Draft Version

X6 Wireless-G DSL Modem Router

X6 Model 5590 User's Manual

Zoom Telephonics

Issue 1
02012005

Compliance Statements and Notices to User

Federal Communications Commission Compliance Notices

This device complies with 15 of the FCC Rules. Operation is subject to the following two conditions:(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To ensure continued compliance, use only shielded interface cables when connecting to the computer or peripheral devices.

Federal Communication Commission (FCC) Statement:

NOTE: 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The manufacture is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

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 20cm (8 inches) during normal operation.

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1 Introduction

Congratulations on becoming the owner of the Zoom Telephonics **錯誤!** 尚未定義樣式。. You will now be able to access the Internet using your high-speed DSL connection.

This User Guide will show you how to connect your **錯誤!** 尚未定義樣式。 DSL Modem, and how to customize its configuration to get the most out of your new product.

Features

The list below contains the main features of the device and may be useful to users with knowledge of networking protocols. If you are not an experienced user, the chapters throughout this guide will provide you with enough information to get the most out of your device.

Features include:[CT3]

- Internal DSL modem for high-speed Internet access
- 10/100Base-T Ethernet router to provide Internet connectivity to all computers on your LAN
- USB port for connecting a USB-enabled PC
- Wireless access via a wireless network card and wireless security features
- Network address translation (NAT) functions to provide security for your LAN
- Network configuration through DHCP Server and DHCP Client
- Services including IP route and DNS configuration, RIP, and IP and DSL performance monitoring
- Configuration program you access via a web browser

Device Requirements

In order to use the **錯誤!** 尚未定義樣式。, you must have the following:

- DSL service up and running on your telephone line
- Instructions from your ISP on what type of Internet access you will be using, and the addresses needed to set up access
- One or more computers each containing an Ethernet card (10Base-T/100Base-T network interface card (NIC)) and/or a single computer with a USB port

- For system configuration using the supplied web-based program: a web browser such as Internet Explorer v4 or later, or Netscape v4 or later. Note that version 4 of each browser is the minimum version requirements – for optimum display quality, use Internet Explorer v5, or Netscape v6.1.

Note

You do not need to use a hub or switch in order to connect more than one Ethernet PC to your device. Instead, you can connect up to four Ethernet PCs directly to your device using the ports labeled Ethernet 2 on the rear panel.

Using this Document

Notational conventions

- Acronyms are defined the first time they appear in text and in the glossary.
- For brevity, the **錯誤! 尚未定義樣式。** is referred to as "the device".
- The term *LAN* refers to a group of Ethernet-connected computers at one site.
- The term *WLAN* refers to a group of Wireless-connected computers at one site.

Typographical conventions

- *Italic* text is used for items you select from menus and drop-down lists and the names of displayed web pages.
- **Bold** text is used for text strings that you type when prompted by the program, and to emphasize important points.

Special messages

This document uses the following icons to call your attention to specific instructions or explanations.

Note

Provides clarifying or non-essential information on the current topic.

Definition

Explains terms or acronyms that may be unfamiliar to many readers. These terms are also included in the Glossary.

WARNING

Provides messages of high importance, including messages relating to personal safety or system integrity.

Getting Support

<Your text>

2 Getting to know the device

Parts Check

In addition to this document, your package should arrive containing the following:

- 錯誤! 尚未定義樣式。 DSL Modem
- Power adapter and power cord
- USB cable
- Ethernet cable
- Standard phone/DSL line cable

[Insert a photograph of the contents of your product kit.]

Figure 1: DSL Modem Package Contents

Front Panel

The front panel contains a *Restore Defaults* button, a wireless network card slot and lights called LEDs that indicate the status of the unit.

[Insert photo of your own front-panel with LEDs]

Figure 2: Front Panel and LEDs

Label	Color	Function
Restore Defaults	N/A	Pressing this button restores the factory default configuration on your device
PCMCIA 802.11b	N/A	Allows you to insert a Wireless network card that enables a Wireless LAN to attach to your device
Power	green	On: device is powered on Off: device is powered off
USB Link/Act	green	On: USB link is established Off: No USB link Blink: Data being transmitted
W-LAN Link/Act	green	On: Wireless LAN link established Off: No Wireless LAN link Blink: Data being transmitted
Internet	orange	On: Valid IP address obtained Off: No IP address obtained Blink: Valid IP packet being transferred
DSL HS	green	On: High Speed (16 Mbit) rate established Off: 8 Mbit rate established
DSL Link/Act	green	On: DSL link reaches showtime, which means that your device has successfully connected to your ISP's DSL network. Off: DSL link not in showtime, your device has not successfully connected to your ISP's DSL network. Blink: Data being transmitted
LAN 10/100	green	On: Fast (100BaseT) Ethernet link established and active Off: 10BaseT Ethernet link established and active
LAN Link/Act	green	On: LAN link established and active Off: No LAN link

The initial Argon 4x1 Customer Evaluation Board only supports the green Power LED (D1705 – TOP). This table is provided as an example of the status LEDs that you may wish to create. You must edit this table and the table in Testing your Setup on page 22 to reflect your own LED configuration.[CT9]

Rear Panel

The rear panel contains the ports for the unit's data and power connections.

[Insert photo of your own rear-panel with connectors]

Figure 3: Rear Panel Connections

Label	**Function**
Power	Connects to the supplied power cable
USB	Connects to the USB port on your PC
Ethernet 1	Connects the device via Ethernet to your LAN's hub or switch (disabled)
Ethernet 2	Connects the device via Ethernet to up to four PCs on your LAN (default)
DSL	Connects the device to a telephone port in the wall of your home/office for DSL communication
V.9x	Provides an optional connection to your telephone

3 Connecting your device

This chapter provides basic instructions for connecting the 錯誤! 尚未定義樣式。 to a computer or LAN and to the Internet.

You also need to configure Internet properties on your computer(s) and install the software for using a computer attached to the USB port. For more details, see the following sections:

- *Configuring Ethernet PCs* on page 82
- *Configuring a USB PC* on page 89
- *Configuring Wireless PCs* on page 96

This chapter assumes that you have already established a DSL service with your Internet service provider (ISP). These instructions provide a basic configuration that should be compatible with your home or small office network setup. Refer to the subsequent chapters for additional configuration instructions.

Connecting the Hardware

In Part 1, you connect the device to the wall phone port, the power outlet, and your computer or network.

WARNING

Before you begin, turn the power off for all devices. *These include your computer(s), your LAN hub/switch (if applicable), and the 錯誤! 尚未定義樣式。.*

The diagram below illustrates the hardware connections. The layout of the ports on your device may vary from the layout shown. Refer to the steps that follow for specific instructions.

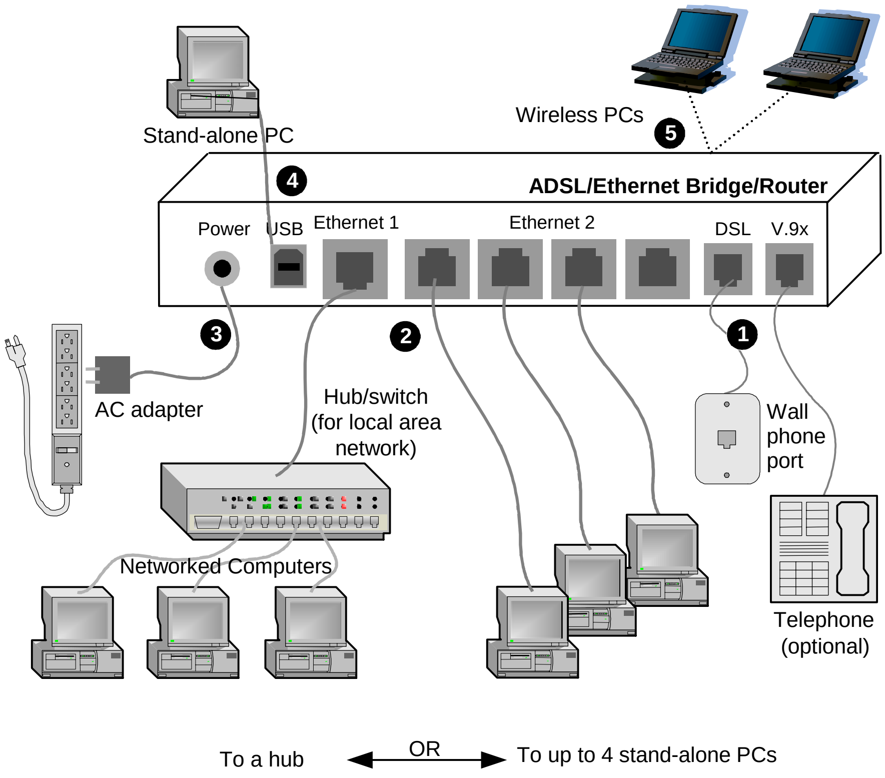


Figure 4: Overview of Hardware Connections

Step 1. Connect the DSL cable and optional telephone

Connect one end of the provided phone cable to the port labeled DSL on the rear panel of the device. Connect the other end to your wall phone port.

You can attach a telephone line to the device. This is helpful when the DSL line uses the only convenient wall phone port. If desired, connect the telephone cable to the port labeled V.9x[CT15].

WARNING

Although you use the same type of cable, The DSL and V.9x ports are ***not*** *interchangeable. Do not route the DSL connection through the V.9x port.*

Step 2. Connect the Ethernet cable

You **must** delete one of the following Ethernet connection options:[CT17]

Connect either a LAN hub or a single Ethernet computer directly to the device via Ethernet cable.

Connect either a LAN hub or up to four single Ethernet computers directly to the device via Ethernet cable.

Note that the cables do not need to be crossover cables.

Step 3. Attach the power connector

Connect the AC power adapter to the Power connector on the back of the device and plug in the adapter to a wall outlet or power strip. Turn on and boot up your computer(s) and any LAN devices such as hubs or switches.

Step 4. Configure your Ethernet PCs

You must also configure the Internet properties on your Ethernet PCs. See *Configuring Ethernet PCs* on page 82.

Step 5. Install USB software and connect the USB cable

Only include this step if your product supports the USB port.[CT20]

You can attach a single computer to the device using a USB cable. The USB port is useful if you have an USB-enabled PC that does not have a network interface card for attaching to your Ethernet network.

Before attaching the USB cable, you must install a USB driver on your PC and configure the computer. For complete instructions, see *Configuring a USB PC* on page 89.

Step 6. Install Wireless card and connect Wireless PCs

Only include this step if your product supports the use of wireless[CT21]

You can attach a Wireless LAN that enables Wireless PCs to access the Internet via your device. Install a compatible Wireless card such as the Conexant PRISM3 wireless network card in the PCMCIA slot on the front of the device (see *Front Panel and LEDs*).

You must configure your Wireless computer(s) in order to access your device. For complete instructions, see *Configuring Wireless PCs* on page 96.

Next step

After setting up and configuring the device and PCs, you can log on to the device by following the instructions in *Getting Started with the Web pages* on page 19. The chapter includes a section called *Testing your Setup* on page 22, which enables you to verify that the device is working properly.

4 Getting Started with the Web pages

The DSL Modem includes a series of Web pages that provide an interface to the software installed on the device. It enables you to configure the device settings to meet the needs of your network. You can access it through your web browser from any PC connected to the device via the LAN, WLAN or USB ports.

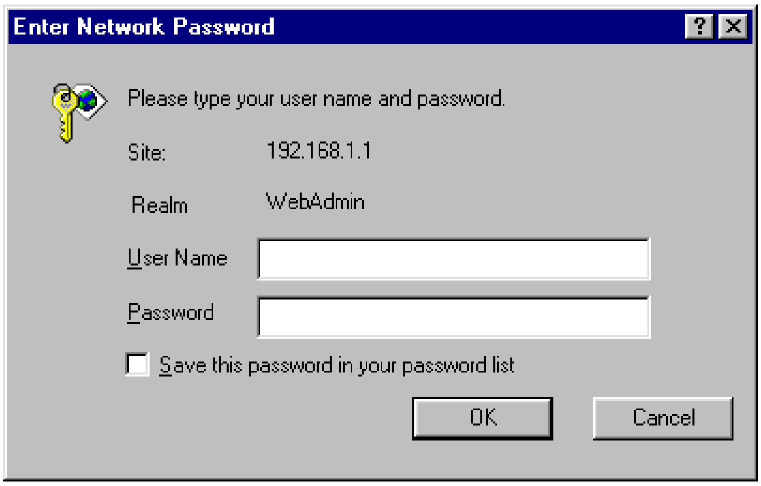
Accessing the Web pages

To access the Web pages, you need the following:

- A PC or laptop connected to the LAN, WLAN or USB port on the device.
- A web browser installed on the PC. The minimum browser version requirement is Internet Explorer v4 or Netscape v4. For the best display quality, use Internet Explorer v5, or Netscape v6.1.

1. From any of the LAN computers, open your web browser, type the following URL in the web address (or location) box, and press [Enter] on your keyboard:
   `http://MyDslModem`

   A login screen is displayed:



Enter Network Password

Please type your user name and password.

Site: 192.168.1.1

Realm WebAdmin

User Name

Password

□ Save this password in your password list

Figure 5: Login screen

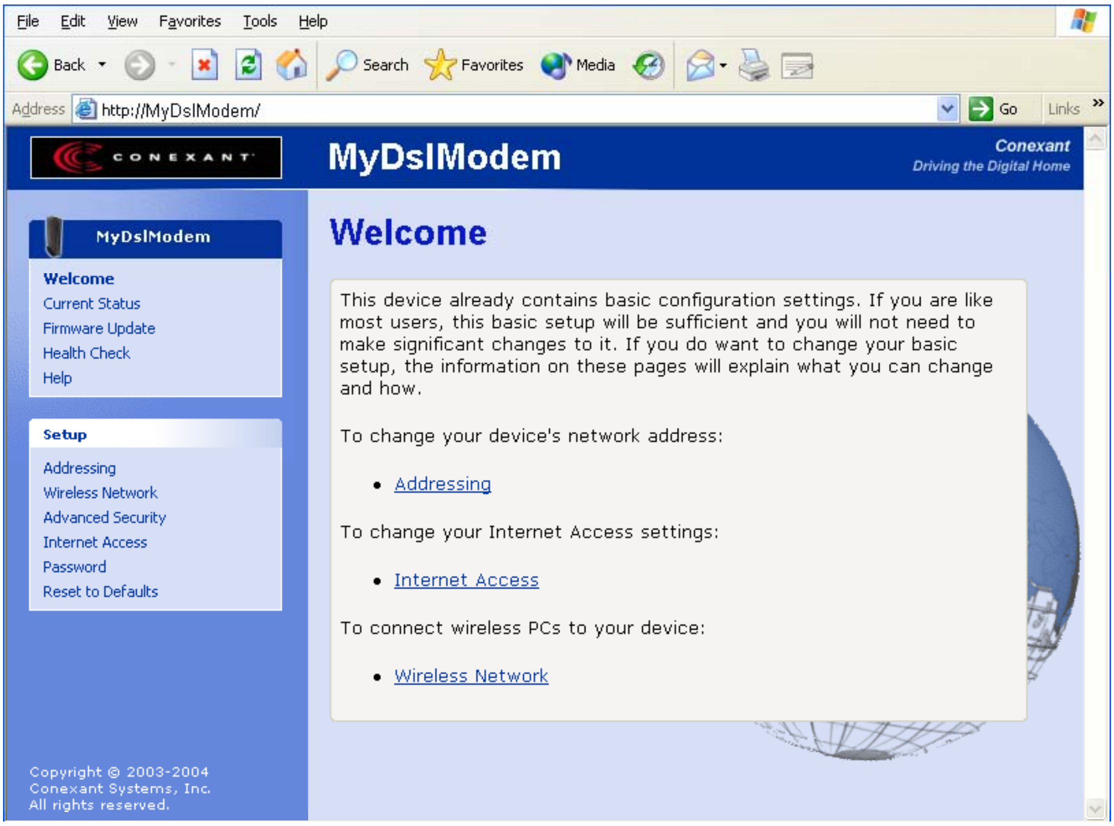
2. Enter your user name and password. The first time you log into the program, use these defaults:

User Name:	**admin**
Password:	**admin**

Note

You can change the password at any time or you can configure your device so that you do not need to enter a password. See Password on page 77.

3. Click *OK*. The *Welcome* page is displayed:



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Welcome

This device already contains basic configuration settings. If you are like most users, this basic setup will be sufficient and you will not need to make significant changes to it. If you do want to change your basic setup, the information on these pages will explain what you can change and how.

To change your device's network address:

- Addressing

To change your Internet Access settings:

- Internet Access

To connect wireless PCs to your device:

- Wireless Network

Figure 6: The Welcome page

This is the first page displayed each time you log in to the Web pages (*see Accessing the Web pages* on page 19). This page contains links to the following pages:

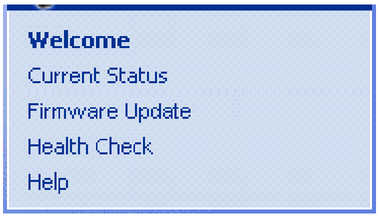
- Addressing; links to the *Addressing* page that controls your device’s network address. See *Addressing* on page 42.
- Internet Access; links to the *Internet Access* page that controls how your device connects to the Internet. See *Internet Access* on page 66.
- Wireless Network; links to the *Wireless Network* page that controls how your wireless PCs connect to your device. See *Wireless Network* on page 44.

Note

If you receive an error message or the Welcome page is not displayed, see Troubleshooting Suggestions on page 102.

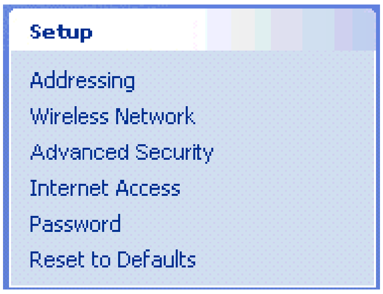
Web page menu overview

The web pages provide information that allows you to configure your device. These pages are listed in the menu on the left-hand side of the screen. Click on an individual menu entry to display a page.



Notice that the menu is split into two separate lists. The first list contains entries that display general information about the device including links to the pages that you are most likely to want to use:

- Welcome; see *Accessing the Web pages* on page 19
- Current Status; see *Current Status* on page 25
- Firmware Update; see *Check for Updates* on page 27
- Health Check; see *Health Check* on page 32
- Help; see *Help* on page 40



Setup

Addressing

Wireless Network

Advanced Security

Internet Access

Password

Reset to Defaults

The Setup list contains entries that allow you to change the default settings on your device. If you are like most users, you may not need to change these settings, but if you do, the Web pages will guide you through each stage of this process.

- Addressing; see *Addressing* on page 42
- Wireless Network; see *Wireless Network* on page 44
- Security; see *Security* on page 58
- Internet Access; see *Internet Access* on page 66
- Password; see *Password* on page 80
- Reset to Defaults; see *Reset to Defaults* on page 80

Commonly used buttons

The following buttons are used throughout the web pages:

Button	Function
Next >	You may need to configure the settings on more than one page in order to change some of the device's default settings. Click on this button once you have changed the configuration on your current page and are ready to move on to the next.
Cancel	This button appears on every configuration page. Click on this button if at any time you decide that you do not want to change the existing settings.
Confirm Settings	This button appears on the final page of a series of configuration pages. Click on this button to confirm that you are happy with the changes that you have made and want to save them.
○ Disable ● Enable	Radio buttons – these appear on many configuration pages. You will be asked to select one radio button from the selection of two or more available. You cannot select more than one radio button at a time.

The following terms are used throughout this guide in association with these buttons:

- *Click* – point the mouse arrow over the button, menu entry or link on the screen and click the left mouse button. This performs an action, such as displaying a new page.
- *Select* – usually used when describing which radio button to select from a list, or which entry to select from a drop-down list. Point the mouse arrow over the entry and left-click to select it. This does not perform an action – you will also be required to click on a button, menu entry or link in order to proceed.

Help information

In addition to these buttons, you will also see the information icon throughout the Web pages. The information icon is followed by a link (called a *hyperlink)* to another web page. Click on the hyperlink to display further information about a specific configuration setting. For example, at the *Current Status* page, clicking on the following hyperlink:

Tell me more about the status information...

displays further information about the details displayed on the *Current Status* page.

If you want to display an index of the Help information available for all web pages, see *Help* on page 40.

Testing your Setup

Once you have connected your hardware and configured your PCs, any computer on your LAN should be able to use the device's DSL connection to access the Internet.

To test the connection, turn on the device, wait for 30 seconds and then verify that the LEDs are illuminated as follows:

Table 1. LED Indicators

LED	Behavior
Power	Solid green to indicate that the device is turned on. If this light is not on, check the power cable attachment.
Internet	Flashing on/off while data is being transferred. Solid orange when a valid IP address has been assigned to the device by the ISP.
USB	Solid green to indicate that the USB connection is operational.
W-LAN LINK/Act	Solid green to indicate that the Wireless LAN connection is operational.
LINK/Act LAN	Flashing on/off while the device is booting. After about 10-15 seconds, solid green to indicate that the device can communicate with your LAN.
LINK/Act DSL	Flashing on/off while data is being transmitted. Solid green to indicate that the device has successfully established a connection with your ISP.

LINK/Act DSL	Flashing when the device is sending or receiving data from the Internet. It may be unlit, flashing, or appear solid depending on the current activity.

The initial Argon 4x1 Customer Evaluation Board only supports the green Power LED (D1705 – TOP). This table is provided as an example of the LEDs that your product may support. You must edit this table to reflect your own LED configuration. [CT25]

If the LEDs illuminate as expected, test your Internet connection from a LAN computer (and from the USB computer, if applicable). To do this, open your web browser, and type the URL of any external website (such as http://www.yahoo.com). The LED labeled LINK/Act DSL should be blinking rapidly and may appear solid as the device connects to the site.

If the LEDs do not illuminate as expected, you may need to configure your Internet access settings using the information provided by your ISP. For details, see *Internet Access* on page 66. If the LEDs still do not illuminate as expected, or the web page is not displayed, see *Troubleshooting Suggestions* on page 102, or contact your ISP for assistance.

Default device settings

In addition to handling the DSL connection to your ISP, the DSL Modem can provide a variety of services to your network. The device is preconfigured with default settings for use with a typical home or small office network.

The table below lists some of the most important default settings; these and other features are described fully in the subsequent chapters. If you are familiar with network configuration, review these settings to verify that they meet the needs of your network. Follow the instructions to change them if necessary. If you are unfamiliar with these settings, try using the device without modification, or contact your ISP for assistance.

Before you modify any settings, we strongly recommend that you contact your ISP prior to changing the default configuration.

Option	Default Setting	Explanation/Instructions
DSL Port IP Address	Unnumbered interface: 192.168.1.1 Subnet mask: 255.255.255.255	This is the temporary public IP address of the WAN port on the device. It is an unnumbered interface that is replaced as soon as your ISP assigns a 'real' IP address. See *Internet Access* on page 66.
LAN Port IP Address	Assigned static IP address: 192.168.1.1 Subnet mask: 255.255.255.0	This is the IP address of the LAN port on the device. The LAN port connects the device to your Ethernet network. Typically, you will not need to change this address. See *Addressing* on page 42.
DHCP (Dynamic Host Configuration Protocol)	DHCP server enabled with the following pool of addresses: 192.168.1.2 through 192.168.1.20	The **錯誤! 尚未定義樣式。** maintains a pool of private IP addresses for dynamic assignment to your LAN computers. To use this service, you must have set up your computers to accept IP information dynamically, as described in *Configuring Ethernet PCs* on page 82.

Option	Default Setting	Explanation/Instructions
NAT (Network Address Translation)	NAT enabled	Your computers' private IP addresses (see DHCP above) will be translated to your public IP address whenever they access the Internet. See *Security* on page 58.

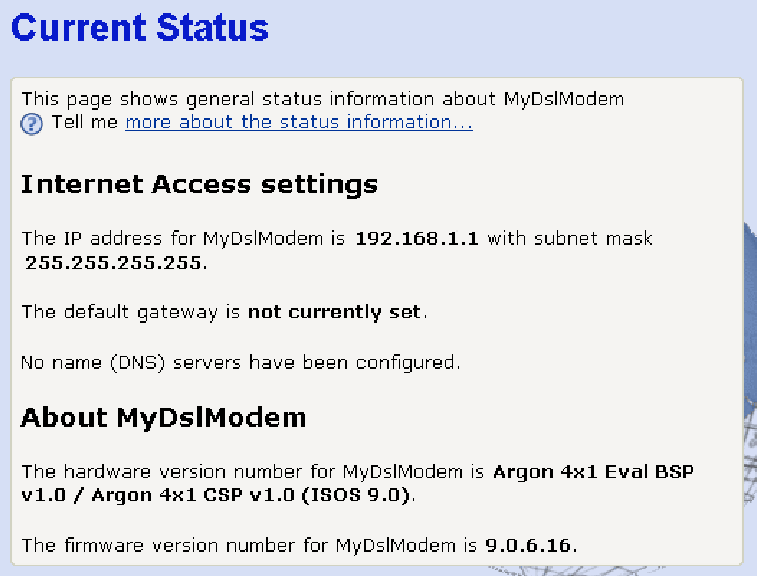
5 Current Status

The *Current Status* page displays useful information about the setup of your device, including:

- details of the device's Internet access settings
- version information about your device

To display this page:

From the left-hand menu, click on *Current Status*. The following page is displayed:



Current Status

This page shows general status information about MyDslModem
Tell me more about the status information...

Internet Access settings

The IP address for MyDslModem is **192.168.1.1** with subnet mask **255.255.255.255**.

The default gateway is **not currently set**.

No name (DNS) servers have been configured.

About MyDslModem

The hardware version number for MyDslModem is **Argon 4x1 Eval BSP v1.0 / Argon 4x1 CSP v1.0 (ISOS 9.0)**.

The firmware version number for MyDslModem is **9.0.6.16**.

Figure 7: Current Status page

The information displayed on this page is explained in detail in the following sections.

Internet access settings

This section displays details of the settings that allow your device to access the Internet. These details include:

IP address and subnet mask: The IP address and subnet mask assigned to your WAN interface. This address is used temporarily until your ISP assigns a real IP address (via DHCP or PPP – see *Internet Access* on page 66).

Default gateway: The address of the ISP server through which your Internet connection will be routed.

DNS servers: The Domain Name System (DNS) servers used by your ISP to map domain names to IP addresses.

Your ISP assigns all of these settings. In most cases, you **will not** need to make changes to these settings in order for your Internet connection to work. If your ISP does ask you to change any of these settings, follow the instructions for manually configuring your device in *Internet Access* on page 66.

Note

The address 192.168.1.1 subnet mask 255.255.255.255 means that your WAN interface is an unnumbered interface. For more information on unnumbered interfaces, see Glossary on page 106.

About Productname

This section displays details of your device's hardware and firmware versions. If you need to contact your ISP's support team, they may need to know which hardware/firmware versions you are using in order to answer your query.

Your hardware version details contain information about the make and model of your device and its exact hardware components.

Your firmware version details contain information about the software program running on your device. From time to time, Zoom Telephonics may update or add new features to this firmware. They then make the latest updated version available to you via the Internet. For details of how to update your firmware, see *Check for Updates* on page 27.

6 Firmware Update

The *Firmware Update* page allows you to:

- check if an updated firmware version is available from Zoom Telephonics. See *Checking for firmware updates* on page 27.
- download an updated firmware version and install it on your device. See *Updating your firmware* on page 29.
- manually download the latest firmware version from Zoom Telephonics's website and manually update your firmware. See *Manually updating firmware* on page 30.

About firmware versions

Firmware is a software program. It is stored as read-only memory on your device. Zoom Telephonics is continually improving this firmware by adding new features to it, and these features are saved in later versions of the firmware.

Your device can check whether there are later firmware versions available. If there is a later version, you can download it via the Internet and install it on your device.

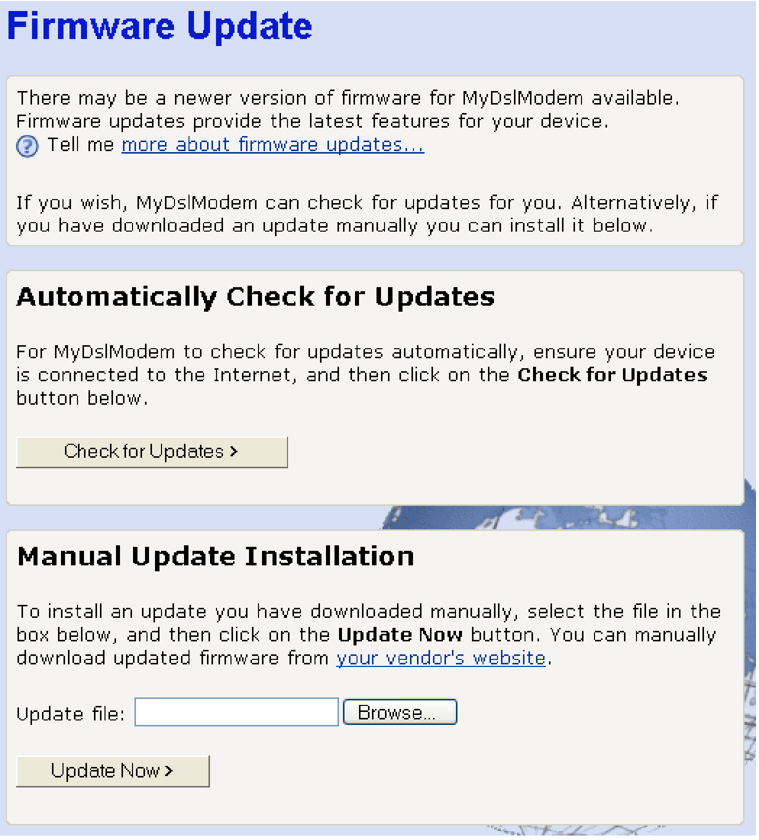
Note

If there is a firmware update available you are strongly advised to install it on your device to ensure that you take full advantage of any new feature developments.

In order to check and download firmware, your device must be attached to the Internet. To check this, see *Testing your Setup* on page 22.

Checking for firmware updates

1. From the left-hand menu, click on *Firmware Update*. The following page is displayed:



Firmware Update

There may be a newer version of firmware for MyDslModem available. Firmware updates provide the latest features for your device.

Tell me more about firmware updates...

If you wish, MyDslModem can check for updates for you. Alternatively, if you have downloaded an update manually you can install it below.

Automatically Check for Updates

For MyDslModem to check for updates automatically, ensure your device is connected to the Internet, and then click on the **Check for Updates** button below.

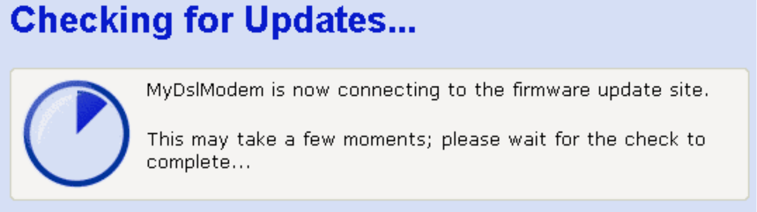
Manual Update Installation

To install an update you have downloaded manually, select the file in the box below, and then click on the **Update Now** button. You can manually download updated firmware from your vendor's website.

Update file:

Figure 8: Firmware Update page

2. Click *Check for Updates*>. The *Checking for Updates…* page is displayed:



Checking for Updates...

MyDslModem is now connecting to the firmware update site.

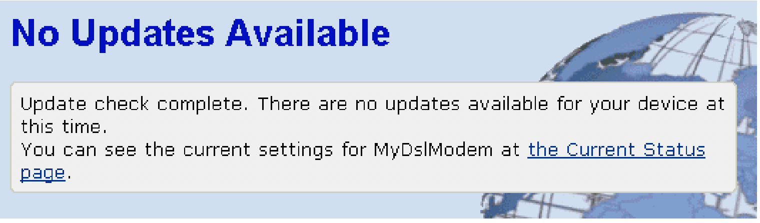
This may take a few moments; please wait for the check to complete...

Figure 9: Checking for Updates… page

3. This page tells you that a check for updates is in progress.

   Once the check is complete, the page displayed depends on whether updates are available or not.

   - **If there are no firmware updates available** the following page is displayed:



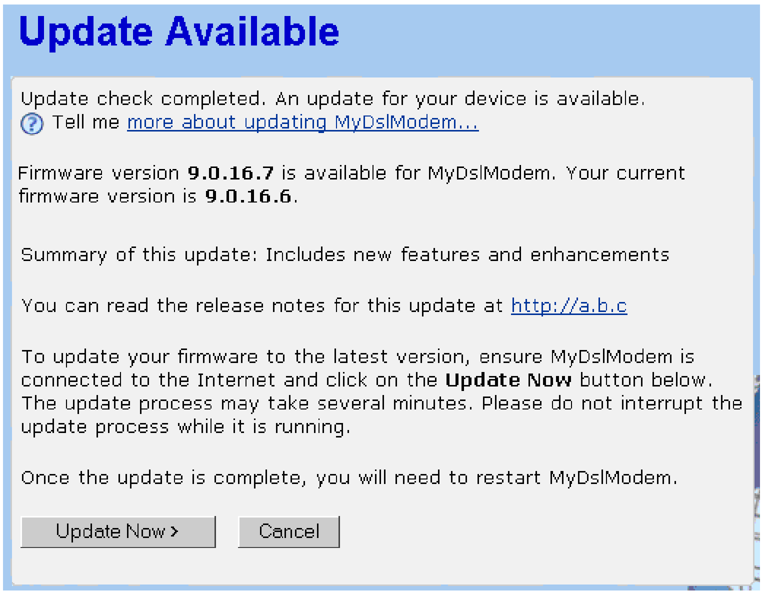
No Updates Available

Update check complete. There are no updates available for your device at this time.
You can see the current settings for MyDslModem at the Current Status page.

Figure 10: No updates available page

This confirms that you are already using the latest firmware version and there are no updates available.

- **If there are firmware updates available**, the following page is displayed:



Update Available

Update check completed. An update for your device is available.

Tell me more about updating MyDslModem...

Firmware version **9.0.16.7** is available for MyDslModem. Your current firmware version is **9.0.16.6**.

Summary of this update: Includes new features and enhancements

You can read the release notes for this update at http://a.b.c

To update your firmware to the latest version, ensure MyDslModem is connected to the Internet and click on the **Update Now** button below. The update process may take several minutes. Please do not interrupt the update process while it is running.

Once the update is complete, you will need to restart MyDslModem.

Figure 11: Update Available page

The page includes a summary of the firmware update, and a link to the release notes.

For instructions on updating your firmware, *see Updating your firmware* on page 29.

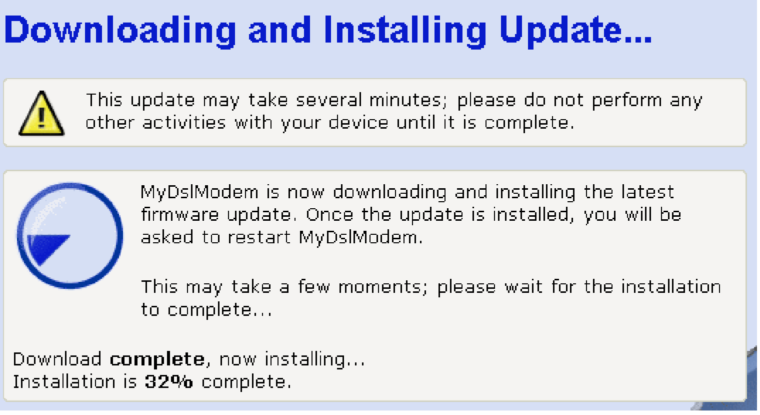
Updating your firmware

This section assumes that you have already carried out one of the following:

- followed the instructions in *Checking for firmware updates* on page 27.
- followed the instructions on manually updating firmware in *Manually updating firmware* on page 30.

If the *Updates Available* page has confirmed that a firmware update is available, follow the instructions below.

1. From the *Update Available* page, click *Update Now>*. The *Checking for Updates…* page is displayed. Once the device has connected to the firmware update site, the following page is displayed:



Downloading and Installing Update...

This update may take several minutes; please do not perform any other activities with your device until it is complete.

MyDslModem is now downloading and installing the latest firmware update. Once the update is installed, you will be asked to restart MyDslModem.

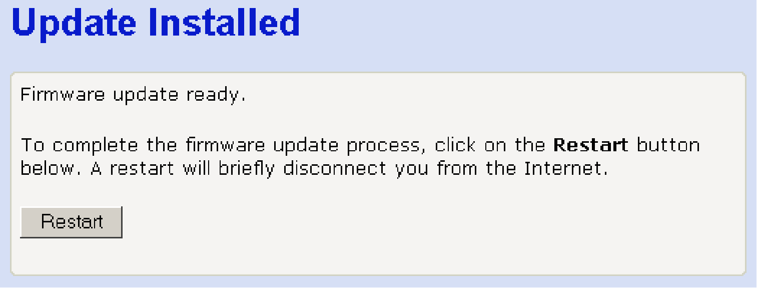
This may take a few moments; please wait for the installation to complete...

Download **complete**, now installing...
Installation is **32%** complete.

Figure 12: Downloading and installing update… page

2. The page tells you that the firmware update is currently being downloaded and installed on your device.

   Once installation is complete, the following page is displayed:



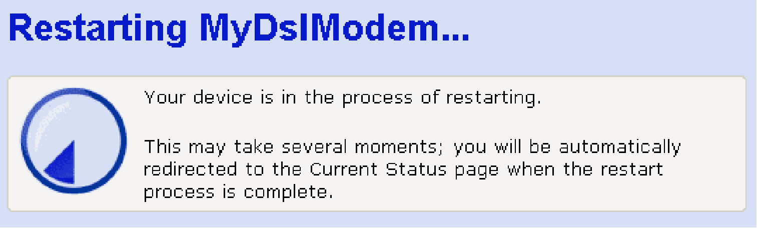
Update Installed

Firmware update ready.

To complete the firmware update process, click on the **Restart** button below. A restart will briefly disconnect you from the Internet.

Figure 13: Update Installed page

3. You must restart your device in order to make the device aware that a new firmware version has been installed. To do this, click *Restart Productname* . The following page is displayed:



Restarting MyDslModem...

Your device is in the process of restarting.

This may take several moments; you will be automatically redirected to the Current Status page when the restart process is complete.

Figure 14: Restarting page

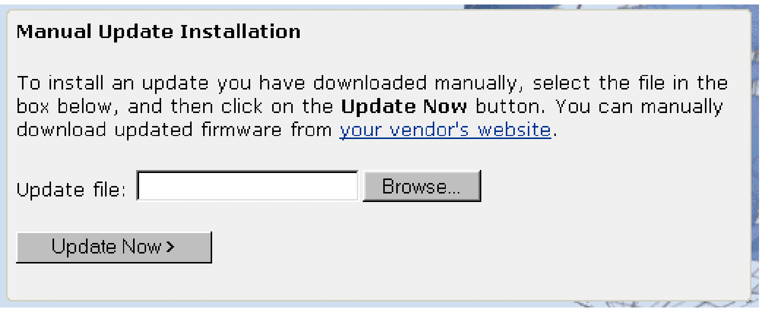
The page tells you that your device is currently being restarted. Once complete, the *Current Status* page is displayed. See the *Current Status* on page 25.

Manually updating firmware

You can manually download the latest firmware version from Zoom Telephonics's website to your PC's file directory. Click on the Zoom Telephonics link.

Once you have downloaded the latest firmware version to your PC, you can manually select and install it as follows:

1. Click on the *Browse…* button.



Manual Update Installation

To install an update you have downloaded manually, select the file in the box below, and then click on the **Update Now** button. You can manually download updated firmware from your vendor's website.

Update file:

Figure 15: Manual Update Installation section

(Note that if you are using certain browsers (such as *Opera 7*) the *Browse* button is labeled *Choose*.)

Use the *Choose file* box to navigate to the relevant directory where the firmware version is saved.

2. Once you have selected the file to be installed, click *Open*. The file's directory path is displayed in the *Update file:* text box.
3. Click *Update Now>*. The device checks that the selected file contains an updated version of firmware. Now follow the instructions from *Checking for firmware updates, step 3* on page 28.

7 Health Check

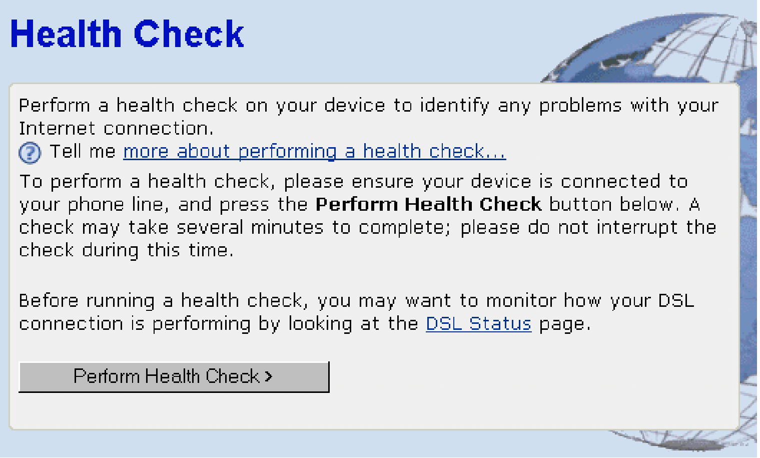
This page allows you to run a health check to test whether the Internet connection on your device is working properly. The health check runs a number of tests in order to diagnose any 'health' problems with your device's Internet access.

If you need to contact your ISP's support team, they may ask you to run the Health Check and describe the results to them.

This page also provides you with a link to the *DSL Status* page, which displays detailed information about your DSL connection. See the *DSL Status page* on page *34*.

Running the Health Check

1. From the left-hand menu, click on *Health Check*. The following page is displayed:



Health Check

Perform a health check on your device to identify any problems with your Internet connection.
? Tell me more about performing a health check...

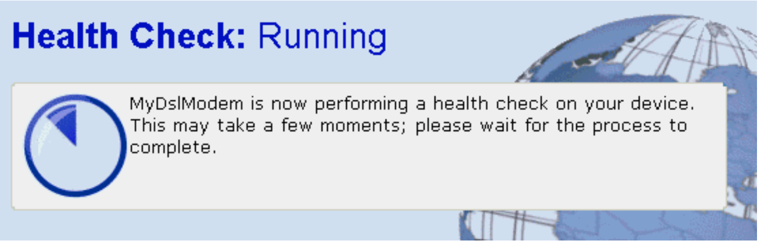
To perform a health check, please ensure your device is connected to your phone line, and press the **Perform Health Check** button below. A check may take several minutes to complete; please do not interrupt the check during this time.

Before running a health check, you may want to monitor how your DSL connection is performing by looking at the DSL Status page.

Figure 16: Health Check page

This page asks you to ensure that your device is connected to your phone line. See *Step 1. Connect the DSL cable and optional telephone* on page 17.

2. Click on *Perform Health Check>*. The following page confirms that the health check is currently running:



Health Check: Running

MyDslModem is now performing a health check on your device. This may take a few moments; please wait for the process to complete.

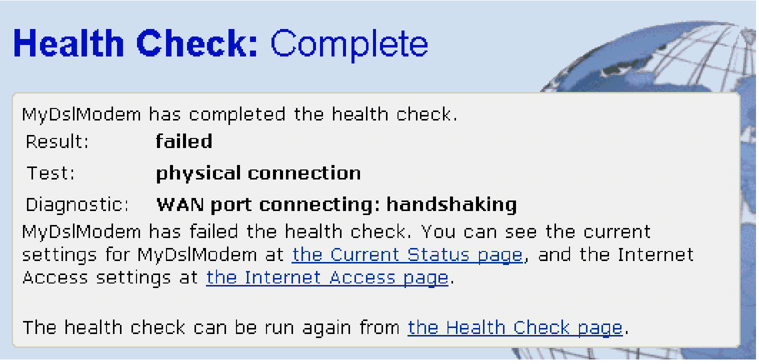
Figure 17: Health Check: Running page

The Health Check may take up to three minutes to complete.

3. Once the health check has finished running, the *Health Check: Complete* page is displayed. The most important details displayed on this page are the *Result, Test* and *Diagnostic* information:

   - Result; tells you the overall result of the health check
   - Test; if the Health Check fails, this tells you which test caused the failure. The first failed test stops the Health Check completely – no other tests are run after the failed test. If the Health Check is successfully completed, *'User Diagnostics complete'* is displayed.
   - Diagnostic; if the Health Check fails, this provides technical information about the likely cause of a Health Check failure. If a failure occurs, you will need to give this information to your ISP's support team. If the Health Check is successfully completed, no diagnostic information is displayed.

   For example, if you run the Health Check on your device when the DSL port is not connected, the following information may be displayed:



Health Check: Complete

MyDslModem has completed the health check.

Result:	**failed**
Test:	**physical connection**
Diagnostic:	**WAN port connecting: handshaking**

MyDslModem has failed the health check. You can see the current settings for MyDslModem at the Current Status page, and the Internet Access settings at the Internet Access page.

The health check can be run again from the Health Check page.

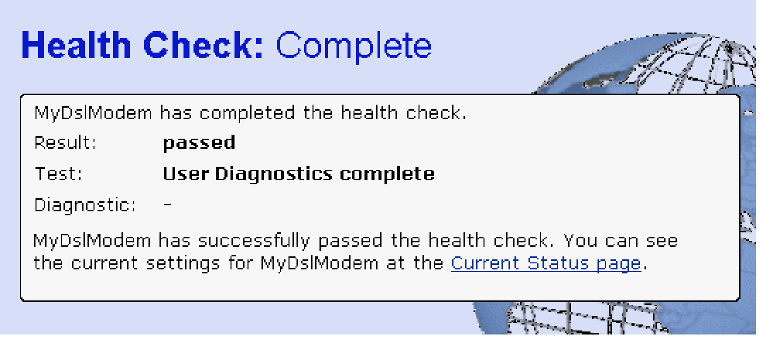
Figure 18: Health Check: Complete with failures page

This page tells you that the result failed. The test that caused the health check to fail was the physical connection test. The diagnostic information displays details about the failure that you can pass on to your ISP support team.

This page also contains links to the *Current Status* and *Internet Access* pages. It may be worth checking the settings on these pages if the health check failed.

If you want to run the health check again, click on the *Health Check page* link at the bottom of this page, or from the left-hand Setup menu, click on *Health Check*. The *Health Check* page is displayed (see *Health Check page* on page 32).

If your device successfully passes the health check, the following page is displayed:



Health Check: Complete

MyDslModem has completed the health check.

Result: **passed**

Test: **User Diagnostics complete**

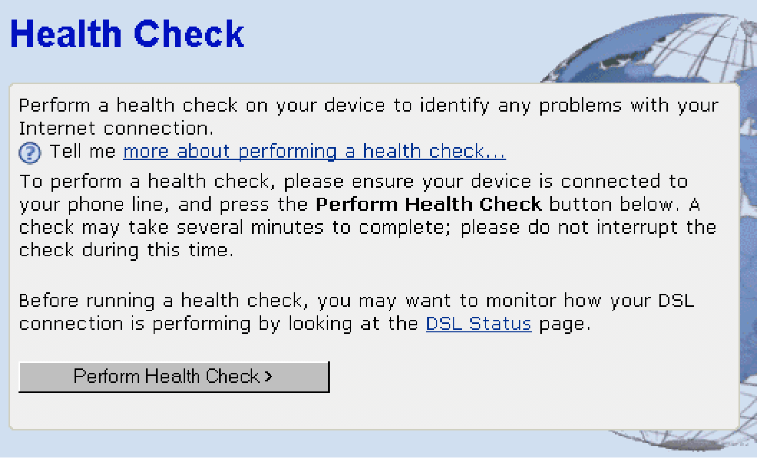
Diagnostic: -

MyDslModem has successfully passed the health check. You can see the current settings for MyDslModem at the Current Status page.

Figure 19: Health Check: Complete with no failures page

DSL Status page

1. From the left-hand menu, click on *Health Check*. The following page is displayed:



Health Check

Perform a health check on your device to identify any problems with your Internet connection.

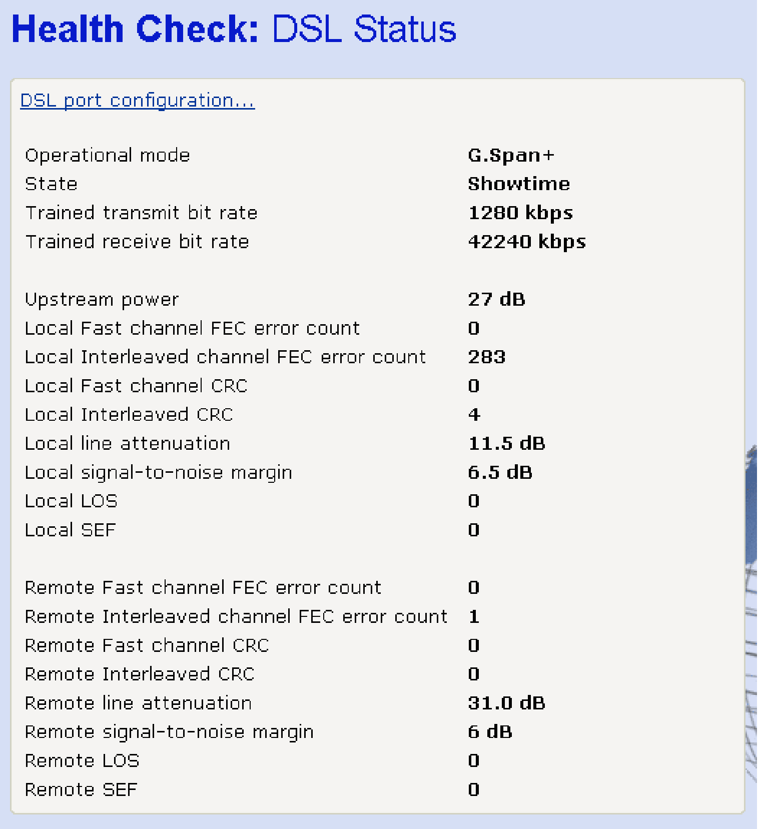
Tell me more about performing a health check...

To perform a health check, please ensure your device is connected to your phone line, and press the **Perform Health Check** button below. A check may take several minutes to complete; please do not interrupt the check during this time.

Before running a health check, you may want to monitor how your DSL connection is performing by looking at the DSL Status page.

Figure 20: Health Check page

2. Click on *DSL Status*. The following page is displayed:



Health Check: DSL Status

DSL port configuration...

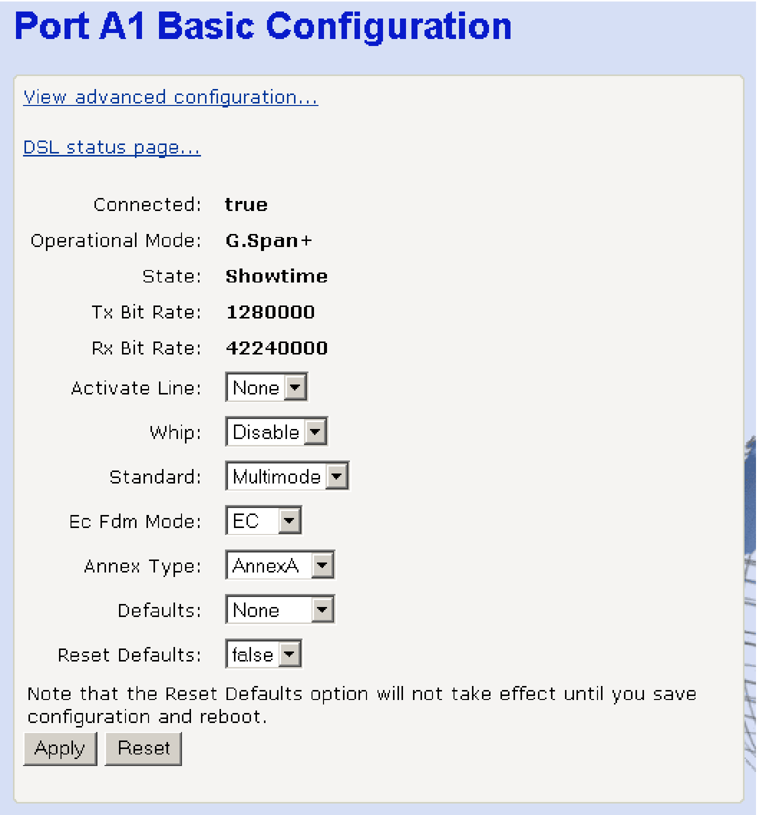
```
Operational mode                        G.Span+
State                                   Showtime
Trained transmit bit rate               1280 kbps
Trained receive bit rate                42240 kbps

Upstream power                          27 dB
Local Fast channel FEC error count      0
Local Interleaved channel FEC error count 283
Local Fast channel CRC                  0
Local Interleaved CRC                   4
Local line attenuation                  11.5 dB
Local signal-to-noise margin            6.5 dB
Local LOS                               0
Local SEF                               0

Remote Fast channel FEC error count     0
Remote Interleaved channel FEC error count 1
Remote Fast channel CRC                 0
Remote Interleaved CRC                  0
Remote line attenuation                 31.0 dB
Remote signal-to-noise margin           6 dB
Remote LOS                              0
Remote SEF                              0
```

Figure 21: Health Check: DSL Status page

This page displays useful information about the status of your DSL connection, including:

- *Operational mode*; the current connected mode. Possible values displayed are:
  - *Inactive* (not connected)
  - *Unknown* (unrecognized mode)
  - Name of the standard compliance used by the connection (for example, G.Span+).
- *State*; the current state of the device. Possible values displayed are:
  - *Idle* (not connected or attempting to connect)
  - *Handshake* (hunting for a remote modem)
  - *Training* (remote modem has been found)
  - *Showtime* (connected to the remote modem)
- *Trained transmit/receive bit rate*; the transmit and receive rates of the device (in bits per second).

3. Click on the *DSL port configuration…* link at the top of the *Health Check: DSL Status* page. The following page is displayed:



Port A1 Basic Configuration

View advanced configuration...

DSL status page...

Connected:	true
Operational Mode:	G.Span+
State:	Showtime
Tx Bit Rate:	1280000
Rx Bit Rate:	42240000
Activate Line:	None
Whip:	Disable
Standard:	Multimode
Ec Fdm Mode:	EC
Annex Type:	AnnexA
Defaults:	None
Reset Defaults:	false

Note that the Reset Defaults option will not take effect until you save configuration and reboot.

Figure 22: DSL Port Basic Configuration page

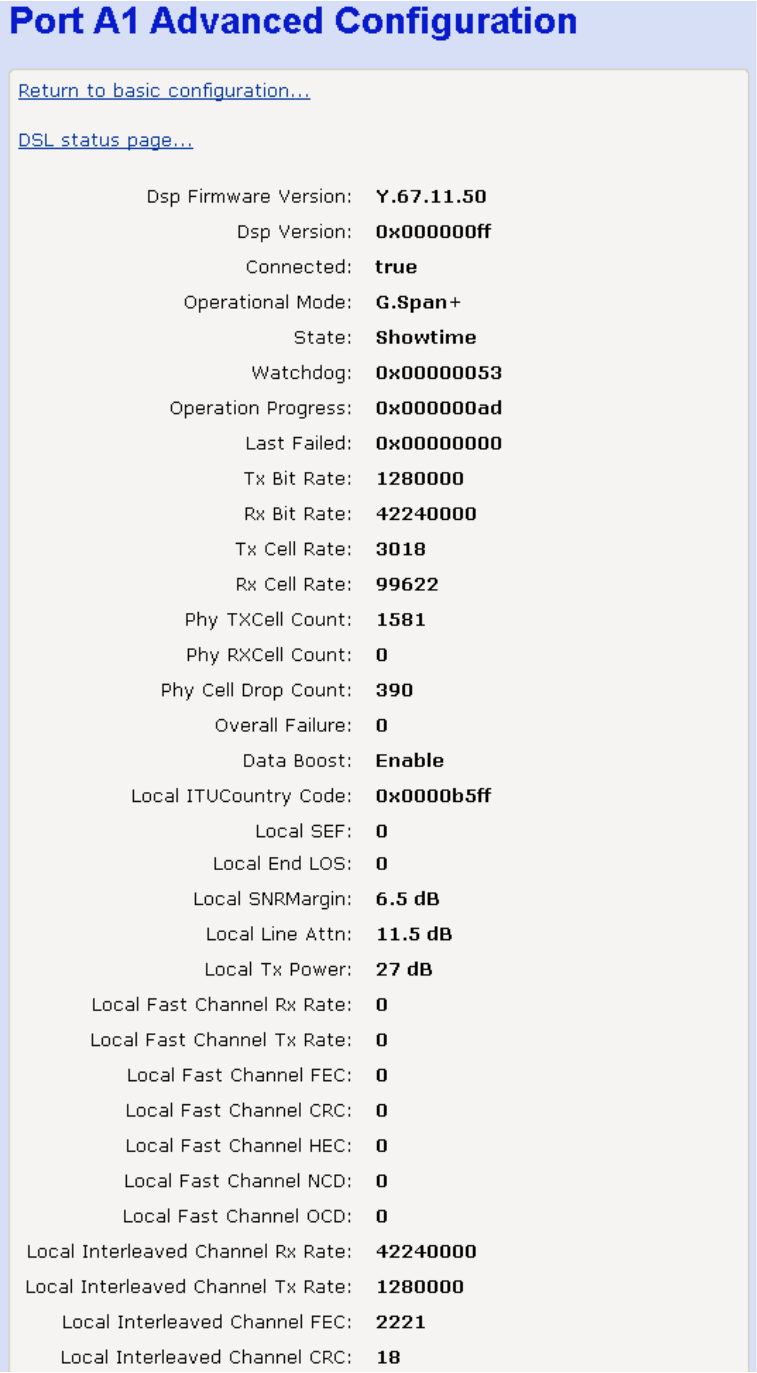
In addition to information about the status of your DSL connection (also displayed on the *Health Check: DSL Status page*), this page displays the current attribute settings for your DSL port and allows you to configure these settings. The DSL port is called port *A1*.

Note *You should **only** edit your DSL port configuration if your ISP has told you to do so and/or you are experienced in DSL attribute configuration. For details of the attributes and options displayed, see Advanced DSL port attributes on page 106.*

4. Once you have configured DSL port attributes, click on *Apply*. The page is refreshed and the device is updated with your DSL configuration changes. Clicking on *Reset* **before** you have clicked on *Apply* will reset attribute values to their previous settings.

5. You can also display and configure advanced DSL port attributes. *At the top of the Port A1 Configuration* page, click on the *View advanced configuration…* The page displayed contains the advanced attributes shown on the following two pages.

Note *You should **only** edit your advanced DSL port configuration if your ISP has told you to do so and/or you are experienced in DSL attribute configuration. For details of the attributes and options displayed, see Advanced DSL port attributes on page 106.*



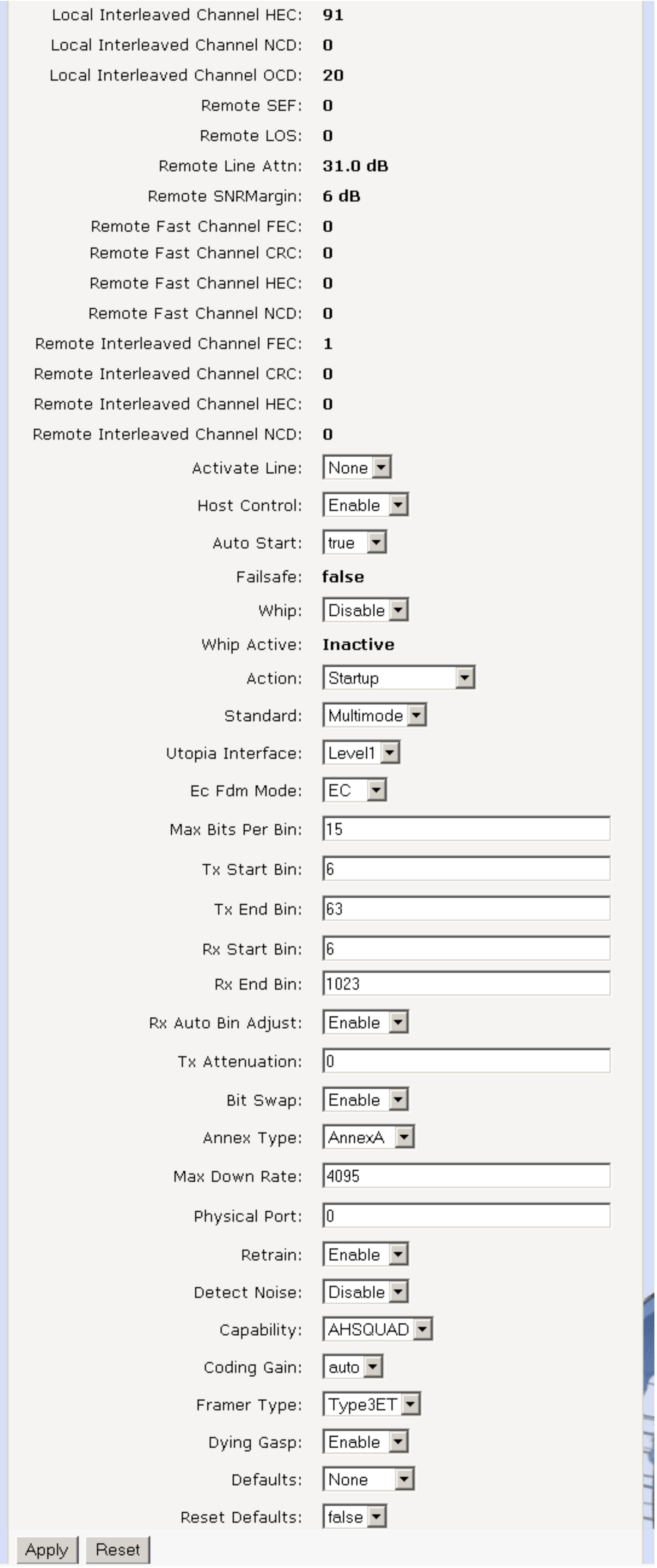
Port A1 Advanced Configuration

Return to basic configuration...

DSL status page...

Dsp Firmware Version:	Y.67.11.50
Dsp Version:	0x000000ff
Connected:	true
Operational Mode:	G.Span+
State:	Showtime
Watchdog:	0x00000053
Operation Progress:	0x000000ad
Last Failed:	0x00000000
Tx Bit Rate:	1280000
Rx Bit Rate:	42240000
Tx Cell Rate:	3018
Rx Cell Rate:	99622
Phy TXCell Count:	1581
Phy RXCell Count:	0
Phy Cell Drop Count:	390
Overall Failure:	0
Data Boost:	Enable
Local ITUCountry Code:	0x0000b5ff
Local SEF:	0
Local End LOS:	0
Local SNRMargin:	6.5 dB
Local Line Attn:	11.5 dB
Local Tx Power:	27 dB
Local Fast Channel Rx Rate:	0
Local Fast Channel Tx Rate:	0
Local Fast Channel FEC:	0
Local Fast Channel CRC:	0
Local Fast Channel HEC:	0
Local Fast Channel NCD:	0
Local Fast Channel OCD:	0
Local Interleaved Channel Rx Rate:	42240000
Local Interleaved Channel Tx Rate:	1280000
Local Interleaved Channel FEC:	2221
Local Interleaved Channel CRC:	18

Figure 23: Port A1 Advanced Configuration page (part 1)



Local Interleaved Channel HEC:	91
Local Interleaved Channel NCD:	0
Local Interleaved Channel OCD:	20
Remote SEF:	0
Remote LOS:	0
Remote Line Attn:	31.0 dB
Remote SNRMargin:	6 dB
Remote Fast Channel FEC:	0
Remote Fast Channel CRC:	0
Remote Fast Channel HEC:	0
Remote Fast Channel NCD:	0
Remote Interleaved Channel FEC:	1
Remote Interleaved Channel CRC:	0
Remote Interleaved Channel HEC:	0
Remote Interleaved Channel NCD:	0
Activate Line:	None
Host Control:	Enable
Auto Start:	true
Failsafe:	false
Whip:	Disable
Whip Active:	Inactive
Action:	Startup
Standard:	Multimode
Utopia Interface:	Level1
Ec Fdm Mode:	EC
Max Bits Per Bin:	15
Tx Start Bin:	6
Tx End Bin:	63
Rx Start Bin:	6
Rx End Bin:	1023
Rx Auto Bin Adjust:	Enable
Tx Attenuation:	0
Bit Swap:	Enable
Annex Type:	AnnexA
Max Down Rate:	4095
Physical Port:	0
Retrain:	Enable
Detect Noise:	Disable
Capability:	AHSQUAD
Coding Gain:	auto
Framer Type:	Type3ET
Dying Gasp:	Enable
Defaults:	None
Reset Defaults:	false

Figure 24: Port A1 Advanced Configuration page (part 2)

6. Once you have configured advanced DSL port attributes, click on *Apply*. The page is refreshed and the device is updated with your DSL configuration changes. Clicking on *Reset* **before** you have clicked on *Apply* will reset attribute values to their previous settings.

For details of the advanced DSL port attributes displayed, see *Advanced DSL port attributes* on page *106*.

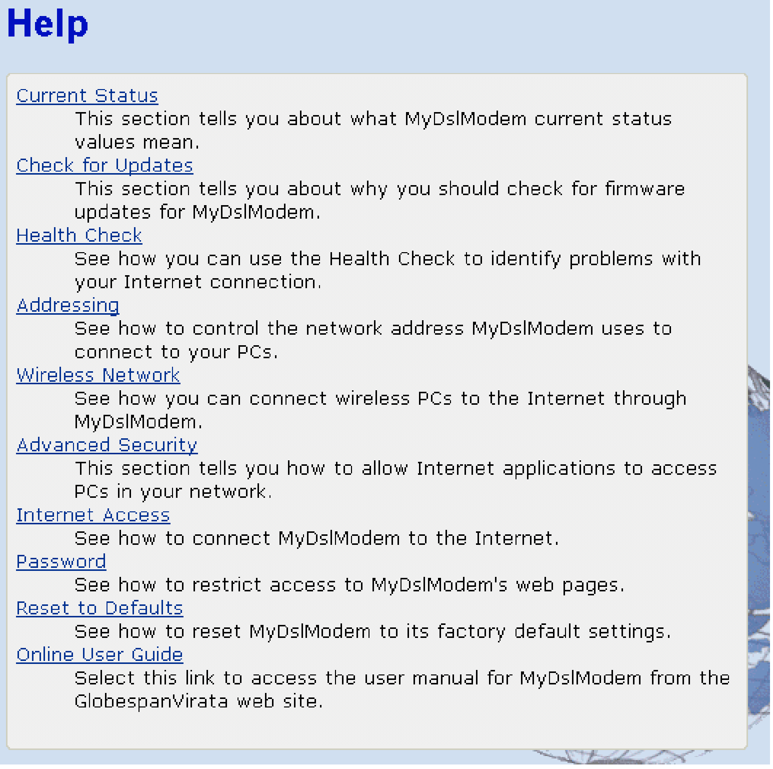
8 Help

The *Help* page displays an index of the help information that corresponds with each web page.

You can click on the information icon on any web page in order to display further information about a specific topic on a specific page. However, you may prefer to display the Help text index in order to navigate through Help topics more easily.

Using the Help page

1. From the left-hand menu, click on *Help*. The *Help* page is displayed:



Help

Current Status
This section tells you about what MyDslModem current status values mean.

Check for Updates
This section tells you about why you should check for firmware updates for MyDslModem.

Health Check
See how you can use the Health Check to identify problems with your Internet connection.

Addressing
See how to control the network address MyDslModem uses to connect to your PCs.

Wireless Network
See how you can connect wireless PCs to the Internet through MyDslModem.

Advanced Security
This section tells you how to allow Internet applications to access PCs in your network.

Internet Access
See how to connect MyDslModem to the Internet.

Password
See how to restrict access to MyDslModem's web pages.

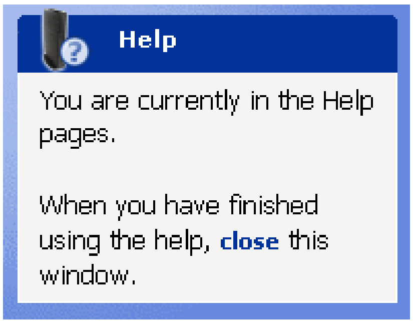
Reset to Defaults
See how to reset MyDslModem to its factory default settings.

Online User Guide
Select this link to access the user manual for MyDslModem from the GlobespanVirata web site.

Figure 25: Help page

Notice that the Help headings match the menu headings listed in the left-hand menu.

2. Each heading is a link to another help page. Click on a heading to display information about a specific page in a new window. For example, clicking on *Current Status* displays the *Help: Current Status* page. The same page is displayed by clicking on the information icon from the *Current Status* page itself.
3. The new window that displays the help pages contains the following left-hand menu:



Help

You are currently in the Help pages.

When you have finished using the help, close this window.

Figure 26: Help – Close link

To close the new window, click on *close*.

About the Online User Guide

Although this guide can be printed for easy reference, it has also been prepared for viewing online through a web browser.

To view the online version of this guide, from the *Help* index page, click on the *Online User Guide* link. The online version of this guide is displayed.

9 Addressing

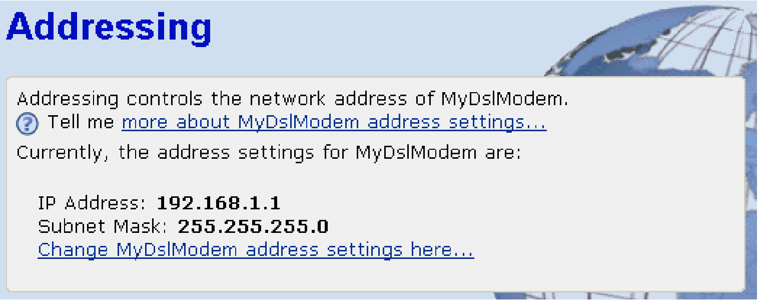
The *Addressing* page displays information about your LAN IP address and allows you to change the address and subnet mask assigned to your device.

Note

You should only change the addressing details if your ISP asks you to, or if you are familiar with network configuration. In most cases, you will not need to make any changes to this configuration.

Changing the LAN IP address and subnet mask

1. From the left-hand Setup menu, click on *Addressing*. The following page is displayed:



Addressing

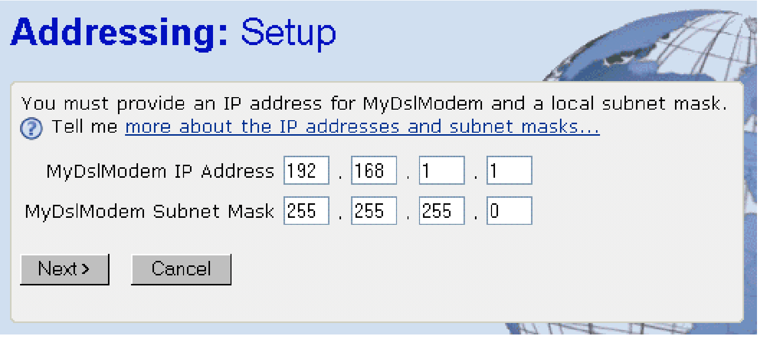
Addressing controls the network address of MyDslModem.
? Tell me more about MyDslModem address settings...
Currently, the address settings for MyDslModem are:

IP Address: **192.168.1.1**
Subnet Mask: **255.255.255.0**
Change MyDslModem address settings here...

Figure 27: Addressing page

This page displays the current IP address and subnet mask assigned to your device. The default LAN IP configuration is IP address *192.168.1.1*, subnet mask *255.255.255.0*.

2. Click on *Change Productname Address settings here…* The following page is displayed:



Addressing: Setup

You must provide an IP address for MyDslModem and a local subnet mask.
? Tell me more about the IP addresses and subnet masks...

MyDslModem IP Address 192 . 168 . 1 . 1
MyDslModem Subnet Mask 255 . 255 . 255 . 0

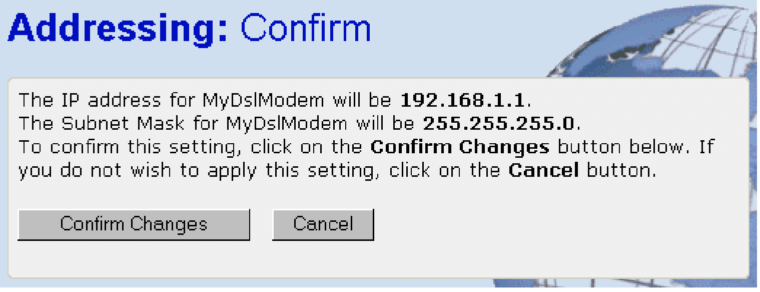
Figure 28: Addressing: Setup page

3. Click in the IP Address and Subnet Mask boxes and type the new address details.

Note

Your LAN PCs must remain on the same subnet as your device (that is, the subnet masks must be the same). If necessary, reconfigure the LAN PCs so that their IP addresses place them in the same subnet as the new device IP address. See Configuring Ethernet PCs on page 82.

4. Click *Next>*. The following page is displayed:



Addressing: Confirm

The IP address for MyDslModem will be **192.168.1.1**.
The Subnet Mask for MyDslModem will be **255.255.255.0**.
To confirm this setting, click on the **Confirm Changes** button below. If you do not wish to apply this setting, click on the **Cancel** button.

Figure 29: Addressing: Confirm page

5. This page displays the new IP address and subnet mask and asks you to confirm whether these are correct. Click *Confirm Changes*. The *Addressing* page is displayed, confirming your new LAN address settings.

Note

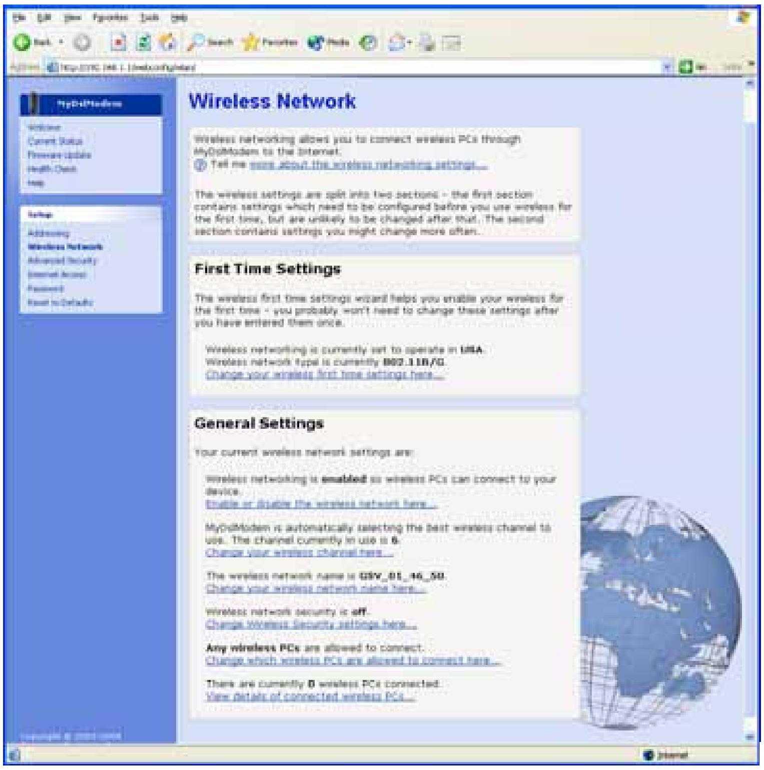
If you change the LAN IP address of the device while connected through your Web browser, you will be disconnected. You must open a new connection by entering your new LAN IP address as the URL. See Accessing the Web pages on page 19.

10 Wireless Network

This chapter assumes that you have already set up your Wireless PCs and installed a compatible Wireless card on your device. See *Configuring Wireless PCs* on page 96.

The *Wireless Network* page allows you to configure the Wireless features of your device. To access the *Wireless Network* page:

From the left-hand *Setup* menu, click on *Wireless Network*. The following page is displayed:



Wireless Network

Wireless networking allows you to connect wireless PCs through MyDslModem to the Internet.
Tell me more about the wireless networking settings...

The wireless settings are split into two sections - the first section contains settings which need to be configured before you use wireless for the first time, but are unlikely to be changed after that. The second section contains settings you might change more often.

First Time Settings

The wireless first time settings wizard helps you enable your wireless for the first time - you probably won't need to change these settings after you have entered them once.

Wireless networking is currently set to operate in **USA**.
Wireless network type is currently **802.11B/G**.
Change your wireless first time settings here...

General Settings

Your current wireless network settings are:

Wireless networking is **enabled** so wireless PCs can connect to your device.
Enable or disable the wireless network here...

MyDslModem is automatically selecting the best wireless channel to use. The channel currently in use is **6**.
Change your wireless channel here...

The wireless network name is **GSV_01_46_50**.
Change your wireless network name here...

Wireless network security is **off**.
Change Wireless Security settings here...

Any wireless PCs are allowed to connect.
Change which wireless PCs are allowed to connect here...

There are currently **0** wireless PCs connected.
View details of connected wireless PCs...

Figure 30: Wireless Network page

The settings on this page are split into two sections:

- *First Time Settings*[CT33]; contains a hyperlink wizard that takes you through a sequence of pages, with each page corresponding to a specific wireless network setting. You should only need to change all of these settings once; i.e., when you initially setup your wireless network. See the *Wireless Network First Time Settings Wizard* on page 45.

  This section also displays the country that the wireless network is set to operate in and the type of wireless network used.

- *General Settings*; contains details of the current wireless configuration and hyperlinks relating to individual wireless network settings previously configured by completing the *First Time Settings* wizard. This allows you to make changes to specific wireless settings without going through the entire wizard. See *Wireless Network General Settings* on page 55.

Wireless Network First Time Settings Wizard

This section describes how to follow the wireless network wizard in order to configure your wireless network settings for the first time. The wizard sequence allows you to configure each of the following Wireless settings in order:

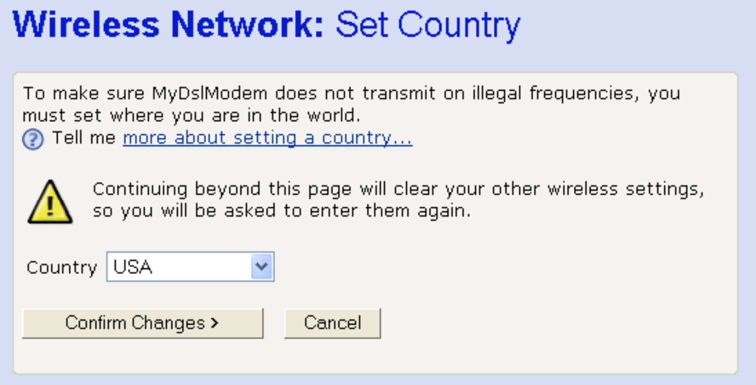
- The country that your network is operating in
- The specification standard used by the wireless network
- The wireless network name
- The wireless network channel
- Wireless network security
- Wireless network address authentication

Note

Each page of the wizard contains a Cancel *button. Click on this if you want to exit the wizard at any time.*

Setting the Country[CT34]

1. From the *First Time Settings* section of the *Wireless Network* page, click *Change your wireless first time settings here…* The first page of the wizard is displayed:



Wireless Network: Set Country

To make sure MyDslModem does not transmit on illegal frequencies, you must set where you are in the world.

Tell me more about setting a country...

Continuing beyond this page will clear your other wireless settings, so you will be asked to enter them again.

Country: USA

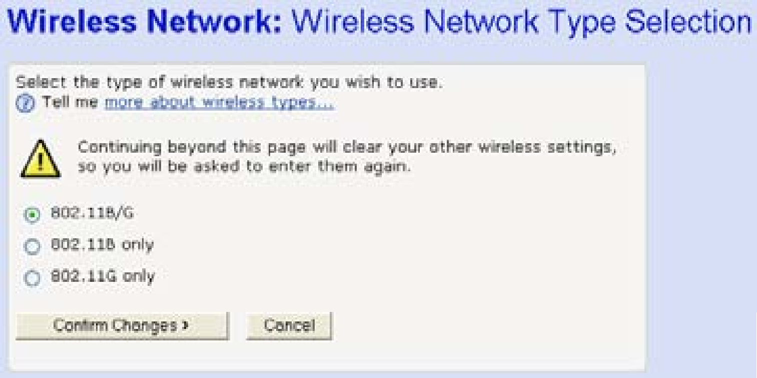
Figure 31: Wireless Network: Set Country page

The number of valid wireless network frequencies varies from country to country and you need to identify which country you are operating the device in to ensure that your network will transmit on the correct frequency.

2. From the *Country* drop-down list, select the appropriate country. Click on the *Confirm Changes*> button to apply configuration changes and move on to the next page in the wizard sequence, which allows you to *Select your Wireless Network Type*.

Select your Wireless Network Type[CT35]

The following page allows you to select the IEEE specification supported by your network:



Wireless Network: Wireless Network Type Selection

Select the type of wireless network you wish to use.
Tell me more about wireless types...

Continuing beyond this page will clear your other wireless settings, so you will be asked to enter them again.

● 802.11B/G
○ 802.11B only
○ 802.11G only

Figure 32: Wireless Network: Wireless Network Type Selection page

Each specification transmits at a certain speed (measured in Mbits per second) over a specific frequency. The frequency indicates the range at which wireless traffic can be transmitted or received between the device and the wireless PC(s). Supported specifications are:

- *802.11B only* – provides slower rates at a longer range than 802.11G (11 Mbps in the 2.4 GHz band)
- *802.11G only* – provides faster rates at a shorter range than 802.11B (20+ Mbps in the 2.4 GHz band)
- *802.11B/G* – supports both of the above specifications, but 802.11G rates will be slower than they are in a G-only network

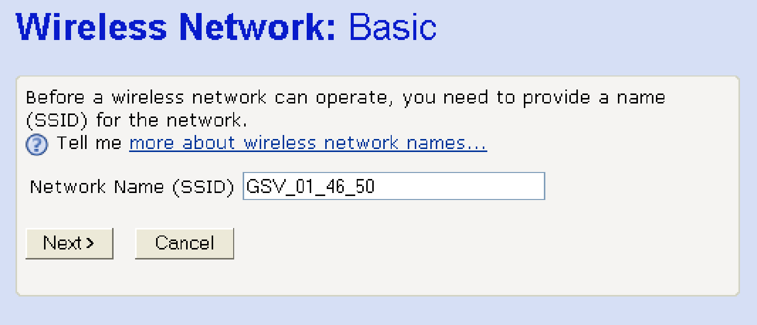
Note

Some Argon platforms also support 802.11A only*, which provides 54Mbps in the 5 GHz band. The Argon 4x1 does not support 802.11A.*

To select a network type, click on a single radio button. Click on the *Confirm Changes>* button to apply configuration changes and move on to the next page in the wizard sequence, which allows you to *Set the Wireless Network Name*.

Set the Wireless Network Name

The following page allows you to set the name of your wireless network:



Wireless Network: Basic

Before a wireless network can operate, you need to provide a name (SSID) for the network.
Tell me more about wireless network names...

Network Name (SSID) GSV_01_46_50

Figure 33: Wireless Network: Basic page

Your device and all of the wireless PCs in your wireless LAN share the same wireless network name. This name (commonly known as the *Service Set Identifier (SSID)* distinguishes your

Wireless network from any other(s) that may be in use nearby. It also ensures that only those PCs configured with the same name as the one set on your device can obtain access to it.

By default, the network name starts with *GSV_* and ends with the last six digits of your device's MAC address. For security reasons, we recommend that you replace the default network name with a unique value of your own.

To do this:

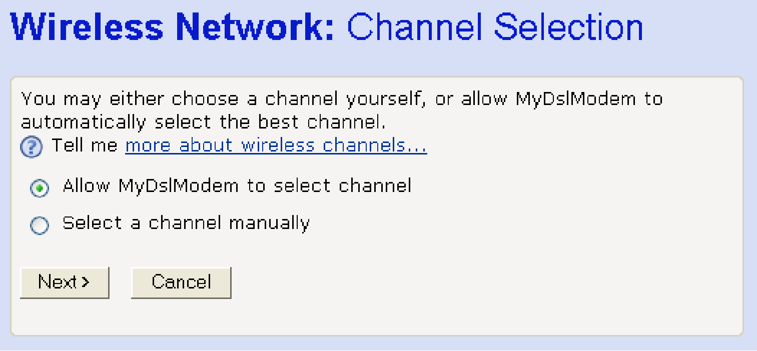
1. Click in the *Network Name (SSID)* box and type a new name. The name can be any combination of numbers and/or letters with a maximum length of 32 characters.
2. Click *Next>.*

If you are following the *First Time Settings* wizard, the next page in the wizard sequence is displayed, which allows you to *Select a Channel.*

If you have accessed this page from the *General Settings* section of the *Wireless Network* page, click on the *Confirm Changes* button to apply changes and return to the *Wireless Network* page.

Select a Channel

The following page allows you to select a network channel:



Wireless Network: Channel Selection

You may either choose a channel yourself, or allow MyDslModem to automatically select the best channel.

Tell me more about wireless channels...

● Allow MyDslModem to select channel

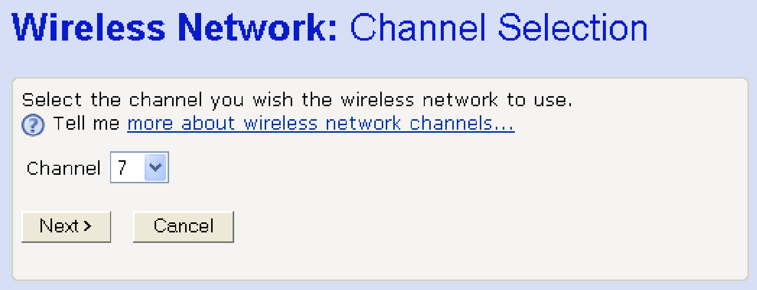
○ Select a channel manually

Figure 34: Wireless Network: Channel Selection page

Your device and all of the wireless PCs in your wireless LAN must share the same channel number. Each channel represents a regulatory channel frequency (MHz). Some countries may regulate the use of certain channel frequencies. Your ISP determines which channels are available and whether you should allow automatic or manual channel selection.

To configure channel selection, choose one of the following options:

- If you want the device to automatically select the best channel for your network, click on the *Allow MyDslModem to select channel* option and then click *Next>.*
- If you want to manually select a channel, click on the *Select a channel manually* option and then click *Next>.* The following page is displayed:



Wireless Network: Channel Selection

Select the channel you wish the wireless network to use.
Tell me more about wireless network channels...

Channel 7

Figure 35: Wireless Network: Channel Selection (manual) page

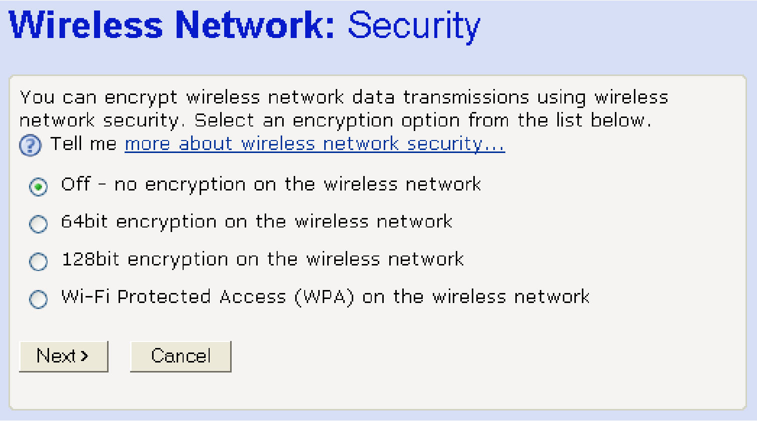
Select a suitable channel (as advised by your ISP) from the *Channel* drop-down list and then click *Next>.*

If you are following the *First Time Settings* wizard, the next page in the wizard sequence is displayed, which allows you to *Configure Wireless Network Security.*

If you have accessed this page from the *General Settings* section of the *Wireless Network* page, click on the *Confirm Changes* button to apply changes and return to the *Wireless Network* page.

Configure Wireless Network Security

The following page allows you to configure wireless security:



Wireless Network: Security

You can encrypt wireless network data transmissions using wireless network security. Select an encryption option from the list below.
Tell me more about wireless network security...

● Off - no encryption on the wireless network
○ 64bit encryption on the wireless network
○ 128bit encryption on the wireless network
○ Wi-Fi Protected Access (WPA) on the wireless network

Figure 36: Wireless Network: Security page

You can protect your wireless data from potential *eavesdroppers* by encrypting wireless data transmissions. An eavesdropper might set up a compatible wireless adapter within range of your device and attempt to access your network. Data encryption is the translation of data into a form that cannot be easily understood by unauthorized users.

There are two methods of wireless security to choose from:

- *Wired Equivalent Privacy (WEP)*; data is encrypted into blocks of either 64 bits length or 128 bits length. The encrypted data can only be sent and received by users with access to a private network key. Each PC on your wireless network must be manually configured with the same key as your device in order to allow wireless encrypted data transmissions. Eavesdroppers cannot access your network if they do not know your private key. WEP is considered to be a low security option.

- *Wi-Fi Protected Access (WPA)*; provides a stronger data encryption method (called Temporal Key Integrity Protocol (TKIP)). It runs in a special, easy-to-set-up home mode called Pre-Shared Key (PSK) that allows you to manually enter a pass phrase on all the devices in your wireless network. WPA data encryption is based on a WPA master key. The master key is derived from the pass phrase and the network name (SSID) of the device.

To configure security, choose one of the following options:

- If you do not want to use Wireless Network security, click the *Off* radio button and then click *Next>. Off* is the default setting, but you are **strongly recommended** to use wireless network security on your device.

  If you are following the *First Time Settings* wizard, the next page in the wizard sequence is displayed, which allows you to *Configure Wireless Address Authentication.*

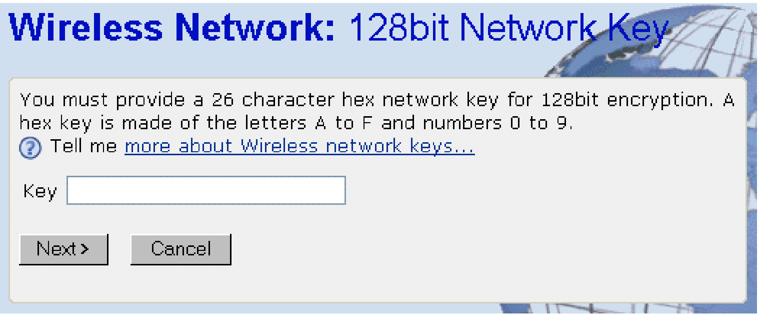
  If you have accessed this page from the *General Settings* section of the *Wireless Network* page, click on the *Confirm Changes* button to apply changes and return to the *Wireless Network* page.

- If you want to use WEP 64bit data encryption, click on the *64bit encryption on the wireless network* radio button and then click *Next>*. Now follow the instructions in *Configuring 64bit or 128bit encryption* on page 49.
- If you want to use WEP 128bit data encryption, click on the *128bit encryption on the wireless network* radio button and then click *Next>*. Now follow the instructions in *Configuring 64bit or 128bit encryption* on page 49.
- If you want to use WPA, click on the *Wi-Fi Protected Access (WPA) on the wireless network* radio button and then click *Next>*. Now follow the instructions in *Configuring WPA security* on page 50.

Configuring 64bit or 128bit encryption

The example set in this section is for 128bit encryption, however the outline also applies to 64bit encryption.

1. Once you have selected your WEP encryption method and then clicked *Next>,* the following page is displayed:



Wireless Network: 128bit Network Key

You must provide a 26 character hex network key for 128bit encryption. A hex key is made of the letters A to F and numbers 0 to 9.

Tell me more about Wireless network keys...

Key

Figure 37: Wireless Network: 128bit Network Key page

2. Click in the *Key* box and type a unique 26-character hex network key, such as *A6F34B2CE5D68BE90A6F34B2CE*.

Note

Hexadecimal or 'hex' numbers each have a value of 0 to 9 or A to F. Each number represents four bits of binary data.

Note that if you selected 64bit, you will need to type a unique 10-character hex network key.

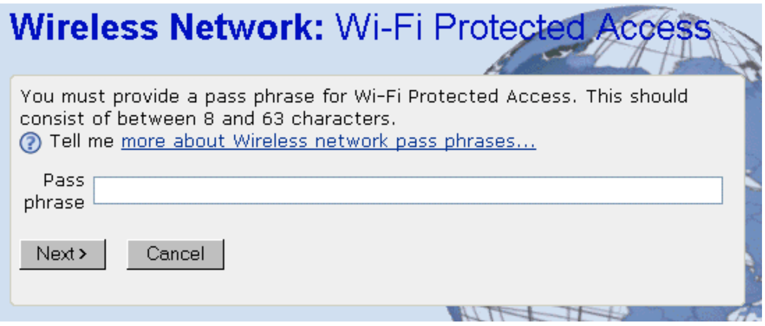
3. Click *Next>.*

If you are following the *First Time Settings* wizard, the next page in the wizard sequence is displayed, which allows you to *Configure Wireless Address Authentication.*

If you have accessed this page from the *General Settings* section of the *Wireless Network* page, click on the *Confirm Changes* button to apply changes and return to the *Wireless Network* page.

Configuring WPA security

1. Once you have selected WPA and then clicked *Next>,* the following page is displayed:



Wireless Network: Wi-Fi Protected Access

You must provide a pass phrase for Wi-Fi Protected Access. This should consist of between 8 and 63 characters.

Tell me more about Wireless network pass phrases...

Pass phrase

Figure 38: Wireless Network: Wi-Fi Protected Access page

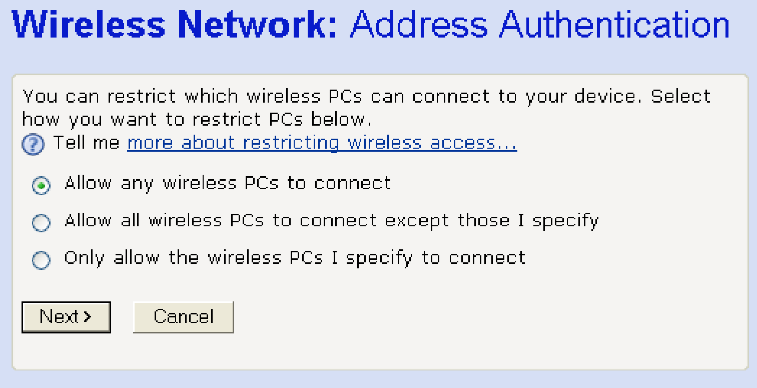
2. Type a unique pass phrase in the *Pass phrase* text box. Your pass phrase should be at least 20 characters long in order to deter potential intruders.
3. Once you have typed a pass phrase, click *Next>*.

If you are following the *First Time Settings* wizard, the next page in the wizard sequence is displayed, which allows you to *Configure Wireless Address Authentication.*

If you have accessed this page from the *General Settings* section of the *Wireless Network* page, click on the *Confirm Changes* button to apply changes and return to the *Wireless Network* page.

Configure Wireless Address Authentication

The following page allows you to configure which wireless PCs can access the device:



Wireless Network: Address Authentication

You can restrict which wireless PCs can connect to your device. Select how you want to restrict PCs below.

Tell me more about restricting wireless access...

● Allow any wireless PCs to connect

○ Allow all wireless PCs to connect except those I specify

○ Only allow the wireless PCs I specify to connect

Figure 39: Wireless Network: Address Authentication page

By default, any wireless PC that is configured with your network's SSID and channel number can connect to your device. You may want to increase the security of your wireless network by creating one of the following lists of wireless PCs:

- a wireless PC *blacklist*; PCs on this list **cannot** access the device, but all other wireless PCs **can**.
- a wireless PC *whitelist*; PCs on this list **can** access the device, but all other wireless PCs **cannot**.

The Wireless PCs added to either list are identified by their unique MAC address. This is made up of six pairs of characters, with each character either a number between 0 and 9, or a letter between A and F. For example, *00:20:2b:80:2f:30*.

To configure which wireless PCs can access your device, choose one of the following options:

- If you want any wireless PCs to have access to your device, click on the *Allow any wireless PCs to connect* radio button. Click *Next>*.

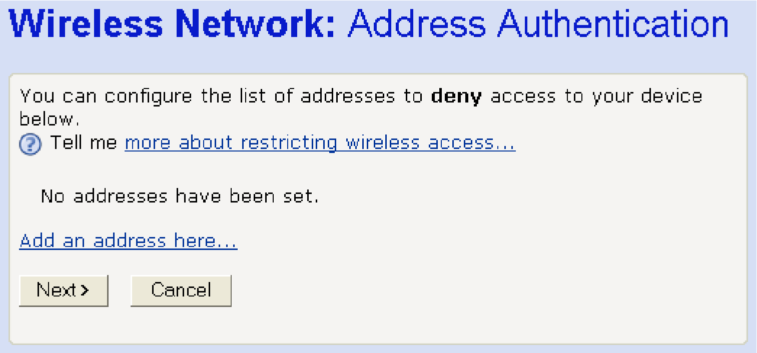
  If you are following the *First Time Settings* wizard, the final page in the wizard sequence is displayed, which allows you to *Confirm Wireless network changes*.

  If you have accessed this page from the *General Settings* section of the *Wireless Network* page, click on the *Confirm changes* button to apply changes and return to *the Wireless Network* page.

- If you want to create a blacklist of PCs that cannot access your device, click on the *Allow all wireless PCs to connect except those I specify* radio button and then click *Next>*. Now follow the instructions in *Configuring the wireless PC blacklist* on page 51.
- If you want to create a whitelist of PCs that can access your device, click on the *Only allow the wireless PCs I specify to connect* radio button and then click *Next>*. Now follow the instructions in *Configuring the wireless PC whitelist* on page 53.

Configuring the wireless PC blacklist

1. Once you have selected *Allow all wireless PCs to connect except those I specify* radio button and then clicked *Next>>*, the following page is displayed:



Wireless Network: Address Authentication

You can configure the list of addresses to **deny** access to your device below.

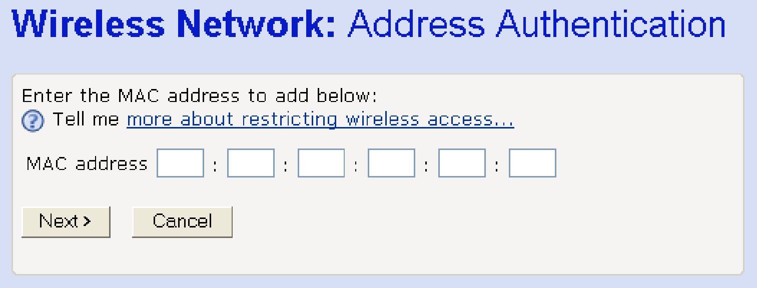
Tell me more about restricting wireless access...

No addresses have been set.

Add an address here...

Figure 40: Wireless Network: Address Authentication (blacklist) page

2. To add a network PC to the blacklist, click *Add an address here…* The following page is displayed:



Wireless Network: Address Authentication

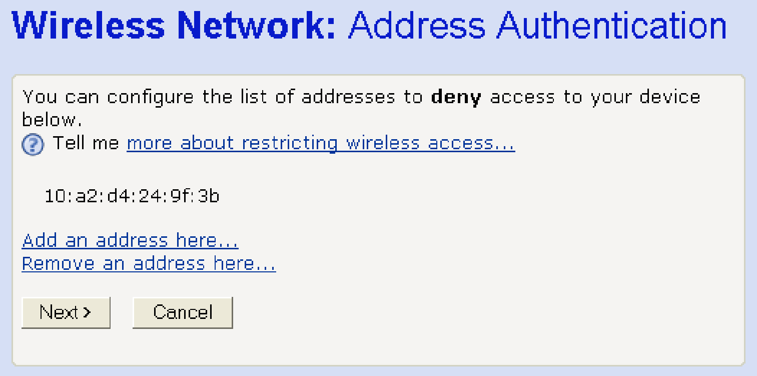
Enter the MAC address to add below:

Tell me more about restricting wireless access...

MAC address □ : □ : □ : □ : □ : □

Figure 41: Wireless Network: Address Authentication (blacklist) page

3. Click in each box and type each character pair of the MAC address for the PC you want to blacklist. Click *Next>*. The following page is displayed, containing details of the MAC address that you have just added:



Wireless Network: Address Authentication

You can configure the list of addresses to **deny** access to your device below.

Tell me more about restricting wireless access...

10:a2:d4:24:9f:3b

Add an address here...
Remove an address here...

Figure 42: Wireless Network: Address Authentication (blacklist) page

4. This page allows you to configure the addresses on the blacklist:
   - If you want to add another MAC address to the blacklist, click *Add an address here…* and repeat the instructions described in *step 3*.
   - If you want to remove a MAC address from the blacklist, click *Remove an address here…* At the displayed page, select the MAC address that you want to remove from the drop-down list.

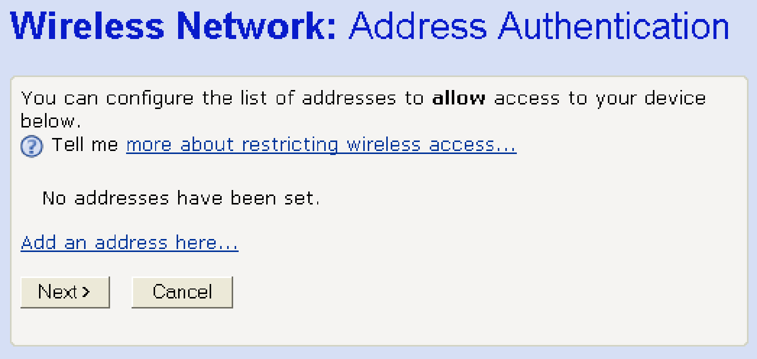
5. Click *Next>.*

If you are following the *First Time Settings* wizard, the final page in the wizard sequence is displayed, which allows you to *Confirm Wireless network changes*.

If you have accessed this page from the *General Settings* section of the *Wireless Network* page, click on the *Confirm Changes* button to apply changes and return to the *Wireless Network* page.

Configuring the wireless PC whitelist

1. Once you have selected *Only allow the wireless PCs I specify to connect* radio button and then clicked *Next>*, the following page is displayed:



Wireless Network: Address Authentication

You can configure the list of addresses to **allow** access to your device below.

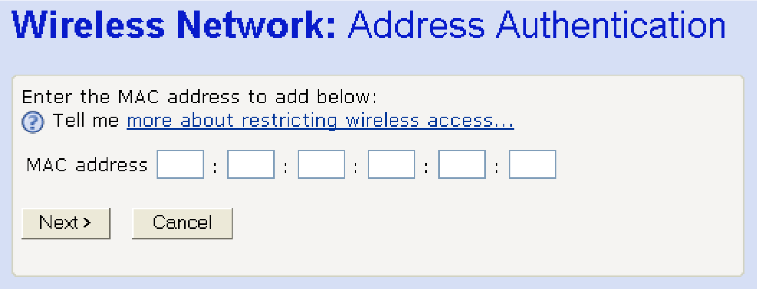
Tell me more about restricting wireless access...

No addresses have been set.

Add an address here...

Figure 43: Wireless Network: Address Authentication (whitelist) page

2. To add a network PC to the whitelist, click *Add an address here…* The following page is displayed:



Wireless Network: Address Authentication

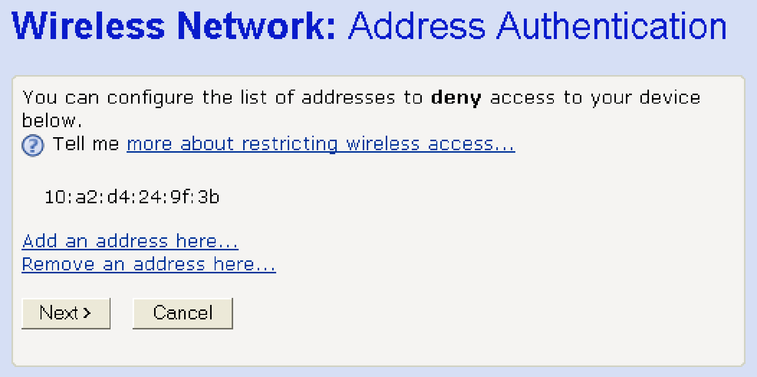
Enter the MAC address to add below:

Tell me more about restricting wireless access...

MAC address [ ] : [ ] : [ ] : [ ] : [ ] : [ ]

Figure 44: Wireless Network: Address Authentication (whitelist) page

3. Click in each box and type each character pair of the MAC address for the PC you want to whitelist. Click *Next>.* The following page is displayed, containing details of the MAC address that you have just added:



Wireless Network: Address Authentication

You can configure the list of addresses to **deny** access to your device below.

Tell me more about restricting wireless access...

10:a2:d4:24:9f:3b

Add an address here...
Remove an address here...

Figure 45: Wireless Network: Address Authentication (whitelist configuration) page

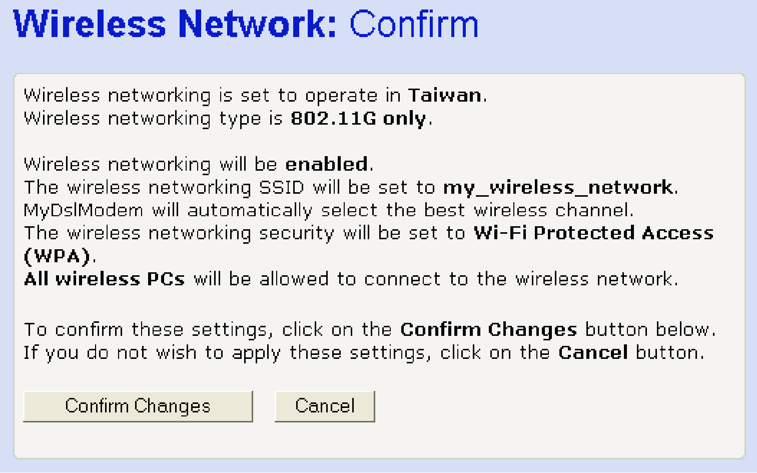
4. This page allows you to configure the addresses on the whitelist:
   - If you want to add another MAC address to the whitelist, click *Add an address here…* and repeat the instructions described in *step 3*.
   - If you want to remove a MAC address from the whitelist, click *Remove an address here…* At the displayed page, select the MAC address that you want to remove from the drop-down list.
5. Click *Next>.*

If you are following the *First Time Settings* wizard, the final page in the wizard sequence is displayed, which allows you to *Confirm Wireless network changes*.

If you have accessed this page from the *General Settings* section of the *Wireless Network* page, click on the *Confirm Changes* button to apply changes and return to the *Wireless Network* page.

Confirm Wireless network changes

Once you have configured Wireless Address Authentication and clicked on *Next>,* the following page is displayed:



Wireless Network: Confirm

Wireless networking is set to operate in **Taiwan**.
Wireless networking type is **802.11G only**.

Wireless networking will be **enabled**.
The wireless networking SSID will be set to **my_wireless_network**.
MyDslModem will automatically select the best wireless channel.
The wireless networking security will be set to **Wi-Fi Protected Access (WPA)**.
All wireless PCs will be allowed to connect to the wireless network.

To confirm these settings, click on the **Confirm Changes** button below.
If you do not wish to apply these settings, click on the **Cancel** button.

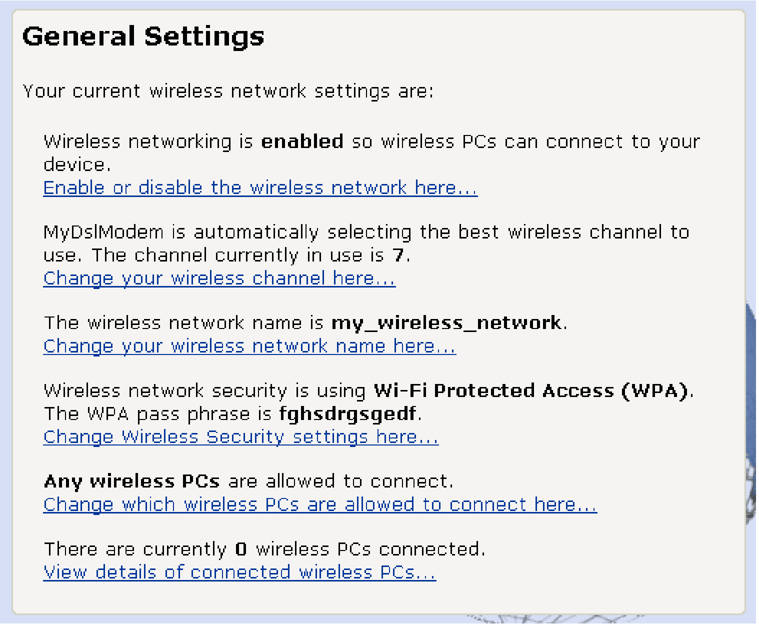
Figure 46: Wireless Network: Confirm page

This page confirms the configuration changes made to each page in the wizard. If you are happy with these settings, click on the *Confirm Changes* button. Configuration changes are applied to the device and the *Wireless Network* page is displayed.

Once you have completed the *First Time Settings* wizard, you can edit specific wireless settings using the hyperlinks displayed in the *General Settings* section of the *Wireless Network* page. See *Wireless Network General Settings* on page 55.

Wireless Network General Settings

The *General Settings* section of the *Wireless Network* page displays details of the device's current wireless configuration. For example:



General Settings

Your current wireless network settings are:

Wireless networking is **enabled** so wireless PCs can connect to your device.
Enable or disable the wireless network here...

MyDslModem is automatically selecting the best wireless channel to use. The channel currently in use is **7**.
Change your wireless channel here...

The wireless network name is **my_wireless_network**.
Change your wireless network name here...

Wireless network security is using **Wi-Fi Protected Access (WPA)**.
The WPA pass phrase is **fghsdrgsgedf**.
Change Wireless Security settings here...

Any wireless PCs are allowed to connect.
Change which wireless PCs are allowed to connect here...

There are currently **0** wireless PCs connected.
View details of connected wireless PCs...

Figure 47: Wireless Network: General Settings section

The hyperlinks in this section allow you to:

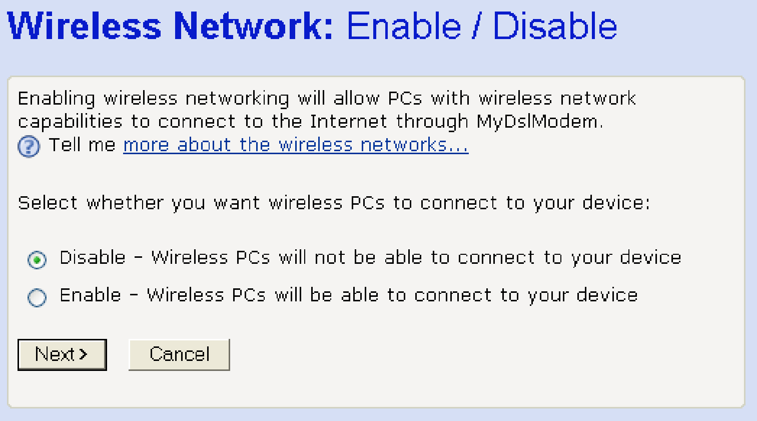
- Enable/disable wireless networking; see *Enabling/disabling wireless networking* on page 56.
- Change the channel currently in use; click *Change your wireless channel here…* and follow the instructions in *Select a Channel* on page 47.
- Change the network name (SSID); click *Change your wireless network name here…* and follow the instructions in *Set the Wireless Network Name* on page 46.
- Configure wireless security; click *Change Wireless Security settings here…* and follow the instruction in *Configure Wireless Network Security* on page 48.
- Configure address authentication; click *Change which wireless PCs are allowed to connect here…* and follow the instructions in *Configure Wireless Address Authentication* on page 50.
- Display information about the wireless PCs connected to the device; see *Displaying details of Wireless PCs* on page 56.

Enabling/disabling wireless networking

Note

Once you have completed the First Time Settings wizard, wireless networking is enabled on the device by default.

At the *Wireless Network* page, click on *Enable or disable the wireless network here…* The following page is displayed:



Wireless Network: Enable / Disable

Enabling wireless networking will allow PCs with wireless network capabilities to connect to the Internet through MyDslModem.
Tell me more about the wireless networks...

Select whether you want wireless PCs to connect to your device:

● Disable - Wireless PCs will not be able to connect to your device

○ Enable - Wireless PCs will be able to connect to your device

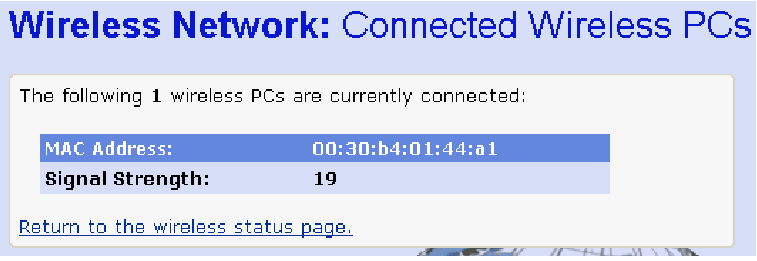
Figure 48: Wireless Network: Enable/Disable page

Choose whether to enable or disable wireless networking:

- To enable the network, click on the *Enable* radio button and then click *Next>*. This takes you through a subset of the *First Time Setting* wizard, starting with the page that allows you to configure the current *Wireless Network Name*. Follow the instructions starting from *Set the Wireless Network Name* on page 46.
- To disable the network, click on the *Disable* radio button and then click *Next>*. The next page confirms the disabled state of the wireless network. If you are happy with this configuration, click on *Confirm Changes*. The *Wireless Network* page is displayed.

Displaying details of Wireless PCs

At the *Wireless Network* page, click on *View details of connected wireless PCs…* The following page is displayed:



Wireless Network: Connected Wireless PCs

The following **1** wireless PCs are currently connected:

MAC Address:	**00:30:b4:01:44:a1**
Signal Strength:	**19**

Return to the wireless status page.

Figure 49: Wireless Network: Connected Wireless PCs page

< bad grammar on this page: "The following 1 wireless PCs are..@>

This page displays the MAC address of the PC currently connected to your device, together with the signal strength. The signal strength is the measure of radio frequency (RF) energy detected by the device on a specific channel. Signal strength may vary depending on the position of the PC(s) in relation to the device.

To return to *Wireless Network* page, click on *Return to the wireless status page*.

11 Advanced Security

Your device has built in advanced Security features that protect your network by blocking unwanted traffic from the Internet.

If you simply want to connect from your local network to the Internet, you do not need to make any changes to the default Security configuration. You only need to edit the configuration if you wish to do one or both of the following:

- allow Internet users to browse the user pages on your local network (for example, by providing an FTP or HTTP server)
- play certain games which require accessibility from the Internet

This chapter describes how to configure Security to suit the needs of your network.

By default, the IP addresses of your LAN PCs are hidden from the Internet. All data sent from your LAN PCs to a PC on the Internet appears to come from the IP address of your device. (To display your device's IP address, see *Current Status* on page 25.) In this way, details about your LAN PCs remain private. This security feature is called *Network Address Translation (NAT)*.

Configuring NAT Security

Certain network games, chat or file sharing software do not work with your default NAT setting. Your device knows the port, protocol and trigger information needed to allow access to the common applications listed below, but by default, access to them is disabled.

Application	TCP port number	UDP port number	Trigger required?
E-mail	110, 25	N/A	false
News	119	N/A	false
MSN Messenger	1863	N/A	false
Yahoo! Instant Messenger	5050 5055 5100	N/A	false
AOL Instant Messenger	5190	N/A	false
Internet Relay Chat (IRC)	194	194	false
Netmeeting (h323)	1720	N/A	true
	N/A	1719	true
	1731 522	N/A	false

Application	TCP port number	UDP port number	Trigger required?
Real Audio	544 7070	544 6770	false
Ping	N/A (ICMP)	N/A (ICMP)	false
Web connections (HTTP, HTTPS)	80, 443	N/A	false
DialPad	51210	N/A	true
	N/A	51200 51201	true
FTP	21	N/A	false
Telnet	23	N/A	false
Secure shell (SSH)	22	N/A	false
Windows Media Services	1755	1755	false
Gnutella	6346	N/A	false
Kazaa	1214	N/A	false
Windows Terminal Server	3389	N/A	false
DNS	N/A	53	false
PPTP	1723	1723	false
Internet Key Exchange	N/A	500	false
LDAP	389	N/A	false
GRE	N/A (GRE)	N/A (GRE)	false
Databeam (T.120)	1503	N/A	false

You can enable access to a common application from a specific PC on your network. For more information, see *Configuring Internet applications* on page 61.

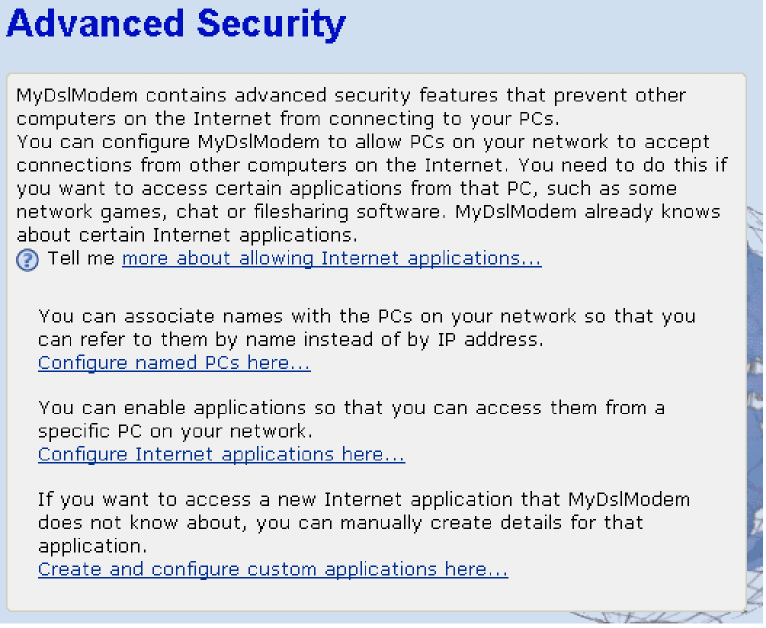
If you want to allow access to an application that is **not** included on the above list of common applications, you can create and enable a *custom* application. For more information, see *Configuring custom applications* on page 63.

Before you can configure your default NAT settings, you must assign a unique name to each of the PCs on your network. See *Assigning PC Names* on page 59.

Assigning PC Names

You must assign a name to each of the PCs on your network before you can enable access to common applications or create custom ones. This allows you to refer to PCs by name instead of IP address.

1. From the left-hand *Setup* menu, click on *Security*. The following page is displayed:



Advanced Security

MyDslModem contains advanced security features that prevent other computers on the Internet from connecting to your PCs.
You can configure MyDslModem to allow PCs on your network to accept connections from other computers on the Internet. You need to do this if you want to access certain applications from that PC, such as some network games, chat or filesharing software. MyDslModem already knows about certain Internet applications.
Tell me more about allowing Internet applications...

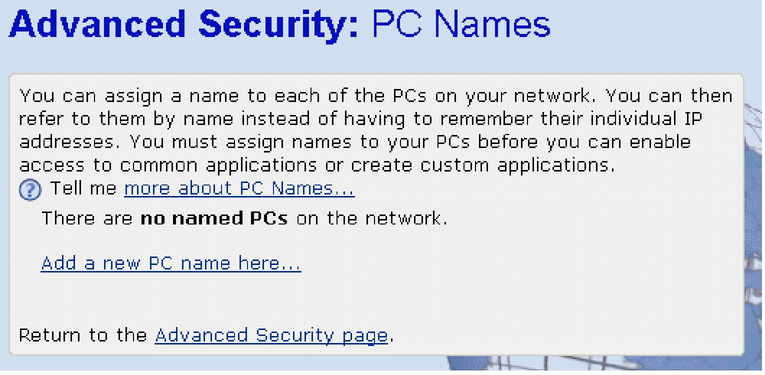
You can associate names with the PCs on your network so that you can refer to them by name instead of by IP address.
Configure named PCs here...

You can enable applications so that you can access them from a specific PC on your network.
Configure Internet applications here...

If you want to access a new Internet application that MyDslModem does not know about, you can manually create details for that application.
Create and configure custom applications here...

Figure 50: Advanced Security page

2. Click on *Configure named PCs here…* The following page is displayed:



Advanced Security: PC Names

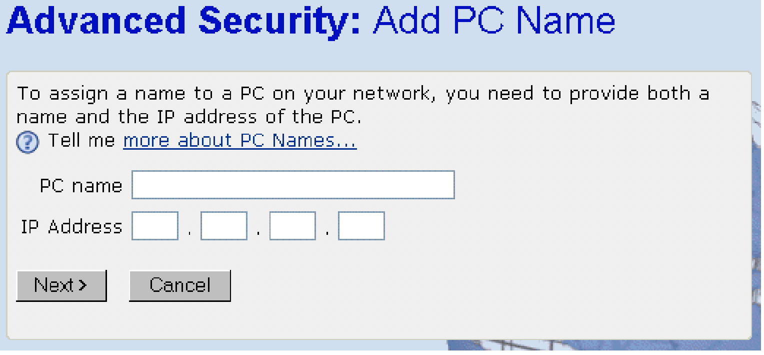
You can assign a name to each of the PCs on your network. You can then refer to them by name instead of having to remember their individual IP addresses. You must assign names to your PCs before you can enable access to common applications or create custom applications.
Tell me more about PC Names...
There are **no named PCs** on the network.

Add a new PC name here...

Return to the Advanced Security page.

Figure 51: Advanced Security: PC Names page

3. This page displays the names previously assigned to PCs on your network. To assign a name to an unnamed PC, click *Add a new PC name here…* The following page is displayed:



Advanced Security: Add PC Name

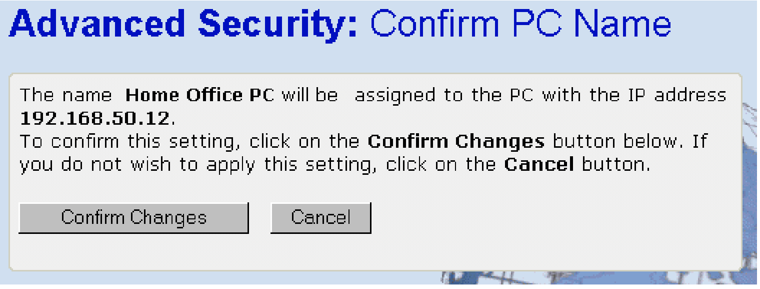
To assign a name to a PC on your network, you need to provide both a name and the IP address of the PC.
Tell me more about PC Names...

PC name

IP Address . . .

Figure 52: Advanced Security: Add PC Name page

4. Type a unique, meaningful name in the *PC name* text box, then type the IP address of the PC that you want to assign this name to. Click *Next>*. The following page is displayed:



Advanced Security: Confirm PC Name

The name **Home Office PC** will be assigned to the PC with the IP address **192.168.50.12**.
To confirm this setting, click on the **Confirm Changes** button below. If you do not wish to apply this setting, click on the **Cancel** button.

Figure 53: *Advanced Security: Add PC Name page*

5. If you are happy with the name that you have assigned to the IP address, click *Confirm Changes*. The *Advanced Security: PC Names* page is displayed.

Once you have assigned PC names, you can enable Internet access to applications (see *Configuring Internet applications* on page 61) and create custom applications (see *Configuring custom applications* on page 63).

Deleting PC Names

To delete an assigned PC name:

1. From the *Advanced Security: PC Names* page, click on *Remove a PC name here…*
2. Select the PC name that you wish to remove, and then click *Next>*.
3. At the *Advanced Security: Confirm PC Name* page, click *Confirm Changes*. The *Advanced Security: PC Names* page is displayed. Details of the deleted PC name have been removed.

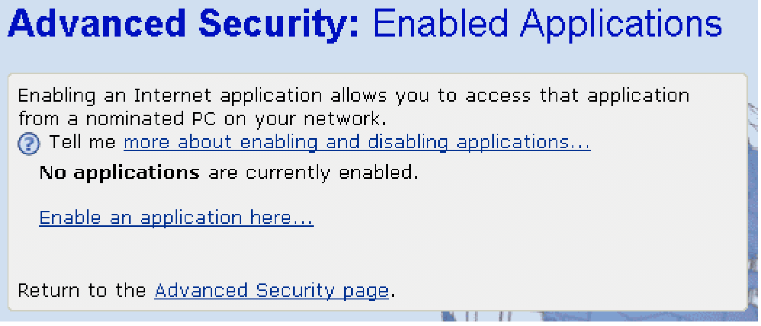
Configuring Internet applications

This section assumes that you have already assigned names to the PCs on your network as described in *Assigning PC Names* on page 59.

You can enable/disable a specific Internet application in order to allow/block access to it via an individual PC.

Enabling Internet applications

1. From the left-hand *Setup* menu, click on *Advanced Security*. At the displayed page, click on *Configure Internet applications here…* The following page is displayed:



Advanced Security: Enabled Applications

Enabling an Internet application allows you to access that application from a nominated PC on your network.
Tell me more about enabling and disabling applications...

No applications are currently enabled.

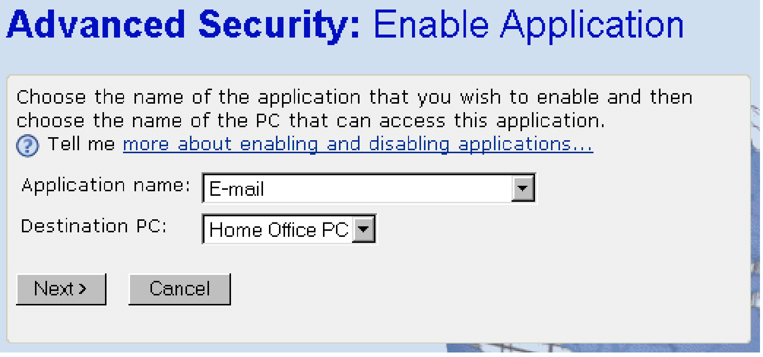
Enable an application here...

Return to the Advanced Security page.

Figure 54: *Advanced Security: Enabled Applications page*

This page displays details about applications that are currently enabled. By default, all Internet applications are disabled.

2. Click on *Enable an application here…* The following page is displayed:



Advanced Security: Enable Application

Choose the name of the application that you wish to enable and then choose the name of the PC that can access this application.

Tell me more about enabling and disabling applications...

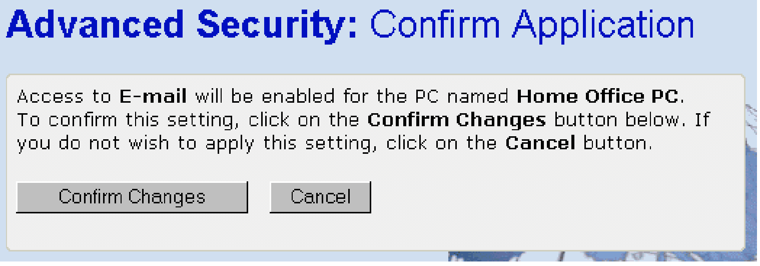
Application name: E-mail

Destination PC: Home Office PC

Figure 55: Advanced Security: Enable Application page

3. This page allows you to select which application you wish to enable for a specific PC. The *Application name* drop-down list contains the following:
   - the common applications that your device knows about (see *Configuring Internet applications* on page 61).
   - any custom applications that you have manually configured (see *Configuring custom applications* on page 63).

   Select the application and the PC that you want to enable access to and then click *Next*>. The following page is displayed:



Advanced Security: Confirm Application

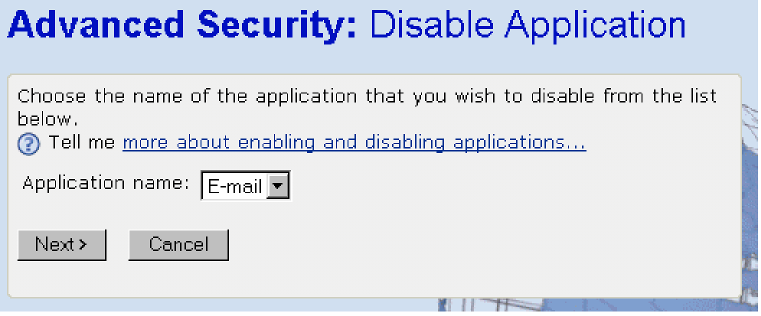
Access to **E-mail** will be enabled for the PC named **Home Office PC**. To confirm this setting, click on the **Confirm Changes** button below. If you do not wish to apply this setting, click on the **Cancel** button.

Figure 56: Advanced Security: Confirm Application page

4. If you are happy with your application configuration, click *Confirm Changes*. *The Advanced Security: Enabled Applications* page is displayed, containing a list of currently enabled applications.

Disabling Internet applications

1. From the *Advanced Security: Enabled Applications* page, click on *Disable an application here*. The following page is displayed:



Advanced Security: Disable Application

Choose the name of the application that you wish to disable from the list below.

? Tell me more about enabling and disabling applications...

Application name: E-mail

Figure 57: Advanced Security: Disable Application page

2. Select the application that you want to disable from the *Application name* drop down list, and then click *Next>*. At the *Advanced Security: Confirm Application* page, click on *Confirm Changes*. The *Advanced Security: Enabled Applications* page is displayed. Details about the disabled application have been removed.

Configuring custom applications

If you want to enable access to an application that does not appear on your device's default list of common applications (see *Configuring Internet applications* on page 61) you can create a custom application.

In order to create a custom application, you must know:

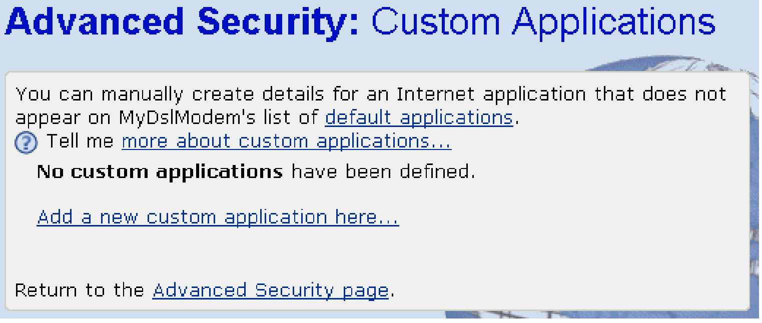
1. the protocol used by the application (e.g., TCP, UDP and so on)
2. the primary port or range of ports used by the application
3. whether the application requires a trigger, and if so, the secondary port or range of ports used by the application
4. the address translation type used by the trigger

Your application provider or games manufacturer should provide you with these details.

Creating custom applications

In this example configuration, a custom application called *network game* using TCP port 5555 is created.

1. From the left-hand *Setup* menu, click on *Security*. At the *Advanced Security* page, click on *Create and configure custom applications here…* The following page is displayed:



Advanced Security: Custom Applications

You can manually create details for an Internet application that does not appear on MyDslModem's list of default applications.

? Tell me more about custom applications...

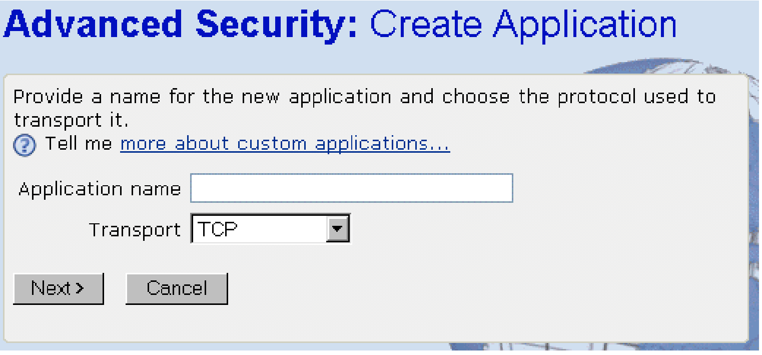
No custom applications have been defined.

Add a new custom application here...

Return to the Advanced Security page.

Figure 58: Advanced Security: Custom Applications page

This page displays details of previously created custom applications. . By default, no custom applications exist. Click *Add a custom application here…* The following page is displayed:



Advanced Security: Create Application

Provide a name for the new application and choose the protocol used to transport it.

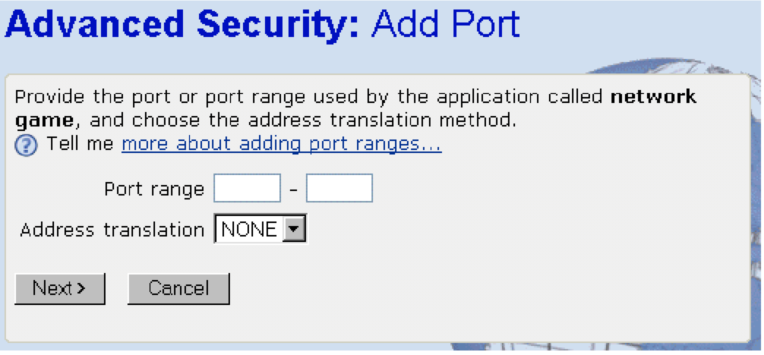
Tell me more about custom applications...

Application name

Transport TCP

Figure 59: Advanced Security: Create Application page

2. Type a unique name for your custom application, and select the transport protocol from the *Transport* drop-down list. Click *Next>*. The following page is displayed:



Advanced Security: Add Port

Provide the port or port range used by the application called **network game**, and choose the address translation method.

Tell me more about adding port ranges...

Port range -

Address translation NONE

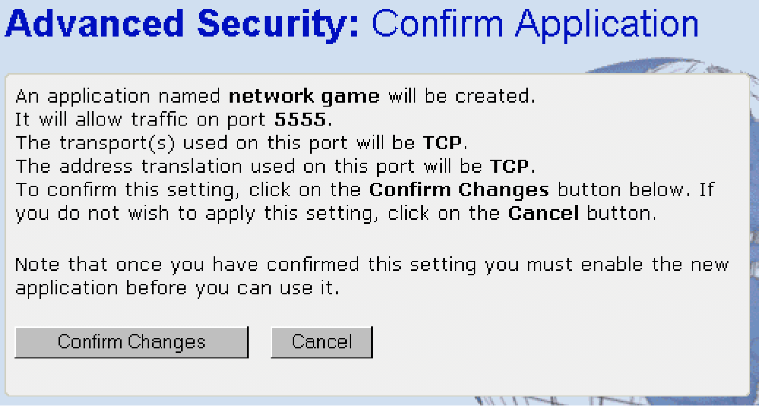
Figure 60: Advanced Security: Add Port page

3. Type a port range by entering the start and end of the range in the two boxes provided. If you want to use a single port, enter the port number in the first box and leave the second box blank.

Note

You must ensure that the single port or range specified does not overlap with a port or range for an existing common or custom application. Check the common port ranges listed in Configuring NAT Security on page 58.

Select the address translation type from the drop down list. This controls the translation of binary IP addresses in the *payload* of a packet (the part containing data). Click *Next>*. The following page is displayed:



Advanced Security: Confirm Application

An application named **network game** will be created.
It will allow traffic on port **5555**.
The transport(s) used on this port will be **TCP**.
The address translation used on this port will be **TCP**.
To confirm this setting, click on the **Confirm Changes** button below. If you do not wish to apply this setting, click on the **Cancel** button.

Note that once you have confirmed this setting you must enable the new application before you can use it.

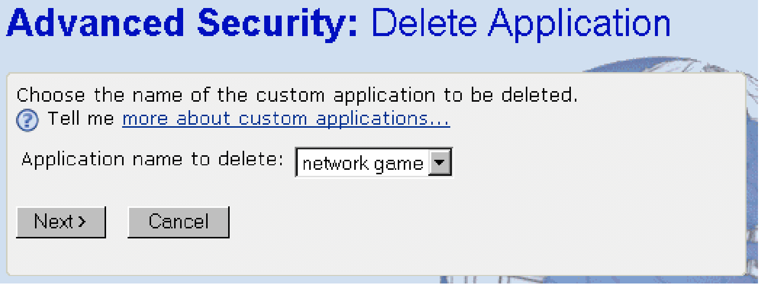
Figure 61: Advanced Security: Confirm Custom Application page

4. This page confirms your custom application configuration. If you are happy with the details displayed, click *Confirm Changes*. The *Advanced Security: Custom Applications* page is displayed, containing details of the custom application that you have just created.

In order to access your custom application, you must first enable it. See *Configuring Internet applications* on page 61.

Deleting custom applications

1. From the *Advanced Security: Custom Applications* page, click on *Delete a custom application here...* The following page is displayed:



Advanced Security: Delete Application

Choose the name of the custom application to be deleted.
Tell me more about custom applications...

Application name to delete: network game

Figure 62: Advanced Security: Disable Application

2. Select the application that you want to delete from the *Application name* drop down list and then click *Next>*. At the *Advanced Security: Confirm Application* page, click on *Confirm Changes*. The *Advanced Security: Custom Applications* page is displayed. Details about the deleted application have been removed.

12 Internet Access

This chapter describes how to configure the way that your device connects to the Internet. Your ISP determines what type of Internet access you should use and provides you with any information that you need in order to configure the Internet access to your device.

Your device needs the following address information in order to access the Internet:

IP address and subnet mask:	The IP address and subnet mask assigned to your WAN interface.
Default gateway:	The gateway address that identifies the ISP server through which your Internet connection will be routed.
DNS servers:	The Dynamic Name System (DNS) servers used by your ISP to dynamically assign addresses to each of the computers attached to your LAN.

In most cases, you **will not** need to configure your device with these addresses because your ISP is likely to use an Internet access type which automatically assigns addresses to your device. For more information, see *Types of Internet Access* on page 66.

Types of Internet Access

The types of Internet access available are as follows:

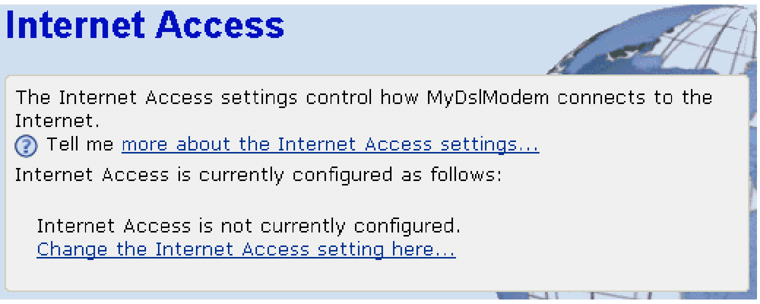
- Automatic Internet access – your device scans the Internet via the DSL connection in order to find a link to the ISP's Internet service. The IP addresses required to access your ISP's Internet service are automatically configured.
- PPP Internet access – your device uses a Point to Point Protocol (PPP) to carry data between your ISP and your computer. To use PPP Internet access, you must enter a PPP login username and password the first time to log on. The IP addresses required to access your ISP's Internet service are automatically configured.

  Your device supports two types of PPP – PPPoE (over Ethernet) and PPPoA (over ATM).
- DHCP – your ISP uses a protocol called Dynamic Host Configuration Protocol (DHCP) to assign addresses and manage your device. The device is automatically assigned the IP addresses that it needs to access the Internet.
- Manual – you manually assign the addresses that your device needs in order to access the Internet. Your ISP should provide you with the necessary addresses.

Configuring Automatic Internet Access

Your device can automatically search for a link to your ISP's Internet service. If your ISP tells you to use this connection method, follow the instructions below.

1. From the left-hand *Setup* menu, click on *Internet Access*. The following page is displayed:



Internet Access

The Internet Access settings control how MyDslModem connects to the Internet.

Tell me more about the Internet Access settings...

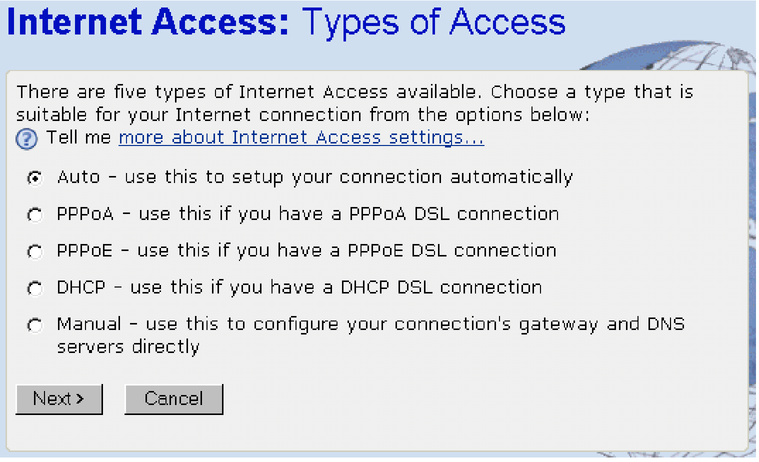
Internet Access is currently configured as follows:

Internet Access is not currently configured.
Change the Internet Access setting here...

Figure 63: Internet Access page

This page displays information about your current Internet access configuration.

2. Click on *Change the Internet Access setting here…* The following page is displayed:



Internet Access: Types of Access

There are five types of Internet Access available. Choose a type that is suitable for your Internet connection from the options below:

Tell me more about Internet Access settings...

● Auto - use this to setup your connection automatically

○ PPPoA - use this if you have a PPPoA DSL connection

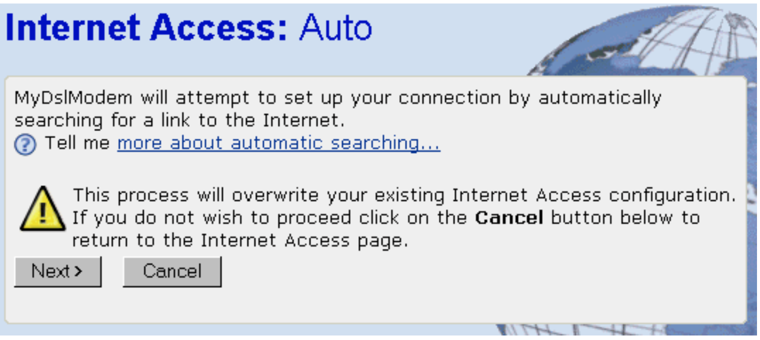
○ PPPoE - use this if you have a PPPoE DSL connection

○ DHCP - use this if you have a DHCP DSL connection

○ Manual - use this to configure your connection's gateway and DNS servers directly

Figure 64: Internet Access: Types of Access page

3. Select *Auto* and click *Next>*. The following page is displayed:



Internet Access: Auto

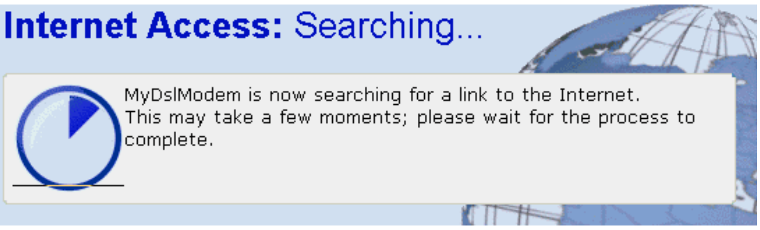
MyDslModem will attempt to set up your connection by automatically searching for a link to the Internet.

Tell me more about automatic searching...

This process will overwrite your existing Internet Access configuration. If you do not wish to proceed click on the **Cancel** button below to return to the Internet Access page.

Figure 65: Internet Access: Auto page

4. This page displays a warning that once a new connection is automatically detected, it will replace your existing Internet Access configuration. If you are happy with this, click *Next>*. The following message confirms that your device is automatically searching for a link to the Internet:

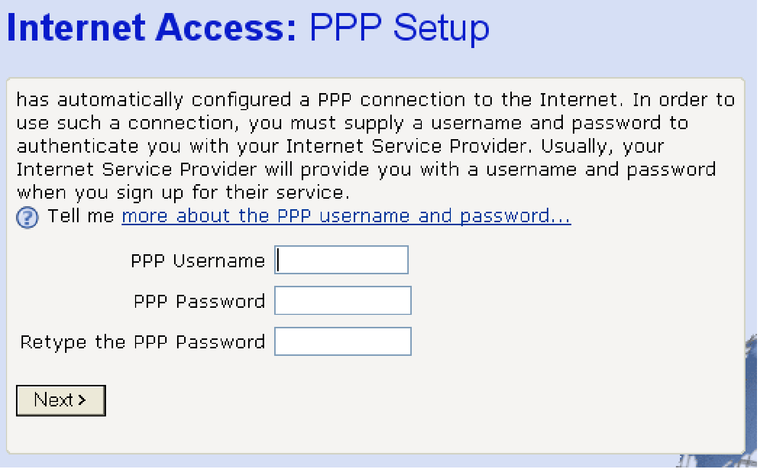


Internet Access: Searching...

MyDslModem is now searching for a link to the Internet.
This may take a few moments; please wait for the process to complete.

Figure 66: Internet Access: Searching page

5. Once the search is complete, a page is displayed confirming which type of Internet connection has been detected. For example, the following page is displayed if the device has detected a PPP connection:



Internet Access: PPP Setup

has automatically configured a PPP connection to the Internet. In order to use such a connection, you must supply a username and password to authenticate you with your Internet Service Provider. Usually, your Internet Service Provider will provide you with a username and password when you sign up for their service.

Tell me more about the PPP username and password...

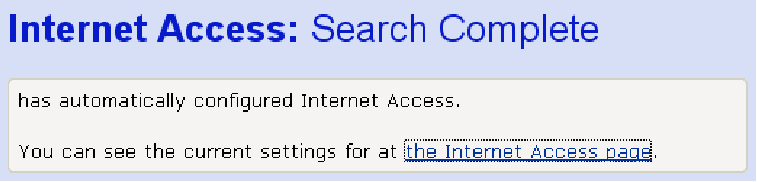
PPP Username

PPP Password

Retype the PPP Password

Figure 67: Internet Access: PPP Setup page

6. Enter the PPP username and password provided by your ISP. Type them in the relevant boxes, and then click *Next>*. The following page is displayed:



Internet Access: Search Complete

has automatically configured Internet Access.

You can see the current settings for at the Internet Access page.

Figure 68: Internet Access: Search Complete page

7. This page confirms the Internet Access settings that have been detected. Click on the hyperlink to the *Internet Access* page to display details of your automatically configured Internet connection.

Configuring your PPP DSL connection

If your ISP's Internet service uses PPPoA or PPPoE you need to set up a PPP login account. The first time that you login to the Internet, your ISP will ask you to enter a username and password so they can check that you are a legitimate, registered Internet service user. Your device stores these authentication details, so you will not have to enter this username and password every time you login.

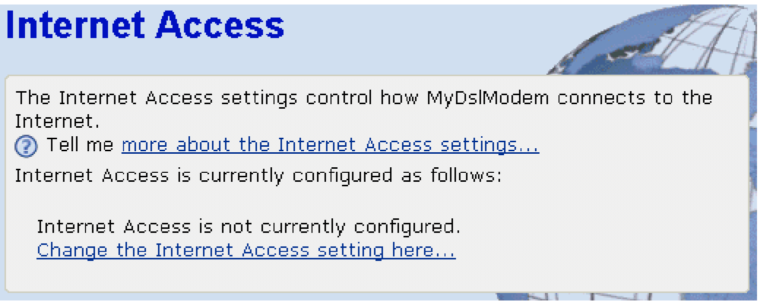
Your ISP may also tell you to set unique path and circuit numbers (called VPI and VCI) in order to connect your device to the ISP's Internet service. In most cases, your device will use default settings, so you may not need to enter these values.

Note

Your ISP will provide you with the login details and VPI/VCI values necessary to set up a PPP login account.

If your ISP wants you to connect to the Internet using PPP, follow the instructions below.

1. From the left-hand *Setup* menu, click on *Internet Access*. The following page is displayed:



Internet Access

The Internet Access settings control how MyDslModem connects to the Internet.

Tell me more about the Internet Access settings...

Internet Access is currently configured as follows:

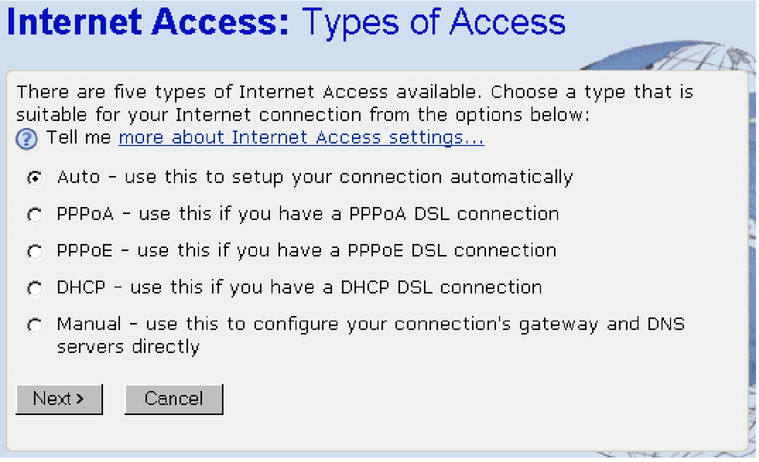
Internet Access is not currently configured.

Change the Internet Access setting here...

Figure 69: Internet Access page

This page displays information about your current Internet access configuration.

2. Click on *Change the Internet Access setting here…* The following page is displayed:



Internet Access: Types of Access

There are five types of Internet Access available. Choose a type that is suitable for your Internet connection from the options below:

Tell me more about Internet Access settings...

● Auto - use this to setup your connection automatically

○ PPPoA - use this if you have a PPPoA DSL connection

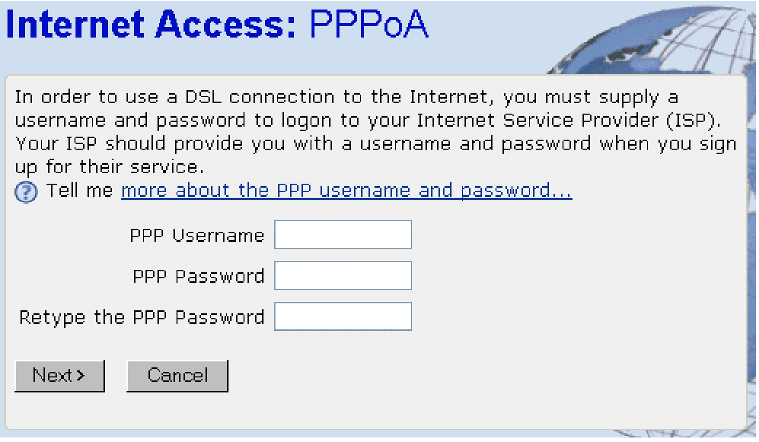
○ PPPoE - use this if you have a PPPoE DSL connection

○ DHCP - use this if you have a DHCP DSL connection

○ Manual - use this to configure your connection's gateway and DNS servers directly

Figure 70: Internet Access: Types of Access page

3. Select either *PPPoA* or *PPPoE*, depending on which PPP type your ISP wants you to use. In this example, PPPoA is selected, but the instructions for PPPoE are identical. Click *Next>*. The following page is displayed:



Internet Access: PPPoA

In order to use a DSL connection to the Internet, you must supply a username and password to logon to your Internet Service Provider (ISP). Your ISP should provide you with a username and password when you sign up for their service.

Tell me more about the PPP username and password...

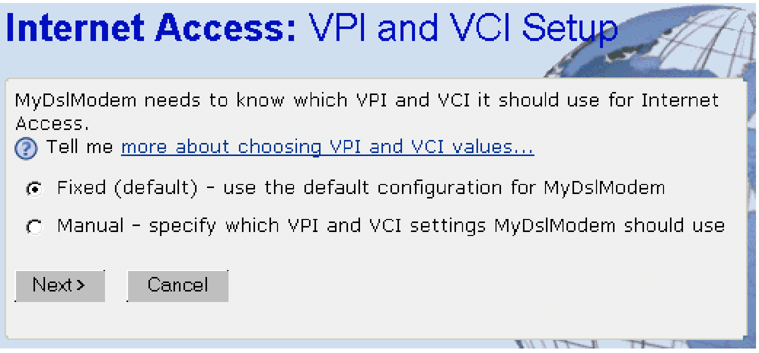
PPP Username

PPP Password

Retype the PPP Password

Figure 71: Internet Access: PPPoA page

4. Enter the PPP username and password provided by your ISP. Type them in the relevant boxes, and then click *Next>*. The following page is displayed:



Internet Access: VPI and VCI Setup

MyDslModem needs to know which VPI and VCI it should use for Internet Access.

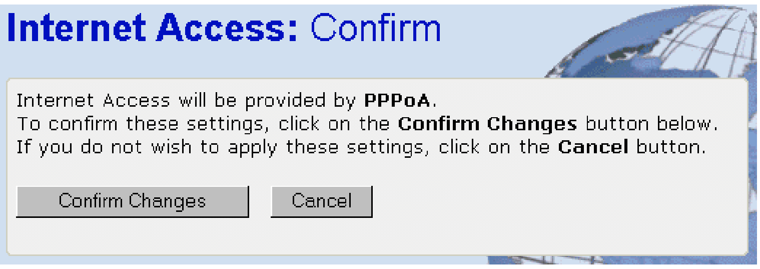
Tell me more about choosing VPI and VCI values...

● Fixed (default) - use the default configuration for MyDslModem

○ Manual - specify which VPI and VCI settings MyDslModem should use

Figure 72: Internet Access: VPI and VCI Setup page

5. Click on the VCI and VPI setting determined by your ISP:
   - *Fixed (default)* - click on this if your ISP tells you to use default VPI and VCI setting. This is the most common setup.
   - *Manual* – click on this if your ISP has provided you with specific VPI and VCI settings. Click *Next>*. At the next page, type the provided VPI and VCI settings in the relevant boxes.
6. Click *Next>*. The following page is displayed:



Internet Access: Confirm

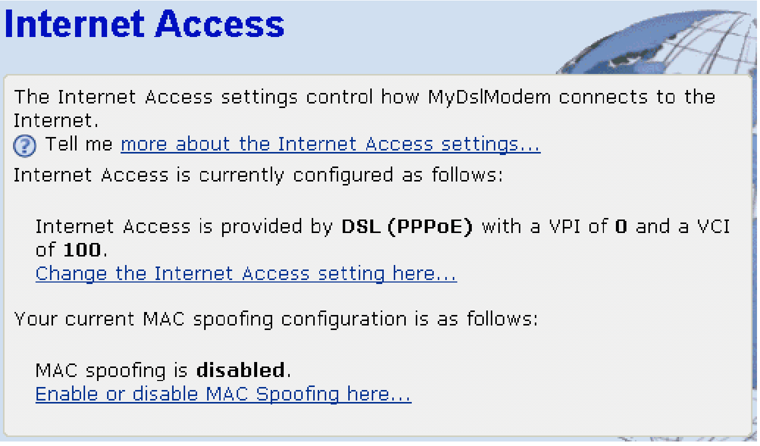
Internet Access will be provided by **PPPoA**.
To confirm these settings, click on the **Confirm Changes** button below.
If you do not wish to apply these settings, click on the **Cancel** button.

Figure 73: Internet Access: Confirm page

This page confirms your PPP settings. If you selected the Manual option at step 5, the VPI and VCI values that you entered are also displayed on this page.

7. If you are happy with your settings, click *Confirm Changes*. The *Internet Access* page is displayed.

If you have configured PPPoE Internet access, notice that an extra configuration option called *MAC Spoofing* appears on this page:



Internet Access

The Internet Access settings control how MyDslModem connects to the Internet.

Tell me more about the Internet Access settings...

Internet Access is currently configured as follows:

Internet Access is provided by **DSL (PPPoE)** with a VPI of **0** and a VCI of **100**.
Change the Internet Access setting here...

Your current MAC spoofing configuration is as follows:

MAC spoofing is **disabled**.
Enable or disable MAC Spoofing here...

Figure 74: Internet Access: PPPoE page

MAC spoofing allows you to set the Media Access Control (MAC) address of your device. See *Enabling MAC spoofing* on page 10 for more details.

Enabling MAC spoofing

Note

You should only enable MAC spoofing if your ISP has requested that you do so. In most cases, you will ***not*** *need to do this.*

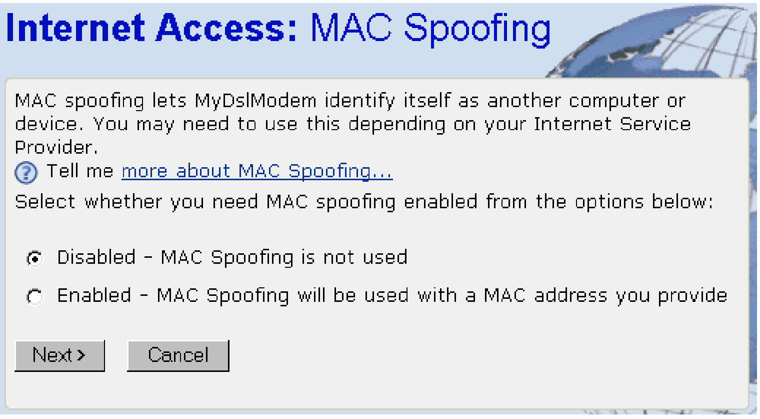
Your ISP identifies your modem by its unique hardware number or Media Access Control (MAC) address. If you are using PPPoE Internet access, your ISP may want you to *spoof* the identity of a different device. You can spoof the MAC address of another device by replacing your device's existing MAC address with another device's address. Your ISP will provide you with the replacement MAC address.

Note

You can only configure MAC spoofing if you are using PPPoE Internet access. This option is not available for PPPoA.

If your ISP instructs you to change your device's default MAC address, follow the instructions below:

1. From the *Internet Access* page, click *Enable or disable MAC Spoofing here…* The following page is displayed:



Internet Access: MAC Spoofing

MAC spoofing lets MyDslModem identify itself as another computer or device. You may need to use this depending on your Internet Service Provider.

? Tell me more about MAC Spoofing...

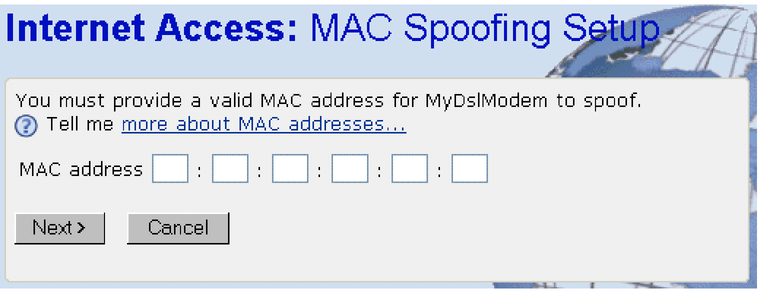
Select whether you need MAC spoofing enabled from the options below:

● Disabled - MAC Spoofing is not used

○ Enabled - MAC Spoofing will be used with a MAC address you provide

Figure 75: Internet Access: MAC Spoofing page

2. Select *Enabled* then click *Next>*. The following page is displayed:



Internet Access: MAC Spoofing Setup

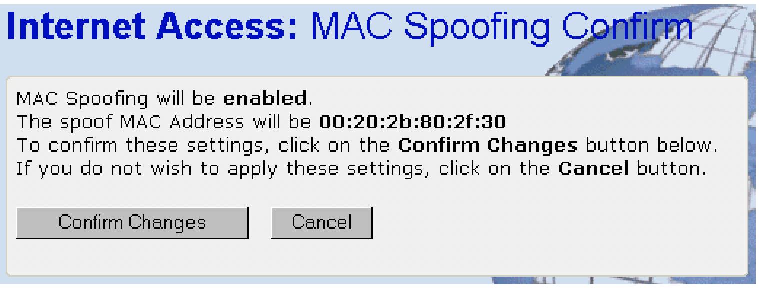
You must provide a valid MAC address for MyDslModem to spoof.

? Tell me more about MAC addresses...

MAC address __ : __ : __ : __ : __ : __

Figure 76: Internet Access: MAC Spoofing Setup page

3. The MAC address is made up of six pairs of characters. Each character can be either a number between 0 and 9, or a letter between A and F. For example, *00:20:2b:80:2f:30*. Click in each box and type each character pair of the MAC address provided by your ISP.
4. Click *Next>*. The following page is displayed:



Internet Access: MAC Spoofing Confirm

MAC Spoofing will be **enabled**.
The spoof MAC Address will be **00:20:2b:80:2f:30**
To confirm these settings, click on the **Confirm Changes** button below.
If you do not wish to apply these settings, click on the **Cancel** button.

Figure 77: Internet Access: MAC Spoofing Confirm

This page confirms your MAC spoofing settings. If you are happy with these settings, click *Confirm Changes*. The *Internet Access* page is displayed, and your MAC spoofing configuration is complete.

Editing your existing MAC spoofing settings

If you want to change the spoof MAC address used by your device, follow the instructions in *Enabling MAC spoofing* on page 71, but replace the existing address with a new one at step 3.

If you do not want to use MAC spoofing, follow the instructions in *Enabling MAC spoofing* on page 71, but select *Disabled* at step 2.

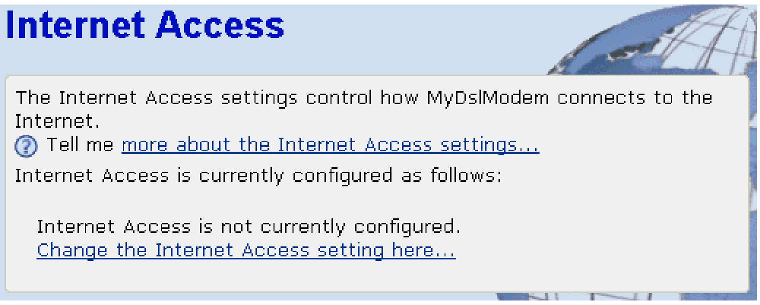
Configuring your DHCP DSL connection

If your ISP uses a DHCP DSL connection, your ISP may tell you to set unique path and circuit numbers (called VPI and VCI) in order to connect your device to the ISP's Internet service. In most cases, your device will use default settings, so you may not need to enter these values.

Note

Your ISP will provide you with the VPI/VCI values necessary to setup a DHCP DSL connection.

1. From the left-hand *Setup* menu, click on *Internet Access*. The following page is displayed:



Internet Access

The Internet Access settings control how MyDslModem connects to the Internet.

Tell me more about the Internet Access settings...

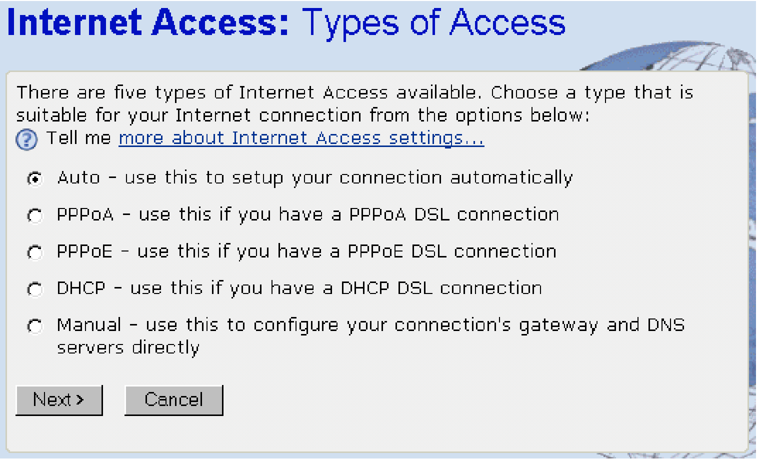
Internet Access is currently configured as follows:

Internet Access is not currently configured.
Change the Internet Access setting here...

Figure 78: Internet Access page

This page displays information about your current Internet access configuration.

2. Click on *Change the Internet Access setting here…* The following page is displayed:



Internet Access: Types of Access

There are five types of Internet Access available. Choose a type that is suitable for your Internet connection from the options below:

Tell me more about Internet Access settings...

● Auto - use this to setup your connection automatically

○ PPPoA - use this if you have a PPPoA DSL connection

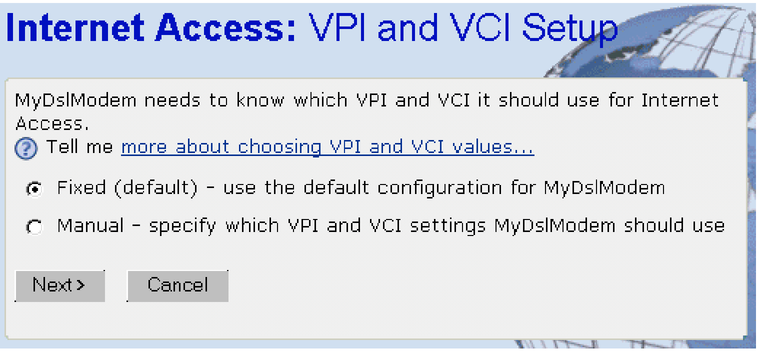
○ PPPoE - use this if you have a PPPoE DSL connection

○ DHCP - use this if you have a DHCP DSL connection

○ Manual - use this to configure your connection's gateway and DNS servers directly

Figure 79: Internet Access: Types of Access page

3. Select *DHCP* then click *Next>*. The following page is displayed:



Internet Access: VPI and VCI Setup

MyDslModem needs to know which VPI and VCI it should use for Internet Access.

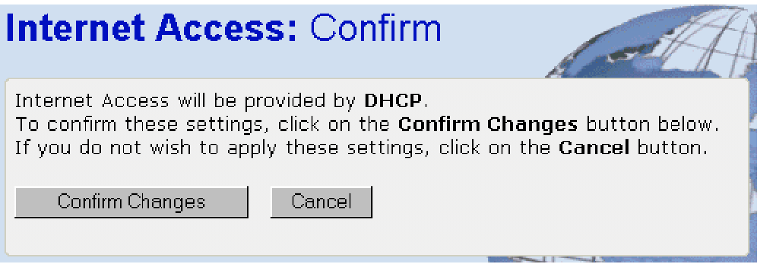
Tell me more about choosing VPI and VCI values...

● Fixed (default) - use the default configuration for MyDslModem

○ Manual - specify which VPI and VCI settings MyDslModem should use

Figure 80: Internet Access: VPI and VCI Setup page

4. At this page, click on the VCI and VPI setting determined by your ISP:
   - *Fixed (default)* - click on this if your ISP tells you to use default VPI and VCI setting. This is the most common setup.
   - *Manual* – click on this if your ISP has provided you with specific VPI and VCI settings. Click *Next>*. At the next page, type the provided VPI and VCI settings in the relevant boxes.
5. Click *Next>*. The following page is displayed:



Internet Access: Confirm

Internet Access will be provided by **DHCP**.
To confirm these settings, click on the **Confirm Changes** button below.
If you do not wish to apply these settings, click on the **Cancel** button.

Figure 81: Internet Access: Confirm page

This page confirms your DHCP settings. If you selected the *Manual* option at step 4, the VPI and VCI values that you entered are also displayed on this page.

6. If you are happy with your settings, click *Confirm Changes*. The *Internet Access* page is displayed and your configuration is complete.

Configuring your Internet Access manually

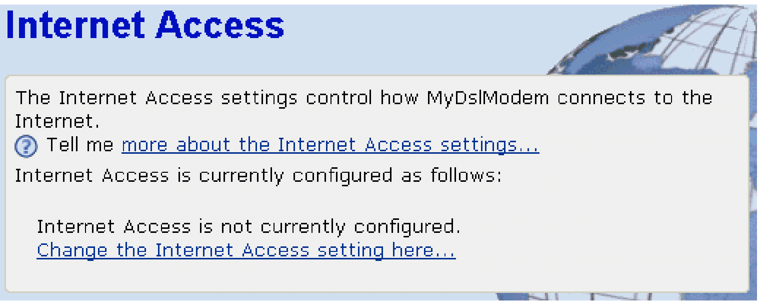
If your ISP tells you to configure your Internet access manually, they must provide you with the following information:

- The WAN IP address and subnet mask for your device
- The Internet Gateway address
- The primary and secondary DNS addresses

Note

You should only change the Internet Access details if your ISP asks you to, or if you are familiar with network configuration. In most cases, you will not need to make any changes to this configuration.

1. From the left-hand *Setup* menu, click on *Internet Access*. The following page is displayed:



Internet Access

The Internet Access settings control how MyDslModem connects to the Internet.

? Tell me more about the Internet Access settings...

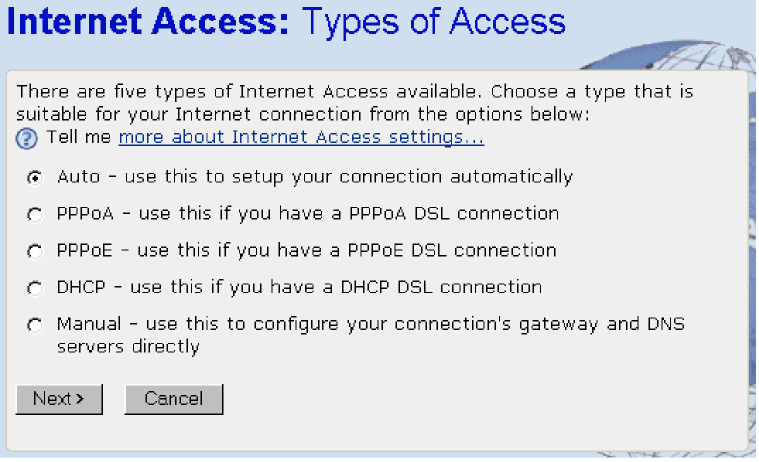
Internet Access is currently configured as follows:

Internet Access is not currently configured.
Change the Internet Access setting here...

Figure 82: Internet Access page

This page displays information about your current Internet access configuration.

2. Click on *Change the Internet Access setting here…* The following page is displayed:



Internet Access: Types of Access

There are five types of Internet Access available. Choose a type that is suitable for your Internet connection from the options below:

? Tell me more about Internet Access settings...

● Auto - use this to setup your connection automatically

○ PPPoA - use this if you have a PPPoA DSL connection

○ PPPoE - use this if you have a PPPoE DSL connection

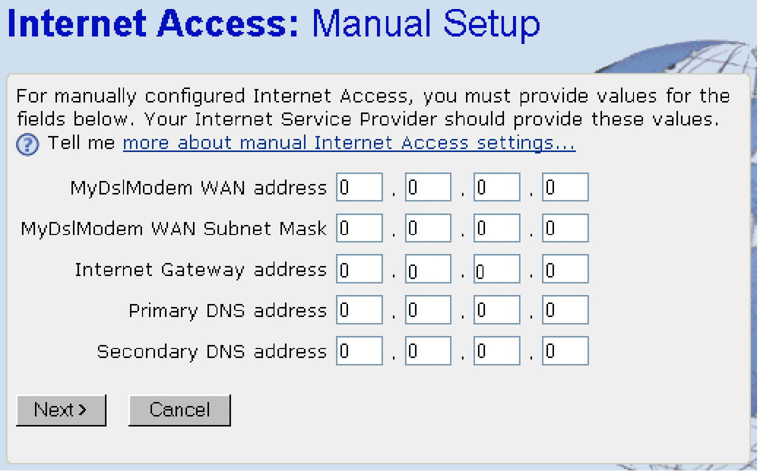
○ DHCP - use this if you have a DHCP DSL connection

○ Manual - use this to configure your connection's gateway and DNS servers directly

Next > Cancel

Figure 83: Internet Access: Types of Access page

3. Select *Manual* then click *Next>*. The following page is displayed:



Internet Access: Manual Setup

For manually configured Internet Access, you must provide values for the fields below. Your Internet Service Provider should provide these values.

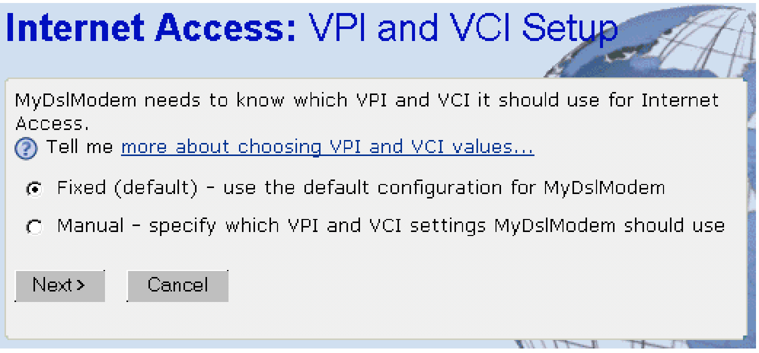
? Tell me more about manual Internet Access settings...

MyDslModem WAN address 0 . 0 . 0 . 0
MyDslModem WAN Subnet Mask 0 . 0 . 0 . 0
Internet Gateway address 0 . 0 . 0 . 0
Primary DNS address 0 . 0 . 0 . 0
Secondary DNS address 0 . 0 . 0 . 0

Next > Cancel

Figure 84: Internet Access: Manual Setup page

4. Click in each box and type the relevant address information provided by your ISP. Click *Next>*. The following page is displayed:



Internet Access: VPI and VCI Setup

MyDslModem needs to know which VPI and VCI it should use for Internet Access.

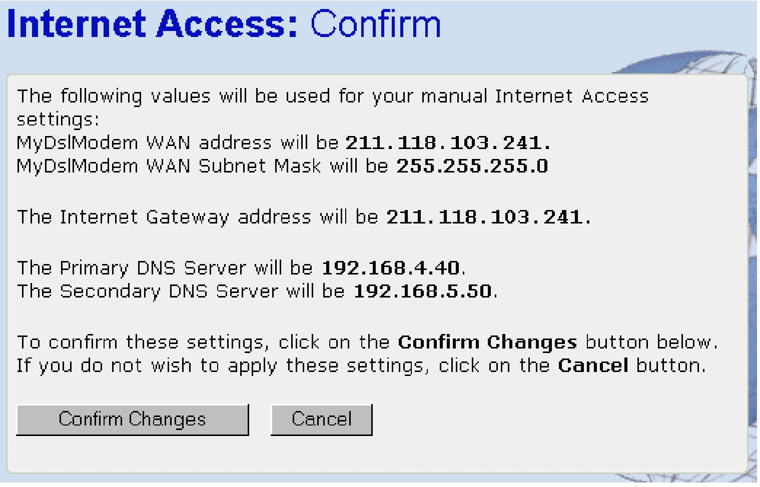
Tell me more about choosing VPI and VCI values...

● Fixed (default) - use the default configuration for MyDslModem

○ Manual - specify which VPI and VCI settings MyDslModem should use

Figure 85: Internet Access: VPI and VCI Setup page

5. At this page, click on the VCI and VPI setting determined by your ISP:
   - *Fixed (default)* - click on this if your ISP tells you to use default VPI and VCI settings. This is the most common setup.
   - *Manual* – click on this if your ISP has provided you with specific VPI and VCI settings. Click *Next*>. At the next page, type the provided VPI and VCI settings in the relevant boxes.
6. Click *Next*>. The following page is displayed:



Internet Access: Confirm

The following values will be used for your manual Internet Access settings:
MyDslModem WAN address will be **211.118.103.241.**
MyDslModem WAN Subnet Mask will be **255.255.255.0**

The Internet Gateway address will be **211.118.103.241.**

The Primary DNS Server will be **192.168.4.40.**
The Secondary DNS Server will be **192.168.5.50.**

To confirm these settings, click on the **Confirm Changes** button below.
If you do not wish to apply these settings, click on the **Cancel** button.

Figure 86: Internet Access: Confirm page

This page confirms the address settings that you have manually configured (the values displayed above are for example purposes only). If you selected the *Manual* option at step 5, the VPI and VCI values that you entered are also displayed on this page.

7. If you are happy with your settings, click *Confirm Changes*. The *Internet Access* page is displayed and your configuration is complete.

13 Password

You can restrict access to your device's web pages using password protection. With password protection enabled, users must enter a username and password before gaining access to the web pages.

By default, password protection is enabled on your device, and the username and password set are as follows:

Username: **admin**

Password: **admin**

For more information, see *Accessing the Web pages* on page 19.

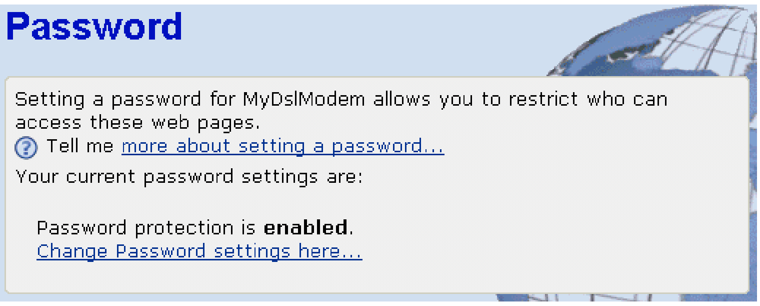
Setting your username and password

Note

Non-authorized users may try to guess your username and password. They will find it easier to guess the default username and password than to guess your own unique username and password. We recommend that you change the default username and password to your own unique settings.

To set your own username and password:

1. From the left-hand *Setup* menu, click on *Password*. The following page is displayed:



Password

Setting a password for MyDslModem allows you to restrict who can access these web pages.

? Tell me more about setting a password...

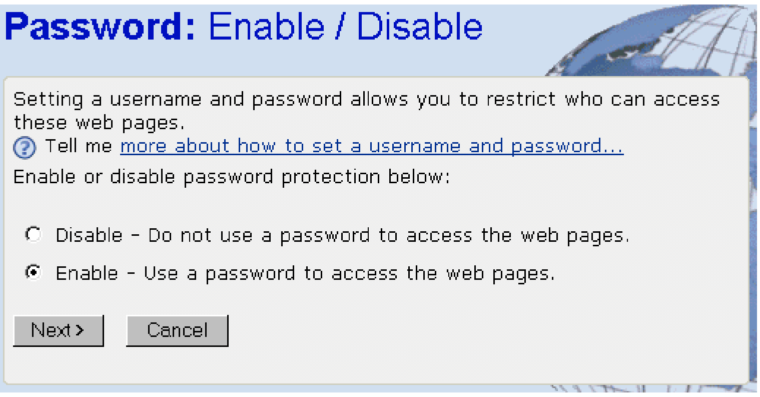
Your current password settings are:

Password protection is **enabled**.
Change Password settings here...

Figure 87: Password page

This page displays the current status of password protection.

2. Click on *Change Password settings here…* The following page is displayed:



Password: Enable / Disable

Setting a username and password allows you to restrict who can access these web pages.

Tell me more about how to set a username and password...

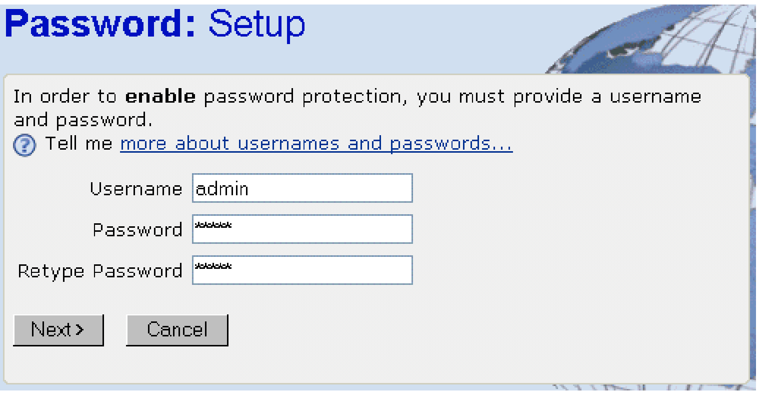
Enable or disable password protection below:

○ Disable - Do not use a password to access the web pages.

● Enable - Use a password to access the web pages.

Figure 88: Password: Enable/Disable page

3. This page allows you to enable or disable password protection. Protection is already enabled by default. Click *Next>*. The following page is displayed:



Password: Setup

In order to **enable** password protection, you must provide a username and password.

Tell me more about usernames and passwords...

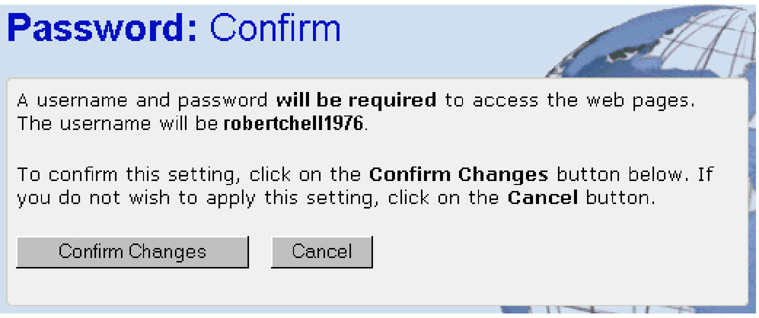
Username: admin

Password: *****

Retype Password: *****

Figure 89: Password: Setup page

4. This page displays the current username and password settings. Type your own unique username and password in the relevant boxes. They can be any combination of letters or numbers with a maximum of 20 characters. The default setting uses *admin* for both the username and password. We recommend that you **do not** set the same character combination for both username and password.
5. Click *Next>.* The following page is displayed:



Password: Confirm

A username and password **will be required** to access the web pages. The username will be **robertchell1976**.

To confirm this setting, click on the **Confirm Changes** button below. If you do not wish to apply this setting, click on the **Cancel** button.

Figure 90: Password: Confirm page

6. This page confirms that password protection is enabled and displays the username that will be required in order to access the web pages. If you are happy with these settings, click *Confirm Changes*. The *Enter Network Password* login box is displayed. You need to login to the web pages using your new username and password. For details of how to do this, see *Accessing the Web pages* on page 19.

Disabling password protection

If you do not want to use password protection, follow the instructions in *Setting your username and* on page 77, and at step 3, select *Disable,* then click *Next>.*

14 Reset to Defaults

This page allows you to reset your device to its default factory settings.

The configuration settings of your device are stored in a configuration file. When you set up your device and access the web pages for the very first time, the configuration file contains a default factory configuration. This configuration has been set by Zoom Telephonics for you, and contains the basic settings that you can use without having to make extensive changes to the configuration.

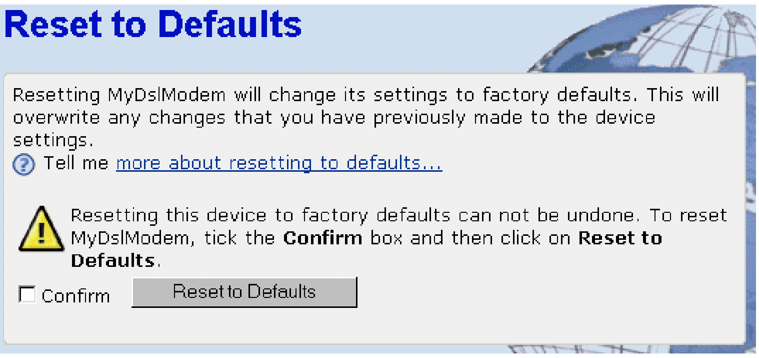
If you do make changes to the default configuration but then wish to revert back to the original factory configuration, you can do so by resetting the device to factory defaults.

Resetting to Defaults

Note

If you reset your device to factory defaults, all previous configuration changes that you have made are overwritten by the factory default configuration.

1. From the left-hand *Setup* menu, click on *Reset to Defaults*. The following page is displayed:



Reset to Defaults

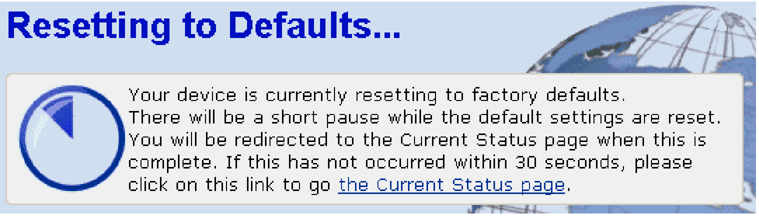
Resetting MyDslModem will change its settings to factory defaults. This will overwrite any changes that you have previously made to the device settings.

Tell me more about resetting to defaults...

Resetting this device to factory defaults can not be undone. To reset MyDslModem, tick the **Confirm** box and then click on **Reset to Defaults**.

Figure 91: Reset to Defaults page

2. This page reminds you that resetting to factory defaults cannot be undone – any changes that you have made to the basic settings will be replaced. If you are happy with this, click in the *Confirm* box to tick it, then click *Reset to Defaults*. The following page is displayed:



Resetting to Defaults...

Your device is currently resetting to factory defaults. There will be a short pause while the default settings are reset. You will be redirected to the Current Status page when this is complete. If this has not occurred within 30 seconds, please click on this link to go the Current Status page.

Figure 92: Resetting to Defaults…

This page confirms that the device is currently resetting to factory defaults. Once the reset is complete, the *Current Status* page is displayed. See *Current Status* on page 25.

Note

Resetting to defaults also resets the username and password to their default settings. If you previously changed the username and password by following the instructions in Password on page 77, the Enter Current Password login box will be displayed.

Once you have entered the default settings (admin, admin) and clicked OK, the Current Status page is displayed.

A Configuring your Computers

This appendix provides instructions for configuring the Internet settings on your computers to work with the 錯誤! 尚未定義樣式。.

Configuring Ethernet PCs

Before you begin

By default, the 錯誤! 尚未定義樣式。 automatically assigns the required Internet settings to your PCs. You need only to configure the PCs to accept the information when it is assigned.

Note

In some cases, you may want to assign Internet information manually to some or all of your computers rather than allow the 錯誤! 尚未定義樣式。 to do so. See Assigning static Internet information to your PCs on page 88 for instructions.

- If you have connected your LAN PCs via Ethernet to the 錯誤! 尚未定義樣式。, follow the instructions that correspond to the operating system installed on your PC:
  - Windows® XP PCs on page 82
  - Windows 2000 PCs on page 84
  - Windows Me PCs on page 85
  - Windows 95, 98 PCs on page 86
  - Windows NT 4.0 workstations on page 86
- If you have connected a PC via the USB port, see *Configuring a USB* PC on page 89.
- If you want to allow Wireless PCs to access your device, follow the instructions in *Configuring Wireless PCs* on page 96.

Windows® XP PCs

1. In the Windows task bar, click the Start button, and then click **Control Panel**.
2. Double-click the Network Connections icon.
3. In the LAN or High-Speed Internet window, right-click on the icon corresponding to your network interface card (NIC) and select **Properties**. (Often, this icon is labeled *Local Area Connection*).

   The Local Area Connection dialog box is displayed with a list of currently installed network items.

4. Ensure that the check box to the left of the item labeled Internet Protocol TCP/IP is checked and click **Properties**.
5. In the Internet Protocol (TCP/IP) Properties dialog box, click the radio button labeled **Obtain an IP address automatically**. Also click the radio button labeled **Obtain DNS server address automatically**.
6. Click **OK** twice to confirm your changes, and then close the Control Panel.

Windows 2000 PCs

First, check for the IP protocol and, if necessary, install it:

1. In the Windows task bar, click the Start button, point to **Settings**, and then click **Control Panel**.
2. Double-click the Network and Dial-up Connections icon.
3. In the Network and Dial-up Connections window, right-click the Local Area Connection icon, and then select **Properties**.

   The Local Area Connection Properties dialog box is displayed with a list of currently installed network components. If the list includes Internet Protocol (TCP/IP), then the protocol has already been enabled. Skip to step 10.

4. If Internet Protocol (TCP/IP) does not display as an installed component, click **Install…**.
5. In the Select Network Component Type dialog box, select **Protocol**, and then click **Add…**.
6. Select **Internet Protocol (TCP/IP)** in the Network Protocols list, and then click **OK**.

   You may be prompted to install files from your Windows 2000 installation CD or other media. Follow the instructions to install the files.

7. If prompted, click **OK** to restart your computer with the new settings.

Next, configure the PCs to accept IP information assigned by the **錯誤!** 尚未定義樣式。:

8. In the Control Panel, double-click the Network and Dial-up Connections icon.
9. In Network and Dial-up Connections window, right-click the Local Area Connection icon, and then select **Properties**.
10. In the Local Area Connection Properties dialog box, select **Internet Protocol (TCP/IP)**, and then click **Properties**.
11. In the Internet Protocol (TCP/IP) Properties dialog box, click the radio button labeled **Obtain an IP address automatically**. Also click the radio button labeled **Obtain DNS server address automatically**.
12. Click **OK** twice to confirm and save your changes, and then close the Control Panel.

Windows Me PCs

1. In the Windows task bar, click the Start button, point to **Settings**, and then click **Control Panel**.
2. Double-click the Network and Dial-up Connections icon.
3. In the Network and Dial-up Connections window, right-click the Network icon, and then select **Properties**.

   The Network Properties dialog box displays with a list of currently installed network components. If the list includes Internet Protocol (TCP/IP), then the protocol has already been enabled. Skip to step 11.

4. If Internet Protocol (TCP/IP) does not display as an installed component, click **Add…**.
5. In the Select Network Component Type dialog box, select **Protocol**, and then click **Add…**.
6. Select **Microsoft** in the Manufacturers box.
7. Select **Internet Protocol (TCP/IP)** in the Network Protocols list, and then click **OK**.

   You may be prompted to install files from your Windows Me installation CD or other media. Follow the instructions to install the files.

8. If prompted, click **OK** to restart your computer with the new settings.

Next, configure the PCs to accept IP information assigned by the 錯誤**!** 尚未定義樣式。:

9. In the Control Panel, double-click the Network and Dial-up Connections icon.
10. In Network and Dial-up Connections window, right-click the Network icon, and then select **Properties**.
11. In the Network Properties dialog box, select **TCP/IP**, and then click **Properties**.
12. In the TCP/IP Settings dialog box, click the radio button labeled **Server assigned IP address**. Also click the radio button labeled **Server assigned name server address**.
13. Click **OK** twice to confirm and save your changes, and then close the Control Panel.

Windows 95, 98 PCs

First, check for the IP protocol and, if necessary, install it:

1. In the Windows task bar, click the Start button, point to **Settings**, and then click **Control Panel**.
2. Double-click the Network icon.

   The Network dialog box displays with a list of currently installed network components. If the list includes TCP/IP, and then the protocol has already been enabled. Skip to step 9.

3. If TCP/IP does not display as an installed component, click **Add…**.

   The Select Network Component Type dialog box displays.

4. Select **Protocol**, and then click **Add…**.

   The Select Network Protocol dialog box displays.

5. Click on **Microsoft** in the Manufacturers list box, and then click **TCP/IP** in the Network Protocols list box.
6. Click **OK** to return to the Network dialog box, and then click **OK** again.

   You may be prompted to install files from your Windows 95/98 installation CD. Follow the instructions to install the files.

7. Click **OK** to restart the PC and complete the TCP/IP installation.

Next, configure the PCs to accept IP information assigned by the 錯誤**!** 尚未定義樣式。:

8. Open the Control Panel window, and then click the Network icon.
9. Select the network component labeled TCP/IP, and then click **Properties**.

   If you have multiple TCP/IP listings, select the listing associated with your network card or adapter.

10. In the TCP/IP Properties dialog box, click the IP Address tab.
11. Click the radio button labeled **Obtain an IP address automatically**.
12. Click the DNS Configuration tab, and then click the radio button labeled **Obtain an IP address automatically**.
13. Click **OK** twice to confirm and save your changes.

    You will be prompted to restart Windows.

14. Click **Yes**.

Windows NT 4.0 workstations

First, check for the IP protocol and, if necessary, install it:

1. In the Windows NT task bar, click the Start button, point to **Settings**, and then click **Control Panel**.
2. In the Control Panel window, double click the Network icon.
3. In the Network dialog box, click the Protocols tab.

   The Protocols tab displays a list of currently installed network protocols. If the list includes TCP/IP, then the protocol has already been enabled. Skip to step 9.

4. If TCP/IP does not display as an installed component, click **Add…**.
5. In the Select Network Protocol dialog box, select **TCP/IP**, and then click **OK**.

   You may be prompted to install files from your Windows NT installation CD or other media. Follow the instructions to install the files.

   After all files are installed, a window displays to inform you that a TCP/IP service called DHCP can be set up to dynamically assign IP information.

6. Click **Yes** to continue, and then click **OK** if prompted to restart your computer.

Next, configure the PCs to accept IP information assigned by the **錯誤! 尚未定義樣式。**:

7. Open the Control Panel window, and then double-click the Network icon.
8. In the Network dialog box, click the Protocols tab.
9. In the Protocols tab, select **TCP/IP**, and then click **Properties**.
10. In the Microsoft TCP/IP Properties dialog box, click the radio button labeled **Obtain an IP address from a DHCP server**.
11. Click **OK** twice to confirm and save your changes, and then close the Control Panel.

Assigning static Internet information to your PCs

If you are like most users, you will not need to assign static Internet information to your LAN PCs. Your ISP automatically assigns this information.

In some cases however, you may want to assign Internet information to some or all of your PCs directly (often called "statically"), rather than allowing the **錯誤! 尚未定義樣式。** to assign it. This option may be desirable (but not required) if:

- You have obtained one or more public IP addresses that you want to always associate with specific computers (for example, if you are using a computer as a public web server).
- You maintain different subnets on your LAN (subnets are described in Appendix B).

Before you begin, be sure to have the following information on hand, or contact your ISP if you do not know it:

- The IP address and subnet mask to be assigned to each PC to which you will be assigning static IP information.
- The IP address of the default gateway for your LAN. In most cases, this is the address assigned to the LAN port on the **錯誤! 尚未定義樣式。**. By default, the LAN port is assigned this IP address: **192.168.1.1**. (You can change this number, or another number can be assigned by your ISP. See *Addressing* on page 42 for more information.)
- The IP address of your ISP's Domain Name System (DNS) server.

On each PC to which you want to assign static information, follow the instructions on pages 82 through 87 relating only to checking for and/or installing the IP protocol. Once it is installed, continue to follow the instructions for displaying each of the Internet Protocol (TCP/IP) properties. Instead of enabling dynamic assignment of the IP addresses for the computer, DNS server and default gateway, click the radio buttons that enable you to enter the information manually.

Note

Your PCs must have IP addresses that place them in the same subnet as the 錯誤! 尚未定義樣式。's LAN port. If you manually assign IP information to all your LAN PCs, you can follow the instructions in Addressing on page 42 to change the LAN port IP address accordingly.

Configuring a USB PC

Connecting a computer to the USB port

If you use the **錯誤!** 尚未定義樣式。's USB port to connect to a PC, you must install the provided USB driver software on the PC. The driver enables Ethernet-over-USB communication with the **錯誤!** 尚未定義樣式。.

Configuring the USB computer is a two-part process:

- In Part 1, you install the USB driver on the PC.
  - If your computer is running Windows 2000, 98, 98 SE or ME, follow the instructions in Part 1A.
  - If your computer is running Windows XP, follow the instructions in Part 1B.
- In Part 2, you configure the IP properties on the USB PC.

Part 1. Installing the USB Driver

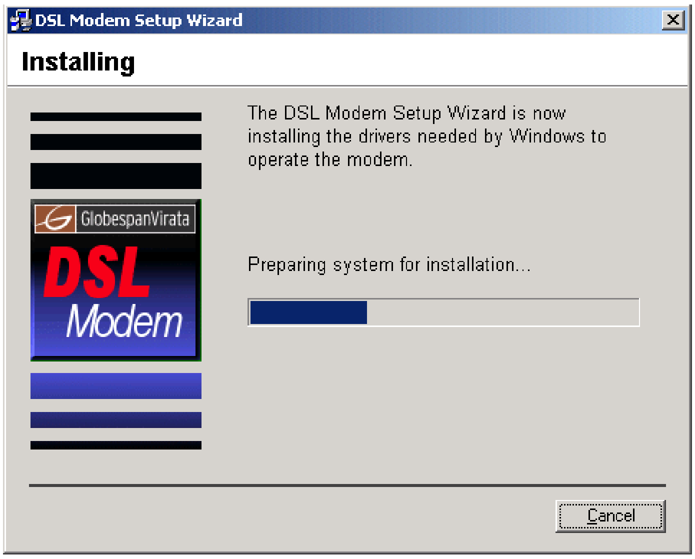
Ensure that the USB cable **is not connected** to the USB port on the PC. The installation program will prompt you when to connect the cable.

Follow the instructions in either Part 1A or Part 1B, depending on which version of Windows is running on your PC.

Part 1A (Windows 2000, 98, 98 SE or ME)

1. Copy the USB installation files to a temporary directory on the USB computer.
2. In the folder where you copied the files, double-click on *setup.exe* to start the DSL Modem Setup Wizard.

   The Installing window displays as the Wizard prepares your system for the installation:



DSL Modem Setup Wizard

Installing

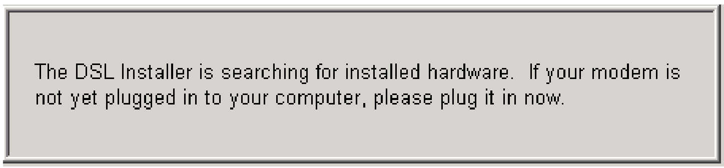
The DSL Modem Setup Wizard is now installing the drivers needed by Windows to operate the modem.

Preparing system for installation...

Figure 93: USB Setup Wizard: Installing Window

If a Microsoft digital signature dialog box displays, click **Yes** to continue.

The installation program will begin copying the necessary installation files to the required locations. When complete, a window displays to prompt you to connect the USB cable to your computer.



The DSL Installer is searching for installed hardware. If your modem is not yet plugged in to your computer, please plug it in now.

Figure 94: Prompt for USB Cable Plug-in

3. Plug the USB cable from the device into the USB port of the PC.

   The USB cable provided has a flat connector on one end (called Type A) and a square connector on the other (Type B). Connect the flat connector to your PC and the square connector to the **錯誤! 尚未定義樣式。**.

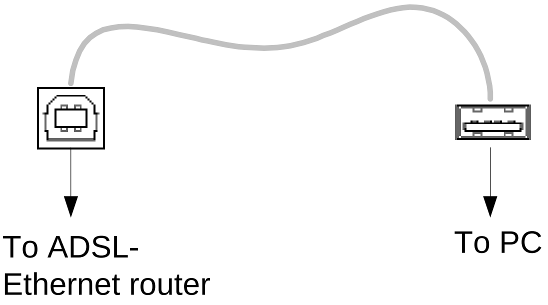


Figure 95: USB Cable Connectors

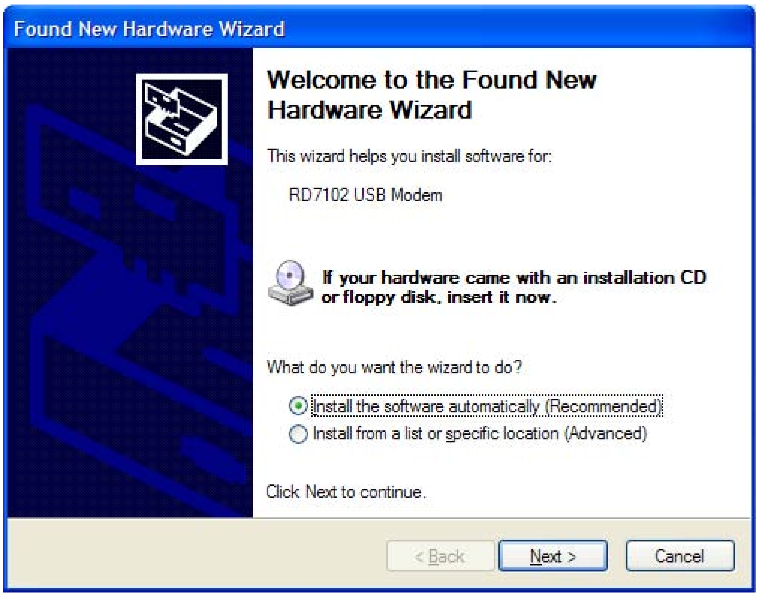
If a Microsoft digital signature dialog box again displays, click **Yes** to continue.

A window displays briefly, indicating that the system has found new hardware, and the Installing window displays as the installation finishes.

You have now finished installing the driver. You do not need to restart your computer. Proceed to *Part 2. Configuring IP properties on the USB PC* on page 95.

Part 1B (Windows 2000, 98, 98 SE or ME)

1. Copy the USB installation files to a temporary directory on the USB computer.
2. Copy the file *grootusb.inf* provided by Zoom Telephonics to a floppy disc or CD and insert the disc into the PC that you are connecting to the device.
3. Plug the USB cable from the device into the USB port of the PC. The PC will detect the newly-attached device and display the *Found New Hardware Wizard* dialog box:



Found New Hardware Wizard

Welcome to the Found New Hardware Wizard

This wizard helps you install software for:

RD7102 USB Modem

If your hardware came with an installation CD or floppy disk, insert it now.

What do you want the wizard to do?

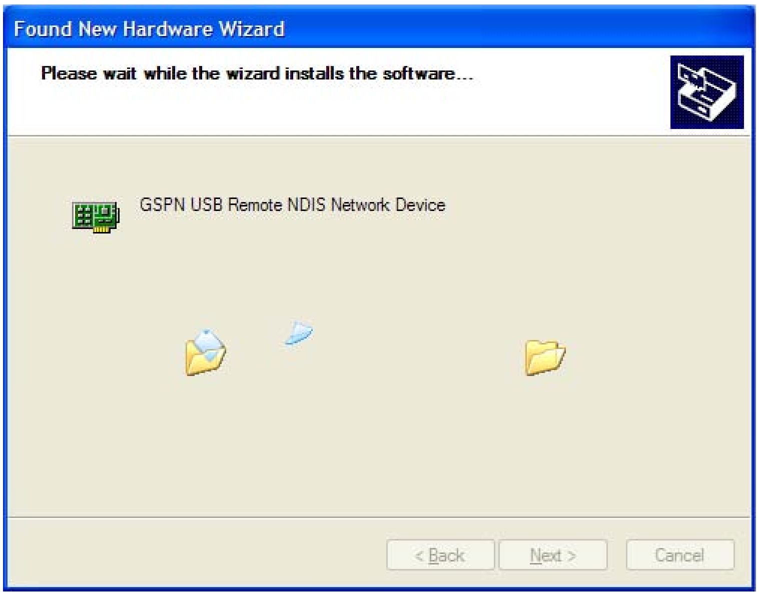
● Install the software automatically (Recommended)

○ Install from a list or specific location (Advanced)

Click Next to continue.

Figure 96: Windows XP Driver Installation

4. Click on *Next*>. The PC will search the disc for the driver configuration file. When this file is found, the PC will begin installing the drivers for the device:



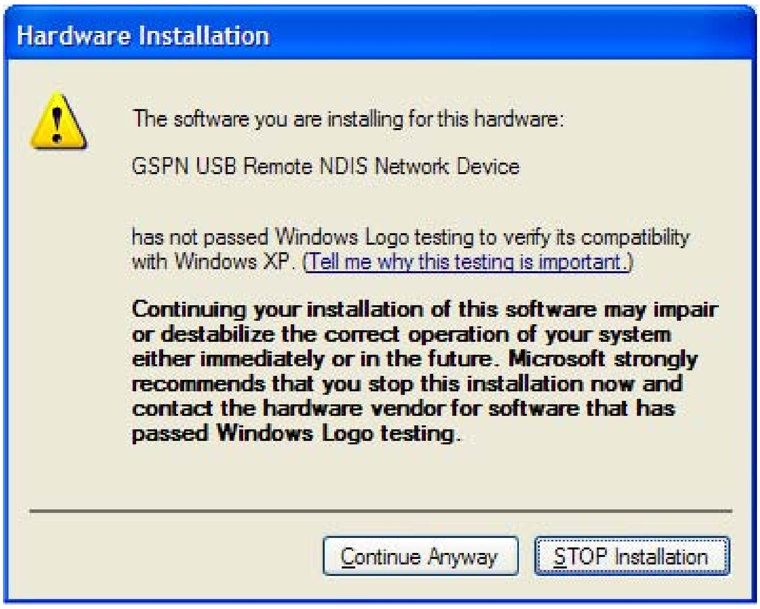
Found New Hardware Wizard

Please wait while the wizard installs the software...

GSPN USB Remote NDIS Network Device

Figure 97: Windows XP driver 'Remote Network Device found'

The following window is displayed warning that the device is not yet Windows XP compatible:



The software you are installing for this hardware:

GSPN USB Remote NDIS Network Device

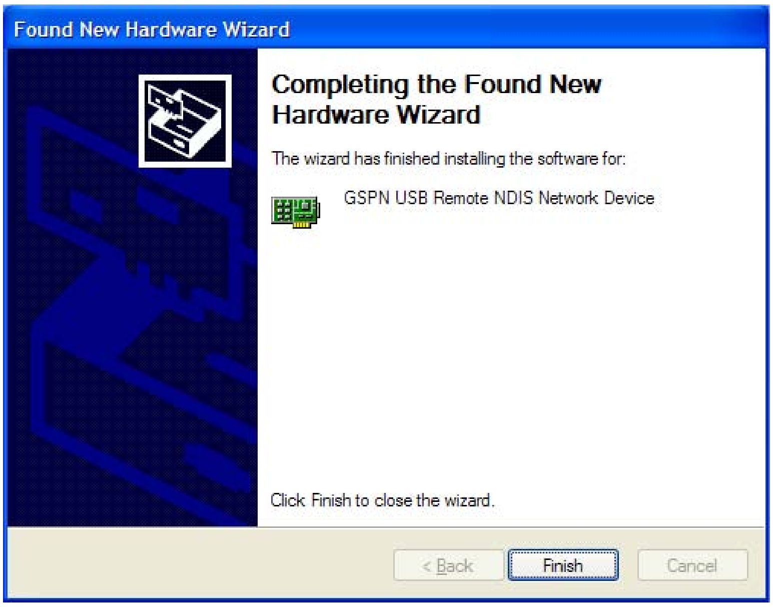
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)

Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.

Figure 98: Windows XP driver 'Not XP compatible' warning

Click on *Continue Anyway* to proceed.

5. When the driver has been installed, the Found New Hardware Wizard confirms that the installation is complete for your device:



Completing the Found New Hardware Wizard

The wizard has finished installing the software for:

GSPN USB Remote NDIS Network Device

Click Finish to close the wizard.

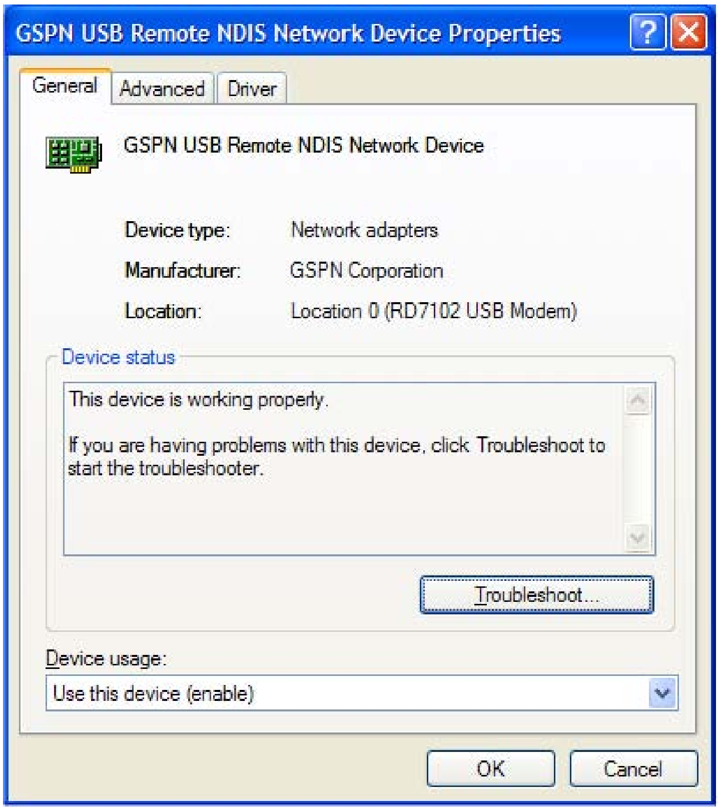
Figure 99: Windows XP driver Hardware Wizard

6. Click on Finish. The toolbar will display the following message, confirming that the device has been installed correctly:

New hardware installed and ready to use

From the Windows XP Network Connections dialog box, the device is installed as a new LAN Device called *Zoom Telephonics USB Remote NDIS Network Device.*

For example:



GSPN USB Remote NDIS Network Device Properties

GSPN USB Remote NDIS Network Device

Device type: Network adapters

Manufacturer: GSPN Corporation

Location: Location 0 (RD7102 USB Modem)

Device status

This device is working properly.

If you are having problems with this device, click Troubleshoot to start the troubleshooter.

Device usage: Use this device (enable)

Figure 100: Windows XP Device Properties for the installed device

Replace this screen grab with one that displays your own Company name

You have now finished installing the driver. You do not need to restart your computer. Proceed to *Part 2. Configuring IP properties on the USB PC* on page 95.

Part 2. Configuring IP properties on the USB PC

Now that the USB driver installation is complete, you must configure the USB PC so that its IP properties place it in the same subnet as the **錯誤!** 尚未定義樣式。's USB port. There are two ways to do this:

- The **錯誤!** 尚未定義樣式。 is configured to assign an appropriate IP address to the USB PC. If you want to use this automatic assignment feature, called "DHCP server," you must configure the USB PC to accept dynamically assigned IP information. Follow the instruction on pages 82 through 87 that correspond to the operating system installed on your PC.
- If you want to assign a static IP address to the PC, follow the instructions on page 88 and use the following information:
  - In the Network and Dial-up Connections window, be sure to select the icon that corresponds to your new USB connection (not the one that corresponds to your Ethernet NIC). When you display properties for the icon, the following text should display in the Connect Using text box:

    Conexant USB IAD LAN Modem #n
  - The USB port on the **錯誤!** 尚未定義樣式。 is preconfigured with these properties:

USB port IP address:	192.168.1.1
USB port subnet mask:	255.255.255.0

    Therefore, your PC must be configured as follows:

IP address:	192.168.1.*n* where *n* is a number from *2* to *254* that does not conflict with the DHCP address range.
Subnet mask:	255.255.255.0

Configuring Wireless PCs

You need to configure the operating system installed on your Wireless PCs using the same procedure described for *Configuring Ethernet PCs* on page 82.

Positioning the wireless PCs

The wireless network cards used determine the maximum distance between your wireless PCs and your device. Guidelines on positioning the hardware components of your wireless network should be provided by your network card provider.

Wireless PC cards and drivers

Each PC on your wireless LAN must be fitted with a wireless access card. You must also install the corresponding driver files for your particular wireless card on your PC. You should receive driver files and instructions on how to install them together with your wireless card.

Configuring PC access to your Wireless device

Before you start configuring your Wireless PC, you must ensure that you have:

- A Wireless access card for each of the PCs
- Corresponding wireless access card driver software files

The configuration steps below will vary depending on both the operating system and wireless card installed on the PC. These steps provide a basic outline, however you should refer to the documentation provided with your wireless access card for specific instructions.

To configure your Wireless PCs:

1. Install the wireless access card.
2. Install the wireless driver software files.
3. Configure the following wireless parameters on each of the wireless PCs:
    a. Set the adapter to use infrastructure mode. This configures the PCs to access each other and the Internet via the device.

    b. Configure the SSID and channel to match the SSID and channel previously configured on the device (see *Set the Wireless Network Name* on page 46 and *Select a Channel* on page 47).

    c. If you are using Wired Equivalent Privacy (WEP) security, configure the same network key that was previously configured on the device (see *Configuring 64bit or 128bit encryption* on page 49). If you are using Wi-Fi Protected Access (WPA) security, configure the same pass phrase that was previously configured on the device (see *Configuring WPA security* on page 50). Note that these values must correspond with the settings on your device.

Your wireless network can now communicate with the Internet via the device.

B IP Addresses, Network Masks, and Subnets

IP Addresses

Note

This section refers only to IP addresses for IPv4 (version 4 of the Internet Protocol). IPv6 addresses are not covered.

This section assumes basic knowledge of binary numbers, bits, and bytes.

IP addresses, the Internet's version of telephone numbers, are used to identify individual nodes (computers or devices) on the Internet. Every IP address contains four numbers, each from 0 to 255 and separated by dots (periods), e.g. 20.56.0.211. These numbers are called, from left to right, field1, field2, field3, and field4.

This style of writing IP addresses as decimal numbers separated by dots is called *dotted decimal notation*. The IP address 20.56.0.211 is read "twenty dot fifty-six dot zero dot two-eleven."

Structure of an IP address

IP addresses have a hierarchical design similar to that of telephone numbers. For example, a 7-digit telephone number starts with a 3-digit prefix that identifies a group of thousands of telephone lines, and ends with four digits that identify one specific line in that group.

Similarly, IP addresses contain two kinds of information:

- *Network ID*
  Identifies a particular network within the Internet or intranet
- *Host ID*
  Identifies a particular computer or device on the network

The first part of every IP address contains the network ID, and the rest of the address contains the host ID. The length of the network ID depends on the network's *class* (see following section). The table below shows the structure of an IP address.

	Field1	Field2	Field3	Field4
Class A	Network ID	Host ID		
Class B	Network ID		Host ID	
Class C	Network ID			Host ID

Here are some examples of valid IP addresses:

Class A: 10.30.6.125 (network = 10, host = 30.6.125)
Class B: 129.88.16.49 (network = 129.88, host = 16.49)
Class C: 192.60.201.11 (network = 192.60.201, host = 11)

Network classes

The three commonly used network classes are A, B, and C. (There is also a class D but it has a special use beyond the scope of this discussion.) These classes have different uses and characteristics.

Class A networks are the Internet's largest networks, each with room for over 16 million hosts. Up to 126 of these huge networks can exist, for a total of over 2 billion hosts. Because of their huge size, these networks are used for WANs and by organizations at the infrastructure level of the Internet, such as your ISP.

Class B networks are smaller but still quite large, each able to hold over 65,000 hosts. There can be up to 16,384 class B networks in existence. A class B network might be appropriate for a large organization such as a business or government agency.

Class C networks are the smallest, only able to hold 254 hosts at most, but the total possible number of class C networks exceeds 2 million (2,097,152 to be exact). LANs connected to the Internet are usually class C networks.

Some important notes regarding IP addresses:

- The class can be determined easily from field1:

field1 = 1-126:	Class A
field1 = 128-191:	Class B
field1 = 192-223:	Class C

  (field1 values not shown are reserved for special uses)
- A host ID can have any value except all fields set to 0 or all fields set to 255, as those values are reserved for special uses.

Subnet masks

Definition
mask

A mask *looks like a regular IP address, but contains a pattern of bits that tells what parts of an IP address are the network ID and what parts are the host ID: bits set to 1 mean "this bit is part of the network ID" and bits set to 0 mean "this bit is part of the host ID."*

Subnet masks are used to define *subnets* (what you get after dividing a network into smaller pieces). A subnet's network ID is created by "borrowing" one or more bits from the host ID portion of the address. The subnet mask identifies these host ID bits.

For example, consider a class C network 192.168.1. To split this into two subnets, you would use the subnet mask:

255.255.255.128

It's easier to see what's happening if we write this in binary:

11111111. 11111111. 11111111.10000000

As with any class C address, all of the bits in field1 through field3 are part of the network ID, but note how the mask specifies that the first bit in field4 is also included. Since this extra bit has only two values (0 and 1), this means there are two subnets. Each subnet uses the remaining 7 bits in field4 for its host IDs, which range from 1 to 126 hosts (instead of the usual 0 to 255 for a class C address).

Similarly, to split a class C network into four subnets, the mask is:

255.255.255.192 or 11111111. 11111111. 11111111.11000000

The two extra bits in field4 can have four values (00, 01, 10, 11), so there are four subnets. Each subnet uses the remaining six bits in field4 for its host IDs, ranging from 1 to 62.

Note

Sometimes a subnet mask does not specify any additional network ID bits, and thus no subnets. Such a mask is called a default subnet mask*. These masks are:*

Class A:	*255.0.0.0*
Class B:	*255.255.0.0*
Class C:	*255.255.255.0*

These are called default *because they are used when a network is initially configured, at which time it has no subnets.*

C Troubleshooting

This appendix suggests solutions for problems you may encounter in installing or using the 錯誤! 尚未定義樣式。, and provides instructions for using several IP utilities to diagnose problems.

Contact Customer Support if these suggestions do not resolve the problem.

Troubleshooting Suggestions

Problem	Troubleshooting Suggestion
LEDs	
Power LED does not illuminate after product is turned on.	Verify that you are using the power cable provided with the device and that it is securely connected to the 錯誤! 尚未定義樣式。 and a wall socket/power strip.
Internet LED does not illuminate after phone cable is attached.	Verify that a standard telephone cable (called an RJ-11 cable) like the one provided is securely connected to the DSL port and your wall phone port. Allow about 30 seconds for the device to negotiate a connection with your ISP.
LINK LAN LED does not illuminate after Ethernet cable is attached.	Verify that the Ethernet cable is securely connected to your LAN hub or PC and to the 錯誤! 尚未定義樣式。. Make sure the PC and/or hub is turned on. Verify that you are using a straight-through type Ethernet cable to the uplink port on a hub or a cross-over type cable to a stand-alone PC. If you connected the device to an ordinary hub port (not Uplink), you must use a straight-through cable. (To check: hold the connectors at each end of the cable side-by-side with the plastic spring facing down. Looking at the wires from left to right, if the first, second, third, and sixth wires are the same color on the two connectors, then it is a straight-through type. On a cross-over type, wire 1 on one connector should be the same color as wire 3 on the other. The same is true of wires 2 and 6.) Verify that your cable is sufficient for your network requirements. A 100 Mbit/sec network (10BaseTx) should use cables labeled CAT 5. A 10Mbit/sec network may tolerate lower quality cables.
Internet Access	
My PC cannot access Internet	Run a health check on your device. See *Health Check* on page 32. Use the ping utility, discussed in the following section, to check whether your PC can communicate with the device's LAN IP address (by default 192.168.1.1). If it cannot, check the Ethernet cabling. If you statically assigned a private IP address to the computer, (not a registered public address), verify the following: • Check that the gateway IP address on the computer is your public IP address (see Current Status on page 10 for instructions on viewing the IP information.) If it is not, correct the address or configure the PC to

Problem	Troubleshooting Suggestion
	receive IP information automatically. • Verify with your ISP that the DNS server specified for the PC is valid. Correct the address or configure the PC to receive this information automatically.
My LAN PCs cannot display web pages on the Internet.	Verify that the DNS server IP address specified on the PCs is correct for your ISP, as discussed in the item above. If you specified that the DNS server be assigned dynamically from a server, then verify with your ISP that the address configured on the **錯誤! 尚未定義樣式。** is correct, then You can use the ping utility, discussed on page 104, to test connectivity with your ISP's DNS server.
Web pages	
I forgot/lost my user ID or password.	If you have not changed the password from the default, try using "admin" as both the user ID and password. Otherwise, you can reset the device to the default configuration by pressing the Reset Default button on the front panel of the device (see *Front Panel* on page 14). Then, type the default User ID and password shown above. **WARNING:** Resetting the device removes any custom settings and returns all settings to their default values.
I cannot access the web pages from my browser.	Use the ping utility, discussed in the following section, to check whether your PC can communicate with the device's LAN IP address (by default 192.168.1.1). If it cannot, check the Ethernet cabling. Verify that you are using Internet Explorer v4.0 or later, or Netscape Navigator v4.61 or later. Verify that the PC's IP address is defined as being on the same subnet as the IP address assigned to the LAN port on the **錯誤! 尚未定義樣式。**.
My changes to the web pages are not being retained.	Be sure to use the *Confirm Changes* function after any changes.

Diagnosing Problem using IP Utilities

ping

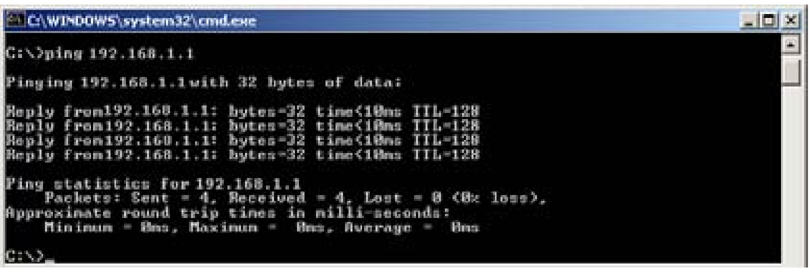
Ping is a command you can use to check whether your PC can recognize other computers on your network and the Internet. A ping command sends a message to the computer you specify. If the computer receives the message, it sends messages in reply. To use it, you must know the IP address of the computer with which you are trying to communicate.

On Windows-based computers, you can execute a ping command from the Start menu. Click the *Start* button, and then click *Run*. In the *Open* text box, type a statement such as the following:

ping 192.168.1.1

Click *OK*. You can substitute any private IP address on your LAN or a public IP address for an Internet site, if known.

If the target computer receives the message, a *Command Prompt* window is displayed:



```
C:\>ping 192.168.1.1

Pinging 192.168.1.1with 32 bytes of data:

Reply from192.168.1.1: bytes=32 time<10ms TTL=128
Reply from192.168.1.1: bytes=32 time<10ms TTL=128
Reply from192.168.1.1: bytes=32 time<10ms TTL=128
Reply from192.168.1.1: bytes=32 time<10ms TTL=128

Ping statistics for 192.168.1.1
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms

C:\>_
```

Figure 101: Using the ping Utility

If the target computer cannot be located, you will receive the message *Request timed out*.

Using the ping command, you can test whether the path to the 錯誤! 尚未定義樣式。 is working (using the preconfigured default LAN IP address 192.168.1.1) or another address you assigned.

You can also test whether access to the Internet is working by typing an external address, such as that for *www.yahoo.com* (216.115.108.243). If you do not know the IP address of a particular Internet location, you can use the *nslookup* command, as explained in the following section.

From most other IP-enabled operating systems, you can execute the same command at a command prompt or through a system administration utility.

nslookup

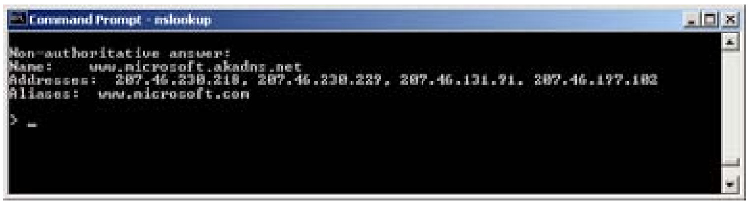
You can use the nslookup command to determine the IP address associated with an Internet site name. You specify the common name, and the nslookup command looks up the name in on your DNS server (usually located with your ISP). If that name is not an entry in your ISP's DNS table, the request is then referred to another higher-level server, and so on, until the entry is found. The server then returns the associated IP address.

On Windows-based computers, you can execute the nslookup command from the *Start* menu. Click the *Start* button, and then click *Run*. In the *Open* text box, type the following:

Nslookup

Click *OK*. A Command Prompt window displays with a bracket prompt (>). At the prompt, type the name of the Internet address that you are interested in, such as *www.microsoft.com*.

The window will display the associate IP address, if known, as shown below:



```
Non-authoritative answer:
Name:     www.microsoft.akadns.net
Addresses:  207.46.230.218, 207.46.230.229, 207.46.131.91, 207.46.197.102
Aliases:  www.microsoft.com

> _
```

Figure 102: Using the nslookup Utility

There may be several addresses associated with an Internet name. This is common for web sites that receive heavy traffic; they use multiple, redundant servers to carry the same information.

To exit from the nslookup utility, type **exit** and press **[Enter]** at the command prompt.

D Advanced DSL port attributes

The following table displays detailed information about the advanced DSL port attributes. These attributes are displayed on the *Port A1 Advanced Configuration page (part 1)* and *Port A1 Advanced Configuration page (part 2)*.

Note

You should only need to refer to these attributes if your ISP has asked you to check something or if you are experienced in DSL port configuration.

Attribute	Value	Default
DSP Firmware Version	DSP code version number	N/A
DSP Version	DSL driver version number	N/A
Connected	Current connected state: True – modem is connected to a remote modem False – modem is not connected to a remote modem	False
Operational Mode	Current operating (connected) mode (modulation)	Inactive
State	Current state of the device: Idle – not connected or attempting to connect HandShake – connecting/hunting for remote modem Training – connecting/found a remote modem Showtime – connected to remote modem	N/A
Watchdog	Watchdog timer which confirms that the DSP is executing a program correctly	N/A
Operation Progress	Detailed startup information to be used for debugging	N/A
Last Failed	This value is reset to 0 each time a startup is attempted. If there is a failure, it indicates the reason for the failure.	N/A
Tx Bit Rate	Transmit rate (bits per second) of the device	N/A
Rx Bit Rate	Receive rate (bits per second) of the device	N/A
Tx Cell Rate	Transmit rate (cells per second) of the device	N/A
Rx Cell Rate	Receive rate (cells per second) of the device	N/A
Phy TXCell Count	Transmit ATM cell counter	N/A
Phy RXCell Count	Receive ATM cell counter	N/A
Phy Cell Drop Count	UTOPIA cell drop counter	N/A
Overall Failure	Indicates the cause of failure	N/A
Local ITUCountry Code	Country code used by the device (modulation specific)	N/A
Local SEF	Number of severely errored frame defects received by the device	N/A
Local End LOS	Number of loss of signal defects received by the device	N/A
Local SNRMargin	The local Signal to Noise Ration margin	N/A
Local Line Attn	The local attenuation values	N/A
Local Tx Power	Current transmit power attenuation of the device	N/A

Attribute	Value	Default
Local Fast Channel Rx Rate	Receive rate (bits per second) of the device on the fast path	N/A
Local Fast Channel Tx Rate	Transmit rate (bits per second) of the device on the fast path	N/A
Local Fast Channel FEC	Instances of Forward Error Correction required by the device on the fast channel	N/A
Local Fast Channel CRC	Number of CRC errors received by the device on the fast channel	N/A
Local Fast Channel HEC	Number of ATM Cell Header errors corrected by the device on the fast channel	N/A
Local Fast Channel NCD	Number of no cell delineation received by the device on the fast channel	N/A
Local Fast Channel OCD	Number of out of cell delineation received by the device on the fast channel	N/A
Local Interleaved Channel Rx Rate	Receive rate (bits per second) of the device on the interleaved path	N/A
Local Interleaved Channel Tx Rate	Transmit rate (bits per second) of the device on the interleaved path	N/A
Local Interleaved Channel FEC	Instances of Forward Error Correction required by the device on the interleaved channel	N/A
Local Interleaved Channel CRC	Number of CRC errors received by the device on the interleaved channel	N/A
Local Interleaved Channel HEC	Number of ATM Cell Header errors corrected by the device on the interleaved channel	N/A
Local Interleaved Channel NCD	Number of no cell delineation received by the device on the interleaved channel	N/A
Local Interleaved Channel OCD	Number of out of cell delineation received by the device on the interleaved channel	N/A
Remote SEF	Number of severely errored frame defects received by the device	N/A
Remote LOS	Number of loss of signal defects received by the device	N/A
Remote Line Attn	The remote attenuation values	N/A
Remote SNRMargin	The remote Signal to Noise Ration margin	N/A
Remote Fast Channel FEC	Instances of Forward Error Correction required by the device on the fast channel	N/A
Remote Fast Channel CRC	Number of CRC errors received by the device on the fast channel	N/A
Remote Fast Channel HEC	Number of ATM Cell Header errors corrected by the device on the fast channel	N/A
Remote Fast Channel NCD	Number of no cell delineation received by the device on the fast channel	N/A
Remote Interleaved Channel FEC	Instances of Forward Error Correction required by the device on the interleaved channel	N/A
Remote Interleaved Channel CRC	Number of CRC errors received by the device on the interleaved channel	N/A
Remote Interleaved Channel HEC	Number of ATM Cell Header errors corrected by the device on the interleaved channel	N/A
Remote Interleaved Channel NCD	Number of no cell delineation received by the device on the interleaved channel	N/A

Attribute	Value	Default
Activate Line	Abort – deactivates the DSL link None – signifies that this parameter has been read Start – activates the DSL link	None
Host Control	Disable – terminates any host/API interaction with the DSP (for testing purposes) Enable – enables host/API interaction with the DSP	Enable
Auto Start	"True" - A Connection will be established at power up. "False" - The modem will remain in Idle mode at power up.	True
Failsafe	True – a failsafe timer is activated when a startup request is made. Once a connection has been established, the failsafe timer is disabled False – a failsafe timer is not activated when a startup request is made	True
PSMode	Possible Values: "Inner" : Inner Pair Selected "Outer" : Outer Pair Selected This attribute is only present if Pair switching is enabled.	Inner
Whip	Possible Values if compiled for Whip Serial: Serial or Inactive Possible Values if compiled for Whip TCP: TCP or Inactive Possible Values if compiled for Whip Serial/TCP: Serial, TCP or Inactive	Inactive
Whip Active	Indicated state of whip. Possible values are Inactive, SerialActive and TCPActive	Inactive
Action	An action given when ActivateLine is set to Start. Possible values are Startup, SpectrumReverb, SpectrumMedely or SpectrumPilot	Startup
Standard	Indicates the preferred standard compliance. *Multimode* indicates that the device automatically detects the other end as one of the supported standards.	Multimode
Utopia Interface	Level1 – Utopia Level 1 internal framing is used with the DSP Level2 – Utopia Level 2 internal framing is used with the DSP	Level1
EC FDM Mode	EC – enables Echo Cancellation. This setting is necessary if your device is connected to a high speed CO. FDM – enables Frequency Division Multiplexing	EC
Max Bits Per Bin	The maximum number of bits per bin. This can be any value between 1 and 15	15
Tx Start Bin	A value that indicates the lowest bin number allowed for transmit signal	6
Tx End Bin	A value that indicates the highest bin number allowed for transmit signal	31
Rx Start Bin	A value that indicates the lowest bin number allowed for receive signal	6

Attribute	Value	Default
Rx End Bin	A value that indicates the highest bin number allowed for receive signal	255
Rx Auto Bin Adjust	Disable – the bin settings configured as the RxStartBin/RxEndBin parameters are used Enable – DSP automatically adjusts the bin selection for receive signal	Enable
Tx Attenuation	A value between 0dB and 12dB that indicates the transmit power attenuation	0
Bit Swap	Disable – disables the adjustment of the number of bits assigned to a subcarrier without interrupting data flow Enable – enables the adjustment off the number of bits assigned to a subcarrier without interrupting data flow	Enable
Annex Type	AnnexA – sets AnnexA as the Annex compliance of the code release G.Span – sets G.Span as the Annex compliance of the code release	AnnexA
Max Down Rate	A value that sets the maximum downstream rate for those applications where it is necessary to limit the downstream data rate	4095
Physical Port	A value between 0 and 14 that sets the Utopia Level 2 Utopia address	0
Retrain	Disable – disables full retrain capability Enable – enables full retrain capability	Enable
Detect Noise	Enables/disables noise detection (only valid for Annex AHS)	N/A

Attribute	Value	Default
Capability	This parameter controls whether the CPE will attempt to startup using alternate standards if the CO does not support G.Span (High Speed (HS)). The CPE has the ability to connect in either ADSL Annex A or G.Span. This is provided by the ADSL/Annex A /G.Span Auto Detect feature. The standard used depends on the capability of the CO. Using Auto Detect, startup at the CPE is first attempted in Annex A. The CO is the master and the CPE is the slave. If the result of handshake with the CO is G.Span (HS), then the CPE will switch to G.Span. If the CO does not support G.Span, then the resultant connection will be ADSL Annex A. This parameter must be set to AHS to configure the modem for A & HS 'two-speed' Auto Detect. For Auto Detect, all other parameters should be set to the Annex A profile. If UTOPIA Level 2 framing is set (using the UtopiaInterface parameter), ensure that the UTOPIA address is set (using the PhysicalPort parameter) as there is no default value. If the result of handshake with the CO is G.Span (HS), then the CPE will switch to G.Span and the appropriate CPE parameters will be automatically re-configured by the DSP for G.Span operation. A: Annex A capable AHS: Annex A or High Speed capable Disable: the device does not send any standards capability information to the CO.	Disable
Coding Gain	The gain due to trellis/RS coding. Its value ranges from 0-7 dB. *Auto* automatically selects the coding gain.	auto
Framer Type	Value can be set to Type 0 – 3 or Type3ET. To enable DataBoost set FramerType to Type3ET	Type3
Dying Gasp	Enables/disables dying gasp.	Enable
Defaults	Sets the recommended default parameters for a given Standard.	None
Reset Defaults	Reset device to use default port configuration	False

E Glossary

802.11
A family of specifications for wireless LANs developed by a working group of the IEEE. This device uses the 802.11b specification. This in an Ethernet protocol, often called Wi-Fi.

10BASE-T
A designation for the type of wiring used by Ethernet networks with a data rate of 10 Mbps. Also known as Category 3 (CAT 3) wiring. *See also data rate, Ethernet*.

100BASE-T
A designation for the type of wiring used by Ethernet networks with a data rate of 100 Mbps. Also known as Category 5 (CAT 5) wiring. *See also data rate, Ethernet*.

ADSL
Asymmetric Digital Subscriber Line
The most commonly deployed "flavor" of DSL for home users is asymmetrical DSL. The term asymmetrical refers to its unequal data rates for downloading and uploading (the download rate is higher than the upload rate). The asymmetrical rates benefit home users because they typically download much more data from the Internet than they upload.

analog
An analog signal is a signal that has had its frequency modified in some way, such as by amplifying its strength or varying its frequency, in order to add information to the signal. The voice component in DSL is an analog signal. *See also digital*.

ATM
Asynchronous Transfer Mode
A standard for high-speed transmission of data, text, voice, and video, widely used within the Internet. ATM data rates range from 45 Mbps to 2.5 Gbps. *See also data rate*.

authenticate
To verify a user's identity, such as by prompting for a password.

binary
The "base two" system of numbers, that uses only two digits, 0 and 1, to represent all numbers. In binary, the number 1 is written as 1, 2 as 10, 3 as 11, 4 as 100, etc. Although expressed as decimal numbers for convenience, IP addresses in actual use are binary numbers; e.g., the IP address 209.191.4.240 is 11010001.10111111.00000100.11110000 in binary. *See also bit, IP address, network mask*.

bit
Short for "binary digit," a bit is a number that can have two values, 0 or 1. *See also binary*.

bps
bits per second

bridging
Passing data from your network to your ISP and vice versa using the hardware addresses of the devices at each location. Bridging contrasts with routing, which can add more intelligence to data transfers by using network addresses instead. The 錯誤**!** 尚未定義樣式。 can perform both routing and bridging. Typically, when both functions are enabled, the device routes IP data and bridges all other types of data. See also *routing*.

broadband

A telecommunications technology that can send different types of data over the same medium. DSL is a broadband technology.

broadcast

To send data to all computers on a network.

channel

The channel number determines which channel frequency is used by the device to pass wireless traffic to wireless PCs. The channels available depend on which country the wireless network is operating in. Your ISP provides details of the channel(s) you should use.

DHCP

Dynamic Host Configuration Protocol
DHCP automates address assignment and management. When a computer connects to the LAN, DHCP assigns it an IP address from a shared pool of IP addresses; after a specified time limit, DHCP returns the address to the pool.

DHCP relay

Dynamic Host Configuration Protocol relay
A DHCP relay is a computer that forwards DHCP data between computers that request IP addresses and the DHCP server that assigns the addresses. Each of the **錯誤! 尚未定義樣式。**'s interfaces can be configured as a DHCP relay. *See DHCP*.

DHCP server

Dynamic Host Configuration Protocol server
A DHCP server is a computer that is responsible for assigning IP addresses to the computers on a LAN. *See DHCP*.

digital

Of data, having a form based on discrete values expressed as binary numbers (0's and 1's). The data component in DSL is a digital signal. *See also analog*.

DNS

Domain Name System
The DNS maps domain names into IP addresses. DNS information is distributed hierarchically throughout the Internet among computers called DNS servers. For example, *www.yahoo.com* is the domain name associated with IP address 216.115.108.243. When you start to access a web site, a DNS server looks up the requested domain name to find its corresponding IP address. If the DNS server cannot find the IP address, it communicates with higher-level DNS servers to determine the IP address. *See also domain name.*

domain name

A domain name is a user-friendly name used in place of its associated IP address. Domain names must be unique; their assignment is controlled by the Internet Corporation for Assigned Names and Numbers (ICANN). Domain names are a key element of URLs, which identify a specific file at a web site. *See also DNS.*

download

To transfer data in the downstream direction, i.e., from the Internet to the user.

DSL

Digital Subscriber Line
A technology that allows both digital data and analog voice signals to travel over existing copper telephone lines.

encryption keys

See *network keys*

Ethernet

The most commonly installed computer network technology, usually using twisted pair wiring. Ethernet data rates are 10 Mbps and 100 Mbps. *See also 10BASE-T, 100BASE-T, twisted pair*.

FTP

File Transfer Protocol
A program used to transfer files between computers connected to the Internet. Common uses include uploading new or updated files to a web server, and downloading files from a web server.

Gbps

Abbreviation for Gigabits ("GIG-uh-bits") per second, or one billion bits per second. Internet data rates are often expressed in Gbps.

host

A device (usually a computer) connected to a network.

HTTP

Hyper-Text Transfer Protocol
HTTP is the main protocol used to transfer data from web sites so that it can be displayed by web browsers. *See also web browser, web site*.

Hub

A hub is a place of convergence where data arrives from one or more directions and is forwarded out in one or more directions. It usually includes a switch of some kind. It connects an Ethernet bridge/router to a group of PCs on a LAN and allows communication to pass between the networked devices.

ICMP

Internet Control Message Protocol
An Internet protocol used to report errors and other network-related information. The ping command makes use of ICMP.

IEEE

The Institute of Electrical and Electronics Engineers is a technical professional society that fosters the development of standards that often become national and international standards.

Internet

The global collection of interconnected networks used for both private and business communications.

intranet

A private, company-internal network that looks like part of the Internet (users access information using web browsers), but is accessible only by employees.

IP

See TCP/IP.

IP address

Internet Protocol address
The address of a host (computer) on the Internet, consisting of four numbers, each from 0 to 255, separated by periods, e.g., 209.191.4.240. An IP address consists of a *network ID* that identifies the particular network the host belongs to, and a *host ID* uniquely identifying the host itself on that network. A network mask is used to define the network ID and the host ID. Because IP addresses are difficult to remember, they usually have an associated domain name that can be specified instead. *See also domain name, network mask*.

ISP

Internet Service Provider
A company that provides Internet access to its customers, usually for a fee.

LAN

Local Area Network
A network limited to a small geographic area, such as a home, office, or small building.

LED

Light Emitting Diode
An electronic light-emitting device. The indicator lights on the front of the **錯誤! 尚未定義樣式。** are LEDs.

MAC address

Media Access Control address
The permanent hardware address of a device, assigned by its manufacturer. MAC addresses are expressed as six pairs of hex characters, with each pair separated by colons. For example; *NN:NN:NN:NN:NN:NN*.

mask

See network mask.

Mbps

Abbreviation for Megabits per second, or one million bits per second. Network data rates are often expressed in Mbps.

NAT

Network Address Translation
A service performed by many routers that translates your network's publicly known IP address into a *private* IP address for each computer on your LAN. Only your router and your LAN know these addresses; the outside world sees only the public IP address when talking to a computer on your LAN.

network

A group of computers that are connected together, allowing them to communicate with each other and share resources, such as software, files, etc. A network can be small, such as a *LAN*, or very large, such as the *Internet*.

network keys

(also known as encryption keys) 64-bit and 128-bit encryption keys used in WEP wireless security schemes. The keys encrypt data over the WLAN, and only wireless PCs configured with WEP keys that correspond to the keys configured on the device can send/receive encrypted data.

network mask

A network mask is a sequence of bits applied to an IP address to select the network ID while ignoring the host ID. Bits set to 1 mean "select this bit" while bits set to 0 mean "ignore this bit." For example, if the network mask 255.255.255.0 is applied to the IP address 100.10.50.1, the network ID is 100.10.50, and the host ID is 1. *See also binary, IP address, subnet, "IP Addresses Explained" section*.

NIC

Network Interface Card
An adapter card that plugs into your computer and provides the physical interface to your network cabling, which for Ethernet NICs is typically an RJ-45 connector. *See Ethernet, RJ-45*.

packet

Data transmitted on a network consists of units called packets. Each packet contains a payload (the data), plus overhead information such as where it came from (source address) and where it should go (destination address).

pass phrase A secret password used in *WPA* wireless data encryption. Encryption is based on a WPA master key that is derived from the pass phrase and the network name (SSID) of the device. The pass phrase should be at least 20 characters long in order to deter a hacker attempting to crack the pass phrase by recording a series of frames then trying commonly used passwords offline until one works (known as offline PSK dictionary attacks).

ping Packet Internet (or Inter-Network) Groper
A program used to verify whether the host associated with an IP address is online. It can also be used to reveal the IP address for a given domain name.

port A physical access point to a device such as a computer or router, through which data flows into and out of the device.

PPP Point-to-Point Protocol
A protocol for serial data transmission that is used to carry IP (and other protocol) data between your ISP and your computer. The WAN interface on the **錯誤!** 尚未定義樣式。 uses two forms of PPP called PPPoA and PPPoE. *See also PPPoA, PPPoE*.

PPPoA Point-to-Point Protocol over ATM
One of the two types of PPP interfaces you can define for a Virtual Circuit (VC), the other type being PPPoE. You can define only one PPPoA interface per VC.

PPPoE Point-to-Point Protocol over Ethernet
One of the two types of PPP interfaces you can define for a Virtual Circuit (VC), the other type being PPPoA. You can define one or more PPPoE interfaces per VC.

protocol A set of rules governing the transmission of data. In order for a data transmission to work, both ends of the connection have to follow the rules of the protocol.

remote In a physically separate location. For example, an employee away on travel who logs in to the company's intranet is a remote user.

RIP Routing Information Protocol
The original TCP/IP routing protocol. There are two versions of RIP: version I and version II.

RJ-11 Registered Jack Standard-11
The standard plug used to connect telephones, fax machines, modems, etc. to a telephone port. It is a 6-pin connector usually containing four wires.

RJ-45 Registered Jack Standard-45
The 8-pin plug used in transmitting data over phone lines. Ethernet cabling usually uses this type of connector.

routing

Forwarding data between your network and the Internet on the most efficient route, based on the data’s destination IP address and current network conditions. A device that performs routing is called a router.

SDNS

Secondary Domain Name System (server)
A DNS server that can be used if the primary DSN server is not available. *See DNS*.

SSID

Service Set Identifier (also known as the Extended Service Set Identifier (ESSID)) is a unique identifier that differentiates one wireless device from another. Wireless PCs configured with the same SSID can access that device.

subnet

A subnet is a portion of a network. The subnet is distinguished from the larger network by a *subnet mask* that selects some of the computers of the network and excludes all others. The subnet's computers remain physically connected to the rest of the parent network, but they are treated as though they were on a separate network. *See also network mask*.

subnet mask

A mask that defines a subnet. *See also network mask*.

TCP

See TCP/IP.

TCP/IP

Transmission Control Protocol/Internet Protocol
The basic protocols used on the Internet. TCP is responsible for dividing data up into packets for delivery and reassembling them at the destination, while IP is responsible for delivering the packets from source to destination. When TCP and IP are bundled with higher-level applications such as HTTP, FTP, Telnet, etc., TCP/IP refers to this whole suite of protocols.

Telnet

An interactive, character-based program used to access a remote computer. While HTTP (the web protocol) and FTP only allow you to download files from a remote computer, Telnet allows you to log into and use a computer from a remote location.

TFTP

Trivial File Transfer Protocol
A protocol for file transfers, TFTP is easier to use than File Transfer Protocol (FTP) but not as capable or secure.

TKIP

Temporal Key Integrity Protocol (TKIP) provides WPA with a data encryption function. It ensures that a unique master key is generated for each packet, supports message integrity and sequencing rules and supports re-keying mechanisms.

triggers

Triggers are used to deal with application protocols that create separate sessions. Some applications, such as NetMeeting, open secondary connections during normal operations, for example, a connection to a server is established using one port, but data transfers are performed on a separate connection. A trigger tells the device to expect these secondary sessions and how to handle them.

Once you set a trigger, the embedded IP address of each incoming packet is replaced by the correct host address so that NAT can translate packets to the correct destination. You can specify whether you want to carry out address replacement, and if so, whether to replace addresses on TCP packets only, UDP packets only, or both.

twisted pair The ordinary copper telephone wiring long used by telephone companies. It contains one or more wire pairs twisted together to reduce inductance and noise. Each telephone line uses one pair. In homes, it is most often installed with two pairs. For Ethernet LANs, a higher grade called Category 3 (CAT 3) is used for 10BASE-T networks, and an even higher grade called Category 5 (CAT 5) is used for 100BASE-T networks. *See also 10BASE-T, 100BASE-T, Ethernet*.

unnumbered interfaces

An unnumbered interface is an IP interface that does not have a local subnet associated with it. Instead, it uses a *router-id* that serves as the source and destination address of packets sent to and from the router. Unlike the IP address of a normal interface, the router-id of an unnumbered interface is allowed to be the same as the IP address of another interface. For example, the WAN unnumbered interface of your device uses the same IP address of the LAN interface (192.168.1.1).

The unnumbered interface is temporary – PPP or DHCP will assign a 'real' IP address automatically.

upstream The direction of data transmission from the user to the Internet.

USB Universal Serial Bus
A serial interface that lets you connect devices such as printers, scanners, etc. to your computer by simply plugging them in. The **錯誤! 尚未定義樣式。** is equipped with a USB interface for connecting to a stand-alone PC.

VC Virtual Circuit
A connection from your DSL router to your ISP.

VCI Virtual Circuit Identifier
Together with the Virtual Path Identifier (VPI), the VCI uniquely identifies a VC. Your ISP will tell you the VCI for each VC they provide. *See also VC*.

VPI Virtual Path Identifier
Together with the Virtual Circuit Identifier (VCI), the VPI uniquely identifies a VC. Your ISP will tell you the VPI for each VC they provide. *See also VC*.

WAN Wide Area Network
Any network spread over a large geographical area, such as a country or continent. With respect to the **錯誤! 尚未定義樣式。**, WAN refers to the Internet.

Web browser A software program that uses Hyper-Text Transfer Protocol (HTTP) to download information from (and upload to) web sites, and displays the information, which may consist of text, graphic images, audio, or video, to the user. Web browsers use Hyper-

Text Transfer Protocol (HTTP). Popular web browsers include Netscape Navigator and Microsoft Internet Explorer. *See also HTTP, web site, WWW*.

Web page

A web site file typically containing text, graphics and hyperlinks (cross-references) to the other pages on that web site, as well as to pages on other web sites. When a user accesses a web site, the first page that is displayed is called the *home page*. *See also hyperlink, web site*.

Web site

A computer on the Internet that distributes information to (and gets information from) remote users through web browsers. A web site typically consists of web pages that contain text, graphics, and hyperlinks. *See also hyperlink, web page*.

WEP

Wired Equivalent Privacy (WEP) encrypts data over WLANs. Data is encrypted into blocks of either 64 bits length or 128 bits length. The encrypted data can only be sent and received by users with access to a private *network key*. Each PC on your wireless network must be manually configured with the same key as your device in order to allow wireless encrypted data transmissions. Eavesdroppers cannot access your network if they do not know your private key. WEP is considered to be a low security option.

Wireless

Wireless is a term used to describe telecommunications in which electromagnetic waves (rather than some form of wire) carry the signal over part or all of the communication path. See also wireless LAN.

Wireless LAN

A wireless LAN (WLAN) is one in which a mobile user can connect to a local area network (LAN) through a wireless (radio) connection. A standard, IEEE 802.11, specifies the technologies for wireless LANs.

WPA

Wi-Fi Protected Access

WPA is an initiative by the IEEE and Wi-Fi Alliance to address the security limitations of WEP. WPA provides a stronger data encryption method (called Temporal Key Integrity Protocol (TKIP)). It runs in a special, easy-to-set-up home mode called Pre-Shared Key (PSK) that allows you to manually enter a pass phrase on all the devices in your wireless network. WPA data encryption is based on a WPA master key. The master key is derived from the pass phrase and the network name (SSID) of the device.

It provides improved data encryption and stronger user authentication. The mode of WPA supported no your device is called Pre-Shared Key (PSK), which allows you to manually enter a type of key called a *pass phrase*.

WWW

World Wide Web

Also called *(the) Web.* Collective term for all web sites anywhere in the world that can be accessed via the Internet.

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