



**User's Manual**

**11N ADSL2+ Modem Router**

**Model No.: SP3367N**

<http://www.micronet.info>

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# Certifications

## FCC

This equipment has been tested and found to comply with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference
- (2) This device must accept any interference received. Include interference that may cause undesired operation.

## CE

This equipment is in compliance with the requirements of the following regulations:

EN 55 022: CLASS B.

## RoHS

All contents of this package, including products, packing materials and documentation comply with RoHS.



# Chapter 1 Introduction

Micronet SP3367N, 11N ADSL2+ Modem Router, delivers highly reliable and scalable network environment. The model has incorporated both modem and router functions into a single unit with wireless support. It is compliant with IEEE 802.11 Draft-N and backward compatible with IEEE 802.11b/g. The wireless connection can be optimized up to high-speed data rate of 300Mbps for multimedia applications. The modem router allows multiple network devices to share the single Internet connection via ADSL. Sustain network security via router's in-built firewall and DMZ functions.

## 1.1 Package Contents

Prior to the installation of the device, please verify the following items are in the package:

- 1 x SP3367N 11N ADSL2+ Modem Router
- 3 x Detachable Dipole Antenna
- 1 x Quick Installation Guide
- 1 x Product CD
- 1 x RJ-45 & RJ-11 Cables
- 1 x Power Adapter

## 1.2 Key Features

- ADSL2/2+ Compliance
  - Support downstream rates of up to 24Mbps and upstream rates of up to 1Mbps.
  - Compliant to ITU-T G.992.1 (G.dmt), G.992.2 (G.lite), G.992.3 (ADSL2), G.992.4 (splitterless ADSL2), G.992.5 (ADSL2+) for Annex A, B. (Annex A and B are supported in different H/W platform)
  - Supports Multi-Mode standard (ANSI T1.413, Issue 2; G.dmt (G.992.1); G.994.1 and G.996.1 (for ISDN only); G.991.1;G.lite (G992.2)).
  - Multiple Protocols over AAL5 (RFC 1483/2684).

- PPP over AAL5 (RFC 2364).
- PPP over Ethernet (RFC 2516).
- Support 802.11n Wireless Access Point
  - Complies with IEEE 802.11n draft 2.0, IEEE 802.11g and IEEE 802.11b standards.
  - Farther coverage, less dead spaces and higher throughput with MIMO technology.
  - High data rate – up to 300Mbps network speed.
  - Supports 64-bit/128-bit WEP, WPA-PSK and WPA2-PSK wireless security functions.
  - Supports WPS (WiFi Protected Setup) to easy connect wireless network without configuring the security.
  - Support Auto Channel Selection.
  - Supports MAC address filtering.
- Router Advance Functions
  - NAT (Network Address Translation) IP Sharing
  - Virtual Server
  - DMZ
  - VPN Pass Through (IPSec/PPTP/L2TP)
  - SPI Anti-DOS Firewall
  - DHCP Server and Client
  - ACL (Access Control)
  - IP/MAC/Application/URL Filter
  - UPnP (Universal Plug and Play)
  - SNMP
  - Dynamic DNS

## 1.3 Safety Information

In order to keep the safety of users, please follow the following safety instructions:

- This router is designed for indoor use only.
- Do not put this router at or near hot or humid places. Also, do not leave this router in the car in summer.
- Do not pull any connected cable with force and disconnect it from the router.

- If users want to place this router at high places, please make sure the router is firmly secured. Falling from high places would damage the router and its accessories, and in such cases, the warranty will be void.
- Accessories of this router, like antenna and power supply, are danger to small children under 3 years old. They may put the small parts in their nose or month and it could cause serious damage to them.
- The router will become hot when being used for long time (This is normal and is not a malfunction). Do not put this router on paper, cloth or other flammable materials.
- There's no user-serviceable part inside the router. If users found the router is not working properly, please contact the authorized dealer of purchase. Do not disassemble the router, otherwise warranty will be void.
- If the router falls into water when it's powered on, do not use hands to pick it up. Switch the electrical power off before doing anything, or contact an experienced technician for help.
- If users smell something strange, or even see some smoke coming out from the router or power supply, remove the power supply or switch the electrical power off immediately, and call authorized for help.

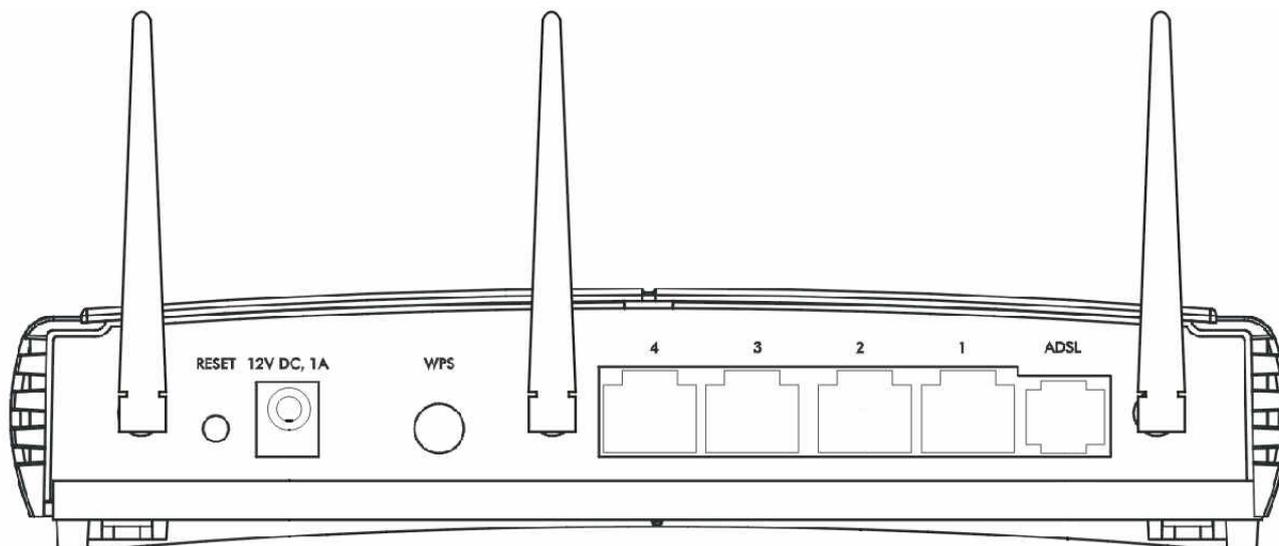
## 1.4 Specifications

<b>Standards</b>	<ul style="list-style-type: none"> <li>• ADSL <ul style="list-style-type: none"> <li>&gt; ITU-T G.992.1 (G.dmt), G.992.2 (G.lite), G.992.3 (ADSL2), G.992.4 (splitterless ADSL2), G.992.5 (ADSL2+) for Annex A, B.</li> <li>&gt; Multi-Mode standard (ANSI T1.413, Issue 2; G.dmt (G.992.1); G.994.1 and G.996.1 (for ISDN only); G.991.1;G.lite (G992.2))</li> </ul> </li> <li>• Wireless <ul style="list-style-type: none"> <li>&gt; IEEE802.11n Draft</li> <li>&gt; IEEE802.11b/g</li> </ul> </li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>• Flash: 2MB NOR Flash</li> <li>• RAM: 8MB SDRAM</li> </ul>
<b>Interface</b>	<ul style="list-style-type: none"> <li>• 4 x 10/100M UTP Ports</li> <li>• 1 x ADSL RJ-11 Port</li> </ul>
<b>Antenna</b>	3 x RP-SMA Antenna
<b>MIMO Technology</b>	2T3R
<b>Transmit Power</b>	<ul style="list-style-type: none"> <li>• 11n: 15dBm</li> <li>• 11g: 15dBm</li> <li>• 11b: 18dBm</li> </ul>
<b>DHCP</b>	DHCP Server and Client
<b>Advance Features</b>	• NAT (Network Address Translation)/ NAPT IP

	Sharing <ul style="list-style-type: none"> <li>• Virtual Server</li> <li>• DMZ</li> <li>• VPN Pass Through (IPSec/PPTP)</li> <li>• SPI Anti-DOS Firewall</li> <li>• ACL (Access Control)</li> <li>• IP/MAC/Application/URL Filter</li> <li>• UPnP (Universal Plug and Play)</li> <li>• Dynamic DNS</li> </ul>
<b>Security Features</b>	<ul style="list-style-type: none"> <li>• 64/128-bit WEP</li> <li>• WPA-PSK</li> <li>• WPA2-PSK</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>• Web UI</li> <li>• SNMP</li> </ul>
<b>Humidity</b>	10~90% (Non-Condensing)
<b>Temperature</b>	10~40°C
<b>Power</b>	12VDC, 1A Switch Power Adaptor
<b>Certification</b>	FCC, CE

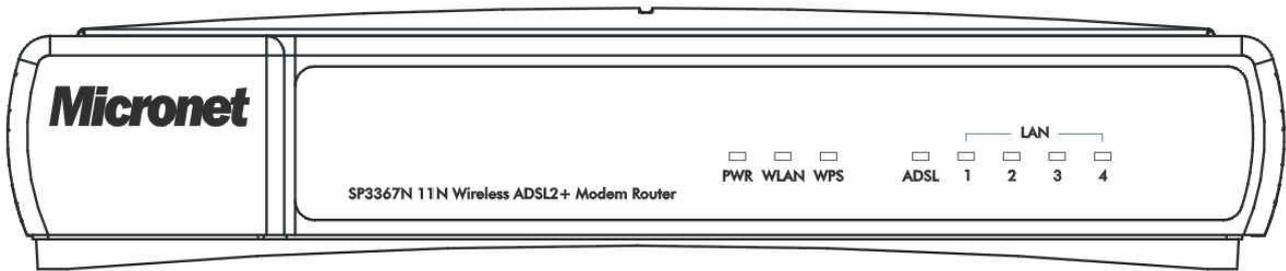
# Chapter 2 Physical Description

## 2.1 Back Panel



Parameter	Description
<b>Antenna Connector</b>	The antenna connector of the router is reverse SMA connector. It allows you to connecting an external antenna with reverse SMA connector to the router easily.
<b>Reset</b>	Press and hold <b>&lt;Reset&gt;</b> button for 5 seconds to clear all settings.
<b>Power Jack</b>	Please plug the power adapter attached with the ADSL Router to the power jack. The power adapter is 12VDC, 1A.
<b>WPS</b>	Wi-Fi Protected Setup (WPS) is the simplest way to build connection between wireless network clients and this ADSL router. Press this button on the router and enable WPS function of the wireless clients, the router and clients will automatically configure the security key and connect directly. Please note that the router will wait for WPS requests from wireless clients in 2 minutes after the WPS button is pressed.
<b>LAN</b>	The Broadband router's 4 LAN ports are where users can connect LAN's PCs, printer servers, hubs and switches etc.
<b>ADSL</b>	Connect the supplied RJ-11 telephone line to this port and your ADSL/telephone network.

## 2.2 Front Panel



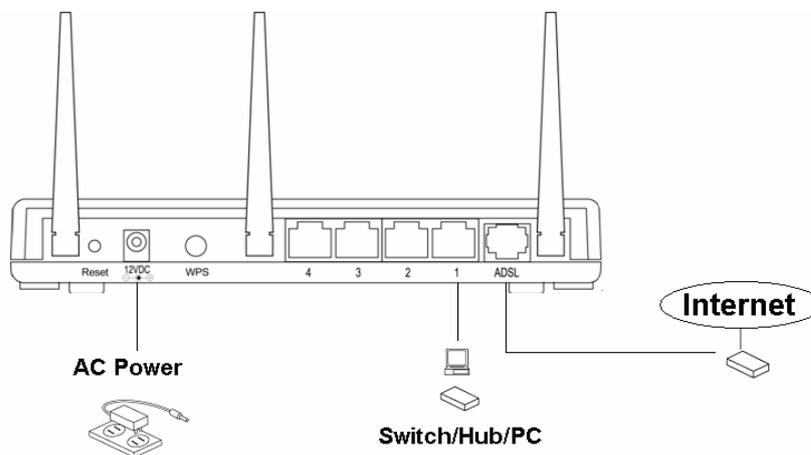
LED	Status	Description
<b>PWR</b>	On	Device is switched on.
<b>WLAN</b>	Off	Wireless LAN disabled.
	Blinking	Wireless transmission detected.
<b>WPS</b>	Off	WPS function is disabled.
	Blinking	WPS function is enabled.
<b>ADSL</b>	On	Successful connection to DSLAM.
	Blinking	No connection.
<b>LAN (1-4)</b>	On	LAN port is connected.
	Off	No network connection.
	Blinking	Data is being sent or received.

# Chapter 3 System and Network Setup

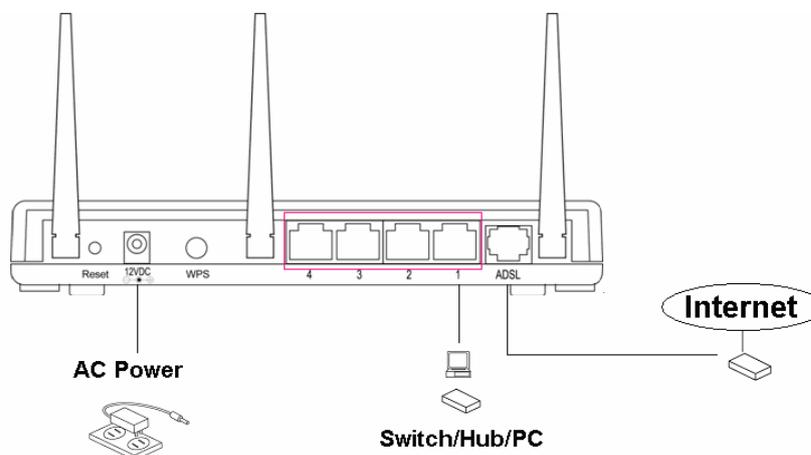
## 3.1 Build Network Connection

Please follow the following instruction to build the network connection between the new wireless router and other network computers and devices:

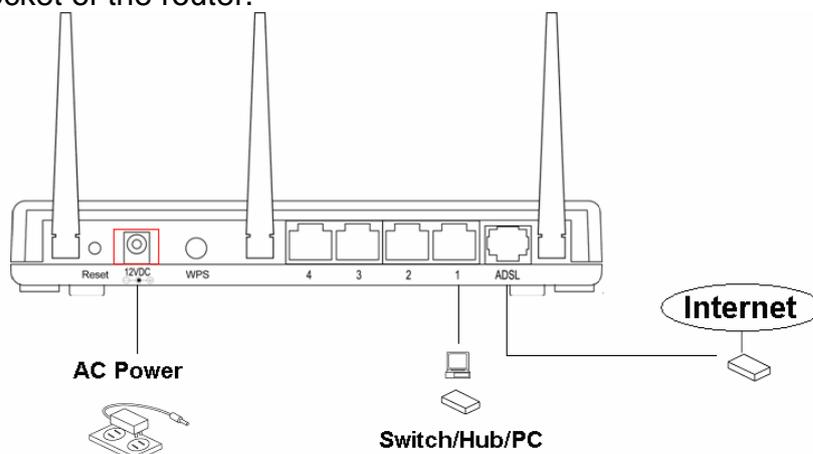
1. Connect the ADSL port of modem router by telephone cable (RJ-11) to an outlet or splitter.



2. Connect all computers, network devices (network-enabled consumer devices other than computers, like game console, or switch / hub) to the LAN port of the router.



3. Connect the A/C power adapter to the wall socket, and then connect it to the 'Power' socket of the router.



4. The ADSL LED will be ON if the router is connected to the ADSL cable and receives the ADSL signals successfully. If the LED is blinking, please contact with your ISP (Internet Service Provider) to check the problem.

## 3.2 Connecting to Web-Based Management

After the network connection is established, the next step is to setup the router with proper network parameters for the user's network environment.

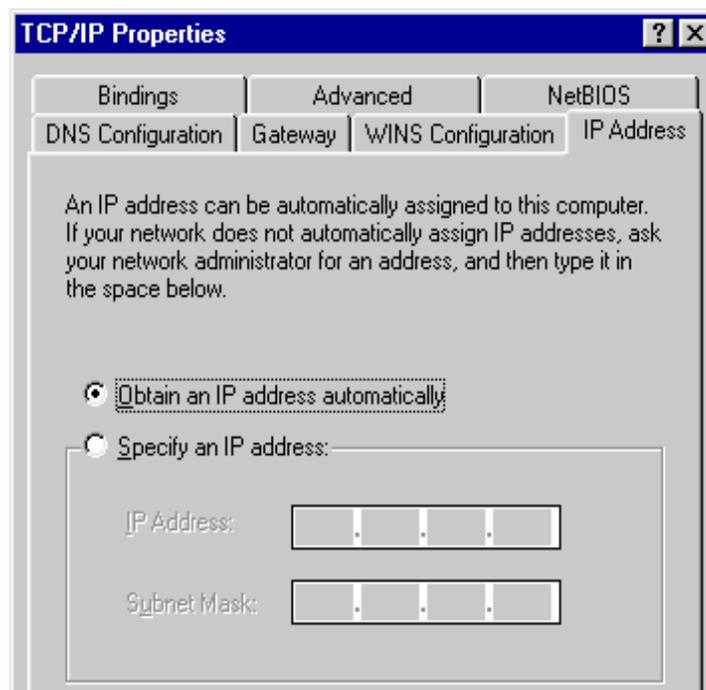
Before connecting to the router and start configuration procedures, user's computer must be able to get an IP address automatically (use dynamic IP address). If the PC is set to 'static IP address', then follow instructions below to reconfigure it to 'dynamic IP address'.

### 3.2.1 IP Address Configuration

#### a) Windows 95/98/Me

1. Click the Start button and select **<Settings>**, then click **<Control Panel>**. The Control Panel window will appear.
2. Double-click on **<Network>** icon. The Network window will appear.

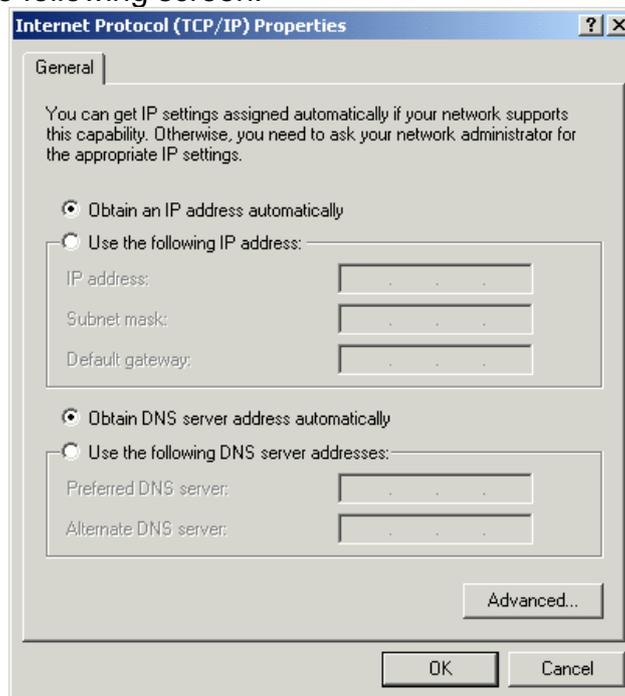
3. Check the list of Network Components. If TCP/IP is not installed, click the **<Add>** button to install it. If TCP/IP is installed, go to step 6.
4. In the Network Component Type dialog box, select **<Protocol>** and click **<Add>** button.
5. In the Select Network Protocol dialog box, select **<Microsoft>** and **<TCP/IP>** then click the **<OK>** button to start installing the TCP/IP protocol. Windows CD may be needed to complete the installation.
6. After installing TCP/IP, go back to the Network dialog box. Select **<TCP/IP>** from the list of Network Components and then click the **<Properties>** button.
7. Check each of the tabs and verify the following settings:
  - Bindings: Check Client for Microsoft Networks and File and printer sharing for Microsoft Networks.
  - Gateway: All fields are blank.
  - DNS Configuration: Select Disable DNS.
  - WINS Configuration: Select Disable WINS Resolution.
  - IP Address: Select Obtain IP address automatically.



8. Reboot the PC. PC will now obtain an IP address automatically from the Broadband Router's DHCP server.
9. Please make sure that the Broadband router's DHCP server is the only DHCP server available on the LAN network.
10. Proceed to Web-based User Interface once IP address is correctly configured.

## b) Windows 2000

1. Click the **<Start>** button and select **<Settings>**, then click **<Control Panel>**. The Control Panel window will appear.
2. Double-click **<Network and Dial-up Connections>** icon. In the Network and Dial-up Connection window, double-click on **<Local Area Connection>** icon. The Local Area Connection window will appear.
3. In the Local Area Connection window, click the **<Properties>** button.
4. Check the list of Network Components. Users should see Internet Protocol [TCP/IP] on the list. Select it and click the **<Properties>** button.
5. In the Internet Protocol (TCP/IP) Properties window, select **<Obtain an IP address automatically>** and **<Obtain DNS server address automatically>** as shown on the following screen.

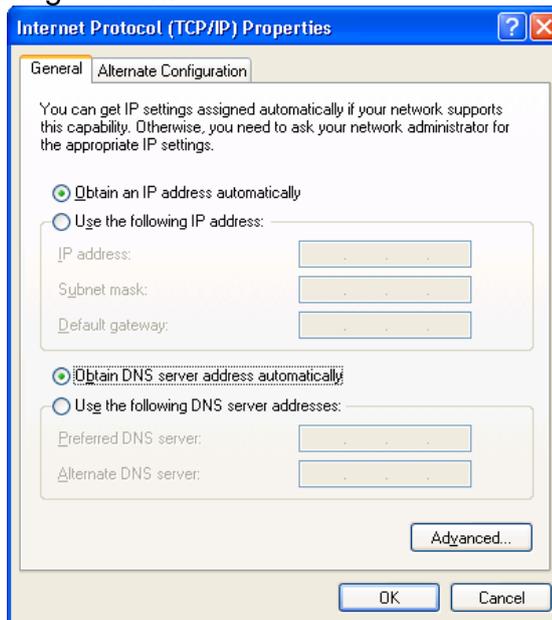


6. Click **<OK>** to confirm the setting. The PC will now obtain an IP address automatically from the Broadband Router's DHCP server.
7. Please make sure that the Broadband router's DHCP server is the only DHCP server available on the LAN network.
8. Proceed to Web-based User Interface once IP address is correctly configured.

## c) Windows XP

1. Click the **<Start>** button and select **<Settings>**, then click **<Network Connections>**. The Network connections window will appear.

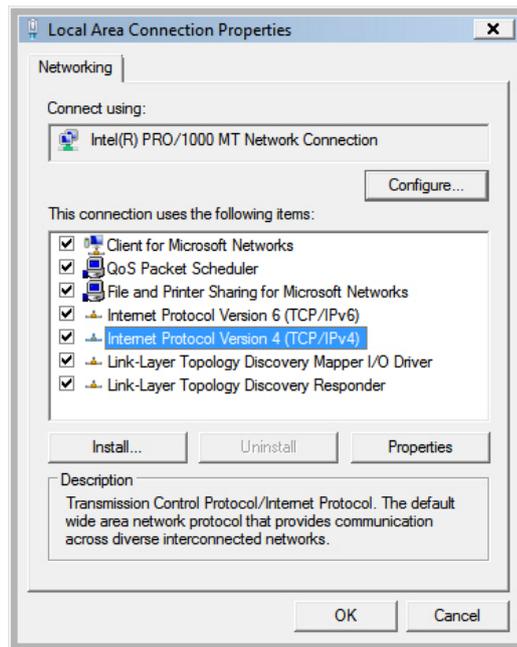
2. Double-click **<Local Area Connection>** icon. The Local Area Connection window will appear.
3. Check the list of Network Components. Users should see Internet Protocol [TCP/IP] on the list. Select it and click the **<Properties>** button.
4. In the Internet Protocol (TCP/IP) Properties window, select **<Obtain an IP address automatically>** and **<Obtain DNS server address automatically>** as shown on the following screen.



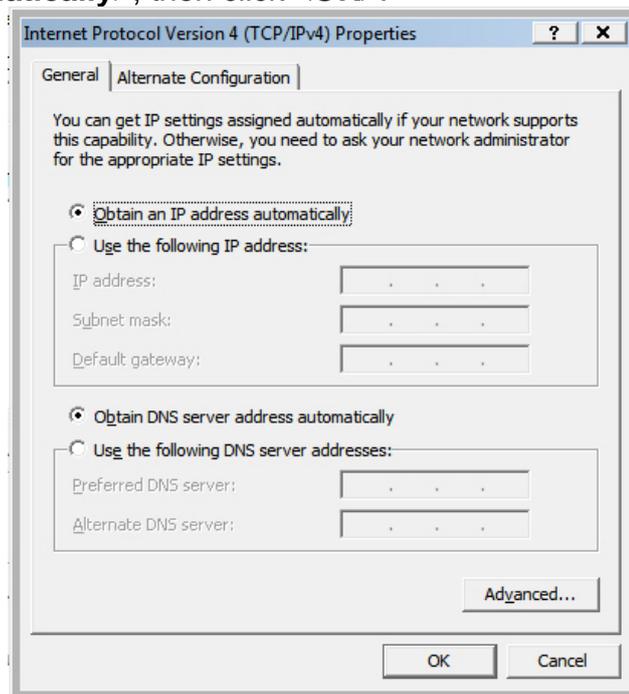
5. Click **<OK>** to confirm the setting. PC will now obtain an IP address automatically from the Broadband Router's DHCP server.
6. Please make sure that the Broadband router's DHCP server is the only DHCP server available on the LAN network.

#### d) Windows Vista

1. Click **<Start>** button, then click control panel. Click **<View Network Status and Tasks>**, then click **<Manage Network Connections>**. Right-click **<Local Area Network>**, then select **<Properties>**. Local Area Connection Properties window will appear, select **<Internet Protocol Version 4 (TCP / IPv4)>** and click **<Properties>**.



2. Select **<Obtain an IP address automatically>** and **<Obtain DNS server address automatically>**, then click **<OK>**.

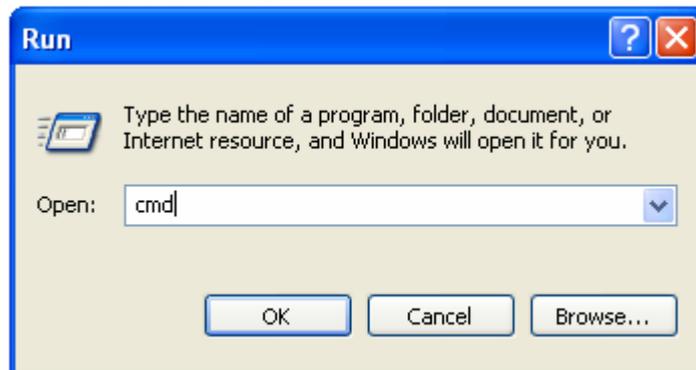


## 3.2.2 Router's IP Address

1. After the IP address setup is complete, please click **<Start>** then **<Run>** at the bottom lower corner of the desktop.



2. Enter 'cmd' command and click **<OK>**.



3. Input 'ipconfig', then press 'Enter' key. Please check the IP address followed by 'Default Gateway' (In this example, the IP address of router is 192.168.2.1, please note that this value may be different).

```
C:\WINDOWS\system32\cmd.exe

C:\>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : 192.168.2.3
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.2.1

C:\>_
```

### 3.2.3 Starting Web-Based Management UI

1. After the computer has obtained an IP address from router, please start the web browser. Input the IP address of router in the address bar and the following message should appear:



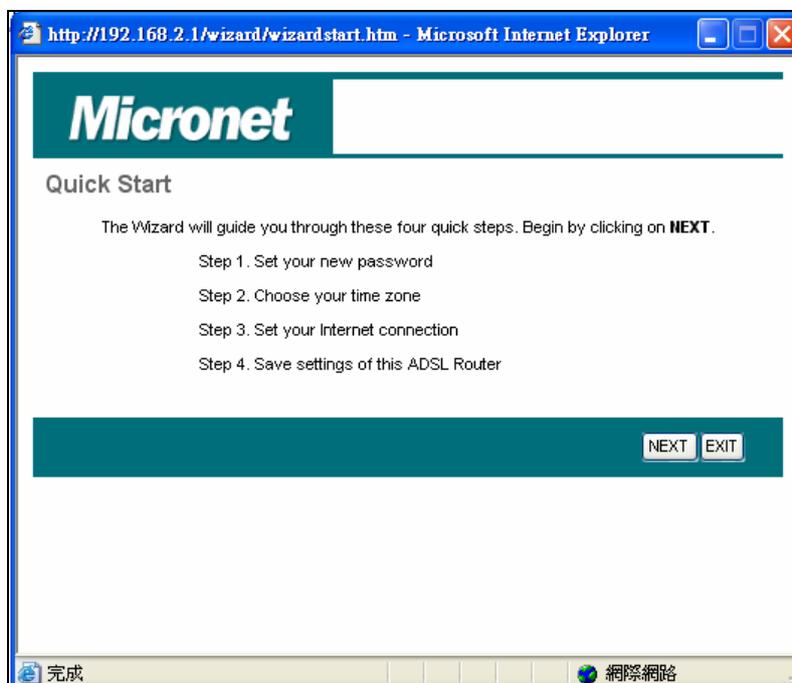
2. Please input username and password in the field respectively. Default username is 'admin' and default password is '1234', then press **<OK>** button. Once the login details are entered correctly, users can see the web management interface of this router.

Status	Quick Start	Interface Setup	Advanced Setup	Access Management	Maintenance	Status	Help
	Device Info		System Log	Statistics			
<b>Device Information</b>	Firmware Version : 2.11.32.2(NRE0.C29)3.9.9.5 MAC Address : 00:1f:1f:06:1e:dc						
<b>LAN</b>	IP Address : 192.168.2.1 Subnet Mask : 255.255.255.0 DHCP Server : Enabled						
<b>WAN</b>	Virtual Circuit : <input type="text" value="PVC0"/> <input type="button" value="v"/> Status : Not Connected Connection Type : Dynamic IP IP Address : 0.0.0.0 Subnet Mask : 0.0.0.0 Default Gateway : 0.0.0.0 DNS Server : 0.0.0.0 NAT : Enabled						
<b>ADSL</b>	ADSL Firmware Version : FwVer:3.9.9.5_TC3085 HwVer:T14.F7_3.0 Line State : Down Modulation : N/A Annex Mode : N/A						

# Chapter 4 Web-Based Management UI

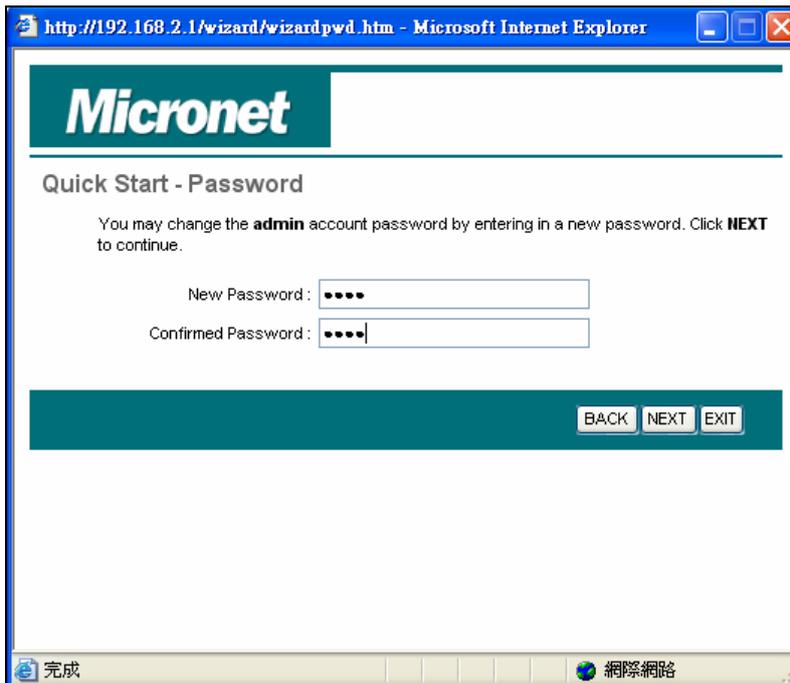
## 4.1 Quick Start Wizard

The Quick Start section is designed to get the broadband router running as quickly as possible. In the Quick Start, users are required to fill in only the information necessary to access the Internet. Once user clicks on the **<Quick Start>** and click on **<Run Wizard>**, the following screen will appear.



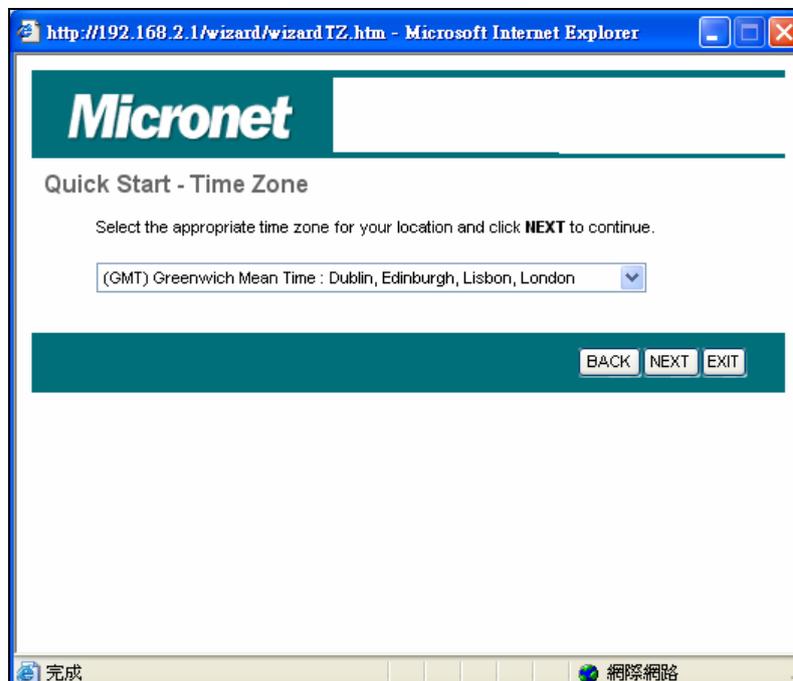
### Step1: Set User Password

Please enter the new password and confirm the password again.



## Step 2: Time Zone

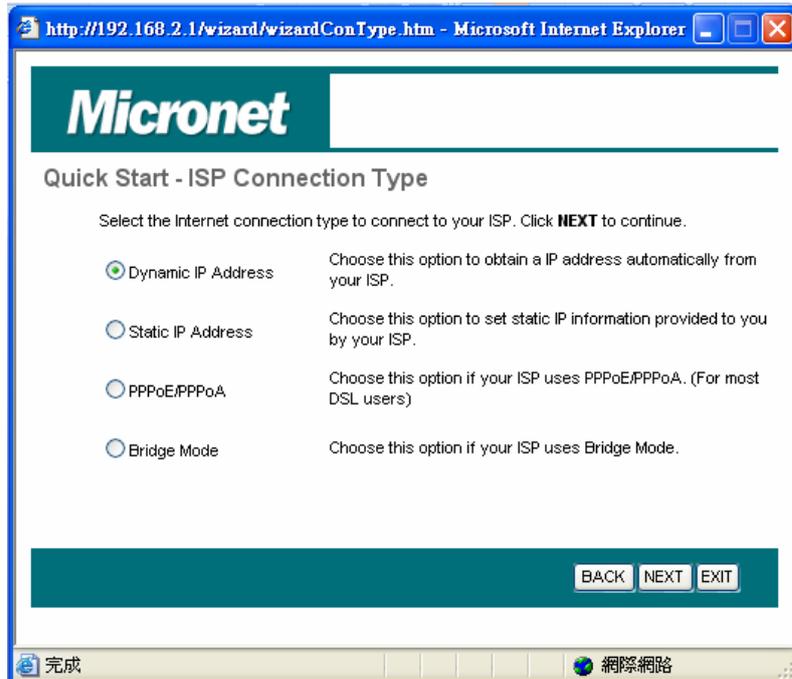
The Time Zone allows router to base its time on the settings configured in this section.



Click on **<NEXT>** to proceed to the next page: *Broadband Type*.

### Step 3: Broadband Type

In this section users have to select one of four types of connections that it will be using to connect to broadband router WAN port to the ISP (see screen below). Different ISPs require different methods of connecting to the Internet, please check with the ISP as to the type of connection it requires.

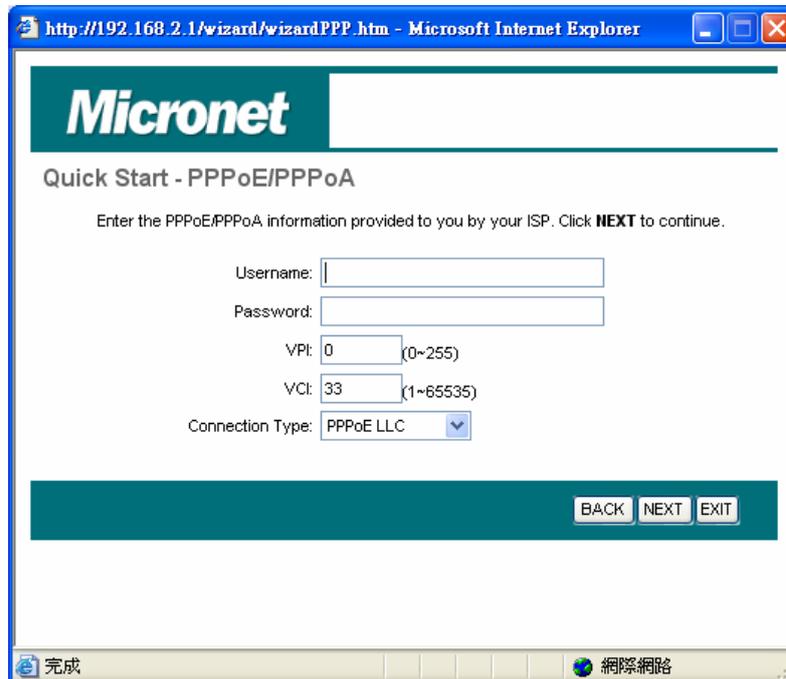


Parameter	Description
<b>Dynamic IP Address</b>	ISP will automatically provide an IP address.
<b>Static IP Address</b>	ISP has given users an IP address already.
<b>PPPoE/PPPoA</b>	PPPoE (PPP over Ethernet) and PPPoA (PPP over ATM) are common connection methods used for xDSL.
<b>Bridge Mode</b>	Device will act as modem only equipment to prevent conflict with other routers.

*Click on one of the WAN type and then proceed to the manual's relevant sub-section.*

*Click on **<Back>** to return to the previous screen.*

## Step 4 Enter the Internet account details provided by ISP



The screenshot shows a web browser window titled "http://192.168.2.1/wizard/wizardPPP.htm - Microsoft Internet Explorer". The page features the "Micronet" logo and the heading "Quick Start - PPPoE/PPPoA". Below the heading, there is a prompt: "Enter the PPPoE/PPPoA information provided to you by your ISP. Click **NEXT** to continue." The form includes the following fields and controls:

- Username:
- Password:
- VPI:  (0~255)
- VCI:  (1~65535)
- Connection Type:  (dropdown menu)

At the bottom of the form, there are three buttons: "BACK", "NEXT", and "EXIT". The browser's taskbar at the bottom shows the "完成" (Done) button and the "網際網路" (Internet) icon.

Click **<Next>** to complete the Quick Start Wizard and restart modem router.

## 4.2 Interface Setup

### 4.2.1 Internet

Below interface is for entering all parameters in regards to connecting to ISP devices for Internet. Please consult below tables for detail description of each parameter.

The screenshot shows the Micronet ADSL Router configuration interface. The main menu includes 'Interface', 'Quick Start', 'Interface Setup', 'Advanced Setup', 'Access Management', 'Maintenance', 'Status', and 'Help'. Under 'Interface Setup', there are sub-menus for 'Internet', 'LAN', and 'Wireless'. The 'ATM VC' configuration page is displayed, showing the following settings:

- Virtual Circuit:** PVC0 (with a 'PVCs Summary' button)
- Status:**  Activated  Deactivated
- VPI:** 0 (range: 0-255)
- VCI:** 33 (range: 1-65535)
- ATM QoS:** UBR
- PCR:** 0 cells/second
- SCR:** 0 cells/second
- MBS:** 0 cells
- ISP:**  Dynamic IP Address,  Static IP Address,  PPPoA/PPPoE,  Bridge Mode
- Encapsulation:** 1483 Bridged IP LLC
- Bridge Interface:**  Activated  Deactivated
- NAT:** Enable
- Default Route:**  Yes  No

## ATM VC

Parameter	Description
<b>Virtual Circuit</b>	VPI (Virtual Path Identifier) and VCI (Virtual Channel Identifier) define a virtual circuit.
<b>VPI</b>	VPI is a virtual path determines the way an ATM cell should be routed. The VPI is an 8-bit (in UNI) or 12-bit (in NNI) number that is included in the header of an ATM cell. The valid range for the VPI is 0 to 255. Enter the VPI assigned by the ISP.
<b>VCI</b>	VCI is the label given to an ATM VC to identify it and determine its destination. The VCI is a 16-bit number that is included in the header of an ATM cell. The valid range for the VCI is 32 to 65535. Enter the VCI assigned by the ISP.

<b>ATM QoS</b>	<p><b>CBR (Constant Bit Rate)</b> – This class is used for emulating circuit switching. The cell rate is constant with time. Select CBR to specify fixed (always on) bandwidth for voice or data traffic.</p> <p><b>UBR (Unspecified Bit Rate)</b> – Select UBR for applications that are non-time sensitive, such as e-mail.</p> <p><b>rtVBR (real time Variable Bit Rate)</b> – This class is similar to nrtVBR but is designed for applications that are sensitive to cell-delay variation. Examples for real-time VBR are voice with speech activity detection (SAD) and interactive compressed video.</p> <p><b>nrtVBR (non-real time Variable Bit Rate)</b> – This class allows users to send traffic at a rate that varies with time depending on the availability of user information. Statistical multiplexing is provided to make optimum use of network resources. Multimedia e-mail is an example of nrtVBR.</p>
<b>PCR</b>	Divide the DSL line rate (bps) by 424 (the size of an ATM cell) to find the PCR (Peak Cell Rate). This is the maximum rate at which the sender can send cells.
<b>SCR</b>	SCR (Sustain Cell Rate) is the average rate, as measured over a long interval, in the order of the connection lifetime.
<b>MBS</b>	MBS (Maximum Burst Size) refers to the maximum number of cells that can be sent at the peak rate. Type the MBS, which is less than 65535.

### Encapsulation

The router can be connected to your service provider in any of the following ways.

Parameter	Description
<b>Dynamic IP Address</b>	ISP will automatically provide an IP address.
<b>Static IP Address</b>	ISP has given users an IP address already.
<b>PPPoE/PPPoA</b>	PPPoE (PPP over Ethernet) and PPPoA (PPP over ATM) are common connection methods used for xDSL.
<b>Bridge Mode</b>	Device will act as modem only equipment to prevent conflict with other routers.

### Dynamic IP Address/Static IP Address/PPPoE/PPPoA/Bridge Mode

After you have selected the ISP Type, this web page will be varied depending on the ISP Type you select. Please refer to the following table for the explanation of each parameter.

Parameter	Description
<b>Service Name</b>	Enter the name of your ISP.
<b>User Name</b>	Enter the username exactly as your ISP assigned.
<b>Password</b>	Enter the password that your ISP has assigned to you.
<b>Encapsulation</b>	Please check with your ISP the method of multiplexing. In Bridge Mode, please select "1483 Bridge IP LLC" or "1483 Bridge IP VC-Mux". In PPPoE/PPPoA mode, please select "PPPoE LLC", "PPPoE VC-Mux", "PPPoA LLC", or "PPPoA VC-Mux".
<b>Bridge Interface</b>	This router has built-in ADSL modem and is able to connect to ISP directly. Alternatively, if you want to use the dial up software to manually connect to the ISP, you have to activate the "Bridge Interface".
<b>Connection</b>	<p><b>Always On</b> – The connection will be kept always on. If the connection is interrupted, the router will re-connect automatically.</p> <p><b>Connect On-Demand</b> – Only connect when you want to surf the Internet. "Close if idle for xx minutes" is set to stop the connection when the network traffic is not sending or receiving after an idle time.</p> <p><b>Connect Manually</b> – After you have selected this option, please go to Status page. You will see the "Connect" button, click it and the router will connect to the ISP. If you want to stop the connection, please click "Disconnect" button.</p>
<b>TCP MSS Option</b>	The "TCP MSS Option" enables the configuration of the maximum segment size (MSS) for transient packets that traverse a router, specifically TCP segments in the SYN bit set, when PPPoE is being used in the network. Please specify the MSS range from 100 to 1452 bytes or 0 byte as the default value.
<b>Get IP Address</b>	Choose Static or Dynamic IP Address. If Static IP is selected, please set the IP Address, Subnet Mask and Gateway obtained from your ISP.
<b>Static IP Address</b>	Enter the IP Address assigned by your ISP.
<b>IP Subnet Mask</b>	Enter the Subnet Mask assigned by your ISP.
<b>Gateway</b>	Enter the Gateway assigned by your ISP.
<b>NAT</b>	NAT (Network Address Translation), an Internet standard that enables a local-area network (LAN) to use one set of IP addresses for internal traffic and a second set of addresses for external traffic. When NAT is enabled, the router will help to make all necessary IP address translations for the PC connected to the router to access the Internet.
<b>Default Route</b>	When "Default Router" is enabled, all the packets for destinations not known by the router's routing table are sent to the default route. By default, it is enabled.
<b>TCP MTU Option</b>	MTU (Maximum Transmission Unit) determine the maximum size of each packet in any transmission within the network. Please specify the MTU range from 100 to 1500 bytes or 0 byte as the default value.

<b>Dynamic Route</b>	Dynamic routing allows routing tables in routers to change as the possible routes change. This router supports RIP1, RIP2-B and RIP2-M protocols for dynamic routing. After the RIP protocol is selected, please choose the RIP direction from "None", "Both", "IN Only" or "OUT Only".
<b>Multicast</b>	Specify the method of transmitting data simultaneously to many receivers. Please select "IGMP v1" or "IGMP v2" as the multicast protocol or select "Disabled" to disable the function.
<b>MAC Spoofing</b>	Once your ISP service requires identifying the MAC address of the devices. You can enable MAC Spoofing function and enter the valid MAC address, it allows you to change the MAC address of the router in order to access to the Internet service.

## 4.2.2 LAN

**Micronet** ADSL Router

Quick Start | **Interface Setup** | Advanced Setup | Access Management | Maintenance | Status | Help

Interface: Internet | **LAN** | Wireless

**Router Local IP**

IP Address: 192.168.2.1  
IP Subnet Mask: 255.255.255.0  
Dynamic Route: RIP2-B | Direction: None  
Multicast: Disabled  
IGMP Snoop:  Disabled  Enabled

**DHCP**

DHCP:  Disabled  Enabled  Relay

**DHCP Server**

Starting IP Address: 192.168.2.100   
IP Pool Count: 100  
Lease Time: 259200 seconds (0 sets to default value of 259200)

**DNS**

DNS Relay: Use Auto Discovered DNS Server Only  
Primary DNS Server: N/A  
Secondary DNS Server: N/A

### Router Local IP

Parameter	Description
<b>IP Address</b>	Enter the IP Address of the ADSL router for the local user to access the router's web page. By default, the IP Address is 192.168.2.1.
<b>IP Subnet Mask</b>	Enter the Subnet Mask of the ADSL router. By default, the Subnet Mask is 255.255.255.0.

<b>Dynamic Route</b>	Dynamic routing allows routing tables in routers to change as the possible routes change. This router supports RIP1, RIP2-B and RIP2-M protocols for dynamic routing. After the RIP protocol is selected, please choose the RIP direction from "None", "Both", "IN Only" or "OUT Only".
<b>Multicast</b>	Specify the method of transmitting data simultaneously to many receivers. Please select "IGMP v1" or "IGMP v2" as the multicast protocol or select "Disabled" to disable the function.
<b>IGMP Snoop</b>	When "IGMP Snoop" (Internet Group Management Protocol Snoop) is enabled, the router can make intelligent multicast forwarding decisions by examining the contents of each frame's IP header. Without the function, the router will broadcast the multicast packets to each port and may create excessive traffic on the network and degrade the performance of the network.

## DHCP

Parameter	Description
<b>DHCP</b>	Users can enable or disable the DHCP server. By enabling the DHCP server the router will automatically give LAN clients an IP address. If the DHCP is not enabled then you'll have to manually set your LAN client's IP addresses.
<b>Starting IP Address</b>	If the DHCP Server is enabled, please set the "Starting IP Address" which will be the first IP Address assigned to the LAN client. By default, the "Starting IP Address" is 192.168.2.100.
<b>IP Pool Count</b>	Users can select a particular IP address range for your DHCP server to issue IP addresses to your LAN Clients. By default, the "IP Pool Count" is 100. The IP range is starting from IP 192.168.2.100 to 192.168.2.199.
<b>Lease Time</b>	In the Lease Time setting you can specify the time period that the DHCP Server lends an IP address to your LAN clients. The DHCP will change the LAN client's IP address when this time threshold period is terminated.
<b>DNS Relay</b>	A Domain Name System (DNS) server is like an index of IP addresses and Web addresses. If users type a Web address into your browser, such as "www.router.com", a DNS server will find that name in its index and the matching IP address. Please select "Use Auto Discovered DNS Server Only" to auto set the DNS Server. If there is a DNS server that you would rather use, please select "Use Discovered DNS Server Only" and you need to specify the IP address of that DNS server.
<b>Primary DNS Server</b>	Enter the ISP's DNS Server IP Address; or user can specify preferred DNS Server IP Address.
<b>Secondary DNS Server</b>	This is optional. Users can enter another DNS Server's IP Address as a backup. The secondary DNS will be used if the Primary DNS fail.

## 4.2.3 Wireless

**Micronet** ADSL Router

Interface: Internet | LAN | **Wireless**

**Access Point Settings**

Access Point:  Activated  Deactivated

Channel: TAIWAN 06 Current Channel: 6

Beacon Interval: 100 (range: 20-1000)

RTS/CTS Threshold: 2347 (range: 1500-2347)

Fragmentation Threshold: 2346 (range: 256-2346, even numbers only)

DTIM: 1 (range: 1-255)

Wireless Mode: 802.11b+g+n

**11n Settings**

Channel Bandwidth: 20/40 MHz

Extension Channel: above the control channel

Guard Interval: AUTO

MCS: AUTO

**Multiple SSIDs Settings**

SSID Index: 1

Broadcast SSID:  Yes  No

Use WPS:  Yes  No

**WPS Settings**

WPS state: Unconfigured

WPS mode:  PIN code  PBC

### Access Point Settings

Parameter	Description
<b>Access Point</b>	Activated or deactivated the wireless function of the router. When it is activated, the router will be an access point for other wireless clients to connect wirelessly.
<b>Channel</b>	It is the radio channel used by the wireless LAN. All devices in the same wireless LAN should use the same channel. Please select the country you are located and designate a channel that the router will use. For product available in the USA/Canada market, only channel 1~11 can be operated. For product in Europe market, only channel 1~13 can be selected. Selection of other channels is not permitted. If you want to let the router automatically find an available channel with the highest signal strength, please select "Auto". The auto-selective channel will be shown in the "Current Channel" field.
<b>Beacon Interval</b>	The interval of time that this wireless router broadcast a beacon. Beacon is used to synchronize the wireless network. The range for the beacon period is between 20 and 1000 with a typical value of 100 (milliseconds).
<b>RTS/CTS Threshold</b>	When the packet size is smaller than the RTS threshold, the wireless router will not use the RTS/CTS mechanism to send this packet. The range is from 1500 to 2347.
<b>Fragmentation Threshold</b>	Fragment Threshold specifies the maximum size of packet during the fragmentation of data to be transmitted. If you set this value too low, it will result in bad performance. Enter a value from 256 to 2346.

<b>DTIM</b>	Determines the interval the Access Point will send its broadcast traffic. The range is from 1 to 255 and the default value is 3 beacons.
<b>Wireless Mode</b>	<p><b>802.11b</b> – It only allows 802.11b wireless network client to connect to this router (maximum transfer rate 11Mbps).</p> <p><b>802.11g</b> – It only allows 802.11g wireless network client to connect to this router (maximum transfer rate 54Mbps).</p> <p><b>802.11b+g</b> – It only allows 802.11b and 802.11g wireless network client to connect to this router (maximum transfer rate 11Mbps for 802.11b clients, and maximum 54Mbps for 802.11g clients).</p> <p><b>802.11n</b> – It only allows 802.11n wireless network client to connect to this router (maximum transfer rate 300Mbps).</p> <p><b>802.11g+n</b> – It allows 802.11g, and 802.11n wireless network client to connect to this router (maximum transfer rate 54Mbps for 802.11g clients, and maximum 300Mbps for 802.11n clients).</p> <p><b>802.11b+g+n</b> – It allows 802.11b, 802.11g, and 802.11n wireless network client to connect to this router (maximum transfer rate 11Mbps for 802.11b clients, maximum 54Mbps for 802.11g clients, and maximum 300Mbps for 802.11n clients).</p> <p><b>NOTE:</b> For 802.11b and 802.11g mode, the signals can be transmitted only by antenna 1 (The antenna in the right side of the rear panel).</p> <p>For 802.11n mode, the router is operating in a 2T3R Spatial Multiplexing MIMO configuration. 2 antennas are for signal transmitting and 3 antennas are for signal receiving.</p>

## 11n Settings

Parameter	Description
<b>Channel Bandwidth</b>	Set channel width of wireless radio. Do not modify default value if you don't know what it is, default setting is '20/40 MHz'.
<b>Extension Channel</b>	Select the extension channel to above or below the control channel while 40MHz channel bandwidth is selected. Do not modify the default value if you don't know what it is.
<b>Guard Interval</b>	It is one of several draft-n features designed to improve efficiency. Select 400nsec to provide a shorter delay between transmission frames in 11n network. The throughput in 400nec guard interval is better than 800nsec guard interval.
<b>MCS</b>	Select MCS 0-15 to configure the data rate of 11n network. When MCS 15 is selected, the data rate is up to 300Mbps. It is recommended to set "Auto" and the router will negotiate with wireless clients to operate in a proper data rate.
<b>SSID Index</b>	This router can support multiple SSIDs. By default, this function is disabled.

<b>Broadcast SSID</b>	Select "Yes" to make the SSID to be visible so wireless clients can scan the router within the network. Select "No" if you want to hide the SSID of the router. Wireless clients have to set the same SSID of the router in order to access the network.
<b>WMM</b>	The short of Wi-Fi Multi Media, it will enhance the data transfer performance of multimedia contents when they're being transferred over wireless network.
<b>Use WPS</b>	Select "Yes" to enable WPS function, Select "No" to disable WPS.

## WPS Settings

Wi-Fi Protected Setup (WPS) is the simplest way to build connection between wireless network clients and this router. Users do not have to select encryption mode and input a long encryption passphrase every time, they only have to press a button on wireless client and this wireless router to allow WPS complete the setup.

This router supports two types of WPS: Push-Button Configuration (PBC), and PIN code. If users want to use PBC, they have to switch this wireless router to WPS mode and push a specific button on the wireless client to start WPS mode. Users can push Reset/WPS button of this router, or select "PBC" and click "Start WPS" button in the WPS setup page. If users want to use PIN code, they have to know the PIN code of wireless client and switch it to WPS mode, then set the PIN code of the wireless client to this router in the WPS setup page and click "Start WPS" button.

Parameter	Description
<b>Enrollee PIN Code</b>	Enter the PIN code of the wireless client here. If you have entered the PIN code of the wireless client and switch to the WPS mode, the security settings of the wireless client will be set to the same as the router.
<b>WPS progress</b>	Display the progress during WPS communication.
<b>Reset to OOB</b>	Click this button and all the wireless settings of the router will be reset to factory defaults.
<b>SSID</b>	The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. The default SSID of the router is "default".

<b>Authentication Type</b>	<p>It's very important to set wireless security settings properly. If not enabled, hackers and malicious users can reach your network and valuable data without user's consent and this will cause serious security problem.</p> <p>This router supports WEP, WPA-PSK and WPA2-PSK authentication type. If the router has enabled the authentication, all the wireless clients' settings have to be consistent with the router for building the connection.</p>
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### **WEP/WPA-PSK/WPA2-PSK & WPA-PSK/WPA2-PSK**

Parameter	Description
<b>WEP-64Bits</b>	WEP is less level of security than WPA. WEP supports 64-bit and 128-bit key lengths to encrypt the wireless data. The longer key length will provide higher security. When "WEP-64Bits" is selected, you have to enter exactly 5 ASCII characters ("a-z" and "0-9") or 10 hexadecimal digits ("0-9", "a-f") for each Key (1-4).
<b>WEP-128Bits</b>	When "WEP-128Bits" is selected, you have to enter exactly 13 ASCII characters ("a-z" and "0-9") or 26 hexadecimal digits ("0-9", "a-f") for each Key (1-4).
<b>WPA-PSK</b>	WPA-PSK is suitable for home and small business. It uses TKIP or AES for data encryption. When "WPA-PSK" is selected, please select the encryption method and enter 8-63 ASCII characters or 64 hexadecimal characters as the "Pre-Shared Key".
<b>WPA2-PSK</b>	WPA2-PSK is also for home and small business. It uses TKIP or AES for data encryption. WPA2-PSK offers the highest level of security available. When "WPA2-PSK" is selected, please select the encryption method and enter 8-63 ASCII characters or 64 hexadecimal characters as the "Pre-Shared Key".
<b>WPA-PSK/ WPA2-PSK</b>	When "WPA-PSK/WPA2-PSK" is selected, please select the encryption method (TKIP or AES) and enter 8-63 ASCII characters or 64 hexadecimal characters as the "Pre-Shared Key".

## Wireless MAC Address Filter

Parameter	Description
<b>Active</b>	This router can prevent the wireless clients from accessing the wireless network by checking the MAC Address of the clients. If users enable this function, please set the MAC Address of the wireless clients to be filtered.
<b>Action</b>	<b>Allow Association</b> – Only allow the wireless clients with the MAC Address specified to access the router. <b>Deny Association</b> – The wireless clients with the MAC Address specified will be denied accessing to the router.
<b>Mac Address #1-8</b>	Please enter the MAC Address of the wireless clients for the filtering control.

## 4.3 Advanced Setup

### 4.3.1 Firewall

The screenshot shows the Micronet ADSL Router configuration interface. The 'Advanced Setup' menu is selected, and the 'Firewall' sub-menu is active. The 'Firewall' checkbox is checked (Enabled), and the 'SPI' checkbox is also checked (Enabled). A warning message states: '(WARNING: If You enabled SPI, all traffics initiated from WAN would be blocked, including DMZ, Virtual Server, and ACL WAN side.)'. There are 'SAVE' and 'CANCEL' buttons at the bottom.

Parameter	Description
<b>Firewall</b>	When you enable the firewall function, it will protect you from following attacks of WAN side: <ul style="list-style-type: none"> <li>➤ SYN flooding attack</li> <li>➤ Ping of Death</li> <li>➤ Teardrop</li> <li>➤ Land attack</li> </ul>
<b>SPI</b>	If you enable SPI, all traffics initiated from WAN site will be blocked including DMZ, Virtual Server, etc.

### 4.3.2 Routing

The screenshot shows the Micronet ADSL Router configuration interface. The 'Advanced Setup' menu is selected, and the 'Routing' sub-menu is active. The 'Routing Table List' section displays a table with one entry:

#	Dest IP	Mask	Gateway IP	Metric	Device	Use	Edit	Drop
1	192.168.2.0	24	192.168.2.1	1	enet0	972		

There is an 'ADD ROUTE' button at the bottom.

## Routing Table List

Users can see the current routing table of the router here. If they want to add another routing rule, please click “ADD ROUTE”.

Parameter	Description
<b>Dest IP</b>	Show the IP Address of the destination LAN.
<b>Mask</b>	Show the Subnet Mask of the destination LAN. If it shows “8” that means the Subnet Mask is “255.0.0.0”; “16” means the Subnet Mask is “255.255.0.0”; “24” means the Subnet Mask is “255.255.255.0”.
<b>Gateway IP</b>	The next stop gateway of the path toward the destination LAN. This is the IP of the neighbor router that this router should communicate with on the path to the destination LAN.
<b>Metric</b>	The number of hops (routers) to pass through to reach the destination LAN. It must be between 1 and 15.
<b>Device</b>	Show the interface that go to the next hop (router), such as LAN port.
<b>Use</b>	The counter for access time.
<b>Edit</b>	Edit the route, this icon is not shown for system default route.
<b>Drop</b>	Drop the route, this icon is not shown for system default route.

## Add Route

If users have another router with a LAN-to-LAN connection, they may need to create a static routing on the router that is the gateway to Internet.

The screenshot shows the Micronet ADSL Router configuration interface. The top navigation bar includes 'Advanced', 'Quick Start', 'Interface Setup', 'Advanced Setup', 'Access Management', 'Maintenance', 'Status', and 'Help'. Under 'Advanced Setup', there are sub-menus for 'Firewall', 'Routing', 'NAT', and 'ADSL'. The 'Static Route' configuration screen is active, displaying the following fields:

- Destination IP Address: 0.0.0.0
- IP Subnet Mask: 0.0.0.0
- Gateway IP Address: 0.0.0.0 (with a radio button selected)
- Interface: PVC0 (dropdown menu)
- Metric: 0
- Announced in RIP: Yes (dropdown menu)

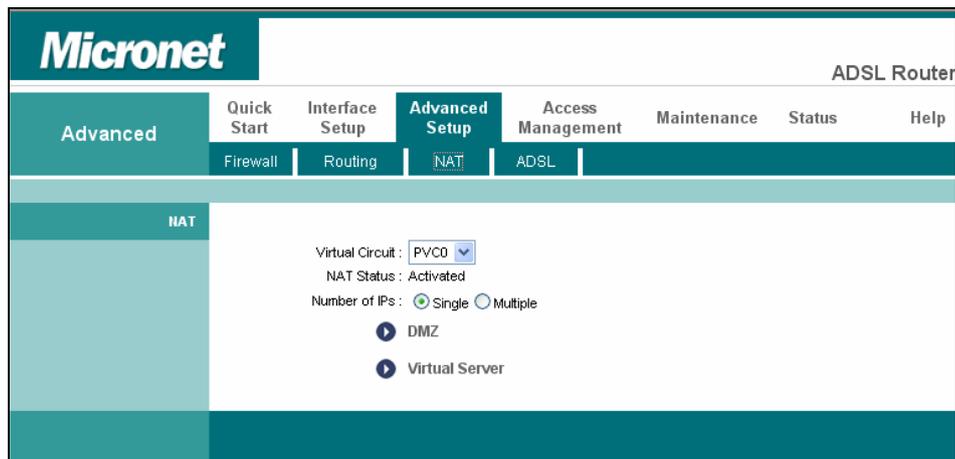
At the bottom of the form, there are four buttons: 'SAVE', 'DELETE', 'BACK', and 'CANCEL'.

Parameter	Description
<b>Destination IP Address</b>	Enter the IP Address of the destination LAN.

<b>IP Subnet Mask</b>	Enter the Subnet Mask address of the destination LAN.
<b>Gateway IP Address</b>	This is the gateway IP Address where packets are sent. Enter the gateway IP Address and select the channel (PVC) you want to configure.
<b>Metric</b>	The number of hops (routers) to pass through to reach the destination LAN. It must be between 1 and 15.
<b>Announced in RIP</b>	Select "Yes", this routing path will be propagated to other hosts through RIP broadcasts. Select "No", this routing path will be kept private and it is not included in RIP broadcasts.

### 4.3.3 NAT

Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single Public IP Address or multiple Public IP Addresses. NAT provides Firewall protection from hacker attacks and has the flexibility to allow you to map Private IP Addresses to Public IP Addresses for key services such as Websites and FTP.



Parameter	Description
<b>Virtual Circuit</b>	Please select the channel (PVC) you want to configure.
<b>NAT Status</b>	The activated or deactivated status for the NAT function will be shown here.
<b>Number of IPs</b>	Select "Single" if you only have a public IP Address. Select "Multiple" if you have multiple IP Addresses.

## DMZ

The DMZ Host is a local computer exposed to the Internet. When setting a particular internal IP Address as the DMZ Host, all incoming packets will be checked by the firewall and NAT algorithms then passed to the DMZ Host.

For example, if you have a local client PC that cannot run an Internet application (e.g. Games) properly from behind the NAT firewall, then you can open the client up to unrestricted two-way Internet access by defining a DMZ Host.

The screenshot shows the Micronet ADSL Router configuration interface. The top navigation bar includes 'Advanced', 'Quick Start', 'Interface Setup', 'Advanced Setup', 'Access Management', 'Maintenance', 'Status', and 'Help'. Under 'Advanced Setup', there are sub-menus for 'Firewall', 'Routing', 'NAT', and 'ADSL'. The 'DMZ' section is active, showing 'DMZ setting for : Single IP Account' and 'DMZ :  Enabled  Disabled'. Below this, the 'DMZ Host IP Address' is set to '0.0.0.0'. At the bottom, there are 'SAVE' and 'BACK' buttons.

Parameter	Description
<b>DMZ setting for</b>	Show the DMZ setting is for single or multiple IP Addresses.
<b>DMZ</b>	Enable or disable the DMZ function.
<b>DMZ Host IP Address</b>	Enter a static IP Address to the DMZ Host. This IP Address will be exposed to the Internet.

## Virtual Server

Use the Virtual Server function when you want different servers/clients in your LAN to handle different service/Internet application type (e.g. Email, FTP, Web server etc.) from the Internet. Computers use numbers called port numbers to recognize a particular service/Internet application type. The Virtual Server allows you to re-direct a particular service port number (from the Internet/WAN) to a particular LAN's private IP Address and its service port number.

**Micronet** ADSL Router

[Advanced](#)
[Quick Start](#)
[Interface Setup](#)
[Advanced Setup](#)
[Access Management](#)
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[Status](#)
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[Firewall](#)
[Routing](#)
[NAT](#)
[ADSL](#)

**Virtual Server**

Virtual Server for: Single IP Account

Rule Index: 1

Application: -

Protocol: ALL

Start Port Number: 0

End Port Number: 0

Local IP Address: 0.0.0.0

**Virtual Server Listing**

Rule	Application	Protocol	Start Port	End Port	Local IP Address
1	-	-	0	0	0.0.0.0
2	-	-	0	0	0.0.0.0
3	-	-	0	0	0.0.0.0
4	-	-	0	0	0.0.0.0
5	-	-	0	0	0.0.0.0
6	-	-	0	0	0.0.0.0
7	-	-	0	0	0.0.0.0
8	-	-	0	0	0.0.0.0
9	-	-	0	0	0.0.0.0
10	-	-	0	0	0.0.0.0
11	-	-	0	0	0.0.0.0
12	-	-	0	0	0.0.0.0

Parameter	Description
<b>Virtual Server for</b>	Show the Virtual Server setting is for single or multiple IP Addresses.
<b>Rule Index</b>	Choose the rule number.
<b>Application</b>	Select the application of the virtual server, for example: FTP or HTTP Server. When the application is selected, the port number for the application will be assigned automatically.
<b>Start Port Number</b>	Enter the start port number.
<b>End Port Number</b>	Enter the end port number.
<b>Local IP Address</b>	It is recommended to enter a static IP Address for the server here. If the server's IP Address is obtained from DHCP Server, the IP Address may be changed dynamically and will cause problem in the feature. Please assign a static IP Address to the server and make sure that the IP Address is not in the range of IP Addresses that the DHCP Server will assign.

## 4.3.4 ADSL

The screenshot shows the Micronet ADSL Router configuration page. The main navigation bar includes 'Advanced', 'Quick Start', 'Interface Setup', 'Advanced Setup', 'Access Management', 'Maintenance', 'Status', and 'Help'. The 'Advanced Setup' section is expanded to show 'Firewall', 'Routing', 'NAT', and 'ADSL'. The 'ADSL' configuration area displays two dropdown menus: 'ADSL Mode' is set to 'Auto Sync-Up' and 'ADSL Type' is set to 'ANNEX A'. A 'SAVE' button is positioned at the bottom right of the configuration area.

Parameter	Description
<b>ADSL Mode</b>	The default setting is "Auto Sync-Up". This mode will automatically detect the ADSL mode including ADSL2+, ADSL2, G.DMT, T1.413 and G.lite. If you are not sure how to select the ADSL mode, please contact with your ISP.
<b>ADSL Type</b>	Check with your ISP about the ADSL type of the DSLAM device they use.

## 4.4 Access Management

### 4.4.1 ACL

If users want to restrict users from accessing certain Internet applications/services such as Internet websites, email, FTP etc., then this is the place to set that configuration. Access Control allows users to define the traffic type permitted in your LAN or WAN. Users can control which computer can have access to these services by entering the IP Address of the computer.

The screenshot shows the Micronet ADSL Router web interface. The 'Access Management' menu is selected, and the 'Access Control Setup' sub-menu is active. The 'ACL' function is currently set to 'Deactivated'. The 'Access Control Editing' section includes the following fields:

- ACL Rule Index: 1
- Active: No
- Secure IP Address: 0.0.0.0 - 0.0.0.0 (0.0.0.0 ~ 0.0.0.0 means all IPs)
- Application: Web
- Interface: Both

Below these fields is a table header with columns: Index, Active, Secure IP Address, Application, and Interface. At the bottom of the form are buttons for SAVE, DELETE, and CANCEL.

Parameter	Description
<b>ACL</b>	Activate or deactivate the Access Control function. When you have activated the function, please make sure that you have designated the available applications/services or you will be denied to access all the services.
<b>ACL Rule Index</b>	This is the item number to record the setting rule.
<b>Secure IP Address</b>	The default 0.0.0.0~0.0.0.0 allows any user to use this service to remotely manage the router. Type a range of IP Addresses to authorize access to a number of users with matching IP Addresses.
<b>Application</b>	Choose the services that you permit to use in your LAN or WAN interface. These services include Web, FTP, Telnet, SNMP and Ping.
<b>Interface</b>	Select the interface that the user is allowed to use services through it. It includes LAN, WAN or Both.

## 4.4.2 Filter

Users can forbid some users from accessing the router by filtering IP Address or MAC Address. Users can also restrict some applications or URLs be accessing by users through the router here. Please select the filter type to start configuring.

The screenshot shows the Micronet ADSL Router configuration interface. The top navigation bar includes 'Access Management' (selected), 'Quick Start', 'Interface Setup', 'Advanced Setup', 'Maintenance', 'Status', and 'Help'. Under 'Access Management', there are sub-menus for 'ACL', 'Filter' (selected), 'SNMP', 'UPnP', and 'DDNS'. The main content area is titled 'Filter' and is divided into sections: 'Filter Type' with a dropdown set to 'IP / MAC Filter'; 'IP / MAC Filter Set Editing' with dropdowns for 'IP / MAC Filter Set Index' (1), 'Interface' (PVC0), and 'Direction' (Both); and 'IP / MAC Filter Rule Editing' with dropdowns for 'IP / MAC Filter Rule Index' (1) and 'Rule Type' (IP), and radio buttons for 'Active' (Yes/No, with 'No' selected). Below these are input fields for 'Source IP Address', 'Subnet Mask', and 'Port Number' (all with '0' as a default and a note '(0.0.0.0 means Don't care)'), and identical fields for 'Destination IP Address', 'Subnet Mask', and 'Port Number'.

### IP/ MAC Filter

#### IP/ MAC Filter Set Editing

This screenshot is identical to the one above, showing the 'IP / MAC Filter Set Editing' configuration page. It displays the same navigation and configuration options, including the 'Filter Type' dropdown set to 'IP / MAC Filter', the 'IP / MAC Filter Set Index' dropdown set to 1, the 'Interface' dropdown set to PVC0, and the 'Direction' dropdown set to Both. The 'IP / MAC Filter Rule Editing' section shows the 'IP / MAC Filter Rule Index' dropdown set to 1, the 'Rule Type' dropdown set to IP, and the 'Active' radio buttons with 'No' selected. The input fields for source and destination IP addresses, subnet masks, and port numbers are all set to 0, with a note '(0.0.0.0 means Don't care)' for the IP addresses.

Parameter	Description
<b>IP/MAC Filter Set Index</b>	This is the item number to record the setting.
<b>Interface</b>	Select which channel (PVC) to configure.
<b>Direction</b>	Select the access to the Internet (Outgoing) or from the Internet (Incoming), or Both.

### IP / MAC Filter Rule Editing

Parameter	Description
<b>IP/MAC Filter Rule Index</b>	This is the item number to record the setting rule.
<b>Rule Type</b>	Select to filter through the IP Address or MAC Address.
<b>Active</b>	Select "Yes" to enable the current rule, select "No" to cancel the current rule.
<b>Source IP Address</b>	Enter the start IP Address which will be monitored. If "0.0.0.0" is set, it means for any IP Address.
<b>Subnet Mask</b>	Enter the Subnet Mask based on the Source IP Address.
<b>Port Number</b>	LAN users use port number to distinguish one network application over another such as 21 is for FTP service. The port number range is from 0 to 65535. It is recommended that this option be configured by an advanced user.
<b>Destination IP Address</b>	Enter the start IP Address which will be monitored. If "0.0.0.0" is set, it means for any IP Address.
<b>Subnet Mask</b>	Enter the Subnet Mask based on the Destination IP Address.
<b>Port Number</b>	This is the port or port ranges that define the application.
<b>Protocol</b>	It is the packet protocol type used by the application. Please select "TCP", "UDP" or "ICMP". For example, FTP service, you have to select "TCP".
<b>Rule Unmatched</b>	Select action for the traffic mismatching current rule. "Forward" is to leave it pass through. "Next" is to check it by the next rule.

### Application Filter

Parameter	Description
<b>Application Filter</b>	Activate or deactivate the application filter.
<b>ICQ/MSN/YMSG/ Real Audio/Video</b>	If "Allow" is selected, the packets for these applications will be able to pass through the router. If you want to restrict these applications, please select "Deny".

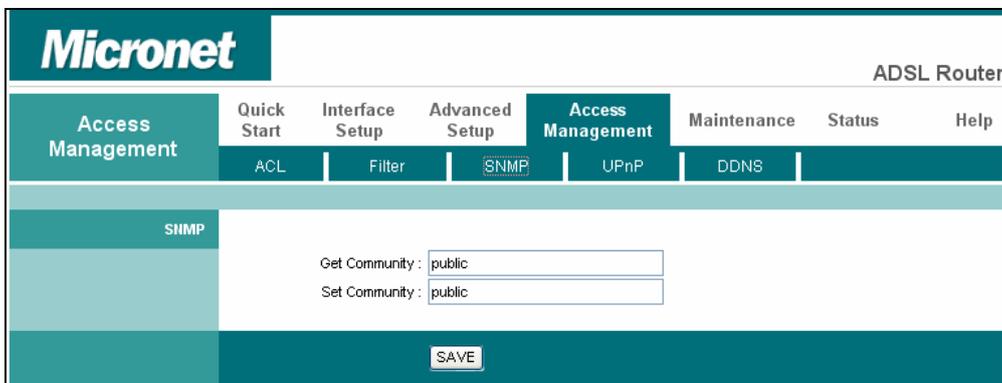
## URL Filter

Parameter	Description
<b>Active</b>	Activate or deactivate the URL filter.
<b>URL Index</b>	This is the item number to record the setting.

<b>URL</b>	A URL can be thought of as the "address" of a web page and is sometimes referred to informally as a "web address." Please enter the web address here that you want to restrict to be connected.
------------	---

### 4.4.3 SNMP

Simple Network Management Protocol (SNMP) is a popular protocol for network management. It is used for collecting information and configuring the network devices. This router supports SNMP agent function, which allows a manager station to manage and monitor the router through the network.



Parameter	Description
<b>Get Community</b>	Enter the password for the incoming Get- and Get Next requests from the management station.
<b>Set Community</b>	Enter the password for a Set request to configure the router.

### 4.4.4 UPnP

When the UPnP function is enabled, the router can be detected by UPnP compliant system such as Windows XP. The router will be displayed in the Neighborhood of Windows XP, so you can directly double click the router or right click the router and select "Invoke" to configure the router through web browser.

**Micronet** ADSL Router

Access Management | Quick Start | Interface Setup | Advanced Setup | **Access Management** | Maintenance | Status | Help

ACL | Filter | SNMP | **UPnP** | DDNS

**Universal Plug & Play**

UPnP :  Activated  Deactivated

Auto-configured :  Activated  Deactivated (by UPnP-enabled Application)

**SAVE**

Parameter	Description
<b>UPnP</b>	Activated or deactivated the UPnP function.
<b>Auto-configured</b>	Select this check box to allow UPnP-enabled applications to automatically configure the router so that they can communicate through the router, for example by using NAT traversal, UPnP applications automatically reserve a NAT forwarding port in order to communicate with another UPnP enabled device. This eliminates the need to manually configure port forwarding for the UPnP enabled application.

### 4.4.5 DDNS

DDNS allows you to map the static domain name to a dynamic IP address. You must get an account, password and your static domain name from the DDNS service providers.

**Micronet** ADSL Router

Access Management | Quick Start | Interface Setup | Advanced Setup | Access Management | Maintenance | Status | Help

ACL | Filter | SNMP | UPnP | **DDNS**

**Dynamic DNS**

Dynamic DNS :  Activated  Deactivated

Service Provider : www.dyndns.org

My Host Name :

E-mail Address :

Username :

Password :

Wildcard support :  Yes  No

**SAVE**

Parameter	Description
<b>Dynamic DNS</b>	Activated or deactivated the DDNS function.
<b>Service Provider</b>	This router supports DynDNS service provider.
<b>My Host Name</b>	Enter the domain name assigned to your router by the service provider.
<b>E-mail Address</b>	Enter the E-mail address assigned by DDNS service provider.
<b>Username</b>	Enter your username.
<b>Password</b>	Enter the password you set for the DDNS service.
<b>Wildcard Support</b>	Enable or disable the wildcard to stand for some characters.

## 4.5 Maintenance

### 4.5.1 Administrator

**Micronet** ADSL Router

Maintenance Quick Start Interface Setup Advanced Setup Access Management Maintenance Status Help

Administration Time Zone Firmware SysRestart Diagnostics

Administrator

Username : **admin**

New Password :

Confirm Password :

SAVE CANCEL

Parameter	Description
<b>Username</b>	The username of the router is "admin" by default.
<b>New Password</b>	Enter up to 30-digit for the new password.
<b>Confirm Password</b>	Enter the new password again to confirm the setting.

### 4.5.2 Time Zone

The Time Zone allows the router to set its time and this will affect function such as System Log.

**Micronet** ADSL Router

Maintenance Quick Start Interface Setup Advanced Setup Access Management Maintenance Status Help

Administration Time Zone Firmware SysRestart Diagnostics

Time Zone

Current Date/Time : 01/01/2000 02:31:38

Time Synchronization

Synchronize time with :  NTP Server automatically  
 PC's Clock  
 Manually

Time Zone : (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London

Daylight Saving :  Enabled  Disabled

NTP Server Address : 192.43.244.18 (0.0.0.0 Default Value)

SAVE CANCEL

Parameter	Description
<b>Current Date/Time</b>	Show the current date/time of the router.
<b>Synchronize time with</b>	<b>NTP Server Automatically</b> – Set the time automatically with a NTP Server. <b>PC's Clock</b> – Set the time synchronize with computer. <b>Manually</b> – Set the time manually.
<b>Time Zone</b>	Select the time zone of the country you are currently in. The router will set its time based on your selection.
<b>Daylight Saving</b>	Select this option if it is in daylight saving time.
<b>NTP Server Address</b>	Enter the IP Address of your time server.

### 4.5.3 Firmware

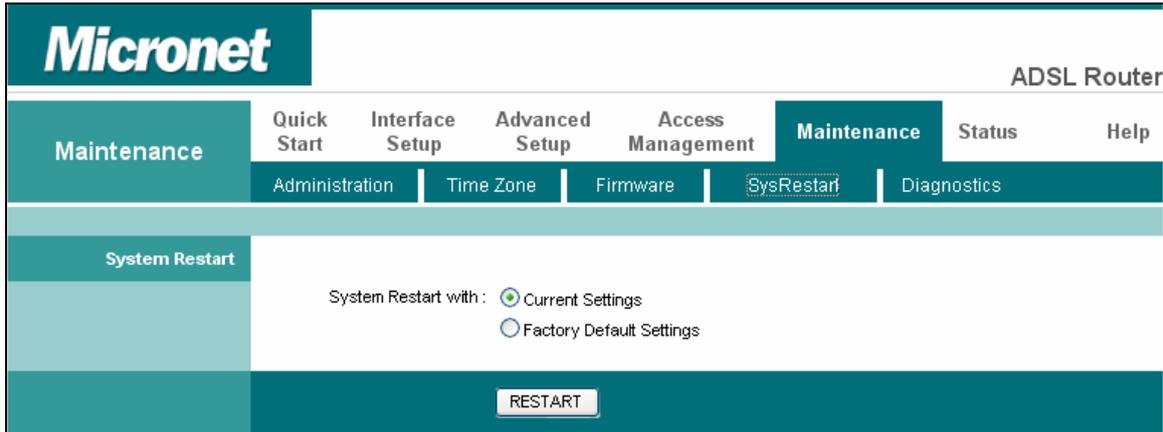
If users have new firmware for some features update, please upgrade firmware of the router in this section.

The screenshot shows the Micronet ADSL Router web interface. The main menu includes Maintenance, Quick Start, Interface Setup, Advanced Setup, Access Management, Maintenance, Status, and Help. The Maintenance menu is expanded to show Administration, Time Zone, Firmware, SysRestart, and Diagnostics. The Firmware/Romfile Upgrade page displays the current firmware version as 2.11.32.2(NRE0.C29)3.9.9.5. There are input fields for New Firmware Location and New Romfile Location, each with a 'Browse...' button. A 'ROMFILE SAVE' button is also present. A status message with a red warning icon states: 'Status : It might take several minutes, don't power off it during upgrading. Device will restart after the upgrade.' An 'UPGRADE' button is located at the bottom of the page.

Parameter	Description
<b>Current Firmware Version</b>	The current firmware version will be shown here.
<b>New Firmware Location</b>	Type in the location of the new firmware or click "Browse" to find it.
<b>New Romfile Location</b>	To restore the backup settings, please type in the location of the backup file or click "Browse" to locate.
<b>Romfile Backup</b>	To save the current settings as a backup file, please click "ROMFILE SAVE". Then please change the file name and select the location you want to save the file.
<b>Upgrade</b>	Click "Upgrade" to begin the upgrade processes or backup file restoring processes. After the router is restarted, the processes are completed. It might take several minutes, don't power off the router during upgrading or restoring.

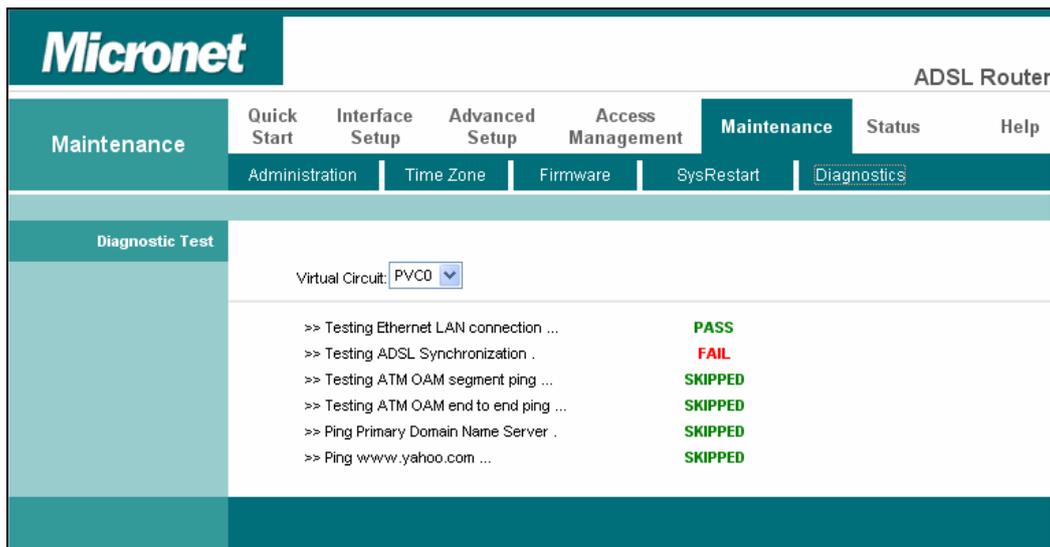
## 4.5.4 System Restart

In this interface, users can restart the router or restore to factory defaults. If users wish to restart the router using the factory default settings, select “Factory Default Settings” to reset to factory defaults. Users can also click the “Reset” button in the rear panel of the router over 5 seconds to reset default settings.



## 4.5.5 Diagnostics

This page allows user to diagnose the connectivity of the LAN and WAN network.



## 4.6 Status

### 4.6.1 Device Info

In this interface, it will show the device information including firmware, MAC Address, LAN and WAN settings and also the ADSL line status.

The screenshot displays the Micronet ADSL Router web interface. The top navigation bar includes 'Quick Start', 'Interface Setup', 'Advanced Setup', 'Access Management', 'Maintenance', 'Status', and 'Help'. The 'Status' page is active, showing sub-sections for 'Device Info', 'System Log', and 'Statistics'. The main content area is divided into four sections: 'Device Information', 'LAN', 'WAN', and 'ADSL'. The 'Device Information' section shows 'Firmware Version : 2.11.32.2(NRE0.C29)3.9.9.5' and 'MAC Address : 00:1f:1f:06:1e:dc'. The 'LAN' section shows 'IP Address : 192.168.2.1', 'Subnet Mask : 255.255.255.0', and 'DHCP Server : Enabled'. The 'WAN' section shows 'Virtual Circuit : PVC0', 'Status : Not Connected', 'Connection Type : Dynamic IP', 'IP Address : 0.0.0.0', 'Subnet Mask : 0.0.0.0', 'Default Gateway : 0.0.0.0', 'DNS Server : 0.0.0.0', and 'NAT : Enabled'. The 'ADSL' section shows 'ADSL Firmware Version : FwVer:3.9.9.5\_TC3085 HwVer:T14.F7\_3.0', 'Line State : Down', 'Modulation : N/A', and 'Annex Mode : N/A'.

Section	Details
Device Information	Firmware Version : 2.11.32.2(NRE0.C29)3.9.9.5 MAC Address : 00:1f:1f:06:1e:dc
LAN	IP Address : 192.168.2.1 Subnet Mask : 255.255.255.0 DHCP Server : Enabled
WAN	Virtual Circuit : PVC0 Status : Not Connected Connection Type : Dynamic IP IP Address : 0.0.0.0 Subnet Mask : 0.0.0.0 Default Gateway : 0.0.0.0 DNS Server : 0.0.0.0 NAT : Enabled
ADSL	ADSL Firmware Version : FwVer:3.9.9.5_TC3085 HwVer:T14.F7_3.0 Line State : Down Modulation : N/A Annex Mode : N/A

### 4.6.2 System Log

Display system logs accumulated up to the present time. You can also save the logs for future reviewing.

**Micronet** ADSL Router

[Status](#)
[Quick Start](#)
[Interface Setup](#)
[Advanced Setup](#)
[Access Management](#)
[Maintenance](#)
[Status](#)
[Help](#)

[Device Info](#)
[System Log](#)
[Statistics](#)

**System Log**

```

1/1/2000 0:12:49> Connect() to NTP server fail
1/1/2000 0:12:49> adjTimeTask fail: id = 11, ip = c02bf412
1/1/2000 0:12:49> No DNS server available
1/1/2000 0:12:49> Last errorlog repeat 10 Times
1/1/2000 0:12:49> adjTimeTask fail: no server available
1/1/2000 0:12:49> adjtime task pause 60 seconds
1/1/2000 0:13:49> sending request to NTP server(310)
1/1/2000 0:14:49> Connect() to NTP server fail
1/1/2000 0:14:49> adjTimeTask fail: id = 11, ip = c02bf412
1/1/2000 0:14:49> No DNS server available
1/1/2000 0:14:49> Last errorlog repeat 10 Times
1/1/2000 0:14:49> adjTimeTask fail: no server available
1/1/2000 0:14:49> adjtime task pause 1 day
  
```

### 4.6.3 Statistics

Show the statistics of transmitted and received packets on the LAN port, ADSL line or WLAN port.

**Micronet** ADSL Router

[Status](#)
[Quick Start](#)
[Interface Setup](#)
[Advanced Setup](#)
[Access Management](#)
[Maintenance](#)
[Status](#)
[Help](#)

[Device Info](#)
[System Log](#)
[Statistics](#)

**Traffic Statistics**

Interface :  Ethernet  ADSL  WLAN

Transmit Statistics		Receive Statistics	
Transmit Frames	1468	Receive Frames	10453
Transmit Multicast Frames	560	Receive Multicast Frames	684
Transmit total Bytes	1644661	Receive total Bytes	1324326
Transmit Collision	0	Receive CRC Errors	0
Transmit Error Frames	0	Receive Under-size Frames	0

[REFRESH](#)

# Chapter 5 Glossary

## **10Base-T**

It is an Ethernet standard for Local Area Network (LAN). 10Base-T uses a twisted pair cable with maximum length of 100 meters.

## **AAL**

ATM Adaptation Layer that defines the rules governing segmentation and reassembly of data into cells. Different AAL types are suited to different traffic classes.

## **ADSL**

Asymmetric Digital Subscriber Line, as its name showing, is an asymmetrical data transmission technology with high traffic rate downstream and low traffic rate upstream. ADSL technology satisfies the bandwidth requirement of applications, which demand “asymmetric” traffic, such as web surfing, file download and Video-on-demand (VOD).

## **ATM**

Asynchronous Transfer Mode is a layer 2 protocol supporting high-speed asynchronous data with advanced traffic management and quality of service features.

## **bps**

Bits per second, a standard measurement of digital transmission speeds.

## **Bridge**

Bridge is a device that connects multiple physical networks and forward packets between them. Bridges can usually be made to filter packets, that is, to forward only certain traffic. Related devices are: repeaters which simply forward electrical signals from one cable to the other and full-fledged routers which make routing decisions based on several criteria.

## **CPE**

Customer Premises Equipment, such as ADSL router, USB modem.

## **Default Gateway (Router)**

Every non-router IP device needs to configure a default gateway's IP address. When the device sends out an IP packet, if the destination is not on the same network, the device has to send the packet to its default gateway, which will then send it out towards the destination.

## **DHCP**

Dynamic Host Configuration Protocol, this protocol automatically gives every computer on your home network an IP address.

## **DNS Server IP Address**

DNS stands for Domain Name System, which allows Internet servers to have a domain name (such as `www.Broadbandrouter.com`) and one or more IP addresses (such as `192.34.45.8`). A DNS server keeps a database of Internet servers and their respective domain names and IP addresses, so that when a domain name is requested (as in typing "`Broadbandrouter.com`" into your Internet browser), the user is sent to the proper IP address. The DNS server IP address used by the computers on your home network is the location of the DNS server your ISP has assigned to you.

## **DSL**

Digital Line Subscriber (DSL) technology provides high-speed access over twisted copper pair for connection to the Internet, LAN interfaces, and to broadband services such as video-on-demand, distance learning, and video conferencing.

## **Ethernet**

It is a standard for computer networks. Ethernet networks are connected by special cables and hubs or switches, and move data around at up to 10/100 million bits per second (Mbps).

## **FTP**

File Transfer Protocol. The Internet protocol (and program) used to transfer files between hosts.

## **Idle Timeout**

Idle Timeout is designed so that after there is no traffic to the Internet for a pre-configured amount of time, the connection will automatically be disconnected.

## **ISP**

Internet Service Provider is a business that provides connectivity to the Internet for individuals and other businesses or organizations.

## **ISP Gateway Address**

The ISP Gateway Address is an IP address for the Internet router located at the ISP's office.

## **LAN**

Local Area Network is a group of computers and devices connected together in a relatively small area (such as a house or an office). Your home network is considered a LAN.

## **MAC Address**

MAC stands for Media Access Control. A MAC address is the hardware address of a device connected to a network. The MAC address is a unique identifier for a device with an Ethernet interface. It is comprised of two parts: 3 bytes of data that corresponds to the Manufacturer ID (unique for each manufacturer), plus 3 bytes that are often used as the product's serial number.

## **NAT**

Network Address Translator is defined by RFC 1631. Enable a LAN network to use one set of IP address for internal traffic. A NAT box located where the LAN meets the Internet provides the necessary IP address translation. This helps provide a sort of firewall and allow for a wider address range to be used internally without danger of conflict. Using the router's NAT capability, you can access the Internet from any computer on your home network without having to purchase more IP addresses from your ISP.

## **Port**

Network Clients (LAN PC) uses port numbers to distinguish one network application/protocol over another. Below is a list of common applications and protocol/port numbers:

Application	Protocol	Port Number
Telnet	TCP	23
FTP	TCP	21
SMTP	TCP	25
POP3	TCP	110
H.323	TCP	1720
SNMP	UCP	161
SNMP Trap	UDP	162
HTTP	TCP	80
PPTP	TCP	1723
PC Anywhere	TCP	5631
PC Anywhere	UDP	5632

## PPP

PPP is the Point-to-Point-Protocol. The successor to SLIP, PPP provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits.

### PPPoA (RFC 2364)

The Point-to-Point Protocol (PPP) provides a standard method for transporting multi-protocol data grams over point-to-point links. This document describes the use of ATM Adaptation Layer 5 (AAL5) for framing PPP encapsulated packets.

### PPPoE (RFC 2516)

This document describes how to build PPP sessions and encapsulate PPP packets over Ethernet. PPP over Ethernet (PPPoE) provides the ability to connect a network of hosts over a simple bridging access device to a remote Access Concentrator.

## Protocol

A protocol is a set of rules for interaction agreed upon between multiple parties so that when they interface with each other based on such a protocol, the interpretation of their behavior is well defined and can be made objectively, without confusion or misunderstanding.

## PVC

Permanent Virtual Circuit, connection-oriented permanent leased line circuit between end-stations on a network over a separate ATM circuit.

## **RFC**

Request for Comments. The document (begun in 1969) is for describing the Internet suite of protocols and related experiments. Not all RFCs describe Internet standards, but all Internet standards are written up as RFCs.

## **RFC 1483**

Multi-protocol encapsulation over AAL-5. Two encapsulation methods for carrying network interconnect traffic over ATM AAL-5. The first method allows multiplexing of multiple protocols over a single ATM virtual circuit. The protocol of a carried PDU is identified by prefixing the PDU by an IEEE 802.2 Logical Link Control (LLC) header. This method is in the following called "LLC Encapsulation". The second method does higher-layer protocol multiplexing implicitly by ATM Virtual Circuits (VCs). It is in the following called "VC Based Multiplexing".

## **Router**

A system responsible for making decisions about which of several paths network (or Internet) traffic will follow. To do this, it uses a routing protocol to gain information about the network and algorithms to choose the best route based on several criteria known as "routing metrics."

## **Subnet Mask**

A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers (e.g. 255.255.255.0) configured like an IP address. It is used to create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet, which must be assigned by InterNIC).

## **TCP/IP, UDP**

Transmission Control Protocol/Internet Protocol (TCP/IP) and Unreliable Datagram Protocol (UDP). TCP/IP is the standard protocol for data transmission over the Internet. Both TCP and UDP are transport layer protocol. TCP performs proper error detection and error recovery, and thus is reliable. UDP on the other hand is not reliable. They both run on top of the IP (Internet Protocol), a network layer protocol.

## **TELNET**

It is the virtual terminal protocol in the Internet suite of protocols. Allows users of one host to log into a remote host and act as normal terminal users of that host.

## **VCI**

Virtual Circuit Identifier is part of the ATM cell header. A VCI is a tag indicating the channel over which a cell will travel. The VCI of a cell can be changed as it moves between switches via Signaling.

## **VPI**

Virtual Path Identifier is part of the ATM cell header. A VPI is a pipe for a number of Virtual Circuits.

## **WAN**

Wide Area Network is a network that connects computers located in geographically separate areas (e.g. different buildings, cities, countries). The Internet is a wide area network.

## **Web-based management Graphical User Interface (GUI)**

Many devices support a graphical user interface that is based on the web browser. This means the user can use the familiar Netscape or Microsoft Internet Explorer to Control/configure or monitor the device being managed.



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