# EchoLife HG520 Home Gateway

User Manual

# HUAWEI

EchoLife HG520 Home Gateway User Manual

V100R001

EchoLife HG520 Home Gateway

User Manual

Manual Version T2-20050627-V1.10

Product Version V100R001

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#### About This Manual

#### **Release Notes**

This manual applies to HG520 V100R001.

#### **Related Manuals**

The related manuals are listed in the following table.

Manual	Content	
EchoLife HG520 Home Gateway User Manual	It is used for assisting you in data configurations and typical applications.	
EchoLife HG520 Home Gateway Quick Quide	It will guide you to install HG520 quickly.	

#### Organization

The manual introduces the system structure, hardware description, configuration guide of the HG510.

There are four chapters in the manual.

**Chapter 1 System Overview** profiles the system characteristics, main functions, system structure, external interfaces and networking applications of the HG520.

**Chapter 2 Hardware Description** focuses on the hardware modules of the HG520. It discusses in detail the structure and configuration of the hardware system of the equipment. This chapter covers the front panel, real panel and the HG520 connection.

#### **Chapter 3 Preparing Configuration**

**Chapter 4 Quick Setup** presents the quick setup configuration of the HG520 step by step.

**Chapter 5 Advanced Setup** presents the advanced setup configuration of the HG520 step by step.

**Chapter 6 Wireless Setup** presents the wireless setup configuration of the HG520 step by step.

**Chapter 7 Diagnostics** presents the diagnostics service of the HG520.

**Chapter 8 Management** presents the management service of the HG520.

Chapter 9 Device Info presents the device info of the HG520 .

**Chapter 10 Technical Specifications** presents the technical specification of the HG520.

**Chapter 11 Appendix** includes the abbreviations and acronyms used in this manual.

#### Intended Audience

The manual is intended for the following readers:

- Technical marketing specialists
- Installation engineers and technicians
- Operation and maintenance personnel

#### Conventions

The manual uses the following conventions:

#### I. General conventions

Convention	Description
Arial	Normal paragraphs are in Arial.
Boldface	Headings are in <b>Boldface</b> .

#### II. GUI conventions

Convention	Description
<>	Button names are inside angle brackets. For example, click the <ok> button.</ok>
[]	Window names, menu items, data table and field names are inside square brackets. For example, pop up the [New User] window.
1	Multi-level menus are separated by forward slashes. For example, [File/Create/Folder].

#### III. Symbols

Eye-catching symbols are also used in this manual to highlight the points worthy of special attention during the operation. They are defined as follows:

Caution, Warning, Danger: Means reader be extremely careful during the operation.

Note, Comment, Tip, Knowhow, Thought: Means a complementary description.

#### **IV. Environmental Protection**

This product has been designed to comply with the requirements on environmental protection. For the proper storage, use and disposal of this product, national laws and regulations must be observed.

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# Chapter 1 System Overview

Welcome to purchase the EchoLife HG520 ADSL AP router. With the HG520, you can access the Internet.

This User Manual will show you how to install and set up the HG520.



## **1.1 System Features**

- Built-in ADSL modem for high speed Internet access
- Network Address Translation (NAT) and IP filtering functions to provide network sharing and firewall protection for your computers
- 4-port switch to build your own local network
- Easy configuration through a web browser
- IEEE 802.11g 54Mbit/s Access Point

## **1.2 System Requirements**

In order to use the HG520 ADSL AP router, you need to have the following:

- ADSL service up and running on your telephone line, with at least one public Internet address for your LAN.
- One or more computers each containing an Ethernet 10Base-T/100Base-T network interface card (NIC) or wireless network adapter.
- For system configuration, use the supplied web-based program: a web browser such as Internet Explorer V5.0 or later, or Netscape V4.7 or later .

# **Chapter 2 Hardware Description**

In addition to this manual, the HG510 shall arrive with the following:

Item	Quantity
HG520 ADSL AP router	1
Power adapter	1
Ethernet cable	1
Phone cable	1
Splitter	1
Product certificate, Qualitication Card	1
HUAWEI EchoLife HG520 Quick Start	1
CD	1

## 2.1 Front Panel

The front panel provides LEDs that indicate the status of the HG520.

#### Table 2-1 lists the LED indicators

Label	Color	Function	
PWR	Green	On: The device is powered on Off: The device is powered off	
LAN1-4	Green	On: The LAN link established and active Off: No LAN link	
		Flashes during data transfer	
DSL	0	Flashes during the ADSL training mode	
DSL	Green	On: ADSL link established and active	
		On: The device is active	
Tx/Rx	Green	Flashes during data transfer through ADSL line	
WLAN	Green	On: The WLAN enabled Off: The WLAN disabled	
		Flashes during data transfer	

### 2.2 Rear Panel

The rear panel provides ports for the HG520 to receive/send data and get power supply.



Figure 2-1 Rear Panel of HG520

#### Table 2-2 lists ports function

Interface	Function
Power Button	Switches the device on and off
Power Jack	Connects to the power adapter cable
	Press the reset button for 2 seconds and the HG520 will be restarted (rebooted).
Reset	To reset to default settings, turn off the device first. Hold the Reset button and then turn on the device; wait for 5-8 seconds and then release the button. Reset device's configuration to factory default.
LAN1-4	RJ-45 connector: connects the device to your computer's Ethernet port, or to the uplink port on your LAN's hub, using the cable provided.
ADSL	RJ-11 connector: connects the device to a telephone jack using the supplied cable

## 2.3 Connecting the Hardware

You need to connect the HG520 to the phone jack, the power outlet, and your computer or network devices.

# Caution:

Before cable connection, turn off your computer(s), LAN hub/switch (if applicable), and the HG520.

#### I. Connect the ADSL cable

Connect one end of the phone cable to the RJ-11 connector on the rear panel of HG520. Connect the other end to the ADSL outlet provided by your service provider (normally MODEM port of the attached splitter).

#### II. Connect the Ethernet cable

Connect one end of the Ethernet cable to the one of the four RJ-45 connectors on the rear panel of HG520, connect the other end to your computer's network adaptor (NIC). If you are connecting a LAN to HG520, attach one end of the Ethernet cable to a regular hub port and the other end to the LAN port on HG520.

#### III. Attach the power connector

Connect the AC power adapter to the power connector on HG520 and plug in the adapter to a wall outlet or power extension.

# IV. Turn on the HG520 and power up computers and LAN devices

Press the Power switch on the rear panel of the device .

Turn on and boot your computer(s) and any LAN devices such as hubs or switches.

#### V. Configure HG520 through the WEB interface

The detailed steps are described in Chapter 4 Quick Setup. It will help you configure the HG520 .Quick Setup

#### VI. Save the configurations and Reboot

To make the settings you made on the HG520 take effect, save the configurations and reboot.

# **Chapter 3 Preparing Configuration**

## 3.1 Setup

- Connect HG520 and computer with cross-over/ straight-through Ethernet cable.
- Power on HG520.
- The default IP address of HG520 is 192.168.1.1.

## **3.2 Establishing the Connection**

Enter the IP address (default: 192.168.1.1) of HG520 in the address line of Web Browser

1) The dialog box displayed, as shown in "Figure 3-1".

Enter Nets	work Passwo	rd	?×
?	Please type y	our user name and password.	
	Site:	192.168.1.1	
	Realm	HG520 DSL Router	
	User Name	admin	
	Password	*****	
	🔲 Save this	password in your password list	
		ОК	Cancel

Figure 3-1 Authentication

- 1) Please enter the management username/password into the fields (the default username/password is **admin/admin**).
- 2) Click on the <OK> button.
- If the authentication is valid, the home page "Device Info -Summary" will be displayed on the screen. Refer to "Figure 3-2".

#### Chapter 3 Preparing Configuration

Device Info Summary	Device Info			
mmary N	Board ID:	96348GW-H0520-4		
tistics	Software Version:	EchoLifeHG520V100R0018010010.A2p8018b2.d15h_build 4		
2	Bootloader (CFE) Version:	1.0.37-0	0.6	
RP	Wireless Driver Version:	3.91.23	.0	
uick Setup dvanced Setup	This information reflects the cu	urrent st	atus of your I	SL connection.
ireless	Line Rate - Upstream (Kbps):		000	
gnostics	Line Rate - Downstream (Kbps):		3712	
gement	LAN IP Address:		192.168.1.1	
	Default Gateway:			
(1) (C) (C) (C)	Primary DNS Server:			
100	Secondary DNS Server:			

Figure 3-2 HG520 Home Page

## Chapter 4 Quick Setup

The system administrator can configure HG520 remotely or locally through a Web Browser. Network configuration needs to be planned and decided before the configuration procedure is started.

Quick Setup allows system administrator to select the appropriate operation mode and configure the corresponding settings step by step to create a connection. The following five operation modes are supported:

- PPP over Ethernet (PPPoE)
- IP over ATM (IPoA)
- Bridging
- MAC Encapsulation Routing (MER)
- PPP over ATM (PPPoA)

## 4.1 Configuring PPPoE

Click on <Quick Setup> in the left frame, and follow the steps below to create a PPPoE connection.

#### I. ATM PVC Configuration

🍈 ни	AWEI
Device Info Qolck Setup Advanced Setup Wireless Diagnostics Management	Quick Setup         In Quick Setup will guide you through the steps necessary to configure your CSL Router.         ATM PVC Configuration         Disk Auto-connect         In Virtual Push latentifier (VFI) and Virtual Channel Identifier (VCI) are needed for setting up the ATM PVC. Do not change VFI and Channels User Steps views.         Virtual Push latentifier (VFI) and Virtual Channel Identifier (VCI) are needed for setting up the ATM PVC. Do not change VFI and Channels User Steps views.         Virtual Push latentifier (VFI)         Virtual Push latentifier (VFI)         Disk Auto-connect         Disk Option         Disk Option

Figure 4-1 Quick Setup – ATM PVC Configuration

- 1) Enter the VPI/VCI values. The actual parameter is provided by your ISPs, and you can contact them to get the detailed information.
- 2) Disable "DSL Auto-connect" .
- 3) Check to enable QoS.
- 4) Click on <Next> to go to next step.

#### II. Connection Type and Encapsulation Mode Configuration

Device Info	Connection Type
Juick Setup Advanced Setup	Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use.
Wineless Diagnostics	C PPP over ATM (PPPoA)
Aanagement	🖉 PPP over Ethernet (PPPoE)
	C MuC Encapsulation Routing (MER)
	C IP over ATM (IPDA)
	C Bridging
	Encapsulation Mode
	Back Marrie

**Figure 4-2** Quick Setup – Connection Type and Encapsulation Mode

- Select "PPP over Ethernet (PPPoE)", and the "Encapsulation Mode". The actual parameter is provided by your ISPs, and you can contact them to get the detailed information.
- 2) Click on <Next> to go to next step.

#### III. PPP Username and Password Configuration

Device Info	PPP Username and Password
Quick Setup Advanced Setup Wireless Diegnostics Management	PEP usually requires that you have a user name and password to establish your connection. In the boxes below, enter the user name and password that your ISP has provided to you.
	PPP Username: HG520
	PPP Password:
	Authentication Method: AUTO
	Dial on demand (with idle timeout timer)
	Inactivity Timeout (minutes) (1-4320): 0
	PPP IP extension
	Back Next

Figure 4-3 Quick Setup – PPP Username and Password

- Enter "PPP Username", "PPP Password", and select "Authentication Method" (AUTO/PAP/CHAP). The actual parameter is provided by your ISPs, and you can contact them to get the detailed information.
- 2) The "Dial on demand" function, if checked, will tear down the PPP link automatically when there is no outgoing packet for the programmed period of time that is set below.
- The "PPP IP extension" is a special feature provided by some ISPs. Unless your service provider specifically requires this setup, do not select it.
- 4) Click on <Next> to go to next step.

#### Dote:

- HG520 activates PPPoE connection automatically when user wants to access Internet and there is no active PPPoE connection.
- The users are able to assign some specific ATM PVC(s) to run PPPoE, if HG520 has multiple ATM PVC connections.

🧼 ни	AWEI		
Device Info Quick Sotup Advanced Setup Wireless Diagnostics Management		Back Next	

#### IV. IGMP Multicast, WAN service configuration

Figure 4-4 Quick Setup - IGMP Multicast, WAN service

- 1) Check to Disable/Enable IGMP Multicast, and WAN Service.
- 2) Click on <Next> to go to next step.

#### V. Device Setup Configuration

🧼 ни	AWEI
Device Info Quick Setup Advanced Setup Wireless Diagnostics Management	Device Setup         Configure the DSI, Router IP Address and Subnet Mask for LAN interface.         IP Address:       102.168.1.1         Subnet Mask:       0         O Inable DHCP Server         Start IP Address:       102.168.1.2         IP Address:       102.168.1.2         IP Address:       102.168.1.2         IP Address:       102.168.1.2         IP Configure the second IP Address and Subnet Mask for LAN interface         IP Address:       102.168.1.2         IP Address:       102.168.1.2         IP Address:       102.168.1.2         IP Configure the second IP Address and Subnet Mask for LAN interface         IP Address:       102.168.1.2         Subnet Mask:       102.169.1.2

Figure 4-5 Quick Setup – Device Setup

- 1) Enter IP (LAN IP) and Subnet Mask.
- Select to Disable/Enable DHCP Server, use DHCP Server Relay, and configure related settings for that mode.
- HG520 will assign IP address, subnet mask, Default gateway IP address and DNS server IP address to host computers which connect to its LAN.
- Select "Configure the second IP Address and Subnet Mask for LAN interface" and configure if the second IP Address is used.

#### Dote:

Network Address Translation (NAT) function is default enabled and is not showing on the page to prevent it from being disabled.

- 5) Click on <Next> to go to next step.
- **VI. Wireless Configuration**

🧥 ни	AWEI
Device Info Datk Setup Advanced Setup Wireless Diagnostics Management	Windess Sotup Enable Wineless P Enter the wineless network name (also known as SSED). SSED: provid Back Teent

Figure 4-6 Quick Setup - Wireless Setup

 Check "Enable Wireless" to enable wireless radio or uncheck to disable.

- Configure SSID, "SSID" is the network name shared among all devices in a wireless network. It is case-sensitive and must not exceed 32 alphanumeric characters.
- 3) Click on <Next> to go to next step.

evice Info uick Setup dvanced Setup	WAN Setup - Summ Make sure that the set	
Areless	VPI / VCE	1/32
gnostics nagement	Connection Type:	MER
agement	Service Name:	mer_1_32
11000	Service Category:	UBR
	IP Address:	172.24.10.28
	Service State:	Enabled
	NAT:	Enabled
	Firewall:	Disabled
	IGMP Multicast:	Disabled
	Quality Of Service:	Enabled

#### VII. WAN Setup – Summary

Figure 4-7 Quick Setup – WAN Setup – Summary

The last page displays a summary of previous settings. Make sure that the configurations match the settings provided by ISP, and then click on <Save/Reboot> button to complete the configuration procedure.

## 4.2 Configuring IPoA

Click on <Quick Setup> in the left frame, and follow the steps below to create an IPoA (Routed) connection.

#### I. ATM PVC Configuration

MU.	AWEI
Device Info Quick Setup Advanced Setup Wireless Diagnostics Management	Qakk Setup         This Quick Setup will guide you through the steps necessary to configure your DSL Router.         AMPVC Configuration         Setup 4 adde both to believe to enable DSL Auto-connect process.

Figure 4-8 Quick Setup – ATM PVC Configuration

- Enter the VPI/VCI values. The actual parameter is provided by your ISPs, and you can contact them to get the detailed information.
- 2) Click on <Next> to go to next step.

#### II. Connection Type Configuration

Device Info	Connection Type
Quick Setup Advanced Setup	Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use.
Wireless Diagnostics	C PPP over ATM (PPPoA)
Management	C PPP over Ethernet (PPPoE)
	C MAC Encapsulation Routing (MER)
	C IP over ATM (IPoA)
	C andging
	Encapsulation Made
	Back Fant
	Bast Faurt

**Figure 4-9** Quick Setup – Connection Type and Encapsulation Mode

- Select "IP over ATM (IPoA)", and the "Encapsulation Mode" (Please contact you ISP for the information).
- 2) Click on <Next> to go to next step.

#### **III. WAN IP Settings Configuration**

🎆 ни	AWEI
Devke Info Quick Setup Advanced Getup Wirelens Diagnostics Management	WAN IP Setting:         Enter information provided to you by your ISP to configure the WAN IP settings.         Notos: CHCP is not apported in Ibba mode. Charging the default gateway or the DNS effects the whele system. Configuring them with static values will disable the automatic assignment from other WAN connection.         WAN IP Address:       122.24.10.28         WAN Submet Mayle:       225.255.0.0         Image: Wan Submet Mayle:       122.24.1.1         Use the following ONS server:       172.24.1.2         Use WAN Interface:       172.24.1.2         Secondary DNS server:       172.24.1.2         Secondary DNS server:       172.24.1.2         Back       Mark

Figure 4-10 Quick Setup- WAN IP Settings

- Set WAN IP/Subnet Mask, default gateway, and DNS server settings. The actual parameter is provided by your ISPs, and you can contact them to get the detailed information.
- 2) Click on <Next> to go to next step.

#### IV. NAT, IGMP Multicast, and WAN Service Configuration

HU	AWEI
evice Info bick Setup Idvanced Sotup Vircloss Signostics Lanagement	Network Address Translation (NAT) allows you to share one Wide Area Network (WAN) IP address for multiple computers on your Local Area Network (LAN). Enable NAT P Enable FRMP Multicast, and WAN Service Enable IGMP Multicast C Enable IGMP Multicas

**Figure 4-11** Quick Setup – IPoA – NAT, IGMP Multicast, and WAN service.

- 1) Check to Enable/Disable NAT and Firewall functions.
- 2) Check to Enable/Disable IGMP Multicast, and WAN Service.
- 3) Click on <Next> to go to next step.

#### V. Device Setup

Device Info Quick Getup Advanced Setup Wireless Diagnostics Management	Device Setup Configure the DGL Router IP Address and Subnet Main for LAN interface. IP Address: 192,198,1.1 Subnet Music: 255,255,0 C Deable DHCP Server Sturt IP Address: 192,169,1.2 End IP Address: 192,169,1.254 Leased Time (hour): 4
	C Configure the second IP Address and Subnet Mask for LAN interface           Back         Next

Figure 4-12 Quick Setup – Device Setup

- 1) Enter IP (LAN IP) Address and Subnet Mask to HG520.
- Select to Disable/Enable DHCP Server, use DHCP Server Relay, and configure related settings for that mode.
- Select "Configure the second IP Address and Subnet Mask for LAN interface" and configure if the second IP Address is used.
- 4) Click on <Next> to go to next step.

#### VI. Wireless Setup

🧼 ни	AWEI
Device Info Duick Setup Advanced Setup Wireless Diagnostics Management	Wireless Setup Bruble Wireless P Erter the wireless network name (also known as SSID). SSID: ngrd

Figure 4-13 Quick Setup – Wireless Setup

- 1) Check "Enable Wireless" to enable wireless radio or uncheck to disable.
- Configure SSID, "SSID" is the network name shared among all devices in a wireless network. It is case-sensitive and must not exceed 32 alphanumeric characters.
- 3) Click on <Next> to go to next step.

VII. WAN Setup – Summary

Make sure that the set	tongs below man
VPI / VCI:	1/32
Diagnostics Management Service Name: Gervice Category: IP Address: Service State: NAT:	IPoA
	poa_1_32
	UBR
	172.24.10.28
	Enabled
	Enabled
Firewall:	Disabled
IGMP Multicast:	Disabled
Quality Of Service:	Enabled
	VPI / VCI: Connection Type: Service Name: Service Category: IP Address: Service State: NAT: Firewall:

Figure 4-14 Quick Setup - WAN Setup - Summary

The last page gives a summary of previous steps. Make sure that the settings match the settings provided by ISP, and then click on "Save/Reboot" button to complete the configuration procedure.

## 4.3 Configuring Bridge

Click on <Quick Setup> in the left frame, and follow the steps below to create a Bridging connection.
#### I. ATM PVC Configuration

evice Info	Quick Setup
lick Setup Ivanced Setup	This Quick Setup will guide you through the steps necessary to configure your DSL Router.
ireless	ATM PVC Configuration
ignostics inagement	Select the check box below to enable DSL Auto-connect process.
	DGL Auto-connect
	The Virbul Path Identifier (VII) and Virbul Channel Identifier (VII) are needed for setting up the ATM PVC. Do not change VPI and VII numbers unless you IDP instructs you otherwise. VPI: [0-255]
	Enable Quality Of Service
	Enabling QoS for a PVC improves performance for selected classes of applications. However, since QoS also consumes system resources, the number of PVCs will be reduced consequently. Use Advanced Setup/Quality of Service to assign priorities for
	the applications.

Figure 4-15 Quick Setup – ATM PVC Configuration

- 1) Enter the VPI/VCI values. Please contact you ISPs for the information.
- 2) Click on <Next> to go to next step.

#### II. Connection Type Configuration

Device Info Quick Setup	Connection Type
Advanced Setup	Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use.
Wireless Diagnostics	C PPP over ATM (PPPcA)
Management	C DDD over Ethernet (DDDoE)
	C MAC Encapsulation Routing (MER)
in factor	C IP over ATM (IPOA)
	& Brdyng
	Encapsulation Mode
	LLCENAP-BRIDGING -
	Buck frent

**Figure 4-16** Quick Setup – Connection Type and Encapsulation Mode

- Select "Bridging", and the "Encapsulation Mode". The actual parameter is provided by your ISPs, and you can contact them to get the detailed information.
- 2) Click on <Next> to go to next step.

#### **III. WAN Service Configuration**

	AWEI
Device Info Quick Setup Advanced Setup Wireless Diognostics Management	Unselect the check box below to disable this WAN service Enable Bridge Service : Service Name:

Figure 4-17 Quick Setup - WAN Service

- Give a service name and check the box to enable this WAN service.
- 2) Click on <Next> to go to next step.

#### IV. Device Setup

M HU	AWEI
Device Info Quick Sotup Advanced Sotup Wireless Diagnostics Management	Device Setup Configure the DSL Router IP Address and Subnet Mask for your Local Area Network (LAN). IP Address: 102.168.1.1 Subnet Mask: 255.265.255.0 Book Next

Figure 4-18 Quick Setup - Device Setup

- 1) Enter LAN IP Address and Subnet Mask.
- 2) Click on <Next> to go to next step.

#### V. Wireless Setup

🧼 ни	AWEI	
Device Info Quick Setup Advanced Getup Wireless Diagnostics Management	Wireless Setup Enable Wireless D Enter the wreless network name (also known as SSID). SSID: nyrkt	

Figure 4-19 Quick Setup – Wireless Setup

- 1) Check "Enable Wireless" to enable wireless radio or uncheck to disable.
- Configure SSID, "SSID" is the network name shared among all devices in a wireless network. It is case-sensitive and must not exceed 32 alphanumeric characters.
- 3) Click on <Next> to go to next step.

VI. WAN Setup – Summary

Device Info Quick Setup Advanced Setup	WAN Setup - Summ Make sure that the set	dinan an
855	VPI / VCI:	1/32
Diagnostics Management	Connection Type:	Bridge
	Service Name:	br_1_32
	Service Category:	UBR
EV. S. L.	IP Address:	Not Applicable
2220	Service State:	Enabled
	NAT:	Disabled
	firewall:	Disabled
	IGMP Multicast:	Not Applicable
	Quality Of Service:	Enabled

Figure 4-20 Quick Setup – WAN Setup – Summary

The last page gives a summary of previous steps. Make sure that the settings match the settings provided by ISP, and then click on <Save/Reboot> button to complete the configuration procedure.

# 4.4 Configuring MER

Device Info	Connection Type
Juick Setup	Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use.
Advanced Setup Mireless Diagnostics	C PPP over ATM (PPPcA)
Aanagement	C PPP over Ethernet (PPPoE)
201 X 31.94	MAC Encapsulation Routing (MER)
	C IP over ATM (IPoA)
	C Bridging
	Encapsulation Mode
	LLCSNAP-BRIDODIG
	Back Vent

**Figure 4-21** Quick Setup – Connection Type and Encapsulation Mode

Configuration of MER is similar to IPoA. Select "MAC Encapsulation Routing (MER)" in "Connection Type". For other configuration, please refer to IPoA settings "4.2 Configuring IPoA".

### 4.5 Configuring PPPoA

Configuration of PPPoA is similar to PPPoE. Select "PPP over ATM (PPPoA)" in "Connection Type". For other configuration, please refer to "4.1 Configuring PPPoE ".

Device Info	Connection Type
Quick Setup Advanced Setup	Select the type of network protocol and encapeulation mode over the ATM PVC that your ISP has instructed you to use.
Wireless Diagnostics	PPP over ATM (PPPoA)
Management	O PPP over Ethernet (PPPoE)
	C MilC Encapsulation Routing (MER)
	O IP over ATM (IPbA)
	C Bridging
	Encapsulation Mode
	Badi: Newt

**Figure 4-22** Quick Setup – Connection Type and Encapsulation Mode

# Chapter 5 Advanced Setup

Advanced Setup allows system administrator to configure the following topics:

- WAN
- LAN
- NAT
- Security
- Quality of Service
- Routing
- DNS
- DSL
- Port Mapping

# 5.1 Configuring WAN

Device Info Advanced Setup WAN LAN	Wide Area Network (WAN) Setup Choose Add, Edit, or Remove to configure WAN Interfaces. Choose Save,Reboot to apply the changes and reboot the system.										
NAT	VPI/VCI	Con. ID	Category	Service	Interface	Protocol	Igmp	Qo5	State	Remove	Edit
Parental Control Quality of Service	1/32	1	UBR	mer_1_32	nas_1_32	MER	Disabled	Enabled	Enabled		Edit
Port Mapping Wireless Diagnostics Management											

Figure 5-1 Advanced Setup – WAN

This page shows the current existing WAN interfaces in the system. User can choose <Add>, <Edit> or <Remove> to configure WAN interfaces. For details about Add and Edit procedure, please refer to "Chapter 4 Quick Setup".

### 5.2 Configuring LAN

Please refer to "4.1 V. Device Setup".

## 5.3 Configuring NAT

Three functions are supported in NAT: Virtual Servers,Port Triggering, and DMZ Host.

### 5.3.1 Virtual Servers Configuration

Device Info Advanced Setup WAN LAN NAT Virtual Servers Port Triggering	Virtual Serv with private	ual Servers Setup er allows you to dire IP address on the L/ r used by the server	ct incoming traffic f W side. The Intern	al port is req	uired only if the ea	ternal port needs t		
DN2 Host Parental Control Quality of Service Routing DNS DSL Port Mapping Wireless Diagnostics Management	Server Name	External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End	Server IP Address	Remove

Figure 5-2 Advanced Setup – NAT

Virtual Server allows you to direct incoming traffic from WAN side (identified by Protocol and External port) to the Internal server with private IP address on the LAN side. The Internal port is required only if the external port needs to be converted to a different port number used by the server on the LAN side. Up to 32 entries can be configured.

- Click on <Add> to enter configuration page to add your own rule(s). Some commonly used servers (Web, FTP, Mail, and so on) are pre-defined in HG520. User can simply select the desired server from the pull-down menu and assign the IP address of the local PC.
- To delete the configured rule(s), check the "Remove" box of the specific rule(s) and click on <Remove>.

MUA	WEI									
Device Info Advanced Setup WAN LAN NAT Virtual Servers Port Triggering	NAT Virtual Servers Setup Virtual Server allows you to direct incoming traffic from WAN side (in with private IP address on the LAN side. The Internal port is required port number used by the server on the LAN side. A maximum 32 ent Add Re									
DM2 Host Parental Control Quality of Service Routing DNS DSL Port Mapping Wireless Diagnostics Management	Server Name	External Port Start	External Port End	Protocol	Int Sta					

Figure 5-3 Advanced Setup – NAT – Virtual Servers

### 5.3.2 Port Triggering Configuration

Some applications require that specific ports in the Router's firewall be opened for access by the remote parties.

Port Trigger dynamically opens the "Open Ports" in the firewall when an application on the LAN initiates a TCP/UDP connection to a remote party using the "Triggering Ports".

The Router allows the remote party from the WAN side to establish new connections back to the application on the LAN side using the "Open Ports".

WAN LAN NAT Virtual Servers Port Triggering	Some applications requ dynamically opens up th party using the 'Trigger application on the LAN t	e 'Open Ports' in t ing Ports'. The Rou	the finewall ther allows	when a the rem	n applik ote par m 32 e	ation on th ty from the	e LAN I: WAN s	itiates ide to e	a TOP/UDP	connection to a rem
DM2 Host Parental Control		Application	Tr	lager		1	loen		Remove	
Quality of Service		Name			tance	Protocol		ange		
outing				Start	100		Start			
NS SL SL eless gnostics nagement										

Up to 32 entries can be configured.

Figure 5-4 Advanced Setup – NAT – Port Triggering

 Click on <Add> to enter configuration page to add your own rule(s),show as Figure 5-4. Some applications such as

games, video conferencing, remote access applications and others require that specific ports in the Router's firewall be opened for access by the applications. You can configure the port settings from this screen by selecting an existing application or creating your own (Custom application) and click <Save/Apply> to add it.

 To delete the configured rule(s), check the "Remove" box of the specific rule(s) and click on <Remove>.

🐠 ни	AVVEI						
Device Infe Advanced Settip WAN LAN NAT Witchal Servers Port Triggering DP2 Heal Security Reeting DP3 Heal Security PAI Mapping Windees DP4 Mapping Windees DP4 Mapping	NAT - Pert Triggering Sons ophications such as gas provide an applications Provide an application © Salet an application Trigger Pert Start Trigger Trigger Pert Start Trigger	ine the port settings fi lies that can be conf Select One	on this scree igared:30	n by whiching an	existing application o	r creating y	ports in the Router's freuul be opened for access by the nar own (Guzons application) and dol. "Save/Apply" to

Figure 5-5 Advanced Setup – NAT – Add Port Triggering

### 5.3.3 DMZ Host Configuration

The DSL router will forward IP packets from the WAN that do not belong to any of the applications configured in the Virtual Servers table to the DMZ host computer.

Enter the computer's IP address and click <Apply> to activate the DMZ host.

Clear the IP address field and click <Apply> to inactivate the DMZ host.

Device Info	NAT DM2 Host
Advanced Setup WAN	The DSL router will forward IP packets from the WAN that do not belong to any of the applications configured in the Virtual Servers table to the DM2 host computer.
LAN	Enter the computer's IP address and click "Apply" to activate the DMZ host.
Virtual Servers Port Triggering	Clear the IP address field and click "Apply" to deactivate the DNI2 host.
DM2 Host Parental Control	EMIZ Host IP Address:
Quality of Service Routing	Save/Apply
DNS	
DSL	
Port Mapping	
Wireless	
Diagnostics	
Management	

Figure 5-6 Advanced Setup - NAT - DMZ Host

## 5.4 Configuring Security

Two functions are supported in Security: Outgoing IP Filtering and MAC Filtering.

### 5.4.1 Outgoing IP Filtering Configuration

By default, all outgoing IP traffic from LAN is allowed, but some IP traffic can be blocked by setting up filters.

The screen allows you to create a filter rule to identify outgoing IP traffic by specifying a new filter name and at least one of the conditions below.

All of the specified conditions in this filter rule must be satisfied for the rule to take effect.

Ivanced Setup WAN AN WAT	By default, all out		P Mic from LAN is allowed, but som nfigure outgoing IP filters.	e IP traffic can	be <b>BLOCKED</b> by setting up	filters.	
scurity	Filter Name	Protocol	Source Address / Mask	Source Port	Dest. Address / Mask	Dest. Port	Remove
IP Filtering Parental Control	filter_www	TCP	192.168.1.100 / 295.255.255.0			60	
INS ISL roless ignostics inagement							



- Click <Add> to configure outgoing IP filters, up to 32 entries can be configured.
- 2) To remove, check the item and click <Remove>.
- 3) Click <Save/Apply> to save and activate the filter.

Figure 5-8 shows the configuration that prevents a local computer (IP address: 192.168.1.100) from surfing the Internet.

	te a filter rule to identify outgoing IP traffic by specifying a new filter name and at least one condition ditions in this filter rule must be satisfied for the rule to take effect. Click 'Save/Apply' to save and
	ations in this filter rule must be satisfied for the rule to take effect. Click 'Save/Apply' to save and
and the second sec	
ilter Name:	filter_www
notacol:	TOP
icurce IP address:	192.168.100.1
iource Subnet Mask:	255.255.255.0
iource Port (port or port:port):	11
estination IP address:	
estination Subnet Mask:	
estination Port (port or port p	(froc
10 - 21 - 31	Characteristics and the second s
	rotocol: ource IP address: ource Subnet Mask: ource Port (port or portsport) estination IP address: estination Subnet Mask:

Figure 5-8 . Advanced Setup – Firewall – Add new Outgoing IP Filter

### 5.4.2 Incoming IP Filtering Configuration

By default, all incoming IP traffic from the WAN is blocked when the firewall is enabled. However, some IP traffic can be accepted by setting up filters.

The screen allows you to create a filter rule to identify incoming IP traffic by specifying a new filter name and at least one of the conditions below.

All of the specified conditions in this filter rule must be satisfied for the rule to take effect.

NAT Security 3P Filtering		ure incomer		d when the Resvell is enabled	l. Hawerer, sor	e IP Iraffic can be ACCEP	TED by setting	g up Mers.
10 Cilloring	Filter Name	VPI/VCI	Protocol	Source Address / Masle	Ssurre Port	Desl. Address / Mask	Dest. Part	Remave
Outpaing	122	ALL	TOP		122			
Pert Hauping Worksz Diapastics Management								

Figure 5-9 Advanced Setup – Security – Outgoing IP Filter

- Click <Add> to configure outgoing IP filters, up to 32 entries can be configured.
- 2) To remove, check the item and click <Remove>.
- 3) Click <Save/Apply> to save and activate the filter.

Figure 5-10 shows the configuration that allows a remote PC (IP address: 10.0.12.254) to access the local FTP server.

Device Info Advanced Setup WAN LAN NAT Secwity IP Filtering	Add ID Filler - Taxaning The scenario does you to ower a file rule to dearly recomp 30 torflo to poorfing a new file rule and at least one condition below. All of the specified conditions in this filter rule mult be stated for the rule to take effect. Gick Servi/Apply to serve and selvate the file. Filter Tribert Filter Tribert Filter Tribert Filter Tribert Filter Tribert
IP Foliceing Outgoing Excensing Parental Control Routing DNS DSL Part Mapping Wireless Disgnostics Management	Protocoli Scores IP Johnstin Source Submet Mark Scores ID Johnstin Scores ID Johnstin Scores ID Johnstin Scores ID Johnstin Cestmann Score Store Scores Cestmann Score Score Score Score Scores Cestmann Score Score Score Score Scores WAA: takent and Cestmagned In Scores gade with forevall analytic score Score Julija WAI conformation Scores Score Sc
	(familipit.)

Figure 5-10 Advanced Setup – Security – Add new outgoing IP Filter

### 5.4.3 Parental Control Configuration

Parental Control allows user to create time of day restriction to a special LAN device connected to the Router.

Click <Add> to configure restriction rules. To remove, check the item and click <Remove>.

Up to 16 entries can be configured and used.

WAN LAN NAT	Username											
		i meu,	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start	Stop	Remove
	John	00:0c:6a:55:0e:52	к.		х		x			01:00	10:00	
Security IP Filtering	torn	00:0c:5e:be:55:52		1	ж	R.	×			01:00	16:00	
DNS DSL Port Mapping Wreless Nagnostics Aanagement												

Figure 5-11 Advanced Setup – Firewall – Parental Control

- The MAC Address of the "Browser" automatically displays the MAC address of the LAN device, click the <Other MAC Address> button and enter the MAC address of the other LAN device.
- 2) To find out the MAC address of a Windows-based computer, go to command window and type "ipconfig/all".
- 3) Click <Save/Apply> to save and activate the restriction rule.

Device Info	Time of Day Restriction							
Advanced Setup WAN LAN NAT Security	This page adds time of day re displays the MAC address of it Address" button and enter the command window and type "b	ne LAN device v MAC address i	here the b	rowser is ru	unning. To re	strict other L	AN device, cli	ok the "Other MAK
IP Filtering Parental Control	User Name	Mary						
Quality of Service Routing DNS DSL	Browser's MAC Address     Other MAC Address     (procococococo)	00:80:C8:8E	85:58					
Port Mapping	Days of the week	Mon Tue We	dThuFei 5	at Sun				
ireless	Click to select							
Diagnostics Management	Start Blocking Time (hh:mm) End Blocking Time (hh:mm)	08:00 17:50		Save/A	coly			

**Figure 5-12** Advanced Setup – Firewall – Add new Parental Control

## 5.5 Configuring Quality of Service

Quality of Service (QoS) (including IP Precedence, IP TOS and IEEE 802.1P) refers to a combination of mechanisms that jointly provide a specific quality level to application traffic crossing a network or multiple, disparate networks.

evice Info dvanced Setup WAN	S Arrest State	of Service dd or Ren	Setup	e network t	raffic class	105-					
LAN NAT Security	Class Name	Priority	IP Precedence	IP Type of Service	802.1P	Protocol	Source Address / Mask	Source Port	Dest. Address / Mask	Dest. Port	Remove
Quality of Service	class_a	LOW				TCP/UDP				80	
Routing	class_b	Medium				TCP				21	
DSL Port Mapping	class_c	High	7	Minimize Delay		тср	192-168.1-100 / 255-255-255.0			20:200	E
Diagnostics Aanagement						Add Pg	move				

Figure 5-13 Advanced Setup – Quality of Service

 Click on <Add> to create a class to identify the IP traffic by specifying at least one condition below.

Device Info Advanced Setup	Assign Priority and/or IP Precedence and/or If non-blank value is selected for 'IP Precedence' ar upstream packet will be overwritten by the selected	id/or 'IP Type Of Service', the corresponding TOS byte in the IP header of th	ne .
WAN LAN NAT Security Quality of Service Routing DNS DSL DSL Port Mapping Wireless Jagenstics	Priority: IP Precedence: IP Type Of Service: Specify In offic Conditions for the class Enter the following conditions either for IP layer or Protocol: Source IP Address: Source Subnet Maple:	for the IEEE 002.1p priority. TCP/UDP 9 102.160.1.101 255.255.255.0	
lanagement	Source Port (port or port): Destination IP Address: Destination Schreit Made: Destination Port (port or port;port): B002.1p Priority:	20.231.170.29 295.255.255 205	

Figure 5-14 Advanced Setup – Add new QoS rule

- 2) If multiple conditions are specified, all of them take effect.
- 3) Click <Save/Apply> button to save it.

## 5.6 Configuring Routing

There are three routing information related settings.

### 5.6.1 Default Gateway Configuration

rvice Info	Routing Default Gateway
dvanced Setup	If Enable Automatic Assigned Default Gateway checkbox is selected, this router will accept the first received default gateway
WAN	assignment from one of the PFPoA, PFPoE or MER/DHCP enabled PVC(s). If the checkbox is not selected, enter the static default
LAN	gateway AND/OR a WAN interface. Click 'Save/Apply' button to save it.
NAT	NOTE: If changing the Automatic Assigned Default Gateway from unselected to selected, You must reboot the router to get the
Security	automatic assigned default gateway.
Quality of Service	
Routing	Enable Automatic Assigned Default Gataway
Default Gateway	
Static Route	
RIP	Use Default Gateway IP Address 172.24.1.1
DSL	Une Interface mer 1.32has 1.32
Port Mapping	L) GREEDINGS
Port Mapping Areless	
lagnostics	Save/Apply
lanagement	
anagement	
10 01 11 10 1	

Figure 5-15 Advanced Setup – Routing – Default Gateway

- If "Enable Automatic Assigned Default Gateway" checkbox is selected, HG520 will accept the first received default gateway assignment from one of the PPPoA, PPPoE or MER/DHCP enabled PVC(s).
- If the checkbox is not selected, enter the static default gateway AND/OR a WAN interface.
- 3) Click <Apply> button to save it.

#### Dote:

If changing the "Enable Automatic Assigned Default Gateway" from unselected to selected, you must reboot HG520 to activate the automatic assigned default gateway.

### 5.6.2 Static Route Configuration

 Click on <Add> to create a new Static Route, up to 32 entries can be configured.

dvanced Setup		anes can be o	onfigured)		
WAN	Destination	Subnet Mask	Gateway	Interface	Remove
LAN	172.24.29.0	255.255.255.0		br0	Г
Quality of Service Routing Default Gateway Static Routo RIP DNS DNS DNS Port Mapping fineless Janagement					

Figure 5-16 Advanced Setup - Routing - Static Route

 Enter the destination network address, subnet mask, gateway AND/OR available WAN interface, and then click <Apply> to add the entry to the routing table.

Device Info	Routing — Static Route Ad	d				
Advanced Setup WAN LAN	Enter the destination network entry to the routing table.	address, subnet mask, g	atoway AND/OR avail	able WAN Interface	then click "Save/Apply" to	add the
NAT Security	Destination Network Address:	214,4,23,0				
Quality of Service	Subnet Mask:	255.255.255.0	-			
Routing						
Default Gateway	C Use Gateway IP Address					
Static Route RIP	Use Interface	LANA0 ·				
DNS						
DSL			Save/Apply			
Port Mapping						
Vireless						
Diagnostics						
lanagement						

Figure 5-17 Advanced Setup - Routing - Add new Static Route

### 5.6.3 RIP Configuration

The Routing Information Protocol (RIP) is designed for exchanging routing information within a small to medium-size network.

verke Info dvanced Setup wAN LAN NAT Security Quality of Service Routing Default Gateway Static Route RIP DNS DSL DSL DSL DPdt Mapping Vireless Management	Routing RIP Configuration         To actuate RIP for the device, select the 'Enabled' radio button for Gobal RIP Mode. To configure an individual interface, select the destend RIP incide selected.         General RIP Mode       © Disabled       C Enabled         Interface.VPI/VCI Version       Operation: Enabled         Site/Apply       2       Face P
---	--

Figure 5-18 Advanced Setup – Routing – RIP

To configure an individual interface, select the desired RIP version and operation:

- **RIP Version 1**: Class-based IP network.
- **RIP Version 2**: Classless IP network.
- **Operation Active**: Broadcast and listen to other RIP enabled devices.
- Operation Passive: Listen only.
- 1) Placing a check in the "Enabled" checkbox for the interface to complete the configuration.
- 2) Click the <Apply> button to save the configuration.
- To start/stop RIP for HG520, select the "Enabled/Disabled" radio button for Global RIP Mode.

## 5.7 Configuring DNS

### 5.7.1 DNS Server Configuration

M HU	AWEI
Device Info Advanced Setup WAN NAT Security Quality of Service Routing DNS Servor Dynamic DNS DSL Dort Mapping Wireless Diagnostics Management	DXS Gerver Configuration  If 'Dnable Automatic Assigned DNS' checkbox is selected, this router will accept the first received DAS assignment from one of the PPOA, PPOA of DNS' of VERCHOP available (PVCQ) during the connection establishment. If the checkbox is not selected, enter the primary and optional secondary DNS enter IP addresses, Click 'Save' button to save the new configuration. You must relaced the router to make the new configuration  C Enable Automatic Assigned DNS  Primary DNS server: 172:24:1.2  Secondary DNS server: 172:24:1.8  Server

Figure 5-19 Advanced Setup – DNS Server

- If "Enable Automatic Assigned DNS" checkbox is selected, HG520 will accept the first received DNS assignment from one of the PPPoA, PPPoE or MER/DHCP enabled PVC(s) during the connection establishment.
- 2) If the checkbox is not selected, enter the primary and optional secondary DNS server IP addresses.
- 3) Click <Apply> button to save it.

#### Discrete Note:

If changing from unselected "Enable Automatic Assigned DNS" to selected, you must reboot HG520 to get the automatic assigned DNS addresses.

### 5.7.2 Dynamic DNS Configuration

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname in any of the domains. This function allows your HG520 to be more easily accessible from various locations of the Internet.

Before you proceed, please visit one of these two website to apply your own Dynamic DNS service: <u>www.dnadns.org</u> or <u>www.tzo.com</u>.

- 1) Click<Add> to configure Dynamic DNS.
- 2) To remove, check the item and click <Remove>.

Device Info Advanced Setup WAN LAN NAT	Dynamic DNS The Dynamic DNS service a DSL router to be more easi Choose Add or Remove to r	ly accessed from vario	us locations i			me in any of	the many dom	ains, allowing you
Security Quality of Service		Hostname	Username	Service	Interface	Remove		
Routing		ADISL	router	dyndns	nas_1_32	Г		
DNS				all the a				
DNS Server Dynamic DNS DSL Port Mapping			Add	Remov	9			
Aireless								
Vireless Diagnostics Aanagement								

Figure 5-20 Advanced Setup – DNS – Dynamic DNS

- 3) Select your Dynamic DNS service provider from 'D-DNS provider', and enter your registration information.
- 4) Click <Save/Apply> to save the configuration.

Device Info Advanced Setup	Add dynamic DDNS	
WAN	This page allows you to	add a Dynamic DNS address from DynDNS.org or TZO.
NAT	D-DNS provider	DynDNS.org
Security	Hostname	ADSL
Quality of Service Routing		
Routing	Interface	mtr_1_32/not_1_32
	DynDNS Settings	
DNS Server	Username	router
Dynamic DNS	Password	
DSL	Password	
Port Mapping Wireless		
nanagement		Save/Apply
Diagnostics Management		Save/Apph/

Figure 5-21 Advanced Setup - DNS - Add Dynamic DNS

## 5.8 Configuring DSL

This page allows you configure DSL related settings including Modulations, Phone Line Pair, and Capability. Due to the characteristics of DSL, any change to default settings is not recommended. Please consult your service provider for advice only if configuration is mandatory.

🎆 ни	AWEI	
Device Info Advanced Setup WAN LAN NAT Security Quality of Service Routing DNS DDS DDS DDS DDS DDS DDS DDS DDS DDS	DS. Setting: Solect file modulaton below. G. Game Enabled G. G. Lie Enabled G. Anneel, Enabled G. Anneel, Enabled G. Anneel OSABLED Solect file phone line para below. G. Soler para C. Outer para C. Outer para C. Spability G. Bittwap Enable G. SRA Enable Solect file phone line para C. Spability G. Bittwap Enable Solect file phone line para Solect file phone line para Solect file phone line para Solect file phone line para below. Solect file phone line para Solect file phone line para Solect file phone line para below. Solect file phone line para Solect file phone line para below. Solect file phone line phone line para below. Solect file phone line phon	

Figure 5-22 Advanced Setup – DSL

## 5.9 Configuring Port Mapping

Port Mapping supports multiple ports to PVC and bridging groups. Each group will perform as an independent network.

To support this feature, you must create mapping groups with appropriate LAN and WAN interfaces using the <Add> button.

The <Remove> button will remove the grouping and add the ungrouped interfaces to the Default group.

Up to 16 entries can be configured.

Device Info Advanced Setup WAN LAN NAT Security	Port Mapping s this feature, yo	A maximum upports multiple u must create m grouping and a	port to PVI happing gro	C and I ups wi
Quality of Service Routing	Group Name	Interfaces	Remove	Edit
DNS	Default	eth0, Wireless		
Port Mapping Wreiess Jagnostics Hanagoment	Add Ramov	0		

Figure 5-23 Advanced Setup – Port Mapping

To create a new mapping group:

- Enter the Group name and select interfaces from the available interface list and add it to the grouped interface list using the arrow buttons to create the required mapping of the ports. The group name must be unique.
- Click <Save/Apply> button to make the changes take effect immediately.

#### D Note:

The selected interfaces will be removed from their existing groups and added to the new group.

HUA	AWEI	
Device Info Advanced Setup WAN LAN NAT Security Quality of Service Routing DNS DSL DOSL DOSL DOSL DOSL DOSL DOSL DOSL	Port Mapping Configuration         To create a new mapping group:         1. Enter the Group name and elect interfaces from the available interface list and add it to the grouped interface list using the arrow buttons to oreale the required mapping of the ports. The group name must be unique.         2. Click Store/Apply button to make the changes effective immediately         Che that the selected interfaces will be removed from their existing groups and added to the new group.         Group Name:       Configuration         Group Name:       Configuration <td></td>	

Figure 5-24 Advanced Setup - Configuration

# Chapter 6 Wireless Setup

### 6.1 Configuring Basic Features

This page allows you to configure basic features of the wireless LAN interface.

Device Info Advanced Setup Wireless Basic Security MAC Filter Wireless Bridge Advanced Station Info	Wireless — Rasic           This page allows you to configure basic features of the wireless LAN interface. You can enable or disable the wireless LAN interface, hide the network from active scare, set the wireless network name (also known as SSID) and restrict the churnel set based on country requirements.           Click "Apply" to configure the basic wireless options.           Image allows wireless           Image access Point
	SSID: Ingrid BSSID: 00.03:50:A1:A2:31 Country: ALL

Figure 6-1 Wireless Setup – Basic

 You can enable or disable the wireless LAN interface, hide the network from active scans (no broadcasting of your network name), set the wireless network name (also known as SSID, default: ingrid), and restrict the channels based on nation's requirements.

2) Click <Save/Apply> to save the configurations.

## 6.2 Configuring Security

Four types of wireless security are provided:

- Shared (WEP)
- 802.1X
- WPA/WPA2
- WPA/WPA2-PSK

### 6.2.1 WEP Configuration

Wired Equivalent Privacy (WEP) provides security by encrypting data over radio waves when data is transmitted from one end point to another. WEP is the weakest security method but the easiest one to configure.
Device Info Advanced Setup Vireless Basic	This page allows you to configure security features of the wreless LAN interface. You can sets the network authentication method, selecting data encryption, specify whether a network key is required to authenticate to this wreless network and specify the encryption strength. Click "Apply" to configure the wireless security options.				
Security MAC Filter Wireless Bridge Advanced Station Info Japostics Janagement	Nativork Authentication;	Shured	]		
	WEP Encryption:	Enabled •			

Figure 6-2 Wireless Setup - Security - WEP

To enable WEP, select the following items step by step:

- Network Authentication: Shared
- Data Encryption: Enabled
- Encryption Strength: 128-bit (recommended for better security) or 64-bit

Click <Set Encryption Key> to enter your WEP keys.

Four keys for both encryption strengths can be stored here.

Wireless Bridge Advanced National Koy 3: Advanced Station Info Network Koy 4: Diagnostics Current Network Koy: 1  Kanagement Earne/Apply	Device Info Advanced Setup Wireless Basic Security MAC Filter	and the second	Encryption Keys acters or 26 hexadecimal digits fo aydky285kdyf9228 kysfly3qH92q304.urf jiedsj	128-bit encryption keys	9-5	
	Station Info Diagnostics	Network Key 4:	yı I	Sare/Apply		

Figure 6-3 Wireless Setup - Security - WEP

- Enter 13 ASCII characters or 26 hexadecimal digits for 128-bit encryption keys.
- Enter 5 ASCII characters or 10 hexadecimal digits for 64-bit encryption keys.
- 3) Select which key (1 4) to use from "Current Network Key".
- 4) Click <Save/Apply> to save the configuration.

### 6.2.2 802.1X Configuration

802.1X addresses the WEP weakness by adding user authentication, through RADIUS server. So you need to have your RADIUS server up and running before using 802.1X.

Security N MAC Filter Wireless Bridge Advanced Station Info Diagnostics	letwork Authentication:	802.1%
biomostics		
tanagement R R	ADIUS Server IP Address: ADIUS Port: ADIUS Key:	192.166.101.123
	VEP Encryption:	Enabled •

Figure 6-4 Wireless Setup – Security – 802.1X

- 1) To enable 802.1X, select "802.1X" in "Network Authentication".
- Enter your RADIUS server IP address, port number (default: 1812), and key.
- 3) Follow "6.2.1 WEP" to configure your WEP key
- 4) Click<Save/Apply> to save your configuration.

### 6.2.3 WPA/WPA2 Configuration

WPA (Wi-Fi Protected Access) is the strongest wireless security provided by HG520. Like 802.1X, WPA must co-work with RADIUS server as well. To enable WPA, select the following items step by step:

• Network Authentication: WPA/WPA2

- WPA Group Rekey Interval: in seconds. Default: 0 (no • re-keying).
- RADIUS Server IP Address/Port/Key: must match your • RADIUS server.
- WPA Encryption:TKIP(select AES or TKIP+AES for • WPA2).

Check your wireless network adapter security capability before vou decide which one to use.

Device Info Advanced Setup Wireless Basic Security MAC Filter Wireless Bridge Advanced		gure security features of the waveless LAN interface. You can sets the network authentication method, ofly whether a network key is required to authenticate to this wireless network and specify the wireless security options.
Advanced Station Info Diagnostics Management	WPA Group Rekey Interval: RADUS Sorver IP Address: RADUS Port: RADUS Key: WPA Encryption:	0 192 168 101.123 1012 TKIP
	WEP Encryption:	Disabled •

Figure 6-5 Wireless Setup – Security – WPA

### 6.2.4 WPA/WPA2-PSK Configuration

WPA-PSK lets you take advantage of WPA without the trouble of setting up your own RADIUS server.

Device Info Advanced Setup Wireless Basic		gure security features of the wireless LAN interface. You can sets the network authentication method, solfy whether a network key is required to authenticate to this wireless network and specify the wireless security options.
Basic Security MAC Filter Wireless Bridge	Network Authentication:	WPA-ISK -
Advanced Station Info Diagnostics Management	WPA Pre-Shared Key: WPA Group Rekey Interval:	1000
	WPA Encryption:	TKP
	WEP Encryption:	Deakled -
		Save/Apply

Figure 6-6 Wireless Setup – Security – WPA-PSK

- 1) To enable WPA-PSK, select "WPA-PSK" in "Network Authentication".
- Enter 8 to 63 ASCII codes or 64 hexadecimal (0-9, A-F) digits in "WPA Pre-Shared Key".
- 3) Click <Save/Apply> to save the configuration.

# 6.3 Configuring MAC Filter

Wireless MAC filter allows you to implement access control based on device's MAC address.

🧼 ни	AWEI
Device Info Advanced Setup Wireless Basic Security MAC Fitter Wireless Bridge Advanced Station Info Diagnostics Management	Wireless MAC filter MAC Retrict Mode: © Disabled © Allow © Deny MAC Address Remove Add Parnove

Figure 6-7 Wireless Setup - MAC Filter

- When you select "Allow" in "MAC Restrict Mode", only data from devices with matching MAC addresses in filter table can access HG520.
- If you select "Deny" in "MAC Restrict Mode", every device can access HG520 except those which have matching MAC addresses in the filter table.
- 3) To add filter entry, click on "Add" and enter the MAC address of HG520.
- Click <Save/Apply> to save the configuration. To <delete> the entry, select the entry and click <Remove>.

### 6.4 Configuring Wireless Bridge

Wireless Bridge (also known as Wireless Distribution System) can bridge data between two APs, which is particularly useful while wired cabling is not available.

#### Dote:

Only APs in same channel can be bridged.

Jevice Info Advanced Setup Wireless Basic Security MAC Riter Wireless Bridge Advanced Station Info Nagnostics Aanagement	Wireless Bridge           This page allows you to configure wireless bridge features of the wireless LAN interface. You can select Wireless Bridge (allo known as Wireless Ibit button System) to disables access point functionality. Selecting faces Point enables access point functionality wireless tables of the solution of wireless tables wireless tables wireless tables access point functionality. It is a solution of the sol					
	Remote Bridges MAC Address:		SSID	BSSID		
		C	H0520_100	02:10:18:01:00:02		
		0	RT-WW	00:03:C9:A1:E5:44		

Figure 6-8 Wireless Setup – Wireless Bridge

**AP Mode**: Wireless Bridge- listens and answers other APs onlyAccess Point- Wireless Bridge also with AP functionality.

**Bridge Restrict**: Disabled- any AP will be granted access; Enabled- only selected APs (Max. 4) with specified MAC address will be granted access; Enabled (Scan)- as above, but HG520 will scan available AP for you to select.

Refresh: Re-scan the available AP.

Save/Apply: Save the configuration.

## 6.5 Configuring Advanced Setting

In most cases, HG520 work well with wireless default settings. Modification is not recommended unless you are very familiar with these parameters.

- **Channel**: Select the appropriate channel from the provided list to correspond with your network settings. All devices in your wireless network must use the same channel in order to function correctly. Default is **7**.
- Rate: The range is from 1 to 54Mbit/s. The data transmission rate should be set according to the speed of your wireless network. You can set one transmission speed, or keep the default setting "Auto" to have the router automatically detect the fastest possible data rate.
- Basic Rate Set: Select the basic rate that wireless clients must support.
- Fragmentation: This value should remain at its default setting of **2346**. The range is 256-2346 bytes. This value

specifies the maximum packet size before data is fragmented into multiple packets. If you experience a high packet error rate, you may slightly lower the Fragmentation value. Setting the Fragmentation too low may result in poor network performance. Only slight adjustment of this value is recommended.

- **RTS Threshold:** This value should remain at its default setting of **2347.** The range is 0-2347 bytes. If you encounter inconsistent data flow, only slight adjustment of this value is recommended. If a network packet is smaller than the preset RTS threshold size, the RTS/CTS mechanism will not be enabled. HG520 sends Request to Send (RTS) frames to a particular receiving station and negotiates the transmission 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.
- **DTIM Interval:** This value, between 1 and 255 milliseconds, indicates the interval of the Delivery Traffic Indication Message (DTIM). A DTIM interval is a countdown field which is used to inform clients about the next window for listening to broadcast and multicast messages. When HG520 has buffered broadcast or multicast 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 message. Default: **3**.
- **Beacon Interval:** Enter a value between 1 and 65535 milliseconds. The Beacon Interval indicates the frequency

interval of the beacon. A beacon is a packet broadcast by HG520 to synchronize the wireless network. Default: **100**.

- 54g Mode: There are 3 selections. Select 54g Auto for the widest compatibility. Select 54g Performance for the fastest performance. Select 54g LRS if you are experiencing difficulty with legacy 802.11b equipment.
- 54g protection: In Auto mode, HG520 will use RTS/CTS to improve 802.11g performance in mixed 802.11g/802.11b network. Turn off protection to maximize 802.11g throughput under most conditions.

evice Info Idvanced Setup	preambles are used. Click "Apply" to configure the	ane indue; ser ure deduar vien var na rue access point, ser viriese nidde and ser viniener shar ra rung advanced wireless options:
Vireless	AP Isolation:	OR -
Basic	Band:	2.4GHz-802.11g -
Security	Channel:	11 -
MAC Filter	Rate:	Anno •
Wireless Bridge	Multicast Rate:	Anto •
Advanced	Basic Rate:	Default •
Station Info	Fragmentation Threshold:	2346
lagnostics	RTS Threshold:	2347
lanagement	DTIM Interval:	
S. 2	Beacon Interval:	100
	XPress <sup>TM</sup> Technology:	Deabled -
	54gm Mode:	54g Auto -
- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	a ng r rancos n	
	WMM(Wi-Fi Multimedia):	Disabled -
	54g Protection: WMM(WHFI Multimedia):	Anto -

Figure 6-9 Wireless Setup – Advanced

# 6.6 Viewing Station Info

This page shows authenticated wireless stations and their status.

🧼 ни	AWEI
Device Info Advanced Setop Wireless Basic Security MAC Filter Wireless Dridge Advanced Station Info Diagnostics Management	Wireless — Authenticated Stations This page shows authenticated wreless stations and their status. BISSID Associated Authorized Biofreds

Figure 6-10 Wireless Setup - Station Info

# Chapter 7 Diagnostics

This page allows users to test the Ethernet port connection, DSL port connection, and connection to the Internet Service Provider.

If a test displays a fail status, click <Return Diagnostic Tests> at the bottom of the page to make sure the fail status is consistent.

If the test continues to show fail, click <Help> to go to the troubleshooting procedures.



Figure 7-1 Diagnostics

# **Chapter 8 Management**

## 8.1 Settings

System Administrator can do the HG520 settings backup, update, and restore default here.

The settings can be saved from HG520 to computer. The saved setting file can also be loaded from computer to HG520.

These 2 functions can help the system administrator to manage large amount of HG520 efficiently. Restore Default will set the HG520 with the factory default configuration.

Backup the current configurations, click on <Backup Settings>, and a File Download window will pop up.

on your PC.

Figure 8-1 Management – Settings – Backup Settings

Click on <Save> and select the destination of the backup file (backupsettings.cfg) in your local computer. Click on <Save> again to save your backup file.

File Dow	nload		×
?		narm your computer. If the file information below s, or you do not fully trust the source, do not open o	r
	File name:	backupsettings.conf	
	File type:		
	From:	192.168.1.1	
	Would you like	to open the file or save it to your computer?	
	<u>O</u> pen	Save         Cancel         More Info	
	🔽 Al <u>w</u> ays ask	before opening this type of file	

Figure 8-2 Management – Settings – File Download

To update the configuration, click on <Browse> and a Choose-File-window will pop up. Locate the saved file and click on <Update Settings>. HG520 will modify its settings based on the update file.

Device Info Quick Setup Advanced Setup Wircless Diagnostics Management Settings Backup Update Restore Default System Log SwMP Agent Internet Time Access Control	Tools Update Settings         Update DSL router settings. You may update your router settings using your saved files.         Settings File Name:         Browse         Update Settings
Update Software Auto Update Save/Reboot	

Figure 8-3 Management – Settings – Update

To restore the router to its factory default settings, click on <Restore Default Settings>.

🥠 ни	AWEI
Device Info Advanced Setup Wineless Diagnostics Management Settings Backup Update Restore Default System Log StNP Agent Internet Time Access Control Update Software Auto Update Save/Reboot	Tools Restore Default Settings Restore DGL router settings to the factory defaults. Restore Default Settings

Figure 8-4 Management - Settings - Restore Default

# 8.2 Viewing System Log

This allows System Administrator to view the System Log and configure the System Log options.

Device Info	System Log
dvanced Setup ireless	The System Log dialog allows you to view the System Log and configure the System Log options.
ignostics	Click "View System Log" to view the System Log.
anagement Settings	Click "Configure System Log" to configure the System Log options.
System Log	
SNMP Agent Internet Time	View System Log Configure System Log
Access Control	
Update Software	
Auto Update	
Auto Update Save/Reboot	

Figure 8-5 Management – System Log

Click on <Configure System Log to configure the log options.

There are 8 events of "Log Level" and "Display Level": **Emergency**, **Alert**, **Critical**, **Error**, **Warning**, **Notice**, **Informational**, and **Debugging**.

If the log mode is enabled, the system will begin to log all the selected events.

For the Log Level, all events above or equal to the selected level will be logged.

For the Display Level, all logged events above or equal to the selected level will be displayed.

If the selected mode is "Remote" or "Both", events will be sent to the specified IP address and UDP port of the remote syslog server.

If the selected mode is "Local" or "Both", events will be recorded in the local memory.

HUAWEI Device Info System Log -- Configuration Advanced Setup If the log mode is enabled, the system will begin to log all the selected events. For the Log Level, all events above or equal to the Wineless selected level will be logged. For the Doplay Level, all logged events above or equal to the selected level will be displayed. If the selected mode is 'Remote' or 'Both,' events will be sent to the specified IP address and UDP port of the remote syslog server. If the Diagnostics Management selected mode is 'Local' or 'Both,' events will be recorded in the local memory. Settings Select the desired values and click 'Save/Apply' to configure the system log options. System Log SNMP Agent C Disable @ Enable Log: Internet Time Log Level: Debugging • Error • Local • Access Control Display Level: Undate Software Auto Update Mode: Save/Reboot Save/Apply

Click on <Save/Apply> to save the configuration.

Figure 8-6 Management – System Log Configuration

Click on <View System Log> to see the router log based on your configuration.

## 8.3 Configuring SNMP Agent

System Administrator could enable or disable the embedded SNMP Agent here. SNMP Agent will allow a management application to retrieve HG520 statistics and status.

Advanced Setup Wireless		increment Destared /CEM				
Diagnostics	agent in this device.		P) allows a managemer	nt application to retriev	e statistics and status f	from the SNMP
danagement	Select the desired va	alues and click "Apply" to	o configure the SNMP or	ptions.		
Settings System Log	SNMP Agent 🕐 Dis	iable C Enable				
SNMP Agent	Read Community:	public				
Internet Time Access Control	Set Community:	private	_			
Update Software	System Name:	Broadcom				
Auto Update	System Location:	unknown				
Save/Reboot	System Contact:	unknown				
	Trap Manager IP:	0.0.0.0				

Figure 8-7 Management - SNMP Agent

# 8.4 Configuring Internet Time

HG520 can synchronize its internal time with Internet time server when available.

🧼 ни	AWEI
Device Info Advanced Setup Wireless Diagnostics Management Settings System Log SWP Agent Internet Time Access Control Update Software Auto Update Suve/Reboot	Time settings         The page allows you to the modern's time configuration.         If Automatically synchronice with Informet time servers         First NTP time server:         Second NTP time server:         Second NTP time server:         Read         Time zone offset:         FORT-12:00 Interviewal Due Line West         Servet/Accelr

Figure 8-8 Management – Internet Time

- 1) Check "Automatically synchronize with Internet time servers", to enable this function.
- Select First and Second NTP time server from the pull down menu. Or select "Other" and define your preferred NTP server.
- 3) Choose the time zone from "Time zone offset".
- 4) Click on <Save/Apply> to save the configuration.

# 8.5 Configuring Access Control

HG520 browser management tool is protected by three categories: Services, IP addresses, and Passwords. All three must be matched, if configured, to gain access to the management tool.

All services are enabled from LAN side and disabled from WAN side by default.

Device Info Advanced Setup Wireless Diagnostics Management	Access Control Service	es ") enables or disables services	from being u	sed.
Settings		Services	LAN	WAN
System Log		FTP	F Enable	Enable
SNMP Agent Internet Time		HTTP	F Enable	Enable
Access Control		ICMP	Enable	P Enable
Services IP Addresses		SMP	Enable	Enable
Passwords		SSH	Enable	E Enable
Update Software		TELNET	P Enable	E Enable
Auto Update Save/Reboot		पाना	F Enable	Enable
			Save/Apply	

Figure 8-9 Management – Access Control - Service

If the IP Address Access Control mode is enabled, permits access to local management services from IP addresses contained in the Access Control List.

If the Access Control mode is disabled, the system will not validate IP addresses for incoming packets. The services are the system applications listed in the Service Control List.

Click <Add> to add an IP address to the Access Control List. To remove, mark the Remove option of the specified IP address, and then click <Remove> to remove the IP address from the Access Control List.

Up to 16 hosts can be configured here.

🍈 ни	AWEI
Device Info Advanced Setup Wireless Diagnostics Management Settings System Log SNMP Agent Internet Time Access Control Services IP Addresses Passwords Update Software Auto Update	Access Control — IP Address The IP Address Access Control mode, if enabled, parmite access to local management services from IP addresses contained in the Access Control List. If the Access Control mode is disabled, the system will not validate IP addresses for incoming padiets. The services are the system applications listed in the Service Control List Access Control Mode:

Figure 8-10 Management – Access Control – IP Addresses

Access to your router is controlled through three user accounts: **admin**, **support**, and **user**.

**admin**: has unrestricted access to change and view HG520 configuration.

**support**: is used to allow an ISP technician to access HG520 for maintenance and to run diagnostics.

**user**: can access HG520 to view configuration settings and statistics, as well as update HG520 software. Use the fields below to enter up to 16 characters and click <Save/Apply> to change or create passwords.

stocs.
5
contain a

Figure 8-11 Management – Access Control – Passwords

# 8.6 Updating Software

The new software can be updated from the Local computer connected to HG520 through Ethernet cable.

- Click on <Browse> to locate the new software image file in the computer.
- Click on <Update Software> to implement the software update.

#### Dote:

The update process takes about 2 minutes to complete, and your HG520 will reboot automatically.

Device Info Quick Setup Advanced Setup Wircless Diagnostics Management Settings System Log System L	Tools Update Software Step 1: Obtain an updated software image file from your ISP. Step 2: Enter the path to the image file location in the bax below or click the "Browse" button to locate the image file. Step 3: Click the "Dydate Software" button once to upload the new image file. NOTE: The update process takes about 2 minutes to complete, and your DSL Router will reboot. Software File Name: Browse Update Software

Figure 8-12 Management – Update Software

### 8.7 Auto Update

HG520 can auto update by check the auto update server with version description file name.

Auto Update Server IP Address or Domain Name: the IP address or domain of server, get it from Huawei web site or use the default.

**Update Time Interval (Second):** 0 to disable, other number indicates the period time of HG520 checking the update server.

Version Description File Name: the version description file name indicates the file name on the server and the default is "Huawei.HG520.Firmare".

Click on <Save/Apply> to enable the setting.

#### D Note:

Please make sure the wan setting to keep the connection of Internet. When HG520 finds new software it will automatically update and reboot.

evice Info dvanced Setup Aireless iagnostics lanagement Settings	Auto Update Firmane Setup Configure the Auto Update Server IP Address or Domain Name, Update Time Interval and Version Description File Name. Update Time Interval and Version Description File Name. Update Time Interval and Time Total Server (IP Address or Domain TimeTotal)
System Log SNNP Agent Internet Time Access Control Update Software Auto Update Save/Reboot	Name: Interval (Second): D Version Description File Name : FlueveLH2S20.Fimare Savet/Apply

Figure 8-13 Management – Auto Update

### 8.8 Save/Reboot

Click <Reboot Router> to reboot HG520. HG520 will automatically save the configuration before reboot, so that modified settings will take effect after reboot.



Figure 8-14 Management – Save and Reboot

# Chapter 9 Device Info

# 9.1 Summary

This page displays HG520's hardware/software information and DSL connection status.

vice Info Summary	Device Info				
ry I	Board ID:	96340GW	HG520-4		
s	Software Version:	EchoLifeH	G520V100R	001801D010,A2p8018b2.d15h	build 4
	Bootloader (CFE) Version:	1.0.37-0.0	5		
	Wireless Driver Version:	3.91.23.0			
d Setup	This information reflects the cu Line Rate - Upstream (Kbp	00.00122		si, connection.	
	Line Rate - Downstream (K	(bps): 34	156		
nt	LAN IP Address:	15	2.168.1.1		
	Default Gateway:				
-	Primary DNS Server:				
	Secondary DNS Server:				

Figure 9-1 Device Info – Summary

### 9.2 WAN

This page displays HG520's WAN interface information and connection status.

MUA 🕷	AWEI
Device Info Summary	WAN Info
Sommery WAN Statistics Route ARP DHEP Quick Setup Advanced Setup Wireless Diagnostics Management	VPI/VCI Con. ID Category Service Interface Protocol Igmp QoS State Status IP Address

Figure 9-2 Device Info - WAN

# 9.3 Statistics

### 9.3.1 LAN/WAN

This page displays packets transmitted and received status of HG520's LAN/WAN interfaces.

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Device Info	Statistics WAN		
Summary WAN	Service VPI/VCIProtocol Interla		Transmitted
tatistics	and a second filling of the second	Bytes Pkts Errs Drop	s Bytes Pkts Errs Drops
LAN			
WAN	Reset Statistics		
ATM			
ADSL.			
Route			
ARP			
DHCP			
uick Setup Idvanced Setup			
Wireless			
Diagnostics			
Management			

Figure 9-3 Device Info - Statistics - WAN

### 9.3.2 ATM

This page displays the statistics of HG520's ATM interface (including AAL5).

ice Info Immary	Statistics ATM												
AN atistics LAN	In	Out	In	In Unknown	In Hec Errors	In Invalid Vpl Vcl Errors	In Port Not Enable Errors	In PII Errors	In Idle Cells	In Circuit Type Errors	In DAM RM ERC Errors		
WAN	0	336	0	0	0	0	0	0	0	0	0	0	
CP : Setup		AAL5 VCC Statistics VPI/VCIERC Errors SAR Timeouts Oversized SDBs Short Packet Errors Length Errors											
p		0 336 0 0 0 0 0 0											
nced Setup	VPI/VC	ICRC Err	ors SAR	Timeouts	Oversize	d SDUs Short	Packet Error	sLength	Errors				
less	Dese	t Statistic	-										
nostics agement		- Senatura de											

Figure 9-4 Device Info - Statistics - ATM

### 9.3.3 ADSL

This page displays HG520's ADSL connection information and status, such as rate, SNR, ES (Error Second) and so on.

#### Chapter 9 Device Info

HUAWEI Statistics - ADSL Device Info Summary Mode: G.lite WAN Type: Line Coding: Fast Trellis Off Statistics LAN No Defect Status: WAN Link Power State: AIM ADSL mUpstream Downstrea SNR Margin (dB): Route Attenuation (dB): ARP Output Power (dBm): Attainable Rate (Kbps): DHCP Quick Setup Rate (Kbps): 800 Advanced Setup Kate (Kops): 5 K (number of bytes in DMT frame): 1 R (number of check bytes in R5 code word): 5 S (RS code word size in DMT frame): 1 Wireless Diagnostics Management D (interleaver depth): Super Frames: 24169 Super Frame Errors: 596 1643664 RS Words: 1643492 RS Correctable Errors: 6647 682 RS Uncorrectable Errors: 2409 N/A

Contraction of the second	Rate (Kbps):	3456	800
Device Info	K (number of bytes in DMT frame):	109	26
Summary	R (number of check bytes in RS code word)	ő	2
WAN	S (RS code word size in DMT frame):	1	1
Statistics	D (interleaver depth):	1	1
LAN			
	Super Frames:	27347	27345
WAN	Super Frame Errors:	1150	666
AIM	RS Words:	1859620	1859460
ADSI.	RS Correctable Errors:	7464	766
Route	RS Uncorrectable Errors:	2010	N/A
ARP			
DHCP	HEC Errors:	803	0
Quick Setup	DCD Errors:	2	D
Advanced Setup	LCD Errors:	0	0
Wireless	Total Cells:	3792647	p
100000000000000000000000000000000000000	Data Cells:	27581	p
Diagnostics Management	Bit Errors:	0	Ø
	Total ES:	364	p
	Total SES:	0	p
	Total UAS:	20	D

Figure 9-5 Device Info - Statistics - ADSL

## 9.4 Route

This page displays HG520's routing table.

Device Info Summary WAN Statistics		I - reject, G	- gataway, H - I modified (redin		l - rensta	na	
Route	Destination	Gateway	Subnet Mask	Flag	Metric	Service	Interface
ARP DHCP	192.168.1.0	0.0.0.0	255.255.255.0	U	0		br0
Wireless Diagnostics Management							

Figure 9-6 Device Info - Route

### 9.5 ARP

This page displays HG520's ARP table.

🧼 ни	AWEI								
Device Info	Device Info ARP								
Summary WAN	IP address	Flags	HW Address	Device					
Statistics	192.168.1.28	Compliete	00:00:00:00:85:58	br0					
Route									
DHCP									
Quick Setup									
Advanced Setup Wireless									
Diagnostics									
Management									
10 H 1 R 1									

Figure 9-7 Device Info – ARP

# **Chapter 10 Technical Specifications**

### I. Bridging Protocols

- Ethernet to ADSL self-learning Transparent Bridging (IEEE802.1d)
- Support up to 128 MAC learning addresses

### II. Security

- Stateful Packet Inspection Firewall
- Access Control List
- IP/Port/MAC Filtering
- Supports PAP and CHAP with PPP (RFC 1334)

#### III. WAN Protocols

- Multiple protocol over AAL5: LLC and VC-Mux (RFC 1483/2684)
- PPP over AAL5 (RFC2364)
- Classical IP (RFC 1577)
- PPPoA (RFC 2364)
- PPPoE (RFC 2516)

#### IV. ATM

- Support ATM Forum UNI 3.1/4.0
- Up to 8 ATM VCCs (Virtual Circuit Connection) working concurrently

- Per-PVC packet level QoS
- Support UBR, VBR and CBR traffic shaping
- OAM F4/F5 loopback support (I.610)

### V. Network Management

- Web-Based configuration and status monitoring
- Remote/Local firmware upgrade through HTTP, FTP and TFTP
- System log
- Safe against mis-upgrade
- Configuration backup and restore

### VI. Radio

- Media Access Control: CSMA/CA with ACK
- Modulation: 802.11b: DSSS
  - 802.11g: OFDM
- Frequency Range (depending on countries):
  - USA FCC 2412 MHz 2462MHz
  - Canada IC 2412 MHz 2462MHz
  - Europe ETSI 2412 MHz 2472MHz
  - Japan STD-T66/STD-33m 2412 MHz 2484MHz
- Operating Channels:
  - 11 channels (US, Canada)
  - 13 channels (ETSI)
  - 14 channels (Japan)
- Output Power(max): 15dBm (11g), 18dBm (11b)
- Sensitivity (typical): -85 dBm/11Mbps; -68 dBm/54Mbit/s

 Data Rate: 802.11b: 1 Mbit/s, 2 Mbit/s, 5.5 Mbit/s, 6 Mbit/s, 9 Mbit/s, 11 Mbit/s, 12 Mbit/s, 18 Mbit/s, 24 Mbit/s, 36 Mbit/s, 48 Mbit/s, 54Mbit/s with auto-fallback

### VII. Environment

- Operating temperature range: 0 °C 40 °C (32 °F-104 °F)
- Operating humidity range: 10% 95% non-condensing

#### VIII. Physical Interfaces

- One ADSL port (RJ-11)
- Four 10/100BaseT Ethernet ports (RJ-45) with Auto-detection

#### IX. Power

- External power supply
- Power consumption ≤10W

# Chapter 11 Abbreviations

Α ADSI Asymmetric Digital Subscriber Line ATM Asynchronous Transfer Mode D **Dynamic Host Configuration Protocol** DHCP DNS Domain Name Server **Digital Subscriber Line Access Multiplex** DSLAM н HTMI Hypertext Markup Language Т IP Internet Protocols IPoA Internet Protocols Over ATM ISP Internet Service Provider L LAN Local Area Network М MAC Media Access Control Ν NIC Network Interface Card

### Ρ

PPP	Point to Point Protocol
PPPoA	PPP over ATM
PPPoE	PPP over Ethernet
PVC	Permanent Virtual Connection
R	
RIP	Routing Information Protocol
S	
SNMP	Simple Network Management Protocol
т	
TCP	Transfer Control Protocol
V	
VCI	Virtual Channel Identifier
VPI	Virtual Path Identifier
W	
WAN	Wide Area Network

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