

Chapter 6

Advanced Configuration

This chapter describes how to configure the advanced features of your DG834PN 108 Mbps RangeMax™ ADSL Modem Wireless Router.

Configuring Advanced Security

The DG834PN 108 Mbps RangeMax™ ADSL Modem Wireless Router provides a variety of advanced features, such as:

- Setting up a Demilitarized Zone (DMZ) Server
- Connecting Automatically, as Required
- Disabling Port Scan and DOS Protection
- Responding to a Ping on the Internet WAN Port
- MTU Size
- Flexibility on configuring your LAN TCP/IP settings
- Using the Router as a DHCP Server
- Configuring Dynamic DNS
- Configuring Static Routes

These features are discussed below.

Setting Up A Default DMZ Server

The Default DMZ Server feature is helpful when using some online games and videoconferencing applications that are incompatible with NAT. The ADSL modem wireless router is programmed to recognize some of these applications and to work properly with them, but there are other applications that may not function well. In some cases, one local computer can run the application properly if that computer's IP address is entered as the Default DMZ Server.



Note: For security reasons, you should avoid using the Default DMZ Server feature. When a computer is designated as the Default DMZ Server, it loses much of the protection of the firewall, and is exposed to many exploits from the Internet. If compromised, the computer can be used to attack your network.

Incoming traffic from the Internet is normally discarded by the ADSL modem wireless router unless the traffic is a response to one of your local computers or a service that you have configured in the Ports menu. Instead of discarding this traffic, you can have it forwarded to one computer on your network. This computer is called the Default DMZ Server.

How to Configure a Default DMZ Server

To assign a computer or server to be a Default DMZ server, follow these steps:

1. Log in to the ADSL modem wireless router at its default LAN address of <http://192.168.0.1> with its default User Name of **admin**, default password of **password**, or using whatever Password and LAN address you have chosen for the ADSL modem wireless router.
2. From the Main Menu, under Advanced, click the WAN Setup link to view the page shown in [Figure 6-1](#):

WAN Setup

Connect Automatically, as Required

Disable Port Scan and DOS Protection

Default DMZ Server 192 . 168 . 0 . 1

Respond to Ping on Internet WAN Port

MTU Size (in bytes) 1492

Apply Cancel

Figure 6-1

3. Select the Default DMZ Server check box.
4. Type the IP address for that server.
5. Click Apply to save your changes.

Connect Automatically, as Required

Normally, this option should be enabled, so that an Internet connection will be made automatically, whenever Internet-bound traffic is detected. If this causes high connection costs, you can disable this setting.

If disabled, you must connect manually, using the sub-screen accessed from the "Connection Status" button on the Status screen.

If you have an "Always on" connection, this setting has no effect.

Disable Port Scan and DOS Protection

The Firewall protects your LAN against Port Scans and Denial of Service (DOS) attacks. This should be disabled only in special circumstances.

Respond to Ping on Internet WAN Port

If you want the ADSL modem wireless router to respond to a 'ping' from the Internet, select the 'Respond to Ping on Internet WAN Port' check box. This should only be used as a diagnostic tool, since it allows your ADSL modem wireless router to be discovered. Do not select this box unless you have a specific reason to do so.

MTU Size

The normal MTU (Maximum Transmit Unit) value for most Ethernet networks is 1500 Bytes, or 1492 Bytes for PPPoE connections. For some ISPs you may need to reduce the MTU. But this is rarely required, and should not be done unless you are sure it is necessary for your ISP connection.

Configuring LAN IP Settings

The LAN IP Setup menu allows configuration of LAN IP services such as DHCP and RIP. These features can be found under the Advanced heading in the Main Menu of the browser interface.

The ADSL modem wireless router is shipped preconfigured to use private IP addresses on the LAN side, and to act as a DHCP server. The ADSL modem wireless router's default LAN IP configuration is:

- LAN IP addresses—192.168.0.1
- Subnet mask—255.255.255.0

These addresses are part of the Internet Engineering Task Force (IETF)-designated private address range for use in private networks, and should be suitable in most applications. If your network has a requirement to use a different IP addressing scheme, you can make those changes in this menu.

LAN IP Setup

LAN TCP/IP Setup

IP Address: 192 . 168 . 0 . 1

IP Subnet Mask: 255 . 255 . 255 . 0

RIP Direction: None

RIP Version: Disable

Use Router as DHCP Server

Starting IP Address: 192 . 168 . 0 . 2

Ending IP Address: 192 . 168 . 0 . 254

Address Reservation

#	IP Address	Device Name	MAC Address
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Add Edit Delete

Apply Cancel

Figure 6-2

The LAN TCP/IP Setup parameters are:

- **IP Address**
This is the LAN IP address of the ADSL modem wireless router.
- **IP Subnet Mask**
This is the LAN Subnet Mask of the ADSL modem wireless router. Combined with the IP address, the IP Subnet Mask allows a device to know which other addresses are local to it, and which must be reached through a gateway or ADSL modem wireless router.
- **RIP Direction**
RIP (Router Information Protocol) allows a ADSL modem wireless router to exchange routing information with other routers. The RIP Direction selection controls how the ADSL Modem Wireless Router sends and receives RIP packets. Both is the default.
 - When set to Both or Out Only, the ADSL modem wireless router will broadcast its routing table periodically.
 - When set to Both or In Only, it will incorporate the RIP information that it receives.
 - When set to None, it will not send any RIP packets and will ignore any RIP packets received.

- **RIP Version**

This controls the format and the broadcasting method of the RIP packets that the ADSL modem wireless router sends. It recognizes both formats when receiving. By default, this is set for RIP-1.

- RIP-1 is universally supported. RIP-1 is probably adequate for most networks, unless you have an unusual network setup.
- RIP-2 carries more information. Both RIP-2B and RIP-2M send the routing data in RIP-2 format.
 - RIP-2B uses subnet broadcasting.
 - RIP-2M uses multicasting.



Note: If you change the LAN IP address of the ADSL modem wireless router while connected through the browser, you will be disconnected. You must then open a new connection to the new IP address and log in again.

DHCP

By default, the ADSL modem wireless router will function as a DHCP (Dynamic Host Configuration Protocol) server, allowing it to assign IP, DNS server, and default gateway addresses to all computers connected to the ADSL modem wireless router's LAN. The assigned default gateway address is the LAN address of the router. IP addresses will be assigned to the attached PCs from a pool of addresses specified in this menu. Each pool address is tested before it is assigned to avoid duplicate addresses on the LAN.

For most applications, the default DHCP and TCP/IP settings of the router are satisfactory. See [“Internet Networking and TCP/IP Addressing:” in Appendix B](#) for an explanation of DHCP and information about how to assign IP addresses for your network.

Use Router as DHCP server

If another device on your network will be the DHCP server, or if you will manually configure the network settings of all of your computers, clear the ‘Use router as DHCP server’ check box. Otherwise, leave it selected.

Specify the pool of IP addresses to be assigned by setting the Starting IP Address and Ending IP Address. These addresses should be part of the same IP address subnet as the router’s LAN IP address. Using the default addressing scheme, you should define a range between 192.168.0.2 and 192.168.0.254, although you may want to save part of the range for devices with fixed addresses.

The router will deliver the following parameters to any LAN device that requests DHCP:

- An IP Address from the range you have defined
- Subnet Mask
- Gateway IP Address is the router's LAN IP address
- Primary DNS Server, if you entered a Primary DNS address in the Basic Settings menu; otherwise, the router's LAN IP address
- Secondary DNS Server, if you entered a Secondary DNS address in the Basic Settings menu
- WINS Server, short for *Windows Internet Naming Service Server*, determines the IP address associated with a particular Windows computer. A WINS server records and reports a list of names and IP address of Windows PCs on its local network. If you connect to a remote network that contains a WINS server, enter the server's IP address here. This allows your PCs to browse the network using the Network Neighborhood feature of Windows.

Reserved IP addresses

When you specify a reserved IP address for a computer on the LAN, that computer will always receive the same IP address each time it access the router's DHCP server. Reserved IP addresses should be assigned to servers that require permanent IP settings.

To reserve an IP address:

1. Click the **Add** button.
2. In the IP Address box, type the IP address to assign to the computer or server. Choose an IP address from the router's LAN subnet, such as 192.168.0.x.
3. Type the MAC Address of the computer or server.
Tip: If the computer is already present on your network, you can copy its MAC address from the Attached Devices menu and paste it here.
4. Click **Apply** to enter the reserved address into the table.



Note: The reserved address will not be assigned until the next time the computer contacts the router's DHCP server. Reboot the computer or access its IP configuration and force a DHCP release and renew.

To edit or delete a reserved address entry:

1. Click the button next to the reserved address you want to edit or delete.
2. Click Edit or Delete.

How to Configure LAN TCP/IP Settings

1. Log in to the router at its default LAN address of <http://192.168.0.1> with its default User Name of **admin**, default password of **password**, or using whatever User Name, Password and LAN address you have chosen for the router.
2. From the Main Menu, under Advanced, click the LAN IP Setup link to view the menu, shown in [Figure 6-3](#):

LAN IP Setup

LAN TCP/IP Setup

IP Address: 192 . 168 . 0 . 1

IP Subnet Mask: 255 . 255 . 255 . 0

RIP Direction: None

RIP Version: Disable

Use Router as DHCP Server

Starting IP Address: 192 . 168 . 0 . 2

Ending IP Address: 192 . 168 . 0 . 254

Address Reservation

#	IP Address	Device Name	MAC Address

Add Edit Delete

Apply Cancel

Figure 6-3

3. Enter the TCP/IP, DHCP, or Reserved IP parameters.
4. Click Apply to save your changes.

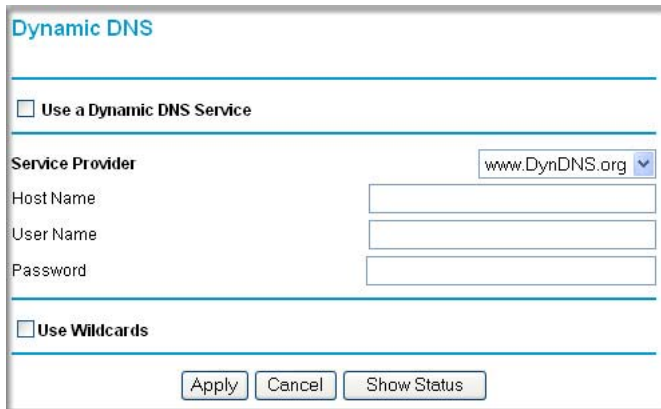
Configuring Dynamic DNS

If your network has a permanently assigned IP address, you can register a domain name and have that name linked with your IP address by public Domain Name Servers (DNS). However, if your Internet account uses a dynamically assigned IP address, you will not know in advance what your IP address will be, and the address can change frequently. In this case, you can use a commercial dynamic DNS service that will allow you to register your domain to their IP address, and will forward traffic directed at your domain to your frequently-changing IP address.

The router contains a client that can connect to a dynamic DNS service provider. To use this feature, you must select a service provider and obtain an account with them. After you have configured your account information in the router, whenever your ISP-assigned IP address changes, your router will automatically contact your dynamic DNS service provider, log in to your account, and register your new IP address.

How to Configure Dynamic DNS

1. Log in to the router at its default LAN address of <http://192.168.0.1> with its default User Name of **admin**, default password of **password**, or using whatever User Name, Password and LAN address you have chosen for the router.
2. From the Main Menu of the browser interface, under Advanced, select Dynamic DNS to display the page below.



The screenshot shows the 'Dynamic DNS' configuration page. At the top, there is a title 'Dynamic DNS' in blue. Below the title is a horizontal line. Underneath, there is a checkbox labeled 'Use a Dynamic DNS Service'. Below this is another horizontal line. The 'Service Provider' section contains a dropdown menu with 'www.DynDNS.org' selected. Below the dropdown are three text input fields labeled 'Host Name', 'User Name', and 'Password'. Below these fields is another horizontal line. At the bottom of the form, there is a checkbox labeled 'Use Wildcards'. At the very bottom, there are three buttons: 'Apply', 'Cancel', and 'Show Status'.

Figure 6-4

3. Access the Web site of one of the dynamic DNS service providers whose names appear in the 'Service Provider' box, and register for an account. For example, for dyndns.org, go to www.dyndns.org.
4. Select the "Use a dynamic DNS service" check box.
5. Select the name of your dynamic DNS Service Provider.
6. Type the Host Name that your dynamic DNS service provider gave you. The dynamic DNS service provider may call this the domain name. If your URL is myName.dyndns.org, then your Host Name is "myName."
7. Type the User Name for your dynamic DNS account.
8. Type the Password (or key) for your dynamic DNS account.

9. If your dynamic DNS provider allows the use of wildcards in resolving your URL, you can select the Use wildcards check box to activate this feature.
For example, the wildcard feature will cause *.yourhost.dyndns.org to be aliased to the same IP address as yourhost.dyndns.org
10. Click Apply to save your configuration.



Note: If your ISP assigns a private WAN IP address such as 192.168.x.x or 10.x.x.x, the dynamic DNS service will not work because private addresses will not be routed on the Internet

Using Static Routes

Static Routes provide additional routing information to your router. Under normal circumstances, the router has adequate routing information after it has been configured for Internet access, and you do not need to configure additional static routes. You must configure static routes only for unusual cases such as multiple routers or multiple IP subnets located on your network.

Static Route Example

As an example of when a static route is needed, consider the following case:

- Your primary Internet access is through a cable modem to an ISP.
- You have an ISDN router on your home network for connecting to the company where you are employed. This router's address on your LAN is 192.168.0.100.
- Your company's network is 134.177.0.0.

When you first configured your router, two implicit static routes were created. A default route was created with your ISP as the ADSL modem wireless router, and a second static route was created to your local network for all 192.168.0.x addresses. With this configuration, if you attempt to access a device on the 134.177.0.0 network, your router will forward your request to the ISP. The ISP forwards your request to the company where you are employed, and the request will likely be denied by the company's firewall.

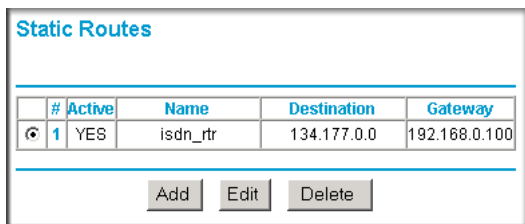
In this case you must define a static route, telling your router that 134.177.0.0 should be accessed through the ISDN router at 192.168.0.100. The static route would look like [Figure 6-6](#).

In this example:

- The Destination IP Address and IP Subnet Mask fields specify that this static route applies to all 134.177.x.x addresses.
- The ADSL Modem Wireless Router IP Address fields specifies that all traffic for these addresses should be forwarded to the ISDN router at 192.168.0.100.
- A Metric value of 1 will work since the ISDN router is on the LAN. This represents the number of routers between your network and the destination. This is a direct connection so it is set to 1.
- Private is selected only as a precautionary security measure in case RIP is activated.

How to Configure Static Routes

1. Log in to the router at its default LAN address of <http://192.168.0.1> with its default User Name of **admin**, default password of **password**, or using whatever User Name, Password and LAN address you have chosen for the router.
2. From the Main Menu of the browser interface, under Advanced, click Static Routes to view the Static Routes menu, shown in [Figure 6-5](#).



#	Active	Name	Destination	Gateway
1	YES	isdn_rtr	134.177.0.0	192.168.0.100

Figure 6-5

3. To add or edit a Static Route:

- a. Click the **Edit** button to open the Edit Menu, shown in [Figure 6-6](#).

Static Routes	
Route Name	<input type="text" value="isdn_rtr"/>
<input checked="" type="checkbox"/> Private	
<input checked="" type="checkbox"/> Active	
Destination IP Address	<input type="text" value="134"/> . <input type="text" value="177"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
IP Subnet Mask	<input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="0"/> . <input type="text" value="0"/>
Gateway IP Address	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="0"/> . <input type="text" value="100"/>
Metric	<input type="text" value="1"/>
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Figure 6-6

- b. Type a route name for this static route in the Route Name box under the table. This is for identification purpose only.
 - c. Select **Private** if you want to limit access to the LAN only. The static route will not be reported in RIP.
 - d. Select **Active** to make this route effective.
 - e. Type the Destination IP Address of the final destination.
 - f. Type the IP Subnet Mask for this destination. If the destination is a single host, type 255.255.255.255.
 - g. Type the Gateway IP Address, which must be a router on the same LAN segment as the router.
 - h. Type a number between 1 and 15 as the Metric value. This represents the number of routers between your network and the destination. Usually, a setting of 2 or 3 works, but if this is a direct connection, set it to 1.
4. Click **Apply** to have the static route entered into the table.

