

Chapter 3

Connecting the Router to the Internet

This chapter describes how to set up the router on your Local Area Network (LAN) and connect to the Internet. It describes how to configure your DG834GT 108 Mbps Super Wireless ADSL Router for Internet access using the Setup Wizard, or how to manually configure your Internet connection.

What You Need Before You Begin

You need to prepare the following before you can establish an Internet connection through your router:

1. The router connected to an ADSL line and a computer properly connected to the router as explained below.
2. Active Internet service such as that provided by an ADSL account.
3. The Internet Service Provider (ISP) configuration information for your DSL account.

Note: If you purchased the DG834GT in a country where a microfilter is not included, you must acquire one.

ADSL Microfilter Requirements

ADSL technology uses the same wires as your telephone service. However, ADSL adds signals to the telephone lines which create noise in the telephone service. You must use ADSL microfilters to filter out these signals before they reach your telephone.

ADSL Microfilter

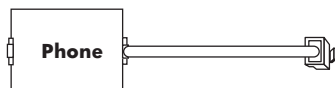


Figure 3-1: ADSL microfilter

Each device such as a telephone, fax machine, answering machine, or caller ID display will require an ADSL microfilter.

Note: Do not connect the DG834GT to the ADSL line through a microfilter unless the microfilter is a combination microfilter/splitter specifically designed for this purpose. Doing so will prevent the built-in ADSL modem in the DG834GT from establishing a connection to the Internet. If you have any doubts about this, connect the DG834GT directly to the ADSL line.

ADSL Microfilter with Built-In Splitter

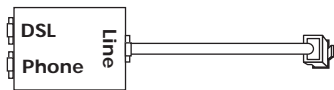


Figure 3-2: ADSL microfilter with built-in splitter

Use an ADSL microfilter with built-in splitter when there is a single wall outlet which must provide connectivity for both the DG834GT and telephone equipment.

Ethernet Cabling Requirements

The DG834GT Super Wireless ADSL Router connects to your Ethernet LAN via twisted-pair cables. If the computer will connect to your network at 100 Mbps, you must use a Category 5 (CAT5) cable such as the one provided with your router.

Computer Hardware Requirements

To use the DG834GT Super Wireless ADSL Router on your network, each computer must have an installed Ethernet adapter and an Ethernet cable, or a 802.11g wireless adapter.

LAN Configuration Requirements

For the initial connection to the Internet and configuration of your router, you need to connect a computer to the router which is set to automatically get its TCP/IP configuration from the router via DHCP.

Note: Please refer to [Appendix C, “Preparing Your Network”](#) for assistance with DHCP configuration.

Internet Configuration Requirements

Depending on how your ISP set up your Internet account, you need one or more of these configuration parameters to connect your router to the Internet:

- Virtual Path Identifier (VPI)/Virtual Channel Identifier (VCI) parameters
- Multiplexing Method
- Host and Domain Names
- ISP Login Name and Password
- ISP Domain Name Server (DNS) Addresses
- Fixed or Static IP Address

Where Do I Get the Internet Configuration Parameters?

There are several ways you can gather the required Internet connection information.

- Your ISP should have provided you with all the information needed to connect to the Internet. If you cannot locate this information, you can ask your ISP to provide it or you can try one of the options below.
- If you have a computer already connected using the active Internet access account, you can gather the configuration information from that computer.
 - For Windows 95/98/ME, open the Network control panel, select the TCP/IP entry for the Ethernet adapter, and click Properties.
 - For Windows 2000/XP, open the Local Area Network Connection, select the TCP/IP entry for the Ethernet adapter, and click Properties.
 - For Macintosh computers, open the TCP/IP or Network control panel.
- You can also refer to the *DG834GT Resource CD* for the NETGEAR Router ISP Guide which provides Internet connection information for many ISPs.

Once you locate your Internet configuration parameters, you may want to record them on the next page.

Record Your Internet Connection Information

Print the following page. Fill in the configuration parameters from your Internet Service Provider (ISP).

ISP Multiplexing Method and Virtual Circuit Number: The default settings of your DG834GT 108 Mbps Super Wireless ADSL Router will work fine for most ISPs. However, some ISPs use a specific Multiplexing Method or a Virtual Circuit Number for either the Virtual Path Identifier (VPI) or Virtual Channel Identifier (VCI). If your ISP provided you with a specific Multiplexing Method or VPI/VCI number, then fill in the following:

Multiplexing Method, circle one: LLC-based or VC-based

VPI: _____ A number between 0 and 255.

VCI: _____ A number between 1 and 65535.

ISP Login Name: The login name and password are case sensitive and must be entered exactly as given by your ISP. Some ISPs use your full e-mail address as the login name. The Service Name is not required by all ISPs. If you use a login name and password, then fill in the following:

Login Name: _____ Password: _____

Service Name: _____

Fixed or Static IP Address: If you have a static IP address, record the following information. For example, 169.254.141.148 could be a valid IP address.

Fixed or Static Internet IP Address: _____

Router IP Address: _____

Subnet Mask: _____

ISP DNS Server Addresses: If you were given DNS server addresses, fill in the following:

Primary DNS Server IP Address: _____

Secondary DNS Server IP Address: _____

Host and Domain Names: Some ISPs use a specific host or domain name like **CCA7324-A** or **home**. If you did not get host or domain names, use the following examples as a guide:

- If your main e-mail account with your ISP is **aaa@yyy.com**, then use **aaa** as your host name. Your ISP might call this your account, user, host, computer, or system name.
- If your ISP's mail server is **mail.xxx.yyy.com**, then use **xxx.yyy.com** as the domain name.

ISP Host Name: _____ ISP Domain Name: _____

For Wireless Access: For configuration of the wireless network, record the following:

Wireless Network Name (SSID): _____

WEP Authentication (circle one): Automatic, Open System, or Shared Key

WEP Encryption (circle one): 64 or 128; Passphrase or Key: _____

Connecting the DG834GT to Your LAN

This section provides instructions for connecting the DG834GT Super Wireless ADSL Router.

Note: The Resource CD included with your router contains an animated Installation Assistant to help you through this procedure.

How to Connect the Router

There are four steps to connecting your firewall:

1. Install ADSL filters on the phone lines.
2. Connect the router to the ADSL filter.
3. Log in to the router.
4. Connect to the Internet.

Follow the steps below to connect your router to your network. Before you begin, locate the ADSL configuration information from your Internet Service Provider (ISP).

1. CONNECT ADSL FILTERS ON THE PHONE LINES.

- a. You need to install a filter on every telephone or device that shares the same phone number as your ADSL router. Select the filter that came with your router.

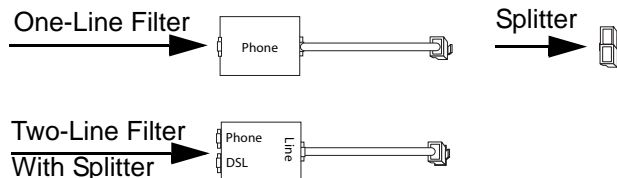


Figure 3-3: ADSL microfilters

Note: If you purchased the DG834GT in a country where the filter is not included, you must acquire one.

- b. **Two-Line Filter Example.** Insert the two-line filter into the phone outlet and connect the phone to the phone line connector (A):

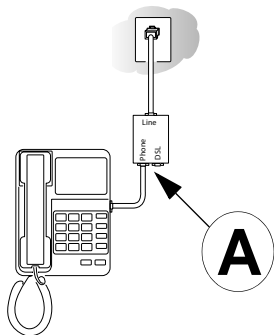


Figure 3-4: Connecting an ADSL microfilter and phone

Note: To use a one-line filter with a separate splitter, insert the splitter into the phone outlet, connect the one-line filter to the splitter, and connect the phone to the filter.

2. CONNECT THE DG834GT TO THE ADSL FILTER.

Note: Improperly connecting a filter to your DG834GT Super Wireless ADSL Router will block your ADSL connection.

- a. Turn off your computer.
- b. Connect the ADSL port of the DG834GT to the ADSL port (**B**) of the two-line filter:

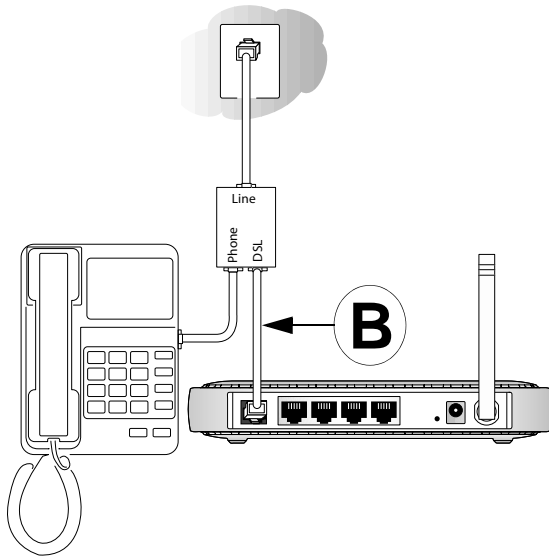


Figure 3-5: Connecting the DG834GT Super Wireless ADSL Router to an ADSL microfilter and phone

- c. Connect the Ethernet cable (C) from your DG834GT's LAN port to the Ethernet adapter in your computer.

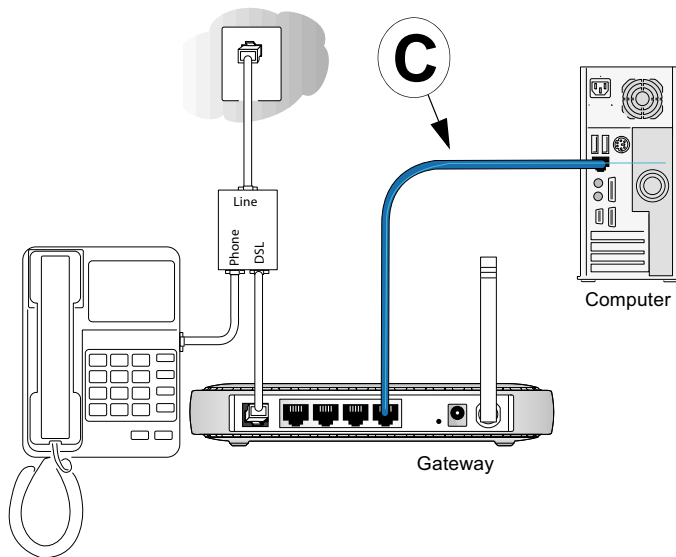


Figure 3-6: Connecting a computer to the DG834GT Super Wireless ADSL Router

Note: The DG834GT Super Wireless ADSL Router incorporates Auto Uplink™ technology. Each Ethernet LAN port will automatically sense whether the cable plugged into the port should have a 'normal' connection (for example, connecting to a computer) or an 'uplink' connection (for example, connecting to a switch or hub). That port will then configure itself to the correct configuration. This feature also eliminates the need to worry about crossover cables, as Auto Uplink will accommodate either type of cable to make the right connection.

- d. Connect the power adapter to the router and plug it in to a power outlet. Verify the following:
 - Ⓚ The power light is lit after turning on the router.
 - Ⓜ The ADSL link light is solid green, indicating a link has been established to the ADSL network.
- e. Now, turn on your computer. If software usually logs you in to your Internet connection, do not run that software. Cancel it if it starts automatically. Verify the following:
 - 4 The local lights are lit for any connected computers.

Note: For instructions on connecting computers to the DG834GT via wireless links, please see [Chapter 4, “Wireless Configuration”](#).

3. **LOG IN TO THE DG834GT.**

Note: Your computer needs to be configured for DHCP. For instructions on configuring for DHCP, please see [Appendix C, “Preparing Your Network”](#).

- a. Connect to the router by typing <http://192.168.0.1> in the address field of Internet Explorer or Netscape® Navigator.

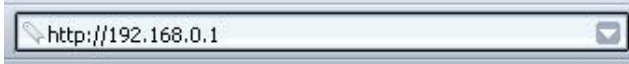


Figure 3-7: Connect to the router

A login window opens as shown below:

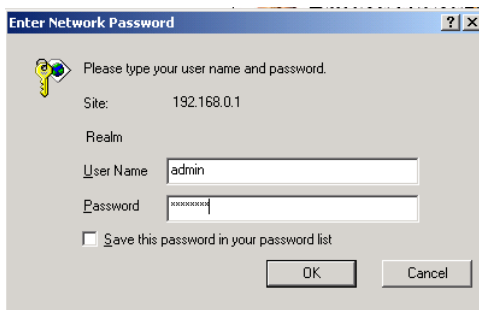


Figure 3-8: Login window

- b. When prompted, enter **admin** for the user name and **password** for the password, both in lower case letters. After logging in, you will see the menu below.

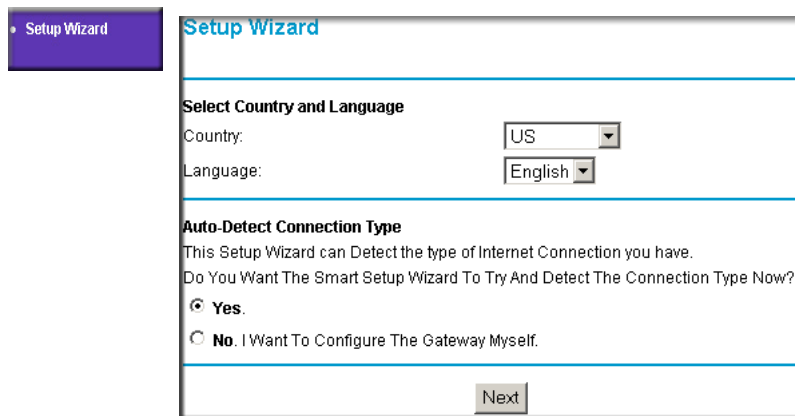


Figure 3-9: Setup Wizard

4. CONNECT TO THE INTERNET

The router is now properly attached to your network. You are now ready to configure your router to connect to the Internet. There are two ways you can configure your router to connect to the Internet:

- a. Let the DG834GT auto-detect the type of Internet connection you have and configure it. See [“Auto-Detecting Your Internet Connection Type” on page 3-10](#) for instructions.
- b. Manually choose which type of Internet connection you have and configure it. See [“Manually Configuring Your Internet Connection” on page 3-15](#) for instructions.

These options are described below. In either case, unless your ISP automatically assigns your configuration automatically via DHCP, you need the configuration parameters from your ISP you recorded in [“Record Your Internet Connection Information” on page 3-3](#).

Auto-Detecting Your Internet Connection Type

The Web Configuration Manager built in to the router contains a Setup Wizard that can automatically determine your network connection type.

1. If your router has not yet been configured, the Setup Wizard shown in [Figure 3-9](#) should launch automatically.

Note: If instead of the Setup Wizard menu, the main menu of the router's Configuration Manager as shown in [Figure 3-15](#) appears, click the Setup Wizard link in the upper left to bring up this menu.

2. You must select a country and language. Language choices are English, French, German, and Italian. After you change the language, the remaining setup screens change to the language of your choice.
3. Select Yes to allow the router to automatically determine your connection.
4. Click Next.

The Setup Wizard will now check for the following connection types:

- Dynamic IP assignment
- A login protocol such as PPPoE or PPPoA
- Classical IP over ATM (RFC1577)
- Fixed IP address assignment

Next, the Setup Wizard will report which connection type it has discovered, and then display the appropriate configuration page. If the Setup Wizard finds no connection, you will be prompted to check the physical connection between your router and the ADSL line. When the connection is properly made, the router's Internet LED should be on.

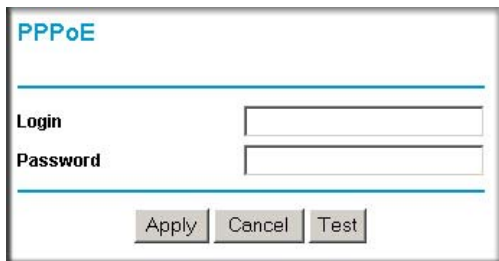
5. The ADSL settings for the multiplexing method and VPI/VCI will update with the preset defaults. The multiplexing method preset default settings will usually work. Only change the multiplexing method if you are sure your ISP requires Virtual Path Identifier (VPI) or Virtual Channel Identifier (VCI) settings that are different from the default values.

Incorrect VPI or VCI settings will prevent you from connecting to the Internet. To change these settings, click the ADSL Settings link on the main menu. See [“ADSL Settings” on page 3-20](#) for more details.

The procedures for filling in the configuration page for each type of connection follow below.

Wizard-Detected PPPoE Login Account Setup

If the Setup Wizard determines that your Internet service account uses a login protocol such as PPP over Ethernet (PPPoE), you will be directed to the PPPoE page shown in [Figure 3-10](#):



PPPoE

Login

Password

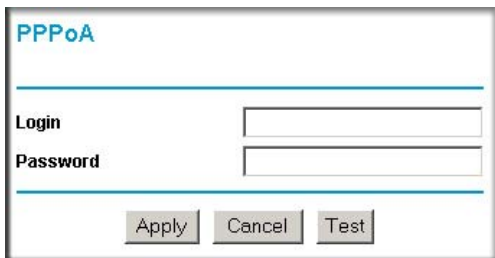
Apply Cancel Test

Figure 3-10: Setup Wizard menu for PPPoE login accounts

Enter the PPPoE login user name and password.

Wizard-Detected PPPoA Login Account Setup

If the Setup Wizard determines that your Internet service account uses a login protocol such as PPP over ATM (PPPoA), you will be directed to the PPPoA page shown in [Figure 3-11](#) below:



PPPoA

Login

Password

Apply Cancel Test

Figure 3-11: Setup Wizard menu for PPPoA login accounts

Enter your login user name and password. These fields are case sensitive.

Wizard-Detected Dynamic IP Account Setup

If the Setup Wizard determines that your Internet service account uses Dynamic IP assignment, you will be directed to the page shown in [Figure 3-12](#) below:



Figure 3-12: Setup Wizard menu for Dynamic IP address

Click Apply to set Dynamic IP as the connection method.

Wizard-Detected IP Over ATM Account Setup

If the Setup Wizard determines that your Internet service account uses IP over ATM Classical IP assignment (RFC1577), you will be directed to the page shown in [Figure 3-13](#) below:

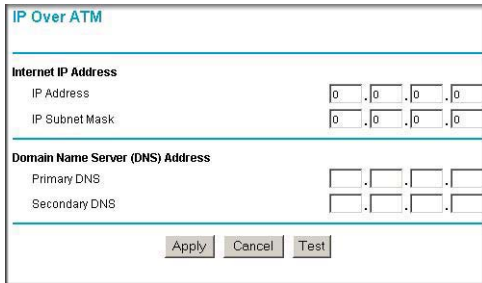


Figure 3-13: Setup Wizard menu for IP over ATM (Classical IP) address

1. Enter your assigned IP Address and Subnet Mask. This information should have been provided to you by your ISP. You need the configuration parameters from your ISP you recorded in [“Record Your Internet Connection Information”](#) on page 3-3.
2. Enter the IP address of your ISP’s Primary DNS Server. If a Secondary DNS Server address is available, enter it also.

DNS servers are required to perform the function of translating an Internet name such as www.netgear.com to a numeric IP address. For a fixed IP address configuration, you must obtain DNS server addresses from your ISP and enter them manually here.

3. Click Apply to save the settings.

4. Click the Test button to test your Internet connection. If the NETGEAR Web site does not appear within one minute, refer to [Chapter 8, “Troubleshooting”](#).

Wizard-Detected Fixed IP (Static) Account Setup

If the router determines that your Internet service account uses Fixed IP assignment, you will be directed to the page shown in [Figure 3-14](#) below:

Fixed IP

Account Name (If Required)

Domain Name (If Required)

Internet IP Address

Use Static IP Address

IP Address . . .

IP Subnet Mask . . .

Gateway IP Address . . .

Use IP Over ATM (IPoA)

IP Address . . .

IP Subnet Mask . . .

Gateway IP Address . . .

Domain Name Server (DNS) Address

Primary DNS . . .

Secondary DNS . . .

Apply Cancel Test

Figure 3-14: Setup Wizard menu for Fixed IP address

1. If required, enter the Account Name and Domain Name from your ISP.
2. Choose “Use Static IP Address” or “Use IP Over ATM” (IPoA — RFC1483 Routed) according to the information from your ISP. If you choose IPoA, the router will be able to detect the gateway IP address but you still need to provide the router IP address.
3. Enter your assigned IP Address, Subnet Mask, and the IP Address of your ISP’s gateway router. This information should have been provided to you by your ISP. You need the configuration parameters from your ISP you recorded in [“Record Your Internet Connection Information”](#) on page 3-3.
4. Enter the IP address of your ISP’s Primary DNS Server. If a Secondary DNS Server address is available, enter it also.

DNS servers are required to perform the function of translating an Internet name such as [www.netgear.com](#) to a numeric IP address. For a fixed IP address configuration, you must obtain DNS server addresses from your ISP and enter them manually here.

5. Click Apply to save the settings.
6. Click the Test button to test your Internet connection. If the NETGEAR Web site does not appear within one minute, refer to [Chapter 8, “Troubleshooting”](#).

Testing Your Internet Connection

After completing the Internet connection configuration, you can test your Internet connection. Log in to the router, then, from the Basic Settings link in the Setup menu, click the Test button. If the NETGEAR Web site does not appear within one minute, refer to [Chapter 8, “Troubleshooting”](#).

Your router is now configured to provide Internet access for your network. Your router automatically connects to the Internet when one of your computers requires access. It is not necessary to run a dialer or login application such as Dial-Up Networking or Enternet to connect, log in, or disconnect. These functions are performed by the router as needed.

To access the Internet from any computer connected to your router, launch a browser such as Microsoft Internet Explorer or Netscape Navigator. You should see the router’s Internet LED blink, indicating communication to the ISP. The browser should begin to display a Web page.

The following chapters describe how to configure the Advanced features of your router, and how to troubleshoot problems that may occur.

Manually Configuring Your Internet Connection

You can manually configure your router using the menu below, or you can allow the Setup Wizard to determine your configuration as described in the previous section.

ISP Does Not Require Login

Basic Settings

Does Your Internet Connection Require A Login?

Yes

No

Account Name (If Required)

Domain Name (If Required)

Internet IP Address

Get Dynamically From ISP

Use Static IP Address

IP Address

IP Subnet Mask

Gateway IP Address

Use IP Over ATM (IPoA)

IP Address

IP Subnet Mask

Gateway IP Address

Domain Name Server (DNS) Address

Get Automatically From ISP

Use These DNS Servers

Primary DNS

Secondary DNS

NAT (Network Address Translation)

Enable Disable

Router MAC Address

Use Default Address

Use Computer MAC Address

ISP Does Require Login

Basic Settings

Does Your Internet Connection Require A Login?

Yes

No

Encapsulation

Login

Password

Service Name (If Required)

Idle Timeout (in Minutes)

Domain Name Server (DNS) Address

Get Automatically From ISP

Use These DNS Servers

Primary DNS

Secondary DNS

NAT (Network Address Translation)

Enable Disable

Figure 3-15: Basic Settings menu

How to Perform Manual Configuration

We recommend that you start the manual configuration from the Setup Wizard:

1. Select your country and language. Language choices are English, French, German, and Italian. After you change the language, the remaining setup screens change to the language of your choice.
2. Select No to manually configure your router connection.
3. Click Next.
4. Manually configure the router in the Basic Settings menu shown in [Figure 3-15](#).
5. Follow the instructions below according to the encapsulation method and whether your Internet connection requires a login. The following methods are available:
 - Internet Connection Requires Login and Uses PPPoE
 - Internet Connection Requires Login and Uses PPPoA

- Internet Connection Does Not Require a Login
6. Usually the default ADSL Settings work fine for most ISPs and you can skip this step. If you have any problems with your connection, check the ADSL Settings. See [“ADSL Settings” on page 3-20](#) for more details.

Internet Connection Requires Login and Uses PPPoE

1. If your Internet connection *does* require login, select Yes and fill in the settings according to the instructions below.

Note: You will no longer need to launch the ISP’s login program on your computer in order to access the Internet. When you start an Internet application, your router automatically logs you in.

2. Choose PPPoE for the encapsulation method.
3. Enter the login name (frequently the email address your ISP provided), password, and service name (if required).
4. If you want to change the login timeout, enter a new value in minutes. This determines how long the router keeps the Internet connection active after there is no Internet activity from the LAN. Entering an Idle Timeout value of zero means never log out.
5. When a connection uses PPPoE, the IP address is normally assigned automatically. However, the DG834GT allows this address to be set manually.
 - Select “Get Automatically from ISP” if your ISP assigns your IP address.
 - Select “Use Static IP Address” if your ISP gave you a statically assigned address.
6. The DNS server is used to look up site addresses based on their names.
 - Select “Get Automatically from ISP” if your ISP uses DHCP to assign your DNS servers. Your ISP will automatically assign this address.
 - Select “Use These DNS Servers” if your ISP gave you one or two DNS addresses. Type the primary and secondary addresses.
7. You should only disable NAT if you are sure you do not require it. NAT automatically assigns private IP addresses (192.168.0.x) to LAN connected devices. When NAT is disabled, only standard routing is performed by this router.

Classical routing lets you directly manage the IP addresses the DG834GT uses. Classical routing should be selected only by experienced users.

Note: Disabling NAT will reboot the router and reset all the DG834GT configuration settings to the factory default. Disable NAT only if you plan to install the DG834GT in a setting where you will be manually administering the IP address space on the LAN side of the router.

Internet Connection Requires Login and Uses PPPoA

1. If your Internet connection *does* require login, select Yes and fill in the settings according to the instructions below.

Note: You will no longer need to launch the ISP's login program on your computer in order to access the Internet. When you start an Internet application, your router automatically logs you in.

2. Choose PPPoA for the encapsulation method.
3. Enter the login name (frequently the email address your ISP provided), and password.
4. If you want to change the login timeout, enter a new value in minutes. This determines how long the router keeps the Internet connection active after there is no Internet activity from the LAN. Entering an Idle Timeout value of zero means never log out.
5. When a connection uses PPPoA, the IP address is normally assigned automatically. However, the DG834GT allows this address to be set manually.
 - Select "Get Automatically from ISP" if your ISP assigns your IP address.
 - Select "Use Static IP Address" if your ISP gave you a statically assigned address.
6. The DNS server is used to look up site addresses based on their names.
 - Select "Get Automatically from ISP" if your ISP uses DHCP to assign your DNS servers. Your ISP will automatically assign this address.
7. Select "Use These DNS Servers" if your ISP gave you one or two DNS addresses. Type the primary and secondary addresses. You should only disable NAT if you are sure you do not require it. NAT automatically assigns private IP addresses (192.168.0.x) to LAN connected devices. When NAT is disabled, only standard routing is performed by this router. Classical routing lets you directly manage the IP addresses the DG834GT uses. Classical routing should be selected only by experienced users.

Note: Disabling NAT will reboot the router and reset all the DG834GT configuration settings to the factory default. Disable NAT only if you plan to install the DG834GT in a setting where you will be manually administering the IP address space on the LAN side of the router.

Internet Connection Does Note Require A Login

1. If your Internet connection does *not* require a login, select No and fill in the settings according to the instructions below.
2. Enter your Account Name (may also be called Host Name) and Domain Name. These parameters may be necessary to access your ISP's mail or news servers.
3. Internet IP Address:
 - Select "Get Dynamically from ISP" if your ISP uses DHCP to assign your IP address. Your ISP will automatically assign these addresses.
 - Select "Use Static IP Address" if your ISP has assigned you a permanent, fixed (static) IP address. Enter the IP address that your ISP assigned. Also enter the IP Subnet Mask and the Gateway IP Address. The gateway is the ISP's router to which your router will connect.
 - Select "IP Over ATM (IPoA)" if your ISP uses Classical IP Addresses (RFC1577). Enter the IP address, IP Subnet Mask, and Gateway IP Addresses that your ISP assigned.
4. Domain Name Server (DNS) Address:
 - Select "Get Dynamically from ISP" if your ISP uses DHCP to assign your IP address. Your ISP will automatically assign this address.
 - If you know that your ISP does not automatically transmit DNS addresses to the router during login, select "Use these DNS servers" and enter the IP address of your ISP's Primary DNS Server. If a Secondary DNS Server address is available, enter it also.

A DNS server is a host on the Internet that translates Internet names (such as www.netgear.com) to numeric IP addresses. Typically your ISP transfers the IP address of one or two DNS servers to your router during login. If the ISP does not transfer an address, you must obtain it from the ISP and enter it manually here.

5. You should only disable NAT if you are sure you do not require it. NAT automatically assigns private IP addresses (192.168.0.x) to LAN connected devices. When NAT is disabled, only standard routing is performed by this router.

Classical routing lets you directly manage the IP addresses the DG834GT uses. Classical routing should be selected only by experienced users.

Note: Disabling NAT will reboot the router and reset all the DG834GT configuration settings to the factory default. Disable NAT only if you plan to install the DG834GT in a setting where you will be manually administering the IP address space on the LAN side of the router

6. Router MAC Address:

This section determines the Ethernet MAC address that will be used by the router on the Internet port. Some ISPs will register the Ethernet MAC address of the network interface card in your computer when your account is first opened. They will then only accept traffic from the MAC address of that computer. This feature allows your router to masquerade as that computer by “cloning” its MAC address.

To change the MAC address, select “Use this Computer’s MAC address”. The router will then capture and use the MAC address of the computer that you are now using. You must be using the one computer that is allowed by the ISP. Alternatively, select “Use this MAC address” and enter it.

7. Click Apply to save your settings.

8. Click the Test button to test your Internet connection.

If the NETGEAR Web site does not appear within one minute, refer to [Chapter 8, “Troubleshooting”](#).

ADSL Settings

The default settings of your DG834GT 108 Mbps Super Wireless ADSL Router will work fine for most ISPs. However, some ISPs use a specific Multiplexing Method and Virtual Circuit Number for the Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI).

Note: The correct country must be selected from the Setup Wizard’s first page for the default ADSL Settings to work.

If your ISP provided you with a specific Multiplexing Method or VPI/VCI number, then fill in the following:

1. Select the ADSL Settings link from the main menu.
2. For the Multiplexing Method, select LLC-based or VC-based.
3. Type a number between 0 and 255 for the VPI. The default is 8.
4. Type a number between 1 and 65535 for the VCI. The default is 35.
5. Click Apply.