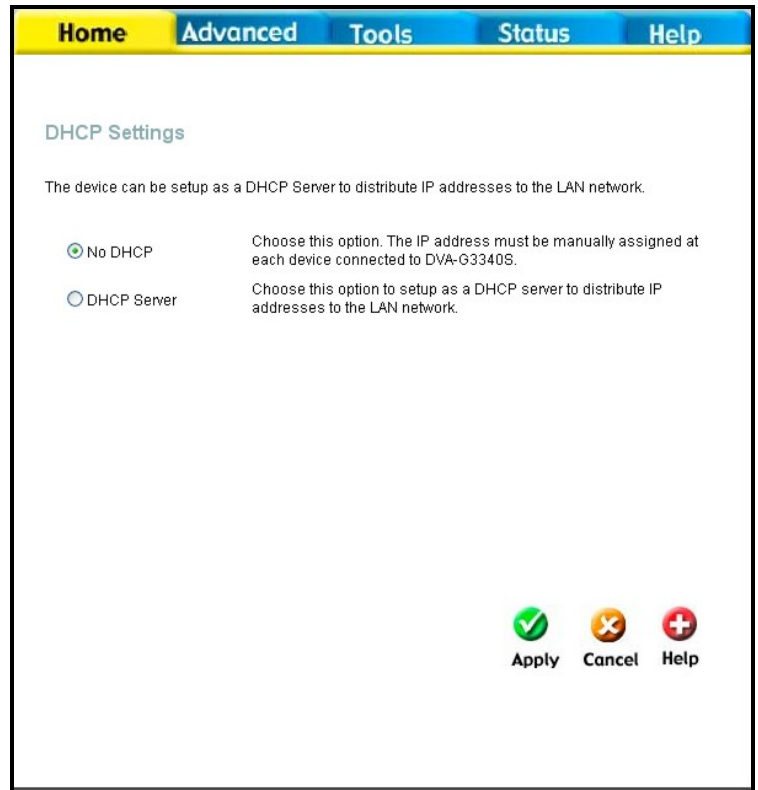
Follow the instructions below according to which of the above DHCP options you want to use. When you have configured the DHCP Settings as you want them, click the **Apply** button to commit the new settings. The new settings must be saved and the Router must be restarted for the settings to go into effect. To save the new settings and restart the Router, click on the **Tools** directory tab and then click the **System** menu button. Click the **Reboot** button under **Force the DVA-G3340S to system restart**. The Router will save the new DHCP settings and restart.

### **Use the Router for DHCP**

To use the built-in DHCP server, click to select the **DHCP Server** option if it is not already selected. The IP Address Pool settings can be adjusted. The **Starting IP Address** is the lowest available IP address (default = 192.168.1.2). If you change the IP address of the Router this will change automatically to be 1 more than the IP address of the Router. The **Ending IP Address** is the highest IP address number in the pool. Type in the **Lease Time** in the entry field provided. This is the amount of time in seconds that a workstation is allowed to reserve an IP address in the pool if the workstation is disconnected from the network or powered off.

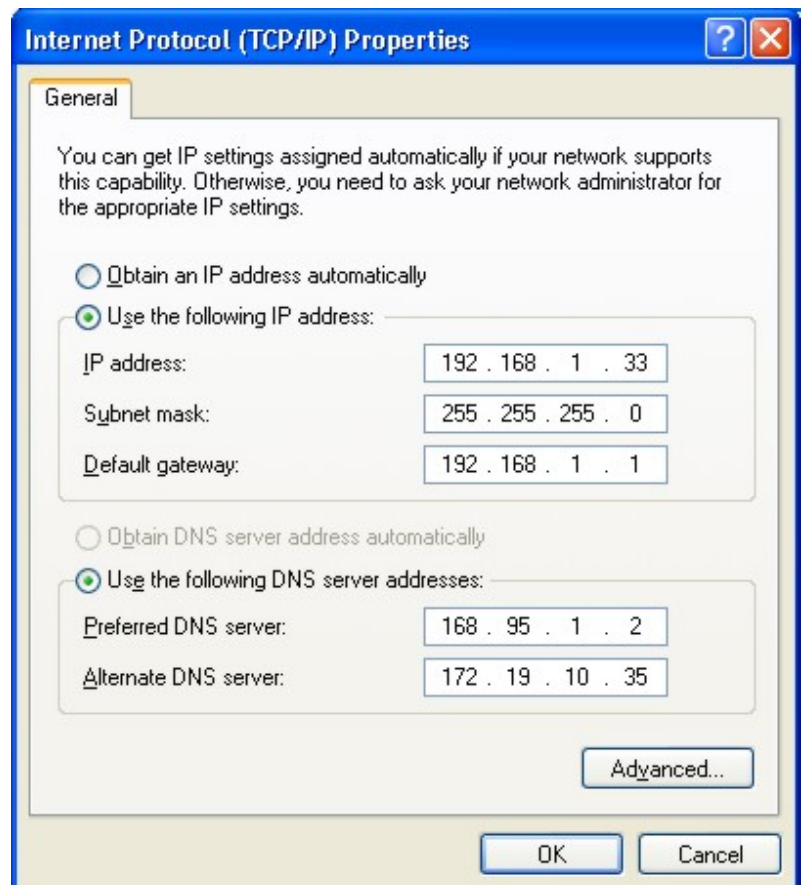
## Disable the DHCP Server

To disable DHCP, click to select the **No DHCP** option and click on the **Apply** button. Choosing this option requires that workstations on the local network must be configured manually or use another DHCP server to obtain IP settings. If you configure IP settings manually, make sure to use IP addresses in the subnet of the Router. You will need to use the Router's IP address as the Default Gateway for the workstation in order to provide Internet access.



DHCP Settings menu with DHCP disabled

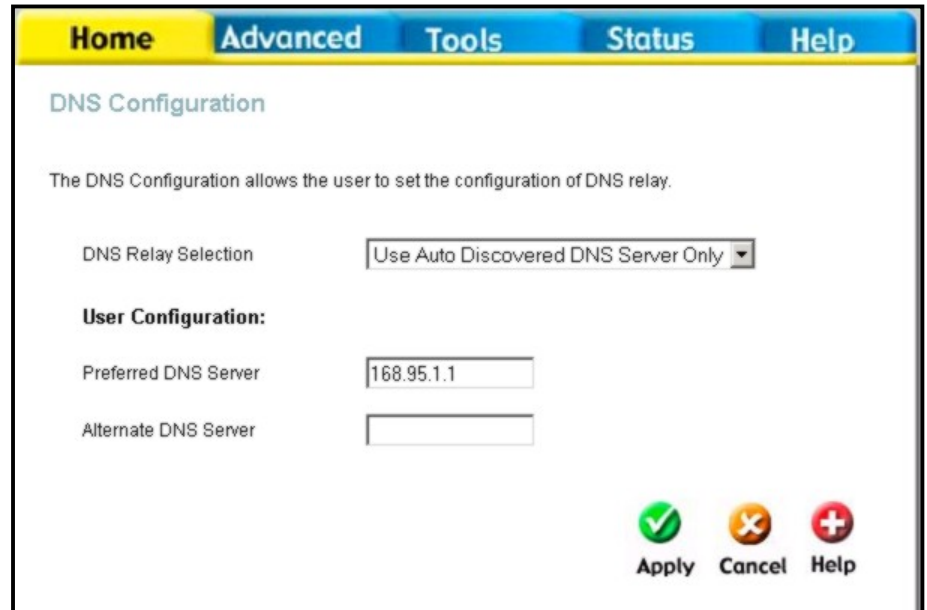
To manually configure IP settings on Windows workstations, open the TCP/IP Properties menu and select the "Use the following IP address" option. You will need to supply the IP address, Subnet mask and Default gateway for each workstation. The example here also uses manually configured DNS settings.



## DNS Settings

[Home](#) > [DNS](#)

The Router can be configured to relay DNS settings from your ISP or another available service to workstations on your LAN. When using DNS relay, the Router will accept DNS requests from hosts on the LAN and forward them to the ISP's, or alternative DNS servers. DNS relay can use auto discovery or the DNS IP address can be manually entered by the user. Alternatively, you may also disable the DNS relay and configure hosts on your LAN to use DNS servers directly. Most users who are using the Router for DHCP service on the LAN and are using DNS servers on the ISP's network, will leave DNS relay enabled (either auto discovery or user configured).



Home Advanced Tools Status Help

### DNS Configuration




The DNS Configuration allows the user to set the configuration of DNS relay.

DNS Relay Selection

**User Configuration:**

Preferred DNS Server

Alternate DNS Server

Apply Cancel Help

### Configure DNS Settings

In the DNS Relay Selection pull-down menu, choose to *Use Auto Discovery*, *Use User Configured* or *Disable* DNS relay.

If you have not been given specific DNS server IP addresses or if the Router is not pre-configured with DNS server information, select the Auto Discover option for DNS relay. Auto discovery DNS instructs the Router to automatically obtain the DNS IP address from the ISP through DHCP. If your WAN connection uses a Static IP address, auto discovery for DNS cannot be used.

If you have DNS IP addresses provided by your ISP, enter these IP addresses in the available entry fields for the **Preferred DNS Server** and the **Alternative DNS Server**. If you choose to disable DNS relay, it will be necessary to configure DNS settings for hosts on the LAN since they will not be depending on the Router to forward the DNS requests.

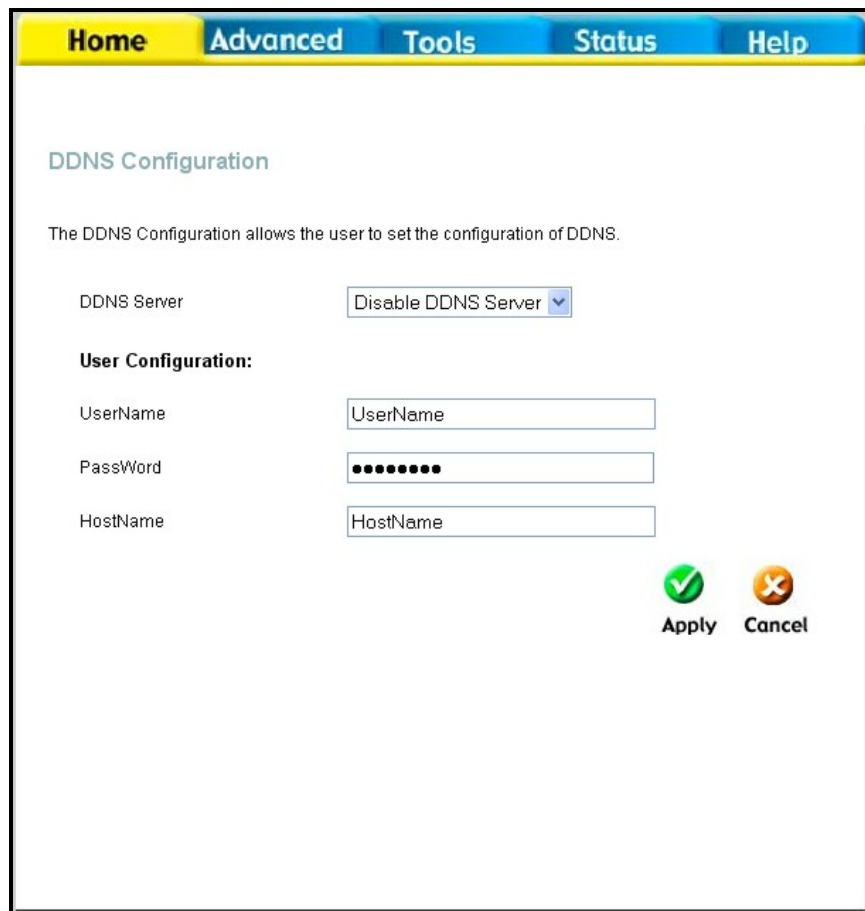
When you have configured the DNS settings as desired, click the **Apply** button.



## Dynamic DNS Settings

[Home](#) > [Dynamic DNS](#)

The Router supports DDNS, a service that maps Internet domain names to IP addresses. DDNS serves a similar purpose to DNS in that DDNS allows anyone hosting a Web or FTP server to advertise a public name to prospective users. Unlike DNS that only works with static IP addresses, DDNS works with dynamic IP addresses, such as those assigned by an ISP or other DHCP server.



The screenshot shows a web interface for configuring DDNS. At the top, there is a navigation bar with tabs for 'Home', 'Advanced', 'Tools', 'Status', and 'Help'. The 'Advanced' tab is selected. Below the navigation bar, the page title is 'DDNS Configuration'. A descriptive text states: 'The DDNS Configuration allows the user to set the configuration of DDNS.' The configuration options are as follows:

- DDNS Server:** A dropdown menu currently set to 'Disable DDNS Server'.
- User Configuration:**
  - UserName:** A text input field containing 'UserName'.
  - PassWord:** A text input field containing a series of dots.
  - HostName:** A text input field containing 'HostName'.

At the bottom right of the form, there are two buttons: 'Apply' (with a green checkmark icon) and 'Cancel' (with an orange 'X' icon).

### Configure DDNS Settings

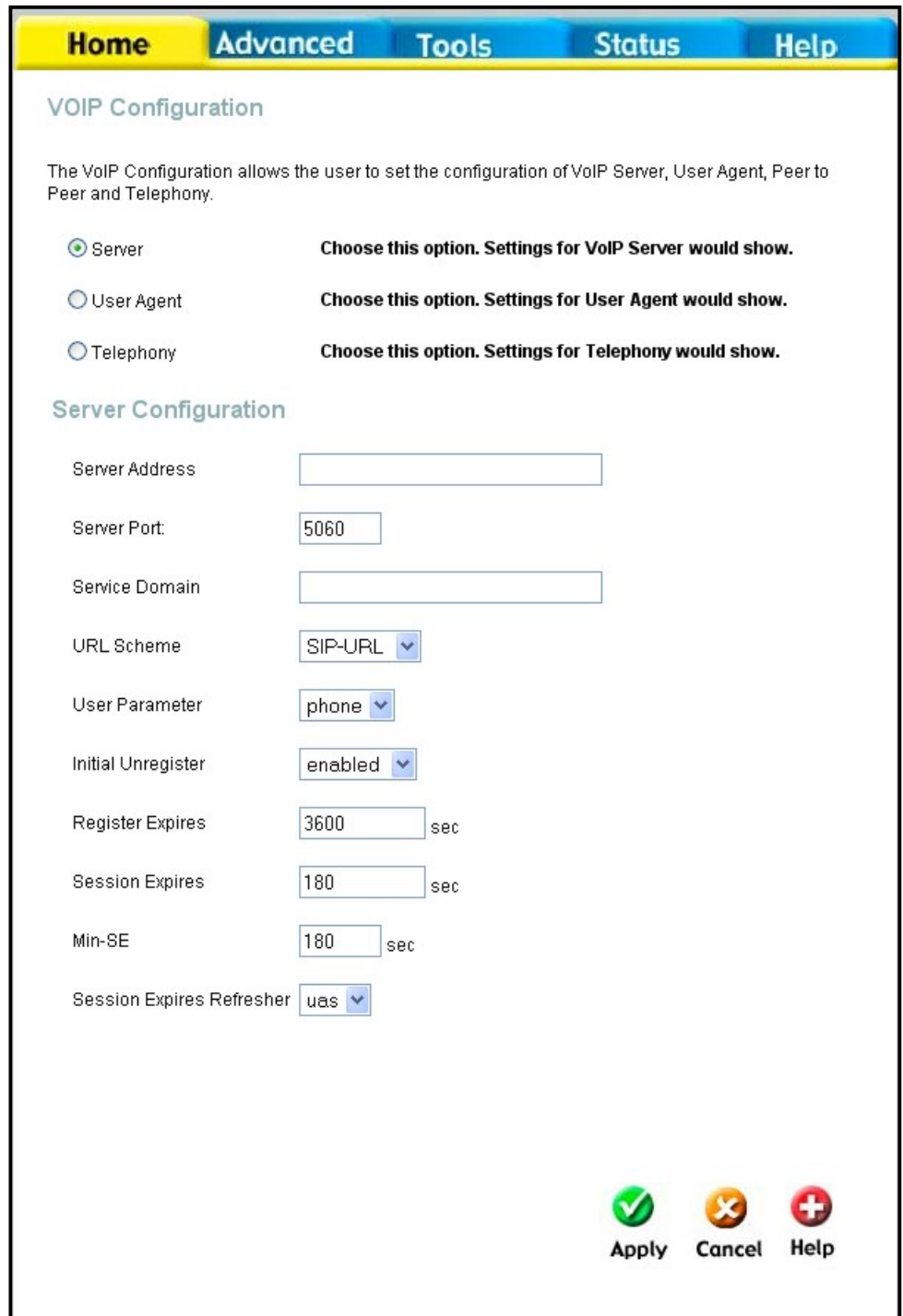
DDNS is popular with home networkers, who typically receive dynamic, frequently-changing IP addresses from their service provider. To use DDNS, one simply signs up with a provider and installs network software on their host to monitor its IP address.



## VOIP Settings – Server

Home > Voice > Server

The Router can be configured to handle voice signals over the Internet Protocol (Voice Over IP – VOIP).



### Configure VOIP Server Settings

The table below describes the VOIP Server settings.

VOIP Server Parameters	Description
Server Address	Enter the IP address of the SIP Server in this field.
Server Port	Enter the SIP server's listening port for the SIP in this field. Leave this field set to the default if your VoIP

	service provider did not give you a server port number for SIP.
<b>Service Domain</b>	Enter the SIP service domain name in this field.
<b>URL Scheme</b>	Select <b>SIP-URL</b> to have the router include the domain name with the SIP number in the SIP messages that it sends. Select <b>TEL-URL</b> to have the router use the SIP number without a domain name in the SIP messages that it send.
<b>User Parameter</b>	You can set this to <b>phone</b> or <b>none</b> . This determines whether or not the phone number is appended to the information forwarded to your SIP server. Your VoIP service provider will instruct you which setting to use.
<b>Initial Unregister</b>	You can set this to <b>enabled</b> or <b>disabled</b> . Some SIP servers can become unstable if you are registered more than once (due to a power outage and subsequent reboot of the router, for example). This setting allows your router to “unregister” itself when it is rebooted, removing the previously sent registration information.
<b>Register Expires</b>	Use this field to set how long the router will wait before sending a repeat registration request if a registration attempt fails or there is no response from the registration server.
<b>Session Expires</b>	This field will set the longest time that the router will allow a SIP session to remain idle (without traffic) before dropping it.
<b>Min-SE</b>	When two SIP devices negotiate a SIP session, they must negotiate a common expiration time for idle SIP sessions. this field sets the shortest expiration time that the router will accept. The router checks the session expiration values of incoming SIP INVITE requests against the minimum session expiration value that you enter here. If the session expiration of an incoming INVITE request is less than this value, the router negotiates with the other SIP device to increase the session expiration value to match the minimum session expiration value.
<b>Session Expires Refresher</b>	This determines which side of an expired call session will initiate the session refresh. <b>uac</b> – specifies the Caller side will initiate the session refresh. <b>uas</b> – specifies the Call receiver (the “Callee”) will initiate the session refresh.

## VOIP Settings – User Agent

Home > Voice > User Agent

The Router can be configured to handle voice signals over the Internet Protocol (Voice Over IP – VOIP).

The screenshot shows the 'VOIP Configuration' page of a router. At the top, there are navigation tabs: 'Home' (highlighted in yellow), 'Advanced', 'Tools', 'Status', and 'Help'. Below the tabs, the page title is 'VOIP Configuration'. A descriptive text states: 'The VoIP Configuration allows the user to set the configuration of VoIP Server, User Agent, Peer to Peer and Telephony.' There are three radio button options: 'Server' (unselected), 'User Agent' (selected), and 'Telephony' (unselected). Each option has a corresponding instruction: 'Choose this option. Settings for VoIP Server would show.', 'Choose this option. Settings for User Agent would show.', and 'Choose this option. Settings for Telephony would show.' Below this is the 'User Agent Configuration' section, which includes several input fields: 'Same Phone Number' (a dropdown menu set to 'Disable'), 'Line' (a dropdown menu set to '1'), 'Phone Number' (an empty text box), 'Display Name' (an empty text box), 'User Agent Port' (a text box containing '5060'), 'Authentication Username' (an empty text box), 'Authentication Password' (an empty text box), and 'Confirm Password' (an empty text box). At the bottom right of the form are three buttons: 'Apply' (with a green checkmark icon), 'Cancel' (with a red 'X' icon), and 'Help' (with a red plus icon).

### Configure VOIP User Agent Settings

The table below describes the VOIP Server settings.

VOIP User Agent Parameters	Description
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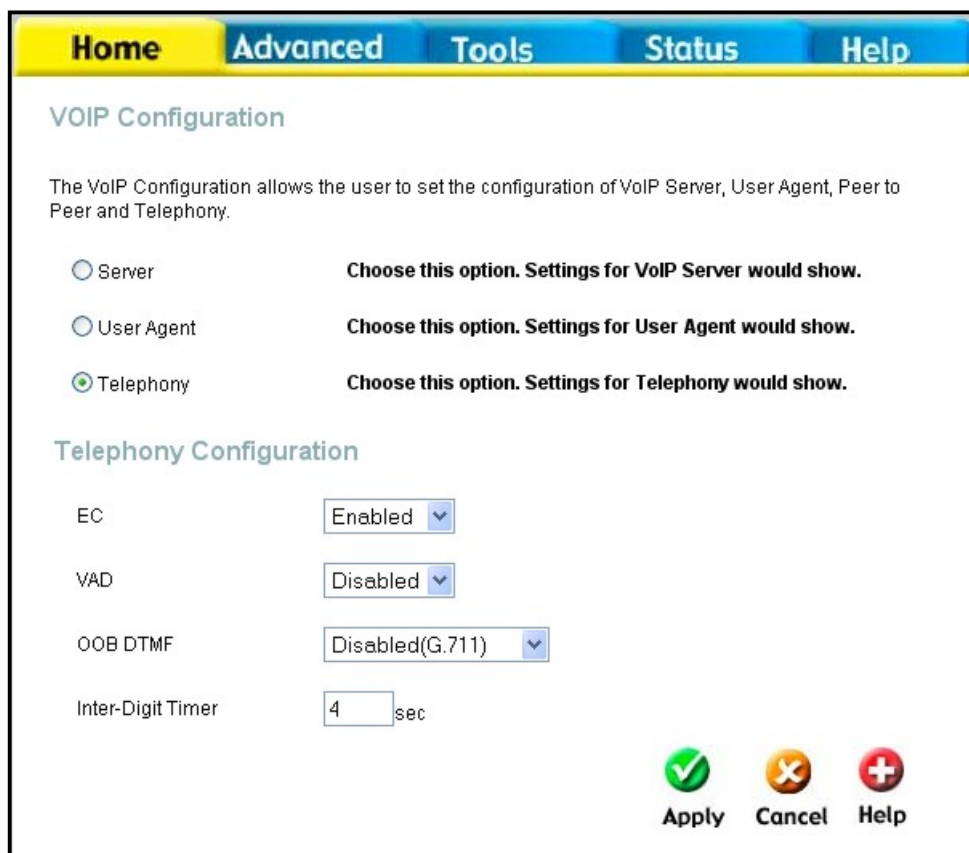
<b>Same Phone Number</b>	Use this field to <b>Enable</b> or <b>Disable</b> the use of the same telephone number for the User Agent as for the Server Agent.
<b>Line</b>	Use this field to assign <b>line 1</b> or <b>line 2</b> telephone sockets (on the back of the router) to the information entered in the User Agent.
<b>Phone Number</b>	The telephone number assigned to the User Agent.
<b>Display Name</b>	The name that will be displayed when the User Agent is in use.

<b>User Agent Port</b>	This selects the port number the router will listen to when determining when calls are being made.
<b>Authentication Username</b>	The Username used to access your SIP server and your VoIP service provider.
<b>Authentication Password</b>	The Password used to access your SIP server and your VoIP service provider.
<b>Confirm Password</b>	Retype your password to confirm.

## VOIP Settings – Telephony

[Home](#) > [Voice](#) > [Telephony](#)

The Router can be configured to handle voice signals over the Internet Protocol (Voice Over IP – VOIP).



### Configure VOIP User Agent Settings

The table below describes the VOIP Server settings.

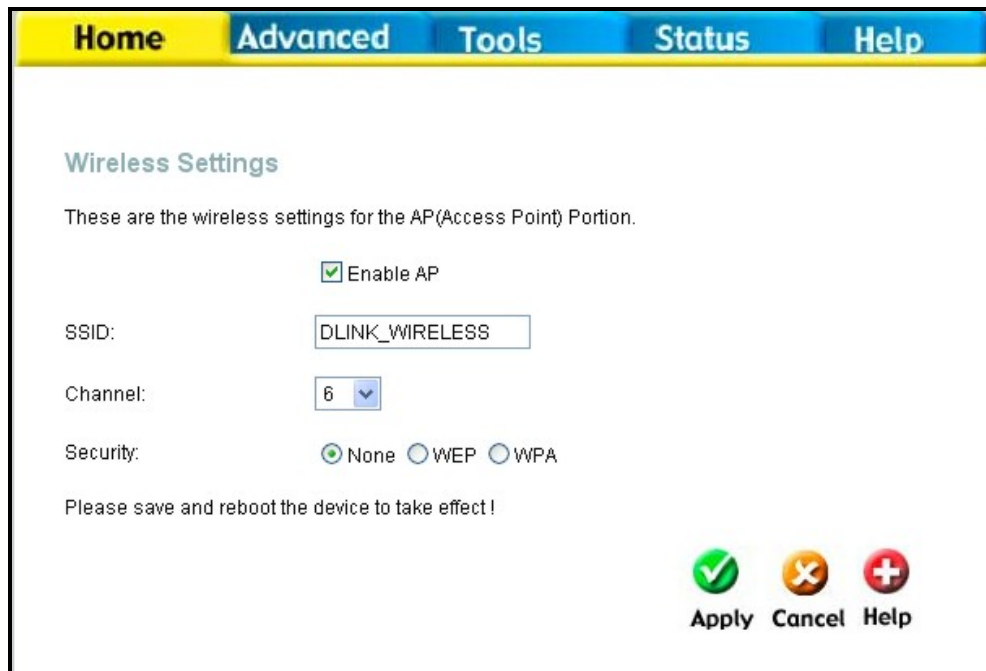
VOIP Telephony Parameters	Description
<b>EC</b>	Echo Cancellation (EC) – G.168 is an ITU standard for eliminating echo. Select <b>Enabled</b> to cancel the echo caused by the sound of your voice reverberating in the telephone receiver when you speak.
<b>VAD</b>	Voice Activity Detection (VAD) – detects whether or not speech is present. This lets the router reduce the bandwidth that a call uses by not transmitting

	“silent Packets” when you are not speaking.
<b>OOB DTMF</b>	Out-of band Dual Tone Multi-frequency – The Dual Tone Multi-frequency (DTMF) mode sets how the router will handle the tones that your telephone makes when you push its buttons. It is recommended that you use the same mode that your VoIP service provider uses. Select <b>Enabled (RFC 2833)</b> to send the DTMF tones in RTP packets. Select <b>Disabled (G.711)</b> to include the DTMF tones in the voice data stream. This method works best when you are using a codec that does not use compression (like G.711).
<b>Inter-Digit Timer</b>	determines the amount of time that will elapse between sending dialed digits when making a VoIP telephone call.

## Wireless Settings

[Home](#) > [Wireless](#)

The two essential settings for wireless LAN operation are the SSID and Channel Number. The SSID (Service Set Identifier) is used to identify a group of wireless LAN components. The SSID can be broadcast or can be hidden (not broadcast). Use the Wireless Settings menu to configure these basic settings. Wireless security using encryption (WEP) or access limitation (WPA) are also configured with the Wireless Settings method. Read more below about setting up security for Wireless LAN.



The screenshot shows a web interface with a navigation bar at the top containing 'Home', 'Advanced', 'Tools', 'Status', and 'Help'. The 'Home' tab is selected. Below the navigation bar, the page title is 'Wireless Settings'. A sub-header reads 'These are the wireless settings for the AP(Access Point) Portion.' The settings include: 'Enable AP' (checked), 'SSID' (text input field containing 'DLINK\_WIRELESS'), 'Channel' (dropdown menu showing '6'), and 'Security' (radio buttons for 'None', 'WEP', and 'WPA', with 'None' selected). A note at the bottom states 'Please save and reboot the device to take effect!'. At the bottom right, there are three buttons: 'Apply' (green checkmark), 'Cancel' (orange X), and 'Help' (red plus sign).

### Wireless Settings menu

#### Configure Basic Wireless Settings

Follow the instructions below to change basic wireless settings.

1. **To disable the wireless interface:** click in the **Enable AP** check box to remove the check mark and click the **Apply** button. This will immediately disable the wireless access point, it is not necessary to restart the access point to make this change.
2. **If the wireless interface has been disabled:** click the **Enable AP** check box to place a check mark in it. Click the **Apply** button. It is not necessary to restart the access point unless you have also changed the channel or SSID.
3. The **SSID** can be changed to suit your wireless network. Remember that any wireless device using the access point must have the same SSID and use the same channel. The SSID can be a continuous character string (i.e. no spaces) of up to 16 characters in length. To disable SSID sharing (SSID broadcast), click to select the Hidden SSID box. Click the **Apply** button to save any change to the SSID. A hidden SSID makes it more difficult for wireless clients to join or leave the SSID as they must be manually configured to join.
4. The **Channel:** may be changed to channels that are available in your region. Channels available for wireless LAN communication are subject to regional and national regulation. Click the **Apply** button to save any change to the Channel.
5. Make sure you save the new wireless settings. Use the System Settings menu to save the new settings.

## Wireless Settings – WEP

Home > Wireless > WEP

The wireless LAN interface of the DVA-G3340S has various security features used to limit access to the device or to encrypt data and shared information. The available standardized security for wireless LAN includes WEP and WPA. Wireless security is configured with the **Wireless Settings** menu located in the **Home** directory.

The screenshot shows the 'Wireless Settings' page for WEP configuration. At the top, there are navigation tabs: 'Home' (highlighted in yellow), 'Advanced', 'Tools', 'Status', and 'Help'. Below the tabs, the title 'Wireless Settings' is displayed. A sub-header reads: 'These are the wireless settings for the AP(Access Point) Portion.' The configuration options include: 'Enable AP' (checked), 'SSID' (DLINK\_WIRELESS), 'Channel' (6), 'Security' (WEP selected), and 'Enable WEP Wireless Security' (unchecked). The 'Authentication Type' is set to 'Open'. Below this, there are four rows for encryption keys, each with a radio button, an 'Encryption Key' input field, and a 'Cipher' dropdown menu (all set to '64 bits'). A note at the bottom states: 'Enter 10, 26, 58 hexadecimal digits(0~9,A~F) for 64, 128, or 256 bit Encryption Keys respectively. e.g., AAAAAAAAAA for a key length of 64 bits.' At the very bottom, there is a warning: 'Please save and reboot the device to take effect!' and three buttons: 'Apply' (green checkmark), 'Cancel' (orange X), and 'Help' (red plus).

## Wireless Security – WEP

### Security Options for Wireless

In the Wireless Settings menu, select the type of security you want to configure. The menu will change to present the settings specific to the method being configured. The Router's wireless security options include three levels of WEP encryption and WPA for IEEE 802.1x network authentication or WPA with a user configured Pre Shared Key (PSK).

### WEP Encryption

WEP (Wireless Encryption Protocol or Wired Equivalent Privacy) encryption can be enabled for security and privacy.. WEP encrypts the data portion of each frame transmitted from the wireless adapter using one of the predefined keys. Decryption of the data contained in each packet can only be done if the both the receiver and

transmitter have the correct key.

WEP is disabled by default. To enable **WEP**, select the **Enable** option. Configure the Encryption Keys as desired and click the **Apply** button. The encryption key setup is described below.

WEP can use open or shared keys, or may be configured to allow the clients to use either type of key. Use the **Authentication Type:** drop-down menu to choose **Open**, **Shared** or **Both**.

- Select **Open** to allow any wireless station to associate with each other through the access point. Wireless devices will be able to communicate with all devices on a network unless they require the a Shared key.
- Select **Shared** to only allow stations using a shared key encryption to associate with each other through the access point. That is, only devices with the same key are allowed to communicate over a network with devices that share the same key. Shared key requires additional configuration of the keys to be used. Follow the instructions below to configure the Shared Keys.
- Select **Both** if you want to allow Wireless clients to specify using a shared or open key.

### **Setup Encryption Keys**

WEP Keys may be configured using **Hex** or **ASCII** characters. In addition there are three levels of encryption available, each level requires a different number of characters. Select **Hex** or **ASCII** from the **Key Type** drop-down menu. Hex or Hexadecimal digits are defined as the numerical digits 0 – 9 and the letters A – F (upper and lower case are recognized as the same digit). ASCII characters include numbers and letters but no spaces. An upper case ASCII character is NOT recognized as the same lower case character, and therefore must be configured exactly as typed for all wireless nodes using the access point. The length of the key depends on the level of encryption used. Select the **Key Length** from the drop-down menu. The available key lengths are 64, 128 or 256-bit encryption. In the spaces provided, type in **Key 1**, **Key 2**, **Key 3** and **Key 4**. The length of the character string used of the keys depends on the level (Key Length) of encryption selected. Only one key can be active. The active key is selected by clicking the radio button for the key you want to use.

Click the **Apply** button when you have configured WEP as desired to put the changes into effect.





3. Change the **Port**: if necessary, type in the password in the shared **Secret** field and change the **Group Key Interval** as desired.
4. Click the **Apply** button to put the changes into effect. Remember to save the settings using the System Settings menu.

## Wireless Settings – WPA-PSK

Home > Wireless > WPA > PSK

WPA-PSK requires a shared key but does not use a separate server for authentication. PSK keys can be ASCII or Hex type.

The screenshot shows the 'Wireless Settings' page for WPA-PSK configuration. The page has a navigation bar with 'Home', 'Advanced', 'Tools', 'Status', and 'Help' tabs. The 'Advanced' tab is selected. The main content area is titled 'Wireless Settings' and contains the following fields and options:

- Enable AP:**  Enabled
- Hidden SSID:**  Enabled
- SSID:**
- Channel:**  (dropdown menu)
- Security:**  None  WEP  WPA
- Group Key Interval:**
- Note:** Group Key Interval is shared by all WPA options.
- 802.1x:**  (disabled)
- Server IP Address:**
- Port:**
- Secret:**
- PSK Hex:**  (disabled)
- Hex:**
- PSK String:**  (selected)
- String:**

At the bottom right, there are three buttons: 'Apply' (green checkmark), 'Cancel' (orange X), and 'Help' (red plus).

## Wireless Security – WPA-PSK

### Configure WPA-PSK Security for WLAN

To use WPA with a PSK key:

1. Select the **PSK Hex** (Hexadecimal key) or **PSK String** (ASCII key) option.
2. Type in the **Hex:** or **String:** key in the appropriate entry field.
3. Click the **Apply** button to put the changes into effect. Remember to save the settings using the System Settings menu.

## Multiple Virtual Connections

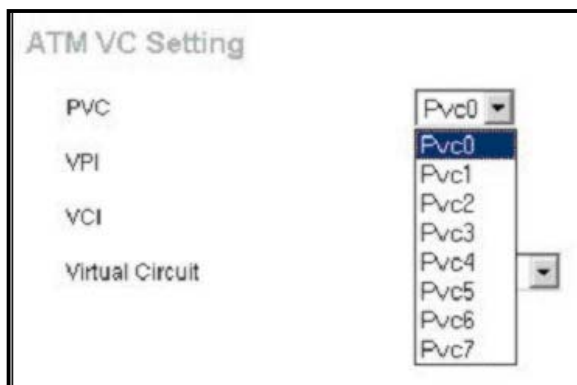
[Home](#) > [WAN](#) > [ATM VC Setting](#)

The Router supports multiple virtual connections. Up to eight PVCs to eight separate destinations can be created and operated simultaneously utilizing the same bandwidth. Additional PVC connections can be added for various purposes. For example, you may want to establish a private connection to remote office in order to create an extended LAN, or setup a server on a separate connection. Provisioning for additional PVC profiles must be done through your telecommunications services provider. Extended LAN operations employing multiple virtual connections require ADSL routers or modems at the remote site for a successful connection. Contact your ISP or telecommunications service provider if you are interested in setting up multiple virtual connections.

After the necessary arrangements have been made to use the Router with multiple virtual connections, follow the instructions below to setup the Router using the VPI/VCI settings given to you by your server provider.

### Configure Multiple PVCs

Additional PVCs can be configured by first accessing the WAN configuration menu in the Home directory.



### Select new PVC to configure in the WAN menu

The PVC pull-down menu offers 8 virtual connections available for configuration. The default PVC used by the Router is labeled Pvc0. Any additional connections that are configured must have a VPI/VCI combination that is unique to the Router. These numbers will have been already been established by your service provider on their network.

To add a new virtual connection:

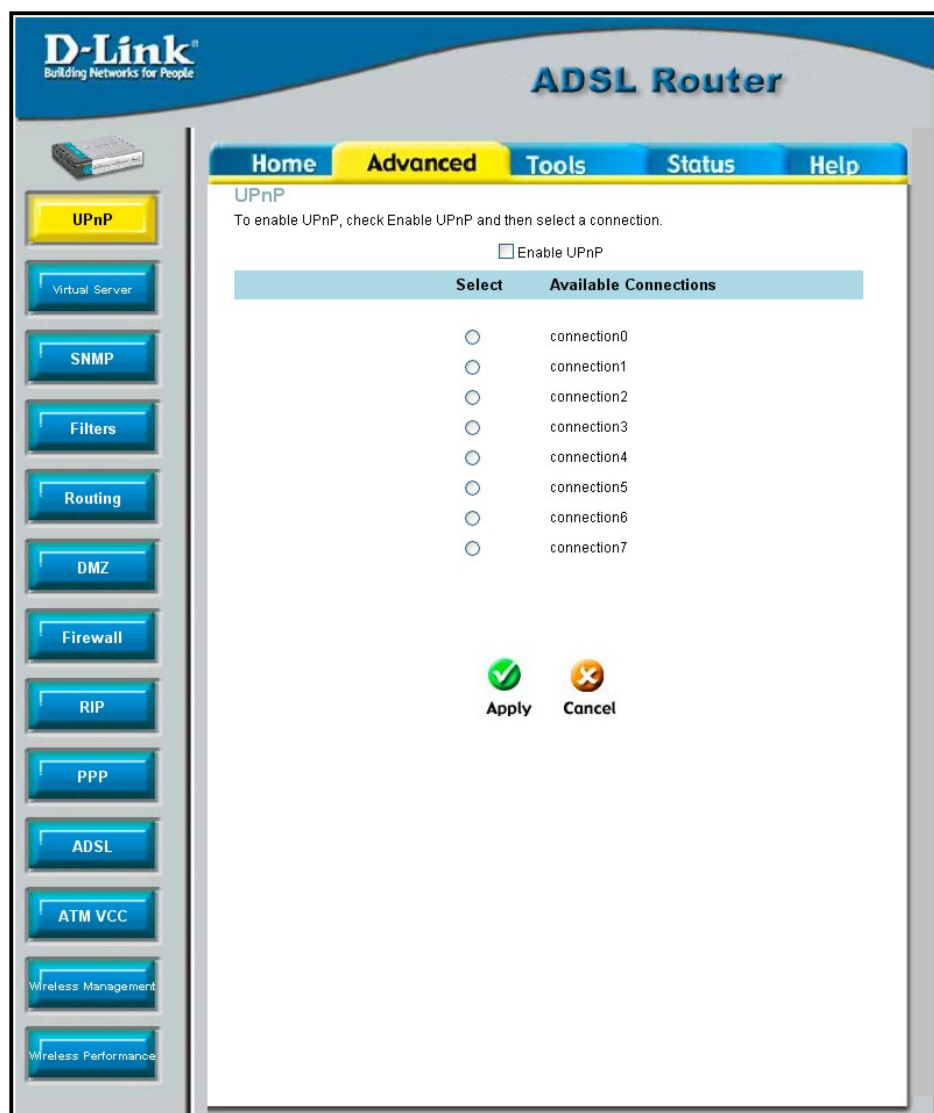
1. Select the new **PVC** to configure from the pull-down menu.
2. Enter the values for the **VPI** and **VCI** given to you by your service provider.
3. To activate the VC, select *Enabled* from the **Virtual Circuit** pull-down menu.
4. Configure the WAN Settings and Connection Type as desired.

In the example below, a new PVC (Pvc1) has been added using the WAN Settings menu. The connection is setup as a bridged connection.

## Advanced Router Management

### Advanced > UPnP

This chapter introduces and describes the management features that have not been presented in the previous chapter. These include the more advanced features used for network management and security as well as administrative tools to manage the Router, view statistics and other information used to examine performance and for troubleshooting. Use your mouse to click the directory tabs and menu buttons in order to display the various configuration and read-only menus discussed below.



**Advanced UPnP menu**

The table below summarizes again the directories and menus available in the management web interface. In this chapter you will find descriptions for the menus located in the Advanced, Tools and Status directories.

Directory	Configuration and Read-only Menus
<b>Home</b>	Click the <b>Home</b> tab to access the Setup <b>Wizard</b> , <b>Wireless</b> Settings, <b>WAN</b> Configuration, <b>LAN</b> IP Configuration, <b>DHCP</b> for the LAN Setup and <b>DNS</b> Configuration menus. See the previous chapter for a description of the Home directory menus.
<b>Advanced</b>	Click the <b>Advanced</b> tab to access the <b>UPnP</b> , <b>Virtual Server</b> , <b>Filters</b> , (Static) <b>Routing</b> , <b>DMZ</b> , <b>Firewall</b> , <b>RIP</b> ,

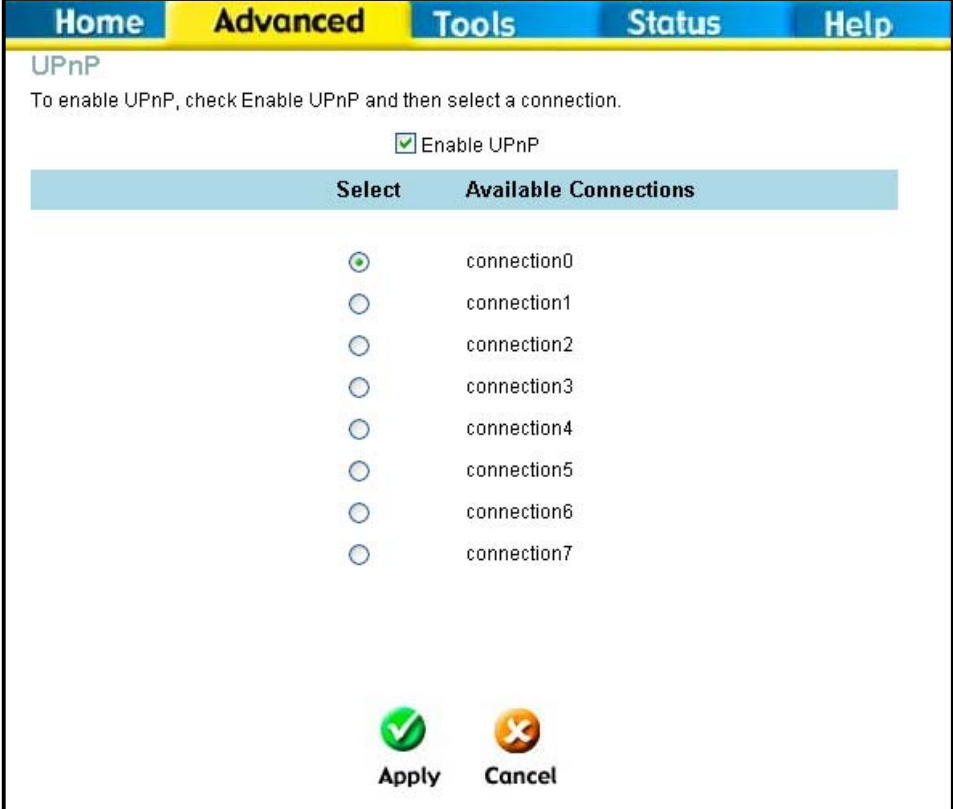
	<b>PPP, ADSL, ATM VCC, Wireless Management and Wireless Performance</b> menus.
<b>Tools</b>	Click the <b>Tools</b> tab to access the <b>Administrator Settings</b> (used to set the system user name and password, backup and load settings), <b>System Time Configuration, Firmware Upgrade, Diagnostic Test</b> and <b>Save &amp; Reboot</b> menus.
<b>Status</b>	Click the <b>Status</b> tab to view the <b>Device Information, DHCP Clients, Event Log, Traffic Statistics</b> and <b>ADSL Status</b> information windows.
<b>Help</b>	The Help menu presents links to pages that explain various functions and services provided by the Router.

## UPnP

### Advanced > UPnP

UPnP supports zero-configuration networking and automatic discovery for many types of networked devices. When enabled, it allows other devices that support UPnP to dynamically join a network, obtain an IP address, convey its capabilities, and learn about the presence and capabilities of other devices. DHCP and DNS service can also be used if available on the network. UPnP also allows supported devices to leave a network automatically without adverse effects to the device or other devices on the network.

UPnP can be supported by diverse networking media including Ethernet, Firewire, phone line and power line networking.



The screenshot shows a software interface with a navigation bar at the top containing 'Home', 'Advanced', 'Tools', 'Status', and 'Help'. The 'Advanced' tab is selected. Below the navigation bar, the title 'UPnP' is displayed. A text instruction reads: 'To enable UPnP, check Enable UPnP and then select a connection.' Below this instruction is a checked checkbox labeled 'Enable UPnP'. Underneath is a table with two columns: 'Select' and 'Available Connections'. The 'Select' column contains radio buttons, with the first one selected. The 'Available Connections' column lists 'connection0' through 'connection7'. At the bottom of the window are two buttons: 'Apply' (with a green checkmark icon) and 'Cancel' (with an orange 'X' icon).

Select	Available Connections
<input checked="" type="radio"/>	connection0
<input type="radio"/>	connection1
<input type="radio"/>	connection2
<input type="radio"/>	connection3
<input type="radio"/>	connection4
<input type="radio"/>	connection5
<input type="radio"/>	connection6
<input type="radio"/>	connection7

### Enable UPnP Menu

To enable UPnP for any available connection, click to check the **Enable UPnP** selection box, select the connection or connections on which you will enable UPnP listed under **Available Connections** and click the **Apply** button.

## Virtual Server

### Advanced > Virtual Server

Use the Virtual Server menu to set up port forwarding rules in the Router. The Virtual Server function allows remote users to access services on your LAN such as FTP for file transfers or SMTP and POP3 for e-mail. The DVA-G3340S will accept remote requests for these services at your Global IP Address, using the specified TCP or UDP protocol and port number, and then redirect these requests to the server on your LAN with the Private IP address you specify.

Virtual Server

Virtual Server is used to allow Internet users access to LAN services.

Rule Name

Private IP

Protocol

Port Start  Port End

Port Map

ID	Private IP	Protocol	Port Start	Port End	Port Map
----	------------	----------	------------	----------	----------

### Virtual Server Menu and List

Remember that the specified Private IP Address must be within the useable range of the subnet occupied by the Router.

UDP/TCP port redirection is used to direct traffic through the WAN port to the specified servers or workstations on your private network. Port redirection can also be used to direct potentially hazardous packets to a proxy server outside your firewall. For example, you can configure the Router to direct HTTP packets to a designated HTTP server in the DMZ. You can define a set of instructions for a specific incoming port or for a range of incoming ports. Each set of instructions or rule is indexed and can be modified or deleted later as needed.

Virtual server rules can be set up with complimentary features such as Firewall Rules, DMZ devices and IP Filters to improve efficiency and security. Be sure to consider how these other functions will effect the virtual server rules you have configured and enabled.



To modify virtual server settings for any previously created rule, click on the note pad icon in the right hand column of the list for the set you want to configure. The parameters that have been configured for the rule appear in the settings fields above the list. Adjust the settings as desired and click the **Apply** button to put them into effect. To delete a rule from the list, click on the trash can icon and confirm that you want to delete the rule in the pop-up dialog box that appears.

The table below describes the configuration settings presented in the Virtual Server menu.

To configure a virtual server set, define the following settings in the Virtual Server configuration menu located in the top half of the browser window.

Parameter	Description
<b>Rule Name</b>	Provide a name for the rule. This name will not appear in the list below, however it may be useful if you later need to edit the settings for the rule. Rule names are optional.
<b>Private IP</b>	This is the IP address of the server on your LAN that will provide the service to remote users. The Private IP address is used to direct the service to a specific computer on your private network such as an FTP, Email or public web server. Type in the IP address of the server used for the service being configured here.
<b>Protocol</b>	You can select the transport protocol (TCP or UDP) that the application on the virtual server will use for its connections. Select one of the following options from the pull-down menu to define a <i>TCP</i> , <i>UDP</i> or <i>Both</i> . The choice of this protocol is dependent on the application that is providing the service. If you do not know which protocol to choose, check your application's documentation.
<b>Port Start /Port End</b>	Configure a range of ports for forwarding. Type the lowest numbered port in the range in the Port Start space. Type the highest numbered port in the Port End space. For a single port, just enter the same number in both spaces.  Virtual server port redirection must be used with a specified server or computer on the LAN (identified by the Private IP address).



## Port Map

This is the local port being forwarded to from the Port Start/Port End port(s). Keep in mind that if you use a non-standard port number for an application with a reserved UDP/TCP port, some additional configuration may be required for the servers or workstations using the application on the LAN side.

Click the **Apply** button to put the new virtual server configuration set or modification into effect. Any server sets configured in the menu will appear in the Virtual Server List with the new settings. The Router must save the new settings and reboot before the new virtual server configurations are applied.

To remove any configuration set from the Virtual Server List, click on the trashcan icon for set you want to delete.

## SNMP

### Advanced > SNMP

This menu can be accessed directly by clicking on the **SNMP** button or hyperlink in the **Advanced** setup menu. Simple Network Management Protocol (SNMP) is an OSI Layer 7 Application designed specifically for managing and monitoring network devices. SNMP enables network management stations to read and modify the settings of gateways, routers, switches, and other network devices. Use SNMP to configure system features for proper operation, performance monitoring, and detection of potential problems in the Router or network.

The screenshot shows a web interface for SNMP Management. At the top, there is a navigation bar with tabs for Home, Advanced, Tools, Status, and Help. The main content area is titled "SNMP Management" and contains several sections:

- Enable SNMP Agent** and **Enable SNMP Traps**: Both are unchecked.
- Name**: DVA-G33408
- Location**: DLink
- Contact**: support@dlink.com
- Vendor OID**: 1.3.6.1.4.1.294
- Community**: A table with columns for Name and Access Right. The first row shows "public" and "ReadOnly".
- Traps**: A table with columns for Destination IP, Trap Community, and Trap Version. There are three rows, each with empty input fields.

At the bottom right, there are three buttons: Apply (green checkmark), Cancel (orange X), and Help (red plus).

## IP Filters

### Advanced > Filters

Filter rules in the Router are put in place to allow or block specified traffic. The Filter Rules however can be used in a single direction to examine and then Allow or Deny traffic for Inbound (WAN to LAN) or Outbound (LAN to WAN) routed data. The rules based on IP address and TCP/UDP port. Configure the filter rules as desired and click the **Apply** button to create the rule. The newly created rule appears listed in the Outbound Filter List at the bottom of the menu. The table below describes the various parameters that are configured for the filter rules.

The screenshot shows the 'Filters Configuration Menu' in a router's web interface. The menu is titled 'Filters' and has tabs for Home, Advanced, Tools, Status, and Help. It shows options for Outbound Filter (selected) and Inbound Filter. Below, the 'IP Outbound Filter' section includes fields for Source IP, Destination IP, Source Port, Destination Port, Protocol (set to TCP), and Action (set to Allow). There are 'Apply', 'Cancel', and 'Help' buttons at the bottom right. A table at the bottom shows columns for ID, Source IP, Destination IP, Prot., Act., and Enable.

### Filters Configuration Menu

To modify any previously created filter rule, click on the note pad icon in the right hand column of the Filter List for the set you want to configure. Adjust the settings as desired and click the **Apply** button to put the new settings into effect. First determine the direction of the traffic you want the rule to filter. To filter WAN to LAN traffic, select the **Inbound Filter** option. Any new Inbound Filter rules created will appear in the list. Likewise, should you to filter LAN to WAN traffic, create an **Outbound Filter** rule.

The parameters described below are used to set up filter rules.

Parameter	Description
<b>Source IP</b>	For an Outbound Filter, this is the IP address or IP addresses on your LAN for which you are creating the filter rule. For an Inbound Filter, this is the IP address or IP addresses for which you are creating the filter rule. You can opt to indicate a <i>Mask Range</i> , a <i>Single IP</i> , an <i>IP Range</i> or <i>Any IP</i> from the pull-down menu. Choosing Any IP will apply the rule to all WAN or all LAN IP addresses depending on which type of rule (Inbound or Outbound) is being configured.
<b>Destination IP</b>	Where the Destination IP address resides also depends on if you are configuring an Inbound or Outbound filter rule. You can

	opt to indicate a <i>Mask Range</i> , a <i>Single IP</i> , an <i>IP Range</i> or <i>Any IP</i> from the pull-down menu.
<b>Source Port</b>	The Source Port is the TCP/UDP port on either the LAN or WAN depending on if you are configuring an Outbound or Inbound Filter rule. Select one of the following options from the pull-down menu to define a <i>Any Port</i> , <i>Single Port</i> , <i>Port Range</i> or <i>Safe Range</i> (ports above 1024).
<b>Destination Port</b>	The Destination Port is the TCP/UDP port on either the LAN or WAN depending on if you are configuring an Outbound or Inbound Filter rule. Select one of the following options from the pull-down menu to define a <i>Any Port</i> , <i>Single Port</i> , <i>Port Range</i> or <i>Safe Range</i> (ports above 1024).
<b>Protocol</b>	Select the transport protocol ( <i>TCP</i> , <i>UDP</i> or <i>All</i> ) that will be used for the filter rule.
<b>Action</b>	Select to <i>Allow</i> or <i>Deny</i> transport of the data packets according to the criteria defined in the rule. Packets that are allowed are routed to their destination; packets that are denied are blocked.

Click the **Apply** button to put the new rule into effect. Any filter rule configured in the menu will appear in the Filters List with the new settings. The Router must save the new settings and reboot before the new rules are applied.

## Bridge Filters

### Advanced > Bridge Filters

Bridge filters are used to block or allow various types of packets through the WAN interface. This may be done for security or to improve network efficiency. The rules are configured for individual devices based on MAC address. Filter rules can be set up for source, destination or both. You can set up filter rules and disable the entire set of rules without losing the rules that have been configured.

Src MAC	Src Port	Dest MAC	Dest Port	Protocol	Mode
00-00-00-00-00-00	ANY	00-00-00-00-00-00	ANY	PPPoE Session	Deny

Src MAC	Src Port	Dest MAC	Dest Port	Protocol	Mode	Delete
---------	----------	----------	-----------	----------	------	--------

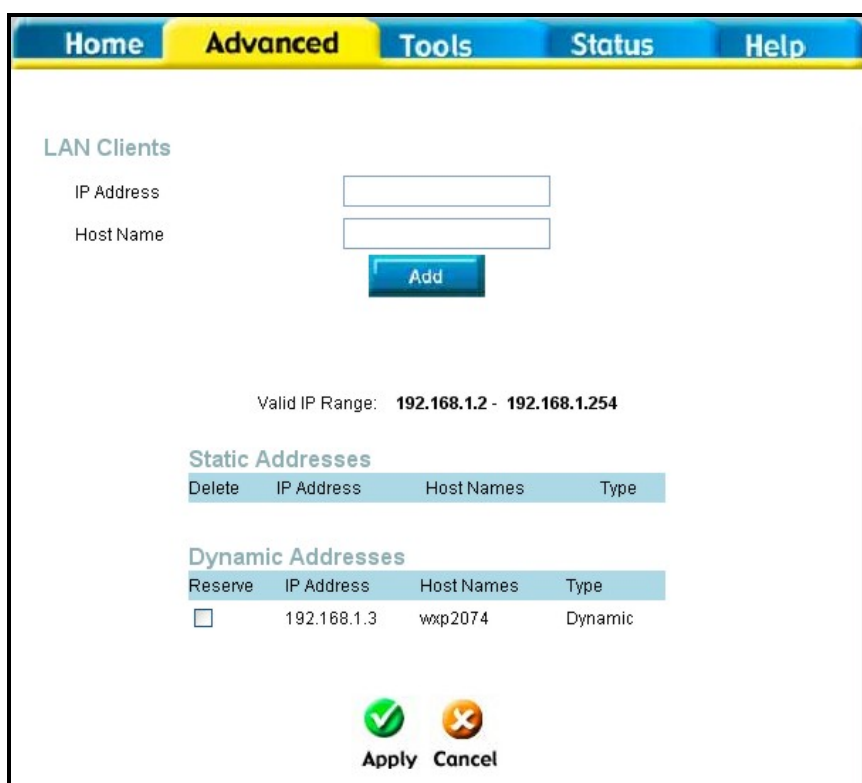
### Bridge Filter Configuration Menu

To add a bridge filter rule, check **Enable Bridge Filters**, type in a Source MAC, a Destination MAC or both in the entry fields. Select *Any* to apply the rule to any protocol that the router receives. The user may also specify a protocol to be filtered by using the pull-down menu, and then choose either *Allow*, to allow the specified protocol to pass through the router, or *Deny* to filter the protocol from the router. The protocols that may be specifically allowed or denied to pass through the WAN interface are *IPv4*, *IPv6*, *RARP*, *PPPoE Discovery* and *PPPoE Session*. Click the **Add** button. The rule will appear in the entry field below as it is currently configured. To edit an existing rule, select the rule by clicking the corresponding **Edit** radio button. Make the desired changes and click the **Add** button. To remove a bridge filter from the table in the bottom half of the window, click to select the corresponding **Delete** box, and then click **Apply**. Remember to save the configuration changes.

## LAN Clients

### Advanced > Lan Clients

The LAN Clients menu is used when establishing Port Forwarding, Access Control and Advanced Security rules for IP addresses on the LAN. This menu can be accessed directly by clicking on the **LAN Clients** button or hyperlink in the **Advanced** setup menu. You can also click on the New IP button located in the Port Forwarding, Access Control and Advanced Security menus to access this menu. In order to use these advanced features it is necessary to have IP addresses available for configuration. If there are no IP addresses listed in the LAN Clients menu, it will not be possible to configure Port Forwarding, Access Control and Advanced Security.



The screenshot shows a web interface with a navigation bar at the top containing 'Home', 'Advanced', 'Tools', 'Status', and 'Help'. The 'Advanced' tab is selected. Below the navigation bar, the 'LAN Clients' section is visible. It includes two input fields: 'IP Address' and 'Host Name', followed by an 'Add' button. Below these fields, the 'Valid IP Range' is displayed as '192.168.1.2 - 192.168.1.254'. There are two tables: 'Static Addresses' and 'Dynamic Addresses'. The 'Static Addresses' table has columns for 'Delete', 'IP Address', 'Host Names', and 'Type'. The 'Dynamic Addresses' table has columns for 'Reserve', 'IP Address', 'Host Names', and 'Type'. A single entry is shown in the 'Dynamic Addresses' table with a checkbox in the 'Reserve' column, IP address '192.168.1.3', host name 'wxp2074', and type 'Dynamic'. At the bottom of the interface, there are 'Apply' and 'Cancel' buttons, each with a corresponding icon (a green checkmark and an orange X).

### Bridge Filter Configuration Menu

Use the LAN Clients menus to add or delete static IP addresses for the advanced functions mentioned above, or to reserve a Dynamically assigned IP address for an advanced function. Dynamically assigned IP addresses will only be listed if DHCP is enabled on the Router.

To add a static IP address to the list of available IP addresses, type an IP address that falls within the range of available IP addresses and click on the Add button. In the example above, available addresses range from 10.0.0.1 to 10.255.255.254. Any addresses added will appear in the list of Static Addresses available for advanced configuration. These addresses can then be used in the other Port Forwarding, Access Control and Advanced Security menus. To delete an IP address from the list of Static Addresses, click the Delete box for the address or addresses you want to eliminate and click on the Apply button.

## Routing

### Advanced > Routing

Use Static Routing to specify a route used for data traffic within your Ethernet LAN or to route data on the WAN. This is used to specify that all packets destined for a particular network or subnet use a predetermined gateway.

Home Advanced Tools Status Help

### Routing Table




IP Routes are used to define gateways and hops used to route data traffic. Most users will not need to use this feature as the previous gateway and LAN IP settings on your host computers should be sufficient.

Destination

Netmask

Gateway

Connection

Apply Cancel Help

ID	Destination	Netmask	Gateway	Interface
----	-------------	---------	---------	-----------

### Static Routing menu

To add a static route to a specific destination IP on the local network, enter a **Destination** IP address, **Netmask**, then click the **Gateway** radio button and type in the Gateway's IP address. Click **Apply** to enter the new static route in the table below. The route becomes active immediately upon creation.

To add a static route to a specific destination IP on the WAN, click the Connection radio button and choose a connection from the pull-down menu, then enter a **Destination** IP address and **Netmask**. Click **Apply** to enter the new static route in the table below. The route becomes active immediately upon creation.

To remove a static route from the table in the bottom half of the window, choose to **Delete** it from the table and click the **Apply** button. Remember to save the configuration changes.

## DMZ

### Advanced > DMZ

Since some applications are not compatible with NAT, the Router supports use of a DMZ IP address for a single host on the LAN. This IP address is not protected by NAT and will therefore be visible to agents on the Internet with the right type of software. Keep in mind that any client PC in the DMZ will be exposed to various types of security risks. If you use the DMZ, take measures (such as client-based virus protection) to protect the remaining client PCs on your LAN from possible contamination through the DMZ.



The screenshot shows a web interface for configuring DMZ. At the top, there is a navigation bar with tabs for Home, Advanced (selected), Tools, Status, and Help. Below the navigation bar, the page title is "DMZ". A descriptive text states: "DMZ (Demilitarized Zone) is used to allow a single computer on the LAN to be exposed to the Internet." There are two radio buttons: "Enabled" (unselected) and "Disabled" (selected). Below the radio buttons is a text input field labeled "IP Address:" containing the value "0.0.0.0". At the bottom right of the form, there are three buttons: "Apply" (with a green checkmark icon), "Cancel" (with an orange 'x' icon), and "Help" (with a red plus icon).

**DMZ Menu**

To designate a DMZ IP address, select the **Enabled** radio button, type in the **IP Address** of the server or device on your LAN, and click the **Apply** button. To remove DMZ status from the designated IP address, select the Disabled radio button and click Apply. It will be necessary to save the settings and reboot the Router before the DMZ is activated.



## Firewall Advanced > Firewall

The Firewall Configuration menu allows the Router to enforce specific predefined policies intended to protect against certain common types of attacks. There are two general types of protection (DoS, Port Scan) that can be enabled on the Router, as well as filtering for specific packet types sometimes used by hackers.

You can choose to **Enable** or **Disable** protection against a customized basket of attack and scan types. To enable **DoS Protection** or **Port Scan Protection**, select the **Enable** radio button for the protection type and click in the selection boxes for the various types of protection listed under each.

The screenshot shows the 'Firewall Configuration' page with three main sections:

- DoS Protection:** State is 'Enabled'. Options include 'SYN Flooding checking' and 'ICMP Redirection checking', both checked.
- Port Scan Protection:** State is 'Enabled'. Options include 'NMAP FIN/URG/PSH attack', 'Xmas Tree attack', 'Null Scan attack', 'SYN/RST attack', and 'SYN/FIN attack', all checked.
- Service Filtering:** The following services can be blocked based on your specific need:
  - Ping from External Network
  - Telnet from External Network
  - FTP from External Network
  - DNS from External Network
  - IKE from External Network
  - RIP from External Network
  - DHCP from External Network
  - ICMP from LAN

At the bottom right, there are three buttons: 'Apply' (green checkmark), 'Cancel' (orange X), and 'Help' (red plus).

### Firewall Configuration Menu

When DoS, Port Scan, or Service Filtering Protection is enabled, it will create a firewall policy to protect your network against the following:

Dos Protection	Port Scan Protection	Service Filtering
SYN Flood check	Nmap/FIN attack	Ping from WAN
ICMP Redirection check	URG/PSH attack	Telnet from WAN
	Xmas Tree Scan	FTP from WAN



	Null Scan attack	DNS from WAN
	SYN/RST attack	IKE from WAN
	SYN/FIN Scan	RIP from WAN
		DHCP from WAN

A DoS "denial-of-service" attack is characterized by an explicit attempt by attackers to prevent legitimate users of a service from using that service. Examples include: attempts to "flood" a network, thereby preventing legitimate network traffic, attempts to disrupt connections between two machines, thereby preventing access to a service, attempts to prevent a particular individual from accessing a service, or, attempts to disrupt service to a specific system or person.

Port scan protection is designed to block attempts to discover vulnerable ports or services that might be exploited in an attack from the WAN.

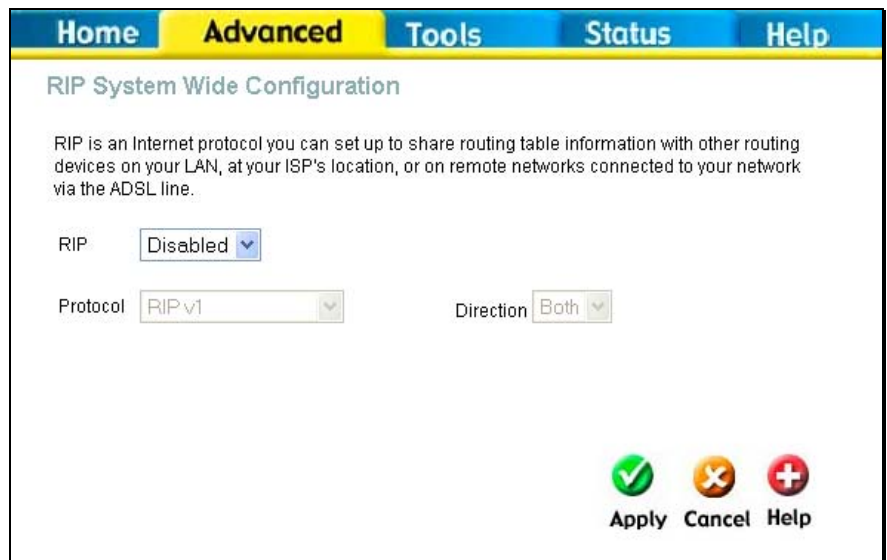
The Service Filtering options allow you to block FTP, Telnet response, Pings, etc, from the external network. Check the category you want to block to enable filtering of that type of packet.

When you have selected the desired Firewall policies, click the **Apply** button to enforce the policies. Remember to save any configuration changes.

## RIP Dynamic Routing

### Advanced > RIP

The Router supports RIP v1 and RIP v2 used to share routing tables with other Layer 3 routing devices on your local network or remote LAN.



### Dynamic Routing (RIP) menu

To enable RIP, select *Enabled* from the **RIP** pull-down menu, select the **Protocol** (*RIPv1* and *RIPv1 Compatible*) and **Direction** (*In*, *Out*, or *Both*), and click **Apply**. The RIPv1 Compatible option will transmit RIPv2 broadcast packets and receive both RIP v1 and RIP v2 packets.

The direction configuration refers to the RIP request. Select *In* to allow RIP requests from other devices. Select *Out* to instruct the Router to make RIP requests for routing

tables from other devices. Select Both to share routing tables in both directions.

## PPP Connection State

[Advanced > PPP](#)

When the WAN connection is configured for either PPPoA or PPPoE, you can configure the Router's PPP session to remain on all the time, or to disconnect after some period of no activity. You may also choose to instruct the Router to connect each time you want to access the WAN or the Internet.

The screenshot shows the 'PPP Connection' settings page. At the top, there are navigation tabs: Home, Advanced (selected), Tools, Status, and Help. The page title is 'PPP Connection' and it includes a sub-header 'PPP Connection' and a description: 'This page is used to view and PPP connection status and setting.'

The main content area shows the following settings:

- PVC:** PVC0
- Connection Setting:** Not Connected
- Connect Button:** A button labeled 'Connect'.
- Connection Setting:** Three radio button options: 'Always ON' (selected), 'Connection On Demand', and 'Manual'.
- Recommended:** A section with a 'Recommended' label and a text input field for 'Connection will close if idle for' followed by 'minutes'.
- Use Connect/Disconnect button only:** A label for the manual connection option.
- Action Buttons:** Three buttons: 'Apply' (green checkmark), 'Cancel' (orange X), and 'Help' (red plus).

At the bottom, there is an 'ATM VCs List' table:

ID	PVC	VPI	VCI	Connection Type
1	PVC0	8	35	PPPoE

### PPP Connection settings menu

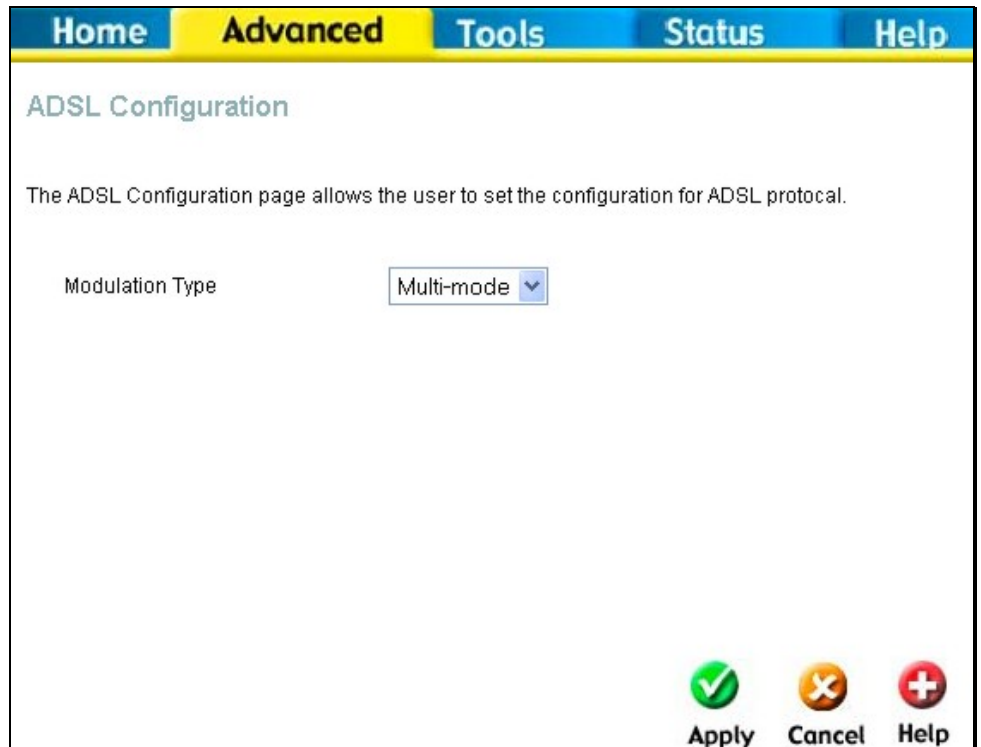
If you want the Internet or WAN connection to be available any time a host on your LAN requests access, select the **Always On** option.

If your ISP account is billed according to the amount of time the Router is connected, choose the **Connection On Demand** option. You can configure an idle time in minutes to disconnect the PPP connection after a period of inactivity. This will discontinue the PPP session and require a few seconds to reconnect when a host requests access to the WAN. Alternatively you can choose the **Manual** option and use the **Connect** button to initiate a PPP connection each time you want to use the Router to access the WAN. If you use the Manual option, you must return to this menu and click the **Disconnect** button to terminate the PPP session.

## ADSL

### Advanced > ADSL

The ADSL Configuration page allows the user to set the configuration for ADSL protocols. For most ADSL accounts the default settings *Multi-mode* will work. This configuration works with all ADSL implementations. If you have been given instructions to change the Modulation method used, select the desired option *T1.413*, *G.dmt*, or *G.lite* and click the **Apply** button.



The screenshot shows a web interface with a navigation bar at the top containing 'Home', 'Advanced', 'Tools', 'Status', and 'Help'. The 'Advanced' tab is selected. Below the navigation bar, the page title is 'ADSL Configuration'. A descriptive text states: 'The ADSL Configuration page allows the user to set the configuration for ADSL protocol.' There is a single configuration field labeled 'Modulation Type' with a dropdown menu currently set to 'Multi-mode'. At the bottom right of the page, there are three buttons: 'Apply' (with a green checkmark icon), 'Cancel' (with an orange 'X' icon), and 'Help' (with a red plus icon).

### ADSL Modulation Configuration

## ATM VC Setting

### Advanced > ATM VCC

The ATM Virtual Circuit connection menu is used to configure the WAN connection. If you are using multiple PVCs, you can change the configuration of any PVC in this menu. To create new or additional PVCs, read the section below on Multiple PVCs.

This menu can be used as an alternative menu to configure the same settings found on the WAN menu in the Home directory.

ID	PVC	VPI	VCI	Connection Type	Virtual Circuit
1	PVC0	8	35	PPPoE/PPPoA	Enabled

### ATM Virtual Circuit configuration menu

To configure an existing PVC configuration set, click the corresponding notepad icon in the right-hand column of the ATM VCs List. The PVCs current settings appear above in the entry fields of the ATM VC Settings menu. Configure the appropriate settings and click the **Apply** button to put the new settings into effect.

## VLAN QoS

Advanced > VLAN

QoS is an implementation of the IEEE 802.1p standard that allows network administrators a method of reserving bandwidth for important functions that require a large bandwidth or have a high priority, such as VoIP (voice-over Internet Protocol), web browsing applications, file server applications or video conferencing. Not only can a larger bandwidth be created, but other less critical traffic can be limited, so excessive bandwidth can be saved. Each physical port on the Router can have up to 8 **PVCs** (Permanent Virtual Circuits) to which traffic from various sources can be mapped to, and in turn prioritized. Select a PVC that has been configured (to configure a PVC click Home > WAN), and then assign a **Priority** of 1 (low) to 4 (high). To enable QoS settings click the **Enable Port Based QoS** check box. To enable **IGMP Snooping/Proxy** on a particular PVC click on the PVC and then click the radio button to *Enabled*.

The screenshot shows a web-based configuration interface for QoS. At the top, there is a navigation bar with tabs for Home, Advanced (selected), Tools, Status, and Help. Below the navigation bar, the page title is "QoS Configuration". A message reads: "Please set configuration for Port based QoS." Below this message is a checkbox labeled "Enable Port Based QoS" which is currently unchecked. A table with three columns: "Switch", "Port Mapping PVC", and "Priority" is displayed. The table has four rows, labeled "Port1" through "Port4". Each row shows "PVC0" in the "Port Mapping PVC" column and "1" in the "Priority" column. Below the table, there is a section for "IGMP Proxy/Snooping" with a dropdown menu set to "PVC0" and two radio buttons: "Disabled" (selected) and "Enabled". At the bottom of the interface, there are three buttons: "Apply" (with a green checkmark icon), "Cancel" (with a red X icon), and "Help" (with a red plus icon).

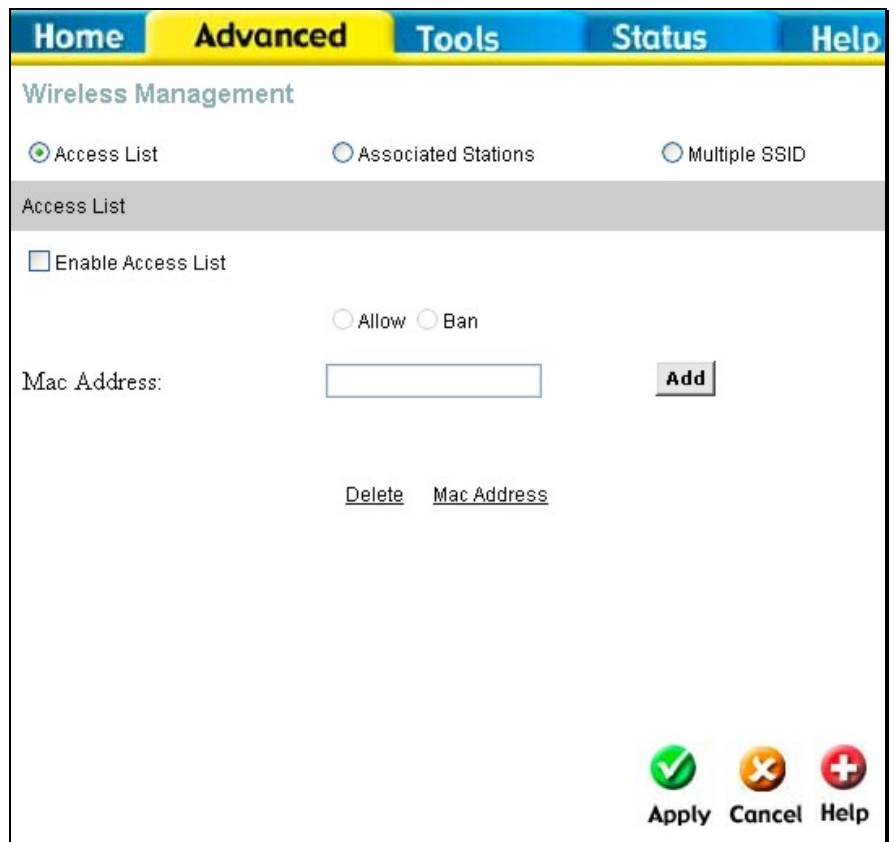
Switch	Port Mapping PVC	Priority
Port1	PVC0	1
Port2	PVC0	1
Port3	PVC0	1
Port4	PVC0	1

QoS configuration menu

## Wireless Management

### Advanced > Wireless Management

The **Wireless Management** menu located in the **Advanced** directory is used to control MAC address access to the wireless access point and to view a list of MAC addresses that are currently associated with the access point. This menu is also be used to enable and configure use of multiple SSIDs. To use more than one SSID, WEP and WPA security must first be disabled (see below).



The screenshot shows the 'Wireless Management' interface with the 'Advanced' tab selected. Under 'Wireless Management', three radio buttons are visible: 'Access List' (selected), 'Associated Stations', and 'Multiple SSID'. Below this, the 'Access List' section is active. It features a checkbox for 'Enable Access List', which is currently unchecked. To the right of this checkbox are two radio buttons: 'Allow' and 'Ban'. Below these is a text input field labeled 'Mac Address:' with an 'Add' button to its right. At the bottom of the page, there are three buttons: 'Apply' (with a green checkmark icon), 'Cancel' (with an orange 'X' icon), and 'Help' (with a red plus icon).

### Wireless Management Access List

To view a list of stations currently associated with the access point, click the **Associated Stations** radio button.

### Configure Wireless Access Control

To create a list of MAC addresses that are banned or allowed association with the wireless access point:

1. Click in the **Enable Access List** option box to select it.
2. Select the action to perform on the MAC address to be specified. Choose to **Allow** or **Ban** association.
3. Type in the **MAC Address** in the entry field provided.
4. Click the **Add** button to add the MAC address to the list. The AMC address will appear listed in the table below.
5. After compiling the list of MAC addresses as desired, click the **Apply** button to enforce access control for the MAC addresses in the list.

To remove any MAC address from the list, click the radio button in the left column of the list for the MAC address to be removed and click the **Apply** button.

## Configure Multiple SSID

Multiple SSID cannot be used if the access point has either WPE or WPA enabled. This must first be disabled in the Wireless menu located in the Home directory.

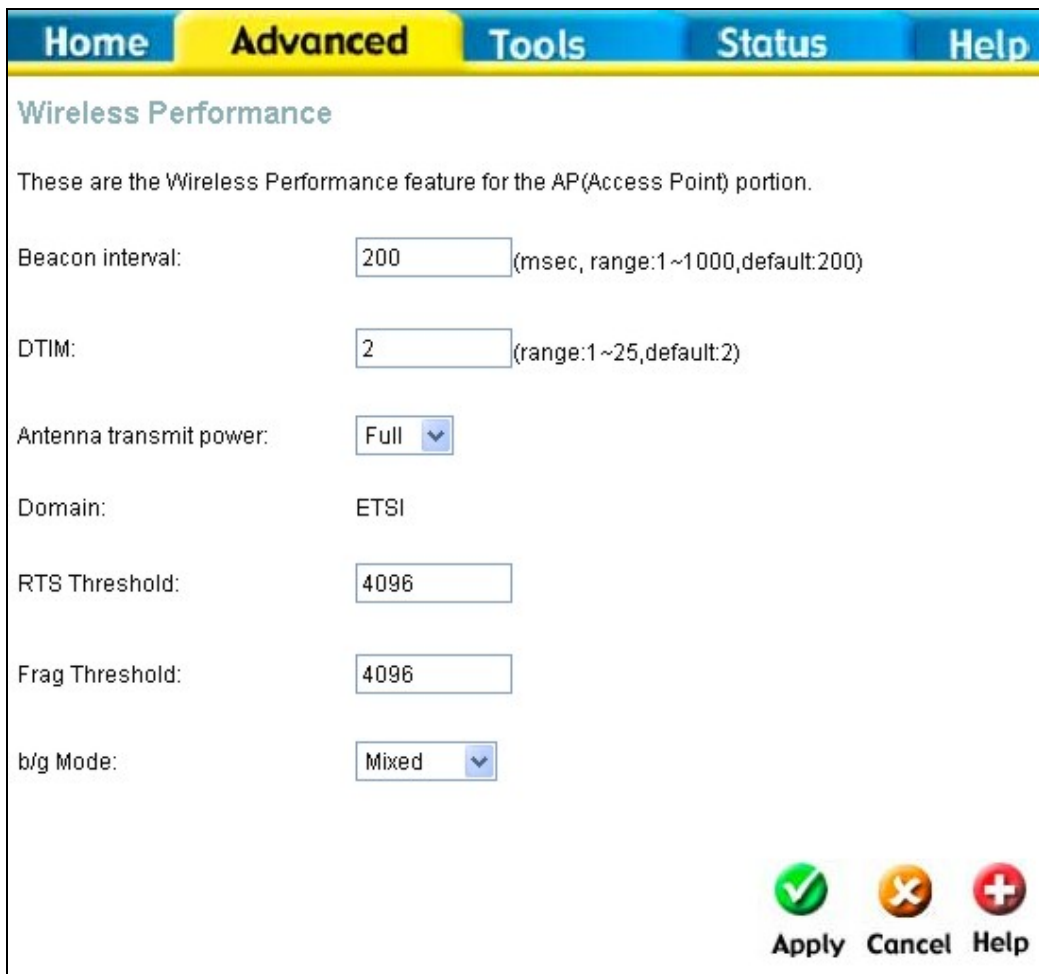
To configure multiple SSID:

1. Disable WEP or WPA in the **Wireless** menu of the **Home** directory.
2. Click in the **Enable Multiple SSID** option box to select it.
3. Enter the **SSID** you want to add.
4. Click the **Add** button to add the SSID to the list.
5. Click the **Apply** button to enable the listed SSIDs.

To remove an SSID from the list, click the radio button in the left column of the list for the SSID to be removed and click the **Apply** button.

## Wireless Performance

If you want to tweak wireless settings, click the **Wireless Performance** menu button in the **Advanced** directory



The screenshot shows a web interface with a navigation bar at the top containing 'Home', 'Advanced', 'Tools', 'Status', and 'Help'. The 'Advanced' tab is selected. Below the navigation bar, the page title is 'Wireless Performance'. A descriptive text reads: 'These are the Wireless Performance feature for the AP(Access Point) portion.' The settings are as follows:

Beacon interval:	<input type="text" value="200"/>	(msec, range:1~1000,default:200)
DTIM:	<input type="text" value="2"/>	(range:1~25,default:2)
Antenna transmit power:	<input type="button" value="Full"/>	
Domain:	ETSI	
RTS Threshold:	<input type="text" value="4096"/>	
Frag Threshold:	<input type="text" value="4096"/>	
b/g Mode:	<input type="button" value="Mixed"/>	

At the bottom right, there are three buttons: 'Apply' (with a green checkmark icon), 'Cancel' (with an orange 'X' icon), and 'Help' (with a red plus icon).

**Wireless LAN Performance settings**



## Tools

Click the **Tools** tab to reveal the menu buttons for various functions located in this directory. The **Administrator Settings** is the first menu that appears in the Tools directory. This menu is used to change the system password used to access the web manager, to save or load Router configuration settings and to restore default settings. The functions in this and the other Tools menus are described below.

The screenshot shows the 'Tools' tab selected in the navigation bar. The main content area is titled 'Administrator Settings' and contains the following sections:

- Administrator Settings:** A note states 'There is only one account that can access the DSL-G604T's Web-Management interface.' Below this is a header 'Administrator (The Login Name is "admin")' and three input fields: 'New Password', 'Confirm Password', and 'WebPort' (containing '80').
- Remote Web Management:** A 'State' section with radio buttons for 'Enabled' and 'Disabled' (selected). Below are 'IP Address' (7.7.7.7) and 'Netmask' (0.0.0.0) input fields.
- Remote Telnet Management:** A 'State' section with radio buttons for 'Enabled' and 'Disabled' (selected). Below are 'IP Address' (7.7.7.7) and 'Netmask' (0.0.0.0) input fields.

At the bottom right of the interface are three buttons: 'Apply' (green checkmark), 'Cancel' (orange X), and 'Help' (red plus sign).

**System Tools administrative functions**



## Change System Password

To change the password used to access the Router web manager, click the **Admin** button in the **Tools** directory to display the Administrator Settings menu. Under the Administrator heading, type the **New Password** and **Confirm Password** to be certain you have typed it correctly. Click the **Apply** button to activate the new password. The System User Name remains “admin”, this cannot be changed using the web manager interface. Be sure to save the new setting.



The screenshot shows the 'Administrator Settings' page. At the top, it says 'Administrator Settings' in blue. Below that, a message states: 'There is only one account that can access the DSL-G604T's Web-Management interface.' Underneath, a grey bar identifies the account as 'Administrator (The Login Name is "admin")'. There are two input fields: 'New Password' and 'Confirm Password'. At the bottom right, there are three buttons: 'Apply' (with a green checkmark icon), 'Cancel' (with an orange 'X' icon), and 'Help' (with a red plus icon).

### Administrator Settings change password menu

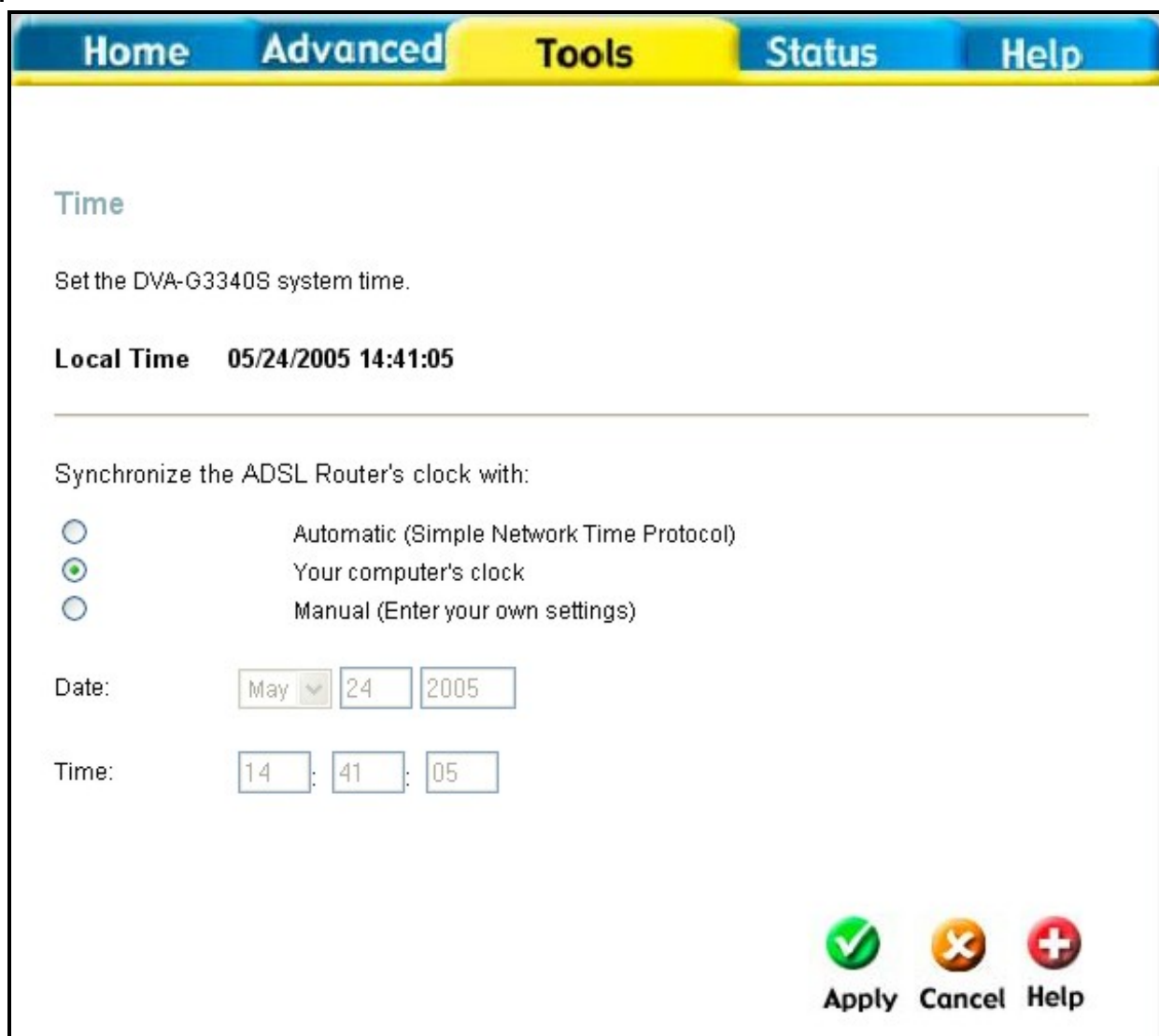
## Remote Web Management and Telnet Access

The Administrator Settings menu is also used to enable remote Telnet management and remote web management access to the Router. To enable remote management of the Router, select the **Enabled** radio button for either Remote Web or Remote Telnet Management and type the IP Address and Netmask of the remote network or system used for management. Click the **Apply** button to activate remote management from the chosen IP address. Be sure to save the new setting.

## Time

[Tools > Time](#)

The Router provides a number of options to maintain current date and time including SNTP.



**Home** **Advanced** **Tools** **Status** **Help**

### Time

Set the DVA-G3340S system time.

**Local Time** 05/24/2005 14:41:05

---

Synchronize the ADSL Router's clock with:




Automatic (Simple Network Time Protocol)

Your computer's clock

Manual (Enter your own settings)

Date:

Time:  :  :

**Apply** **Cancel** **Help**

### Time & Date Configuration

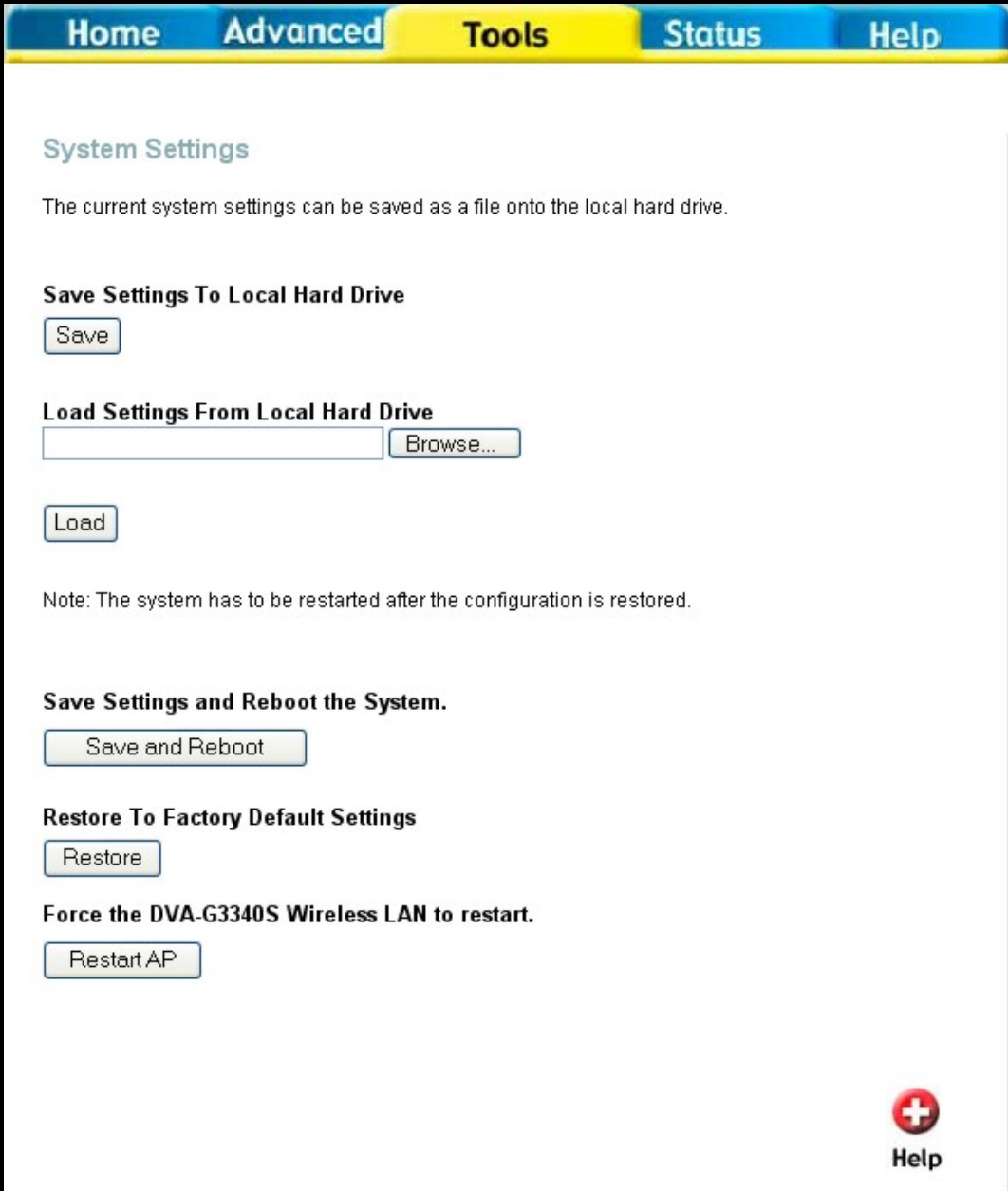
To configure system time on the Router, select the method used to maintain time. The options available include SNTP, using your computer's system clock (default) or set the time and date manually. If you opt to use SNTP, you must enter the SNTP server URL or IP address. Click the **Apply** button to set the system time.

### Save or Load Configuration File

Once you have configured the Router to your satisfaction, it is a good idea to back up the configuration file to your computer. To save the current configuration settings to your computer, click the **Admin** button in the **Tools** directory to display the Administrator Settings menu. Click the **Save** button to **Save Settings to Local Hard Drive**. You will be prompted to select a location on your computer to put the file. The file type is .xml (HTML) and may be named anything you wish.

To load a previously saved configuration file, click the **Browse** button and locate the file

on your computer. Click the **Load** button to **Load Settings From Local Hard Drive**. Confirm that you want to load the file when prompted and the process is completed automatically. The Router will reboot and begin operating with the configuration settings that have just been loaded.



The screenshot shows the 'System Settings' page of a router's web interface. At the top, there is a navigation bar with tabs for 'Home', 'Advanced', 'Tools', 'Status', and 'Help'. The 'Tools' tab is currently selected and highlighted in yellow. Below the navigation bar, the page title is 'System Settings'. A paragraph states: 'The current system settings can be saved as a file onto the local hard drive.' There are three main sections: 1. 'Save Settings To Local Hard Drive' with a 'Save' button. 2. 'Load Settings From Local Hard Drive' which includes a text input field, a 'Browse...' button, and a 'Load' button. 3. 'Save Settings and Reboot the System.' with a 'Save and Reboot' button. Below these is 'Restore To Factory Default Settings' with a 'Restore' button. At the bottom, there is a section 'Force the DVA-G3340S Wireless LAN to restart.' with a 'Restart AP' button. In the bottom right corner, there is a red circular icon with a white plus sign and the word 'Help' below it.

## Save System Settings and Restore Defaults

### Restore Factory Default Settings


To reset the Router to its factory default settings, click the **Restore** button in the Administrator Settings menu. You will be prompted to confirm your decision to reset the Router. The Router will reboot with the factory default settings including IP settings and Administrator password.

[Home](#) [Advanced](#) [Tools](#) [Status](#) [Help](#)

### View Log

View Log displays the activities occurring on the DVA-G3340S.

[First Page](#) [Last Page](#) [Previous](#) [Next](#) [Clear Log](#) [Save Log](#)

 **Help**

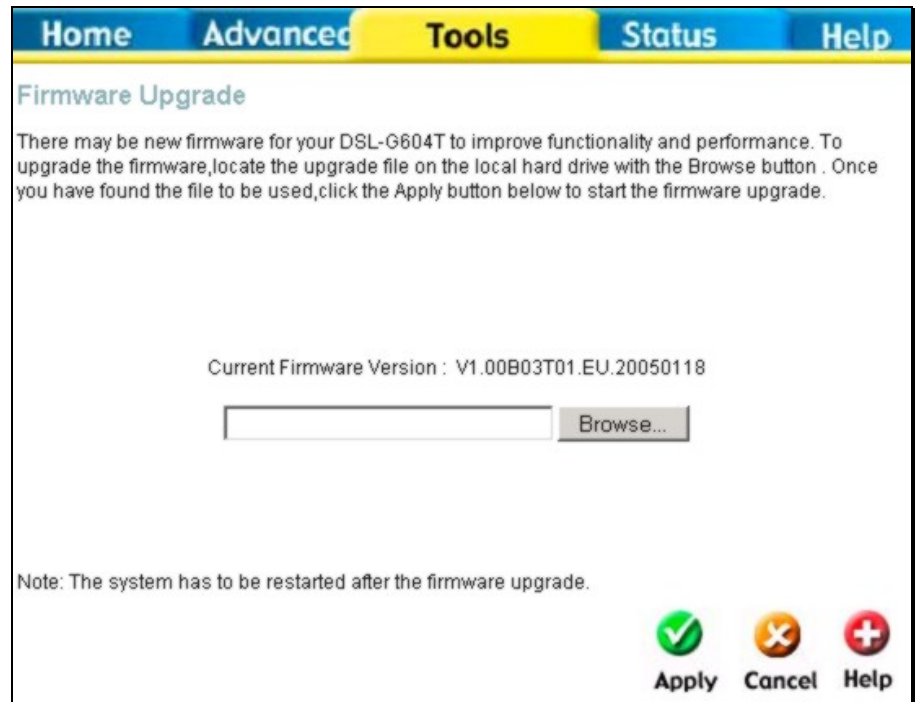
page 1 of 2

Time	Message
	what_acxProcLoadFwImage: 0xa4000000, 0x0
	what_acxProcLoadFwImage() -- Loading FW image369: Compiled for RADIA (bg) radio
	what_acxProcLoadFwImage: 1, pBuf=0xc0113000, len=0x15564. Extra pBuf=0x0, len=0x3
	what_acxProcLoadFwImage: 2, pBuf=0xc0113000, len=0x15564. Extra pBuf=0x0, len=0x3
	what_acxProcLoadFwImage: 3, pBuf=0xc0113000, len=0x15564, DataLen=0x1555c
	what_acxProcLoadFwImage: 4, pBuf=0xc0113000, len=0x15564
	what_acxProcLoadFwImage: Checksum, calc=0x71e76f, file=0x71e76f
	WLAN HAL layer is up
	BssBridge is up
	Mgmt is up
	Rx is up
	Tx is up
	MemMgr is up
	main state machine is up
	WDRV_MAINSM: WLAN Driver initialized successfully
	WDRV_4X: 4x Disabled
	WDRV_4X: Concatenation Disabled
	WDRV_4X: Ack Emulation Disabled
	what_apiStartBss: Enable Tx, Rx and Start the Bss

## Firmware

### Tools > Firmware

Use the Firmware Upgrade menu to load the latest firmware for the device. Note that the device configuration settings may return to the factory default settings, so make sure you save the configuration settings with the System Settings menu described above.



The screenshot shows a web interface with a navigation bar at the top containing 'Home', 'Advanced', 'Tools' (highlighted in yellow), 'Status', and 'Help'. Below the navigation bar is the 'Firmware Upgrade' section. It contains a paragraph of text: 'There may be new firmware for your DSL-G604T to improve functionality and performance. To upgrade the firmware, locate the upgrade file on the local hard drive with the Browse button. Once you have found the file to be used, click the Apply button below to start the firmware upgrade.' Below this text is a text input field and a 'Browse...' button. Underneath the input field, it says 'Current Firmware Version : V1.00B03T01.EU.20050118'. At the bottom of the page, there is a note: 'Note: The system has to be restarted after the firmware upgrade.' and three buttons: 'Apply' (with a green checkmark icon), 'Cancel' (with an orange 'X' icon), and 'Help' (with a red plus icon).

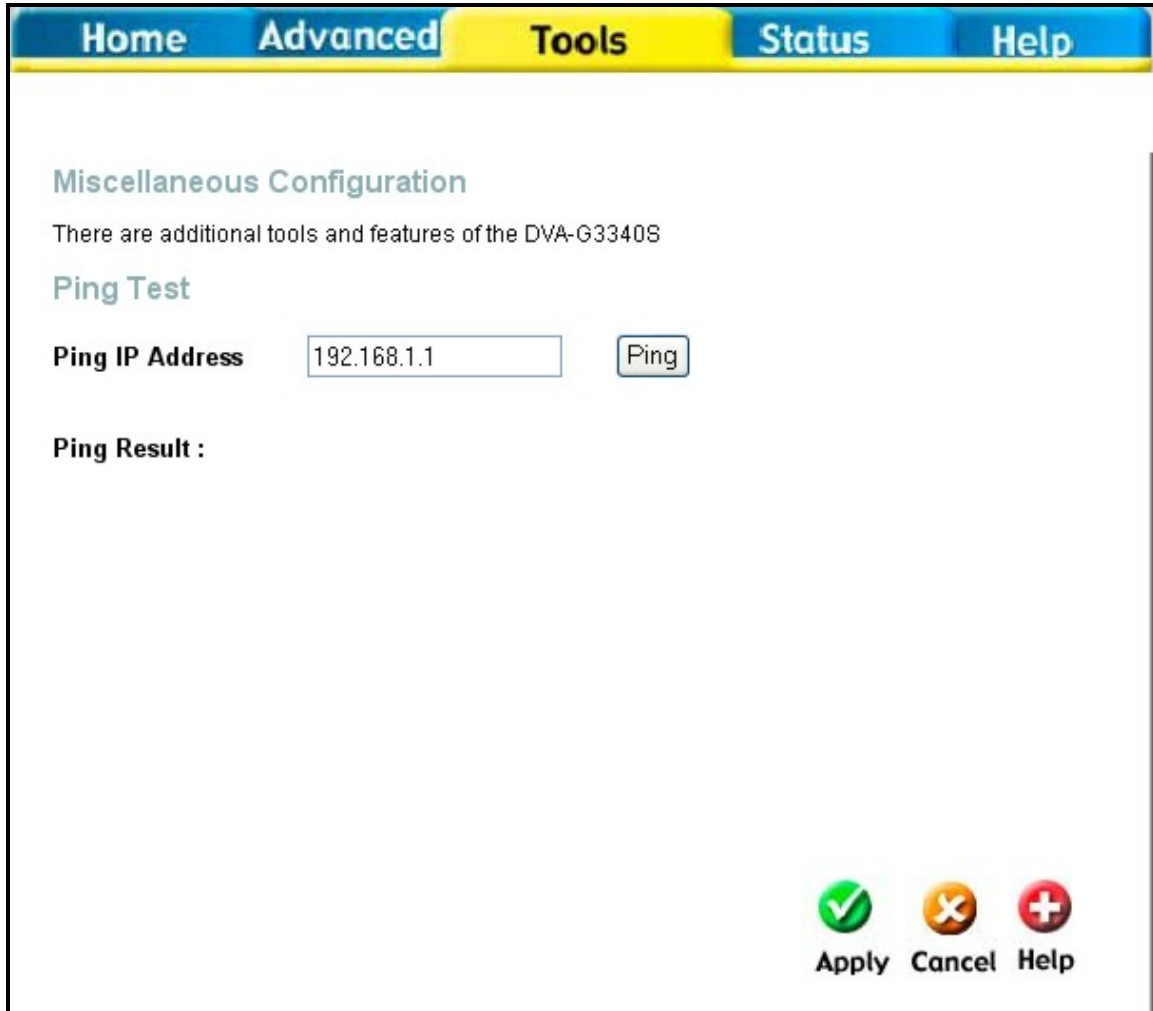
### Firmware Upgrade

To upgrade firmware, type in the name and path of the file or click on the **Browse** button to search for the file. Click the **Apply** button to begin copying the file. The file will load and restart the Router automatically.

## Ping Test

[Tools > Miscellaneous](#)

To perform a standard Ping test for network connectivity, click the **Misc.** menu button in the Tools directory to view the **Miscellaneous Configuration** menu.



**Miscellaneous Configuration menu**

## Ping Test

The Ping test functions on the WAN and LAN interfaces. Type the IP address you want to check in the space provided and click the **Ping** button. Read the Ping test result in the space immediately below.

**Test**  
[Tools > Test](#)  
The Test menus are used to test connectivity of the Router. A Ping test may be done through the local or external interface to test connectivity to known IP addresses. The diagnostics feature executes a series of test of your system software and hardware connections. Use this Test menu when working with your ISP to troubleshoot problems.

**Home** **Advanced** **Tools** **Status** **Help**


### Diagnostic Test

The diagnostics feature executes a series of test of your system software and hardware connections. Use the feature when working with your ISP to troubleshoot problems.

Virtual Circuits :

This Page is used for performing diagnostics on the system.

Testing Connectivity to modem	
Testing Ethernet LAN connection	PASS
Testing ADSL Connection	
Testing ADSL Synchronization	PASS
Testing Network Connection	
Testing ATM OAM segment ping	PASS
Testing ATM OAM end to end ping	PASS
Testing Internet Connectivity	
Ping Primary Domain Names Server	PASS

 Help

**Diagnostics Test Menu**

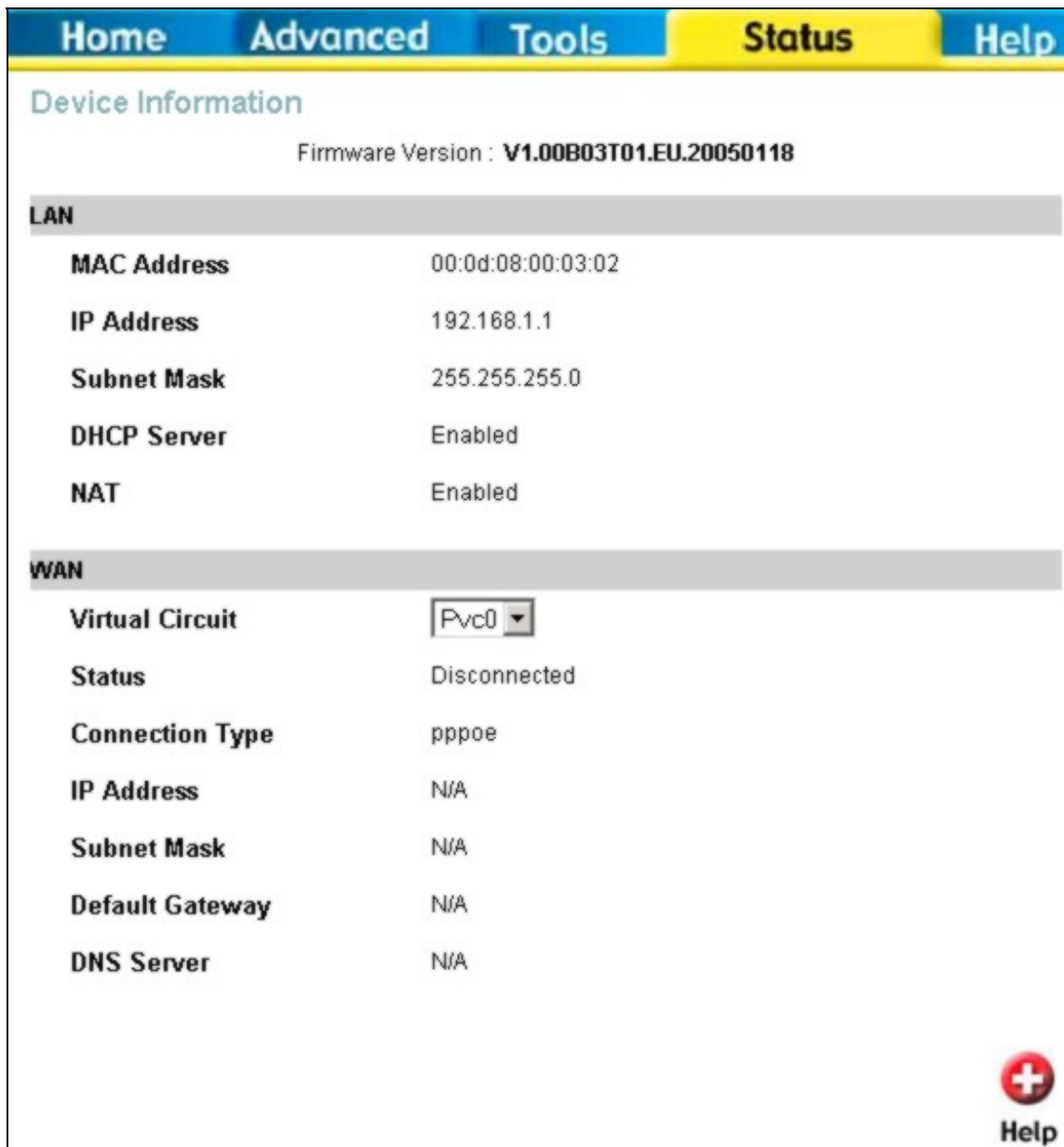
## Status Information

[Status > Device Info](#)

Use the various read-only menus to view system information and monitor performance.

### Device Information Display

Use the Device Information window to quickly view basic current information about the LAN and WAN interfaces and device information including Firmware Version and MAC address.



The screenshot shows a web interface with a navigation bar at the top containing 'Home', 'Advanced', 'Tools', 'Status', and 'Help'. The 'Status' tab is active. Below the navigation bar, the page title is 'Device Information'. The main content area displays the following information:

Firmware Version : **V1.00B03T01.EU.20050118**

**LAN**

MAC Address	00:0d:08:00:03:02
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled
NAT	Enabled

**WAN**

Virtual Circuit	<input type="text" value="Pvc0"/>
Status	Disconnected
Connection Type	pppoe
IP Address	N/A
Subnet Mask	N/A
Default Gateway	N/A
DNS Server	N/A

In the bottom right corner, there is a red circular icon with a white plus sign and the word 'Help' below it.


Device Information display



## Log

### Status > Log

The system log displays chronological event log data. Use the navigation buttons to view or scroll log pages. You may also save a simple text file containing the log to your computer. Click the Save Log button and follow the prompts to save the file.



The screenshot shows a web interface for viewing system logs. At the top, there is a navigation bar with tabs for Home, Advanced, Tools, Status (highlighted in yellow), and Help. Below the navigation bar, the page title is "View Log" and the subtitle is "View Log displays the activities occurring on the DVA-G3340S." There are six buttons for navigation: "First Page", "Last Page", "Previous", "Next", "Clear Log", and "Save Log". A red circular icon with a white plus sign and the word "Help" is located on the right side. The log content is displayed in a table with two columns: "Time" and "Message". The log shows several entries related to the WLAN driver initialization, including messages about loading the FW image, checksum calculation, and the successful initialization of the WLAN driver.

page 1 of 2

Time	Message
	whal_acxProcLoadFwImage: 0xa4000000, 0x0
	whal_acxProcLoadFwImage() -- Loading FW image369: Compiled for RADIA (bg) radio
	whal_acxProcLoadFwImage: 1, pBuf=0xc0113000, len=0x15564. Extra pBuf=0x0, len=0x3
	whal_acxProcLoadFwImage: 2, pBuf=0xc0113000, len=0x15564. Extra pBuf=0x0, len=0x3
	whal_acxProcLoadFwImage: 3, pBuf=0xc0113000, len=0x15564, DataLen=0x1555c
	whal_acxProcLoadFwImage: 4, pBuf=0xc0113000, len=0x15564
	whal_acxProcLoadFwImage: Checksum, calc=0x71e76f, file=0x71e76f
	WLAN HAL layer is up
	BssBridge is up
	Mgmt is up
	Rx is up
	Tx is up
	MemMgr is up
	main state machine is up
	WDRV_MAINSM: WLAN Driver initialized successfully
	WDRV_4X: 4x Disabled
	WDRV_4X: Concatenation Disabled
	WDRV_4X: Ack Emulation Disabled
	whal_apiStartBss: Enable Tx, Rx and Start the Bss

### Log display

Click **Clear Log** delete the current log information.

## Traffic Statistics

[Status > Statistics](#)

Use the Traffic Statistics window to monitor traffic on the Ethernet or ADSL Internet connection. When the Wireless Select the interface for which you want to view packet statistics and the information will appear below.


**Home** **Advanced** **Tools** **Status** **Help**

### Traffic Statistics

Traffic Statistics display Receive and Transmit packets passing through the DVA-G3340S.

Choose an interface to view your network status:

- Ethernet Display Receive and Transmit packages through Ethernet
- ADSL Display Receive and Transmit packages through ADSL
- Wireless Display Receive and Transmit packages through wireless connection

 **Help**

Transmit	
Good Tx Frames	774
Good Tx Broadcast Frames	249
Good Tx Multicast Frames	28
Tx Total Bytes	374722
Collisions	0
Error Frames	0
Carrier Sense Errors	0

Receive	
Good Rx Frames	36794
Good Rx Broadcast Frames	29896
Good Tx Multicast Frames	6426
Rx Total Bytes	7914612
CRC Errors	0
Undersized Frames	0
Overruns	323

### Traffic Statistics information

Click **Refresh** to view traffic information.

## ADSL

### Status > ADSL

Use the ADSL Status information and the Test page for troubleshooting the ADSL connection.

**Home** **Advanced** **Tools** **Status** **Help**

#### ADSL Status

ADSL status shows the ADSL physical layer status.

ADSL Firmware Version: 4.01.00.00 - 1.01.00.00 - 1.01.00.00 Annex A - 01.06.06 - 0.49


Line State: Disconnected

Modulation: Multi-mode

Annex Mode: ANNEX\_A

Max Tx Power: -38 dBm/Hz

Item	Downstream	Upstream	Unit
SNR Margin	0	0	dB
Line Attenuation	0	0	dB
Data Rate	0	0	kbps

  
Help

### ADSL Status information

# Technical Specifications

Key Component	Description
Network Processor and ADSL Chipset	TI AR7VWi
Voice Chipset	TI TNETV901
Product Feature	Description
<b>Network Interface</b>	
One ADSL port	RJ-11, inner pair (pin 2,3)
Standard Compliance	<b>ADSL Standards:</b> ANSI T1.413 Issue 2 ITU G.992.1 (G.dmt) AnnexA ITU G.992.2 (G.lite) Annex A ITU G.994.1 (G.hs)
	<b>ADSL2 Standards:</b> ITU G.992.3 (G.dmt.bis) Annex A ITU G.992.4 (G.lite.bis) Annex A
	<b>ADSL2+ Standards:</b> ITU G.992.5 Annex A
Line Rate	Downstream: up to 24Mbps
	Upstream : up to 1Mbps
Performance	Pass DSL Forum TR-067 Performance Criteria
<b>LAN Interface</b>	
Four Fast Ethernet ports	RJ-45, 10/100Mbps, MDI/MDIX Auto-sensing
Standard Compliance	IEEE802.3, IEEE802.3u
<b>USB Interface</b>	
One USB port	Type B connector
Standard Compliance	USB Implementation Forum USB 1.1 Specification
<b>Voice Interface</b>	
Two ports for POTS connection	RJ-11, FXS interface
	Loop Start
One port for PSTN connection	RJ-11, FXO interface
Telephone dialing mode support	DTMF

	Dial Pulse (20pps/10pps)
Ringer Equivalency Number	REN=5
Line Impedance	600ohm
<b>Wireless Access Point Embedded</b>	
Standard Compliance	IEEE 802.11
	IEEE 802.11b
	IEEE 802.11g
Radio and Modulation Type	IEEE 802.11b: DQPSK, DBPSK, DSSS, and CCK
	IEEE 802.11g: BPSK, QPSK, 16QAM, 64QAM, OFDM
Operating Frequency	2400 ~ 2484.5MHz ISM band
Channel Numbers	11 channels for United States
	13 channels for European Countries
	13 channels for Japan
Data Rate	IEEE 802.11b: 11, 5.5, 2, and 1Mbps
	IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps
Media Access Protocol	CSMA/CA with ACK
Form Factor and Interface	mini-PCI interface
Antenna type	One Built-in Diversity Antenna

### Power

External Linear Power Adapter	Input: Depends on specific country requirements
	Output: 12V AC, 1.6A
Device Power consumption	Maximum 12 watt
<b>Reset Button</b>	Reset to factory default

Product Feature	Description
<b>Bridging/Routing</b>	
Transparent bridging	
Dynamic Learning	Up to 1024 MAC addresses
Encapsulation	Bridged/Routed Ethernet over ATM (RFC1483/2684)
	Classical IP over ATM (RFC1577)
IPv4	TCP/UDP

	ARP
	ICMP
IP Routing	RIP v1 (RFC 1058), RIP v2 (RFC 1389)
	IP Static Routing
DHCP	DHCP Server (RFC2131)
	DHCP Client (RFC2131)
DNS	DNS Cache
	Dynamic DNS
IP multicast	IGMP Proxy
	IGMP Snooping
<b>ATM/ADSL</b>	
Multiple PVC	Support 8 PVCs
ATM Cell format	ITU-T Rec. I.361
ATM Adaptation Layer	AAL5
ATM signaling	ATM Forum UNI3.1/4.0
OAM support	F4/F5 Loopback
ATM QoS (Traffic Shaping)	UBR, CBR, VBR
<b>PPP Support</b>	
Point-to-Point Protocol	RFC1661
PPP over ATM	RFC2364
PPP over Ethernet	RFC2516
PPP Encapsulation	VC
	LLC
User Authentication	PAP (RFC 1334)
	CHAP (RFC 1994)
	Auto-detection of PAP/CHAP
<b>NAT</b>	
NAT/NAPT	
Port Forwarding	Static IP masquerade(1~65535)
	Entry Number: 32 entries
	Port Number Setting:- Possible to assign the range- Possible to set TCP/UDP/Both as the protocol

Pass Through	IPSec/L2TP/PPTP pass through
NAT ALGs	MSN MSGR
	FTP
	SIP (Video/ Audio/ White Board/ Remote Control)
	ICQ for File and Audio transfer
	NetMeeting 3/ 2.0 Video/Audio receive
	CUSEEME

## Security

MAC Filtering	Over 16 entries
	Only ARP Pass-through
	MAC Address and Ethernet type are configurable
IP Filtering	32 records
	Range Setting (IP Address, Port Number)
	In-bound/Out-bound Setting
SPI	Detection of Known Attacks

## QoS

Priority Queue	Voice over data
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## Wireless AP Functions

ESS-ID Support	
MAC Address Filtering	Support Access Control List (ACL)
WEP Support	64/128/256 bits
WPA Support	

## VoIP

Call Control Protocol	SIP (RFC3261)
Codec	G.711 $\mu$ -law/A-law
	G.726
	G.729A
Echo Canceller	G.168
Fax Relay	G.711
DTMF Relay	RFC2833
Country Tone Support	DT , RBT , BT , Howler / HST(future support)
Tone Detection	DTMF

	Modem/Fax: V.21,V.25
PSTN Life-line Function	Automatic fall back to PSTN in case of power failure
	PSTN line automatic selection (e.g. emergency Call 911)
	PSTN routing table support base on prefix number
Caller ID	BellCore, ETSI complaint
Life-line Backup	Making call to PSTN
	Receiving call from PSTN
RTP/RTCP	

### Configuration/Management

Access Administration	Username/Password control for Telnet, WEB configuration
WEB-based management	HTTP server
Ping	Support Ping test from Modem
SNTP	Simple Network Time Protocol
Factory Reset	Reset to factory default
UPnP 1.0	
Diagnostics	
Configuration Backup/Restore	

Product Feature	Description
<b>Safety Requirement</b>	
CSA International Mark	Including CSA950, UL1950, IEC60950, EN60950
<b>EMC Specification</b>	
FCC part15 class B	
<b>PTT Test</b>	
FCC part68	
<b>Wireless Certification</b>	
Wi-Fi certified	
<b>Environmental Requirement</b>	
Operating Temperature	0 °C to 40 °C
Storage Temperature	-20 °C to 70 °C
Operating Humidity Range	5% to 95% Non-condensing



<b>Product Feature</b>	<b>Description</b>
IP Address/Mask	192.168.1.1/255.255.255.0
VPI/VCI	0/35
ADSL Mode	Multi-mode
Connection Mode	PPPoE LLC
User Name/Password	admin/admin



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