

150M Wireless-N ADSL2+ Router

Model No. :iB-WRA150N



User Guide

Ver. 2.0.0

FCC STATEMENT

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

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

This device complies 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, including interference that may cause undesired operation.

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

CE Mark Warning

CE

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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Package Contents

The following contents should be found in your package:

- > One iB-WRA150N 150M Wireless N ADSL2+ Router
- > One Power Adapter for iB-WRA150N 150M Wireless N ADSL2+ Router
- Quick Installation Guide
- > One RJ45 cable
- ➢ Two RJ11 cables
- > One ADSL splitter
- > One Resource CD, which includes this User Guide

Note:

Make sure that the package contains the above items. If any of the listed items are damaged or missing, please contact your distributor.

Chapter 1. Introduction

Thank you for choosing the **iB-WRA150N** 150M Wireless N ADSL2+ Router.

1.1 Product Overview

The device is designed to provide a simple and cost-effective ADSL Internet connection for a private Ethernet or IEEE 802.11n/ IEEE 802.11g/ IEEE 802.11b wireless network.

The iB-WRA150N connects to an Ethernet LAN or computers via standard Ethernet ports. The ADSL connection is made using ordinary telephone line with standard connectors. Multiple workstations can be networked and connected to the Internet using a single Wide Area Network (WAN) interface and single global IP address. The advanced security enhancements, **IP/MAC Filter**, **Application Filter** and **URL Filter** can help to protect your network from potentially devastating intrusions by malicious agents from the outside of your network.

Quick Start of the Web-based Utility is supplied and friendly help messages are provided for the configuration. Network and Router management is done through the Web-based Utility which can be accessed through local Ethernet using any web browser.

ADSL

The iB-WRA150N supports full-rate ADSL2+ connectivity conforming to the ITU and ANSI specifications. In addition to the basic DMT physical layer functions, the ADSL2+ PHY supports dual latency ADSL2+ framing (fast and interleaved) and the I.432 ATM Physical Layer.

Wireless

In the most attentive wireless security, the Router provides multiple protection measures. It can be set to turn off the wireless network name (SSID) broadcast so that only stations that have the SSID can be connected. The Router provides wireless LAN 64/128-bit WEP encryption security, WPA-PSK/WPA2-PSK authentication, as well as TKIP/AES encryption security.

1.2 Main Features

- Complies IEEE 802.11n wireless technology to provide a wireless data rate of up to 150Mbps
- 3-in-1: One RJ11(Internet) LINE port, four 10/100M Auto-Negotiation (RJ45) LAN ports supporting Auto MDI/MDIX and Wireless-N Access Point
- Supports Latest Industrial standards with Downstream data rates up to 24Mbps, upstream data rates up to 3.5Mbps (With Annex M enabled).
- > Provides WPA/WPA2, WPA-PSK/WPA2-PSK authentication, TKIP/AES encryption security
- Supports remote configuration and management through SNMP and CWMP.
- > Provides 64/128-bit WEP encryption security and wireless LAN ACL (Access Control List).
- Supports PPPoE, it allows connecting the internet on demand and disconnecting from the Internet when idle.
- Supports Multiple PVC (Permanent Virtual Circuit).
- > Provides integrated access of internet and route function which face to SOHO user.
- > Real-time Configuration and device monitoring.
- Built-in DHCP server.
- Built-in firewall, supporting IP/MAC filter, Application filter and URL filter.
- Supports Virtual Server, DMZ host and IP Address Mapping.
- Supports Dynamic DNS, UPnP and Static Routing.
- > Supports system log and flow Statistics.
- Supports firmware upgrade and Web management.

1.3 Conventions

The Router or device mentioned in this User Guide stands for iB-WRA150N without any explanations.

Parameters provided in the pictures are just references for setting up the product, which may differ from the actual situation.

Chapter 2. Hardware Installation

2.1 The Front Panel

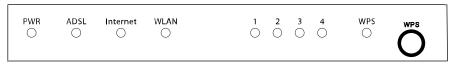


Figure 2-1

The LEDs locate on the front panel. They indicate the device's working status. For details, please refer to LED Explanation.

LED Explanation:

Name	Status	Indication
PWR	On	Power is on.
PWR	Off	Power is off.
	On	The LINE port is linked up.
ADSL	Flash	The ADSL negotiation is in progress.
	Off	The LINE port is linked down.
	On	A successful PPP connection has been built.
Internet	Flash	Data is being transferred over the Internet.
memer	Off	There is no successful PPP connection or the Router works on Bridge
	Oli	mode.
	On	The wireless function is enabled but no data is being transmitted.
WLAN	Flash	There is wireless data being transmitted.
	Off	The wireless function is disabled.
	On	There is a successful connection on the corresponding 1-4 (LAN)
	OII	port but no activity.
LAN(1-4)	Flash	Data is being transferred over the 1-4 (LAN) port.
	Off	There is no connection on the corresponding 1-4 (LAN) port or the connection is abnormal.
	On	A wireless device has been successfully added to the network by WPS
	On	function. The LED will keep on for about 5 minutes and then turn off.
		The WPS function is enabled but no wireless device has been
WPS	Flash	successfully added to the network by WPS function. The LED will keep
		flash for about 2 minutes and then turn off.
	Off	The WPS function is disabled or a wireless device failed to be added
		to the network by WPS function.

2.2 The Back Panel

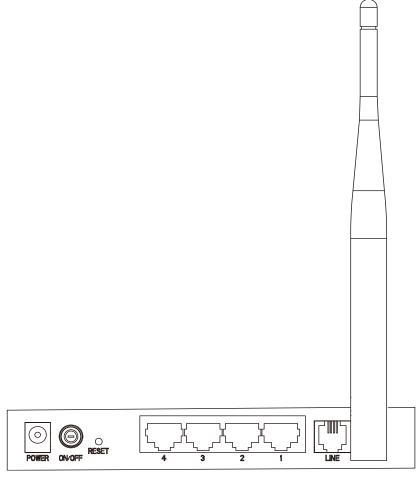


Figure 2-2

- > **POWER**: The Power plug is where you will connect the power adapter.
- > **ON/OFF**: Switch for the power.
- > **RESET**: There are two ways to reset the Router's factory defaults.

Method one: With the Router powered on, use a pin to press and hold the Reset button for at least 5 seconds. And the Router will reboot to its factory default settings.

Method two: Restore the default setting from "Maintenance-SysRestart" of the Router's Web-based Utility.

- 1, 2, 3, 4 (LAN): Through the port, you can connect the Router to your PC or the other Ethernet network devices.
- LINE: Through the port, you can connect the router with the telephone. Or you can connect them by an external separate splitter. For details, please refer to 2.4.
- > Antenna: Used for wireless operation and data transmit.

2.3 Installation Environment

- > The Product should not be located where it will be exposed to moisture or excessive heat.
- Place the Router in a location where it can be connected to the various devices as well as to a power source.
- Make sure the cables and power cord are safely placed out of the way so they do not create a tripping hazard.
- > The Router can be placed on a shelf or desktop.
- Keep away from the strong electromagnetic radiation and the device of electromagnetic sensitive.

2.4 Connecting the Router

Before installing the device, please make sure your broadband service provided by your ISP is available. If there is any problem, please contact your ISP. Before cable connection, cut off the power supply and keep your hands dry. You can follow the steps below to install it.

Step 1: Connect the ADSL Line.

Method one: Plug one end of the twisted-pair ADSL cable into the ADSL LINE port on the rear panel of iB-WRA150N, and insert the other end into the wall socket.

Method two: You can use a separate splitter. External splitter can divide the data and voice, and then you can access the Internet and make calls at the same time. The external splitter has three ports:

- LINE: Connect to the wall jack
- PHONE: Connect to the phone sets
- MODEM: Connect to the ADSL LINE port of iB-WRA150N

Plug one end of the twisted-pair ADSL cable into the ADSL LINE port on the rear panel of iB-WRA150N. Connect the other end to the MODEM port of the external splitter.

- Step 2: Connect the Ethernet cable. Attach one end of a network cable to your computer's Ethernet port or a regular hub/switch port, and the other end to the LAN port on the iB-WRA150N.
- **Step 3:** Power on the computers and LAN devices.
- **Step 4:** Attach the power adapter. Connect the power adapter to the power connector on the rear of the device and plug in the adapter to a electrical outlet or power extension. The electrical outlet shall be installed near the device and shall be easily accessible.

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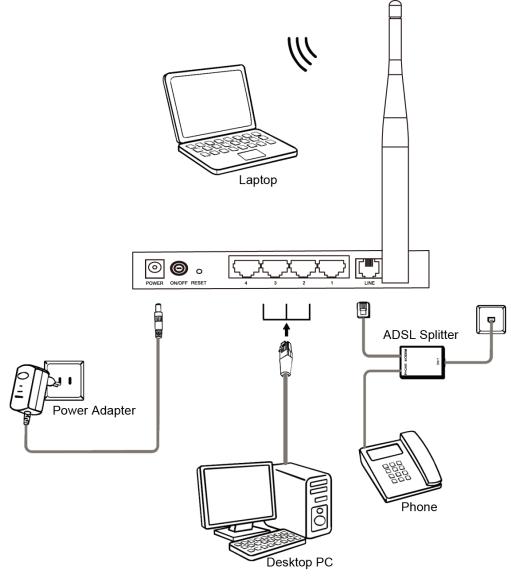


Figure 2-3

Chapter 3. Quick Installation Guide

3.1 Configure PC

After you directly connect your PC to the iB-WRA150N or connect your adapter to a Hub/Switch which has connected to the Router, you need to configure your PC's IP address. Follow the steps below to configure it.

Step 1: Click the Start menu on your desktop, right click My Network Places, and then select Properties (shown in Figure 3-1).

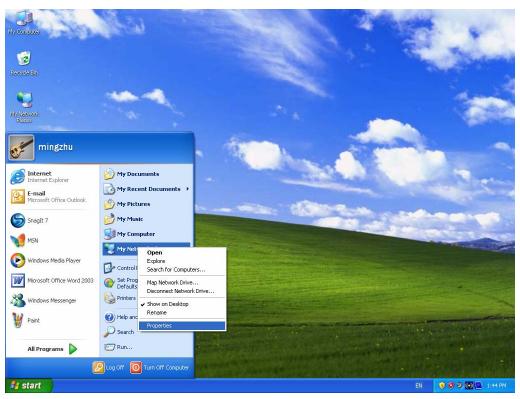
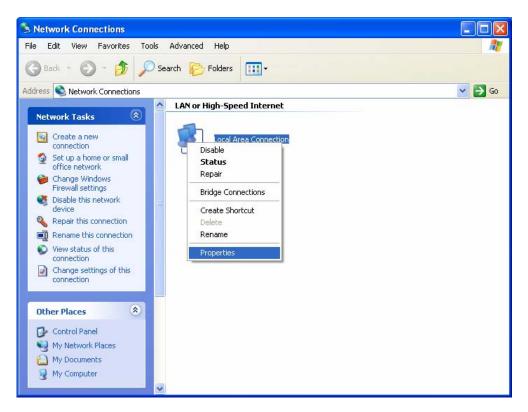


Figure 3-1

Step 2: Right click Local Area Connection (LAN), and then select Properties.

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Step 3: Select General tab, highlight Internet Protocol (TCP/IP), and then click the Properties button.

🕹 Local Area Connection Properties 🛛 🔹 💽
General Authentication Advanced
Connect using:
Realtek RTL8139 Family PCI Fast Etł
This connection uses the following items:
 Client for Microsoft Networks Elie and Printer Sharing for Microsoft Networks
QoS Packet Scheduler
✓ Reinternet Protocol (TCP/IP)
Install Uninstall Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in notification area when connected Notify me when this connection has limited or no connectivity
OK Cancel

Figure 3-3

Step 4:	Configure the IP	address as Figure 3-4 s	hows. After that, click OK .

Internet Protocol (TCP/IP) Proper	ties 🛛 ? 🔀		
General			
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.			
Obtain an IP address automatically	1		
Use the following IP address:			
<u>I</u> P address:	192.168.1.2		
S <u>u</u> bnet mask:	255 . 255 . 255 . 0		
<u>D</u> efault gateway:	192.168.1.1		
O Distain DNS server address automatically			
• Us <u>e</u> the following DNS server add	resses:		
Preferred DNS server:	192.168.1.1		
<u>A</u> lternate DNS server:	· · ·		
Ad <u>v</u> anced			
OK Cancel			

Figure 3-4

PNote:

You can configure the PC to get an IP address automatically, select "Obtain an IP address automatically" and "Obtain DNS server address automatically" in the screen above.

Now, you can run the Ping command in the command prompt to verify the network connection. Please click the **Start** menu on your desktop, select **run** tab, type **cmd or command** in the field and press **Enter**. Type **ping 192.168.1.1** on the next screen, and then press **Enter**.

If the result displayed is similar to the screen below, the connection between your PC and the Router has been established.

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Pinging 192.168.1.1 with 32 bytes of data: Reply from 192.168.1.1: bytes=32 time<1ms TTL=64 Ping statistics for 192.168.1.1: Packets: Sent = 4, Received = 4, Lost = 0 <0% loss>, Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 0ms, Average = 0ms

Figure 3-5

If the result displayed is similar to the screen shown below, it means that your PC has not connected to the Router.

Pinging 192.168.1.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 192.168.1.1:
 Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

Figure 3-6

You can check it follow the steps below:

1) Is the connection between your PC and the Router correct?

The LEDs of LAN port which you link to the device and the LEDs on your PC's adapter should be lit.

2) Is the TCP/IP configuration for your PC correct?

If the Router's IP address is 192.168.1.1, your PC's IP address must be within the range of 192.168.1.2 ~ 192.168.1.254.

3.2 Login

Once your host PC is properly configured, please proceed as follows to use the Web-based Utility: Start your web browser and type the private IP address of the Router in the URL field: **192.168.1.1**.

Address 192.168.1.1

After that, you will see the screen shown below, enter the default User name **admin** and the default Password **admin**, and then click **OK** to access to the **Quick Start** screen. You can follow the steps below to complete the Quick Start.

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Connect to 192.1	68.1.1	? 🔀
	G G	
	1.1 at iBall Baton 150M Wireles /RA150N) requires a username	
	is requesting that your userna an insecure manner (basic auth nection).	
<u>U</u> ser name:	£	~
Password:		
	Remember my password	
	ОК	Cancel

Figure 3-7

Step 1: Select the Quick Start tab, then click RUN WIZARD, and you will see the next screen. Click the NEXT button.

Quick Start
The Wizard will guide you through these four quick steps. Begin by clicking on NEXT.
Step 1. Choose your time zone
Step 2. Set your Internet connection
Step 3. Wireless network configuration
Step 4. Save settings of this ADSL Router
NEXT



Step 2: Configure the time for the Router, and then click the **NEXT** button.

Quick Start - Time Zone	
Select the appropriate time zone for your location and click NE	EXT to continue.
(GMT+05:30) Chennai, Kolkata, Mumbai, New Delhi	~
	BACK NEXT EXIT

Figure 3-9

Step 3: Select the connection type to connect to the ISP (We select **PPPoE/PPPoA** mode for example here), and then click the **NEXT** button.

Quick Start - ISP Connection Type			
Select the Internet connection type to connect to your ISP. Click NEXT to continue.			
O Dynamic IP Address	Choose this option to obtain a IP address automatically from your ISP.		
Static IP Address	Choose this option to set static \ensuremath{IP} information provided to you by your ISP.		
• PPPoE/PPPoA	Choose this option if your ISP uses $\ensuremath{PPPoE}\xspace/\ensuremath{PPPoA}\xspace.$ (For most DSL users)		
O Bridge Mode	Choose this option if your ISP uses Bridge Mode.		
	BACK NEXT EXIT		

Figure 3-10

Step 4: Configure the following options provided by your ISP: Username, Password, VPI, VCI and Connection Type. Then click NEXT.

Quick Start - PPPoE/PPP	PoA	
Enter the PPPoE/PPPoA information provided to you by your ISP. Click NEXT to continue.		
Username:		
Password:		
VPI:	0 (0~255)	
VCI:	35 (1~65535)	
Connection Type:	PPPoE LLC	
	BACK NEXT EXIT	

Figure 3-11

Step 5: Configure the rules for the WLAN, and click **NEXT**.

Quick Start - Wlan	
You may enable/disable Wlan, change the Wlan SSID and Authentication type in this p Click NEXT to continue.	age.
Access Point : Activated Deactivated	
SSID : iBall-Baton	
Broadcast SSID: Image Ves No	
Authentication Type : Disabled	
BACK NEXT E	хп

Figure 3-12

PNote:

If the Access Point is activated, the wireless function will be available even without the external antenna because of an additional printed antenna. To adopt the wireless security protection measures, please refer to <u>Section 4.3.3</u>.

Step 6: Click NEXT to finish the Quick Start.

Quick Start Complete !!
The Setup Wizard has completed. Click on BACK to modify changes or mistakes. Click NEXT to save the current settings.
BACK

Figure 3-13

Chapter 4. Software Configuration

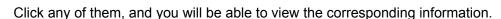
This User Guide recommends using the "Quick Installation Guide" for first-time installation. For advanced users, if you want to know more about this device and make use of its functions adequately, maybe you will get help from this chapter to configure the advanced settings through the Web-based Utility.

After your successful login, you can configure and manage the device. There are main menus on the top of the Web-based Utility; submenus will be available after you click one of the main menus. On the center of the Web-based Utility, there are the detailed configurations or status information. To apply any settings you have altered on the page, please click the **SAVE** button.

4.1 Status

Choose "**Status**", you can see the next submenus: **Device Info**, **System Log** and **Statistics**. Click any of them, and you will be able to configure the corresponding function.





4.1.1 Device Info

Choose "**Status** \rightarrow **Device Info**" menu, and you will be able to view the device information, including Device Information, LAN, WAN and ADSL. The LAN, WAN and ADSL information will vary depending on the settings of the Router configured on the Network Setup screen.

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PVC0 0/35 N/A N/A N/A N/A Bridge Dow PVC1 0/32 N/A N/A N/A N/A N/A Bridge Dow PVC1 1/32 N/A N/A N/A N/A Bridge Dow PVC2 1/32 N/A N/A N/A N/A Bridge Dow PVC3 0/100 N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A Bridge Dow	Device Information Emware Version : 2.0.0 Build 111122 Rel.22393 MAC Address : 00:aa:bb:01:23:45 LAN IP Address : 192.168.1.1 Subnet Mask : 255.255.05 DHCP Server : Enabled WAN Image: Constraint of the server incorporation in the server incorporatin the server incorporation in the servererer incorporati	Status	Quick Start			anced etup	Access Managem		Maintenance	Status	He
LAN PAddress: 00:aa:bb:01:23:45 LAN IP Address: 192.168.1.1 Subnet Mask: 255.255.05 DHCP Server: Enabled WAN IP Address VVM IP Address VVC VPV/C IP Address VVC VPV/C IP Address Subnet GateWay V/C VPV/C IP Address VVC VPV/C IP Address V/C VP/C Address V/C VP/C Address V/C VP/C Address V/C V/A V/C V/A V/C V/A V/C V/A V/C <th>LAN P.Address: 00:aa:bb:01:23:45 IAC Address: 192.168.1.1 Subnet Mask: 255.255.255.0 DHCP Server: Enabled WAN</th> <th></th> <th>Devic</th> <th>ce Info</th> <th>System Lo</th> <th>ig Sta</th> <th>tistics</th> <th></th> <th></th> <th></th> <th></th>	LAN P.Address: 00:aa:bb:01:23:45 IAC Address: 192.168.1.1 Subnet Mask: 255.255.255.0 DHCP Server: Enabled WAN		Devic	ce Info	System Lo	ig Sta	tistics				
LAI Emware Version : 2.0.0 Build 111122 Rel:22393 LAI IP Address : 00:aa:bb:01:23:45 WAR IP Address : 192.168.1.1 Subnet Mask : 255.255.0	LAN P.Address: 00:aa:bb:01:23:45 IAC Address: 192.168.1.1 Subnet Mask: 255.255.255.0 DHCP Server: Enabled WAN										
MAC Address: 00:as:bb:01:23:45 LAN IP Address: 192.168.1.1 Subnet Mask: 255.255.255.0 DHCP Server: Enabled VAN IP Address: Subnet VV IP Address: Subnet GateWay DNS Server PVC VP/C IP Address Subnet GateWay DNS Server PVC0 0/35 N/A N/A N/A N/A PVC1 0/32 N/A N/A N/A N/A PVC2 1/32 N/A N/A N/A N/A Bridge Dow PVC2 1/32 N/A N/A N/A N/A Bridge Dow PVC2 1/32 N/A N/A N/A N/A Bridge Dow PVC2 1/32 N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A </th <th>LAN IP Address: 192.168.1.1 Subnet Mask: 255.255.0 DHCP Server: Enabled WAN PVC VPV/CL IP Address Subnet GateWay DNS Server Encapsulation Status PVC0 0/35 N/A N/A N/A N/A N/A Bridge Down PVC1 0/32 N/A N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A N/A Bridge Down PVC4 2/35 N/A N/A N/A N/A N/A Bridge Down PVC5 0/33 N/A N/A N/A N/A N/A Bridge Down PVC5 0/33 N/A N/A N/A N/A Bridge Dow</th> <th>Device Information</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	LAN IP Address: 192.168.1.1 Subnet Mask: 255.255.0 DHCP Server: Enabled WAN PVC VPV/CL IP Address Subnet GateWay DNS Server Encapsulation Status PVC0 0/35 N/A N/A N/A N/A N/A Bridge Down PVC1 0/32 N/A N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A N/A Bridge Down PVC4 2/35 N/A N/A N/A N/A N/A Bridge Down PVC5 0/33 N/A N/A N/A N/A N/A Bridge Down PVC5 0/33 N/A N/A N/A N/A Bridge Dow	Device Information									
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IP Address: 192.168.1.1 Subnet Mask: 255.255.255.0 DHCP Server : Enabled VVAN PVC VPI/VCI IP Address Subnet GateWay DNS Server Encapsulation Statu PVC0 0/35 N/A N/A N/A N/A N/A Bridge Dow PVC1 0/35 N/A N/A N/A N/A N/A Bridge Dow PVC2 0/32 N/A N/A N/A N/A N/A Bridge Dow PVC2 0/32 N/A N/A N/A N/A N/A Bridge Dow PVC3 0/100 N/A N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A N/A Bridge Dow PVC5 0/33 N/A N/A N/A N/A Bridge Dow ADSL Enstate: Downstream <t< th=""><th>IP Address: 192.168.1.1 Subnet Mask: 255.255.255.0 DHCP Server: Enabled WAN PVC VPIV/CI P Address Subnet GateWay DNS Server Encapsulation Status PVC0 0/35 N/A N/A N/A N/A N/A Bridge Down PVC1 0/35 N/A N/A N/A N/A Bridge Down PVC2 0/32 N/A N/A N/A N/A Bridge Down PVC4 8/35 N/A N/A N/A N/A Bridge Down ADSL ADSL ADSL ADSL Bridge Down Bridge Down </th></t<> <th>LAN</th> <th></th> <th></th> <th></th> <th>10.00.001.20</th> <th></th> <th></th> <th></th> <th></th> <th></th>	IP Address: 192.168.1.1 Subnet Mask: 255.255.255.0 DHCP Server: Enabled WAN PVC VPIV/CI P Address Subnet GateWay DNS Server Encapsulation Status PVC0 0/35 N/A N/A N/A N/A N/A Bridge Down PVC1 0/35 N/A N/A N/A N/A Bridge Down PVC2 0/32 N/A N/A N/A N/A Bridge Down PVC4 8/35 N/A N/A N/A N/A Bridge Down ADSL ADSL ADSL ADSL Bridge Down Bridge Down	LAN				10.00.001.20					
Subnet Mask: 255.255.0 DHCP Server : Enabled WAN PVC VPIVVCI IP Address Subnet GateWay DNS Server Encapsulation Statu PVC 10/35 N/A N/A N/A N/A N/A Bridge Dow PVC1 0/35 N/A N/A N/A N/A N/A Bridge Dow PVC2 1/32 N/A N/A N/A N/A N/A Bridge Dow PVC3 0/100 N/A N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A N/A Bridge Dow Bridge Down Modulation : N/A N/A N/A Bridge Dow Modulation : N/A N/A Annex Mode : N/A MA Ene State : Down Ene State : N/A N/A Kbps Max R	Subnet Mask: 255.255.255.0 DHCP Server : Enabled WAN PVC VP/VC(I IP Address Subnet GateWay DNS Server Encapsulation Status PVC0 0/35 N/A N/A N/A N/A N/A Bridge Down PVC1 0/32 N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A Bridge Down PVC2 0/100 N/A N/A N/A N/A Bridge Down PVC5 0/38 N/A N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A N/A Bridge Down ADSL ADSL Encestate: Down M/A N/A Bridge Down PVC6 0/33 N/A N/A N/A N/A Bridge Down Bridge Down Bridge	C.M.			IP Address 1	192 168 1 1					
DHCP Server : Enabled WAN PVC VP/VCI IP Address Subnet GateWay DNS Server Encapsulation Statu PVC0 0/35 N/A N/A N/A N/A N/A Statu PVC1 0/32 N/A N/A N/A N/A N/A Bridge Dow PVC2 1/32 N/A N/A N/A N/A N/A Bridge Dow PVC2 0/10 N/A N/A N/A N/A N/A Bridge Dow PVC3 0/10 N/A N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A Bridge Dow ADSL ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A MA Adb Line Attenuation : N/A MA Adb Data Rate :	DHCP Server : Enabled WAN PVC VP/VCI IP Address Subnet GateWay DNS Server Encapsulation Status PVC0 0/35 N/A N/A N/A N/A N/A Bridge Down PVC1 0/32 N/A N/A N/A N/A N/A Bridge Down PVC1 0/32 N/A N/A N/A N/A N/A Bridge Down PVC1 0/32 N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A N/A Bridge Down PVC3 0/10 N/A N/A N/A N/A Bridge Down PVC4 8/35 N/A N/A N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A N/A Bridge Down Down Down Down Down										
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PVC VPI/VCI IP Address Subnet GateWay DNS Server Encapsulation Statu PVC0 0/35 N/A N/A N/A N/A N/A N/A PVC1 0/32 N/A N/A N/A N/A N/A Bridge Dow PVC2 1/32 N/A N/A N/A N/A N/A Bridge Dow PVC3 0/100 N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A Bridge Dow ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Bridge Dow Line	PVC VPI/VCI IP Address Subnet GateWay DNS Server Encapsulation Status PVC0 0/35 N/A N/A N/A N/A N/A Bridge Down PVC1 0/32 N/A N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A Bridge Down PVC3 0/100 N/A N/A N/A N/A Bridge Down PVC4 4/32 N/A N/A N/A N/A Bridge Down PVC4 4/35 N/A N/A N/A N/A Bridge Down PVC5 0/38 N/A N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A N/A Bridge Down ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down District in the state : Down Modulation : N/A Annex Mode : N/A MA MA District in the state : Down <td></td>										
ADSL Image: Nick of the second s	ADSL Image: Nick	WAN									
PVC1 0/32 N/A N/A N/A N/A N/A Bridge Dow PVC2 1/32 N/A N/A N/A N/A N/A N/A Bridge Dow PVC3 0/100 N/A N/A N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A Bridge Dow ADSL ADSL ADSL Firmware Version : Fw/Ver:3.12.8.31_TC3086 Hw/Ver:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A A A A A A A A A A A A A A A A A A	ADSL PVC1 0/32 N/A N/A N/A N/A Bridge Down PVC2 1/32 N/A N/A N/A N/A N/A Bridge Down PVC3 0/100 N/A N/A N/A N/A N/A Bridge Down PVC4 8/35 N/A N/A N/A N/A N/A Bridge Down PVC5 0/38 N/A N/A N/A N/A Bridge Down PVC5 0/38 N/A N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A Bridge Down PVC5 0/38 N/A N/A N/A M/A Bridge Down PVC5 0/38 N/A N/A N/A M/A Bridge Down Bounstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A Kbps Max Rate : N/A N/A Kbps		PVC	VPI/VCI	IP Address	Subnet	Gate	eWay	DNS Server	Encapsulation	Status
PVC2 1/32 N/A N/A N/A N/A Bridge Dow PVC3 0/100 N/A N/A N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A Bridge Dow ADSL ADSL ADSL E ADSL Bridge Dow ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A Annex Mode : N/A MA Add Bridge Dow Downstream Upstream SNR Margin : N/A N/A MA Add Bridge Dow Bridge Dw	PVC2 1/32 N/A N/A N/A N/A N/A PVC3 0/100 N/A N/A N/A N/A N/A PVC3 0/100 N/A N/A N/A N/A Bridge Down PVC4 8/35 N/A N/A N/A N/A N/A Bridge Down PVC5 0/38 N/A N/A N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A N/A Bridge Down ADSL ADSL ADSL ADSL Bridge Down Down ADSL ADSL ADSL Bridge Down ADSL ADSL Bridge Down ADSL ADSL Bridge Down		PVC0	0/35	N/A	N/A	N	/A	N/A	Bridge	Down
PVC3 0/100 N/A N/A N/A N/A Bridge Dow PVC4 8/35 N/A N/A N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A N/A Bridge Dow ADSL ADSL ADSL Exercise Exercise Down M/A N/A N/A Bridge Dow ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A Annex Mode : N/A Annex Mode : N/A Annex Mode : N/A M/A Ab Annex Mode : N/A SNR Margin : N/A M/A db N/A M/A db Bridge Dow Annex Ate : N/A N/A kbps Max Rate	PVC3 0/100 N/A N/A N/A N/A Bridge Down PVC4 8/35 N/A N/A N/A N/A N/A Bridge Down PVC5 0/38 N/A N/A N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A N/A Bridge Down ADSL ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Modulation : N/A Annex Mode : N/A Modulation : N/A MA Downstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps		PVC1	0/32	N/A	N/A	N	/A	N/A	Bridge	Down
ADSL PVC4 8/35 N/A N/A N/A N/A N/A Bridge Dow PVC5 0/38 N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A Bridge Dow ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	PVC4 8/35 N/A N/A N/A N/A N/A PVC5 0/38 N/A N/A N/A N/A N/A PVC5 0/38 N/A N/A N/A N/A N/A PVC6 0/33 N/A N/A N/A N/A Bridge Down PVC6 0/33 N/A N/A N/A N/A N/A Bridge Down ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Modulation : N/A Annex Mode : N/A Annex Mode : N/A Modulation : N/A Example A SNR Margin : N/A N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A N/A		PVC2	1/32	N/A	N/A	N	/A	N/A	Bridge	Down
ADSL PVC5 0/38 N/A N/A N/A N/A Bridge Dow PVC6 0/33 N/A N/A N/A N/A Bridge Dow ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A db Max Rate : N/A N/A kbps Max Rate : N/A N/A kbps	ADSL PVC5 0/38 N/A N/A N/A N/A N/A Bridge Down ADSL ADSL ADSL ADSL Firmware Version : Fw/Ver:3.12.8.31_TC3086 Hw/Ver:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A Annex Mode : N/A Modulation : N/A Annex Mode : N/A Line Attenuation : N/A ADSL Margin : N/A N/A Modulation : N/A Modulation		PVC3		N/A	N/A	N	/A	N/A	Bridge	Down
ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	ADSL PVC6 0/33 N/A N/A N/A N/A Bridge Down ADSL ADSL ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A Modulation : N/A Annex Mode : N/A Modulation : N/A ADSL Environmentation : N/A									Bridge	
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ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	ADSL Firmware Version : FwVer:3.12.8.31_TC3086 HwVer:T14.F7_7.0 Line State : Down Modulation : N/A Annex Mode : N/A Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps		PVC6	0/33	N/A	N/A	N	/A	N/A	Bridge	Down
Line State : Down Modulation : N/A Annex Mode : N/A Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	Line State : Down Modulation : N/A Annex Mode : N/A Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	ADSL									
Line State : Down Modulation : N/A Annex Mode : N/A Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	Line State : Down Modulation : N/A Annex Mode : N/A Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps			ADSI Firm	ware Version · F	WVer:3 12 8	31 TC3086 F	HwVer T	14 F7 7 0		
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Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	Downstream Upstream SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps										
SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	SNR Margin : N/A N/A db Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps				Annex mode . I	*^					
Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	Line Attenuation : N/A N/A db Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps					Downstream	Upstream				
Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps	Data Rate : N/A N/A kbps Max Rate : N/A N/A kbps										
Max Rate : N/A N/A kbps	Max Rate : N/A N/A kbps			Lin							
								корз			
					GRU .	DV/A	00A				



PNote:

Click the other submenus System Log or Statistics in Figure 4-2, and you will be able to view the system log and traffic statistics about the Router.

4.1.2 System Log

Choose "Status→System Log" menu, and you will be able to query the logs of the Router.

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Status	Quick Start	Network Setup	Advanced Setup	Access Management	Maintenance	Status	Help
	Device Ir	ifo Sys	tem Log	Statistics			
System Log							
	1/1/2000	0.55.005	Test synaml	.og repeat 3 Ti			
				nDial: err=-30		-	
	rn p=8064						
	1/1/2000	0:55:44>	Last errorl	.og repeat 2 Ti	mes		
	1/1/2000	0:55:45>	netMakeChan	nDial: err=-30	01		
	rn_p=8064						
				og repeat 4 Ti			
			netMakeChan	nDial: err=-30	01		
	rn_p=8064		set errorlo	g repeat 5 Tim			
				er available			
				og repeat 10 I	imes		
	1/1/2000	0:56:12>	adjTimeTask	fail: no serv	er		
	available	e -					
			-	k pause 60 sec	onds		
				er available			
				og repeat 10 T			
	available		adjiimelask	fail: no serv	er		
			aditime tas	k pause 60 sec	onda		
			-	er available	.0.140		
	1/1/2000	0:56:12>	Last errorl	.og repeat 10 T	imes		
	1/1/2000	0:56:12>	adjTimeTask	fail: no serv	er	1	
	available	-					
	1/1/2000	0:56:12>	adjtime tas	k pause 1 day	<u>\</u>		
			CLEAR LO	G SAVE LOG			
			CLEARED				

Figure 4-3

The Router can keep logs of all traffic. You can query the logs to find what happened to the Router.

Click the **CLEAR LOG** button to clear the logs.

Click the **SAVE LOG** button to save the logs.

4.1.3 Statistics

Choose "Status→Statistics" menu, and you will be able to view the network traffic over Ethernet, ADSL and WLAN.

Status	Quick Network Start Setup	Advanced Setup	Acce Manage	Maintenance	Status	Help
	Device Info System	em Log 🦷 🌈	Statistics			
Traffic Statistics						
	Interface	: 💿 Ethernet 🔘	ADSL O WI	LAN		
	Transmit Stat	istics		Receive Statistic	cs	
	Transmit Frames		1822	Receive Frames		2665
	Transmit Multicast Frames		432	Receive Multicast Frames		109
	Transmit total Bytes		1639653	Receive total Bytes		344304
	Transmit Collision		0	Receive CRC Errors		0
	Transmit Error Frames		0	Receive Under-size Frames		0
		REFRESH				

Figure 4-4

- > Interface: You can select Ethernet, ADSL and WLAN to view the corresponding network traffic over different ports.
- > Select **Ethernet**, and you will see the statistics table as below.

Interface : ③ Ethernet ○ ADSL ○ WLAN

Transmit Statistics		Receive Statistics	
Transmit Frames	1822	Receive Frames	2665
Transmit Multicast Frames	432	Receive Multicast Frames	109
Transmit total Bytes	1639653	Receive total Bytes	344304
Transmit Collision	0	Receive CRC Errors	0
Transmit Error Frames	0	Receive Under-size Frames	0

Statistics Table:

	Transmit Frames	The frames transmitted over the Ethernet port.
	Transmit Multicast Frames	The multicast frames transmitted over the Ethernet port.
Transmit	Transmit total Bytes	The total bytes transmitted over the Ethernet port.
Statistics	Transmit Collision	The collision occurred over the Ethernet port when data is being transmitted.
	Transmit Error Frames	The error frames over the Ethernet port when data is being transmitted.
	Receive Frames	The frames received over the Ethernet port.
	Receive Multicast Frames	The multicast frames received over the Ethernet port.
Receive	Receive total Bytes	The total bytes received over the Ethernet port.
Statistics	Receive CRC Errors	The CRC errors occurred over the Ethernet port when data is being received.
	Receive Under-size Frames	The Under-size frames received over the Ethernet port.

> Select **ADSL**, and you will see the statistics table as below.

Interface : O Ethernet O ADSL O WLAN

Transmit Statistics		Receive Statistics	
Transmit total PDUs	0	Receive total PDUs	0
Transmit total Error Counts	0	Receive total Error Counts	0

Statistics Table:

Transmit	Transmit total PDUs	The total PDUs transmitted over the ADSL port.
Statistics	Transmit total Error Counts	The total errors occurred over the ADSL port when data
Statistics		is being transmitted.
Receive	Receive total PDUs	The total PDUs transmitted over the ADSL port.
Statistics	Receive total Error Counts	The total errors occurred over the ADSL port when data
Statistics	Receive total Error Counts	is being received.

> Select **WLAN**, and you will see the statistics table as below.

Interface : O Ethernet O ADSL O WLAN

Transmit Statistics		Receive Statistics	
Tx Frames Count	6009	Rx Frames Count	8301
Tx Errors Count	0	Rx Errors Count	63514
Tx Drops Count	0	Rx Drops Count	63514

Statistics Table:

	Tx Frames Count	The frames transmitted over the WLAN when wireless data is
	TX Frames Count	being transmitted.
Transmit	Tx Errors Count	The errors occurred over the WLAN when wireless data is being
Statistics	TX EITOIS Count	transmitted.
	Tx Dropa Count	The drops occurred over the WLAN when wireless data is being
	Tx Drops Count	transmitted.
	Rx Frames Count	The frames received over the WLAN when wireless data is being
	KX Frames Count	transmitted.
Receive	Rx Errors Count	The errors occurred over the WLAN when wireless data is being
Statistics	RX EITOIS COUIIL	received.
	By Dropa Count	The drops occurred over the WLAN when wireless data is being
	Rx Drops Count	received.

Click the **REFRESH** button to refresh immediately.

4.2 Quick Start

Please refer to "3.2 Login".

4.3 Network Setup

Choose "Network Setup", you can see the next submenus: WAN, LAN and Wireless.



Figure 4-5

Click any of them, and you will be able to configure the corresponding function.

4.3.1 WAN

Choose "**Network Setup** \rightarrow **WAN**" menu, you can configure the parameters for WAN ports in the next screen (shown in Figure 4-6).

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Network	Quick Network Start Setup	Advanced Access Maintenance Status Help Setup Management
	WAN LAN	Wireless
ATM VC	Virtual Circuit Status	PVC0 PVCs Summary Activated Deactivated
QoS	VPI	
	ATM QoS PCR SCR MBS	: 0 cells/second : 0 cells/second
Encapsulation		
	ISP	 Dynamic IP Address Static IP Address PPPoA/PPPoE Bridge Mode
PPPoE/PPPoA		
	Servicename Username Password Encapsulation Bridge Interface	
Connection Setting		
	Connection	O Always On (Recommended) O connect On-Demand (Close if idle for minutes) O connect Manually
	TCP MSS Option	TCP MSS(default:1400) 1400 bytes
IP Address		Static O Dynamic
	Static IP Address IP Subnet Mask	
	Gateway	
	NAT	: Enable 💌
		: • Yes No
	Dynamic Route	: TCP MTU(default:1480) 1480 bytes : RIP1 V Direction : Both V
		Disabled
		SAVE



- ATM VC: ATM settings are used to connect to your ISP. Your ISP provides VPI (Virtual Path Identifier), VCI (Virtual Channel Identifier) settings to you. In this Device, you can totally setup 8 VCs on different encapsulations, if you apply 8 different virtual circuits from your ISP. You need to activate the VC to take effect. For PVCs management, you can use ATM QoS to setup each PVC traffic line's priority.
 - Virtual Circuit: Select the VC number you want to setup, PVC0~PVC7.
 - Status: If you want to use a designed VC, you should activate it.
 - **VPI:** Identifies the virtual path between endpoints in an ATM network. The valid range is from 0 to 255. Please input the value provided by your ISP.

- VCI: Identifies the virtual channel endpoints in an ATM network. The valid range is from 32 to 65535 (1 to 31 is reserved for well-known protocols). Please input the value provided by your ISP.
- **PVCs Summary:** Click the button, and you can view the summary information about the PVCs.
- QoS: Select the Quality of Service types for this Virtual Circuit, including CBR (Constant Bit Rate), UBR (Unspecified Bit Rate) and VBR (Variable Bit Rate). These QoS types are all controlled by the parameters specified below, including PCR (Peak Cell Rate), SCR (Sustained Cell Rate) and MBS (Maximum Burst Size), please configure them according to your needs.
- Encapsulation: There are four connection types: Dynamic IP Address, Static IP Address, PPPoA/PPPoE and Bridge Mode. Please choose the designed type that you want to use. After that, you should follow the configuration below to proceed.

1) Dynamic IP Address

Select this option if your ISP provides you an IP address automatically. This option is typically used for Cable services. Please enter the Dynamic IP information accordingly.

ISP :	 Dynamic IP Address Static IP Address PPPoA/PPPoE Bridge Mode
Bridge Interface : NAT : Default Route :	TCP MTU(default:1500) 1500 bytes RIP1 V Direction : Both V

Figure 4-7

- Encapsulation: Select the encapsulation mode for the Dynamic IP Address, you can leave it default.
- NAT: Select this option to Enable/Disable the NAT (Network Address Translation) function for this VC. The NAT function can be activated or deactivated per PVC basis.
- Default Route: If enable this function, the current PVC will be considered as the default gateway to internet from this device.
- > **TCP MTU Option:** Enter the TCP MTU as your desire.

- Dynamic Route: Select this option to specify the RIP (Routing Information protocol) version for WAN interface, including RIP1, RIP2-B and RIP2-M. RIP2-B and RIP2-M are both sent in RIP2 format, the difference is that RIP2-M using Multicast, while RIP2-B using Broadcast format.
 - Direction: Select this option to specify the RIP direction. None is for disabling the RIP function. Both means the ADSL Router will periodically send routing information and accept routing information, and then incorporate them into routing table. IN only means the ADSL router will only accept but will not send RIP packet. OUT only means the ADSL router will only send but will not accept RIP packet.
- Multicast: Select IGMP version, or disable the function. IGMP (Internet Group Multicast Protocol) is a session-layer protocol used to establish membership in a multicast group. The ADSL ATU-R supports both IGMP version 1 (IGMP v1) and IGMP v2. Select "Disabled" to disable it.

2) Static IP Address

Select this option if your ISP provides static IP information to you. You should set static IP address, IP subnet mask, and gateway address in the screen below (shown in Figure 4-8).

ISP :	 Dynamic IP Address Static IP Address PPPoA/PPPoE Bridge Mode
Encansulation :	1483 Bridged IP LLC 🗸
Static IP Address :	0.0.0.0
IP Subnet Mask :	0.0.0.0
Gateway :	0.0.0.0
Bridge Interface :	Activated O Deactivated
NAT :	Enable 🔽
Default Route :	⊙ Yes ◯ No
TCP MTU Option :	TCP MTU(default:1500) 1500 bytes
Dynamic Route :	RIP1 💙 Direction : Both 💌
Multicast :	Disabled 💙

Figure 4-8

P Note:

Each IP address entered in the fields must be in the appropriate IP form, which is four IP octets separated by a dot (x.x.x.x), such as 192.168.1.100. The Router will not accept the IP address if it is not in this format.

3) PPPoA/PPPoE

Select this option if your ISP requires you to use a PPPoE connection. This option is typically used for DSL services. Select Dynamic PPPoE to obtain an IP address automatically for your PPPoE connection. Select Static PPPoE to use a static IP address for your PPPoE connection. Please enter the information accordingly.

ISP :	 Dynamic IP Address Static IP Address PPPoA/PPPoE
	O Bridge Mode
Servicename :	
Username :	
Password :	
Encapsulation :	PPPoE LLC
Bridge Interface :	Activated Ocactivated
Connection :	 Always On (Recommended) Connect On-Demand (Close if idle for 0 minutes) Connect Manually
TCP MSS Option :	TCP MSS(default:1400) 1400 bytes
Get IP Address :	O Static 💿 Dynamic
Static IP Address :	· · ·
IP Subnet Mask :	0.0.0.0
Gateway :	0.0.0.0
NAT :	Enable 💙
Default Route :	Yes ○ No No
TCP MTU Option :	TCP MTU(default:1480) 1480 bytes
Dynamic Route :	RIP1 V Direction : Both V
Multicast :	Disabled 💙

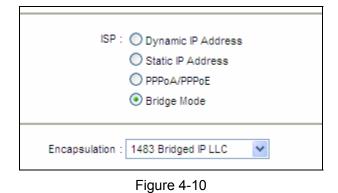
Figure 4-9

- Servicename: Enter a name to mark current connection, or you can leave it blank.
- **Username:** Enter your username for your PPPoE/PPPoA connection.
- > **Password:** Enter your password for your PPPoE/PPPoA connection.
- Encapsulation: For both PPPoE/PPPoA connection, you need to specify the type of Multiplexing, either LLC or VC Mux.
- **Bridge Interface:** Activate the option, and the Router can also work in Bridge mode.

- Connection: For PPPoE/PPPoA connection, you can select Always on or Connect on-Demand or Connect Manually. Connect on demand is dependent on the traffic. If there is no traffic (or Idle) for a pre-specified period of time), the connection will tear down automatically. And once there is traffic send or receive, the connection will be automatically on.
- Static/Dynamic IP Address: For PPPoE/PPPoA connection, you need to specify the public IP address for this ADSL Router. The IP address can be either dynamically (via DHCP) or given IP address provided by your ISP. For Static IP, you need to specify the IP address, Subnet Mask and Gateway IP address.
- Default Route: You should select Yes to configure the PVC as the default gateway to internet from this device.
- MAC Spoofing: Enable the MAC Spoofing, and enter a MAC address to configure the WAN port. It makes your inside network appear as a device with this MAC address to the outside world.

4) Bridge Mode

If you select this type of connection, the modem can be configured to act as a bridging device between your LAN and your ISP. Bridges are devices that enable two or more networks to communicate as if they are two segments of the same physical LAN.



P Note:

After you finish the Internet configuration, please click SAVE to make the settings take effect.

4.3.2 LAN

Choose "**Network Setup** \rightarrow **LAN**" menu, and you will see the LAN screen (shown in Figure 4-11). Please configure the parameters for LAN ports according to the descriptions below.

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Network		work Advance		Maintenance	Status He	elp
	WAN	LAN Wire	eless			
		-				
Router Local IP						
	IF	Address : 192.168.1.	.1			
	IP Sul	bnet Mask : 255.255.25	55.0			
	Dyna	imic Route : RIP2-B 🔽	Direction : Both	*		
		Multicast : IGMP v2				
	IG	MP Snoop : 💿 Disable	ed 🔘 Enabled			
DHCP						
		DHCP : 🔘 Disable	ed 💿 Enabled 🔘 Relay			
DHCP Server			-			
	-	Address : 192.168.1.	2			
		Pool Count : 100	7			
DHCP Table	L.	ease Time : 259200	seconds (0 sets to defa	ult value of 259200)		
UNCP TABLE	Hostname	IP Address	MAC Addre	ss Status	Expire Time	
	line		-			
		192.168.1.2	Manual Confi	g 🗸 Static 🔪		
DNS	<u> </u>	1			1	
	c	ONS Relay : Use Auto	Discovered DNS Server O	nly 💌		
	Primary DI	NS Server : N/A				
	Secondary DI	NS Server : N/A				
		SAVE	CANCEL			

Figure 4-11

- Router Local IP: These are the IP settings of the LAN interface for the device. These settings may be referred to as Private settings. You may change the LAN IP address if needed. The LAN IP address is private to your internal network and cannot be seen on the Internet.
 - **IP Address:** Enter the Router's local IP Address, then you can access to the Web-based Utility via the IP Address, the default value is 192.168.1.1.
 - IP Subnet Mask: Enter the Router's Subnet Mask, the default value is 255.255.255.0.
 - **Dynamic Route:** Select this option to specify the RIP (Routing Information protocol) version for LAN interface, including **RIP1**, **RIP2-B** and **RIP2-M**. RIP2-B and RIP2-M are both sent in RIP2 format, the difference is that RIP2-M using Multicast, while RIP2-B using Broadcast format.
 - Direction: Select this option to specify the RIP direction. None is for disabling the RIP function. Both means the ADSL Router will periodically send routing information and accept routing information, and then incorporate them into routing table. IN only means the ADSL router will only accept but will not send RIP packet. OUT only means the ADSLrouter will only send but will not accept RIP packet.

- Multicast: Select IGMP version, or disable the function. IGMP (Internet Group Multicast Protocol) is a session-layer protocol used to establish membership in a multicast group. The ADSL ATU-R supports both IGMP version 1 (IGMP v1) and IGMP v2. Select "Disabled" to disable it.
- **IGMP Snoop:** Enable the IGMP Snoop function if you need.
- DHCP Server: Select Enabled, then you will see the screen below (shown in Figure 4-12). The Router will work as a DHCP Server; it becomes the default gateway for DHCP client connected to it. DHCP stands for Dynamic Host Control Protocol. The DHCP Server gives out IP addresses when a device is booting up and request an IP address to be logged on to the network. That device must be set as a DHCP client to obtain the IP address automatically. By default, the DHCP Server is enabled. The DHCP address pool contains the range of the IP address that will automatically be assigned to the clients on the network.

DHCP : O Disabled 👁 Enabled O Relay				
Starting IP Address : 192.168.1.2 IP Pool Count : 100 Lease Time : 259200 seconds (0 sets to default value of 259200)				
Hostname	IP Address	MAC Address Manual Config 💌	Status Static 🗸	Expire Time
DNS Relay : Use Auto Discovered DNS Server Only Primary DNS Server : N/A Secondary DNS Server : N/A				

Figure 4-12

- Starting IP Address: Enter the starting IP address for the DHCP server's IP assignment. Because the default IP address for the Router is 192.168.1.1, the default Start IP Address is **192.168.1.100**, and the Start IP Address must be 192.168.1.100 or greater, but smaller than 192.168.1.254.
- **IP Pool Count:** The max user pool size.
- Lease Time: The length of time for the IP lease. After the dynamic IP address has expired, the user will be automatically assigned a new dynamic IP address. The default is **259200** seconds.
- **Physical Ports:** Specify the Physical Ports of the DHCP client.

- **DNS Relay:** If you want to disable this feature, you just need to set both Primary and secondary DNS IP to 0.0.0.0. If you want to use DNS relay, you can setup DNS server IP to 192.168.1.1 on their Computer. If not, the device will perform as no DNS relay.
- Primary DNS Server: Type in your preferred DNS server.
- Secondary DNS Server: Type in your preferred DNS server.
- **Current Pool Summary:** Click the button, then you can view the IP addresses that the DHCP Server gives out.

P Note:

If **Use Auto Discovered DNS Server Only** is selected in DNS Relay, this router will accept the first received DNS assignment from one of the PPPoA, PPPoE or MER/DHCP enabled PVC(s) during the connection establishment. If **Use User Discovered DNS Server Only** is selected in DNS Relay, it is necessary for you to enter the primary and optional secondary DNS server IP addresses. After type in the address, click SAVE button to save it and invoke it.

DHCP Relay: Select Relay, then you will see the next screen (shown in Figure 4-13), and the Router will work as a DHCP Relay. A DHCP relay is a computer that forwards DHCP data between computers that request IP addresses and the DHCP server that assigns the addresses. Each of the device's interfaces can be configured as a DHCP relay. If it is enabled, the DHCP requests from local PCs will forward to the DHCP server runs on WAN side. To have this function working properly, please run on router mode only, disable the DHCP server on the LAN port, and make sure the routing table has the correct routing entry.



Figure 4-13

• **DHCP Server IP for Relay Agent:** Enter the DHCP server IP Address runs on WAN side.

P Note:

If you select **Disabled**, the DHCP function will not take effect.

4.3.3 Wireless

Choose "**Network Setup** \rightarrow **Wireless**" menu, and you will see the Wireless screen (shown in Figure 4-14). Please configure the parameters for wireless according to the descriptions below.

Network	Quick Start	Network Setup	Advanced Access Maintenance Status Help Setup Management
	WAN	LAN	Wireless
			\mathbf{U}
Access Point Settings			
		Access Point	t: ③ Activated 〇 Deactivated
			I : INDIA Auto V Current Channel: 2
	Be	acon Interval(ms)	
	RTS/CTS Threshold :		
	Fragme	entation Threshold	2346 (range: 256-2346 even sumbers entr)
	(bytes) DTIM(ms) :		,
			e : Automatic(802.11b/g/n) V
11n Settings			
	0	hannel Bandwidth	20/40 MHz
			I : above the control channel
		Guard Interval	
		MCS	S: AUTO 🕶
Multiple SSIDs Settings			
		SSID Index	c: 1 🛩
			D: • Yes O No
		Use WPS	S: 💽 Yes 🔘 No
WPS Settings			
			e : Configured
		WPS mode	PIN code PBC
		WPS progress	Start WPS
		With progress	Reset WPS
	SSID		: Ball-Baton
	Authentication Type :		e : Disabled 💌
WDS Settings			
		WDS Mode	≇: ◯ On ④ Off
		Mac Address #1	: 00:00:00:00:00
		Mac Address #2	2 : 00:00:00:00:00
		Mac Address #3	3: 00:00:00:00:00
		Mac Address #4	¥ : 00:00:00:00:00
Wireless MAC Address Filter			
			e : Activated Deactivated
		Action	n : Allow Association 💙 the follow Wireless LAN station(s) association.
		Mac Address #1	: 00:00:00:00:00
			2 : 00:00:00:00:00
			+ : 00:00:00:00:00
			5 : 00:00:00:00:00 • 00:00:00:00:00
			5 : 00:00:00:00:00:00 7 : 00:00:00:00:00
			3 : 00:00:00:00:00
			SAVE CANCEL

Figure 4-14

- Access point Settings: These are the settings of the access point. You can configure the rules to allow wireless-equipped computers and other devices to communicate with a wireless network.
 - Access point: Select Activated to allow wireless station to associate with the access point.
 - **Channel:** Select your region and the channel you want to use from the drop-down List of Channel. This field determines which operating frequency will be used. It is not necessary to change the default channel unless you notice interference problems with another nearby access point.
 - **Beacon Interval:** Enter a value between 20-1000 milliseconds. The Beacon Interval value indicates the frequency interval of the beacon. A beacon is a packet broadcast by the Router to synchronize the wireless network. The default value is 100.
 - RTS/CTS Threshold: Should you encounter inconsistent data flow, only minor reduction
 of the default value 2347 is recommended. If a network packet is smaller than the preset
 RTS threshold size, the RTS/CTS mechanism will not be enabled. The Router sends
 Request to Send (RTS) frames to a particular receiving station and negotiates the
 sending of a data frame. After receiving an RTS, the wireless station responds with a
 Clear to Send (CTS) frame to acknowledge the right to begin transmission. In most cases,
 keep its default value of 2347.
 - Fragmentation Threshold: This value specifies the maximum size for a packet before data is fragmented into multiple packets. If you experience a high packet error rate, you may slightly increase the Fragmentation Threshold. Setting the Fragmentation Threshold too low may result in poor network performance. Only minor reduction of the default value is recommended. In most cases, it should remain at its default value of 2346.
 - DTIM: This value, between 1 and 255, indicates the interval of the Delivery Traffic Indication Message (DTIM). A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the Router has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. Its clients hear the beacons and awaken to receive the broadcast and multicast messages. The default value is 1.
 - Wireless Mode: In the drop-down list you can select "802.11b", "802.11g", "802.11n", "802.11b+g", "802.11g+n" and "802.11b+g+n". "802.11b+g+n" allows 802.11b, 802.11g and 802.11n wireless stations to connect to the Router.
- 11n Settings: These are the settings of the 11n parameters. If "802.11n", "802.11g+n" or "802.11b+g+n" is selected for Wireless mode, these settings will be displayed.

- **Channel Bandwidth:** Select the Bandwidth you want to use from the drop-down List. There are two options, "20 MHz" and "20/40 MHz". If bigger bandwidth is selected, device could transmit and receive data with higher speed.
- **Extension Channel:** If "20/40 MHz" is selected, this option will be displayed.
- Guard Interval: Select the guard interval you want from the drop-down list.
- MCS: Select the wireless transmission rate from the drop-down list. By default, the option is AUTO.
- > **Multiple SSIDs Settings:** These are the settings of the SSID.
 - **SSID Index:** The index of the SSID, and in this model, you can only leave it as a default value of 1.
 - Broadcast SSID: When wireless clients survey the local area for wireless networks to associate with, they will detect the SSID broadcast by the Router. To broadcast the Router's SSID, keep the default setting. If you don't want to broadcast the Router's SSID, select "No".
 - Use WPS: Use WPS (Wi-Fi Protected Setup) function, you can add a new wireless device to an existing network quickly. To Use WPS, keep the default setting, and configure the parameters in WPS Settings. If you don't want to Use WPS, select "No", then you will see the screen as shown below.

Multiple SSIDs Settings	
	SSID Index : 1 💌
	Broadcast SSID : 💿 Yes 🔘 No
	Use WPS : 💿 Yes 🔘 No
WPS Settings	
	WPS state : Configured
	WPS mode : 🔘 PIN code 💿 PBC
	Start WPS
	WPS progress : Idle
	Reset WPS
	SSID : iBall-Baton
	Authentication Type : Disabled

Figure 4-15

SSID: Wireless network name shared among all points in a wireless network. The SSID
must be identical for all devices in the wireless network. It is case-sensitive and must not
exceed 32 characters (use any of the characters on the keyboard). Make sure this setting
is the same for all stations in your wireless network. Type the desired SSID in the space
provided.

 Authentication Type: Select an authentication type from the drop-down list, which allows you to configure security features of the wireless LAN interface. Options available are: Disabled, WEP-64Bits, WEP-128Bits, WPA-PSK, WPA2-PSK, and WPA-PSK/ WPA2-PSK.

1) WEP-64Bits

To configure WEP-64Bits settings, select the WEP-64Bits option from the drop-down list. The menu will change to offer the appropriate settings. WEP-64Bits is a data privacy mechanism based on a 64-bit shared key algorithm, as described in the IEEE 802.11g standard.

Multiple SSIDs Settings		
	SSID Index :	: 1 💌
	Broadcast SSID :	Ves No
	Use WPS :	: 🔿 Yes 💿 No
	SSID :	: iBall-Baton
	Authentication Type :	WEP-64Bits
WEP		
	WEP 64-bits :	For each key, please enter either (1) 5 characters excluding symbols, or (2) 10 characters ranging from 0-9, a, b, c, d, e, f.
	WEP 128-bits :	For each key, please enter either (1) 13 characters excluding symbols, or (2) 26 characters ranging from 0~9, a, b, c, d, e, f.
	⊙ Key#1 ∶	: 0×00000000
	○ Key#2 :	: 0x00000000
	○ Key#3 :	: 0x00000000
	◯ Key#4 :	: 0×000000000
WDS Settings		

Figure 4-16

2) WEP-128Bits

To configure WEP-128Bits settings, select the WEP-128Bits option from the drop-down list. The menu will change to offer the appropriate settings. 128-bit is stronger than 64-bit.

Multiple SSIDs Settings		
	SSID Index :	
	Broadcast SSID :	: 💽 Yes 🔘 No
	Use WPS :	: 🔿 Yes 💿 No
	SSID :	: iBall-Baton
	Authentication Type :	: WEP-128Bits
WEP		
	WEP 64-bits :	For each key, please enter either (1) 5 characters excluding symbols, or (2) 10 characters ranging from 0~9, a, b, c, d, e, f.
	WEP 128-bits :	For each key, please enter either (1) 13 characters excluding symbols, or (2) 26 characters ranging from 0~9, a, b, c, d, e, f.
		: 0x00000000000000000000000000000000000
	C Key#2	: 0x00000000000000000000000000000000000
	○ Key#3	: 0x00000000000000000000000000000000000
	O Key#4	: 0x00000000000000000000000000000000000
WDS Settings		

Figure 4-17

3) WPA-PSK

To configure WPA-PSK settings, select the WPA-PSK option from the drop-down list. The menu will change to offer the appropriate settings. WPA-PSK requires a shared key and does not use a separate server for authentication. PSK keys can be ASCII or Hex type.

Multiple SSIDs Settings		-
	SSID Index : 1 💌	
	Broadcast SSID : 💽 Yes 🔿 No	
	Use WPS : 🔘 Yes 💿 No	
	SSID : iBall-Baton	
	Authentication Type : WPA-PSK	
WPA-PSK		_
	Encryption : TKIP/AES Pre-Shared Key : hexadecimal characters) (8~63 ASCII characters or 64	
WDS Settings		_

Figure 4-18

- Encryption: Select the encryption you want to use: TKIP/AES, TKIP or AES (AES is an encryption method stronger than TKIP).
 - **TKIP** (Temporal Key Integrity Protocol) a wireless encryption protocol that provides dynamic encryption keys for each packet transmitted.
 - **AES** (Advanced Encryption Standard) A security method that uses symmetric 128-bit block data encryption.
- Pre-Shared Key: Enter the key shared by the Router and your other network devices. It must have 8-63 ASCII characters or 64 Hexadecimal digits.

4) WPA2-PSK

To configure WPA2-PSK settings, select the WPA2-PSK option from the drop-down list. The menu will change to offer the appropriate settings. WPA2-PSK requires a shared key and does not use a separate server for authentication. PSK keys can be ASCII or Hex type.

Multiple SSIDs Settings			
	SSID Index :	1 💌	
	Broadcast SSID :	⊙Yes ○No	
	Use WPS :	○Yes	
	SSID :	iBall-Baton]
	Authentication Type :	WPA2-PSK	
WPA2-PSK			
	Encryption :	TKIP/AES	
	Pre-Shared Key :	hexadecimal characters)	(8~63 ASCII characters or 64
WDS Settings			

Figure 4-19

5) WPA-PSK/WPA2-PSK

To configure WPA-PSK/WPA2-PSK settings, select the WPA-PSK/WPA2-PSK option from the drop-down list. The menu will change to offer the appropriate settings. WPA-PSK/WPA2-PSK requires a shared key and does not use a separate server for authentication. PSK keys can be ASCII or Hex type. WPA-PSK/WPA2-PSK is more flexible than WPA-PSK or WPA2-PSK.

Multiple SSIDs Settings	
	SSID Index : 1 💌
	Broadcast SSID : 💽 Yes 🔘 No
	Use WPS : O Yes 💿 No
	SSID : iBall-Baton
	Authentication Type : WPA-PSK/WPA2-PSK 💌
WPA-PSK/WPA2-PSK	
	Encryption : TKIP/AES 🗸
	Pre-Shared Key : (8~63 ASCII characters or 64 hexadecimal characters)
WDS Settings	

Figure 4-20

- > **WPS Settings:** WPS can help you to add a new wireless device to an existing network quickly. This section will guide you how to use WPS function.
 - WPS state: Display the current WPS state.
 - **WPS mode:** If the wireless adapter supports Wi-Fi Protected Setup (WPS), you can establish a wireless connection between wireless adapter and Router using either Push Button Configuration (PBC) method or PIN method, please select the one you want.
 - WPS progress: Show the current WPS progress.
 - **Reset WPS:** Use this button to reset the WPS state to "Unconfigured", so that a new key will be created when using WPS function next time.

1) PBC

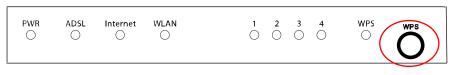
If the wireless adapter supports Wi-Fi Protected Setup and the Push Button Configuration (PBC) method, you can add it to the network by PBC with the following two methods. Click **PBC**, you will see the screen as shown below.

WPS Settings		
	WPS state :	Unconfigured
	WPS mode :	O PIN code 💿 PBC
		Start WPS
	WPS progress :	Idle
		Reset WPS
	SSID :	iBall-Baton
	Authentication Type :	WPA-PSK/WPA2-PSK 👻

Figure 4-21

Method One:

Step 1: Press the WPS button on the front panel of the Router or click **Start WPS** button in Figure 4-21.



Step 2: Press and hold the WPS button of the adapter directly for 2 or 3 seconds.



Step 3: Wait for a while until the next screen appears. Click **Finish** to complete the WPS configuration.

🐺 WPS for Wireless			×
	Ş	<u></u>	
Wireless Configuration Completed			
Your computer has successfully joined the	Wireless	network.	
			_
	< <u>B</u> ack	Finish Cancel	

The WPS Configuration Screen of Wireless Adapter

Method Two:

Step 1: Press the WPS button on the front panel of the Router or click **Start WPS** button in Figure 4-21.



Step 2: For the configuration of the wireless adapter, please choose "**Push the button on my access point**" in the configuration utility of the WPS as below, and click **Next**.

WPS for Wireless	×		
Join a Wireless Network WPS is preparing to join your computer to a wireless network.			
Which setup method do you want to use? Push the button on my access point Enter a PIN into my access point or a registrar Enter the PIN from my access point Push the button on your access point and click Next to continue.			
Automatically select the network	2		
Back Next > Cancel			

The WPS Configuration Screen of Wireless Adapter

Step 3: Wait for a while until the next screen appears. Click Finish to complete the WPS configuration.

🐨 WPS for Wireless	
Wireless Configuration Completed	
Your computer has successfully joined the Wireless network.	
< <u>B</u> ack Finish	Cancel

The WPS Configuration Screen of Wireless Adapter

2) PIN code

If the wireless adapter supports Wi-Fi Protected Setup and the PIN method, you can add it to the network by PIN with the following two methods. Click **PIN code**, you will see the screen as shown below.

WPS Settings		
	WPS state :	Unconfigured
	WPS mode :	● PIN code ○ PBC
	AP self PIN code :	00745659
	enrollee PIN code :	
		Start WPS
	WPS progress :	ldle
		Reset WPS
	SSID :	iBall-Baton
	Authentication Type :	WPA-PSK/WPA2-PSK 👻

Figure 4-22

Method One: Enter the PIN into my Router

Step 1: For the configuration of the wireless adapter, please choose "Enter a PIN into my access point or a registrar" in the configuration utility of the WPS, and get the PIN code on the screen as below, then click Next.

😺 WPS for Wireless		\mathbf{X}
Join a Wireless N	etwork	
WPS is preparing to join y	our computer to a wireless network.	
	Which setup method do you want to use?	
	O Push the button on my access point	
	Enter a PIN into my access point or a registrar	
WP2	○Enter the PIN from my access point	
	Enter the PIN 16952898 into your access point or external registrat and click Next to continue.	ſ
	Automatically select the network	9
	K Back Next > Cancel	

The WPS Configuration Screen of Wireless Adapter

Step 2: For the Router, keep **PIN code** selected and enter the PIN code of the wireless adapter in the field after **enrollee PIN code** as shown below. Then click **Start WPS**.

WPS Settings	
	WPS state : Unconfigured
	WPS mode : 💿 PIN code 🔘 PBC
	AP self PIN code : 00745659
	enrollee PIN code 16952898
	Start WPS
	WPS progress : Idle
	Reset WPS
	SSID : iBall-Baton
	Authentication Type : WPA-PSK/WPA2-PSK 💌

Figure 4-23

Method Two: Enter the PIN from my Router

- Step 1: Get the Current PIN code of the Router from AP self PIN code in Figure 4-23 (each Router has its unique PIN code. Here takes the PIN code 00745659 of this Router for example).
- Step 2: For the configuration of the wireless adapter, please choose "Enter a PIN from my access point" in the configuration utility of the WPS as below, and enter the PIN code of the Router into the field after "Access Point PIN". Then click Next.

WPS for Wireless					
Join a Wireless Network					
WPS is preparing to join your computer to a wireless network.					
Which setup method do you want to use?					
O Push the button on my access point					
O Enter a PIN into my access point or a registrar					
Enter the PIN from my access point					
Enter the PIN from your access point below and click Next to continue.					
Access Point PIN: 00745659					
Automatically select the network 🗹					
< Back Next > Cancel					

The WPS Configuration Screen of Wireless Adapter

P Note:

The default PIN code of the Router can be found in its label or the WPS configuration screen as Figure 4-23.

- SSID: Wireless network name shared among all points in a wireless network. The SSID must be identical for all devices in the wireless network. It is case-sensitive and must not exceed 32 characters (use any of the characters on the keyboard). Make sure this setting is the same for all stations in your wireless network. Type the desired SSID in the space provided.
- Authentication Type: Select an authentication type from the drop-down list, which allows you to configure security features of the wireless LAN interface. Options available are: Disabled, WEP-64Bits, WEP-128Bits, WPA-PSK, WPA2-PSK, and WPA-PSK/ WPA2-PSK.
- WDS Settings: Select On/Off to enable/disable WDS. With this function enabled, the Router can bridge two or more WLANs.
 - **MAC Address:** Enter the MAC Address you wish to bridge in the field.
- Wireless MAC Address Filter: Wireless access can be filtered by using the MAC addresses of the wireless devices transmitting within your network's RADIUS.
 - Active: If you wish to filter users by MAC Address, select "Activated", and "Deactived" for don't.
 - Action: To filter wireless users by MAC Address, select "Allow Association" or "Deny Association" the follow Wireless LAN station(s) association.
 - **MAC Address:** Enter the MAC Address you wish to filter in the field.

P Note:

For most users, it is recommended to use the default Wireless LAN Performance settings. Any changes made to these settings may adversely affect your wireless network. Under certain circumstances, changes may benefit performance. Carefully consider and evaluate any changes to these wireless settings.

4.4 Advanced Setup

Choose "Advanced Setup", you can see the next submenus:

iB-WRA150N 150M Wireless-N ADSL2 + Router iB-WRA150N							iB-WRA150N
Status		twork etup	Advanced Setup	Access Management	Maintenance	Status	Help
	Device Info	Sys	tem Log	Statistics			

Figure 4-24

Click any of them, and you will be able to configure the corresponding function.

4.4.1 Firewall

Choose "**Advanced Setup**→**Firewall**" menu, and you will see the next screen (shown in Figure 4-25).

Advanced	Quick Start	Network Setup	Advanced Setup	Access Manageme	ent Mair	ntenance	Status	Help		
	Firewall	Routing	NAT	QoS	VLAN	ADSL				
	~									
Firewall										
	Firewall Firewall : Firewall									
			SAVE CAN	ICEL						

Figure 4-25

- Firewall: Select this option can automatically detect and block Denial of Service (DoS) attacks, such as Ping of Death, SYN Flood, Port Scan and Land Attack.
- SPI: If you enable SPI, all traffics initiated from WAN would be blocked, including DMZ, Virtual Server, and ACL WAN side.

4.4.2 Routing

Choose "Advanced Setup \rightarrow Routing" menu, and you will see the routing information in the next screen (shown in Figure 4-26).

Advanced	Quick Start	Network Setup	Advanced Setup	Access Managemer	nt Mai	ntenance	Status		Hel
	Firewall	Routing	NAT	QoS	VLAN	ADSL			
Routing Table List									
	#	Dest IP	Mask	Gateway IP	Metric	Device	Use	Edit	Drop
	#	Dest IP 192.168.1.0	Mask 24	Gateway IP 192.168.1.1	Metric 1	Device enet0	Use 10043	Edit	Drop

Figure 4-26

Click ADD ROUTE button to add a new route in the next screen (shown in Figure 4-27).

Advanced	Quick Start	Network Setup	Advanced Setup	Access Manageme	nt Main	ntenance	Status		Help
	Firewall	Routing	NAT	QoS	VLAN	ADSL			
Routing Table List									
	#	Dest IP	Mask	Gateway IP	Metric	Device	Use	Edit	Drop
	1	192.168.1.0	24	192.168.1.1	1	enet0	10043		<u> </u>
	2	default	0	Node1	2	Idle	0		



- Destination IP Address: This parameter specifies the IP network address of the final destination.
- > **IP Subnet Mask:** Enter the subnet mask for this destination.
- Gateway IP Address: Enter the IP address of the gateway. The gateway is an immediate neighbor of your ADSL Router that will forward the packet to the destination. On the LAN, the gateway must be a router on the same segment as your Router; over Internet (WAN), the gateway must be the IP address of one of the remote nodes.
- Metric: Metric represents the "cost" of transmission for routing purposes. IP Routing uses hop count as the measurement of cost, with a minimum of 1 for directly connected networks. Enter a number that approximates the cost for this link. The number need not to be precise, but it must between 1 and 15. In practice, 2 or 3 is usually a good number.
- Announced in RIP: This parameter determines if the ADSL router will include the route to this remote node in its RIP broadcasts. If set to Yes, the route to this remote node will be propagated to other hosts through RIP broadcasts. If No, this route is kept private and is not included in RIP broadcasts.

4.4.3 NAT

Choose "Advanced Setup \rightarrow NAT" menu, you can setup the NAT (Network Address Translation) function for the Router (shown in Figure 4-28).

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Advanced	Quick Start	Network Setup	Advanced Setup	Access Managemen	t Mair	ntenance	Status	Help		
	Firewall	Routing	NAT	QoS	VLAN	ADSL				
NAT										
		Virtual Circuit : PVC0 V NAT Status : Activated								
			s : 💽 Single 🔘 I/	lultiple						
		C								
		C	Virtual Serve	r						



- > Virtual Circuit: Enter Virtual Circuit Index that you plan to setup for the NAT function.
- NAT Status: This field shows the current status of the NAT function for the current VC. You can go to the previous screen (shown in Figure 4-6) to activate the function.
- > **Number of IPs:** This field is to specify how many IPs are provided by your ISP for current VC. It can be single IP or multiple IPs. We select Multiple to explain.

P Note:

For VCs with single IP, they share the same DMZ and Virtual servers; for VCs with multiple IPs, each VC can set DMZ and Virtual servers. Furthermore, for VCs with multiple IPs, they can define the Address Mapping rules; for VCs with single IP, since they have only one IP, there is no need to individually define the Address Mapping rule.

4.4.3.1. DMZ

Choose "Advanced Setup→NAT→DMZ" in Figure 4-28, you can configure the DMZ host in the next screen. A DMZ (demilitarized zone) is a host between a private local network and the outside public network. It prevents outside users from getting direct access to a server that has company data. Users of the public network outside the company can access to the DMZ host.

DMZ	
	DMZ setting for : Single IP Account DMZ : O Enabled O Disabled DMZ Host IP Address : 0.0.0
	SAVE BACK

Figure 4-29

> DMZ Host IP Address: Enter the specified IP Address for DMZ host on the LAN side.

4.4.3.2. Virtual Server

Choose "Advanced Setup \rightarrow NAT \rightarrow Virtual Server" in Figure 4-28, you can configure the Virtual Server in the next screen.

The Virtual Server is the server or server(s) behind NAT (on the LAN), for example, Web server or FTP server, that you can make visible to the outside world even though NAT makes your whole inside network appear as a single machine to the outside world.

Virtual Server							
	,	Virtual Server for : Rule Index :		ount			
		Application :	FTP		FTP 1	~	
		Protocol :	ALL 🗸				
	5	Start Port Number :	21				
		End Port Number :	21				
		Local IP Address :		00			
		Local IP Address :	192.100.1.1	02			
Virtual Server Listing							
	Rule	Applicatio	on	Protocol	Start Port	End Port	Local IP Address
	1	FTP		ALL	21	21	192.168.1.101
	2	-		-	0	0	0.0.00
	3	-		-	0	0	0.0.00
	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	0.0.00
	9	-		-	0	0	0.0.00
	10	-		-	0	0	0.0.00
	11	-		-	0	0	0.0.00
	12	-		-	0	0	0.0.0.0
			SAVE DI	ELETE BACI	CANCEL		



- Rule Index: The Virtual server rule index for this VC. You can specify 10 rules in maximum. All the VCs with single IP will use the same Virtual Server rules.
- > **Application:** The Virtual servers can be used for setting up public services on your LAN.
- > **Protocol:** The protocol used for this application.
- Start & End port number: Enter the specific Start and End Port number you want to forward. If it is one port only, you can enter the End port number the same as Start port number. For example, if you want to set the FTP Virtual server, you can set the start and end port number to 21.
- **Local IP Address:** Enter the IP Address for the Virtual Server in LAN side.
- > Virtual Server Listing: This displays the information about the Virtual Servers you establish.

To add a virtual server entry:

Step 1: Select the "Virtual Circuit" and select "Virtual Server".

Solution Note:

For VCs with single IP, select Single; For VCs with multiple IPs, select Multiple for the option.

Step 2: Select the Rule index for the rule as shown in Figure 4-30.

Step 3: Select the application you want from drop-down list, then the protocol and port number will be added to the corresponding field automatically, you only need to configure the IP address for the virtual server; If the application list does not contain the service that you want, please configure the Port number, IP Address and Protocol manually.

Step 4: After that, click SAVE to make the entry take effect.

Other operations for the entries as shown in Figure 4-30:

Enter the index of assigned entry, and click the **DELETE** button to delete the entry.

Click the **BACK** button to return to the previous screen.

Click the **CANCEL** button to cancel the configuration which is made just now.

4.4.3.3. IP Address Mapping

Select Multiple for numbers of IPs in Figure 4-28, and choose "Advanced Setup \rightarrow NAT \rightarrow IP Address Mapping(for Multiple IP Service)". You can configure the Address Mapping Rule in the next screen. The IP Address Mapping is for those VCs that configured with multiple IPs. The IP Address Mapping rule is per-VC based (only for Multiple IPs' VCs).

	Address Marsins							
	Address Mapping							
	Rule Ir	ndex : 1 💌						
	Rule 1	Type : Many-to-Man	Many-to-Many Overload					
	Local Sta	art IP : 0.0.0.0	0.0.0.0 (for all local IPs, enter 0.0.0.0 for Start IP)					
	Local E	nd IP : 255.255.255.	255.255.255.255 (for all local IPs, enter 255.255.255.255 for End IP)					
	Public Sta	art IP : 61.141.228.3	2					
	Public Er	nd IP : 61.141.228.2	54					
ddress Mapping List								
	Rule Type	Local Start IP	Local End IP	Public Start IP	Public End IP			
	1 M-M O	0.0.0.0	255.255.255.255	61.141.228.32	61.141.228.254			
	2 -							
	3 -							
	4 -							
	5 -							
	6 -							
	7 -							
	8 -							

Figure 4-31

- Rule Index: Select the Virtual server rule index for this VC. You can specify 8 rules in maximum.
- Rule Typ: There are four types: one-to-one, Many-to-One, Many-to-Many Overload and Many-to-Many No-overload.
- Local Start & End IP: Enter the local IP Address you plan to map to. Local Start IP is the starting local IP address and Local End IP is the ending local IP address. If the rule is for all local IPs, then the Start IP is 0.0.0.0 and the End IP is 255.255.255.255.
- Public Start & End IP: Enter the public IP Address you want to do NAT. Public Start IP is the starting public IP address and Public End IP is the ending public IP address. If you have a dynamic IP, enter 0.0.0.0 as the Public Start IP.
- > Address Mapping List: This displays the information about the Mapping addresses.

To add a mapping rule:

Step 1: Select the "Virtual Circuit" and Multiple for the "Number of IPs". Then select the tab IP Address Mapping (shown in Figure 4-28).

P Note:

IP Address Mapping is only available for VCs with Multiple IPs.

- **Step 2:** Select the Rule index for the rule as shown in Figure 4-31.
- Step 3: Select the rule type you want from the drop-down list.
- **Step 4:** Enter the local and public IP addresses in the corresponding fields.
- **Step 5:** After that, click **SAVE** to make the entry take effect.

Other operations for the entries as shown in Figure 4-31:

Select the index of assigned entry, and click the **DELETE** button to delete the entry.

Click the **BACK** button to return to the previous screen.

Click the **CANCEL** button to cancel the configuration which is made just now.

4.4.4 QoS

Choose "Advanced Setup—QoS" menu, you can configure the QoS in the next screen. QoS helps to prioritize data as it enters your router. By attaching special identification marks or headers to incoming packets, QoS determines which queue the packets enter, based priority. This is useful when there are certain types of data you want to give higher priority, such as voice data packets give higher priority than Web data packets. This option will provide better service of selected network traffic over various technologies.

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Advanced	Quick Network Start Setup	Advanced Setup	Access Management	Maintenance	Status	Hel
	Firewall Routing	NAT	QoS V	'LAN ADSL		
Quality of Service						
Rule	Qo Summa	ry : QoS Sett	Deactivated ings Summary			
Kule	Rule Inde	ex : 1 😪				
	Activ	e : Activated	Deactivated			
	Applicatio	on : 🛛 👻				
	Physical Por	ts : WLAN Enet	1 Enet2 Enet3 E	inet4		
	Destination MA	.c :				
		IP :				
	Ma	sk :				
	Port Ran	je : ~				
	Source MA	.C :				
		IP :				
	Ma	sk :				
	Port Ran	je : ~				
	Protocol	D :				
	Vian ID Ran	ge : ~				
	IPP/DS Fie	ld : O IPP/TOS	DSCP			
	IP Precedence Rang	je : 📉 ~ 📉	1			
	Type of Servi	xe :	~			
	DSCP Rang	je :~	(Value Range: 0	~ 63)		
Action	802.1	p : 🕐 ~ 📄	1			
	IPP/DS Fie	ld : O IPP/TOS	DSCP			
	IP Precedence Remarki	ng : 🔍 🗠				
	Type of Service Remarki	1g :	~			
	DSCP Remarki	ig: (Valu	e Range: 0 ~ 63)	_		
	802.1p Remarki		~			
	Queue	#: 🗸				
		ADD DELET	E CANCEL			

Figure 4-32

- QoS: Select this option to Activate/Deactivate the IP QoS on different types (IP ToS and DiffServ).
- **Summary:** Click the button to view the configurations of QoS.
- Rule: Configure the rules for QoS. If the traffic complies with the rule, then the Router will take the corresponding action to deal with it.
 - **Rule Index:** Select the index for the rule you want to configure.
 - Active: Activate the rule. The rule can take effect only when it is activated.
 - **Application:** Select the application that the rule aimed at.
 - **Physical Ports:** Select the port whose traffic flow are controlled by the rule.
 - **Destination MAC & IP & Mask & Port Range:** Enter the IP information about the Destination host for the rule.

- Source MAC & IP & Mask & Port Range: Enter the IP information about the Source host for the rule.
- **Protocol ID:** Select one among TCP/UDP, TCP, UDP or ICMP protocols for the application.
- Vian ID Range: Enter the Vian range, and the rule will be effective to the selected Vians.
- **IPP/DS Field:** Select the type of the action to assign the priority.

When you select IPP/TOS, you can assign the priority via IP information. IP QoS function is intended to deliver guaranteed as well as differentiated Internet services by giving network resource and usage control to the Network operator.

- **IP Precedence Range:** Enter the IP precedence range that the Router takes to differentiate the traffic.
- **Type of Service:** Select the type of service that the Router takes to deal with the traffic.
- **802.1p:** Select the priority range for the rule.

When you select DSCP, you can assign the priority via DHCP (the header of IP group). It maps the IP group into corresponding service class.

- **DSCP Range:** Enter the DSCP range to differentiate the traffic.
- **802.1p:** Select the priority range for the rule.
- Action: Configure the action that the Router takes to deal with the traffic which accord with the rule.
 - **IPP/DS Field:** Select the type for the action.
 - **IP Precedence Remarking:** Select the number to remark the priority for IP precedence.
 - **Type of Service Remarking:** Select the type to remark the service.
 - **DSCP Remarking:** Enter the number to remark the DSCP priority.
 - **802.1p Remarking:** Select the type to remark the 802.1p priority.
 - **Queue:** Select the priority type for the action.

4.4.5 VLAN

Choose "Advanced Setup → VLAN" menu, you can activate the VLAN function in the next screen.

Virtual LAN (VLAN) is a group of devices on one or more LANs that are configured so that they can communicate as if they were attached to the same LAN, when in fact they are located on a number of different LAN segments. Because VLANs are based on logical instead of physical connections, it is very flexible for user/host management, bandwidth allocation and resource optimization. There are two types of VLAN as follows:

Port-Based VLAN: Each physical switch port is configured with an access list specifying membership in a set of VLANs.

ATM VLAN: Using LAN Emulation (LANE) protocol to map Ethernet packets into ATM cells and deliver them to their destination by converting an Ethernet MAC address into an ATM address.

Advanced	Quick Start	Network Setup	Advanced Setup	Access Management	Maintenance	Status	Help			
	Firewall	Routing	NAT	QoS 🔍	LAN ADSL					
VLAN										
		VLAN Function : Activated Deactivated								
		0	Assign VLAN	PVID for each Inter	face					
		0	Define VLAN	Group						

Figure 4-33

1) Assign VLAN PVID for each Interface

Click **Assign VLAN PVID for each Interface** in Figure 4-33, you can assign the PVID for each interface in the next screen (shown in Figure 4-34).

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PVID Assign	
	ATM VC #0 : PVID 1
	VC #1 : PVID 1
	VC #2 : PVID 1
	VC #3 : PVID 1
	VC #4 : PVID 1
	VC #5 : PVID 1
	VC #6 : PVID 1
	VC #7 : PVID 1
	Ethernet Port #1 : PVID 1
	Port #2 : PVID 1
	Port #3 : PVID 1
	Port #4 : PV/D 1
	Wireless LAN : PVID 1
	SAVE CANCEL NEXT

Figure 4-34

PVID: Each physical port has a default VID called PVID (Port VID). PVID is assigned to untagged frames or priority tagged frames (frames with null (0) VID) received on this port.

2) Define VLAN Group

Click **Define VLAN Group** in Figure 4-33, you can define VLAN groups in the next screen (shown in Figure 4-35).

VLAN Group Setting											
		١	VLAN Ind	ex : 1 💌							
			Act	ive : 💿 Yes 🔘 No							
			VLAN	ID: 1 (Decimal)							
		ATM VCs : Port # V V V V V V V									
	Ethernet : Tagged										
	Wireless LAN : Port # 0										
VLAN Group Summary											
	Group	Active	ID	VLAN Group Ports	VLAN Tagged Ports						
	1	Yes	1	e4,e3,e2,e1,w0,p0,p1,p2,p3,p4,p5,p6,p7							
	p:pvc, e	ethernet,	and w:v	vlan							
				SAVE DELETE CANCEL							

Figure 4-35

- > VLAN Index: Select the VLAN index for this VC. You can specify 8 groups in maximum.
- > VLAN ID: This indicates the VLAN group.

- ATM VCs: Select the ATM VCs as members of VLAN, and if you leave the Tagged blank, the tag in frames will be deleted when transmitted from the VC.
- > Ethernet: Select the Ethernet port as a member of VLAN.
- Wireless LAN: Select the wireless LAN port as a member of VLAN, and if you leave the Tagged blank, the tag in frames will be deleted when transmitted from the port.
- > VLAN Group Summary: This displays the information about the VLAN Groups.

4.4.6 ADSL

Choose "Advanced Setup \rightarrow ADSL" menu, you can select the ADSL Type and ADSL Mode in the next screen. The ADSL feature can be selected when you meet the physical connection problem. Please check the proper settings with your Internet service provider.

Advanced	Quick Start	Network Setup	Advanced Setup	Access Management	Maint	enance	Status	Help
	Firewall	Routing	NAT	QoS	VLAN	ADSL	1	
ADSL								
		ADSL Mode ADSL Type						
			✓ Bitswap E✓ SRA Enab					
			SAVE					

Figure 4-36

- > **ADSL Mode:** Select the ADSL operation mode which your ADSL connection uses.
- > **ADSL Type:** Select the ADSL operation type which your ADSL connection uses.

4.5 Access Management

Choose "Access Management", you can see the next submenus:

Access	Quick Start	Network Setup	Advanced Setup	Access Management	Maintena	ince Status	Help
Management	ACL	Filter	SNMP	UPnP	DDNS	CVVMP	



Click any of them, and you will be able to configure the corresponding function.

4.5.1 ACL

Choose "Access Management \rightarrow ACL" menu, you can see the next screen (shown in Figure 4-38). You can specify the client to access the ADSL Router once setting his IP as a Secure IP Address through selected applications.

Access	Quick Start	Network Setup	Advanced Setup	Access Management	Maintenance	Status	Help			
Management	ACL	Filter	SNMP	UPnP	DDNS CV	VMP				
Access Control Setup										
		ACI	L: 💿 Activated (Deactivated						
Access Control Editing										
		ACL Rule Index								
		Active :								
	58	Application		~ 0.0.0.0	(0.0.0.0 ~ 0.0.	0.0 means all IPs)				
			e : LAN 🗸							
Access Control Listing					1					
		Index A	ctive S	ecure IP Address	Application	Interface				
		1	res	0.0.0.0-0.0.0.0	ALL	LAN				
			SAVE DEL	ETE CANCEL						

Figure 4-38

- ACL: If Activated, the IP addresses which are contained in the Access Control List can access to the Router. If Deactivated, all IP addresses can access to the Router.
- > ACL Rule Index: Select the ACL rule index for the entry.
- > **Active:** Enable the ACL rule.
- Secure IP Address: Select the IP addresses which are permitted to access to the Router remotely. With the default IP 0.0.0.0, any client would be allowed to remotely access the ADSL Router.
- Application: Select the application for the ACL rule, and then you can access the Router through it.
- > Interface: Select the interface for access: LAN, WAN or Both.
- > Access Control of Listing: This displays the information about the ACL Rules.

4.5.2 Filter

Choose "Access Management—Filter" menu, you can see the Filter screen (the default is IP/MAC Filter screen shown in Figure 4-39). The filtering feature includes IP/MAC Filter, Application Filter, and URL Filter. The feature makes it possible for administrators to control user's access to the Internet, protect the networks.

4.5.2.1. IP Filter

Select **IP/Mac Filter** as the Filter type, and select **IP** as the Rule type (shown in Figure 4-39), then you can configure the filter rules based on IP address. The filtering includes **Outgoing** and **Incoming**, the detailed descriptions are provided below.

Bator	° 15	OM Wireless	-N ADSL	2+ Router			iE	3-WRA150N
Access Management	Quick Start	Network Ad Setup	dvanced Setup	Access Managemei	nt	tenance	Status	Help
	ACL	Filter	SNMP	UPnP	DDNS	6 CW	MP	
Filter								
Filter Type								
	Filte	r Type Selection : IP	/ MAC Filter	*				
IP / MAC Filter Set Editing	IP / MAG	C Filter Set Index : 1						
			oth					
IP / MAC Filter Rule Editing		Direction .	our 🗸					
	IP / MAC	Filter Rule Index : 1	*					
		Rule Type : IP						
		Active . C	Yes 💿 No					
	So	urce IP Address :		(0.0.0.0 mea	ans Don't care))		
		Subnet Mask :						
		Port Number : 0	(0	means Don't care	e)			
	Destin	ation IP Address :		(0.0.0.0 mea	ans Don't care))		
		Subnet Mask :						
		Port Number : 0	(0	means Don't care	e)			
		Protocol : T	CP 🔽					
		Rule Unmatched : Fo	orward 💌					
IP / MAC Filter Listing	IP / MAC F	ilter Set Index 1	*	Interface	-	D	irection	-
	# Active	Src Address/Ma	sk De	st IP/Mask	Src Port	Dest Port	Protocol	Unmatched
	1 -	-		-	-	-	-	-
	2 -	-		-	-	-	-	-
	4 -	-		-	-	-	-	-
	5 -	-		-	-	-	-	-
	6 -	-		-	-	-	-	-
		S	AVE DELE	TE CANCEL				

Figure 4-39

- > Filter Type Selection: Select the filter type for the configuration below.
- IP/MAC Filter Set Index: Select the Set index for the IP Filter entry. This index can match with six IP / MAC Filter Rule Indexes.
- > Interface: Select the interface for the entry.

Note:

If select PVC0~PVC7 as an interface, the filter will match the IP traffic of WAN port with specified IPs (Source IP Address and Destination IP Address). If select LAN as an interface, the filter will match the IP traffic of LAN port with specified IPs.

Direction: Select the direction for this IP Filter rule. There are three filtering directions: Both, Incoming, Outgoing.

P Note:

Incoming means that IP traffic which is coming into the router, and the Outgoing means that IP traffic which is going out the router.

> IP/MAC Filter Rule Index: Select the Rule index for the IP Filter entry.

P Note:

You should set the IP/MAC Filter Set Index and IP/MAC Filter Rule Index together to appoint the address (shown in the Filter List) for the IP Filter rule. For example, (1, 2), it means the rule will be shown in the row 2 IP/MAC Filter Set Index 1.

- > **Rule Type:** For IP Filter, please select IP here.
- > Active: Select "Yes" to make the rule to take effect.
- Source IP Address: Enter the source IP address for the rule. You can enter 0.0.0.0; it means that all IP addresses are controlled by the rule.
- Destination IP Address: Enter the destination IP address for the rule. You can enter 0.0.0.0, it means that all IP addresses are controlled by the rule. The set of Subnet Mask and Port Number are same as Source IP Address.
- Subnet Mask: Enter the Subnet Mask for the rule.
- Port Number: Enter the Port Number for the rule. You can enter 0, which means that all ports are controlled by the rule.
- > **Protocol:** Select the protocol: **TCP**, **UDP** or **ICMP** for the filter rule.
- Rule Unmatched: If the current rule can not match, and you select Forward, the router will skip the rule and transmit directly. If you select Next, the router will find the next filter rule (show in Filter list) to match.
- > **IP/MAC Filter Listing:** This displays the information about the IP Filter rules.

To add an IP Address filtering entry:

For example: If you desire to block E-mail received and sent by the IP address 192.168.1.7 on your local network; And wish to make the PCs with IP address 192.168.1.8 unable to visit the website of IP address 202.96.134.12, while other PCs have no limit. You can configure the rules as follows. Presume the rules are both aimed at the interface PVC0, and their indexes are (1, 1), (1, 2) and (1, 3).

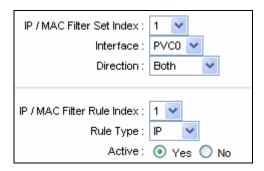
Step 1: Select the "IP/MAC Filter" as the Filter Type Selection (show in Figure 4-39).

Filter Type Selection :	IP / MAC Filter	¥
<i>,</i> ,		

Select the "IP" as the Rule Type on the Filter screen, then you can configure the specific rule for the example.



Step 2: Select the IP/MAC Filter Set Index and IP/MAC Filter Rule Index for the rule, then select the Interface "PVC0", and select the Direction "Both" for the first rule.



Note:

If you want to make the rule take effect, please select **Yes** to active the rule.

Step 3: Enter the "Source IP Address", "Destination IP Address", "Subnet Mask" and "Port Number" in the corresponding field.

Source IP Address :	192.168.1.7		(0.0.0.0 means Don't care)
Subnet Mask :	255.255.255.2	255	
Port Number :	0	(0 mea	ns Don't care)
Destination IP Address :	0.0.0.0		(0.0.0.0 means Don't care)
Subnet Mask :	0.0.0.0		
Port Number :	25	(0 mea	ns Don't care)
Protocol :	ТСР 🔽		
Rule Unmatched :	Next 🔽		

Step 4: Select the Protocol as "TCP" and select the Unmatched rule as "Next".

Step 5: Finally, click the **SAVE** to save the entry.

Step 6: Go to Step 2 to configure the next two rules: Block E-mail received by the IP address 192.168.1.7 on your local network; Make the PC with IP address 192.168.1.8 unable to visit the website of IP address 202.96.134.12.

P Note:

After you complete the IP filter rules for the example, the Filter list will show as follows. You can enter the **IP / MAC Filter Set Index** to view the information about the rule.

#	Active	Src Address/Mask	Dest IP/Mask	Src Port	Dest Port	Protocol	Unmatched
1	Yes	192.168.1.7/ 255.255.255.255	0.0.0.0/ 0.0.0.0	0	25	TCP	Next
2	Yes	192.168.1.7/ 255.255.255.255	0.0.0.0/ 0.0.0.0	0	110	TCP	Forward
3	Yes	192.168.1.8/ 255.255.255.255	202.96.134.12/ 255.255.255.255	0	0	TCP	Forward

Other operations for the entries as shown in Figure 4-39:

Select the **IP / MAC Filter Set Index** and **IP/MAC Filter Rule Index** to view or modify the entry. Select the **IP / MAC Filter Set Index** and **IP/MAC Filter Rule Index** to locate the specific rule, and then click the **DELETE** button to delete the entry.

4.5.2.2. MAC Filter

Select **IP/Mac Filter** as the Filter type, and select **MAC** as the Rule type (shown in Figure 4-40), and then you can configure the filter rules based on MAC address.

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Filter									
Filter Tune									
Filter Type		Filter	Type Selection :	IP / MA	C Filter 💌				
		IP / MAC	Filter Set Index : Interface : Direction :	PVC0	v				
IP / MAC Filter Rule Editing		IP / MAC I	Filter Rule Index ;	1-					
			Rule Type : Active :	MAC Yes					
		F	MAC Address : Rule Unmatched :		0:00:00:00				
IP / MAC Filter Listing	IP	/ MAC Fi	lter Set Index	1 💙	Interface	-		Direction	-
	#	Active	Src Address/	Mask	Dest IP/Mask	Src Port	Dest Port	Protocol	Unmatched
	1	-	-		-	-	-	-	-
	2	-	-		-	-	-	-	-
	3	-	-		-	-	-	-	-
	4	-	-		-	-	-	-	-
	6	-				-		-	-
				SAVE	DELETE CANCEL				
				SAVE	DELETE CANCEL				

Figure 4-40

- **Rule Type:** Select MAC for the MAC Filter rule.
- > Active: Select "Yes" to make the rule to take effect.
- > **MAC Address:** Enter the MAC address for the rule.
- Rule Unmatched: If the current rule can not match, and you select Forward, the router will skip the rule and transmit directly. If you select Next, the router will find the next filter rule (show in Filter list) to match.
- > **IP/MAC Filter Listing:** This displays the information about the MAC Filter rules.

To add a MAC Address filtering entry:

For example: If you want to block the PCs with MAC addresses 00-0A-EB-00-07-BE and 00-0A-EB-00-07-5F to access the Internet, you can configure as follows. Presume the rules are both aimed at the interface PVC0, and their indexes are (1, 1) and (1, 2).

Step 1: Select the "IP/MAC Filter" as the Filter Type Selection:

Filter Type Selec	ction : IP / M/	AC Filter 💦 📘	*					
Select the "	MAC"as	the Rule	Type on	the Filter	screen	(show in	Figure	4-40).
Rule Type : MA	<u>⊾c 🔽 ,</u> Th	en you car	n configur	e the specif	ic rule fo	r the exam	nple.	

Step 2: Select the IP/MAC Filter Set Index and IP/MAC Filter Rule Index for the rule, then select the Interface "PVC0", and select the Direction "Outgoing" for the first rule.

IP / MAC Filter Set Index :	1 💌
Interface :	PVC0 🔽
Direction :	Outgoing 🔽
IP / MAC Filter Rule Index :	1 💌
Rule Type :	MAC 🔽
Active :	💿 Yes 🔘 No

P Note:

If you want to make the rule take effect, please select Yes to active the rule.

Step 3: Enter the "MAC Address" and select the Unmatched rule as "Next".

MAC Address :	00:0A:EB:00:07:BE	
Rule Unmatched :	Next 🔽	

Step 4: Finally, click the SAVE to save the entry.

Step 5: Go to Step 2 to configure the next rule: Block the PC with MAC address 00-0A-EB-00-07-5F to access the Internet.

Note:

After you complete the MAC filter rules for the example, the Filter list will show as follows. You can enter the **IP / MAC Filter Set Index** to view the information about the rule.

#	Active	Src Address/Mask	Dest IP/Mask	Src Port	Dest Port	Protocol	Unmatched
1	Yes	00:0a:eb:00:07:be	-	-	-	-	Next
2	Yes	00:0a:eb:00:07:5f	-	-	-	-	Forward

Other operations for the entries as shown in Figure 4-39:

Select the IP / MAC Filter Set Index and IP/MAC Filter Rule Index to view or modify the entry.

Select the **IP / MAC Filter Set Index** and **IP/MAC Filter Rule Index** to locate the specific rule, and then click the **DELETE** button to delete the entry.

4.5.2.3. Application Filter

Select **Application Filter** as the Filter type (shown in Figure 4-41), and then you can configure the filter rules based on application.

Filter	
Filter Type	Filter Type Selection : Application Filter
Application Filter Editing	
	Application Filter : 🔘 Activated 💿 Deactivated
	ICQ : 💿 Allow 🔘 Deny
	MSN : 💿 Allow 🔘 Deny
	Real Audio/Video : 💿 Allow 🔘 Deny
	SAVE CANCEL

Figure 4-41

- **Filter Type Selection:** Select the Application Filter for the next configuration.
- > Application Filter: Activate or deactivate the function.
- ICQ & MSN & Real Audio/Video: Select Allow or Deny for these applications. If you select Allow, the Router will accept the application; if you select Deny, the Router will forbid the application.

4.5.2.4. URL

Select **Application Filter** as the Filter type (shown in Figure 4-42), and then you can configure the filter rules based on URL.

Filter		
Filter Type		
URL Filter Editing	Filter Type Sek	ection : URL Filter
	Å	Active : Ores • No
	URL	Index : 1 V
		URL :
URL Filter Listing		
	Index	URL
	1 2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	13	
	14	
	15	
	10	
		SAVE DELETE CANCEL

Figure 4-42

- **Filter Type Selection:** Select the URL Filter for the next configuration.
- > Active: Select "Yes" to make the rule to take effect.

- > **URL Index:** Select the index for the URL Filter entry.
- > **URL:** Enter the URL for this URL Filter.
- > **URL Filter Listing:** This displays the information about the URL Filter rules.

To add a URL filter entry:

For example: If you want to forbid the user to access the website: <u>www.yahoo.com</u>. Presume the rule is aimed at the interface PVC0, and its index is "1".

Step 1: Select the "URL Filter" as the Filter Type Selection (show in Figure 4-42).

Step 2: Select the Index for the rule, and then enter the website in the URL field.

Step 3: Finally, Select Yes to active the rule, and then click the SAVE to save the entry.

Other operations for the entries as shown in Figure 4-39:

Select the **URL Index** to view or modify the entry.

Select the **URL Index** to locate the specific rule, and then click the **DELETE** button to delete the entry.

4.5.3 SNMP

Choose "Access Management→SNMP" menu, you can see the SNMP screen. The Simple Network Management Protocol (SNMP) is used for exchanging information between network devices.

Access	Quick Start	Network Setup	Advanced Setup	Access Management	Maintena	nce Status	Help
Management	ACL	Filter	SNMP	UPnP	DDNS	CWMP	
SNMP							
		SNMP	CActivated	Deactivated			
		Get Community	: public				
		Set Community	: public				
		Trap Host	: 0.0.0.0				
			SAVE				

Figure 4-43

- Get Community: Set the password for the incoming Get and Get next requests from the management station.
- Set Community: Set the password for incoming Set requests from the management station.

4.5.4 UPnP

Choose "Access Management \rightarrow UPnP" menu, you can configure the UPnP in the screen (shown in Figure 4-44).

UPnP (Universal Plug and Play) is a distributed, open networking standard that uses TCP/IP for simple peer-to-peer network connectivity between devices. An UPnP device can dynamically join a network, obtain an IP address, convey its capabilities and learn about other devices on the network. In turn, a device can leave a network smoothly and automatically when it is no longer in use. UPnP broadcasts are only allowed on the LAN.

Access	Quick Start	Network Setup	Advanced Setup	Access Management	Maintenance	Status	Help
Management	ACL	Filter	SNMP	UPnP	DDNS	WMP	
Universal Plug & Play	UPnP : Activated Deactivated						
			-	Deactivated (by UPr	P-enabled Applicatio	n)	
			SAVE				

Figure 4-44

- UPnP: Activate or Deactivate the UPnP function. Only when the function is activated, can the UPnP take effect.
- Auto-Configure: If you activate the function, then the UPnP network devices can automatically configure network addressing, announce their presence in the network to other UPnP devices and enable exchange of simple product and service descriptions.

4.5.5 DDNS

Choose "Access Management \rightarrow DDNS" menu, you can configure the DDNS function in the screen (shown in Figure 4-45).

The router offers a Dynamic Domain Name System (**DDNS**) feature. The feature lets you use a static host name with a dynamic IP address. User should type the host name, user name and password assigned to your ADSL Router by your Dynamic DNS provider. User also can decide to turn on DYNDNS Wildcard or not.

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Access	Quick Start	Network Setup	Advanced Setup	Access Management	Maintenance	Status	Help
Management	ACL	Filter	SNMP	UPnP	DDNS C	WMP	
Dynamic DNS							
		Dynamic DNS Service Provider My Host Name E-mail Address Username Password Wildcard support		-]]]		
			SAVE				



- > Dynamic DNS: Activate the DDNS function or not.
- > Service Provider: This field displays the service provider of DDNS.
- > My Host Name: Enter your host name here.
- **E-mail Address:** Enter your E-mail address here.
- **Username & Password:** Type the "User Name" and "Password" for your DDNS account.
- > Wildcard support: Select the option to use Wildcard function

4.5.6 CWMP

Choose "Access Management \rightarrow CWMP" menu, you can configure the CWMP function in the screen (shown in Figure 4-46).

The router offers CWMP feature. The function supports TR-069 protocol which collects information, diagnoses the devices and configures the devices automatically via ACS (Auto-Configuration Server).

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Access	Quick Start	Network Setup	Advanced Setup	Access Management	Maintenance	Status	Help
Management	ACL	Filter	SNMP	UPnP	DDNS CV	VMP	
CWMP Setup							
		CWMP	: O Activated 🧕	Deactivated			
Login ACS							
		URL					
		User Name					
Connection Request		Password	:				
connection Request		Path	: /tr069				
		Port					
		UserName			7		
		Password	:		j		
Periodic Inform							
		Periodic Inform	: Activated	Deactivated			
		Interval(s)	86400				
			SAVE CAN	CEL			

Figure 4-46

- **CWMP:** Select activate the CWMP function.
- > **URL:** Enter the website of ACS which is provided by your ISP.
- > User Name/Password: Enter the User Name and password to login the ACS server.
- > **Path:** Enter the path that connects to the ACS server.
- > **Port:** Enter the port that connects to the ACS server.
- User Name/Password: Enter the User Name and Password that provided the ACS server to login the router.
- Periodic Inform: Activate or deactivate the function. If Activated, the information will be informed to ACS server periodically.
- > **Interval:** Enter the interval time here.

4.6 Maintenance

Choose "Maintenance", you can see the next submenus:

Maintenance	Quick Start	Netw Setu			Access Management		Maintenance		Help
	Administr	ation	Time Zone	Firmware	Sys	Restart	Diag	nostics	

Figure 4-47

Click any of them, and you will be able to configure the corresponding function.

4.6.1 Administration

Choose "Maintenance \rightarrow Administration" menu, you can set new password for admin in the screen (shown in Figure 4-48).

Maintenance	Quick Network Start Setup	Advanced Setup	Access Management	Maintenance	Status	Help
	Administration Tim	ne Zone 🛛 🛛 F	irmware Sy	sRestart Dia <u>c</u>	nostics	
Administrator						
	Username	admin				
	New Password	I :				
	Confirm Password	i:				
		SAVE CAN	NCEL			

Figure 4-48

P Note:

- 1) There is only one account that can access Web-Management interface. The default account is "admin", and the password is "admin". Admin has read/write access privilege.
- When you change the password, you should enter the new password twice, and then click SAVE to make the new password take effect.

4.6.2 Time Zone

Choose "**Maintenance** \rightarrow **Time Zone**" menu, you can configure the system time in the screen (shown in Figure 4-49).

The system time is the time used by the device for scheduling services. There are three methods to configure the time. You can manually set the time or connect to a NTP (Network Time Protocol) server. If a NTP server is set, you will only need to set the time zone. If you manually set the time, you may also set Daylight Saving dates and the system time will automatically adjust on those dates.

1) NTP Server automatically

Select **NTP Server automatically** as the Synchronize time, you only need to set the time zone.

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Maintenance	Quick Start	Network Setup	Advanced Setup	Access Management	Maintenance	Status	Help	
	Administra	ation Tin	ne Zone 🔰 🕴	Firmware Sy	sRestart Dia	gnostics		
Time Zone	с	urrent Date/Tim	e : 01/01/2000 00	:25:16				
Time Synchronization								
	Syncl	Synchronize time with O NTP Server automatically O PC's Clock						
			O Manually					
		Time Zone Daylight Savine	e : (GMT+05:30) 9 : OEnabled @	Chennai, Kolkata, Mum Disabled	bai, New Delhi	*		
	NTP	Server Address			.0: Default Value)			
			SAVE CA	NCEL				

Figure 4-49

P Note:

The ADSL Router built-in some NTP Servers, when the Router connects to the Internet, the Router will get the system time automatically from the NTP Server. You can also configure the NTP Server address manually, and then the Router will get the time from the specific Server firstly.

2) PC's Clock

Select **PC's Clock** as the Synchronize time, you don't need to set any items.

Maintenance		twork Advanced etup Setup	Access Management	Maintenance	Status	Help		
	Administration	Time Zone	Firmware Sy	sRestart Diag	nostics			
Time Zone								
Time Synchronization	Current	Current Date/Time : 12/09/2011 08:53:01						
Time Synchronization	Synchronize	Synchronize time with : O NTP Server automatically						
		O PC's Cloc						
		O Manually Date : 12 / 09	/ 2011 (Mont	D. I. March				
		Time : 08 ; 53		h/Date/Year) in:sec)				
				,				
		SAVE CA	NCEL					

Figure 4-50

3) Manually

Select **Manually** as the Synchronize time, you need to set the date and time corresponding to the current time.

Maintenance	Quick Start	Network Setup	Advanced Setup	Access Managem	Mainte	nance	Status	Help
	Administrati	on Tim	ne Zone F	irmware	SysRestart	Diag	nostics	
Time Zone	Curr	root Data Tim	. 12/00/2011 08	E 4-0.0				
Time Synchronization	Curr	Current Date/Time : 12/09/2011 08:54:06						
	Synchro	Synchronize time with : ONTP Server automatically						
			PC's Clock					
		Date		/ 2011	(Month/Date/Year)		
		Time	e:08 : 54	: 06 (h	our:min:sec)			
			SAVE CAI	NCEL				

Figure 4-51

4.6.3 Firmware

Choose "Maintenance→Firmware" menu, you can upgrade the firmware of the Router in the screen (shown in Figure 4-52). Make sure the firmware or romfile you want to use is on the local hard drive of the computer. Click Browse to find the local hard drive and locate the firmware or romfile to be used for upgrade.

Maintenance	Quick Start	Network Setup	Advanced Setup	Access Management	Maintenanc	e Status	Help	
	Administ	ration Tim	ne Zone 🛛 🧲	Firmware S	/sRestart [Diagnostics		
Firmware/Romfile Upgrade								
		Current Firmware Version: 2.0.0 Build 111122 Rel.22393 New Firmware Upgrade: Restore settings: Backup settings: Save Settings Status: It might take several minutes, don't power off it during upgrading. Device will restart the upgrade.						
			UPGRADE	l				

Figure 4-52

To upgrade the router's firmware, follow these instructions below:

- Step 1: Type the path and file name of the update file into the "New Firmware Location" field. Or click the **Browse** button to locate the update file.
- Step 2: Click the UPGRADE button.

P Note:

- 1) When you upgrade the router's firmware, you may lose its current configurations, so please back up the router's current settings before you upgrade its firmware.
- 2) Do not turn off the router or press the Reset button while the firmware is being upgraded.
- 3) The router will reboot after the upgrading has been finished.

To back up the Router's current settings:

Step 1: Click the **ROMFILE SAVE** button (shown in Figure 4-52), click **Save** button in the next screen (shown in Figure 4-53) to proceed.

File Dow	vnload - Security Warning 🛛 🔀
Do you	want to save this file?
	Name: rom-0 Type: Unknown File Type, 16.0 KB From: 192.168.1.1
	<u>Save</u> Cancel
1	While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not save this software. <u>What's the risk?</u>

Figure 4-53

Step 2: Save the file as the appointed file (shown in Figure 4-54).

Save As						? 🔀
Save jn:	iB-WRA15	50N	~	00	۳ 🗔 •	
My Recent Documents						
Desktop						
My Documents						
My Computer						
	File <u>n</u> ame:	rom-0			~ (<u>S</u> ave
My Network	Save as type:	Document			• (Cancel

Figure 4-54

To restore the Router's settings:

- **Step 1:** Click the **Browse** button to locate the update file for the device, or enter the exact path in "New Romfile Location" field.
- Step 2: Click the UPGRADE button to complete.

4.6.4 SysRestart

Choose "**Maintenance** \rightarrow **SysRestart**" menu, you can select to restart the device with current settings or restore to factory default settings in the screen (shown in Figure 4-55).

Maintenance	Quick Netw Start Set				Maintenance	Status	Help
	Administration	Time Zone	Firmware	Sys	Restart Di	agnostics	
System Restart							
	System Restart with : ③ Current Settings						
		RESTA	RT				

Figure 4-55

4.6.5 Diagnostics

Choose "**Maintenance** \rightarrow **Diagnostics**" menu, you can view the test results for the connectivity of the physical layer and protocol layer for both LAN and WAN sides in the screen (shown in Figure 4-56).

Maintenance	Quick Start	Network Setup	Advanced Setup	Access Managem		aintenance	Status	Help
	Administ	ration Tir	ne Zone	Firmware	SysRes	tart Diag	nostics	
Diagnostic Test								
	Virl	tual Circuit: PVC	7 🕶					
	>>	Testing Etherne	et LAN connection	l	PASS	i		
	>>	Testing ADSL 9	Synchronization .		SKIPPE	D		
		-	AM segment ping		SKIPPE	D		
	>>	Testing ATM O	AM end to end pin	ıg	SKIPPE	D		
		-	AM F4 segment pi	-	SKIPPE			
		-	AM F4 end to end		SKIPPE			
			omain Name Serve	er.	SKIPPE			
	>>	Ping www.yah	100.com		SKIPPE	D		
Ping Tool								
	IP A	ddress/Domain	Name:		F	Ping		
	-	Info -				~		
						~		

Figure 4-56

4.7 Help

Help	Quick Start	Network Setup	Advanced Setup	Access Management	Maintenance	Status	Hel
Quick Start							
Network Setup		0	Quick Start				
Network Setup		•	WAN Settings	2			
		ŏ					
		Ŏ	Wireless LAN				
Advanced Setup							
		0	Firewall				
		-	Routing				
		0	NAT				
		0					
		-	VLAN				
		0	ADSL				
Access Management							
		-	ACL				
		-	IP Filter				
			SNMP				
		0	UPnP DDNS				
		-	CWMP				
Maintenance							
		0	Administratio	n an			
		ŏ					
		-	Firmware				
		0	SysRestart				
		0	Diagnostics				
Status							
		0	Device Info				
		0	-,,				
		0	Statistics				

Choose "**Help**", you can view the help information for configuration of any function.

Figure 4-57

P Note:

Click the tab, and you will be able to get the corresponding information.

Appendix A: Specifications

General						
Standards and Protocols	ANSI T1.413, ITU G.992.1, ITU G.992.2, ITU G.992.3, ITU G.992.5, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n, IEEE 802.3, IEEE 802.3u					
Protocols	TCP/IP, PPPoA, PPPoE, SNTP, HTTP, DHCP, ICMP, NAT					
Ports	LAN Ports: 4-10/100M Auto-Negotiation RJ45 ports (Auto MDI/MDIX) WAN Ports: One RJ11 port					
LEDs	PWR, ADSL, Internet, WLAN, 1,2,3,4(LAN), WPS					
Network Medium	10Base-T: UTP category 3, 4, 5 cable 100Base-TX: UTP category-5 Max line length: 6.5Km					
Data Rates	Downstream: Up to 24Mbps Upstream: Up to 3.5Mbps (With Annex M enabled)					
System Requirement	Internet Explorer 5.0 or later, Netscape Navigator 6.0 or later Win 9x/ ME/ 2000/ XP/ Vista/Windows 7					
Safety & Emission	FCC, CE					
Power	9V DC 0.85A					
Wireless						
Frequency Band	2.4~2.4835GHz					
Radio Data Rate	 11n: up to 150Mbps (Automatic) 11g: 54/48/36/24/18/12/9/6Mbps (Automatic) 11b: 11/5.5/2/1Mbps (Automatic) 					
Frequency Expansion	DSSS(Direct Sequence Spread Spectrum)					
Modulation	DBPSK, DQPSK, CCK, OFDM, 16-QAM, 64-QAM					
Security	WEP/WPA/WPA2/WPA2-PSK/WPA-PSK					
Sensitivity @PER	130M: -68dBm@10% PER 108M: -68dBm@10% PER; 54M: -68dBm@10% PER 11M: -85dBm@8% PER; 6M: -88dBm@10% PER 1M: -90dBm@8% PER					

Physical and Environment				
Working Temperature	0°C ~ 40°C			
Working Humidity	10% ~ 90% RH (non-condensing)			
Storage Temperature	-40°C ~ 70°C			
Storage Humidity	5% ~ 90% RH (non-condensing)			

Appendix B: Contact Information

Note: For any technical help on iBall Baton products please contact support@iballbaton.com

www.iBallBaton.com