

# **ADSL2+ Modem Router DM111PSPv2 User Manual**

**NETGEAR®**

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## **Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## **Federal Communications Commission (FCC) Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

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Hereby, NETGEAR, Inc. declares that this modem router is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Ěesky [Czech]	NETGEAR, Inc. tímto prohlašuje, že tento ADSL2+ Modem Router DM111PSPv2 je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]	Undertegnede NETGEAR, Inc. erklærer herved, at følgende udstyr ADSL2+ Modem Router DM111PSPv2 overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]	Hiermit erkläre NETGEAR, Inc., dass sich das Gerät ADSL2+ Modem Router DM111PSPv2 in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
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English	Hereby, NETGEAR, Inc., declares that this ADSL2+ Modem Router DM111PSPv2 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
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Italiano [Italian]	Con la presente NETGEAR, Inc. dichiara che questo ADSL2+ Modem Router DM111PSPv2 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo NETGEAR, Inc. deklarē, ka ADSL2+ Modem Router DM111PSPv2 atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
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Slovensko [Slovenian]	NETGEAR, Inc. izjavlja, da je ta ADSL2+ Modem Router DM111PSPv2 v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
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Suomi [Finnish]	NETGEAR, Inc. vakuuttaa täten että ADSL2+ Modem Router DM111PSPv2 tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar NETGEAR, Inc. att denna [utrustningstyp] står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

A printed copy of the EU Declaration of Conformity certificate for this product is provided in the DM111PSPv2 product package.

### **Bestätigung des Herstellers/Importeurs**

Es wird hiermit bestätigt, daß das ADSL2+ Modem Router DM111PSPv2 gemäß der im BMPT-AmtsblVfg 243/1991 und Vfg 46/1992 aufgeführten Bestimmungen entstört ist. Das vorschriftsmäßige Betreiben einiger Geräte (z.B. Testsender) kann jedoch gewissen Beschränkungen unterliegen. Lesen Sie dazu bitte die Anmerkungen in der Betriebsanleitung.

Das Bundesamt für Zulassungen in der Telekommunikation wurde davon unterrichtet, daß dieses Gerät auf den Markt gebracht wurde und es ist berechtigt, die Serie auf die Erfüllung der Vorschriften hin zu überprüfen.

### **Certificate of the Manufacturer/Importer**

It is hereby certified that the ADSL2+ Modem Router DM111PSPv2 has been suppressed in accordance with the conditions set out in the BMPT-AmtsblVfg 243/1991 and Vfg 46/1992. The operation of some equipment (for example, test transmitters) in accordance with the regulations may, however, be subject to certain restrictions. Please refer to the notes in the operating instructions.

Federal Office for Telecommunications Approvals has been notified of the placing of this equipment on the market and has been granted the right to test the series for compliance with the regulations.

### **Voluntary Control Council for Interference (VCCI) Statement**

This equipment is in the second category (information equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council for Interference by Data Processing Equipment and Electronic Office Machines aimed at preventing radio interference in such residential areas.

When used near a radio or TV receiver, it may become the cause of radio interference. Read instructions for correct handling.

## Product and Publication Details

<b>Model Number:</b>	DM111PSPv2
<b>Publication Date:</b>	December 2008
<b>Product Family:</b>	Modem Router
<b>Product Name:</b>	ADSL2+ Modem Router DM111PSPv2
<b>Home or Business Product:</b>	Home
<b>Language:</b>	English
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# About This Manual

The *NETGEAR® ADSL2+ Modem Router DM111PSPv2 User Manual* describes how to install, configure and troubleshoot the ADSL2+ Modem Router. The information in this manual is intended for readers with intermediate computer and Internet skills.

## How to Use This Book

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This document describes configuration menu commands for the ADSL2+ Modem Router software. The commands can all be accessed from the Web interface.

- [Chapter 1, “Configuring Your Internet Connection,”](#) describes how to use the Smart Wizard Discovery utility to set up your ADSL2+ Modem Router so that you can communicate with it.
- [Chapter 2, “Managing Your Modem Router,”](#) describes how to perform network management tasks.
- [Chapter 3, “Security and Firewall Protection,”](#) describes how to configure the firewall and security features.
- [Chapter 4, “Advanced Configuration,”](#) describes how to configure advanced features, including LAN IP features.
- [Chapter 5, “Advanced WAN Configuration,”](#) describes how to configure advanced WAN features, including Quality of Service (QoS) features.
- [Chapter 6, “Troubleshooting,”](#) describes how to troubleshoot your ADSL2+ Modem Router.
- [Appendix A, “Technical Specifications,”](#) provides ADSL2+ Modem Router specifications.
- [Appendix B, “Related Documents,”](#) provides links to reference documents.

## Conventions, Formats, and Scope

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The conventions, formats, and scope of this manual are described in the following paragraphs:


- **Typographical Conventions.** This manual uses the following typographical conventions:


<i>Italic</i>	Emphasis, books, CDs, file and server names, extensions
<b>Bold</b>	User input, IP addresses, GUI screen text
Fixed	Command prompt, CLI text, code
<i>italic</i>	URL links

- **Formats.** This manual uses the following formats to highlight special messages:

	<b>Note:</b> This format is used to highlight information of importance or special interest.
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	<b>Tip:</b> This format is used to highlight a procedure that will save time or resources.
---	--

	<b>Warning:</b> Ignoring this type of note may result in a malfunction or damage to the equipment.
---	--

	<b>Danger:</b> This is a safety warning. Failure to take heed of this notice may result in personal injury or death.
---	--

- **Scope.** This manual is written for the ADSL2+ Modem Router according to these specifications:

Product Version	ADSL2+ Modem Router DM111PSPv2
Manual Publication Date	December 2008

For more information about network, Internet, firewall, and VPN technologies, see the links to the NETGEAR website in [Appendix B, “Related Documents.”](#)








**Note:** Product updates are available on the NETGEAR, Inc. website at <http://kbserver.netgear.com>.

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## How to Use This Manual

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The HTML version of this manual includes the following:

- Buttons,  and , for browsing forward or backward through the manual one page at a time.
- A  button that displays the table of contents and a  button that displays an index. Double-click a link in the table of contents or index to navigate directly to where the topic is described in the manual.
- A  button to access the full NETGEAR, Inc. online knowledge base for the product model.
- Links to PDF versions of the full manual and individual chapters.

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## How to Print This Manual

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To print this manual, you can choose one of the following options, according to your needs.

- **Printing a page from HTML.** Each page in the HTML version of the manual is dedicated to a major topic. Select File > Print from the browser menu to print the page contents.
- **Printing from PDF.** Your computer must have the free Adobe Acrobat reader installed in order to view and print PDF files. The Acrobat reader is available on the Adobe Web site at <http://www.adobe.com>.
  - **Printing a PDF chapter.** Use the **PDF of This Chapter** link at the top left corner of any page.
    - Click the **PDF of This Chapter** link at the top left corner of any page in the chapter you want to print. The PDF version of the chapter you were viewing opens in a browser window.
    - Click the print icon in the upper left of your browser window.

- **Printing a PDF version of the complete manual.** Use the **Complete PDF Manual** link at the top left corner of any page.
  - Click the **Complete PDF Manual** link at the top left corner of any page in the manual. The PDF version of the complete manual opens in a browser window.
  - Click the print icon in the upper left corner of your browser window.



**Tip:** If your printer supports printing two pages on a single sheet of paper, you can save paper and printer ink by selecting this feature.

## Revision History

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Part Number	Version Number	Date	Description
202-10378-01	1.0	April 2008	Manual release
202-10436-01	1.0	December 2008	Revision of existing features and addition of new features

# Chapter 1

## Configuring Your Internet Connection

This chapter describes how to configure your ADSL2+ Modem Router Internet connection. When you perform the initial configuration of your modem router using the *Resource CD* as described in the *ADSL2+ Modem Router Setup Manual*, these settings are configured automatically for you. This chapter provides further details about these settings, as well as instructions on how to log in to the modem router for further configuration.



**Note:** NETGEAR recommends using the Smart Wizard™ Installation Assistant on the *Resource CD* for initial configuration, as described in the *ADSL2+ Modem Router Setup Manual*.

This chapter includes:

- [“Installation Requirements](#) in the following section
- [“Using the Smart Wizard to Set Up Your Modem Router”](#) on page 1-2
- [“Logging In to the Modem Router”](#) on page 1-2
- [“Setting Up Your Modem Router Manually”](#) on page 1-4
- [“How the Internet Connection Works”](#) on page 1-8

### Installation Requirements

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Before installation, please have your DSL log in user name and password available. If not available, please obtain them from your Internet Service Provider (ISP) at the numbers below and IMMEDIATELY FOLLOW NETGEAR INSTALLATION PROCEDURES located in the Smart Wizard installation CD.

- For Earthlink customers, please call 1-800-EARTHLINK.
- For AT&T customers, please call 1-877-722-3755.
- For Qwest customers, please call 1-877-348-9005.
- For Verizon customers, please call 1-800-567-6789.

NETGEAR modem and gateway products are designed to be compatible with major ISPs in North America including Earthlink, AT&T, Qwest, and Verizon. For any NETGEAR product installation support and compatibility concerns, please call NETGEAR at 1-888-NETGEAR, as ISP support for NETGEAR products may be limited. Please only call your ISP to obtain the log in user name and password.

## Using the Smart Wizard to Set Up Your Modem Router

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For first-time installation of your modem router, refer to the *ADSL2+ Modem Router Setup Manual*. The Setup Manual explains how to launch the NETGEAR Smart Wizard on the *Resource CD* to step you through the procedure to connect your modem router and computer. The Smart Wizard will assist you in configuring your Internet connection. After initial configuration using the Setup Manual, you can use the information in this manual to configure additional features of your modem router.



**Note:** The Smart Wizard cannot detect a PPTP connection with your ISP. If your ISP uses this protocol, then you must use Quick Setup to configure your connection manually. See [“Using Quick Setup to Configure the Modem Router”](#) on page 1-6.

For installation instructions in a language other than English, see the language options on the *Resource CD*.

## Logging In to the Modem Router

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You can log in to the modem router to view or change its settings.



**Note:** Your computer must be configured for Dynamic Host Configuration Protocol (DHCP). For help with configuring DHCP, see the documentation that came with your computer or see the link to the online document in [“Preparing Your Network”](#) in Appendix B.

To log in to the modem router:

1. On your PC, open a Web browser, such as Microsoft Internet Explorer or Mozilla Firefox, and type the URL **http://192.168.0.1** in the address box. A dialog screen will be displayed prompting you for a user name and password.



A window similar to the following login window opens:



Figure 1-1



**Note:** After you log in to the modem router, you will have the option of changing the modem router's LAN IP address. If you do so, you will need to use the revised IP address to log in to the modem router in the future.

2. Type **admin** for the user name, **password** for the password, and then click **OK**. The Connect to Internet screen displays:

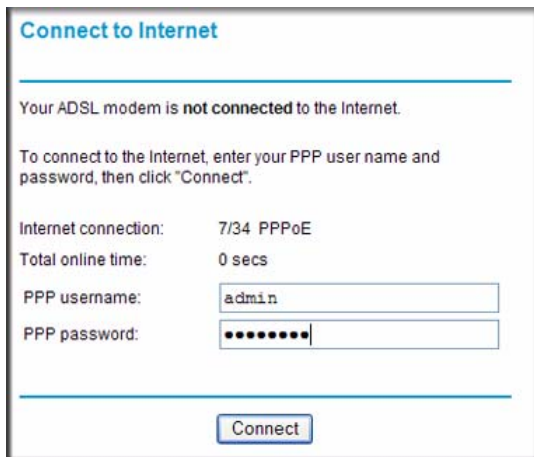


Figure 1-2

[Figure 1-2 on page 1-3](#) shows whether or not the modem router is connected to the Internet, and the basic Internet connection settings.

## Setting Up Your Modem Router Manually

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If you elect not to use the Smart Wizard, you can set up the modem router manually. However, you need to prepare the following before you can set up your modem:

- Active Internet service provided by an Asymmetric Digital Subscriber Line (ADSL) account.
- The Internet Service Provider (ISP) configuration information for your ADSL account.
  - ISP login name and password
  - ISP Domain Name Server (DNS) addresses
  - Fixed or static IP address
  - Host and domain names
- Depending on how your ISP set up your Internet account, you need to know one or more of these settings:
  - Virtual path identifier (VPI) and Virtual channel identifier (VCI) parameters
  - Multiplexing method
  - Host and domain names
- ADSL microfilters as explained in the *ADSL2+ Modem Router Setup Manual*.
- Your computer must be set up to use DHCP to get its TCP/IP configuration from a router. This is usually the case. For help with DHCP, see the documentation that came with your computer, or see the link to the online document in [“Preparing Your Network” in Appendix B](#).

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.

You can use the Setup Wizard to auto-detect your Internet connection, or you can bypass the wizard and enter settings in the Quick Setup screens.

- **Setup Wizard.** This wizard searches your Internet connection for servers and protocols to determine your Internet Service Provider (ISP) configuration. See the following section, [“Using the Setup Wizard to Auto-Detect the Internet Connection.”](#)



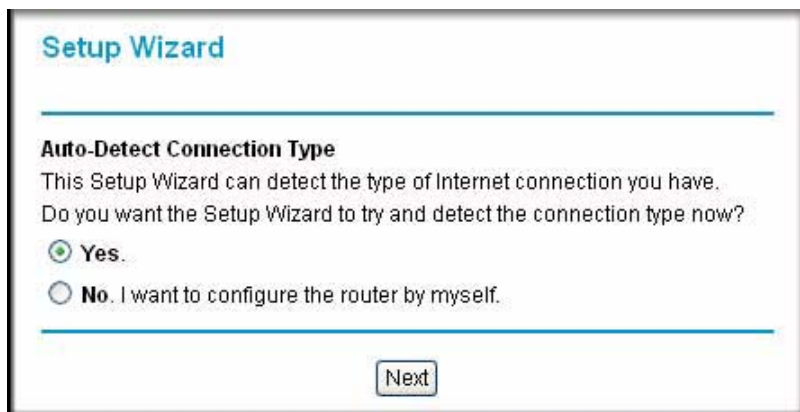
**Note:** The Setup Wizard cannot detect a PPTP connection with your ISP. If your ISP uses this protocol, then you must use Quick Setup to configure your connection manually.

- **Quick Setup.** You are prompted to configure the Internet connection and LAN settings. See “Using Quick Setup to Configure the Modem Router” on page 1-6.

## Using the Setup Wizard to Auto-Detect the Internet Connection

To use the Setup Wizard to assist with configuration or to view the Internet connection settings:

1. Select Setup Wizard from the main menu, and the following screen displays:



**Figure 1-3**

2. To use the Setup Wizard, select **Yes**, and then click **Next**.

The Setup Wizard detects your ISP configuration. Depending on the type of connection, you are prompted to enter your ISP settings, as shown in the following table.

**Table 1-1. Auto-Detected Internet Connection Types**

Connection Type	ISP Information
PPP over Ethernet (PPPoE) PPP over ATM (PPPoA)	Enter the login user name and password. These fields are case-sensitive.
Dynamic IP Account Setup	No entries are needed.
IP over ATM Classical IP assignment (RFC1577)	<ul style="list-style-type: none"> <li>• Enter the assigned IP address, subnet mask, and the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.</li> <li>• DNS servers are required to perform the function of translating an Internet name such as <a href="http://www.netgear.com">www.netgear.com</a> 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.</li> </ul>

**Table 1-1. Auto-Detected Internet Connection Types (continued)**

Connection Type	ISP Information
Fixed IP (Static) Account Setup	<ol style="list-style-type: none"> <li>1. If required, enter the account name and domain name from your ISP.</li> <li>2. Select <b>Use Static IP Address</b> or <b>Use IP Over ATM</b> (IPoA — RFC1483 Routed) according to the information from your ISP. If you select IPoA, the modem router will detect the gateway IP address, but you still need to provide the modem router IP address.</li> <li>3. Enter your assigned IP address, subnet mask, and the IP address of your ISP's gateway modem router. This information should have been provided to you by your ISP.</li> <li>4. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.</li> </ol> <p>DNS servers are required to perform the function of translating an Internet name such as <a href="http://www.netgear.com">www.netgear.com</a> 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.</p>

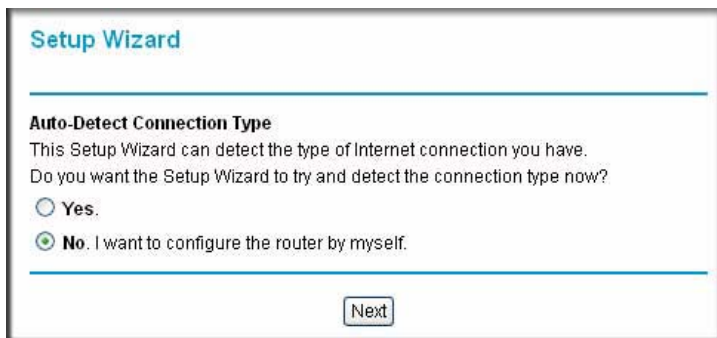
3. To save your settings, click **Apply**.
4. Click **Test** to verify your Internet connection. If you have trouble connecting to the Internet, see [Chapter 6, “Troubleshooting](#).

## Using Quick Setup to Configure the Modem Router

You can bypass the Setup Wizard and use the Quick Setup screens to manually configure your modem router.

To manually configure the modem router settings:

1. Select Setup Wizard from the main menu. The following screen displays (see next page).

**Figure 1-4**

2. To bypass the Setup Wizard, select **No**, and then click **Next**. The Quick Setup screen displays:

The screenshot shows a window titled "Quick Setup". Below the title is a horizontal line. The text reads: "This Quick Setup will guide you through the steps necessary to configure your ADSL router." Below this is the heading "Configure Internet Connection -- ATM PVC". There are two input fields: "VPI: 8 (0-255)" and "VCI: 35 (32-65535)". At the bottom, there is a note: "All original settings will be replaced by new settings after you finish these steps." and a "Next >" button.

**Figure 1-5**

3. Enter the settings in each Quick Setup screen. These settings are described in [Table 1-2](#).
4. Click **Finish** to save the settings and reboot the modem router.

The following table describes the settings for the Quick Setup screens.

**Table 1-2. Quick Setup Screen Settings**

Screen Name	Settings
Quick Setup	Enter the following settings: <ul style="list-style-type: none"> <li>• <b>VPI</b>. The Virtual Path Identifier (VPI) identifies the virtual path between endpoints in an ATM network. The valid range is from 0 to 255.</li> <li>• <b>VCI</b>. The Virtual Channel Identifier (VCI) identifies the virtual channel endpoints in an ATM network. The valid range is from 32 to 65535 (1 to 31 is reserved for well-known protocols).</li> </ul>
Configure Internet Connection-Connection Type	Enter the following settings. For information about these settings, see <a href="#">Table 5-3 on page 5-4</a> . <ul style="list-style-type: none"> <li>• Protocol</li> <li>• Encapsulation Type</li> </ul>
Configure Internet Connection-WAN IP Settings	Enter the following settings. For information about these settings, see <a href="#">Table 5-1 on page 5-2</a> . <ul style="list-style-type: none"> <li>• Obtain IP Address Automatically</li> <li>• WAN IP Address</li> <li>• Enable NAT</li> <li>• MTU</li> </ul>

**Table 1-2. Quick Setup Screen Settings (continued)**

Screen Name	Settings
Configure Internet Connection- PPP User Name and Password	Enter the PPP user name and password that you use to log on. These fields are case-sensitive. Specify how the session must be established: <ul style="list-style-type: none"> <li>• <b>Always On.</b> Enables the connection to be active continuously.</li> <li>• <b>Dial on Demand.</b> Activates the connection when there is demand. Enter a value in the minutes field to deactivate the connection when there is no activity. (This mechanism is also known as the PPP idle timer.)</li> <li>• <b>Manually Connect.</b> Requires you to press the Connect hyperlink in the PVC Name column of the WAN Setup screen to activate the connection. Enter a value in the minutes field to deactivate the connection when there is no activity. (This mechanism is also known as the PPP idle timer.)</li> </ul>
Configure LAN Side Settings	Enter the following settings. For information about these settings, see <a href="#">Table 4-1 on page 4-3</a> . <ul style="list-style-type: none"> <li>• Primary IP Address</li> <li>• Subnet Mask</li> <li>• Optionally, Second IP Address and Subnet Mask</li> <li>• MTU</li> <li>• DHCP Server</li> </ul>
This Internet Connection- Summary	This screen lists the Internet connection and LAN settings. When the settings are correct, click <b>Finish</b> to save the settings and reboot the modem router.

## How the Internet Connection Works

Your modem router is now configured to provide Internet access for your network. Your modem 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. The modem router performs these functions automatically as needed.

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

# Chapter 2

## Managing Your Modem Router

This chapter describes how to perform management tasks on your ADSL2+ Modem Router DM111PSPv2. To use the features described in this chapter, log in to the modem router as described in [“Logging In to the Modem Router”](#) on page 1-2.

This chapter includes:

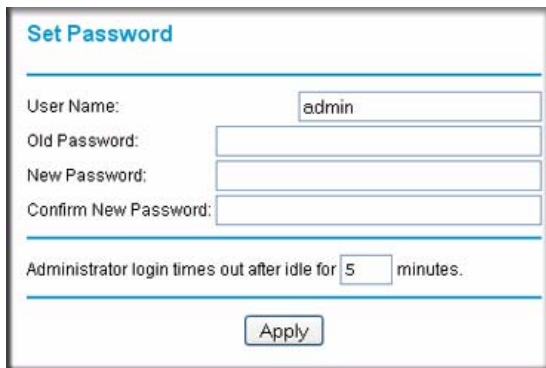
- [“Changing the Password”](#) in the following section
- [“Backing Up, Restoring, or Erasing Your Settings”](#) on page 2-2
- [“Upgrading the Modem Router’s Firmware”](#) on page 2-3
- [“Network Management Information”](#) on page 2-5
- [“Setting up the System Log”](#) on page 2-9
- [“Diagnostic Utilities and Rebooting the Modem Router”](#) on page 2-11
- [“Remote Access”](#) on page 2-13

### Changing the Password

---

To keep your modem router configuration settings secure, you can change the user name and password needed to access the modem router management utility, as follows:

1. Select Set Password in the Maintenance section of the main menu.



The screenshot shows a web form titled "Set Password". It contains the following elements:

- A "User Name:" label followed by a text input field containing the text "admin".
- An "Old Password:" label followed by an empty text input field.
- A "New Password:" label followed by an empty text input field.
- A "Confirm New Password:" label followed by an empty text input field.
- A horizontal line separating the password fields from the timeout setting.
- An "Administrator login times out after idle for" label followed by a small numeric input field containing "5" and the text "minutes".
- An "Apply" button at the bottom center of the form.

Figure 2-1

2. Optionally, enter a new user name.
3. Enter the old password.
4. Type the new password and confirm the new password.
5. Optionally, enter a new value in minutes to specify when the administrator login times out. The default is 5 minutes.
6. Click **Apply** to save your settings.

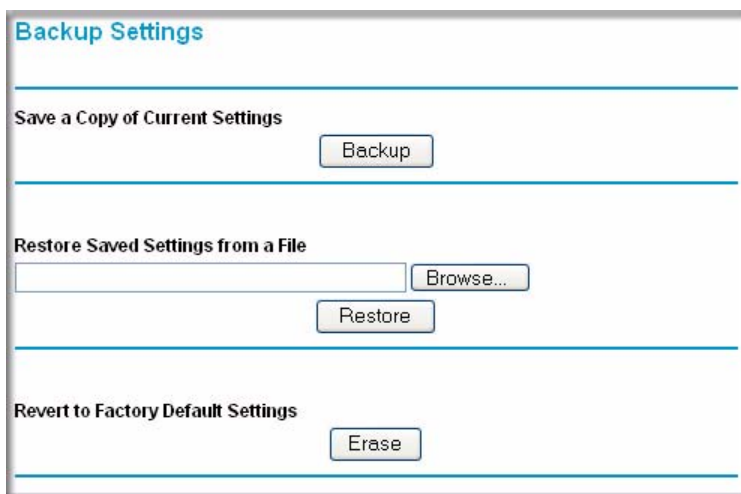
## Backing Up, Restoring, or Erasing Your Settings

---

The configuration settings of the modem router are stored in a configuration file in the modem router. This file can be backed up to your computer, restored, or reverted to factory default settings. The procedures below explain how to do these tasks.

### Backing Up the Configuration to a File

1. In the Maintenance section of the main menu, select Backup Settings to display the Backup Settings screen:



**Figure 2-2**

2. Click **Backup** to save a copy of the current settings.
3. Store the .cfg file on a computer on your network.



## Restoring the Configuration from a File

1. In the Maintenance section of the main menu, select Backup Settings to display the Backup Settings screen as shown in [Figure 2-2](#).
2. Enter the full path to the file on your network or click the Browse button to locate the file.
3. When you have located the .cfg file, click the Restore button to upload the file to the modem router.
4. The modem router will then reboot automatically.

## Resetting the Configuration to the Factory Default Settings

You can reset the modem router to the factory default settings. To do this, either press and hold the reset button on the rear panel of the router, or use the **Reset** button on the Backup Settings screen.

To reset from the Backup Settings screen:

1. On the Backup Settings screen, click **Reset**.
2. The modem router reboots automatically and returns to its factory default settings.

After a reset, the modem router's password will be **password**, the LAN IP address will be 192.168.0.1, and the modem router's DHCP client will be enabled.



**Note:** To restore the factory default configuration settings without knowing the login password or IP address, you must use the Default Reset button on the rear panel of the modem router.

## Upgrading the Modem Router's Firmware

---

The software of the ADSL2+ Modem Router is stored in flash memory, and can be upgraded as new software is released by NETGEAR.

Upgrade files can be downloaded from the NETGEAR website. If the upgrade file is compressed (.zip file), you must first extract the binary (.bin or .img) file before uploading it to the modem router.

To upgrade the modem router firmware:



**Note:** NETGEAR recommends that you back up your configuration before doing a firmware upgrade. After the upgrade is complete, you may need to restore your configuration settings.

1. Download and unzip the new software file from the NETGEAR website.

The Web browser used to upload new firmware into the modem router must support HTTP uploads. NETGEAR recommends using Microsoft Internet Explorer 5.0 or above.

2. In the Maintenance section of the main menu, select Firmware Upgrade. The following screen displays.

**Figure 2-3**

3. Click **Browse** to locate the binary (.bin or .img) upgrade file.
4. Click **Firmware Upgrade**.



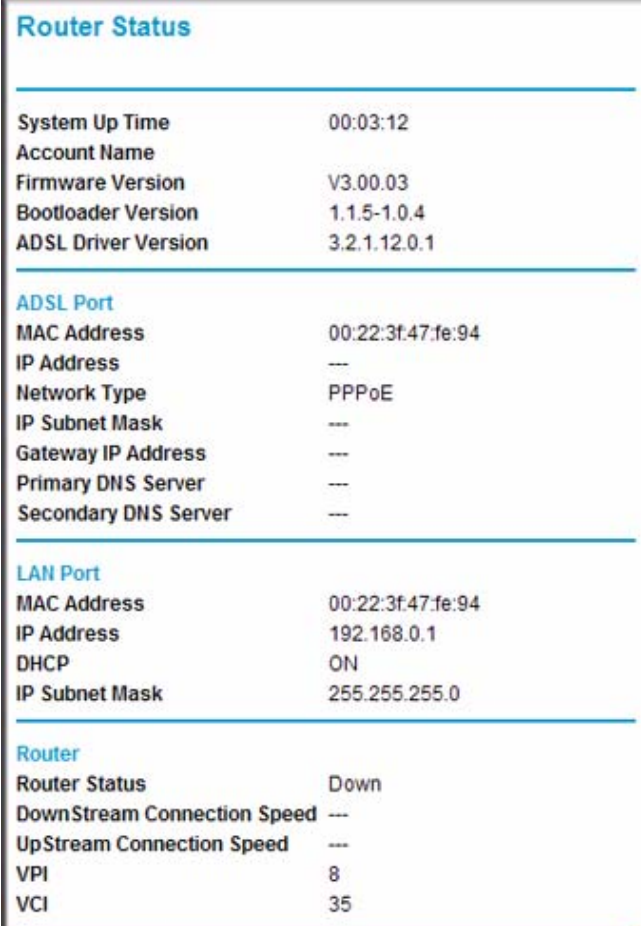
**Warning:** When uploading software to the modem router, do not interrupt the Web browser by closing the window, clicking a link, or loading a new page. If the browser is interrupted, it may corrupt the software. When the upload is complete, your modem router will automatically restart. The upgrade process will typically take about two minutes. In some cases, you may need to clear the configuration and reconfigure the modem router after upgrading.

## Network Management Information

The modem router provides a variety of status and usage information which is discussed below.

### Viewing the Router Status

To view the router status, select Router Status in the Maintenance section of the main menu. The following screen displays:



Router Status	
System Up Time	00:03:12
Account Name	
Firmware Version	V3.00.03
Bootloader Version	1.1.5-1.0.4
ADSL Driver Version	3.2.1.12.0.1
<b>ADSL Port</b>	
MAC Address	00:22:3f:47:fe:94
IP Address	---
Network Type	PPPoE
IP Subnet Mask	---
Gateway IP Address	---
Primary DNS Server	---
Secondary DNS Server	---
<b>LAN Port</b>	
MAC Address	00:22:3f:47:fe:94
IP Address	192.168.0.1
DHCP	ON
IP Subnet Mask	255.255.255.0
<b>Router</b>	
Router Status	Down
DownStream Connection Speed	---
UpStream Connection Speed	---
VPI	8
VCI	35

Figure 2-4

The following table explains the fields on the Router Status screen.

**Table 2-1. Router Status Fields**

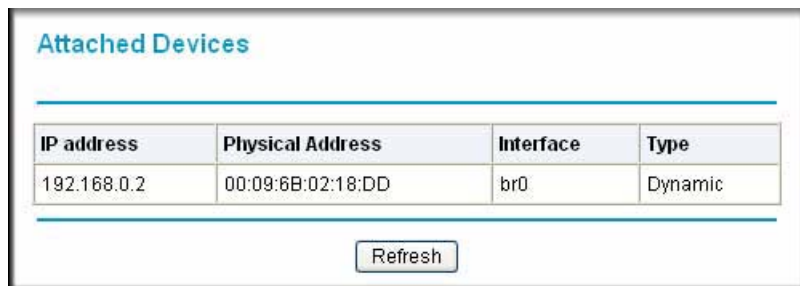
Field		Description
System Up Time		The time that the modem router has been connected to the Internet in the format days:hours:minutes:seconds.
Account Name		The account name assigned to the modem router during setup.
Firmware Version		The modem router firmware version. This value will change if you upgrade your modem router.
Boot Loader Version		The modem router bootloader version. This value will change if you upgrade your modem router.
ADSL Driver Version		The modem router driver version.
ADSL Port	MAC Address	The MAC address used by the Internet (ADSL) port of the modem router.
	IP Address	The IP address used by the Internet (ADSL) port of the modem router. If no address is shown, the modem router cannot connect to the Internet.
	Network Type	The network type depends on your ISP.
	IP Subnet Mask	The IP Subnet Mask used by the Internet (ADSL) port of the modem router.
	Gateway IP Address	The gateway that is associated with the Internet IP address.
	Primary DNS Server	The primary DNS server IP address that is used by the modem router. This address is usually obtained dynamically from the ISP.
	Secondary DNS Server	The secondary DNS server IP address that is used by the modem router. This address is usually obtained dynamically from the ISP.
LAN Port	MAC Address	The MAC address used by the Ethernet port of the modem router.
	IP Address	The IP address used by the Ethernet (LAN) port of the modem router. The default is 192.168.0.1.
	DHCP	If Off, the modem router will not assign IP addresses to PCs on the LAN. If On, the modem router will assign IP addresses to PCs on the LAN.
	IP Subnet Mask	The IP subnet mask used by the Ethernet (LAN) port of the modem router. The default is 255.255.255.0.

**Table 2-1. Router Status Fields (continued)**

Field		Description
Router	Router Status	The connection status of the modem router.
	Downstream Connection Speed	The speed at which the modem router is receiving data from the ADSL line.
	Upstream Connection Speed	The speed at which the modem router is transmitting data to the ADSL line.
	VPI	The Virtual Path Identifier setting.
	VCI	The Virtual Channel Identifier setting.

## Viewing Attached Devices

To view a list of all devices connected to your modem router, select Attached Devices in the Maintenance section of the main menu. The following screen displays:



The screenshot shows a web interface titled "Attached Devices". Below the title is a table with the following data:

IP address	Physical Address	Interface	Type
192.168.0.2	00:09:6B:02:18:DD	br0	Dynamic


Below the table is a "Refresh" button.

**Figure 2-5**

## Viewing the ADSL Line Status

In the Maintenance section of the main menu, select ADSL Line Status to display the following screen:

The screenshot shows the 'ADSL Line Status' page. At the top right is a 'Refresh' link. Below it is a table with four columns: Line Mode, Line State, Latency Type, and Line Up Time. The second table is titled 'Statistics' and has three columns: Downstream, Upstream, and a header for the statistics. Below the tables is a 'More Information' link with a small icon.

ADSL Line Status			
<a href="#">Refresh</a>			
Line Mode	G.DMT	Line State	Show Time
Latency Type	Fast	Line Up Time	00:00:15:53
Line Coding	Trellis On	Line Up Count	1
Statistics	Downstream	Upstream	
Line Rate	8128 Kbps	864 Kbps	
Attainable Line Rate	11264 Kbps	976 Kbps	
Noise Margin	19.8 dB	6.0 dB	
Line Attenuation	0.0 dB	1.0 dB	
Output Power	7.8 dBm	11.9 dBm	
<a href="#">More Information</a> 			

**Figure 2-6**

The upper table in [Figure 2-6](#) indicates how the modem router has detected the ADSL parameters are configured, except for the “Line Up Time”, which indicates the time elapsed since the last reset or power cycle.

The lower table in [Figure 2-6](#) provides information about the quality of upstream and downstream data. These statistics will be of interest to your technical support representative if you are having problems obtaining or maintaining a connection. [Table 2-2](#) explains these statistics.

**Table 2-2. Statistics Fields**

Field	Description
Line Rate	Average data rates.
Attainable Line Rate	The maximum attainable line rates. Typically, the downstream speed is faster than the upstream speed.

**Table 2-2. Statistics Fields (continued)**

Field	Description
Noise Margin	This is the signal-to-noise ratio and is a measure of the quality of the signal on the line. The higher the margin, the better the quality.
Line Attenuation	The line attenuation will increase the further you are physically located from your ISP's facilities.
Output Power	Indicates the strength of the upstream and downstream signals.

Clicking the **More Information** link provides more details about the quality of the traffic sent and received, which also may be of interest to your technical support representative if you are having problems obtaining or maintaining a connection.

## Setting up the System Log

You can customize the system log based on the type of messages that are logged and displayed. To set up the system log:

1. In the Maintenance section of the main menu, select System Log to display the following screen:

**Figure 2-7**

2. Specify the settings for the log:

- **Log.** Enable or disable the log.
- **Log Level.** Specify the type of information logged:
  - Emergency
  - Alert
  - Critical
  - Error
  - Warning
  - Notice
  - Informational
  - Debugging
- **Display Level.** Specify the type of logged messages that are displayed. The selections are the same as the ones listed under **Log Level** above.
- **Mode.** Local, Remote, or Both Local and Remote.

3. Click **Apply** so that your changes take effect.

To view the system log, select System Log in the Maintenance section of the main menu, and then click **View System Log**.

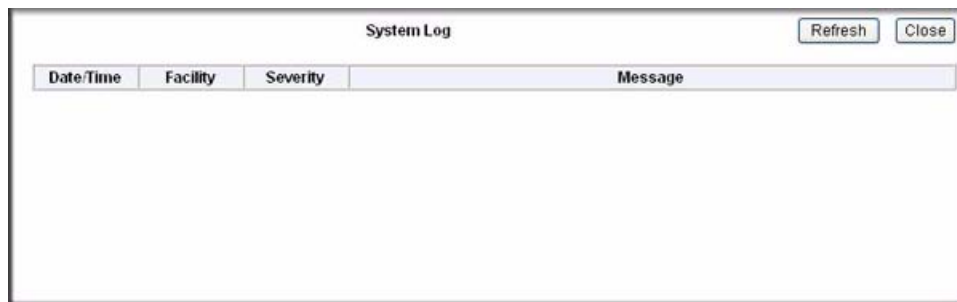


Figure 2-8



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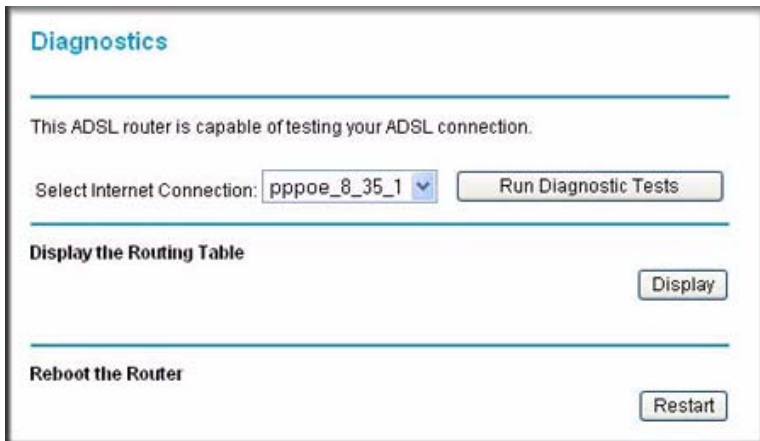
## Diagnostic Utilities and Rebooting the Modem Router

---

The modem router has a diagnostics feature. You can use the Diagnostics screen to perform the following functions from the modem router:

- Perform a diagnostic test to check that the unit is working properly.
- Display the Routing Table to identify what other modem routers the modem router is communicating with.
- Reboot the modem router to enable new network configurations to take effect or to clear problems with the modem router's network connection.

In the Maintenance section of the main menu, select Diagnostics.



**Figure 2-9**

From this screen you can run diagnostics tests, display the routing table, or reboot the router.

### Running Diagnostics Tests

On the Diagnostics screen, click **Run Diagnostic Tests**. The modem router runs tests and displays the test results, similar to the results shown in [Figure 2-10 on page 2-12](#).

**Diagnostic Tests**

This ADSL router is capable of testing your ADSL connection.

Select Internet Connection:

**Test the connection to your local network**

Test your Ethernet Connection: PASS

Test your USB Connection: PASS

**Test the connection to your ADSL service provider**

Test ADSL Synchronization: PASS

Test ATM OAM F5 segment ping: PASS

Test ATM OAM F5 end-to-end ping: PASS

**Test the connection to your Internet service provider**

Test PPP server connection: PASS

Test authentication with ISP: PASS

Test the assigned IP address: PASS

Ping default gateway: PASS

Ping primary Domain Name Server: PASS

Figure 2-10

## Routing Table

On the Diagnostics screen, click **Display**. The following figure shows a typical routing table.

**Routing Table**

All of current routing rules in your ADSL router are listed below

Destination	Netmask	Gateway	Interface	Metric
192.168.0.0	255.255.255.0	0.0.0.0	br0	0
239.0.0.0	255.0.0.0	0.0.0.0	br0	0
127.0.0.0	255.0.0.0	0.0.0.0	lo	0

Figure 2-11

## Remote Access

You can set up the modem router to allow remote access.

1. In the Advanced section of the main menu, select Remote Management. The following screen displays:

**Remote Access**

---

Remote Access allows someone, e.g. helpdesk, to configure your router remotely.

Select the Internet connection: pppoe\_8\_35\_1

To allow remote access to your router via

Web Browser

Web server port on WAN interface: 8080

Telnet

TFTP

PING

If PING is enabled, the router will reply to all the ping packets from the WAN port.

---

Authorized Host IP Address List   Apply   Cancel

**Figure 2-12**

2. Select the Internet connection for which you want to allow remote access from the drop-down list.
3. Select the check box for the remote access that you want to allow. The selections are:
  - **Web Browser.** Select this check box to configure remote control through HTTP. The default port number is 8080. Choose a number between 0 and 65534, but do not use the number of any common service port. To access the modem router, type the modem router's WAN IP address into your browser's address field, followed by a colon (:), and then the custom port number. For example, if your external address is 10.0.0.123 and you use port number 8080, enter in your browser: **http://10.0.0.123:8080**.
  - **Telnet.** Select this check box to configure remote control through telnet.
  - **TFTP.** Select this check box to configure remote control through Trivial File Transfer Protocol (TFTP).

- **PING.** Select this check box to configure the modem router to reply to a ping command under a DOS prompt.
4. As an optional step, you can specify authorized IP addresses that can be used to access the modem router. To do so, click **Authorized Host IP Address List**.



**Figure 2-13**

To authorize Internet hosts for remote for remote access:

- a. Select the Internet connection for which you want to allow remote access from the drop-down list.
  - b. Select a radio button to specify how you want Internet hosts to access your modem router:
    - **All Internet hosts can access your router**
    - **Only authorized Internet hosts can access your router**
  - c. Click **Apply** in the Authorized Host IP Address List screen to activate the authorized Internet hosts for remote access.
5. When you are finished, click **Apply** in the Remote Access screen so that your changes take effect.

# Chapter 3

## Security and Firewall Protection

This chapter describes how to use the basic firewall features of the ADSL2+ Modem Router DM111PSPv2 to protect your network.

This chapter includes:

- [“Firewall Settings”](#) in the following section
- [“Configuring a DMZ Host”](#) on page 3-10
- [“Enabling Universal Plug and Play \(UPnP\)”](#) on page 3-11

### Firewall Settings

---

You can set up the modem router to use IP packet filtering firewall rules and to use the advanced features, port forwarding and port triggering. Port forwarding directs inbound traffic for a service to a local server at a destination port. Port triggering is an advanced feature used for gaming and other Internet services.

The following are considerations for inbound firewall and port forwarding rules:

- If your external IP address is assigned dynamically by your ISP, the IP address may change periodically as the DHCP lease expires. Consider using the Dynamic DNS feature in the Advanced menu so that external users can always find your network.
- If the IP address of the local server computer is assigned by DHCP, it may change when the computer is rebooted. To avoid this, use the Reserved IP address feature in the LAN IP menu to keep the computer’s IP address constant.
- Local computers must access the local server using the computer’s local LAN address (such as 192.168.0.11). Attempts by local computers to access the server using the external WAN IP address will fail.

Before starting, you need to determine which type of protocol, service, application, or game you will provide, and the IP address of the computer that will provide the service. Be sure that the computer's IP address never changes.



**Note:** To assure that the same computer always has the same IP address, use the reserved IP address feature. See [“Reserved IP Addresses”](#) on page 4-4.

## Firewall Rules (IP Filtering)

Firewall rules block or allow specific traffic (IP packets) passing through from one side of the router to the other. Inbound rules (WAN to LAN) restrict access by outsiders to private resources, selectively allowing only specific outside users to access specific resources. Outbound rules (LAN to WAN) determine what outside resources local users can have access to.



**Warning:** This feature is for advanced users only. Incorrect configuration may cause serious Internet access problems.

The default inbound and outbound rules of the modem router are:

- **Inbound.** Block all access from outside except responses to requests from the LAN side.
- **Outbound.** Allow all access from the LAN side to the outside.

You can define additional rules that will specify exceptions to the default rules. By adding custom rules, you can block or allow access based on protocol, source IP addresses, and destination IP addresses.

To set up firewall rules:

1. In the Advanced section of the main menu, select Firewall Rules to display the Firewall Rules screen:

**Firewall Rules**

This page allows you to specify the IP packet filtering rules to prevent the services accessed from the Internet hosts or limit the Internet access for local hosts.

IP Filtering:  Disabled  Enabled

Select the direction to filter packets:  Outbound Traffic  Inbound Traffic

Protocol	Source IP addr	Dest IP addr	Port Range		Allow	Edit
			Start	End		
TCP	ALL	ALL	6080	6090	<input checked="" type="checkbox"/>	
ICMP	ALL	ALL	N/A	N/A	<input type="checkbox"/>	

**Figure 3-1**

2. Enable IP filtering by selecting the **Enabled** radio button.
3. Select a radio button to display and set up outbound traffic firewall rules or inbound traffic firewall rules:
  - **Outbound Traffic.** The table displays the outbound traffic rules (if any were set up). When you click **Add**, you can create a new outbound firewall rule. See [“Outbound Firewall Traffic Rules”](#) in the following section.
  - **Inbound Traffic.** The table displays the inbound traffic rules (if any were set up). When you click **Add**, you can create a new inbound firewall rule. See [“Inbound Firewall Traffic Rules”](#) on page 3-5.

To edit a rule in the outbound traffic rules or inbound traffic rules table, click the pencil icon in the Edit column of the table.

To delete a rule in the outbound traffic rules or inbound traffic rules table, click the waste bin icon in the Edit column of the table.

The columns of the table are explained in the following two sections.

## Outbound Firewall Traffic Rules

When the Outbound Traffic radio button is selected and you click **Add** in the Firewall Rules screen (see [Figure 3-1 on page 3-3](#)), the Add New Outbound IP Filtering Rule screen displays (see following page).

**Figure 3-2**

Create a new outbound IP filtering rule, and then click **Apply** to add the rule to the outbound traffic rules table in the Firewall Rules screen (see [Figure 3-1 on page 3-3](#)). [Table 3-1](#) describes the settings on the Add New Outbound IP Filtering Rule screen.

**Table 3-1. Outbound IP Filtering Rule Settings**

Settings	Description
Allow Traffic	Select a radio button <ul style="list-style-type: none"> <li>• <b>Yes</b>. The new rule is used to allow outbound traffic.</li> <li>• <b>No</b>. The new rule is used to prevent outbound traffic</li> </ul>
Protocol	Make a selection from the drop-down list: <ul style="list-style-type: none"> <li>• <b>TCP</b>. The rule applies to Transmission Control Protocol (TCP) traffic.</li> <li>• <b>UDP</b>. The rule applies to User Datagram Protocol (UDP) traffic.</li> <li>• <b>ICMP</b>. The rule applies to Internet Control Message Protocol (ICMP) traffic.</li> <li>• <b>AH</b>. The rule applies to Authentication Header (AH) protocol traffic.</li> <li>• <b>ESP</b>. The rule applies to Encapsulating Security Payload (ESP) traffic.</li> <li>• <b>GRE</b>. The rule applies to Generic Route Encapsulation (GRE) traffic.</li> <li>• <b>ALL</b>. The rule applies to all protocol traffic.</li> <li>• <b>User Defined</b>. Enter a protocol name in the “as” field.</li> </ul>



**Table 3-1. Outbound IP Filtering Rule Settings (continued)**

Settings	Description
Source IP Address	Make a selection from the drop-down list: <ul style="list-style-type: none"> <li>• <b>ALL.</b> The rule applies to all source IP addresses.</li> <li>• <b>SINGLE.</b> Enter the source IP address in the “IP addr.” field.</li> <li>• <b>SUBNET.</b> Enter the source IP address in the “IP addr.” field and the subnet address in the “NetMask” field.</li> </ul>
Destination IP Address	Make a selection from the drop-down list: <ul style="list-style-type: none"> <li>• <b>ALL.</b> The rule applies to all destination IP addresses.</li> <li>• <b>SINGLE.</b> Enter the destination IP address in the “IP addr.” field.</li> <li>• <b>SUBNET.</b> Enter the destination IP address in the “IP addr.” field and the subnet address in the “NetMask” field.</li> </ul>
Port Range	You can specify a port range only when TCP, UDP, or User Defined is selected from the Protocol drop-down list. Enter the start port for the port range in the “Start” field and enter the end port for the port range in the “End” field.

### Inbound Firewall Traffic Rules

When the Inbound Traffic radio button is selected and you click **Add** in the Firewall Rules screen (see [Figure 3-1 on page 3-3](#)), the Add New Inbound IP Filtering Rule screen displays:

The screenshot shows a web-based configuration interface titled "Add New Inbound IP Filtering Rule". It contains the following fields and controls:

- Allow Traffic:** Radio buttons for "Yes" (selected) and "No".
- Protocol:** A dropdown menu currently set to "TCP".
- Source IP Address:** A dropdown menu currently set to "ALL".
- Destination IP Address:** A dropdown menu currently set to "ALL".
- Port Range:** Two text input fields labeled "Start" and "End".
- Navigation:** Two buttons at the bottom: "< Back" and "Apply".

**Figure 3-3**

Create a new inbound IP filtering rule, and then click **Apply** to add the rule to the inbound traffic rules table in the Firewall Rules screen (see [Figure 3-1 on page 3-3](#)). [Table 3-1](#) describes the settings on the Add New Inbound IP Filtering Rule screen.

**Table 3-2. Inbound IP Filtering Rule Settings**

Settings	Description
Allow Traffic	Select a radio button <ul style="list-style-type: none"> <li>• <b>Yes.</b> The new rule is used to allow inbound traffic.</li> <li>• <b>No.</b> The new rule is used to prevent inbound traffic</li> </ul>
Protocol	Make a selection from the drop-down list: <ul style="list-style-type: none"> <li>• <b>TCP.</b> The rule applies to Transmission Control Protocol (TCP) traffic.</li> <li>• <b>UDP.</b> The rule applies to User Datagram Protocol (UDP) traffic.</li> <li>• <b>ICMP.</b> The rule applies to Internet Control Message Protocol (ICMP) traffic.</li> <li>• <b>AH.</b> The rule applies to Authentication Header (AH) protocol traffic.</li> <li>• <b>ESP.</b> The rule applies to Encapsulating Security Payload (ESP) traffic.</li> <li>• <b>GRE.</b> The rule applies to Generic Route Encapsulation (GRE) traffic.</li> <li>• <b>ALL.</b> The rule applies to all protocol traffic.</li> <li>• <b>User Defined.</b> Enter a protocol name in the “as” field.</li> </ul>
Source IP Address	Make a selection from the drop-down list: <ul style="list-style-type: none"> <li>• <b>ALL.</b> The rule applies to all source IP addresses.</li> <li>• <b>SINGLE.</b> Enter the source IP address in the “IP addr.” field.</li> <li>• <b>SUBNET.</b> Enter the source IP address in the “IP addr.” field and the subnet address in the “NetMask” field.</li> </ul>
Destination IP Address	Make a selection from the drop-down list: <ul style="list-style-type: none"> <li>• <b>ALL.</b> The rule applies to all destination IP addresses.</li> <li>• <b>SINGLE.</b> Enter the destination IP address in the “IP addr.” field.</li> <li>• <b>SUBNET.</b> Enter the destination IP address in the “IP addr.” field and the subnet address in the “NetMask” field.</li> </ul>
Port Range	You can specify a port range only when TCP, UDP, or User Defined is selected from the Protocol drop-down list. Enter the start port for the port range in the “Start” field and enter the end port for the port range in the “End” field.

## Port Forwarding (Inbound Rules)

Because the modem router uses Network Address Translation (NAT), your network presents only one IP address to the Internet, and outside users cannot directly address any of your local computers. However, by defining an inbound rule you can make a local server (for example, a Web server or game server) visible and available to the Internet.

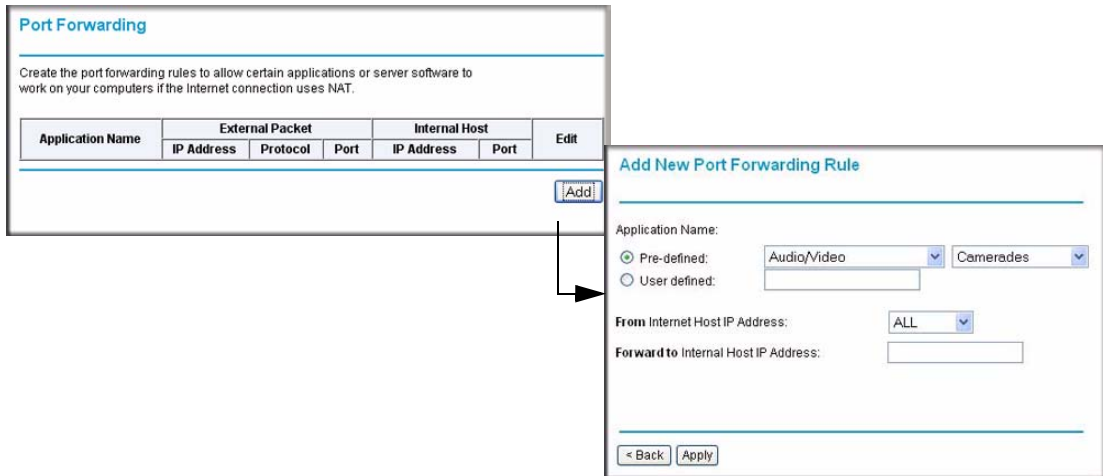
The inbound rule that you create tells the modem router to direct inbound traffic for a particular service to one local server based on the destination port number. This is also known as port forwarding.



**Note:** Some residential broadband ISP accounts do not allow you to run any server processes (such as a Web or FTP server) from your location. Your ISP may periodically check for servers and may suspend your account if it discovers any active services at your location. If you are unsure, refer to the acceptable use policy of your ISP.

To configure port forwarding:

1. In the Advanced section of the main menu, select Port Forwarding, and then click **Add**.



**Figure 3-4**

2. Remember that allowing inbound services opens holes in your firewall. Only enable those ports that are necessary for your network.
3. Either select a predefined port triggering rule, or define a rule:
  - To select a predefined port triggering rule:
    - Select the **Pre-defined** radio button.
    - Select a type of application from the drop-down menu on the left.
    - Select an application from the drop-down menu on the right.
  - To define a rule:
    - Select the **User defined** radio button. The screen adjusts to enable you to add rules (see [Figure 3-5 on page 3-8](#)).

**Add New Port Forwarding Rule**

Application Name:

Pre-defined:

User defined:

From Internet Host IP Address:

Forward to Internal Host IP Address:

By using the rules:

Protocol	External Packet		Forward to Internal Host	
	Port Start	Port End	Port Start	Port End
TCP	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
TCP	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
TCP	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Figure 3-5**

- Next to From Internet Host IP Address, select **ALL** (the default) to allow this service to be used by everyone in your network. Otherwise, select **SINGLE** and enter the IP address of one computer to restrict the service to a particular computer, or **SUBNET** to restrict the service to a subnet.
  - Next to Forward to Internal Host IP Address, enter the IP address of the internal host.
  - To specify the rules, select the **Protocol** from the drop-down list, and fill in the **Starting Port** and **Ending Port** fields. This information can be obtained from the game or applications manual or the product's support website.
4. When you are finished making changes, click **Apply** so that your changes take effect.

## Port Triggering (Outbound Rules)

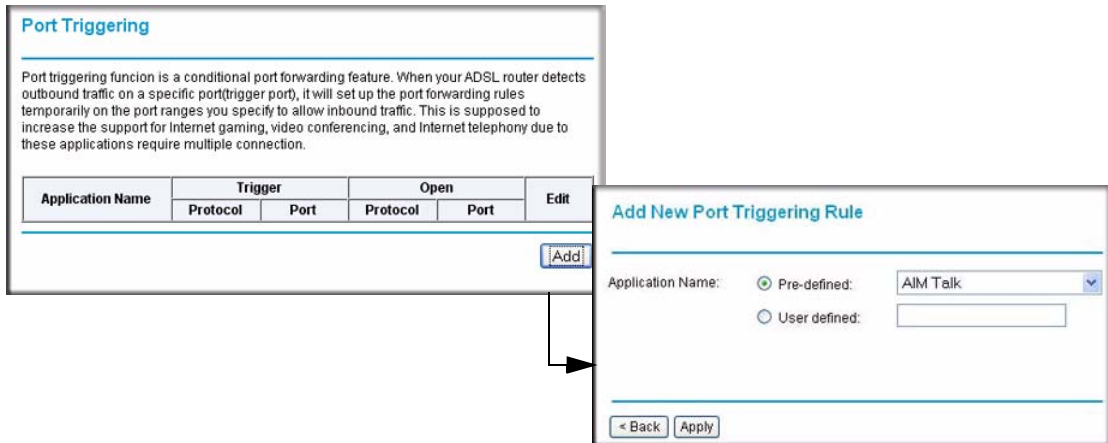
Port Triggering monitors outbound traffic. When the modem router detects traffic on the specified outbound port, it remembers the IP address of the computer that sent the data and triggers the incoming port. Port Triggering opens an incoming port temporarily and does not require the server on the Internet to track your IP address if it is changed by DHCP, for example. Incoming traffic on the triggered port is then forwarded to the triggering computer. Using the Port Triggering screen, you can make local computers or servers available to the Internet for different services (for example, FTP or HTTP), to play Internet games, or to use Internet applications.



**Note:** If you use applications such as multi-player gaming, peer-to-peer connections, real time communications such as instant messaging, or remote assistance (a feature in Windows XP), you should also enable UPnP (see “[Enabling Universal Plug and Play \(UPnP\)](#)” on page 3-11).

To configure port triggering:

1. In the Advanced section of the main menu, select Port Triggering, and then click **Add**.



**Figure 3-6**

2. Either select a Predefined Port Triggering Rule, or define a rule.
  - To select a predefined port triggering rule:
    - Select the **Pre-defined** radio button.
    - Select an application from the drop-down menu on the right.
  - To define a rule:
    - Select the **User defined** radio button. The screen adjusts to enable you to add rules (see [Figure 3-7 on page 3-10](#)).

**Figure 3-7**

- To specify the rules, select the **Protocol** from the drop-down list, and fill in the **Starting Port** and **Ending Port** fields. This information can be obtained from the game or applications manual or the product’s support website.
3. When you are finished making changes, click **Apply** so that your changes take effect.

## Configuring a DMZ Host

A demilitarized zone (DMZ) host is a computer on your local network that can be accessed from the Internet regardless of firewall protection. In the Advanced section of the main menu, select DMZ Host to display the DMZ Host screen (see the following page).

**Figure 3-8**

By default, there is no DMZ host, and the **Discarded** radio button is selected. To activate a DMZ host:

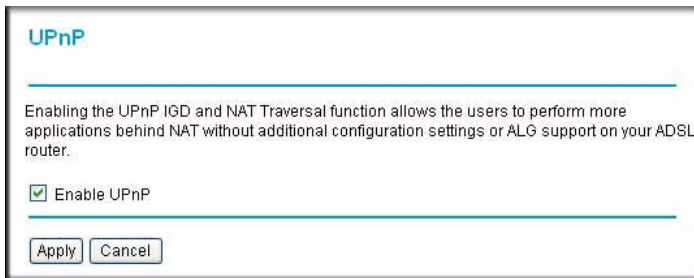
1. Select the **Forwarded to the DMZ host** radio button.
2. Enter the IP address for the DMZ host.
3. Click **Apply**.

## Enabling Universal Plug and Play (UPnP)

---

Universal Plug and Play (UPnP) helps devices, such as Internet appliances and computers, access the network and connect to other devices as needed. UPnP devices can automatically discover the services from other registered UPnP devices on the network.

On the main menu, select UPnP. The UPnP screen displays.



**Figure 3-9**

UPnP can be enabled or disabled for automatic device configuration. The **Enable UPnP** check box is selected by default. If you clear this check box, and click **Apply**, the modem router will not allow any device to automatically control the resources, such as port forwarding (mapping), of the modem router.





# Chapter 4

## Advanced Configuration

This chapter describes how to perform advanced configuration for you ADSL2+ Modem Router DM111PSPv2. For Advanced firewall settings, see [Chapter 3, “Security and Firewall Protection.”](#) For advanced WAN settings, see [Chapter 5, “Advanced WAN Configuration.”](#) To use the features described in this chapter, log in to the modem router as described in [“Logging In to the Modem Router” on page 1-2.](#)

This chapter includes:

- [“LAN IP Setup”](#) in the following section
- [“Static Routes” on page 4-5](#)
- [“IGMP Proxy” on page 4-7](#)
- [“Internet Time Settings” on page 4-8](#)
- [“Enabling VoIP Connections” on page 4-9](#)

### LAN IP Setup

---

If you intend to connect your modem router to a router, configure the local area network Internet Protocol (LAN IP) settings, as follows:

1. In the Advanced section of the main menu, select LAN IP Setup. The LAN IP Setup screen displays as shown in [Figure 4-1 on page 4-2.](#)

### LAN IP Setup

---

#### LAN IP Address Configuration

Primary IP Address:

Subnet Mask:

Host Name:

Domain Name:

Configure secondary IP address and subnet mask.

Secondary IP Address:

Subnet Mask:

MTU:  (Default: 1500)

---

#### DHCP Server Configuration

DHCP Server On    Start IP:   
End IP:   
Lease Time:  days  hours  minutes

Relay On    Relay to Server IP:

Server and Relay Off

---

New settings only take effect after your ADSL router is rebooted. If necessary, reconfigure your PC's IP address to match new settings.

**Figure 4-1**

2. Check the LAN IP address of your router, which is usually printed on a label on the bottom or at the rear of the device.

Note how the address is comprised of four numbers separated by period characters. If necessary, change the LAN IP address of the modem router so that the two left-most numbers of the address are the same as the two left-most numbers of the router's LAN IP address, and the third number in the modem router's address is different from the third number in the router's address. For example, if the router's LAN IP address is the same as the modem router's default address (192.168.0.1), change the LAN IP address of the modem router to 192.168.1.1.



**Tip:** If you change the LAN IP address of the modem router, write the new address on a sticky label and attach it to the bottom of the unit. You will need the new address to log in to the modem router in the future.

3. By default, most routers (and all NETGEAR routers) include an active DHCP server. If this is the case for your router, select the **Off** radio button to disable the DHCP server in the modem router.
4. If you changed the LAN IP address or DHCP server setting (Table 4-1 explains the fields and buttons on the LAN IP Setup screen), click **Apply** to make the new settings take effect.



**Note:** If you change the LAN IP address, you will lose your connection to the modem router. You must type the new IP address into your browser address field to log in to the modem router.

## Understanding the LAN IP Settings

The following table explains the fields and buttons on the LAN IP Setup screen.

**Table 4-1. LAN IP Settings**

Settings		Description
LAN IP Address Configuration	Primary IP Address	The LAN IP address of the modem router
	Subnet Mask	The LAN subnet mask of the modem 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 modem router.
	Host Name	Enter the account name provided by your ISP. This might also be called the host name.
	Domain Name	Enter the domain name provided by your ISP.
	Secondary IP Address and Subnet Mask	The LAN interface can have a second IP and subnet mask.
	MTU	The normal MTU (Maximum Transmit Unit) value for most Ethernet networks is 1500 bytes, or 1492 Bytes for PPPoE connections. For some ISPs you might need to reduce the MTU. This is rarely required, and should not be done unless you are sure it is necessary for your ISP connection.

**Table 4-1. LAN IP Settings (continued)**

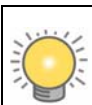
Settings		Description
DHCP Server Configuration	DHCP Server On	The modem router is set up by default to be a DHCP server, which provides TCP/IP configuration for computers that are connected to it. You can either use the default settings or specify the pool of IP addresses to be assigned by setting the 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. You can specify to following settings: <ul style="list-style-type: none"> <li>• <b>Start IP.</b> The first of the contiguous addresses in the IP address pool. 192.168.0.2 is the default start address.</li> <li>• <b>End IP.</b> The last of the contiguous addresses in the IP address pool. 192.168.0.254 is the default ending address.</li> <li>• <b>Lease Time.</b> The period that the DHCP server grants to the DHCP clients to use the assigned IP addresses.</li> </ul> If you are connecting the modem router to a network with a router that is the DHCP server, clear the DHCP Server On check box.
	<b>Reserved IP Address List</b> button	When you specify a reserved IP address for a computer on the LAN, that computer always receives the same IP address each time it access the modem router's DHCP server. Reserved IP addresses should be assigned to servers that require permanent IP settings.
	Relay On	This setting turns on the DHCP relay.
	Server and Relay Off	This setting turns on the DHCP server, but turns off the DHCP relay.

## Reserved IP Addresses

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


To reserve an IP address:

1. On the LAN IP Setup screen, click the **Reserved IP Address List** button. A new screen displays.
2. In the PC's MAC Address field, type the MAC address of the computer or server.



**Tip:** If the computer is already connected to the modem, you can copy its MAC address from the Attached Devices screen and paste it here.

3. In the Assigned IP Address field, type the IP address to assign to the computer or server. Choose an IP address from the modem router's LAN subnet, such as 192.168.0.2.
4. Click **Apply** to enter the reserved address into the table.

	<b>Note:</b> The reserved address will not be assigned until the next time the computer contacts the DHCP server. Reboot the computer or access its IP configuration and force a DHCP release and renew.
---	--

To delete a reserved address entry:

1. Click the button next to the reserved address that you want to delete.
2. Click **Delete**.

## Static Routes

---

Static routes provide additional routing information to your modem router. Under normal circumstances, the modem 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.

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 modem 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 forwards your request to the ISP. The ISP forwards your request to the company where you are employed, and the request is likely to 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.

To configure a static route:

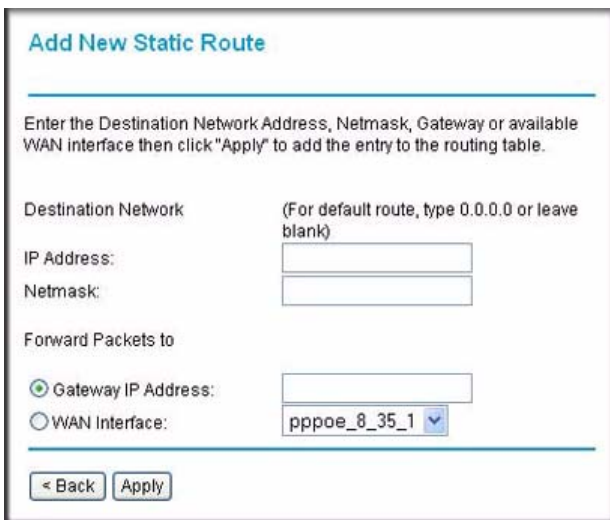
1. In the Advanced section of the main menu, select Static Routes to display the Static Routes screen:



Destination	Netmask	Gateway	WAN Interface	Delete
-------------	---------	---------	---------------	--------

**Figure 4-2**

2. Click **Add** to display the Add New Static Route screen.



Enter the Destination Network Address, Netmask, Gateway or available WAN interface then click "Apply" to add the entry to the routing table.

Destination Network (For default route, type 0.0.0.0 or leave blank)

IP Address:

Netmask:

Forward Packets to

Gateway IP Address:

WAN Interface:

**Figure 4-3**

3. In the IP Address field, enter the IP address of the final destination.
4. In the Netmask field, enter the subnet mask of the final destination.
5. Specify how the packets must be forwarded by selecting a radio button:
  - **Gateway IP Address.** Forward packets to a gateway, which must be a router on the same network segment as the modem router. Enter the IP address of the gateway.

- **WAN Interface.** Forward packets to a WAN interface by selecting one from the drop-down list.
6. Click **Apply** to save your changes and to add the static route to the routing table in the Static Routes screen. To delete a static route from the routing table, click the trashbin icon in the Delete column next to the static route that you want to delete.

## IGMP Proxy

The Internet Group Management Protocol (IGMP) is an Internet protocol that provides a way for an Internet computer to report its multicast group membership to adjacent routers. The hosts interact with the system through the exchange of IGMP messages. When you configure IGMP proxy, the router interacts with other routers through the exchange of IGMP messages. However, when acting as the proxy, the router performs the host portion of the IGMP task as follows:

- When queried, the router sends membership reports to the group.
- When one of the hosts joins a multicast address group that none of other hosts belongs to, the router sends unsolicited membership reports to that group.
- When the last host in a particular multicast group leaves the group, the router sends a leave group membership report to that router's group.

In the Advanced section of the main menu, select IGMP Proxy. The following screen displays:

Internet Connection	IGMP Proxy Enabled
pppoe_8_35_1	<input checked="" type="checkbox"/>

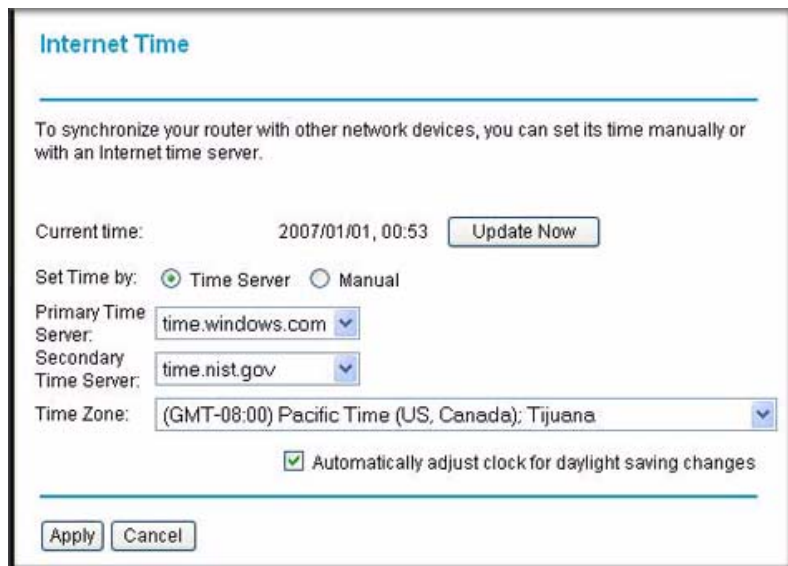
**Figure 4-4**

To disable the IGMP proxy, deselect the check box.

## Internet Time Settings

---

To synchronize your router with other network devices, you can set its time manually or with an Internet time server. In the Advanced section of the main menu, select Internet Time. The following screen displays:



The screenshot shows the 'Internet Time' configuration page. At the top, it says 'Internet Time' in blue. Below that, a horizontal line is followed by the text: 'To synchronize your router with other network devices, you can set its time manually or with an Internet time server.' The current time is displayed as '2007/01/01, 00:53' with an 'Update Now' button to its right. Under 'Set Time by:', there are two radio buttons: 'Time Server' (selected) and 'Manual'. Below this, there are two dropdown menus for 'Primary Time Server' (set to 'time.windows.com') and 'Secondary Time Server' (set to 'time.nist.gov'). A larger dropdown menu for 'Time Zone' is set to '(GMT-08:00) Pacific Time (US, Canada); Tijuana'. A checkbox labeled 'Automatically adjust clock for daylight saving changes' is checked. At the bottom, there are 'Apply' and 'Cancel' buttons.

**Figure 4-5**

The following settings are available in this screen:

- **Update Now.** Click this button to refresh the current time.
- **Set Time by (Time Server or Manual).** The default setting is **Manual**. With this settings, you can enter the date and the time. If you select the **Time Server** radio button, and click **Apply**, the router time is automatically set via the time server.
- **Primary Time Server/ Secondary Time Server.** You may select the preferred time servers from the drop-down list. The time will be adjusted by the time servers.
- **Time Zone.** Choose the time zone for your location from the drop-down list.
- **Automatically adjust clock for daylight saving changes.** Select this check box if you want the modem router to automatically adjust the clock for daylight saving time.



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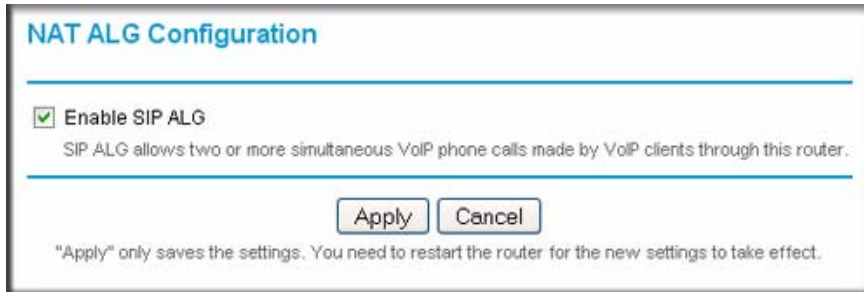
## Enabling VoIP Connections

---

You can use the NAT ALG (Network Address Translation/Application Level Gateway) settings to allow simultaneous VoIP phone calls.

To specify the NAT ALG configuration:

1. In the Advanced section of the main menu, select NAT ALG to display the following screen:



**Figure 4-6**

2. Select the **Enable SIP ALG** check box to allow VoIP clients to make two or more simultaneous VoIP phone calls through the modem router.
3. Click **Apply** to save the settings.
4. Reboot the modem router so that the new settings take effect.



# Chapter 5

## Advanced WAN Configuration

This chapter describes how to perform advanced WAN configuration for your modem router. To use the features described in this chapter, log in to the modem router as described in [“Logging In to the Modem Router”](#) on page 1-2.

This chapter includes:

- [“WAN Setup”](#) in the following section
- [“Selecting Your Domain Name Server \(DNS\)”](#) on page 5-7
- [“Quality of Service \(QoS\) Settings”](#) on page 5-10
- [“TR 069 Client Configuration”](#) on page 5-12

### WAN Setup

---

You can view or change the WAN settings for the modem router. In the Advanced section of the main menu, select WAN Setup to display the following screen:

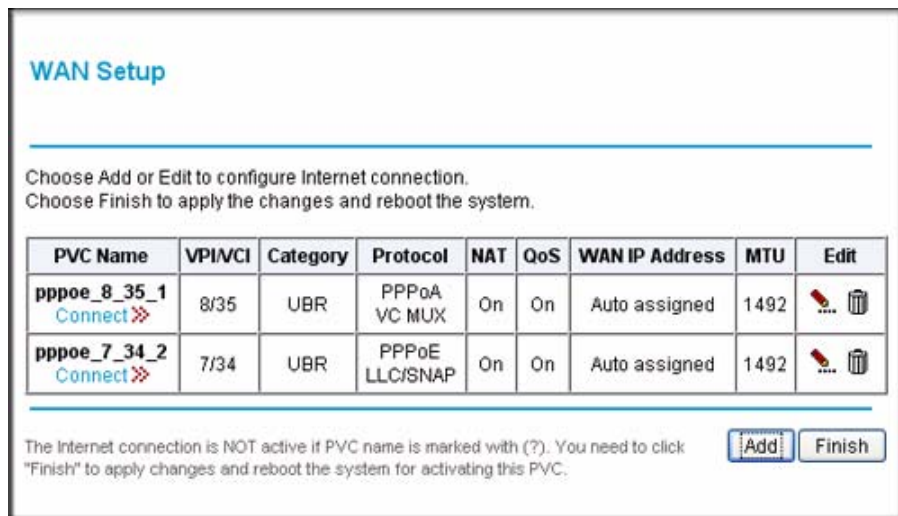


Figure 5-1

The following table describes the settings on the WAN Setup screen.

**Table 5-1. WAN Setup**

Field	Description
PVC Name <b>Connect</b> hyperlink	Connection link name. Click the <b>Connect</b> hyperlink to connect to the WAN.
VPI/VCI	The VPI/VCI settings (see <a href="#">Table 5-3 on page 5-4</a> for an explanation of these settings).
Category	UBR (Unspecified Bit Rate), a guaranteed QoS for ATM networks.
Protocol	PPPoE LLC/SNAP (Logical Link Control/Sub Network Access Protocol).
NAT (Net Address Translation)	NAT automatically assigns private IP addresses (10.1.1.x) to LAN-connected devices. <ul style="list-style-type: none"><li>• <b>On.</b> NAT is enabled.</li><li>• <b>Off.</b> NAT is disabled. Disable NAT only if you are sure that you do not require it. For example, if the modem router is on the same network as a router that is using NAT.</li></ul>
QoS (Quality of Service)	The modem router supports QoS applications. See <a href="#">“Quality of Service (QoS) Settings” on page 5-10</a> .
WAN IP Address	The method that the ISP uses to assign the WAN IP address. If your ISP assigns private IP addresses, your private WAN IP address is shown here. Otherwise the setting is Auto assigned.
MTU	The MTU (Maximum Transmit Unit) value set in the LAN IP screen. See <a href="#">“LAN IP Setup” on page 4-1</a> .
Edit	Icons that enable you to edit (the pencil icon) or delete (the waste bin icon) the WAN connection.
<b>Add</b> button	For adding a Permanent Virtual Connection (PVC) to the WAN. See the following section.

To add a new WAN connection:

1. On the WAN Setup screen, click **Add**, and the following screen displays:

**Figure 5-2**

2. Enter or select the ATM PVC settings that are explained in the following table. Your ISP will advise you which settings to use.

**Table 5-2. ATM PVC Settings**

Setting	Description
VPI	The virtual path identifier specifies the virtual path between endpoints in an ATM network. The valid range is from 0 to 255.
VCI	The virtual channel identifier) specifies the virtual channel between endpoints in an ATM network. The valid range is from 32 to 65535 (1 to 31 is reserved for well-known protocols)
Service Category	The size and rate for the packets of the data is different, depending on the service type. UBR without peak cell rate (PCR) is the default setting. Your ISP will advise you which service category to select from the drop-down list: <ul style="list-style-type: none"> <li>• <b>UBR Without PCR</b>. Unspecified bit rate without peak cell rate.</li> <li>• <b>UBR With PCR</b>. Unspecified bit rate with peak cell rate.</li> <li>• <b>CBR</b>. Constant bit rate.</li> <li>• <b>Non Realtime VBR</b>. Variable bit rate for non real-time applications.</li> <li>• <b>Realtime VBR</b>. Variable bit rate for real-time applications.</li> </ul>

3. Click **Next** to continue. The Connection Type screen displays.

**Figure 5-3**

4. Enter or select the Internet connection type settings that are explained in the following table. Your ISP will advise you which settings to use.

**Table 5-3. Internet Connection Type Settings**

Setting	Description
Protocol	<ul style="list-style-type: none"> <li>• PPP over ATM (PPPoA)</li> <li>• PPP over Internet (PPPoE)</li> <li>• IP over ATM (IPoA)</li> <li>• Bridging</li> </ul>
Encapsulation Type	<ul style="list-style-type: none"> <li>• LLC/SNAP (the default setting)</li> <li>• VC MUX</li> </ul>
Enable QoS	Quality of Service (QoS) support is enabled by default.
Enable 802.1Q VLAN Tagging	This settings, which is available only in PPPoE and bridged mode, allows multiple computers to share the same physical network.

5. Click **Next** to continue. The WAN IP Settings screen displays.

**Figure 5-4**

6. Enter or select the WAN IP settings that are explained in the following table. Your ISP will advise you which settings to use.

**Table 5-4. WAN IP Settings**

Setting	Description
IP address	Select a radio button for the IP address setting: <ul style="list-style-type: none"> <li>• <b>Obtain an IP address automatically.</b> The modem router acquires the IP address automatically.</li> <li>• <b>Use the following IP address.</b> Enter an IP address in the WAN IP Address field.</li> </ul>
Enable NAT	Select this check box to enable NAT, which automatically assigns private IP addresses (10.1.1.x) to LAN-connected devices.
PPP IP extension	Select this check box to enable the modem router to function in semi bridge mode. This option is available only when the IP address is obtained automatically and when NAT is disabled.
Add Default Route	Select this check box to set the current PVC as the default route. If this check box is deselected, the first PVC that was enabled is set as the default route.
MTU	The normal MTU (Maximum Transmit Unit) value for most Ethernet networks is 1500 bytes, or 1492 bytes for PPPoE connections. For some ISPs you might need to reduce the MTU. This is rarely required, and should not be done unless you are sure it is necessary for your ISP connection.

7. Click **Next** to continue. The PPP User Name and Password screen displays.

**Figure 5-5**

8. Enter or select the PPP user name and password settings that are explained in the following table. Your ISP will advise you which settings to use.

**Table 5-5. PPP User Name and Password Settings**

Setting	Description
PPP User Name	Enter your user name.
PPP Password	Enter your password,
Session establishment	<p>Enter the PPP user name and password that you use to log on. These fields are case-sensitive. Specify how the session must be established:</p> <ul style="list-style-type: none"> <li>• <b>Always On.</b> Enables the connection to be active continuously.</li> <li>• <b>Dial on Demand.</b> Activates the connection when there is demand. Enter a value in the minutes field to deactivate the connection when there is no activity. (This mechanism is also known as the PPP idle timer.)</li> <li>• <b>Manually Connect.</b> Requires you to press the Connect hyperlink in the PVC Name column of the WAN Setup screen to activate the connection. Enter a value in the minutes field to deactivate the connection when there is no activity. (This mechanism is also known as the PPP idle timer.)</li> </ul>

9. Click **Next** to continue. The Summary screen displays.

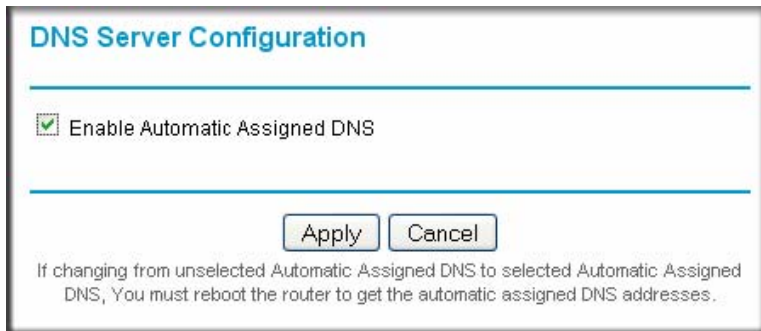


10. Click **Apply** to save your settings and add the WAN connection to the WAN connection table in the WAN Setup screen (see [Figure 5-1 on page 5-1](#)). If you first need to make changes, click **Back** to go to the previous screen.

## Selecting Your Domain Name Server (DNS)

By default, the domain name server (DNS) is enabled, and the modem router accepts the first received DNS assignment from the PVCs when the Internet connection is established.

To view or change the DNS server settings, in the Advanced section of the main menu, select DNS Server. The following screen displays:



**Figure 5-6**

If you want to manually specify the DNS primary and secondary server IP addresses each time the modem router connects to the Internet:

1. Clear the **Enable Automatic Assigned DNS** check box and click **Apply**.
2. Reboot the modem router.

## Static DNS

You can specify DNS mapping between names and IP addresses for your local hosts. In the Advanced section of the main menu, select Static DNS. The following screen displays:

The screenshot shows a web browser window titled "Static DNS Configuration". Below the title is a horizontal line, followed by a paragraph of text: "This page allows you to configure DNS mapping between name and IP address for your local hosts. In case if you want to access those local servers with name from local network, you can configure the mapping below." Below this text is a table with two columns: "HostName.DomainName" and "IP Address". The first row has "DM111PUSP.home" in the first column and "192.168.0.1" in the second column, with the text "mapped to" between them. There are seven more empty rows below it. At the bottom right of the table area is a blue hyperlink "More Mapping" with a small red icon. At the bottom of the window are two buttons: "Apply" and "Cancel".

HostName.DomainName	mapped to	IP Address
DM111PUSP.home	mapped to	192.168.0.1
	mapped to	
	mapped to	
	mapped to	
	mapped to	
	mapped to	
	mapped to	
	mapped to	

[More Mapping](#)

Apply Cancel

Figure 5-7

To map additional local host names to IP addresses, click the **More Mapping** hyperlink.

When you have finished specifying the static DNS configuration, click **Apply** so that your changes take effect.

## 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 to register your domain to their IP address, and forward traffic directed at your domain to your frequently changing IP address.

The modem 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 modem router, whenever your ISP-assigned IP address changes, your modem router will automatically contact your Dynamic DNS service provider, log in to your account, and register your new IP address.

To configure dynamic DNS:



**Warning:** 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.

1. From the main menu, select Dynamic DNS to display the Dynamic DNS screen (see Figure 5-8).
2. Next to Dynamic DNS, select the **Enabled** radio button. The screen expands to display the fields that enable you to configure dynamic DNS.

**Dynamic DNS Configuration**

This page allows you to provide Internet users with a name (instead of an IP address) to access your virtual servers. This ADSL router supports dynamic DNS service provided by the provider 'http://www.dyndns.org', 'http://www.tzo.com', 'http://www.changeip.com' or 'http://www.no-ip.com'. Please register this service at these providers first.

Dynamic DNS :  Disabled  Enabled

Dynamic DNS Provider: DynDNS.org ▼

Internet Connection: pppoe\_8\_35\_1 ▼

User Name:

Password:

HostName.DomainName:

Status: Internet connection is down

Apply Cancel

**Figure 5-8**

3. Access the website of one of the dynamic DNS service providers whose names appear in the **Dynamic DNS Provider** drop-down list, and register for an account. For example, for dyndns.org, go to [www.dyndns.org](http://www.dyndns.org).
4. Select the name of your dynamic DNS service provider from the **Dynamic DNS Provider** drop-down list.
5. Select the Internet connection for which you want to configure dynamic DNS from the **Internet Connection** drop-down list.

6. The fields that are displayed depend on the DNS service provider that you have selected. Enter the following information:
  - **User Name** or **E-mail**. Enter your user name or e-mail address that is associated with your dynamic DNS account.
  - **Password** or **Key**. Enter your password or key that is associated with your dynamic DNS account.
  - **HostName.DomainName**. Enter the host name that the dynamic DNS service provider gave you. The dynamic DNS service provider may call the host name a domain name. For example, if your URL is myName.dyndns.org, then your host name is myName.
7. Click **Apply** to save your settings.

## Quality of Service (QoS) Settings

You can use QoS settings to prioritize data transmission for upstream traffic. To prioritize users based on IP packets, use the IP QoS menu. This section assumes that you are familiar with QoS concepts.

To configure IP QoS:

1. In the Advanced section of the main menu, select IP QoS. The following screen displays:

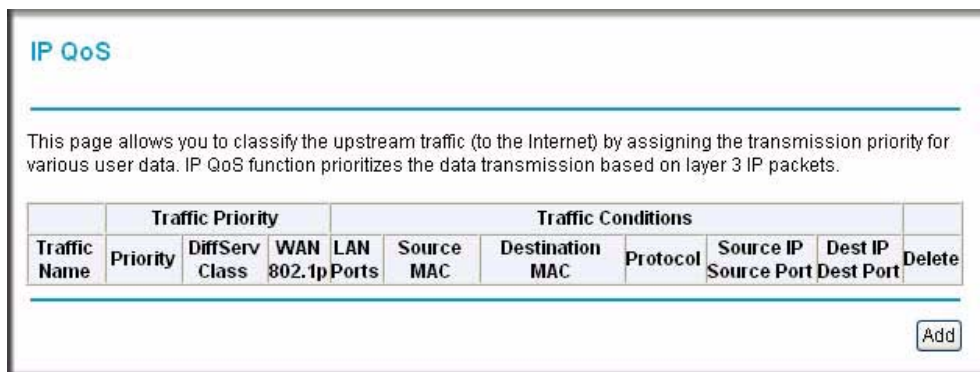


Figure 5-9

2. To add new IP QoS traffic rule, click **Add**. The following screen displays:

**Figure 5-10**

3. Enter the settings for each field as described in [Table 5-6](#).
4. Click **Apply** to save your settings and to add the traffic rule to the IP QoS table. To delete a traffic rule from the IP QoS table, select the check box to the right of the traffic rule, then click **Delete**.

**Table 5-6. IP QoS Traffic Rule Settings**

Settings		Description
Traffic Class Name		Enter a name for the traffic rule.
Traffic Conditions	LAN Ports	Select one check box: <ul style="list-style-type: none"> <li>• <b>Ethernet</b>. Traffic arrives through the Ethernet port.</li> <li>• <b>USB</b>. Traffic arrives through the USB port (for models with a USB port).</li> </ul>
	Source MAC Address and MAC Mask	Enter the source MAC address and, if applicable, the MAC mask address of the traffic source.

**Table 5-6. IP QoS Traffic Rule Settings (continued)**

Settings		Description
Traffic Conditions (continued)	Destination MAC Address and MAC Mask	Enter the destination MAC address and, if applicable, the MAC mask address of the traffic destination.
	Protocol	Select a protocol (TCP/UDP, TCP, UDP, ICMP) from the drop-down list.
	Source IP Address and Subnet Mask	Enter the source IP address and, if applicable, the subnet mask address of the traffic source.
	Source Port (Start-End):	Enter the start IP address and end IP address of the source ports.
	Destination IP Address and Subnet Mask	Enter the destination IP address and, if applicable, the subnet mask address of the traffic destination.
	Destination Port (Start-End)	Enter the start IP address and end IP address of the destination ports.
Assign Priority for this Traffic Rule	Traffic Priority	Select a traffic priority value (Low, Medium, or High) from the drop-down list.
	DiffServ Class (DSCP)	Select a DSCP value from the drop-down list to overwrite the corresponding DSCP value in the IP header of the upstream packets
	WAN 802.1p	Select a priority value (0 to 7) from the drop-down list to enable multicast filtering on the WAN.

## TR 069 Client Configuration

Technical Report 069 (TR 069) is an application layer protocol for remote management of end-user devices such as your modem router. Using TR 069, you can specify an auto configuration server (ACS) for auto-configuration, provision, collection, and diagnostics of your modem router. Usually, the default settings on the TR 069 Client screen work fine.

To view or change the TR 069 settings:

1. In the Advanced section of the main menu, select TR 069 Client. The TR-069 Client Configuration screen displays:

**TR-069 Client Configuration**

TR-069, a CPE WAN Management Protocol, allows the Auto-Configuration Server (ACS) to perform the auto-provisioning of settings, firmware updates, status and performance monitoring, and diagnostics to a collection of ADSL routers.

Internet Connection:

Connect to ACS :  without SSL  with SSL

ACS URL Address:

ACS User Name:

ACS Password:

Used to authenticate this device when making a connection to ACS

Connection Request

User Name:

Connection Request

Password:

Used to authenticate an ACS making a Connection Request to this device

Periodic Transmission of Inform Request:  Disabled  Enabled

Transmission Interval of Inform Request:  seconds

**Identify the Validation of Certificate from ACS:**  
Trusted CA (Certificate Authority) Certificate and correct current time are used to identify the validation of the Certificate which is sent from ACS during SSL connection. You can import the Trusted CA Certificates through the [Trusted CA Certificates](#) window and enable the Internet time function from the [Advanced, Internet Time](#) menu.

**Figure 5-11**

2. Use one of the following methods to enter the setting values for each field:
  - Click **Get RPC Methods** to automatically download the settings values for each field. (RPC stands for remote procedure call.) This option functions only when the **without SSL** radio button is selected.
  - Manually enter the setting values for each field as described in [Table 5-7 on page 5-14](#).
3. Click **Apply** to save your settings.

**Table 5-7. TR 069 Client Configuration Settings**

Settings	Description
Internet Connection	Select the Internet connection for which you want to configure TR 069 Client Configuration from the drop-down list.
Connect to ACS	Select to connect to an ACS (auto configuration server) with or without SSL (Secure Socket Layer) protocol: <ul style="list-style-type: none"> <li>• <b>without SSL</b>. Select this mode if the ACS URL starts with http://.</li> <li>• <b>with SSL</b>. Select this mode if the ACS URL starts with https://.</li> </ul>
ACS URL Address	Enter the URL address of the ACS. This address is provided by your ISP.
ACS User Name	Enter the user name that is required to connect to the ACS. This user name is provided by your ISP.
ACS Password	Enter the password that is required to connect to the ACS. This password is provided by your ISP.
Connection Request User Name	The Connection Request User Name is identical to the user name that you specified in <a href="#">“Changing the Password” on page 2-1</a> . The ACS uses this user name to communicate with the modem router.
Connection Request Password	The Connection Request Password is identical to the password that you specified in <a href="#">“Changing the Password” on page 2-1</a> . The ACS uses this password to communicate with the modem router.
Periodic Transmission of Inform Request:	Select to enable or disable the periodic transmission of inform requests: <ul style="list-style-type: none"> <li>• <b>Disabled</b>. The modem router will frequently report its status to the ACS.</li> <li>• <b>Enabled</b>. The modem router will report its status to the ACS only when the connection between the modem router and the ACS has been set up.</li> </ul>
Transmission Interval of Inform Request	If the periodic transmission of inform requests is enabled, enter the time in seconds between each request. The default setting is normally configured by your ISP and you usually do not have to change the setting.
Identify the Validation of Certificate from ACS	Check with your ISP to find out if the certificate has already been imported into the modem router. If not, click the <b>Trusted CA Certificates hyperlink</b> to import a certificate that is obtained from your ISP. A new screen opens to let you import, view, apply, or delete an import certificate. Make sure that the time zone for the modem router is the same as the one for the ACS. To synchronize your time with the serve, click the <b>Advanced..Internet Time</b> hyperlink to open a screen that is explained in <a href="#">“Internet Time Settings” on page 4-8</a> .



# Chapter 6

## Troubleshooting

This chapter provides information about troubleshooting your ADSL2+ Modem Router DM111PSPv2. After each problem description, instructions are provided to help you diagnose and solve the problem. For the common problems listed, go to the section indicated.

- Is the modem router on?  
Go to [“Basic Functioning” on page 6-2](#)
- Have I connected the modem router correctly?  
Go to [“Basic Functioning” on page 6-2](#)
- I cannot access the modem router’s configuration with my browser.  
Go to [“Cannot Log in to the Modem Router” on page 6-4](#).
- The configuration changes are not saved.  
Go to [“Modem Router Does Not Save Configuration Changes” on page 6-6](#).
- I’ve configured the modem router but I can’t access the Internet.  
Go to [“Troubleshooting the Internet Connection” on page 6-6](#).
- I can’t remember the modem router’s management utility password.  
Go to [“Restoring the Default Configuration and Password” on page 6-8](#).
- I want to clear the modem router configuration and start over again.  
Go to [“Restoring the Default Configuration and Password” on page 6-8](#).
- The date or time is not correct.  
Go to [“Problems with Date and Time” on page 6-8](#)

## Basic Functioning

After you turn on power to the modem router, the following sequence of events should occur:

1. When power is first applied, verify that the Power LED initially displays red to indicate that the self-test procedure is running (see the *ADSL2+ Modem Router Setup Manual* for an illustration and explanation of the LEDs).
2. After approximately 10 seconds, verify that:
  - a. The Power LED changes color from red to green.
  - b. The Ethernet LED is lit to indicate that the modem router is connected to your PC or router.
  - c. The ADSL LED is lit, indicating that your modem router is synchronized to your ISP's DSLAM.
  - d. The Internet LED is lit to indicate that you have an Internet connection.



**Note:** If the Internet LED is off, it might not mean that you do not have an Internet connection. It means that you do not have an Internet connection through the PPP. When you connect the Internet using IPoA or bridging, the Internet LED will not light up.

If any of these conditions does not occur, refer to the appropriate following section.

### Power LED Is Off or Never Turns Green

The following table provides troubleshooting tips for situations when the Power LED is off or never turns green.

**Table 6-1. Power LED Troubleshooting**

Power LED Situation	Action
The Power and other LEDs are off when the modem router is turned on.	<ul style="list-style-type: none"> <li>• Make sure that the power cord is properly connected to your modem router, that the power supply adapter is properly connected to a functioning power outlet, and the power switch on the back of the modem router is pressed in.</li> <li>• Check that you are using the 12 V DC power adapter supplied by NETGEAR for this product.</li> <li>• If the error persists, you have a hardware problem and should contact technical support.</li> </ul>

**Table 6-1. Power LED Troubleshooting (continued)**

Power LED Situation	Action
The Power LED never turns green.	<p>This indicates that the modem router's self-test failed.</p> <ul style="list-style-type: none"> <li>• Cycle the power to see if the modem router recovers.</li> <li>• Clear the modem router's configuration to factory defaults. This will set the modem router's IP address to 192.168.0.1. This procedure is explained in <a href="#">"Using the Reset Button" on page 6-8</a>.</li> <li>• If the error persists, you might have a hardware problem and should contact technical support.</li> </ul>

## ADSL LED Is Off or Is Blinking

The following table provides troubleshooting tips if the ADSL LED is off or is blinking.

**Table 6-2. ADSL LED Troubleshooting**

ADSL LED Situation	Action
The ADSL LED is off (no ADSL link is detected)	<ul style="list-style-type: none"> <li>• Make sure that the telephone jack is live—temporarily connect a standard telephone to the telephone jack to check for a dial tone.</li> <li>• Make sure that the telephone cable connections are secure at the modem router and at the ADSL-capable telephone jack.</li> </ul>
The modem router was just installed and the LED has never been solid on.	<ul style="list-style-type: none"> <li>• Disconnect all telephones on the line. If this solves the problem, reconnect the telephones one at a time, being careful to use a microfilter on each telephone. If the microfilters are connected correctly, you should be able to connect all your telephones.</li> <li>• If disconnecting telephones does not result in a green Internet LED, there may be a problem with your wiring. If the telephone company has tested the ADSL signal at your Network Interface Device (NID), then you may have poor quality wiring in your house.</li> <li>• Verify that you are connected to the correct telephone line. If you have more than one phone line, be sure that you are connected to the line with the ADSL service. It may be necessary to use a swapper if you ADSL signal is on pins 1 and 4 or the RJ-11 jack. The ADSL2+ Modem Router uses pins 2 and 3.</li> <li>• Log in to the modem router as described in <a href="#">"Logging In to the Modem Router" on page 1-2</a>, and select ADSL Settings from the main menu. Make sure that your login name and account password are correct and the ADSL settings are set to the values required by your ISP.</li> </ul>

**Table 6-2. ADSL LED Troubleshooting (continued)**

ADSL LED Situation	Action
The ADSL light was solid on, but is now blinking.	Switch off the modem router, wait 30 seconds, and then switch it back on again to see if the modem router recovers. If the problem persists, try the following: <ul style="list-style-type: none"><li>• Check with your ISP that your service is not being interrupted.</li><li>• If you have recently installed a telephone or other device that uses the telephone lines, make sure that it is connected to the telephone line via a microfilter.</li><li>• Log in to the modem router as described in <a href="#">“Logging In to the Modem Router” on page 1-2</a>, note the modem router and ADSL status, run the diagnostics test as described in <a href="#">“Diagnostic Utilities and Rebooting the Modem Router” on page 2-11</a>, and contact your ISP’s technical support representative.</li></ul>

## Ethernet LED or Internet LEDs Not On

If either the Ethernet LED or Internet LED does not light when the Ethernet connection is made, check the following:

- The Ethernet cable connections are secure at the modem router and at the connected router or computer.
- Power is turned on to the connected router or computer.
- If the Ethernet port is lit, but the Internet port LED is not, log in to the modem router, as described in [“Logging In to the Modem Router” on page 1-2](#), note the modem router status, run the diagnostics test as described in [“Diagnostic Utilities and Rebooting the Modem Router” on page 2-11](#), and contact your ISP’s technical support representative.

## Cannot Log in to the Modem Router

---

If you are unable to log in to the modem router with your computer’s Internet browser, check the following:

- Check the Ethernet connection between the modem router and the computer or router as described in the previous section.
- If your computer is directly connected to the modem router, make sure your computer’s IP address is on the same subnet as the modem router. If you are using the recommended addressing scheme, your computer’s address should be in the range of 192.168.0.2 to 192.168.0.254.

Follow the instructions in the online document that you can access from [“Preparing Your Network”](#) in [Appendix B](#) to configure your computer.



**Note:** If your computer’s IP address is shown as 169.254.x.x:

Recent versions of Windows and MacOS will generate and assign an IP address if the computer cannot reach a DHCP server. These auto-generated addresses are in the range of 169.254.x.x. If your IP address is in this range, check the connection from the computer to the modem router and reboot your computer.

- If your modem router is connected to your computer via a router, make sure the computer’s IP address is on the same subnet as the router, and the router is on a *different* subnet from the modem router. The LAN IP addresses of the modem router and router will normally be printed on a label on the bottom or rear of the unit. For details about changing the modem router’s IP address, see [“LAN IP Setup”](#) on page 4-1.
- If your modem router’s IP address was changed and you do not know the current IP address, clear the router’s configuration to factory defaults. This will set the modem router’s IP address to 192.168.0.1. This procedure is explained in [“Using the Reset Button”](#) on page 6-8.
- Make sure that your browser has Java, JavaScript, or ActiveX enabled. If you are using Internet Explorer, click Refresh to be sure the Java applet is loaded.
- Try quitting the browser and launching it again.
- Make sure you are using the correct login information. The factory default login name is **admin** and the password is **password**. Make sure that CAPS LOCK is off when entering this information.

If the modem router does not save changes you have made in the Web Management Interface, check the following:

- When entering configuration settings, be sure to click the **Apply** button before moving to another menu or tab, or your changes are lost.
- Click the Refresh or Reload button in the Web browser. The changes may have occurred, but the Web browser may be caching the old configuration.

## Modem Router Does Not Save Configuration Changes

---

If the modem router does not save changes you have made, check the following:

- When entering configuration settings, be sure to click the Apply button before moving to another screen, or your changes are lost.
- Click the Refresh or Reload button in the Web browser. The changes may have occurred, but the Web browser may be caching the old configuration.

## Troubleshooting the Internet Connection

---

If your computer is connected to your modem router via a router, disconnect the router and directly connect the computer to the modem router. If you now have Internet access, use the documentation that came with the router to perform re-installation and troubleshooting.

If your modem router is unable to access the internet, but your Internet LED is green or blinking green, you should determine whether the modem router is able to obtain an IP address from the ISP. Unless you have been assigned a static IP address, your modem router must request an IP address from the ISP. You can determine whether the request was successful using the browser interface.

To check the WAN IP address from the browser interface:

1. Launch your browser and select an external site such as [www.netgear.com](http://www.netgear.com).
2. Access the management interface of the modem router using your browser. For details, see “[Logging In to the Modem Router](#)” on page 1-2.
3. Under the Maintenance heading select **Modem Status**. Check that an IP address is shown for the ADSL port. If 0.0.0.0 is shown, your modem router has not obtained an IP address from your ISP.

If your modem router is unable to obtain an IP address from the ISP, check the following:

- Your ISP may require a multiplexing method or Virtual Path Identifier/Virtual Channel Identifier parameter.

Verify with your ISP the multiplexing method and parameter value, and update the modem router’s ADSL settings accordingly.

- If your ISP requires PPP over Ethernet (PPPoE) or PPP over ATM (PPPoA), check that your login credentials are correct.

- Log in to the modem router as described in “[Logging In to the Modem Router](#)” on page 1-2, note the modem router status, run the diagnostics test as described in “[Diagnostic Utilities and Rebooting the Modem Router](#)” on page 2-11, and contact your ISP’s technical support representative.

## Troubleshooting PPPoE or PPPoA Connection

The PPPoA or PPPoE connection can be debugged as follows:

1. Access the Main Menu of the router at **http://192.168.0.1**.
2. Under the Maintenance heading, select the **Diagnostics**.
3. Click **Run Diagnostic Tests**.
4. If all of the steps indicate “OK” then your PPPoE or PPPoA connection is up and working.

If you cannot connect after several minutes, you may be using an incorrect service name, user name, or password. There also may be a provisioning problem with your ISP.



**Note:** Unless you connect manually, the modem router will not authenticate using PPPoE or PPPoA until data is transmitted to the network.

## Troubleshooting Internet Browsing

If your modem router can obtain an IP address but your computer is unable to load any Web pages from the Internet:

- Your computer may not recognize any DNS server addresses.

A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses. Typically your ISP will provide the addresses of one or two DNS servers for your use. If you entered a DNS address during the modem router’s configuration, reboot your computer and verify the DNS address as described in the online document that you can access from “[Preparing Your Network](#)” in [Appendix B](#). Alternatively, you can configure your computer manually with DNS addresses, as explained in your operating system documentation.

- Your computer may not have the modem router configured as its TCP/IP modem router.

If your computer obtains its information from the modem router by DHCP, reboot the computer and verify the modem router address as described in the online document that you can access from “[Preparing Your Network](#)” in [Appendix B](#).

## Restoring the Default Configuration and Password

---

This section explains how to restore the factory default configuration settings, changing the modem router's administration password to **password** and the IP address to **192.168.0.1**. You can erase the current configuration and restore factory defaults in two ways:

- Use the Rest button on the Backup Settings screen (see [“Resetting the Configuration to the Factory Default Settings”](#) on page 2-3).
- Use the reset button on the rear panel of the modem router. Use this method for cases when the administration password or IP address is not known.

### Using the Reset Button

To restore the factory default configuration settings without knowing the administration password or IP address, you must use the reset button on the rear panel of the modem router.

1. Press and hold the reset button until the Power LED turns red (about 10 seconds).
2. Release the reset button and wait for the modem router to reboot.

### Problems with Date and Time

---

In the main menu, under Advanced, select **Internet Time** to display the current date and time of day. The modem router uses the Network Time Protocol (NTP) to obtain the current time from one of several network time servers on the Internet. Each entry in the log is stamped with the date and time of day. Problems with the date and time function can include:

- Date shown is January 1, 2000.  
Cause: The modem router has not yet successfully reached a network time server. Check that your Internet access is configured correctly. If you have just completed configuring the modem router, wait at least 5 minutes, and check the date and time again.
- Time is off by one hour.  
Cause: The modem router does not automatically sense daylight saving time. In the Schedule screen, select the **Automatically adjust clock for daylight saving changes** check box.



# Appendix A

## Technical Specifications

This appendix provides technical specifications for the ADSL2+ Modem Router.

<b>Network Protocol and Standards Compatibility</b>		
	Data and Routing Protocols:	TCP/IP (Optional) RIP-1 (Optional) RIP-2 (Optional) DHCP (Optional) PPPoE or PPPoA RFC 1483/RFC 2684 Bridged or Routed (Optional) Ethernet RFC 1577 Classical IP over ATM (Optional)
<b>Power Adapter</b>		
	North America:	120V, 60 Hz, input
	United Kingdom, Australia:	240V, 50 Hz, input
	Europe:	230V, 50 Hz, input
	Japan:	100V, 50/60 Hz, input
	All regions (output):	12 V AC @ 1.0A output
<b>Physical Specifications</b>		
	Dimensions:	5.8" x 3.8" x 1.4" 147 mm x 95.5 mm x 34.4 mm
	Weight:	0.42 lbs 0.19 kg
<b>Environmental Specifications</b>		
	Operating temperature:	0° to 40° C (32° to 104° F)
	Operating humidity:	90% maximum relative humidity, noncondensing
<b>Electromagnetic Emissions</b>		
	Meets requirements of:	FCC Part 15 Class B
		VCCI Class B
		EN 55 022 (CISPR 22), Class B

<b>Interface Specifications</b>		
	LAN:	10BASE-T or 100BASE-Tx, RJ-45
	WAN:	ADSL, ADSL2+, Dual RJ-11, pins 2 and 3 T1.413, G.DMT, G.Lite ITU Annex A or B (Annex B unit is DM111PB)

# Appendix B

## Related Documents

This appendix provides links to reference documents you can use to gain a more complete understanding of the technologies used in your NETGEAR product.

<b>Document</b>	<b>Link</b>
TCP/IP Networking Basics	<a href="http://documentation.netgear.com/reference/enu/tcpip/index.htm">http://documentation.netgear.com/reference/enu/tcpip/index.htm</a>
Preparing Your Network	<a href="http://documentation.netgear.com/reference/enu/wsdhcp/index.htm">http://documentation.netgear.com/reference/enu/wsdhcp/index.htm</a>
Virtual Private Networking Basics	<a href="http://documentation.netgear.com/reference/enu/vpn/index.htm">http://documentation.netgear.com/reference/enu/vpn/index.htm</a>
Glossary	<a href="http://documentation.netgear.com/reference/enu/glossary/index.htm">http://documentation.netgear.com/reference/enu/glossary/index.htm</a>



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