

LinkMAX™ HSA300A

(P/N: 302-10)

User Manual



BroadMax Technology Limited

BMTBEHSA302A30

Table of Contents

FCC Part 15B Information.....	3
Customer Information on FCC Part 68.....	4
Industry Canada Limitations Notice.....	5
1. Welcome to the <i>LinkMAX™ HSA300A</i>	6
Safety Instructions.....	7
Terminology.....	7
Trademarks.....	7
User Manual Update.....	7
2. <i>LinkMAX™ HSA300A</i> Introduction.....	8
2.1 Delivery Check.....	9
2.2 <i>HSA300A</i> at a Glance.....	11
2.2.1 Generic Use of the <i>HSA300A</i>	12
2.2.2 Front Panel Layout and LED Description.....	13
2.2.3 Rear Panel Layout.....	13
2.3 Operating Requirement.....	15
2.3.1 ADSL and telephone service.....	15
2.3.2 Personal Computer.....	15
2.3.3 Internet Service.....	15
3. Three Modes of Operations.....	16
3.1 Ethernet Bridge Mode.....	17
3.2 Ethernet Router Mode.....	18
4. Hardware and Software Preparation.....	19
4.1 Hardware Preparation.....	19
4.2 Software Preparation.....	20
4.2.1 Web-based Configuration.....	20
5. Web-Based Configuration.....	21
5.1 Introduction.....	21
5.2 Before clicking on the web-browser.....	21
5.2.1 Modify IP address in Windows XP / 2000.....	21
5.2.2 Modify IP address in Windows ME / 98.....	24
5.3 The main page.....	26
5.4 The Configuration page.....	29
5.5 Bridged (RFC 1483) page.....	31
5.6 Classical IP over ATM (RFC 1577) page.....	32
5.7 PPP over Ethernet (RFC2516) / PPP over AAL (RFC2364).....	34
5.10 NAT Inbound page.....	36
5.11 Change Access Password page.....	38
5.12 DHCP Server page.....	38
5.13 The Saving page.....	40
6 Troubleshooting.....	41
7. Specifications.....	45
7.1 Functional Specifications.....	45
7.2 Physical Specifications.....	46
8. Appendix.....	47
8.1 Appendix A -- Important Safety Instructions.....	47
8.2 Appendix B -- Default Configuration.....	48
9. Glossary.....	49

FCC Part 15B Information

This device complies with Part 15 of 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.

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

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 communication.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio and 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 the 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.

Shielded cables must be used with this unit in order to ensure compliance with the Class B FCC limits.

If trouble is experienced with this equipment LinkMAX HSA300A Modem, for repair or warranty information, please contact BroadMax Technologies Inc., 1216 John Reed Court, City of Industry, CA91745, USA at 1-626-333-8808.

Customer Information on FCC Part 68

This equipment complies with Part 68 of the FCC rules. On the bottom cabinet of this equipment is a label that contains, among other information, the FCC certification number and ringer equivalence number (REN) for this equipment. If requested, the following information must be provided to the telephone company.

- FCC Registration Number: BMXCHN-36171-DL-N
- Ringer Equivalence Number (REN): 0.4B
- USOC Jack Type: RJ11C

A FCC compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack that is Part 68 compliant. See Installation Instructions for details.

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. Typically, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line (as determined by the total RENs) contact the local telephone company.

If this equipment LinkMAX HSA300A Modem causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes to its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice so you can make the necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment LinkMAX HSA300A Modem, for repair or warranty information, please contact BroadMax Technologies Inc. at 1-626-333-8808. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Connection to party line service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information.)

Industry Canada Limitations Notice

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The **Ringer Equivalence Number** (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

1. Welcome to the *LinkMAX™ HSA300A*



Safety Instructions

Before connecting the **LinkMAX™ HSA300A**, please read the Safety Instructions in Appendix A first.

Terminology

For readability, the **LinkMAX™ HSA300A** in this manual will be referred as **HSA300A**.

Trademarks

LinkMAX™ is a trademark of **BroadMAX Technologies, Inc.**

Windows™ is a trademark of Microsoft Corporation

Ethernet is a trademark of Xerox Corporation

User Manual Update

Due to the evolving technologies of ADSL, it is possible that the software of your HSA300A will be upgraded from time to time. The content inside this User Manual will be updated accordingly.

For more information, please check with the BroadMAX Technologies, Inc. website: <http://www.BroadMAX.net/support/>

2. *LinkMAX™ HSA300A* Introduction

Introduction

This chapter is to introduce the *HSA300A*.

In this chapter

This chapter covers the following topics:

Delivery Check (see 2.1)

HSA300A at a Glance (see 2.2)

Operating Requirement (see 2.3)

2.1 Delivery Check

Introduction

This section describes the preparation before connecting, powering up, and configuring the **HSA300A**.

Delivery Check

Before installation, inspect the **HSA300A** package for any damage items.

The package contains the following components:

- The **LinkMAX™ HSA300A**



- Ethernet cable (RJ45/RJ45)



- Phone line cable (RJ11/RJ11)



- Power supply adaptor



- CD ROM contains User's manual



Damage or Missing Items

In the event of any damaged or missing items, please contact your equipment provider or local distributor for enquiry and replacement.

This ADSL modem may temporarily disconnect due to external disturbance, such as lightning, sudden voltage drop, electro-static discharge. In such cases, this modem will re-establish connection automatically in a few seconds. Please wait until the LINE LED stop blinking and then resume normal use. In addition, certain RF conducted disturbance may also introduce error to the data transmission. In such case, the ADSL modem may still on line, but the application software may be interfered.

Warranty Card

Your **HSA300A** shipping carton may also contain a warranty card issued by the local distributor. Please consult with your equipment provider for warranty service handling.

Other Bundling Software or Accessories

Your **HSA300A** may come with other application software and/or applicable accessories as desired by the service provider or local distributor to enhance broadband connectivity and usage.

2.2 **HSA300A** at a Glance

ADSL modem

Your **HSA300A** is a high speed broadband ADSL modem, featuring an unique design of two different operation modes:

- Ethernet to ADSL Bridge
- Ethernet to ADSL Router

To access the Internet or remote network with the maximum downstream rate of 8Mbps and the maximum upstream rate of 640Kbps.

Note : Actual performance may vary subject to the line condition and loading at the service provider's location.

In this section

This section covers the following topics:

- Generic Use of the **HSA300A** (See 2.2.1)
- Front Panel Layout and LED description (See 2.2.2)
- Rear Panel Layout (See 2.2.3)

2.2.1 Generic Use of the *HSA300A*

Your *HSA300A* ADSL Modem

The *HSA300A* connects your personal computer at your home SOHO or office network to the Internet or corporate intranet. This can be achieved via the *10BaseT Ethernet interface*.

Generic Network Architecture

Figure 1 shows the generic network architecture, where users at their home SOHO or office network have access to the Internet or intranet respectively via the ADSL line.

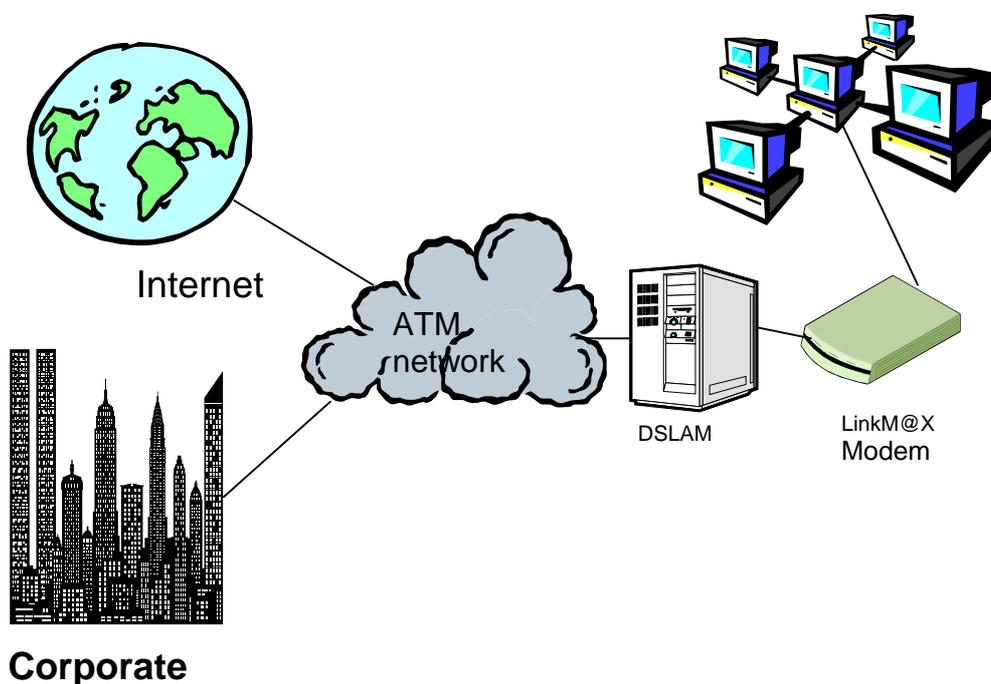


Figure 2.1

Types of Services

For end-to-end connectivity, the *HSA300A* supports the following services

- Transparent Bridge
- PPPoA
- PPPoE
- Classical IP (IPoA)
- NAT
- DHCP Server
- IP routing

2.2.2 Front Panel Layout and LED Description

The *HSA300A* is equipped with 4 LEDs at its front panel, representing the status of the device (see figure 2 below).

Front Panel Layout

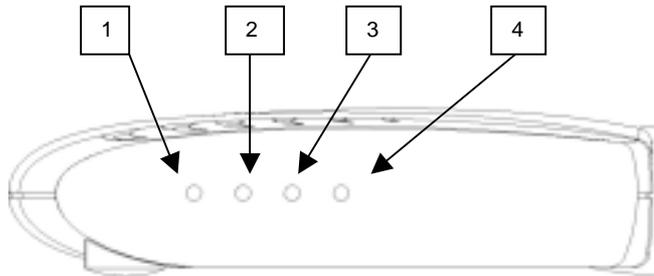


Figure 2.2

Functions of Front panel LEDs

Label	Function	Description
1. Power	Power Indicator	Power up, ready for service
2. Sync/PPPoE	ADSL Sync / PPP Status	LED Yellow steady: ADSL link is in operation LED Yellow blinking: ADSL link is initializing LED Green steady: ADSL link is in operation and PPP initializing LED Green blinking: ADSL link is in operation and PPP connected
3. LAN	Ethernet Status and Activity	LED steady: Ethernet link is in operation LED blinking: Data is being received / transmitted on Ethernet
4. WAN	WAN Activity	Data is being received / transmitted via on WAN

2.2.3 Rear Panel Layout

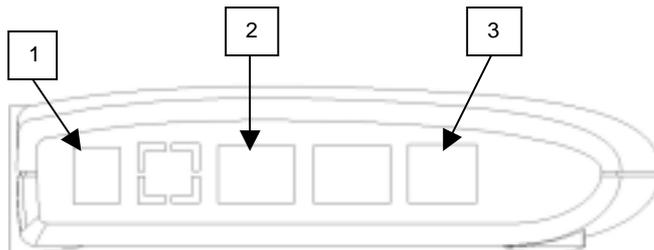


Figure 2.3

Label

1. Power Adapter jack
2. LAN 10 Base T port (RJ-45)
3. LINE ADSL port (RJ-11)

2.3 Operating Requirement

2.3.1 ADSL and telephone service

To enjoy broadband data communication via your telephone line, ADSL service must be enabled on your telephone line by the service provider.

You may also need to add a telephone micro-filters for each phone, fax machines to enhance the voice quality and minimize interference to broadband service during voice call.

2.3.2 Personal Computer

- Minimum Pentium 200MHz or equivalent PC with at least 64Mbytes RAM running Windows or Linux operating system or
- Macintosh computer
- A 10Base-T or 100Base-T network port.
- Browser software - To configure **HSA300A** through a web-based interface, a browser such as Internet Explorer / Netscape version 4 or above with JavaScript browsing enabled, is required.

2.3.3 Internet Service

Login Name & Password

This is assigned to you for login authentication to use the broadband service. You will need to input these information into the MODEM, to use the modem PPPoE mode.

3. Three Modes of Operations

Introduction

This chapter describes the set up of *HSA300A* with each operation mode for your application.

In this chapter

This chapter covers the following topics

- Ethernet Bridge Mode (see 3.2)

- Ethernet Router Mode (see 3.3)

3.1 Ethernet Bridge Mode

In a bridge configuration, your **HSA300A** ADSL modem is transparent to the network.

Refer to Figure 3.1 below, the **HSA300A** acts as a bridge between the ADSL line to the Ethernet line making both sides appear as a single subnet. In this mode, only an IP address needs to be provided to the PC.

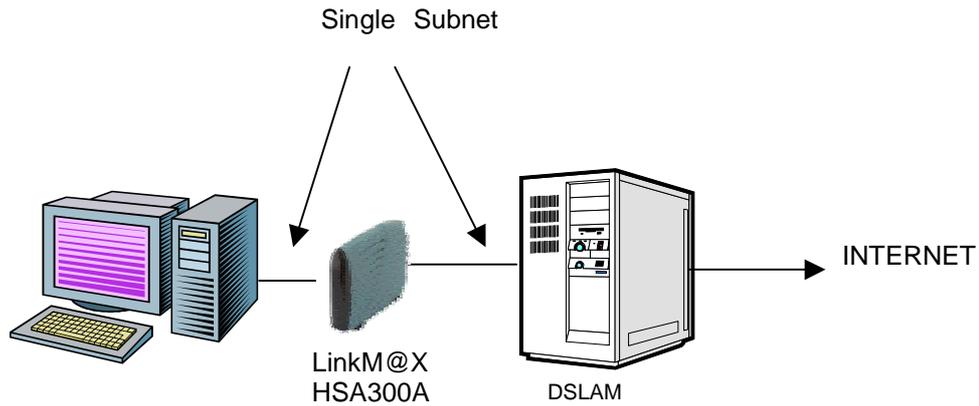


Figure 3.1

3.2 Ethernet Router Mode

In a router configuration, your **HSA300A** ADSL modem is being regarded as a separate device on the network that the PC and DSLAM send packets to.

Refer to Figure 3.2 below, the Ethernet and ADSL networks are configured as separate IP subnets. The PC must have the **HSA300A** set up as its default gateway.

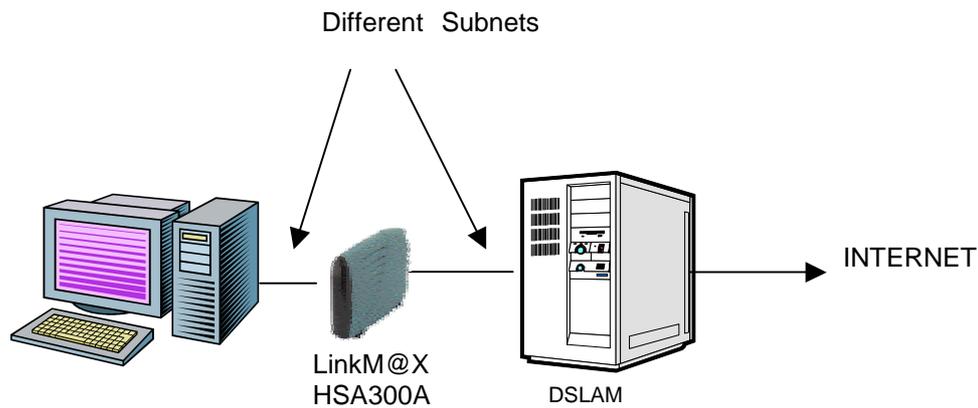


Figure 3.2

4. Hardware and Software Preparation

4.1 Hardware Preparation

- Attach the power jack from the Power Adapter to the power inlet connector at the back of **HSA300A**.
- Plug the Power Adapter into standard AC electrical socket on the wall.
- Connect the RJ11 port at the back of **HSA300A** to the POTS telephone socket (RJ11) with the phone cord supplied.
- For Ethernet Modem installation, connect one end of the Ethernet cable to the 10Base-T port at the back of HSA300A and the other end to the RJ45 socket of the PC with a Ethernet 10Base-T Network Interface Card (NIC) installed. If an Ethernet hub is being used, cable will be needed to attach to uplink port of the hub.

Refer Figure 4.1 below for illustration.



Figure 4.1

4.2 Software Preparation

Your **HSA300A** can be configured through Web-Based Configuration. The following sections discuss each of these software requirements.

4.2.1 Web-based Configuration

To configure **HSA300A** through a web-based interface, the user must install Internet Explorer / Netscape version 4 or above with JavaScript browsing enabled.

Please refer to **chapter 5** for details on web-based configuration.

5. Web-Based Configuration

5.1 Introduction

Your **HSA300A** modem can be configured through a web browser. Web-based configuration provides a user-friendly interface for users to set up their modems for most common use.

In this chapter, we are going to guide you through the set-up procedure using the web-based configuration.

5.2 Before clicking on the web-browser...

Please make sure the **HSA300A** modem and the PC are connected by an Ethernet cable.

The default modem IP address is **192.168.0.1** with subnet mask **255.255.255.0**. The IP address of the **HSA300A** modem and the IP address of the PC must be in the same subnet (e.g. PC's IP: **192.168.0.2** with subnet mask **255.255.255.0**). If the IP address of the PC and the **HSA300A** modem are not in the same subnet, users should modify IP address of the PC in Microsoft Windows.

The following section will describe the modification method in detail.

5.2.1 Modify IP address in Windows XP / 2000

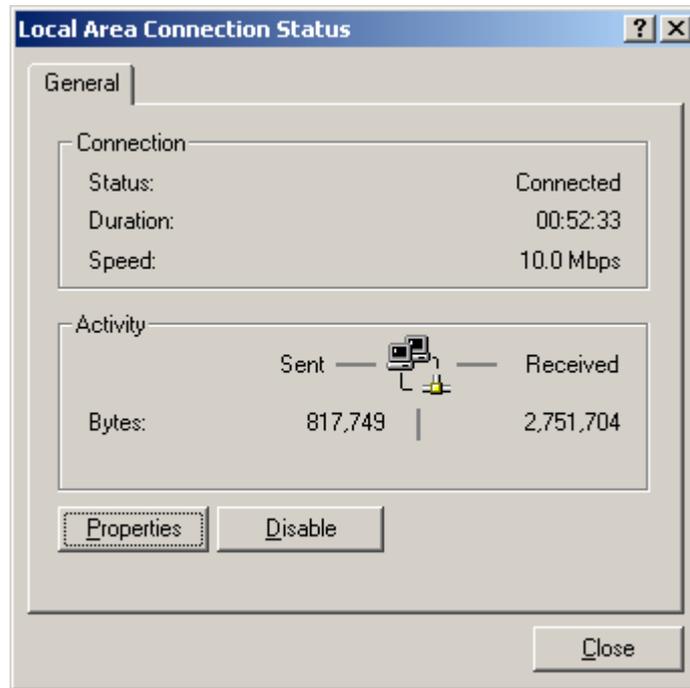
This section describes the modification of IP address in Windows XP or 2000. Before this procedure is followed, the modem should be powered on and connected to the PC Ethernet port.

To change the IP address on Windows XP / 2000:

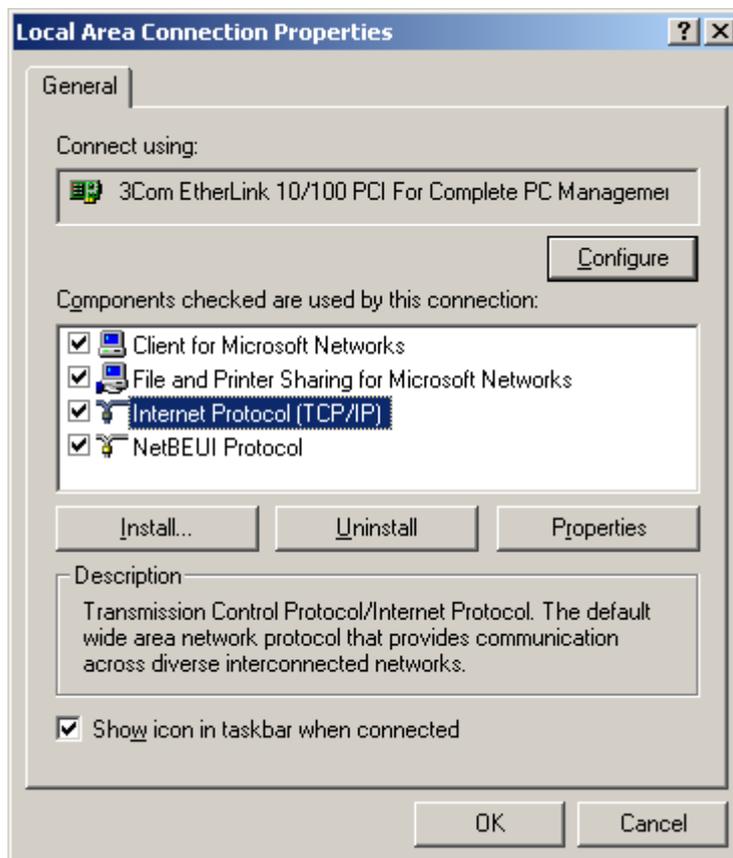
- 1.) Open the Network and Dial-up Connections Window -- From your Windows taskbar, click **Start -> (Settings ->) Control Panel -> Network (and Dial-up) Connections**



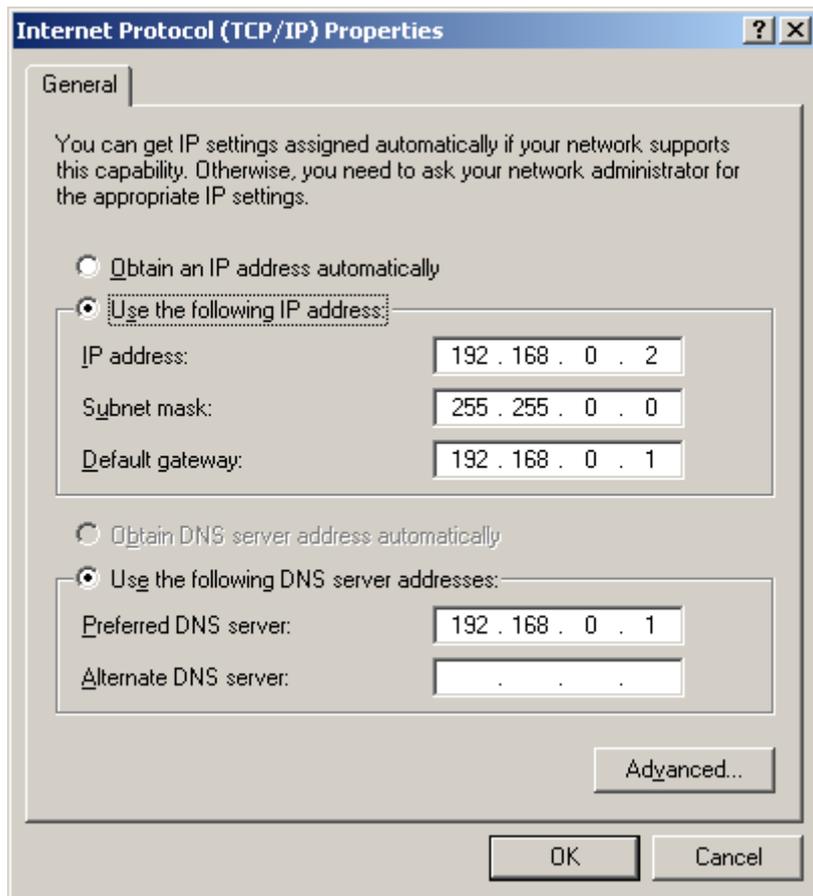
2.) Then double-click on “**Local Area Connection**” and click on the “**Properties**” button.



3.) Choose **Internet Protocol (TCP/IP)** then click on **Properties** button.



- 4.) Enter the IP address to assign to your PC (In this example: IP: **192.168.0.2**, subnet Mask: **255.255.255.0**). For DNS server entries, you may enter the DNS address(es) the Internet Service Provider provided you. If you configure the modem to use PPPoE or PPPoA to connect to the Internet Service Provider, you may enter **192.168.0.1** in the Preferred DNS server entry.



- 5.) Click **OK** button on the Internet Protocol (TCP/IP) Properties window. Then click OK button on the Local Area Connection Properties window. (Note: In certain circumstances, Windows may not prompt you to restart the computer. In that case, click **Yes** button to restart your PC.) You have finished configuration of the PC's IP address.

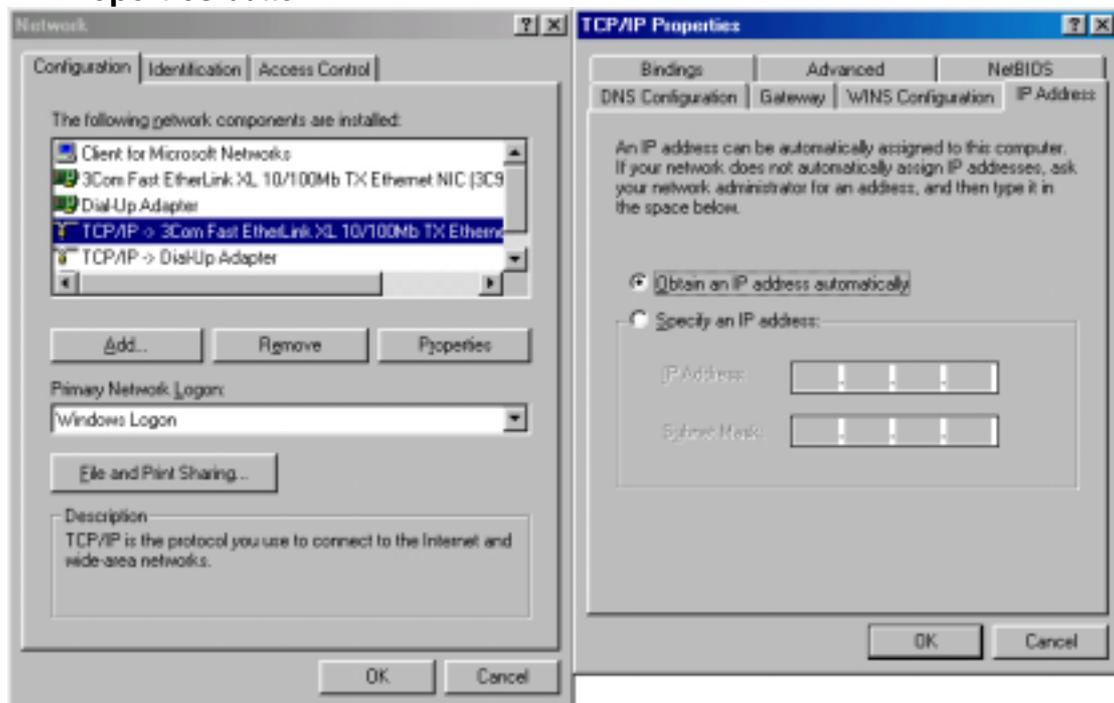


5.2.2 Modify IP address in Windows ME / 98

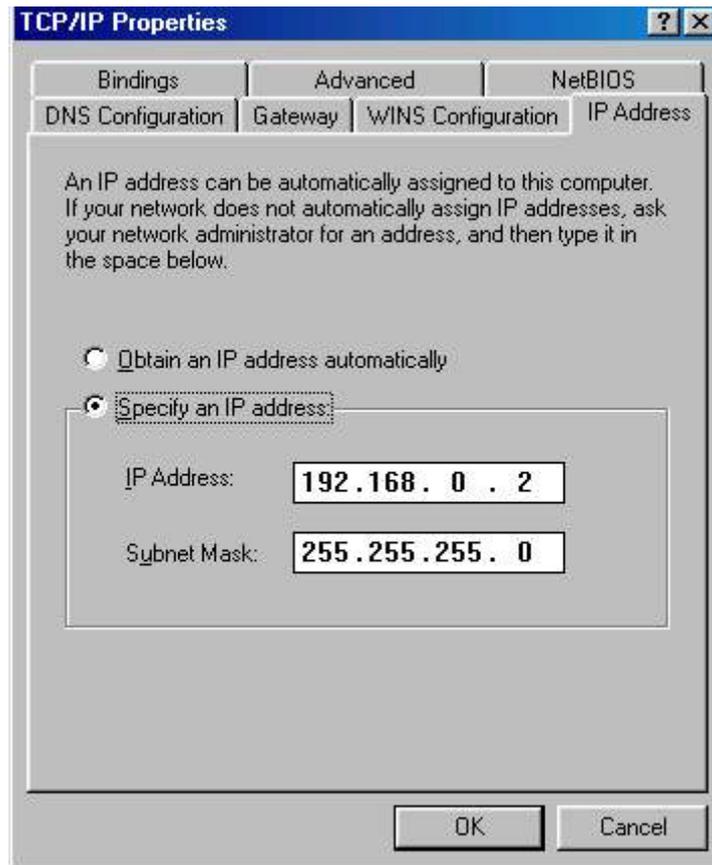
This section describes the modification of IP address in Windows 98 or Millennium Edition (ME).

To change the IP address on Windows 98/ME:

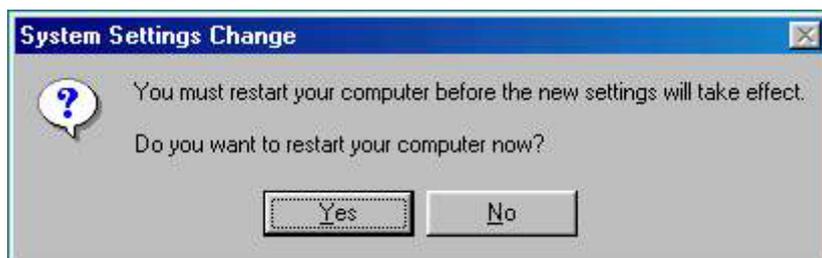
- 1.) Open the Network Configuration Windows -- From your Windows taskbar, click **Start -> Setting -> Control Panel -> Network**.
- 2.) Choose **TCP/IP -> <Network Adapter>** (In this example, Network Adapter is **3Com Fast EtherLink XL 10/100Mb TX Ethernet NIC**) then click on **Properties** button.



3. Choose **Specify an IP address** and enter the IP address to assign to your PC. (In this example: IP: **192.168.0.2**, subnet Mask: **255.255.255.0**)



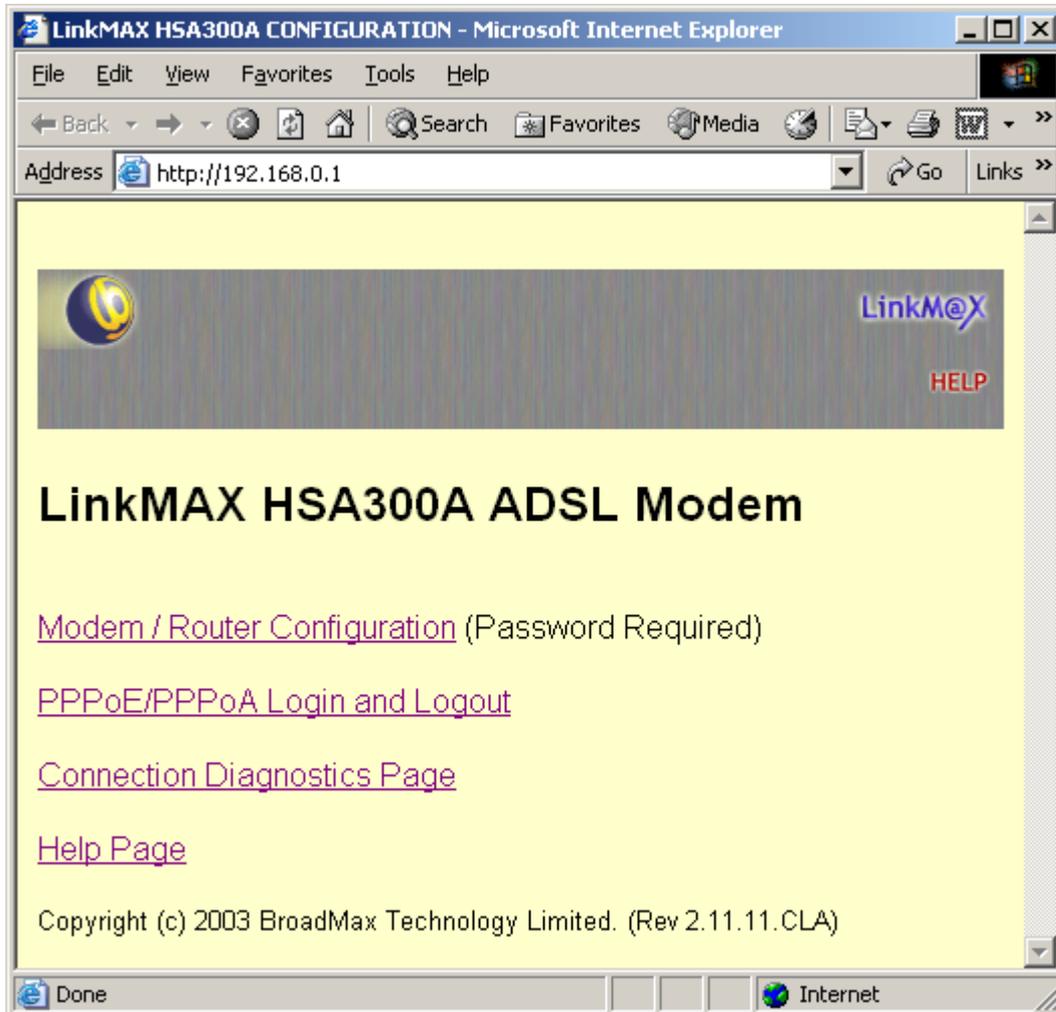
4.) Click **OK**, and the System Settings Change Window will appear and prompt you to restart the window.



Click **Yes** button to restart your PC. You have finished configuration of the PC's IP address.

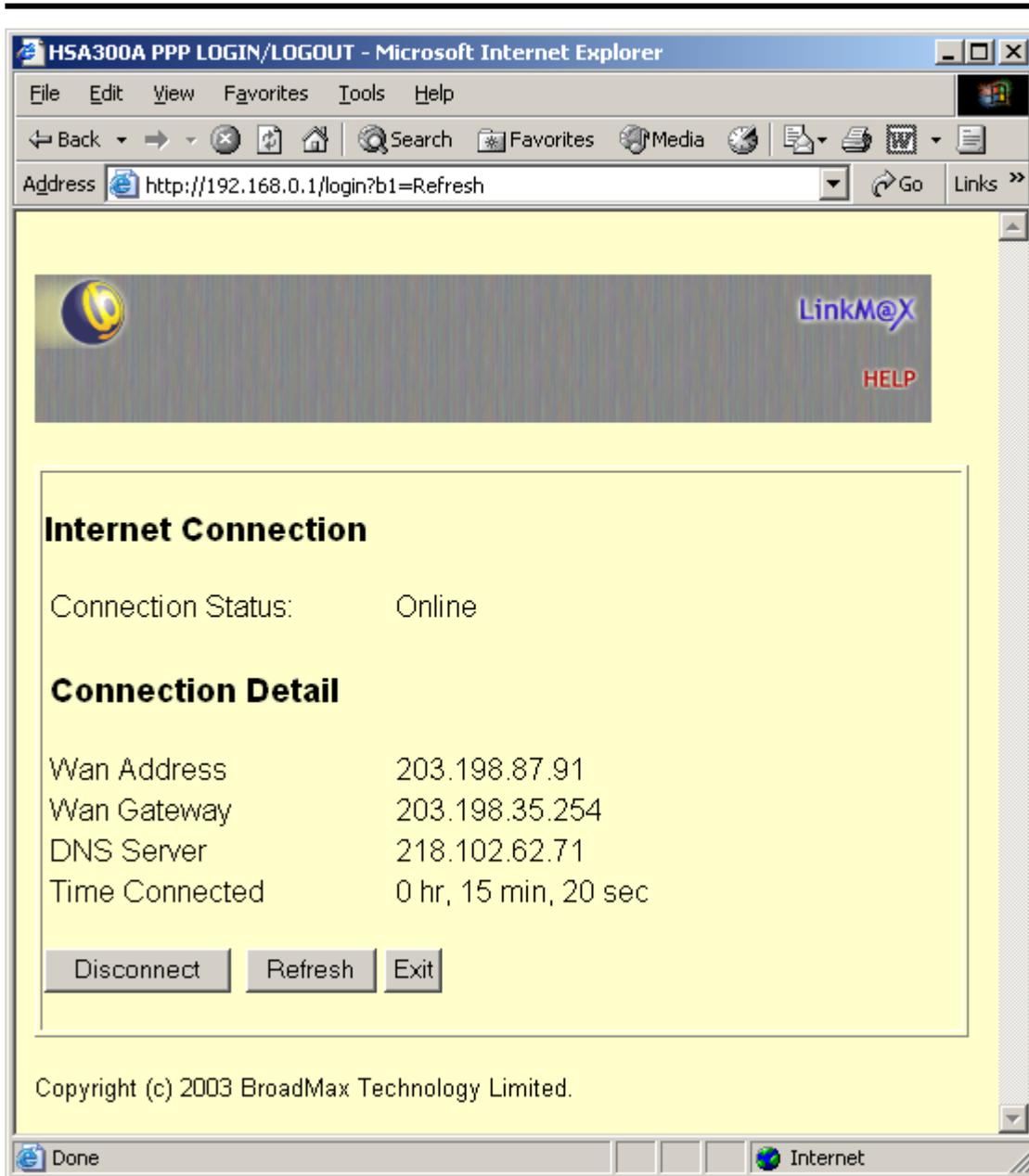
5.3 The main page

Upon booting up the **HSA300A** modem, wait about 30 seconds to allow modem to load the modules. After opening the browser and typing in the **modem IP address** on the address bar (type **192.168.0.1** on web-browser's address bar in our example), the following page appears as the first page:



On the top of the Web page, there is a banner with a help icon at the lower right hand corner. Users can click on the help icon at any page to display help topics related to that page.

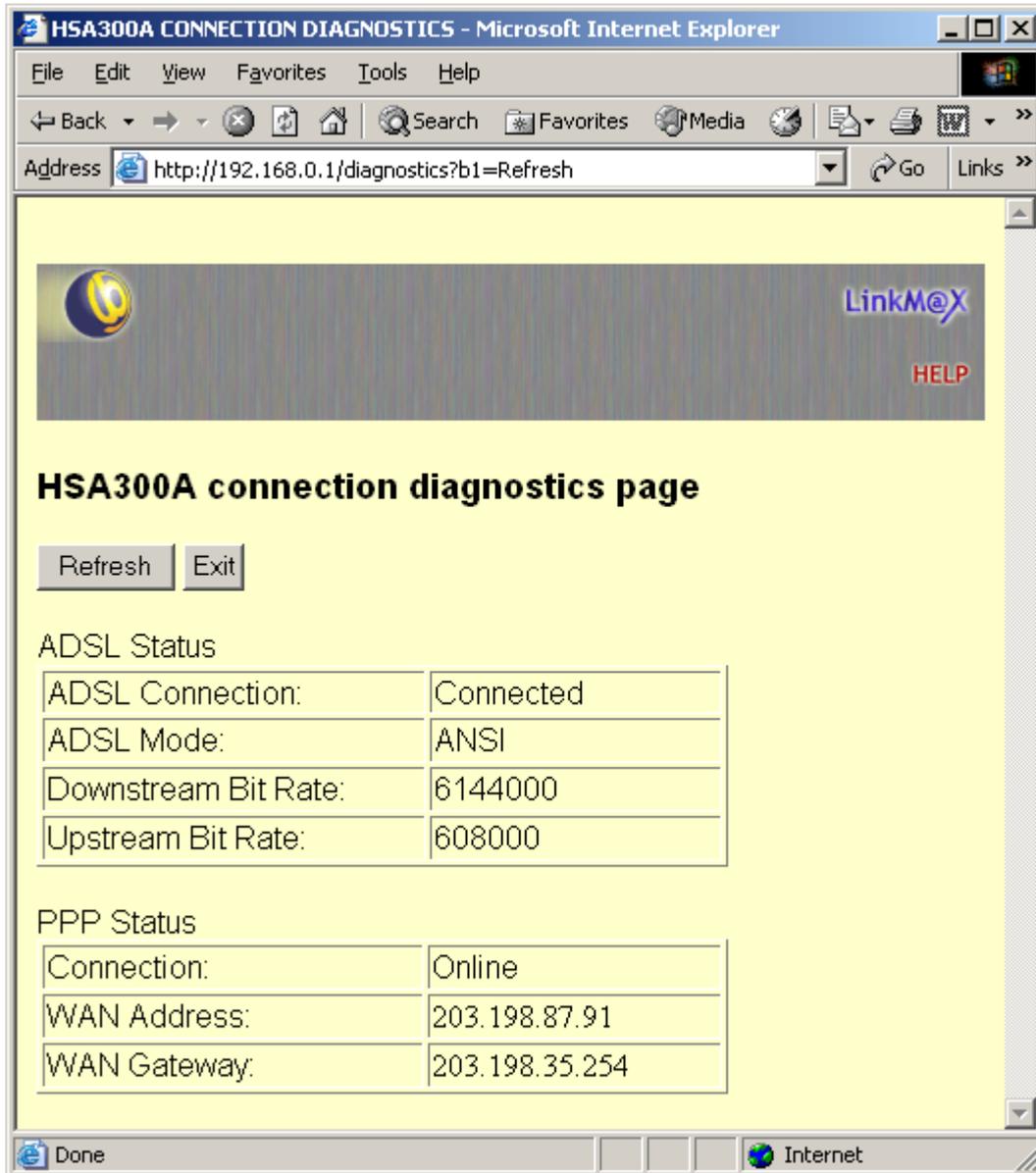
The main page provides three options for the users. On **PPPoE/PPPoA login and logout** link, the user can connect or disconnect from their ISP if the modem has been configured with PPPoE or PPPoA connection properly. By clicking the link, the following page appears: (Note: the page actually shown will be different depending on whether you have configured and connected to PPPoE or PPPoA successfully)



The user can click on **Connect** or **Disconnect** button to control their PPP session. Note that either one of the buttons will appear, but not both.

The second link in the main page is **Modem / Router Configuration**. Password is required in order to access the configuration pages. The remaining sessions of this chapter will describe the configuration pages in detail.

By clicking on the **Connection Diagnostics** link, it provides diagnostics information on modem and connection status.



By clicking on the **Help Page** link, the help page appears. It provides help information on using the web-based configuration interface.

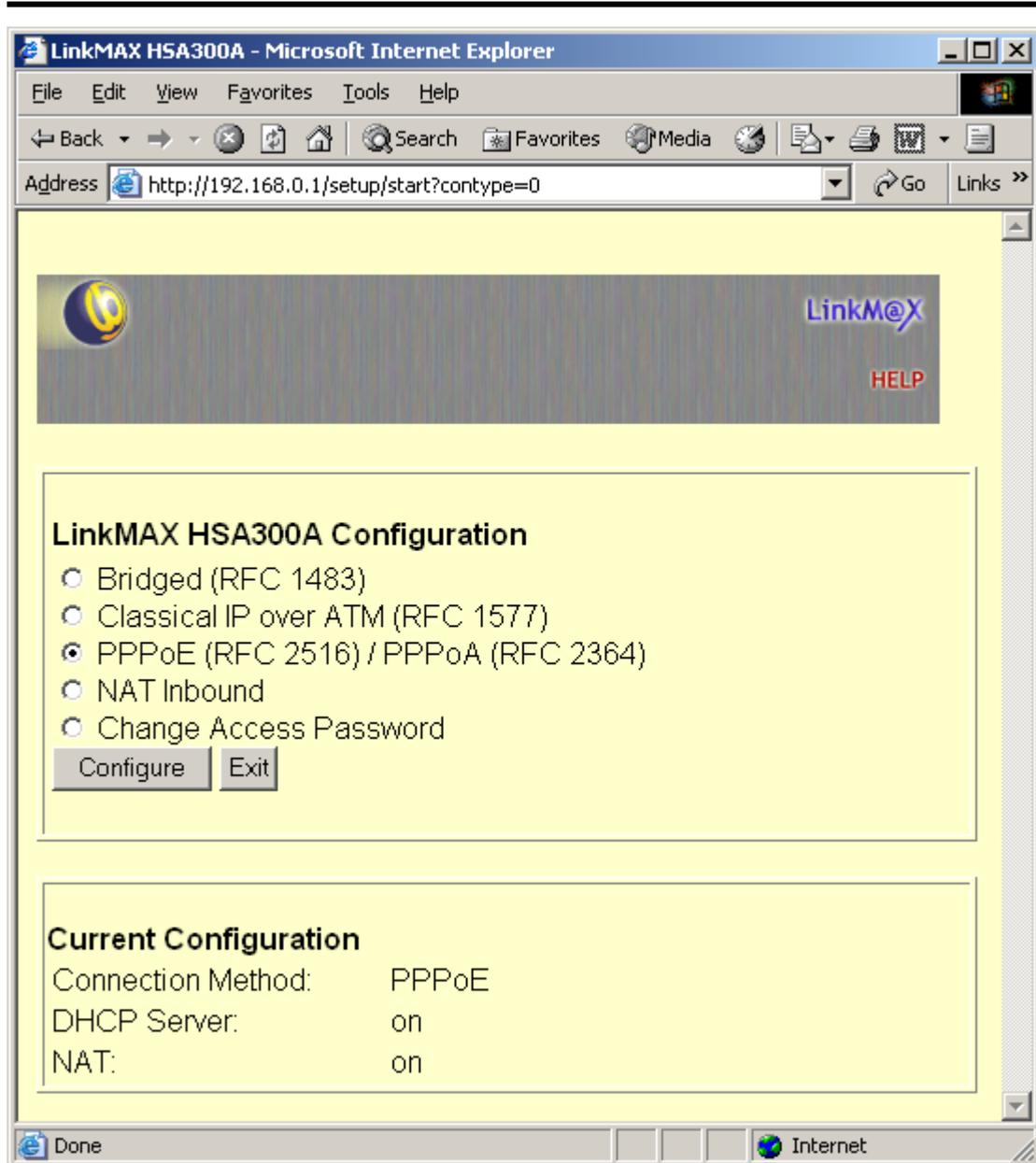
5.4 The Configuration page

Upon clicking on the **Modem / Router Configuration** link on main page, the following dialog box will appear to ask for user name and password.



The user name is **broadmax**, although an arbitrary user name can also be entered. The default password is **broadmax**.

After keying in the correct password, the following page will appear as the main configuration page.



The main configuration page allows users to choose the connection protocol that is provided by their Internet service provider. Users can also change their login password in the main page by choosing **Change Access Password**. In this version of web-based configuration, the following protocols are supported:

- Bridged (RFC 1483)**
- Classical IP over ATM (RFC 1577)**
- PPP over Ethernet (RFC 2516)**
- PPP over AAL5 (RFC 2364)**

The **NAT Inbound** option allows users to expose LAN servers to the public. This will be explained in section 6.8 for detail.

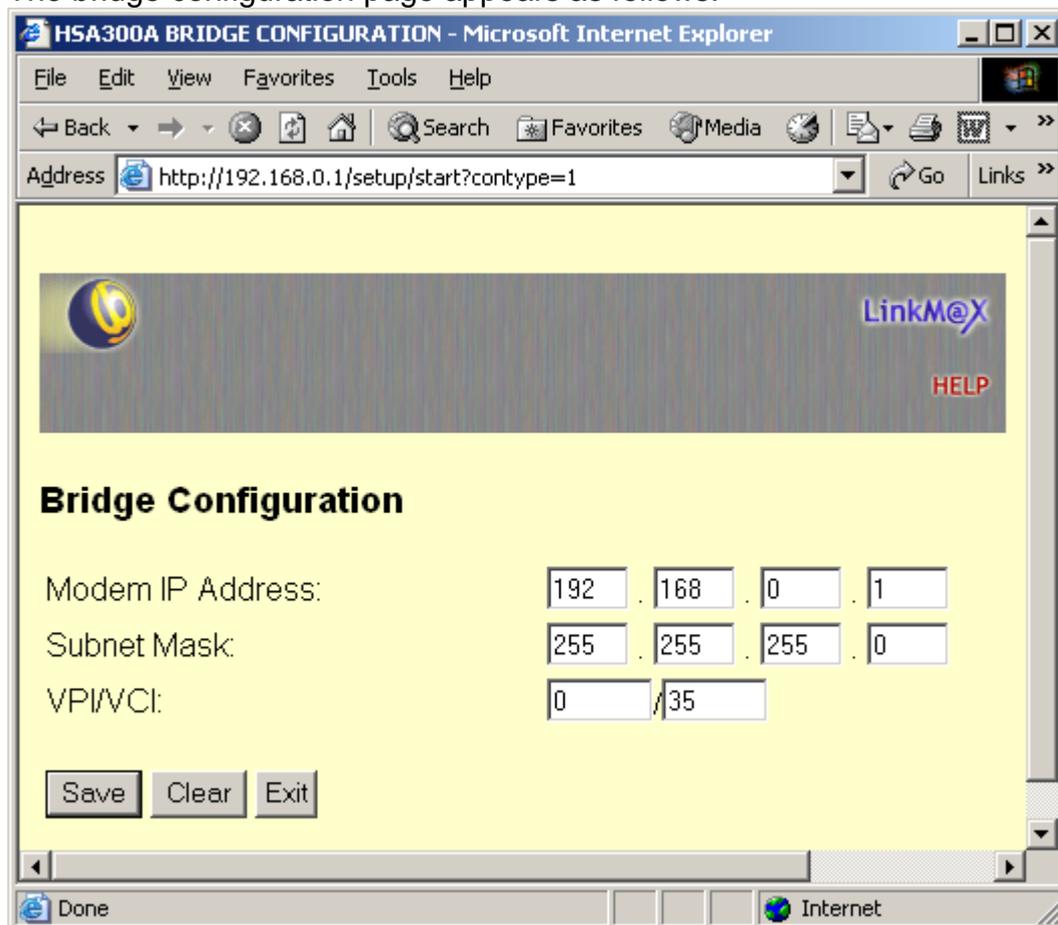
By marking the radio button beside the connection method and clicking **Configure**, the corresponding page is displayed. On the following paragraph, we are going to explore in each set-up page detail.

5.5 Bridged (RFC 1483) page

RFC 1483 is a standard encapsulation protocol that maps Ethernet or IP frames over ATM PVC. This protocol provides the simplest method of connecting end stations over an ATM network. User data in the form of Ethernet packets is encapsulated into AAL-5 PDUs for transport over ATM. RFC 1483 provides no authentication and configuration which would be provided by PPP.

One of the most commonly applied connection methods in the market is to install PPPoE (RFC 2516) on user's PC as a dialer, and set up the modem as a bridge device. (Note: Windows XP includes its own PPPoE client and therefore installing a third party PPPoE client is not necessary.) In this case the user is required to choose the bridge connection and fill in PVC information. Such information is provided by Internet service provider.

The bridge configuration page appears as follows:



To setup a Bridge service, users are required to enter the following information:

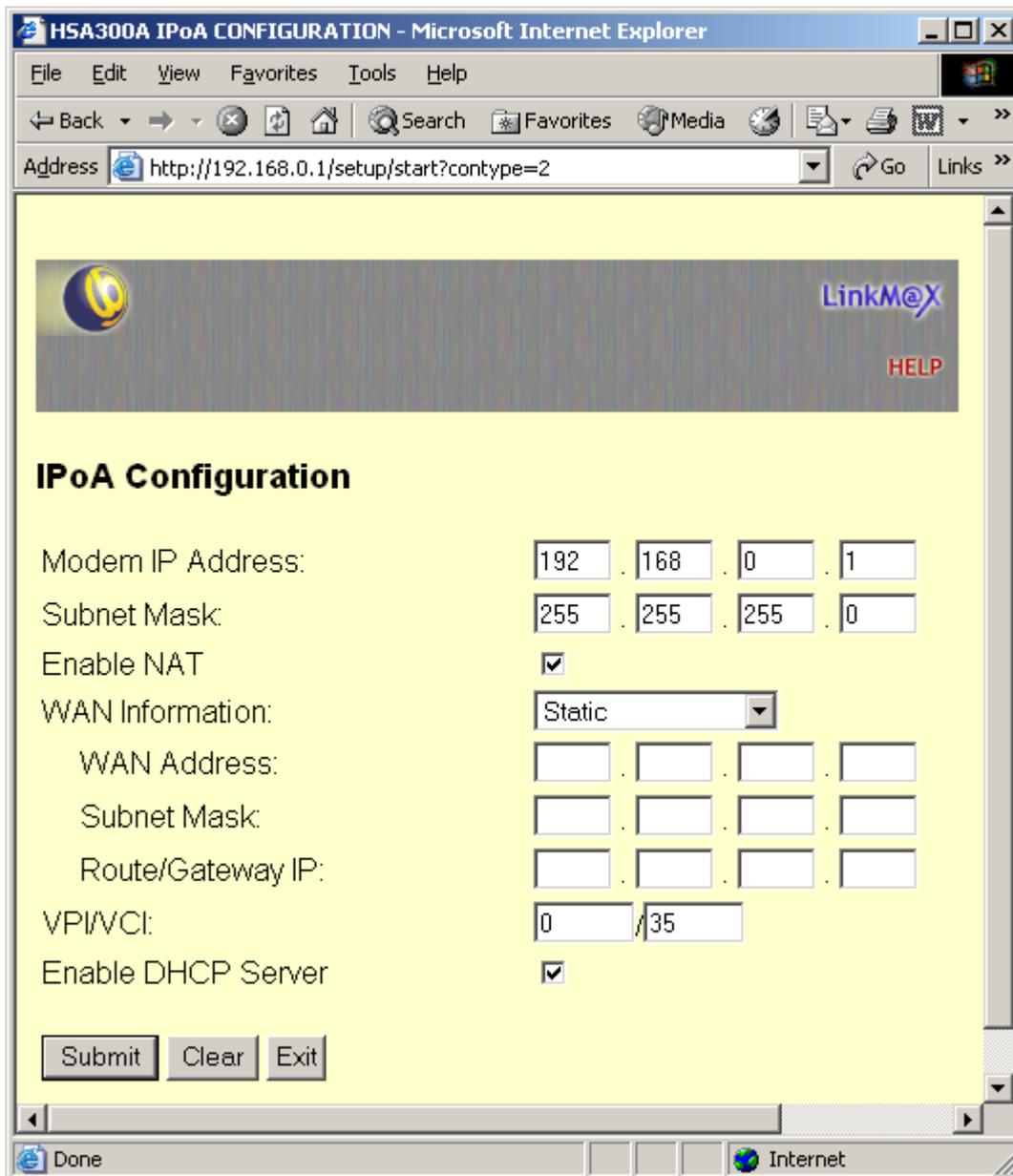
- **Modem IP Address**
The IP Address for the Ethernet (LAN) port of the modem. This is also the IP address for connecting web-based configuration. Modem IP address and IP addresses of computers it connects to should be in the same subnet. The default value is the modem IP currently in use.
- **Subnet Mask**
The Subnet Mask for the Ethernet (LAN) port. This field is usually set to the same value as the subnet mask of the computer modem connecting. The default value is the modem subnet mask currently in use.
- **VPI / VCI**
The VPI (Virtual Path Identifier) and VCI (Virtual Circuit Identifier) identifies an ATM virtual channel. These values are provided by Internet service provider for connection between modems and ATM devices such as DSLAMs.

Click **Save** to proceed after filling in the required information. The information is then saved into the modem. See section 6.12 for details.

5.6 Classical IP over ATM (RFC 1577) page

This protocol sends user data in the form of IP packets which is encapsulated into AAL-5 PDUs for transport over ATM. The fact that the user data is routed at an IP layer instead of bridged a MAC layer allows the source and destination to be on different subnets. Like RFC 1483, IPoA provides no authentication and configuration.

The IPoA configuration page appears as follows:



To setup an IPoA service, users are required to enter the following information:

- **Modem IP Address**
The IP Address for the Ethernet (LAN) port of the modem. This is also the IP address for connecting web-based configuration. Modem IP address and IP addresses of computers it connects to should be in the same subnet. The default value is the modem IP currently in use.
- **Modem Subnet Mask**
The Subnet Mask for the Ethernet (LAN) port IP. This field is usually set to have same value as the subnet mask of the computers modem connects to. The default value is the modem subnet mask currently in use.
- **NAT (Enable / Disable)**
NAT (Network Address Translation) is required when a small local area

network is connected to an Internet, where the Internet connection provides only a single IP address. It should be enable if the user wants to share Internet access in a local network.

- **WAN information**
Choose either Static or Dynamic
If your ISP uses Static IP, you have to fill in the WAN Address, Subnet Mask and Route / Gateway IP information.
If your ISP uses Dynamic IP, the WAN Address, Subnet Mask and Route / Gateway IP will be dynamic assigned after connection.
- **WAN Address**
The IP Address for IPoA port of the modem. This value is provided by your Internet service provider for connection with their devices.
- **Subnet Mask**
The Subnet Mask for IPoA port. This value is provided by your Internet service provider for connection with their devices.
- **Route / Gateway IP**
The IP Address for connecting to Internet service provider. This value is provided by your Internet Service Provider and it should be in the same subnet as the IPoA IP address.
- **VPI / VCI**
The VPI (Virtual Path Identifier) and VCI (Virtual Circuit Identifier) identifies an ATM virtual channel. These values are provided by Internet service provider for connection between modems and ATM devices such as DSLAMs.
- **DHCP Server (Enable / Disable)**
A DHCP (Dynamic Host Configuration Protocol) Server provides valid IP addresses to DHCP Clients inside the network. It should be enabled if a user wants the modem to distribute IP addresses to PCs it connects to. Please notice that only one DHCP Server is allowed within a local network.

Click **Save** to proceed after filling in the required information.

If DHCP Server is enabled, the DHCP Server page is displayed for user to input DHCP Server information. See section 6.12 for details.

If DHCP Server is not enabled, information is then saved into the modem. See section 6.13 for details.

5.7 PPP over Ethernet (RFC2516) / PPP over AAL (RFC2364)

PPP provides session setup, user authentication (login), and encapsulation for upper layer protocols such as IP (Internet Protocol). Since this protocol provides security and authentication services (PAP, CHAP), the use of PPP makes the modem appear as a dial-up modem to the operating system.

The PPPoE / PPPoA configuration page appears as follows:

HSA300A PPPoE / PPPoA CONFIGURATION

Modem IP Address: 192 . 168 . 0 . 1

Subnet Mask: 255 . 255 . 255 . 0

PPPoE/PPPoA: PPPoE

Enable NAT:

VPI/VCI: 0 / 35

User Name:

Password:

Authentication: CHAP

Auto Connect: Enable

Enable DHCP Server:

Submit Clear Exit

To setup a PPPoA / PPPoE service, users are required to enter the following information:

- **Modem IP Address**
The IP Address for the Ethernet (LAN) port of the modem. This is also the IP address for connecting web-based configuration. Modem IP address and IP addresses of computers it connects to should be in the same subnet. The default value is the modem IP currently in use.
- **Subnet Mask**
The Subnet Mask for the Ethernet (LAN) port IP. This field is usually set to have same value as the subnet mask of the computers modem connects to. The default value is the modem subnet mask currently in use.

- **PPPoA / PPPoE**
Connection protocols selected between PPPoA and PPPoE.
- **NAT (Enable / Disable)**
NAT (Network Address Translation) is required when a small local area network is connected to an Internet, where the Internet connection provides only a single IP address. It should be enable if the user wants to share Internet access in a local network.
- **VPI / VCI**
The VPI (Virtual Path Identifier) and VCI (Virtual Circuit Identifier) identifies an ATM virtual channel. These values are provided by Internet service provider for connection between modems and ATM devices such as DSLAMs.
- **User Name**
The User Name of the Internet account provided by Internet service provider.
- **Password**
The password for the above account.
- **Authentication Protocol (CHAP / PAP)**
The Authentication Protocol provided by Internet service provider. CHAP is set as default.
- **Auto Connect**
This option enable the modem to connect PPP automatically if available.
- **DHCP Server (Enable / Disable)**
A DHCP (Dynamic Host Configuration Protocol) Server provides valid IP addresses to DHCP Clients inside the network. It should be enable if a user wants the modem to distribute IP addresses to PCs it connects to. Please notice that only one DHCP Server is allowed within a local network

Click **Save** to proceed after filling in the required information.

If DHCP Sever is enabled, the DHCP Server page is displayed for user to input DHCP Server information. See section 6.12 for details.

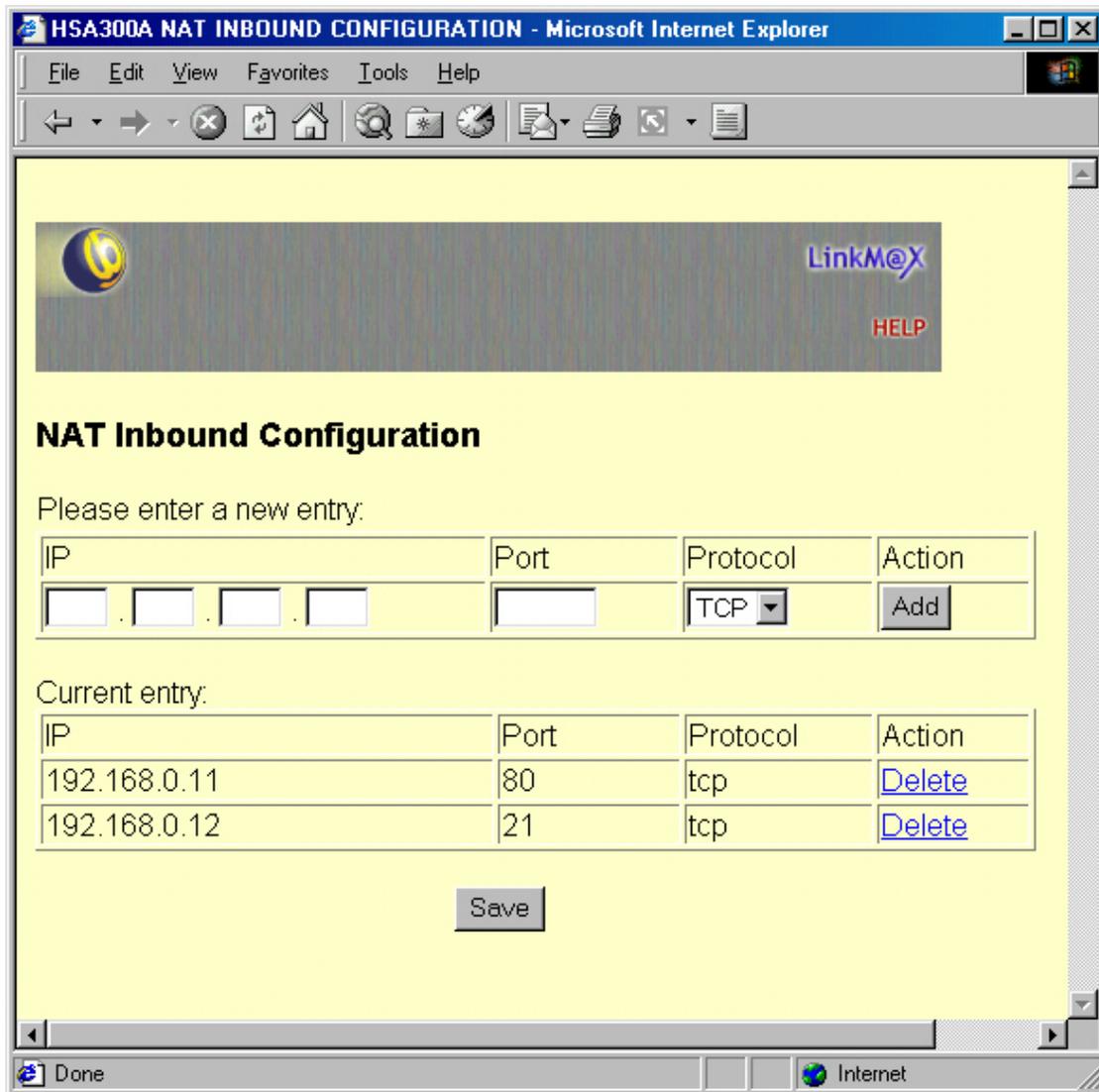
If DHCP Server is not enabled, information is then saved into the modem. See section 6.13 for details.

5.10 NAT Inbound page

The NAT protocol allows users to share an Internet access when only one public IP address is available. However, not all applications can be accessed behind NAT. NAT Inbound is needed to expose a certain application in the private network to the public Internet.

The NAT Inbound configuration allows packets arriving on the WAN public IP with a specific port number to be forwarded to a specific machine on the private network. It is usually used in exposing a server inside a private network, so that it can be accessed by the public Internet.

The NAT Inbound can only be used when a routed protocol is configured and NAT is enabled. The setup page appears as follows:



The following information is required to setup a NAT Inbound entry:

- **IP**
The IP address on the private network which the packet's destination IP address should be translated to.
- **Port**
The destination UDP/TCP port number to match in the incoming traffic.
- **Protocol**
The IP protocol, either UDP or TCP.

To add an inbound entry, fill in the form then click add.
To remove an entry, click delete beside the current entry table.
Click Save at the bottom of the page to validate changes.

5.11 Change Access Password page

The Change Access Password page appears as below:

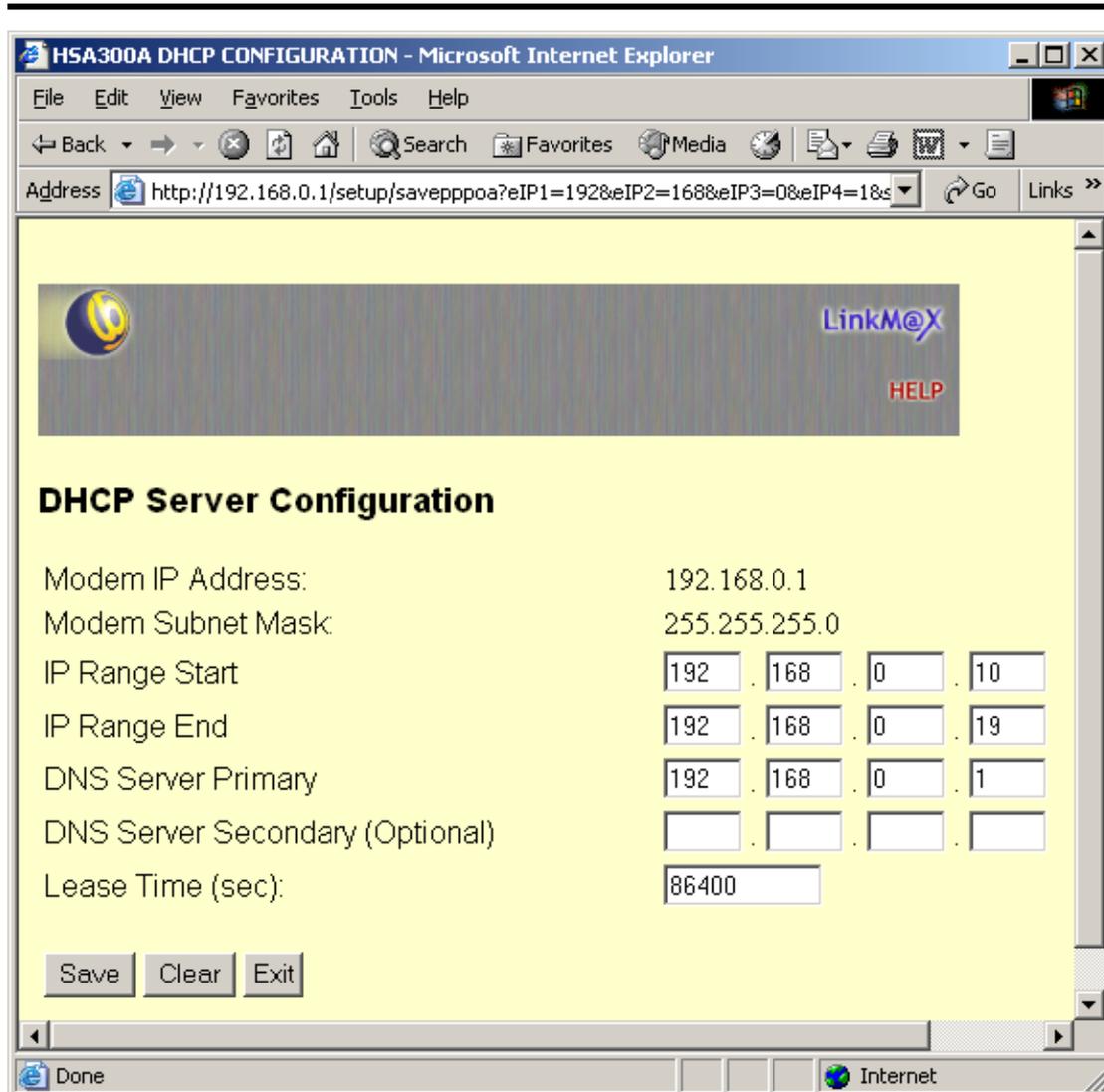


To change Access Password for the web configuration, type new password in the **Password** box and retype it in **Confirm Password** box. Click **Save** to validate change.

5.12 DHCP Server page

A DHCP (Dynamic Host Configuration Protocol) Server provides valid IP addresses to DHCP Clients inside the network.

The DHCP Server configuration page appears as follows:



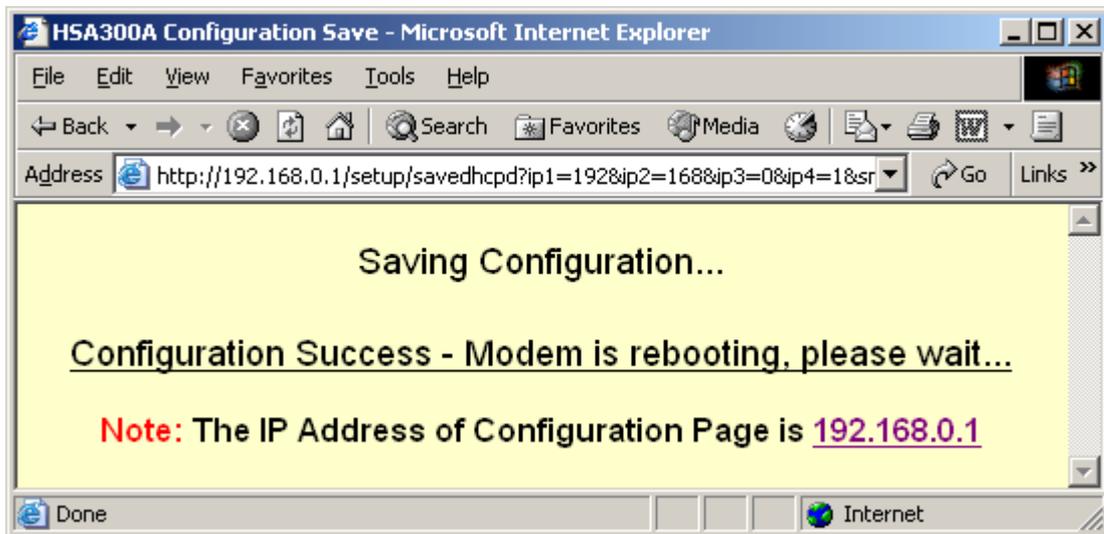
To setup a DHCP Server, users must enter the following information:

- **IP Range Start / IP Range End**
The IP Range fields specify the IP addresses used by DHCP server. The IP range must be set within the modem's subnet. This range also determines the number of DHCP clients supported (HSA300A supports a maximum number of 100 clients).
- **Lease Time**
The Lease Time field specify when will the IP address leased out expire. This field is set in terms of seconds. The default value is 86400 (one day), which is also the maximum value allowed.
- **DNS Server Primary / DNS Server Secondary**
The domain name servers (DNS) specifies a list of Domain Name System name servers. This value is obtained from the ISP and should be entered. If PPPoE or PPPoA connection method is used, the modem LAN IP address can be entered into the DNS Server Primary field because the modem can relay DNS requests to the actual DNS servers of ISP.

Click **Save** to proceed after filling in the required information. The information is then saved into the modem. See section 6.13 for details.
Note in PPPoE/PPPoA Configuration: Modem will receive DNS server address automatically during PPP login. DNS Server Primary should be the modem IP address and modem will perform DNS relay after login.

5.13 The Saving page

After all the configuration information is gathered, the modem saves the new configuration into the modem. Here is what will be displayed in the browser during the save stage:



It takes a minute for the save process to complete. If saving is successful, it will redirect to the modem index page automatically.

Note: Do not power off modem until “Configuration Success” display on browser.

6 Troubleshooting

Q: How can I reset the modem configuration?

A: It is a hardware-reset button on the modem product label to reset modem configuration to factory default.

1. Power up modem
2. Press and hold the button about 5 seconds
3. The modem restarts automatically with default setting.

Note: All configurations will be reset including PPP username and password.

Q: How come the main page is not displayed?

A: This can be generated by many different causes. Make sure the modem is powered on for 1 minute and the modem is connected to the PC Ethernet port properly.

Then check to make sure that your modem is in the same subnet as the PC it connects to. To change IP address of modem or PC, refer to section on "Modify IP address". On Windows XP or 2000, click **Start -> Run**, then type **cmd** and click the **OK** button. (To check the PC's current IP address on Windows ME or 98, open MS-DOS Prompt window in **Start -> Programs ->**

```

(C)Copyright Microsoft Corp 1981-1999.
C:\WINDOWS>ipconfig

Windows 98 IP Configuration

0 Ethernet adapter :

    IP Address. . . . . : 0.0.0.0
    Subnet Mask . . . . . : 0.0.0.0
    Default Gateway . . . . . :

1 Ethernet adapter :

    IP Address. . . . . : 0.0.0.0
    Subnet Mask . . . . . : 0.0.0.0
    Default Gateway . . . . . :

2 Ethernet adapter :

    IP Address. . . . . : 192.168.0.2
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

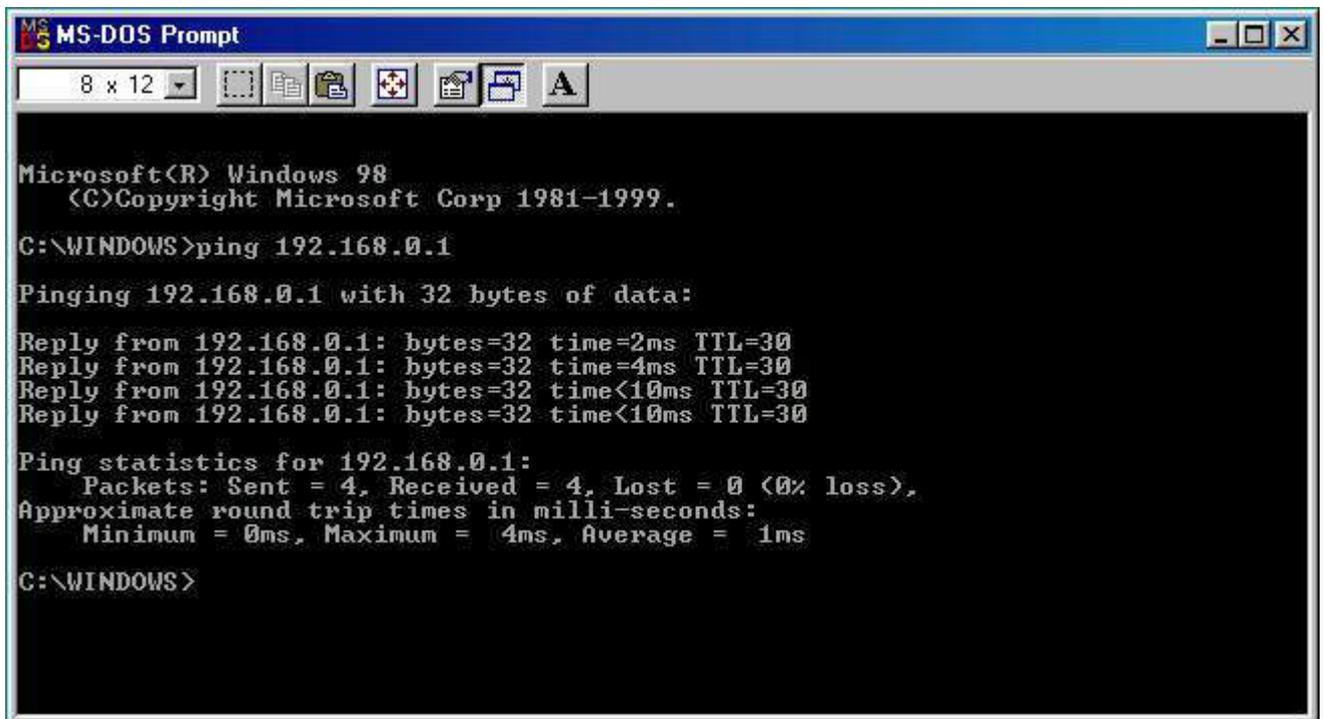
C:\WINDOWS>
    
```

Accessories -> MS-DOS Prompt.) After the prompt window is shown, type **ipconfig** in the prompt.

An effective way to test whether your PC and your modem is connected in the same subnet is to do the Ping Test. On DOS prompt window, type

ping <Modem IP address>

If the connection is successful, you will see the reply from modem as follow:

A screenshot of an MS-DOS Prompt window. The title bar reads "MS-DOS Prompt". The window contains the following text:

```
Microsoft(R) Windows 98
(C)Copyright Microsoft Corp 1981-1999.
C:\WINDOWS>ping 192.168.0.1
Pinging 192.168.0.1 with 32 bytes of data:
Reply from 192.168.0.1: bytes=32 time=2ms TTL=30
Reply from 192.168.0.1: bytes=32 time=4ms TTL=30
Reply from 192.168.0.1: bytes=32 time<10ms TTL=30
Reply from 192.168.0.1: bytes=32 time<10ms TTL=30
Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms
C:\WINDOWS>
```

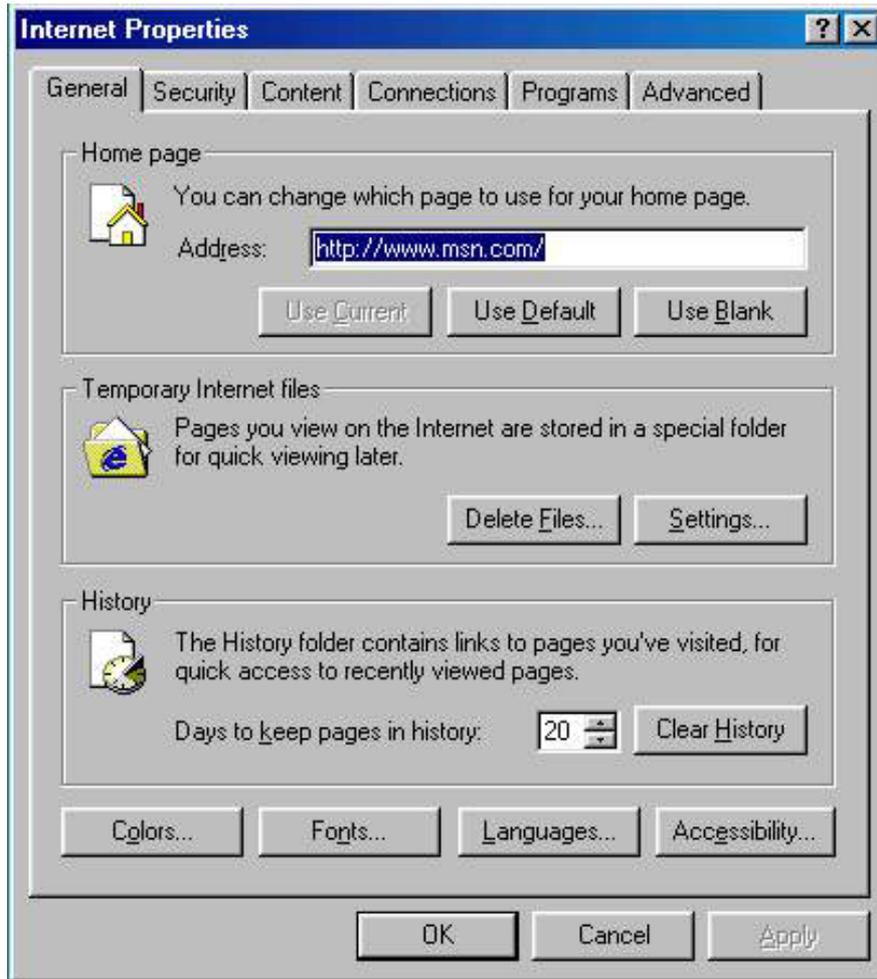
If the reply from modem is **Destination host unreachable**, check and make sure PC and the modem is in the same subnet.

If the reply from modem is **Request timed out**, the modem and PC may not be connected physically. Check the Link LED on the front panel. If the LED is off, you may want to check the physical connection between the PC and modem.

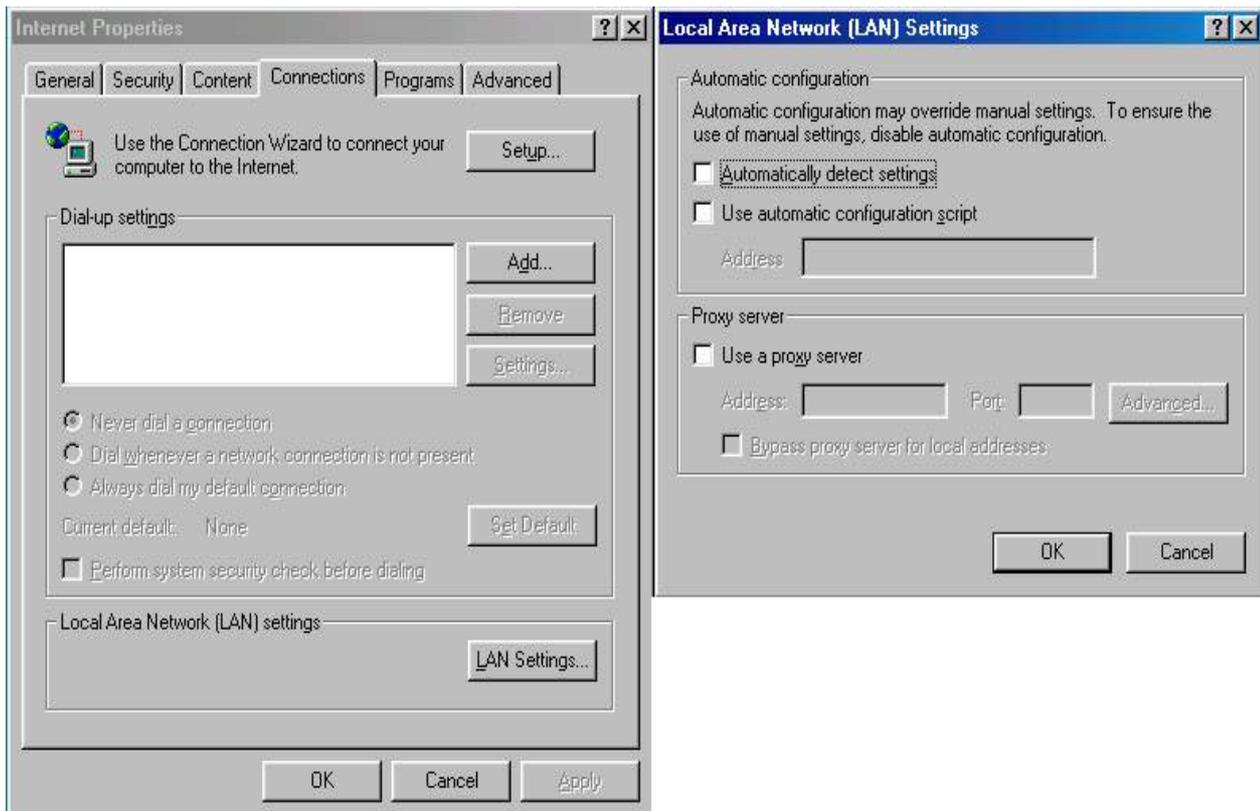
If you successfully ping the modem but still can't connect to the web page, it is probably because you are using a proxy server for web browsing.

To disable proxy server setting in your web browser:

- 1.) From your Windows taskbar, click Start -> Settings -> Control Panel. Double click Internet Options. The following Internet Properties window appears.



2.) Choose Connections Tab and click LAN Settings button. The following window appears.



If the **Use a proxy server** box is selected. Unselected the box and then push OK button.

Q: My browser just stalled when I tried to reload a certain page. What should I do?

A: As the web server module inside HSA300A is not a full-scale web server and is intended for light web traffic only, heavy traffic will cause the modem to stop responding. This can be caused by clicking refresh button in the browser repeatedly (and thus creating too many requests within a short period), or by having too many users logging in at the same time. If the web page is still stalled after 3 minutes, restart the modem. However, please notice that it may take a while for the modem to save data in the last page.

7. Specifications

7.1 Functional Specifications

ADSL Support

- ANSI T1.413 Issue 2
- ITU 992.1 (G.dmt)
- ITU 992.2 (G.Lite)

Protocols:

- Bridged and routed Ethernet over ATM (RFC1483)
- IP over ATM (RFC 1577)
- PPP over ATM (RFC 2364)
- PPP over Ethernet (RFC 2516)

Routing:

- IP routing
- Network Address Port Translation (NAPT)
- DHCP Server

10BaseT Ethernet Support

ATM Support:

- ATM Traffic Type: UBR
- VC Type: PVC

7.2 Physical Specifications

Box Size:

7.2W x 1.4D x 5.2H in. (18W x 3D x 13H cm)

Connectors:

- LAN: 10Base-T Ethernet RJ45 connector
- LINE: RJ11 connector
- Power inlet

Status Indicators:

- Power Status
- ADSL Sync / PPPoE Status
- LAN Status
- WAN Activity

Power requirement:

- External Power Supply
 - Input : AC120V (for North America)
AC220V (for Asia)
 - Output : DC +6V @ 1.2A

Operating Temperature:

- 0 °C to 40 °C operating
- - 40 °C to 70 °C storage

Operating Humidity:

- 10% to 90% non-condensing

8. Appendix

8.1 Appendix A -- Important Safety Instructions

- Read and understand all instructions
- Follow all warnings and instructions marked on the product
- Climatic condition:
 - In-house use; the maximum ambient temperature may not exceed 40°C
 - It must not be mounted in a location exposed to direct or excessive solar and/or heat radiation
 - It must not be exposed to heat trap conditions and must not be subjected to water or condensation
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this product near water, for example, near a bathtub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool
- Use only the supplied AC adaptor
- Do not allow anything to rest on the power cord. Do not locate this product where the cord will be subjected to persons walking on it
- Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock
- To reduce the risk of electric shock, do not disassemble this product, but take it to a qualified serviceman when service or repair work is required. Opening or removing covers may expose you to a dangerous voltage or other risks. Incorrect reassembly can cause electric shock when the appliance is subsequently used.
- Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - When the power supply cord or plug is damaged or frayed
 - If liquid has been spilled into the product
 - If the product has been exposed to rain or water
 - If the product does not operate normally by following operating instructions. Adjust only those controls that are covered by the operation instructions because improper operation will often required extensive work by a qualified technician to restore the product to normal operation
 - If the product has been dropped or the housing has been damaged
 - If the product exhibits a distinct change in performance
- Avoid using a telephone during an electrical storm. There may be a remote risk of electric shock from lightning
- Do not use the telephone to report a gas leak in the vicinity of the leak
- Save these instructions

8.2 Appendix B -- Default Configuration

IP Address: 192.168.0.1

Subnet mask: 255.255.255.0

Username: broadmax (also accepts arbitrary username)

Password: broadmax

DHCP Server: disabled

NAT: disabled

Connection Method: Bridged (RFC 1483)

PVC: 0/35

9. Glossary

ADSL	Asymmetric Digital Subscriber Line
ATM	Asynchronous Transfer Mode
CIP	Classical Internet Protocol
DHCP	Dynamic Host Control Protocol
DSL	Digital Subscriber Line
IP	Internet Protocol
IPoA	IP over ATM
ISP	Internet Service Provider
NAT	Network Address Translation
POTS	Plain Old Telephone System
PPP	Point to Point Protocol
PPPoA	Point to Point Protocol over ATM
PPPoE	Point to Point Protocol over Ethernet
PVC	Permanent Virtual Circuit
UBR	Unspecified Bit Rate
VCI	Virtual Circuit Identifier
VPI	Virtual Path Identifier