# TECOM AH4021

# User's Manual

- MGCP Version -

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## Table of Contents

| 1 | INTRODUCT   | ION                                       | 4          |
|---|-------------|---|------------|
| 2 | INSTALLATI  | ON  | 5          |
| 3 | CONFIGURA   | TION                                      | 9          |
|   | 3.1 SETUP   |   | 9          |
|   | 3.2 ESTABL  | ISH THE CONNECTION                        | 9          |
|   | 3.3 OUICK   | SETTIP                                    | 11         |
|   | 331 PPP     | over $F$ thernet (PPP_0F) Configuration   | 11         |
|   | 3311        | ATM PVC and OoS Configuration             | 11         |
|   | 3.3.1.2     | Connection Type and Encapsulation Mode    | 12         |
|   | 3.3.1.3     | PPP Username and Password                 | 12         |
|   | 3.3.1.4     | IGMP Multicast and WAN service            | 13         |
|   | 3.3.1.5     | Device Setup                              | 14         |
|   | 3.3.1.6     | Wireless – Setup                          | 14         |
|   | 3.3.1.7     | WAN Setup – Summery                       | 15         |
|   | 3.3.2 IP or | er ATM (IPoA) Configuration               | . 16       |
|   | 3.3.2.1     | ATM PVC and QoS Configuration             | 16         |
|   | 3.3.2.2     | Connection Type                           | 16         |
|   | 3.3.2.3     | WAIN IP Settings                          | 10         |
|   | 3.3.2.4     | Device Setun                              | 17         |
|   | 3326        | Wireless – Setup                          | 18         |
|   | 3.3.2.7     | WAN Setup – Summary                       | 18         |
|   | 3.3.3 Brid  | ge Configuration                          | . 18       |
|   | 3.3.3.1     | ATM PVC and QoS Configuration             | 18         |
|   | 3.3.3.2     | Connection Type                           | 18         |
|   | 3.3.3.3     | DHCP Client and WAN Service               | 19         |
|   | 3.3.3.4     | Device Setup                              | 20         |
|   | 3.3.3.5     | Wireless – Setup                          | 20         |
|   | 3.3.3.6     | WAN Setup – Summery                       | 20         |
|   | 3.3.4 MAC   | Encapsulation Routing (MER) Configuration | .21        |
|   | 3.3.4.1     | ATM PVC and QoS Configuration             | 21         |
|   | 3.3.4.2     | WAN ID Sattings                           |            |
|   | 3.3.4.3     | NAT IGMP Multicast and WAN service        | 22         |
|   | 3345        | Device Setup                              | 23         |
|   | 3.3.4.6     | Wireless – Setup                          | 23         |
|   | 3.3.4.7     | WAN Setup – Summery                       | 23         |
|   | 3.3.5 PPP   | over ATM (PPPoA) Configuration            | . 24       |
|   | 3.3.5.1     | ATM PVC Configuration                     | 24         |
|   | 3.3.5.2     | Connection Type                           | 24         |
|   | 3.3.5.3     | PPP Username and Password                 | 25         |
|   | 3.3.5.4     | IGMP Multicast and WAN service            | 26         |
|   | 3.3.5.5     | Window Setup                              | 26         |
|   | 3.3.3.0     | WAN Satun Summary                         | 20         |
|   | 3.1 ADVAN   | van Setup – Summery                       | 20         |
|   | 3.4 ADVAN   |   | .20        |
|   | 3.4.1 WAN   |   | · 27<br>28 |
|   | 3.4.2 LAN   |   | 28         |
|   | 3431        | Virtual Servers Setun                     | . 20       |
|   | 3432        | Port Triggering Setup                     | 30         |
|   | 3.4.3.3     | DMZ Host                                  |            |
|   | 3.4.4 Secu  | ritv                                      | . 32       |
|   | 3.4.4.1     | IP Filtering                              | 32         |
|   | 3.4.4.2     | Parental Control                          | 35         |
|   | 3.4.5 Qual  | ity of Service                            | . 36       |
|   | 3.4.6 Rout  | ing                                       | . 38       |
|   | 3.4.6.1     | Routing – Default Gateway                 | 38         |
|   | 3.4.6.2     | Routing - Static Route                    | 38         |

|     | 216          | 6.2 Pouting DID      | 40 |
|-----|--------------|----------------------|----|
|     | 217          | DNC                  | 40 |
|     | 347          | 7.1 DNS Server       |    |
|     | 347          | 7.2 Dynamic DNS      | 40 |
|     | 348          | DSI.                 | 43 |
|     | 349          | Port Manning         |    |
| 3.5 | 5 V          | WIRELESS.            |    |
| 0.0 | 351          | Rasic                | 47 |
|     | 352          | Security             | 47 |
|     | 353          | MAC Filter           | 50 |
|     | 354          | Wireless Bridge      | 52 |
|     | 355          | Advanced             | 52 |
|     | 356          | Station Info         | 55 |
| 3.6 | 5.5.0<br>5 V | Voice                | 55 |
| 3.7 | ,<br>Г       | DIAGNOSTICS          | 57 |
| 3.8 | S N          | MANAGEMENT           |    |
|     | 3.8.1        | Settings             |    |
|     | 3.8.1        | .1.1 Backup          |    |
|     | 3.8.1        | .1.2 Update          |    |
|     | 3.8.1        | .1.3 Restore Default | 59 |
|     | 3.8.2        | System Log           |    |
|     | 3.8.3        | SNMP Agent           | 61 |
|     | 3.8.4        | Internet Time        |    |
|     | 3.8.5        | Access Control       |    |
|     | 3.8.5        | .5.1 Services        | 63 |
|     | 3.8.5        | .5.2 IP Addresses    | 63 |
|     | 3.8.5        | .5.3 Passwords       | 64 |
|     | 3.8.6        | Update Software      |    |
|     | 3.8.7        | Save/Reboot          |    |
| 4 A | PPEN         | NDIX                 | 67 |

Page 3 of 69

## **1** Introduction

Congratulations on becoming the owner of the AH4021. Your LAN (local area network) will now be able to access the Internet using your high-speed ADSL connection. This User Guide will show you how to install and set up your AH4021.

## Features

- Internal ADSL modem for high speed internet access
- 10/100Base-T Ethernet/USB router to provide Internet connectivity to all computers on your LAN
- Support for MGCP protocol
- > 802.11b/g WLAN supported
- Network configuration through DHCP
- > Configuration program you access via an HTML browser

## System Requirements

In order to use your AH4021 router, you must 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 USB, Ethernet 10Base-T/100Base-T network interface card or 802.11b/g WLAN card/adapter
- For system configuration using the supplied web-based program: a web browser such as Internet Explorer v5.0 or later, or Netscape v4.7 or later

**Commentaire [CT1]:** The document is written with the assumption that an ISP has provided the product to an existing customer. However, the text uses the phrase "your ISP" when referring the customer to his ISP for assistance, and when referring to preconfiguration the ISP has presumably performed. Search for instances of "ISP" and substitute the ISP's actual name, or rewrite as needed.

## 2 Installation

In addition to this document, your AH4021 should arrive with the following:

- ➢ One AH4021
- > One power adapter and power cord
- > One cross-over/straight Ethernet cable
- > Three RJ-11 to RJ-11 telephone Cable
- > One splitter or low-pass filter

## **Front Panel**

The front panel contains several LEDs that indicate the status of the unit.



| Label  | Color  | Function   |
|--------|--------|--|
| PWR    | Green  | On: Unit is powered on<br>Off: Unit is powered off   |
| ALM    | Yellow | On: Major alarm occurs.<br>Off: Unit is functioning well.  |
| DSL    | green  | Flashes during the training mode.<br>On: ADSL link is established and active                                     |
| WLAN   | Green  | On: Wireless LAN is active<br>Off: No wireless card or wireless LAN isn't active<br>Flashes during data transfer |
| LAN1-2 | Green  | On: LAN link established and active<br>Off: No LAN link<br>Flashes during data transfer                          |
| TEL1-2 | Green  | On: The telephone is off-hook<br>Off: The telephone is on-hook   |
| VolP   | Green  | On: VoIP link is established and active<br>Off: VoIP link isn't established and active                           |
| USB    | Green  | On: USB link is established and active<br>Off: No USB link<br>Flashes during data transfer                       |

Page 5 of 69

## **Rear Panel**

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



| Label  | Function   |
|--------|--|
| DSL    | RJ-11 connector: Connects the device to a telephone jack or splitter using the supplied cable                                      |
| USB    | USB connector: Connects the device to your PC's USB port, or to your USB hub, using the cable provided                             |
| LAN1-2 | RJ-45 connector: Connects the device to your PC's Ethernet port, or to the uplink port on your LAN's hub, using the cable provided |
| TEL1-2 | RJ-11 connector: Connects the device to your analog phones, using the cable provided   |
| RESET  | Return the configuration to factory default  |
| Power  | Connects to the supplied power converter cable   |
| On/Off | Switches the device on and off   |

## **Connecting the Hardware**

You connect the device to the phone jack, the power outlet, and your computer or network.



**Before you begin, turn the power off for all devices.** These include your computer(s), your LAN hub/switch (if applicable), and the AH4021.

Figure 1 illustrates the hardware connections.

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



Figure 1. Overview of Hardware Connections

## Step 1. Connect the ADSL cable and optional telephone.

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

You can attach a telephone line to the device. This is helpful when the ADSL line uses the only convenient wall phone jack. If desired, connect the telephone cable to the port labeled PHONE.



Although you use the same type of cable, The ADSL and PHONE ports are **not** interchangeable. Do not route the ADSL connection through the PHONE port.

## Step 2. Connect the Ethernet cable.

If you are connecting a LAN to the AH4021, attach one end of a provided Ethernet cable to a regular hub port and the other to the Ethernet port on the AH4021.

**Commentaire [CT2]:** Edit picture to match your board's connectors.

**Commentaire [CT3]:** This warning assumes that the board contains an internal filter on the POTS line. If an external filter is used instead, document that step here and remove this warning (with an external filter, the ADSL and PHONE ports are interchangeable).

## Step 3. Attach the power connector.

Connect the AC power adapter to the PWR connector on the back of the device and plug in the adapter to a wall outlet or power strip.

## Step 4. Turn on the AH4021 and power up your systems.

Press the Power switch on the back panel of the device to the ON position.

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

## Step 5. Configure the AH4021 through the WEB interface

The detail step3 would be described in Chapter3. It would help you configure the AH4021 to meet your need.

## Step 6. Save the configurations and Reboot.

To make the settings you made on AH4021 take effect.

## **3** Configuration

## 3.1 Setup

- Step 1: Connect the AH4021 and PC with a straight Ethernet cable.
- Step 2: Power on the AH4021.
- Step 3: The default IP of the AH4021 is 192.168.1.1.

## 3.2 Establish The Connection

Enter the IP address (default is 192.168.1.1) of AH4021 from the Web Browser. A Dialogue Box will be popped up to request the user to login. (Figure 2)

| 7          | Grand Contraction    |
|------------|----------------------|
| DSL Router |                      |
| User name: | 🖸 admin 💌            |
| Password:  | •••••                |
|            | Remember my password |

Figure 2. Authentication

Please enter the management username/password into the fields then click on the OK button (default username/password is admin/admin).

If the authentication passes, the home page "Device Info - Summery" will be displayed on the browser. (Figure 3)

|        |                              | ATTOZI.                           | 01.2.01.220L03_1 | 24.mgcp.g729a_g7231.A2pB017b3.d1 |  |
|--------|------------------------------|-----------------------------------|------------------|----------------------------------|--|
| ostics | Bootloader (CFE)<br>Version: | 1.0.37-2                          | 1.3              |                                  |  |
| gement | Wireless Driver Version:     | Wireless Driver Version: 3.90.4.0 |                  |                                  |  |
|        | Line Rate - Upstream (Kl     | bps):                             | 800              |                                  |  |
|        |                              |                                   | 000              |                                  |  |
|        | Line Rate - Downstream       | (Kbps):                           | 8000             |                                  |  |
|        | LAN IP Address:              |                                   | 172.24.131.101   |                                  |  |
|        | Default Gateway:             |                                   |                  |                                  |  |
|        | Primary DNS Server:          |                                   | 172.24.131.101   |                                  |  |
|        | Secondary DNS Server:        |                                   | 172.24.131.101   |                                  |  |

Figure 3. AH4021 Home Page

Page 10 of 69

## 3.3 Quick Setup

The system administrator can configure the AH4021 remotely or locally via a Web Browser. Network configuration need to be planned and decided before starting the configuration procedure.

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)

3.3.1 PPP over Ethernet (PPPoE) Configuration Click on "Quick Setup" in the left frame, and follow the steps below to create a PPP over Ethernet (PPPoE) connection.

|                | 3.3.1.1 ATM PVC and QoS Configuration  |   |
|----------------|--|---|
|                | Quick Setup  | ^ |
| Device Info    |  |   |
| Quick Setup    | This Quick Setup will guide you through the steps necessary to configure your DSL Router.  |   |
| Advanced Setup |  |   |
| Wireless       | AIM PVC Configuration  |   |
| /oice          | Select the check box below to enable DSL Auto-connect process  |   |
| Diagnostics    | DSL Auto-connect   |   |
| Management     |  |   |
|                | The Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI) are needed for setting up the ATM PVC. Do not change VPI and VCI numbers unless your ISP instructs you otherwise.         VPI: [0-255]       8         VCI: [22.65525]       25   |   |
|                | 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.         Enable Quality Of Service |   |
|                | Next   | * |
|                | Figure 4. Quick Setup – ATM PVC and QoS Configuration  |   |

Give the VPI/VCI values. Please contact you ISP for the information. Enable the QoS function for this PVC here. Use Advanced Setup/Quality of Service to assign priorities for the application. Click on "Next" to go to next step.

Page 11 of 69

## 3.3.1.2 Connection Type and Encapsulation Mode

| Device Info  | Connection Type   |
|--|---|
| Quick Setup<br>Advanced Setup                      | Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use.  |
| Voice  | ○ PPP over ATM (PPPoA)  |
| Diagnostics<br>Management                          | O PPP over Ethernet (PPPoE)   |
|  | ○ MAC Encapsulation Routing (MER)   |
|  | ○ IP over ATM (IPoA)  |
|  | ⊖ Bridging  |
|  | Encapsulation Mode LLC/SNAP-BRIDGING  Back Next   |
|  |   |
|  |   |
|  | Figure 5. Quick Setup – Connection Type and Encapsulation Mode  |
|  | Select "PPP over Ethernet (PPPoE)", and the "Encapsulation Mode".<br>Please contact you ISP for the information.<br>Click on "Next" to go to next step.                           |
|  | 3.3.1.3 PPP Username and Password   |
| Device Info  | PPP Username and Password   |
| Quick Setup<br>Advanced Setup<br>Wireless<br>Voice | PPP 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. |
| Diagnostics<br>Management                          |   |
|  | PPP Username:   |
|  | PPP Password:   |
|  | Authentication Method: AUTO   |
|  | Dial on demand (with idle timeout timer)  |
|  |   |
|  | DDD ID extension  |
|  |   |
|  | CULULIELI DI UUE  |

Back Next

Page 12 of 69

\*

Figure 6. Quick Setup - PPP Username and Password

Give "PPP Username", "PPP Password", and select "Authentication Method" (AUTO/PAP/CHAP). Please contact you ISP for the information.

The "Dial On Demand" function, if checked, will tear down the PPP link automatically if there is no outgoing packet for the programmed period of time which is set below.

The "PPP IP extension" function, if checked, will assign the IP address got from the ISP to the internal PC via DHCP. In this mode, the internal PC will be assigned with a public IP got from PPP, and AH4021 will act as a bridge between the PC and PPPoE server. The "Concurrent Bridge" function, if checked, will enable Bridge service simultaneously while PPPoE is operating. In this mode, other services such as VoIP/Video can use the Bridge interface. It is useful when the service provider of Data service is different from VoIP/Video. When the "Concurrent Bridge" is enabled, AH4021 will activate the DHCP Client on the Bridge interface. If your ISP requests for DHCP "Vendor ID" option, please fill in the string in "Option 60".

AH4021 set up PPPoE connection automatically when there does not exist the PPPoE connection in it and user wants to send traffic to ISP The users is able to assign some specific ATM PVC(s) to run PPPoE, when AH4021 is with multiple ATM PVC connection Click on "Next" to go to next step.

### 3.3.1.4 IGMP Multicast and WAN service

| Device Info<br>Quick Setup<br>Advanced Setup<br>Wireless<br>Voice<br>Diagnostics<br>Management | Enable IGMP Multicast, and WAN Service   Enable IGMP Multicast   Enable WAN Service   Service Name   pppoe_8_35_1   Back Next |
|--|---|
|  | Figure 7. Quick Setup – IGMP Multicast and WAN service  |
|  | Check to Enable/Disable IGMP Multicast and WAN Service.   |

Page 13 of 69

## Click on "Next" to go to next step.

## 3.3.1.5 Device Setup

**Device Setup** 

| Device Info    |   |
|----------------|---|
| Quick Setup    |   |
| Advanced Setup |   |
| Wireless       |   |
| Voice          |   |
| Diagnostics    |   |
| Management     |   |
|                |   |
|                |   |
|                |   |
|                |   |
|                |   |
|                | - |

Configure the DSL Router IP Address and Subnet Mask for LAN interface.

| IP Address:   | 172.24.131.102           |  |
|---|--------------------------|--|
| Subnet Mask:  | 255.255.0.0              |  |
| <ul> <li>⊙ Disable Dł</li> <li>○ Enable Dł</li> </ul> | HCP Server<br>ICP Server |  |
| Start IP A  | ddress:                  |  |
| End IP Ac   | ldress:                  |  |
| Leased Ti   | ime (hour):              |  |

□Configure the second IP Address and Subnet Mask for LAN interface

| Back | Next |
|------|------|
|------|------|

Figure 8. Quick Setup – Device Setup

Give IP (LAN IP) and Subnet Mask to the device. Select to Disable/Enable DHCP Server and configure related settings for that mode. If necessary, check the "Secondary IP" to configure the secondary IP

address and Subnet Mask for LAN. This IP address is used for management only.

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

Click on "Next" to go to next step.

3.3.1.6 Wireless - Setup

| Device Info<br>Quick Setup<br>Advanced Setup<br>Wireless<br>Voice<br>Diagnostics<br>Management | <ul> <li>Wireless Setup</li> <li>Enable Wireless I</li> <li>Enter the wireless network name (also known as SSID).</li> <li>SSID: ABCDE</li> <li>Back Next</li> </ul> |
|--|--|
|  |  |
|  | ~  |

Figure 9. Quick Setup – Wireless – Setup

Enable the WiFi function here and configure the SSID for the WiFi interface.

## 3.3.1.7 WAN Setup – Summery

| Wireless<br>Voice<br>Diagnostics<br>Management |                        | PI / VCI:<br>onnection Type:<br>ervice Name:                         | 8 / 35<br>PPPoE<br>pppoe_8_35_1                                  |   |
|--|------------------------|--|--|---|
| Hanagement                                     | S                      | ervice Category:<br>P Address:                                       | UBR<br>Automatically Assigned                                    |   |
|  | S                      | ervice State:<br>AT:   | Enabled<br>Enabled   |   |
|  | Fi                     | rewall:<br>GMP Multicast:  | Enabled<br>Disabled  |   |
|  | Q                      | uality Of Service:   | Enabled  |   |
|  | Cli<br>mo<br>NC<br>ret | ck "Save/Reboot" to<br>difications.<br>)TE: The configurati<br>poot. | o save these settings and<br>on process takes about 1<br>Back Sa | reboot router. Click "Back" to make any<br>minute to complete and your DSL Router will<br>ve/Reboot |

Figure 10. 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.

3.3.2 IP over ATM (IPoA) Configuration

Click on "Quick Setup" in the left frame, and follow the steps below to create an IP over ATM (IPoA) connection.

## 3.3.2.1 ATM PVC and QoS Configuration Please refer to 3.3.1.1

3.3.2.2 Connection Type

| Device Info               | Connection Type   |
|---------------------------|---|
| Quick Setup               | Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP |
| Wireless                  | has instructed you to use.  |
| Voice                     | O PPP over ATM (PPPoA)  |
| Diagnostics<br>Management | ○ PPP over Ethernet (PPPoE)   |
|                           | MAC Encapsulation Routing (MER)   |
|                           | IP over ATM (IPoA)  |
|                           | ○ Bridging  |
|                           | Encapsulation Mode  |
|                           | Back  |
|                           |   |
|                           |   |

Figure 11. Quick Setup – Connection Type and Encapsulation Mode

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

3.3.2.3 WAN IP Settings

| Device Info<br>Quick Setup<br>Advanced Setup<br>Wireless<br>Voice<br>Diagnostics<br>Management | WAN IP Settings   Enter information provided to you by your ISP to configure the WAN IP settings.   Notice: DHCP is not supported in IPoA mode. Changing the default gateway or the DNS effects the whole system. Configuring them with static values will disable the automatic assignment from other WAN connection.   WAN IP Address: 10.0.1   WAN Subnet Mask: 255.255.255.248   Use the following default gateway: 10.0.2   Use the following DNS server addresses:   Primary DNS   Server:   Io.1.1   Server:   Io.2.1   Back   Next   |
|--|--|
|  | <ul><li>WAN IP/Subnet Mask, default gateway, and DNS server settings.<br/>Please contact you ISP for the information.<br/>Click on "Next" to go to next step.</li><li>3.3.2.4 NAT, Firewall, IGMP Multicast and WAN service</li></ul>  |
| Device Info<br>Quick Setup<br>Advanced Setup<br>Wireless<br>Voice<br>Diagnostics<br>Management | Network Address Translation Settings         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       Image: Computer |
|  | Enable IGMP Multicast □<br>Enable WAN Service ☑<br>Service Name: ipoa_8_35<br>Back Next  |
| Figure 13  | . Quick Setup – IPoA – NAT, Firewall, IGMP Multicast and WAN service   |

Page 17 of 69

Check to Enable/Disable NAT and Firewall functions. Use Advanced Setup/Security to assign filter rules. Check to Enable/Disable IGMP Multicast and WAN Service. Click on "Next" to go to next step.

- 3.3.2.5 Device Setup Please refer to 3.3.1.5.
- 3.3.2.6 Wireless Setup Please refer to 3.3.1.6
- 3.3.2.7 WAN Setup Summary

Device Info Quick Setup Advanced Setup Wireless Voice Diagnostics Management

| VPI / VCI:  | 8 / 35       |   |
|---|--------------|---|
| Connection Type:  | IPoA         |   |
| Service Name:   | ipoa_8_35    |   |
| Service Category:   | UBR          |   |
| IP Address:   | 10.0.0.1     |   |
| Service State:  | Enabled      |   |
| NAT:  | Enabled      |   |
| Firewall:   | Enabled      |   |
| IGMP Multicast:   | Disabled     |   |
| Quality Of Service:   | Enabled      |   |
| Click "Save/Reboot" to<br>nodifications.<br>NOTE: The configurati | save these s | ettings and reboot router. Click "Back" to make any<br>es about 1 minute to complete and your DSL Router will |

Figure 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.

3.3.3 Bridge Configuration

Click on "Quick Setup" in the left frame, and follow the steps below to create a Bridging connection.

3.3.3.1 ATM PVC and QoS Configuration Please refer to 3.3.1.1.

3.3.3.2 Connection Type

\*

| Device Info                   | Connection Type   |
|-------------------------------|---|
| Quick Setup<br>Advanced Setup | Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use |
| Wireless                      | has insulaced you to use.   |
| Voice                         | ○ PPP over ATM (PPPoA)  |
| Diagnostics<br>Management     | O PPP over Ethernet (PPPoE)   |
|                               | ○ MAC Encapsulation Routing (MER)   |
|                               | ○ IP over ATM (IPoA)  |
|                               |   |
|                               | Encapsulation Mode  |
|                               | Back Next   |
|                               |   |
|                               | ~   |

Figure 15. Quick Setup – Connection Type and Encapsulation Mode

Select "Bridging", and the "Encapsulation Mode". Please contact you ISP for the information. Click on "Next" to go to next step.

## 3.3.3.3 DHCP Client and WAN Service

| ^<br>Device Info              | Enable DHCP Client, an              | d WAN Service                   |
|-------------------------------|-------------------------------------|---------------------------------|
| Quick Setup<br>Advanced Setup | Obtain an IP address automatically: |                                 |
| Voice                         | DHCP Option 60:                     |                                 |
| Diagnostics                   | Enable Bridge Service:              |                                 |
| Management                    | Service Name:                       | br_8_35                         |
| ~                             |                                     |                                 |
| (656)                         | Figure 16. Quick Setu               | p – DHCP Client and WAN Service |
|                               |                                     |                                 |

Page 19 of 69

Give a service name and check the box to enable this wan service. If DHCP Client is requested, check the box and fill in the optional "Vendor ID" in "Option 60" box.

The IP address got from DHCP Client will be on WAN side. Click on "Next" to go to next step.

|  | 3.3.3.4 Device Setup  |
|--|---|
| Device Info<br>Quick Setup<br>Advanced Setup<br>Wireless<br>Voice<br>Diagnostics<br>Management | 3.3.3.4 Device Setup<br>Device Setup<br>Configure the DSL Router IP Address and Subnet Mask for your Local Area Network (LAN).<br>IP Address: 172.24.131.102<br>Subnet Mask: 255.255.0.0<br>Back Next |
|  | Figure 17. Quick Setup – Device Setup   |
|  |   |
|  | Give LAN IP and Subnet Mask.  |

Click on "Next" to go to next step.

3.3.3.5 Wireless – Setup Please refer to 3.3.1.6

3.3.3.6 WAN Setup – Summery

| WAN Setup - 9  | Summary  |  | ^ |
|--|--|--|---|
| Device Info  | Jurninary  |  |   |
| Quick Setup Make sure that t                                     | he settings below mat                                    | ch the settings provided by your ISP.  |   |
| Advanced Setup   |  |  |   |
| Wireless VPI / VCI:  | 8 / 35   |  |   |
| Diagnostics Connection Ty  | ype: Bridge  |  |   |
| Management Service Name  | : br_8_35  |  |   |
| Service Categ  | ory: UBR   |  |   |
| IP Address:  | Not Applicable   |  |   |
| Service State  | Enabled  |  |   |
| NAT:   | Enabled  |  |   |
| Firewall:  | Enabled  |  |   |
| IGMP Multica   | st: Not Applicable                                       |  |   |
| Quality Of Ser   | rvice: Enabled   |  |   |
| Click "Save/Rebo<br>modifications.<br>NOTE: The confi<br>reboot. | pot" to save these sett<br>iguration process take:<br>Ba | ings and reboot router. Click "Back" to make any<br>about 1 minute to complete and your DSL Router will<br>k Save/Reboot | e |
| Figure 18  | Quick Setup – V  | AN 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.

- 3.3.4 MAC Encapsulation Routing (MER) Configuration Click on "Quick Setup" in the left frame, and follow the steps below to create a MAC Encapsulation Routing (MER) connection.
  - 3.3.4.1 ATM PVC and QoS Configuration Please refer to 3.3.1.1.

3.3.4.2 Connection Type

| Device Info                   | ^ | Connection Type   |
|-------------------------------|---|---|
| Quick Setup<br>Advanced Setup |   | Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP bas instructed you to use |
| Wireless                      |   |   |
| Voice                         |   | ○ PPP over ATM (PPPoA)  |
| Diagnostics<br>Management     |   | ○ PPP over Ethernet (PPPoE)   |
|                               |   |   |
|                               |   | ○ IP over ATM (IPoA)  |
|                               |   | O Bridging  |
|                               |   | Encapsulation Mode LLC/SNAP-BRIDGING  Back Next   |
|                               |   |   |

Figure 19. Quick Setup - Connection Type and Encapsulation Mode

Select "MAC Encapsulation Routing (MER)", and the "Encapsulation Mode". Please contact you ISP for the information. Click on "Next" to go to next step.

## 3.3.4.3 WAN IP Settings

| Device Info    |
|----------------|
| Quick Setup    |
| Advanced Setup |
| Wireless       |
| Voice          |
| Diagnostics    |
| Management     |
|                |
|                |

## WAN IP Settings

Enter information provided to you by your ISP to configure the WAN IP settings. Notice: DHCP can be enabled for PVC in MER mode if "Obtain an IP address automatically" is chosen.Changing the default gateway or the DNS effects the whole system. Configuring them with static values will disable the automatic assignment from DHCP or other WAN connection. If you configure static default gateway over this PVC in MER mode, you must enter the IP address of the remote gateway in the "Use IP address". The "Use WAN interface" is optional.

| DHCP Option 60:   |               |                         |
|---|---------------|-------------------------|
|   |               |                         |
| <ul> <li>Use the following</li> </ul>                         | IP add        | dress:                  |
| WAN IP Address:   | 10.0.0        | 0.1                     |
| WAN Subnet Mask:  | 255.2         | 55.255.248              |
| <ul> <li>Use the following</li> <li>Use IP Address</li> </ul> | g defau<br>s: | It gateway:<br>10.0.0.2 |
| • Use the following   | ) defau       | It gateway:             |
| Lise WAN Inter  | face:         | mer 8 35/nas 8 35 🗸     |

Page 22 of 69

v

| A Device Info  | chosen.Changing the default gateway or the DNS effects the whole system. Configuring them with static values will disable the automatic assignment from DHCP or other WAN connection. | ^ |
|----------------|---|---|
| Quick Setup    | If you configure static default gateway over this PVC in MER mode, you must enter the IP  |   |
| Advanced Setup | address of the remote gateway in the "Use IP address". The "Use WAN interface" is optional.   |   |
| Wireless       | O Obtain an IP address automatically  |   |
| Voice          | DHCP Option 60:   |   |
| Diagnostics    | Use the following IP address:   |   |
| Management     | WAN IP Address: 10.0.0.1  |   |
|                | WAN Subnet Mask: 255.255.255.248  |   |
|                |   |   |
|                | <ul> <li>Obtain default gateway automatically</li> </ul>  |   |
|                | <ul> <li>Use the following default gateway:</li> </ul>  |   |
|                | ✓ Use IP Address: 10.0.0.2  |   |
|                | Use WAN Interface: mer_8_35/nas_8_35  |   |
|                | O Obtain DNS server addresses automatically   |   |
|                | <ul> <li>Use the following DNS server addresses:</li> </ul>   |   |
|                | Primary DNS 10.0.1.1  |   |
|                | server:   |   |
|                | Secondary DNS server:   |   |
|                | Pack Next   |   |
|                | Dack  |   |
| ×              | Figure 20. Ouick Setup – WAN IP Settings  |   |

WAN IP/Subnet Mask, Default Gateway, and DNS Server can either be obtained automatically or set manually.

The WAN IP can be either fixed (assigned by your ISP) or dynamic (via DHCP Client). Enter the "Vendor ID" if DHCP Client is selected and your ISP requests for it. Click on "Next" to go to next step.

- 3.3.4.4 NAT, IGMP Multicast and WAN service Please refer to 3.3.2.4.
- 3.3.4.5 Device Setup Please refer to 3.3.1.5.
- 3.3.4.6 Wireless Setup Please refer to 3.3.1.6.
- 3.3.4.7 WAN Setup Summery

| Device Info                   | WAN Setup - Summ   | ary          |  | ^ |
|-------------------------------|--|--------------|--|---|
| Quick Setup<br>Advanced Setup | Make sure that the set   | tings below  | match the settings provided by your ISP.   |   |
| Wireless                      | VPI / VCI:   | 8 / 35       |  |   |
| Voice                         | Connection Type:   | MER          |  |   |
| Diagnostics                   | Service Name:  | mer_8_35     |  |   |
| Management                    | Service Category:  | UBR          |  |   |
|                               | IP Address:  | 10.0.0.1     |  |   |
|                               | Service State:   | Enabled      |  |   |
|                               | NAT:   | Enabled      |  |   |
|                               | Firewall:  | Enabled      |  |   |
|                               | IGMP Multicast:  | Disabled     |  |   |
|                               | Quality Of Service:  | Enabled      |  |   |
|                               | Click "Save/Reboot" to<br>modifications.<br>NOTE: The configurati<br>reboot. | o save these | settings and reboot router. Click "Back" to make any<br>akes about 1 minute to complete and your DSL Router will<br>Back Save/Reboot |   |

Figure 21. 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

#### 3.3.5 PPP over ATM (PPPoA) Configuration

Click on "Quick Setup" in the left frame, and follow the steps below to create a PPP over ATM (PPPoA) connection. The following setting steps are all the same as PPP over ATM (PPPoE) steps.

## 3.3.5.1 ATM PVC Configuration

Give the VPI/VCI values. Please refer to 3.3.1.1.

3.3.5.2 Connection Type

| Device Info    | Connection Type   |
|----------------|---|
| Quick Setup    | Select the type of network protocol and encapsulation mode over the &TM DVC that your ISD |
| Advanced Setup | has instructed you to use.  |
| Wireless       |   |
| Voice          | ● PPP over ATM (PPPoA)  |
| Diagnostics    |   |
| Management     | ○ PPP over Ethernet (PPPoE)   |
|                | ○ MAC Encapsulation Routing (MER)   |
|                | ○ IP over ATM (IPoA)  |
|                | O Bridging  |
|                | Encapsulation Mode VC/MUX   |
|                | Back  |
|                |   |
| ~              |   |
| Fi             | gure 22. Quick Setup – Connection Type and Encapsulation Mode                             |
|                | Please refer to 3.3.1.2   |
|                | 3.3.5.3 PPP Username and Password   |
| Device Info    | PPP Username and Password   |

| Device Info    | TTT Oscillance and Lassword   |
|----------------|---|
| Quick Setup    | PPP usually requires that you have a user name and password to establish your connection. In  |
| Advanced Setup | the boxes below, enter the user name and password that your ISP has provided to you.  |
| Wireless       |   |
| Voice          |   |
| Diagnostics    |   |
| Management     | PPP Username:   PPP Password:   Authentication Method:   AUTO   Dial on demand (with idle timeout timer)     PPP IP extension     Back Next |
| v              |   |

Figure 23. Quick Setup – PPP Username and Password

Give "PPP Username", "PPP Password", and select "Authentication Method" (AUTO/PAP/CHAP). Enable/disable "Dial on demand" and

Page 25 of 69

"PPP IP extension" functions. Please refer to 3.3.1.3. Please contact you ISP for the information.

- 3.3.5.4 IGMP Multicast and WAN service Please refer to 3.3.1.4.
- 3.3.5.5 Device Setup Please refer to 3.3.1.5.
- 3.3.5.6 Wireless Setup Please refer to 3.3.1.6.

## 3.3.5.7 WAN Setup - Summery

WAN Setup - Summary

Device Info Quick Setup

Advanced Setup Wireless Voice Diagnostics Management Make sure that the settings below match the settings provided by your ISP.

| VPI / VCI:          | 8 / 35                 |
|---------------------|------------------------|
| Connection Type:    | PPPoA                  |
| Service Name:       | pppoa_8_35_1           |
| Service Category:   | UBR                    |
| IP Address:         | Automatically Assigned |
| Service State:      | Enabled                |
| NAT:                | Enabled                |
| Firewall:           | Enabled                |
| IGMP Multicast:     | Disabled               |
| Quality Of Service: | Enabled                |

Click "Save/Reboot" to save these settings and reboot router. Click "Back" to make any modifications.

NOTE: The configuration process takes about 1 minute to complete and your DSL Router will reboot.

Back Save/Reboot

Figure 24. 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

## 3.4 Advanced Setup

Advanced Setup allows system administrator to configure the following topics: WAN LAN NAT (for routing mode only) Security Quality of Service

Routing

Page 26 of 69

×

## DNS DSL Port Mapping

## 3.4.1 WAN

| Device Info<br>Advanced Setup<br>WAN<br>LAN                    | ^                     | Wide Ar<br>Choose A<br>Choose S                | <b>ea Net</b><br>dd, Edi<br>ave/Re          | <b>t, or Remov</b><br>boot to app     | N) Setup<br>ve to config<br>bly the chan         | ure WAN int<br>iges and reb              | erfaces.<br>oot the sys                   | tem.       |          |           |        |      |
|--|-----------------------|--|---|---------------------------------------|--|--|---|------------|----------|-----------|--------|------|
| Security<br>Quality of Servic                                  |                       | VPI/VC   | I Con<br>ID                                 | Category                              | y Service  | Interface                                | Protocol                                  | Igmp       | QoS      | State     | Remove | Edit |
| Routing<br>DNS   |                       | 0/35   | 1   | UBR                                   | br_0_35  | nas_0_35                                 | Bridge                                    | N/A        | Enabled  | Enabled   |        | Edit |
| DSL  |                       | 1  |   |                                       |  | '<br>                                    | 0 (P. I                                   |            |          |           |        |      |
| Port Mapping<br>Wireless                                       |                       |  |   |                                       | Add  | emove                                    | Save/Rebo                                 | ot         |          |           |        |      |
| Voice  |                       |  |   |                                       |  |  |   |            |          |           |        |      |
| Diagnostics<br>Management                                      |                       |  |   |                                       |  |  |   |            |          |           |        |      |
| Device Info<br>Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security | •<br>•<br>•<br>•<br>• | Vide Area<br>hoose Add<br>hoose Sav<br>VPI/VCI | a Netw<br>d, Edit,<br>re/Rebo<br>Con.<br>ID | or Remove<br>oot to apply<br>Category | I) Setup<br>to configur<br>the change<br>Service | e WAN inter<br>es and reboo<br>Interface | faces.<br>It the syste<br><b>Protocol</b> | m.<br>Igmp | QoS      | State     | Remove | Edit |
| Quality of Service   |                       | 0/25   | 1   | LIDD                                  | mor 0 25   | pac 0 25                                 | MED                                       | Dicablo    | d Enable | d Enabled |        | Edit |
| Routing  | L                     | 0/00   | T   | ODIX                                  | mer_0_33   | nda_0_33                                 | PILIX                                     | Diadole    |          |           |        |      |
| DSL  |                       |  |   | [                                     | Add Rer  | nove Sa                                  | ave/Reboot                                |            |          |           |        |      |
| Port Mapping   |                       |  |   |                                       |  |  |   |            |          |           |        |      |
| Voice  |                       |  |   |                                       |  |  |   |            |          |           |        |      |
| Diagnostics  |                       |  |   |                                       |  |  |   |            |          |           |        |      |
| Management   |                       |  |   |                                       |  |  |   |            |          |           |        |      |
|  | *                     |  |   |                                       |  |  |   |            |          |           |        |      |

Page 27 of 69

This page shows the current existing WAN interfaces in the system. User can choose Add, Edit, or Remove to configure WAN interfaces. For detail about Add and Edit procedure, please refer to *3.3 Quick Setup*.

## 3.4.2 LAN

Please refer to 3.3.1.5.

3.4.3 NAT

Device Info Advanced Setup

WAN

LAN

NAT

Virtual Servers

Port Triggerine DMZ Host Security

Quality of Servic Routing DNS DSL Port Mapping Wireless Voice Diagnostics Management

>

### 3.4.3.1 Virtual Servers Setup

NAT -- Virtual Servers Setup

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. A maximum 32 entries can be configured.

| Server | External | External<br>Deet Find | Protocol | Internal | Internal<br>Dect Ford | Server IP | Remove |
|--------|----------|-----------------------|----------|----------|-----------------------|-----------|--------|

Add Remove

Figure 26. NAT - Virtual Servers

| ^                          |                                       |                       |                 |                        |                      |
|----------------------------|---------------------------------------|-----------------------|-----------------|------------------------|----------------------|
| Device Info                | NAT Virtual Serv                      | ers                   |                 |                        |                      |
| Advanced Setup             | Select the service nar                | me, and enter the s   | erver IP addres | s and click "Save/A    | pply" to forward IP  |
| WAN                        | packets for this service              | ce to the specified : | server. NOTE:   | The "Internal Por      | t End" cannot be     |
| LAN                        | changed. It is the                    | same as "Externa      | al Port End" n  | ormally and will b     | be the same as       |
| NAT                        | the "Internal Port                    | Start" or "Extern     | al Port End" i  | f either one is mo     | dified.              |
| Virtual Servers            | Remaining number                      | r of entries that     | can be config   | ured:32                |                      |
| Port Triggerin <sub></sub> | Somor Namo                            |                       |                 |                        |                      |
| DMZ Host                   | <ul> <li>Select a Service:</li> </ul> | Salect One            |                 | *                      |                      |
| Security                   | <ul> <li>Oustam Corner;</li> </ul>    |                       |                 |                        |                      |
| Quality of Servic          | U Custom Server.                      |                       | 10              |                        |                      |
| Routing                    | Server IP Address:                    | 172.24.               |                 |                        |                      |
| DNS                        |                                       |                       |                 |                        |                      |
| DSL                        |                                       | ſ                     | 0               | L                      |                      |
| Port Mapping               |                                       | l                     | Save/Apply      | J                      |                      |
| Wireless                   | Esternal Dest                         | Estamol Dash          |                 | Turba un al Da ab      | Testa en al Dant     |
| Voice                      | External Port<br>Start                | External Port         | Protocol        | Internal Port<br>Start | Internal Port<br>End |
| Diagnostics                | Start                                 | End                   | TCD             | Start                  | LIIG                 |
| Management                 |                                       |                       | ICP V           |                        |                      |
|                            |                                       |                       | TCP 🔽           |                        |                      |
|                            |                                       |                       | TCP 🔽           |                        |                      |
| *                          |                                       |                       | TCP 🗸           |                        |                      |
|                            |                                       |                       |                 |                        |                      |
|                            |                                       |                       |                 |                        |                      |
| Device Info                |                                       | ſ                     | Save/Apply      | ]                      |                      |
| Advanced Setup             |                                       | l                     |                 |                        |                      |
| WAN                        | External Port                         | External Port         | Destand         | Internal Port          | Internal Port        |
| LAN                        | Start                                 | End                   | Protocol        | Start                  | End                  |
| NAT                        |                                       |                       | TCP 🗸           |                        |                      |
| Virtual Servers            |                                       |                       | TCP 🗸           |                        |                      |
| Port Triggerin             |                                       |                       | TCD             |                        |                      |
| DMZ Host                   |                                       |                       | ICP 🗸           |                        |                      |
| Security                   |                                       |                       | TCP 🖌           |                        |                      |
| Quality of Servic          |                                       |                       | TCP 🗸           |                        |                      |
| Routing                    |                                       |                       | TCP 🗸           |                        |                      |
| DNS                        |                                       |                       | TCD             |                        |                      |
| DSL                        |                                       |                       | ICP V           |                        |                      |
| Port Mapping               |                                       |                       | TCP 🔽           |                        |                      |
| Wireless                   |                                       |                       | TCP 🗸           |                        |                      |

| Virtual Dervera   | 10.                                      |
|-------------------|--|
| Port Triggerine   | TCP                                      |
| DMZ Host          | TCP v                                    |
| Security          |  |
| Quality of Servic | TCP 🗸                                    |
| Routing           | TCP                                      |
| DNS               | TCP 🔽                                    |
| DSL               | ТСР 🗸                                    |
| Port Mapping      |  |
| Wireless          |  |
| Voice             | TCP 🗸                                    |
| Diagnostics       | TCP V                                    |
| Management        |  |
|                   | Save/Apply                               |
|                   | Figure 27. INA I – VIRtual SerVers – Add |

<

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.

\* ^

## 3.4.3.2 Port Triggering Setup

## NAT -- Port Triggering Setup

Application

Name

configured.

**Device Info Advanced Setup** WAN LAN NAT Virtual Servers Port Triggering DMZ Host Security Quality of Servic Routing DNS DSL Port Mapping Wireless Voice Diagnostics Management

Device Info Advanced Setup

WAN

LAN

NAT

Virtual Servers Port Triggering

DMZ Host

Port Mapping

Quality of Servic Routing

Security

DNS DSL

Wireless

Diagnostics

Management

Voice

#### NAT --- Port Triggering 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. Remaining number of entries that can be configured:32 Application Name: ● Select an application: Select One ~ O Custom application: Save/Apply Trigger Port Trigger Port Trigger **Open Port Open Port** Open Start End Protocol Start End Protocol TCP TCP \* ~ TCP TCP ~ \* TCP TCP ~ ~ TCP TCP \* ~ TCP ~ TCP ~ TCP TCP ~

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

the remote parties. Port Trigger dynamically opens up 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'. A maximum 32 entries can be

Remove

Protocol Port Range Protocol Port Range

Open

Start End

Remove

Add

Start End

Trigger

Figure 28. NAT - Port Triggering

Page 30 of 69



Some applications require that specific port(s) in the Router's firewall be opened for access by the remote parties. Port Trigger dynamically opens up 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'.

3.4.3.3 DMZ Host

| Device Info       | NAT DMZ Host  |
|-------------------|---|
| Advanced Setup    | The DCL restor will forward ID predicts from the WAN that do not belong to any of the |
| WAN               | applications configured in the Virtual Servers table to the DMZ host computer         |
| LAN               |   |
| NAT               | Enter the computer's IP address and click "Apply" to activate the DMZ host.           |
| Virtual Servers   | AND BELL BOA 1001 BERL 10 10 10 10 10 10 10 10 10 10 10 10 10                         |
| Port Triggering   | Clear the IP address field and click "Apply" to deactivate the DMZ host.              |
| DMZ Host          | DM7 Host ID   |
| Security          | Address:  |
| Quality of Servic |   |
| Routing           | Save/Apply  |
| DNS               |   |
| DSL               |   |
| Port Mapping      |   |
| Vireless          |   |
| /oice             |   |
| Diagnostics       |   |
| <b>4anagement</b> |   |
|                   |   |
|                   |   |
| ~                 |   |

Figure 29. NAT – DMZ Host

The AH4021 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.

## 3.4.4 Security

3.4.4.1 IP Filtering

3.4.4.1.1 Outgoing

| LAN   | setting up fi   | ilters.   |  |   |   |                                     |                                       |
|---|---|---|--|---|---|-------------------------------------|---------------------------------------|
| NAT   | Choose Add  | or Remove   | e to configure outgo   | ing IP filters  | ũ.  |                                     |                                       |
| Security  |   |   | Provide and a second seco | 1   | and an annual sta   |                                     |                                       |
| IP Filtering  | Filter  | Protocol  | Source   | Source  | Dest. Address /   | Dest.                               | Remove                                |
| Outgoing  | Name  |   | Address / Mask   | Port  | Mask  | Port                                |                                       |
| Incoming  |   |   |  |   |   |                                     |                                       |
| Parental Contr  |   |   | Add  | Remove  | e   |                                     |                                       |
| Quality of Servic   |   |   |  |   |   |                                     |                                       |
| Routing   |   |   |  |   |   |                                     |                                       |
| DNS   |   |   |  |   |   |                                     |                                       |
| Port Mapping  |   |   |  |   |   |                                     |                                       |
| /ireless  |   |   |  |   |   |                                     |                                       |
| oice  |   |   |  |   |   |                                     |                                       |
| agnostics   |   |   |  |   |   |                                     |                                       |
| lanagement  |   |   |  |   |   |                                     |                                       |
|   |   |   |  |   |   |                                     |                                       |
|   | Figu  | re 30. S  | ecurity – IP Fil   | ltering –   | Outgoing  |                                     |                                       |
| evice Info  | Figu<br>Add IP Filt   | re 30. S  | ecurity – IP Fil   | ltering –   | Outgoing  |                                     |                                       |
| evice Info<br>dvanced Setup<br>WAN  | Figu<br>Add IP Filt   | re 30. S<br>ter Outg<br>allows you  | ecurity – IP Fil<br>going<br>to create a filter rul  | ltering –<br>e to identify  | Outgoing  | y specify                           | ing a new                             |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN  | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat   | re 30. S<br>ter Outs<br>allows you<br>and at leas<br>isfied for th  | ecurity – IP Fil<br>going<br>to create a filter rul<br>it one condition belo<br>he rule to take effect   | Itering —<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing  | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| Pevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT   | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat   | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th  | ecurity – IP Fil<br>going<br>to create a filter rul<br>it one condition belo<br>he rule to take effect   | ltering —<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing<br>outgoing IP traffic b<br>specified conditions<br>e/Apply' to save and | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security   | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name  | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:   | ecurity – IP Fil<br>going<br>to create a filter rul<br>it one condition belo<br>he rule to take effect   | ltering —<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing<br>outgoing IP traffic b<br>specified conditions<br>e/Apply' to save and | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering   | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name  | re 30. S<br>ter Outy<br>allows you<br>and at leas<br>isfied for th<br>:   | ecurity – IP Fil<br>going<br>to create a filter rul<br>to one condition belo<br>he rule to take effect   | ltering —<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic b<br>e specified conditions<br>e/Apply' to save and           | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing   | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:   | re 30. S<br>ter Outs<br>allows you<br>and at leas<br>isfied for th<br>:   | ecurity – IP Fil<br>going<br>to create a filter rul<br>to one condition belo<br>he rule to take effect   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic b<br>especified conditions<br>e/Apply' to save and            | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming   | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP ad   | re 30. S<br>ter Outs<br>allows you<br>and at leas<br>isfied for th<br>:<br>ddress:  | ecurity – IP Fil<br>going<br>to create a filter rul<br>to one condition belo<br>he rule to take effect   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic b<br>especified conditions<br>e/Apply' to save and            | y specify<br>in this fi<br>activate | ing a new<br>lter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming<br>Parental Contr   | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP ac<br>Source Subr  | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:<br>:<br>ddress:<br>met Mask:  | ecurity – IP Fil<br>going<br>to create a filter rul<br>to one condition belo<br>he rule to take effect   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic b<br>specified conditions<br>e/Apply' to save and             | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| evice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming<br>Parental Contr<br>Quality of Servic   | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP ac<br>Source Subr<br>Source Port                               | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:<br>:<br>ddress:<br>net Mask:<br>(port or po                                     | ecurity – IP Fil<br>going<br>to create a filter rul<br>to one condition belo<br>he rule to take effect   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic b<br>specified conditions<br>e/Apply' to save and             | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| evice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming<br>Parental Contr<br>Quality of Servic<br>Routing  | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP ac<br>Source Subr<br>Source Port<br>Destination                | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:<br>ddress:<br>met Mask:<br>(port or po<br>IP address                            | ecurity – IP Fil   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic be<br>specified conditions<br>e/Apply' to save and            | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| evice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS   | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP ac<br>Source Subr<br>Source Port<br>Destination<br>Destination | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:<br>ddress:<br>met Mask:<br>(port or po<br>IP address<br>Subnet Ma               | ecurity – IP Fil   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic be<br>specified conditions<br>e/Apply' to save and            | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Boat Mapping   | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP ac<br>Source Subr<br>Source Port<br>Destination<br>Destination | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:<br>ddress:<br>met Mask:<br>(port or po<br>IP address<br>Subnet Ma<br>Port (port | ecurity – IP Fil   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic be<br>specified conditions<br>e/Apply' to save and            | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Gireless                                       | Figu<br>Add IP Fill<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP ad<br>Source Subr<br>Source Port<br>Destination<br>Destination | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:<br>ddress:<br>met Mask:<br>(port or po<br>IP address<br>Subnet Ma<br>Port (port | ecurity – IP Fil   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic be<br>specified conditions<br>e/Apply' to save and            | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>direless<br>oice                               | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP ad<br>Source Subr<br>Source Port<br>Destination<br>Destination | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:<br>ddress:<br>net Mask:<br>(port or po<br>IP address<br>Subnet Ma<br>Port (port | ecurity – IP Fil   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save               | Outgoing IP traffic bespecified conditions<br>e/Apply' to save and                | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Vireless<br>oice                               | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP at<br>Source Subr<br>Source Port<br>Destination<br>Destination | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:<br>ddress:<br>net Mask:<br>(port or po<br>IP address<br>Subnet Ma<br>Port (port | ecurity – IP Fil   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save<br>Save/Apply | Outgoing IP traffic b<br>especified conditions<br>e/Apply' to save and            | y specify<br>in this fi<br>activate | ing a new<br>lter rule<br>the filter. |
| vevice Info<br>dvanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Outgoing<br>Incoming<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Vireless<br>foice<br>biagnostics<br>Ianagement | Figu<br>Add IP Filt<br>The screen<br>filter name a<br>must be sat<br>Filter Name<br>Protocol:<br>Source IP ad<br>Source Subr<br>Source Port<br>Destination<br>Destination | re 30. S<br>ter Outg<br>allows you<br>and at leas<br>isfied for th<br>:<br>ddress:<br>net Mask:<br>(port or po<br>IP address<br>Subnet Ma<br>Port (port | ecurity – IP Fil   | ltering –<br>e to identify<br>w. All of the<br>t. Click 'Save<br>Save/Apply | Outgoing IP traffic b<br>especified conditions<br>e/Apply' to save and            | y specify<br>in this fi<br>activate | ing a new<br>Iter rule<br>the filter. |

It allows the users to create a filter rule to identify outgoing IP traffic by specifying a new filter name and at least one condition. All of the specified conditions in this filter rule must be satisfied for the rule to take effect.

#### 3.4.4.1.2 Incoming

### **Incoming IP Filtering Setup**

**Device Info Advanced Setup** 

WAN

LAN

NAT Security **IP Filtering** Outgoing Incoming Parental Contr

**Quality of Servi** Routina DNS DSL Port Mapping Wireless Voice Diagnostics Management

**Device** Info

WAN

LAN

NAT Security

Routing

DNS

DSL

Wireless

Diagnostics

Voice

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.

Choose Add or Remove to configure incoming IP filters.

| Filter<br>Name | VPI/VCI | Protocol | Source<br>Address /<br>Mask | Source<br>Port | Dest.<br>Address /<br>Mask | Dest.<br>Port | Remove |
|----------------|---------|----------|-----------------------------|----------------|----------------------------|---------------|--------|
| anne           |         |          | Mask                        | PUIL           | Mask                       | POIL          |        |



## Add IP Filter -- Incoming Advanced Setup The screen allows you to create a filter rule to identify incoming IP traffic by specifying a new filter name and at least one condition below. All of the specified conditions in this filter rule must be satisfied for the rule to take effect. Click 'Save/Apply' to save and activate the filter. Filter Name: **IP Filtering** Protocol: Outgoing Incoming Source IP address: **Parental Contr** Source Subnet Mask: **Quality of Servi** Source Port (port or port:port): Destination IP address: Destination Subnet Mask: Destination Port (port or port:port): Port Mapping WAN Interfaces (Configured in Routing mode and with firewall enabled only) Select at least one or multiple WAN interfaces displayed below to apply this rule. Management Select All ✓ mer\_0\_35/nas\_8\_35 Figure 33. Security - IP Filtering - Incoming - Add It allows the users to create a filter rule to identify

Page 34 of 69

incoming IP traffic by specifying a new filter name and at least one condition. All of the specified conditions in this

\*

filter rule must be satisfied for the rule to take effect. When there are multiple WAN interfaces configured, users can choose which interface(s) will apply the rule.

## 3.4.4.2 Parental Control

| 1957 20 20 20 20 20 20 20 20 20 20 20 20 20   | Time of Day Restrictions & maximum 16 entries can be configured  |
|---|--|
| Device Info   | Time of Day Restrictions A maximum to entries can be comigured.  |
| Advanced Setup  |  |
| WAN   | Username MAC Mon Tue Wed Thu Fri Sat Sun Start Stop Remove   |
| LAN   |  |
| NAT   |  |
| Security  | Add Remove   |
| IP Filtering  |  |
| Parental Contr  |  |
| Quality of Servic   |  |
| Routing   |  |
| DNS   |  |
| DSI   |  |
| Port Manning  |  |
| Wireless  |  |
| Voice   |  |
| Discreation   |  |
| Diagnostics   |  |
| Management  |  |
|   |  |
|   |  |
|   |  |
|   | ×  |
|   | Figure 3/ Security – Parental Control  |
|   | rigure 54. Security – Farentai Control   |
|   |  |
| Device Info   | Time of Day Restriction  |
| A draw and Oaltern  |  |
| onvancen seriin   |  |
| Advanced Setup  |  |
| WAN   | This page adds time of day restriction to a special LAN device connected to the Router. The  |
| WAN<br>LAN  | This page adds time of day restriction to a special LAN device connected to the Router. The<br>'Browser's MAC Address' automatically displays the MAC address of the LAN device where the<br>browser is number. To contrict either LAN device, slick the "Other MAC Address" butter, and   |
| WAN<br>LAN<br>NAT   | This page adds time of day restriction to a special LAN device connected to the Router. The<br>'Browser's MAC Address' automatically displays the MAC address of the LAN device where the<br>browser is running. To restrict other LAN device, click the "Other MAC Address" button and<br>enter the MAC address of the other LAN device. To find out the MAC address of a Windows   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security   | This page adds time of day restriction to a special LAN device connected to the Router. The<br>'Browser's MAC Address' automatically displays the MAC address of the LAN device where the<br>browser is running. To restrict other LAN device, click the "Other MAC Address" button and<br>enter the MAC address of the other LAN device. To find out the MAC address of a Windows<br>based PC. or to command window and type "inconfig /all".   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering   | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr   | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic  | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing   | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS  | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the 'Other MAC Address' button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".<br>User Name  |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL   | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the 'Other MAC Address' button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all". User Name  Browser's MAC O0:D0:59:39:7A:1A O Other MAC Address  |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping   | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the 'Other MAC Address' button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all". User Name  Browser's MAC O0:D0:59:39:7A:1A O Other MAC Address (x::x::x::x::x::x)   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless                                       | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the 'Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all". User Name  Browser's MAC O0:D0:59:39:7A:1A O Other MAC Address (x::x::x::x::x::x)   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice                              | This page adds time of day restriction to a special LAN device connected to the Router. The<br>'Browser's MAC Address' automatically displays the MAC address of the LAN device where the<br>browser is running. To restrict other LAN device, click the "Other MAC Address" button and<br>enter the MAC address of the other LAN device. To find out the MAC address of a Windows<br>based PC, go to command window and type "ipconfig /all".<br>User Name<br>Browser's MAC<br>Address<br>00:D0:59:39:7A:1A<br>O Other MAC Address<br>(x::x::x::x::x::x:)<br>Days of the week MonTueWedThuFriSatSun |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics               | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".         User Name   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".         User Name   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".         User Name   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".         User Name   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".         User Name   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".         User Name   |
| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>IP Filtering<br>Parental Contr<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management | This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device. To find out the MAC address of a Windows based PC, go to command window and type "ipconfig /all".         User Name   |

Page 35 of 69

It adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN device, click the "Other MAC Address" button and enter the MAC address of the other LAN device.

| Device Info                                 | Quality of S  | ervice Se | tup              |                             |              |          |                             |                |                            |               |
|---|---------------|-----------|------------------|-----------------------------|--------------|----------|-----------------------------|----------------|----------------------------|---------------|
| Advanced Setup<br>WAN                       | Choose Add o  | r Remove  | to configure n   | etwork tra                  | affic classe | es.      |                             |                |                            |               |
| LAN<br>NAT<br>Security<br>Quality of Servic | Class<br>Name | Priority  | IP<br>Precedence | IP<br>Type<br>of<br>Service | 802.1P       | Protocol | Source<br>Address /<br>Mask | Source<br>Port | Dest.<br>Address /<br>Mask | Dest.<br>Port |
| Routing                                     | DNS_Probe     | High      |                  |                             |              | UDP      |                             |                |                            | 53            |
| DNS   | IGMP          | High      |                  |                             |              | IGMP     |                             |                |                            | -             |
| DSL<br>Port Mapping                         | SNMP          | High      |                  |                             |              | UDP      |                             | 161            |                            |               |
| Wireless                                    | RIP           | High      |                  |                             |              | UDP      |                             | 520            |                            |               |
| Voice                                       | DHCP_Relay    | High      |                  |                             |              | UDP      |                             |                |                            | 67:68         |
| Diagnostics<br>Management                   |               |           |                  | Add                         | Remove       |          |                             |                |                            |               |

Click on Add to create a class to identify the IP traffic by specifying at least one condition below. If multiple conditions are specified, all of them take

effect. IP QoS is applied to the traffic from LAN to WAN; the traffic from WAN to

IP QoS is applied to the traffic from LAN to WAN; the traffic from WAN to LAN will not be applied.

| Device Info         | Add Network Traffic Class Rule   |
|---------------------|--|
| Advanced Setup      | The access mester a traffic class rule to classify the unstream traffic project queuing wierth.    |
| WAN                 | and optionally overwrite the ID header TOS byte. A rule consists of a class name and at least      |
| LAN                 | one condition below. All of the specified conditions in this classification rule must be satisfied |
| NAT                 | for the rule to take effect. Click 'Save/Apply' to save and activate the rule.                     |
| Security            |  |
| Ouality of Servic   | Traffic Class Name:  |
| Routing             |  |
| DNS                 | Assign Priority and/or IP Precedence and/or Type Of Service for the class                          |
| DSL                 | If non-blank value is selected for 'IP Precedence' and/or 'IP Type Of Service', the corresponding  |
| Port Mapping        | To byte in the refineater of the upstream packet will be over written by the selected value.       |
| Wireless            | Priority:  |
| Voice               | IP Precedence:   |
| Diagnostics         | IP Type Of Service:  |
| Management          |  |
|                     | Specify Traffic Conditions for the class   |
|                     | Enter the following conditions either for IP layer or for the IEEE 802.1p priority.                |
|                     | Protocol:  |
|                     | Source ID Address:   |
|                     | Source Subpet Mark   |
| < >                 | Course Dart (next or pertmart)   |
|                     | Source Port (bort or bort):  |
|                     | If non-blank value is selected for 'IP Precedence' and/or 'IP Type Of Service', the corresponding  |
| Device Info         | TOS byte in the IP header of the upstream packet will be overwritten by the selected value.        |
| Advanced Setup      |  |
| WAN                 | Priority:  |
| LAN                 | IP Precedence:   |
| NAT                 | IP Type Of Service:  |
| Security            | Specify Traffic Conditions for the class   |
| Quality of Servic   | Enter the following conditions either for IP layer or for the IEEE 802.1p priority.                |
| Routing             |  |
| DNS                 | Protocol:  |
| DSL<br>Bort Manning | Source IP Address:   |
| Wireless            | Source Subnet Mask:  |
| Voice               | Source Port (port or port:port):   |
| Diagnostics         | Destination IP Address:  |
| Management          | Destination Subnet Mask:   |
|                     | Destination Port (port or port:port):  |
|                     |  |
|                     | 802.1p Priority:   |
|                     |  |
|                     |  |
| <                   | Save/Apply   |
|                     | Figure 37 Advanced Setup – Quality of Service – Add  |
| < >                 | Save/Apply Figure 37 Advanced Setup – Quality of Service – Add                                     |

Give the QoS class name for this policy. Define the priority for this policy and optional make the AH4021 to rewrite the IP header with new IP Precedence and/or IP Type Of Service for next-hop processing.

The IP Layer and 802.1p are exclusive, you can only select one of them.

For IP Layer policy, at least (but not limited to) one condition must be configured.

Choose 802.1p if this policy will be based on the 802.1p bits of incoming packets from LAN.

## 3.4.6 Routing

Three routing information related settings are included.

## 3.4.6.1 Routing - Default Gateway

| Device Info           | Routing Default Gateway  |
|-----------------------|--|
| Advanced Setup<br>WAN | If Enable Automatic Assigned Default Gateway checkbox is selected, this router will accept the first received default gateway assignment from one of the PPPoA_PPPoF or MER/DHCP enabled |
| LAN                   | PVC(s). If the checkbox is not selected, enter the static default gateway AND/OR a WAN   |
| NAI<br>Security       | interface. Click Save/Apply buttori to save it.  |
| Quality of Servic     | NOTE: It changing the Automatic Assigned Default Gateway from unselected to selected, You must reboot the router to get the automatic assigned default gateway.                          |
| Default Gatew         | Enable Automatic Assigned Default Gateway  |
| Static Route          |  |
| DNS                   | ☑ Use Default Gateway IP Address 10.0.1.1  |
| DSL<br>Port Mapping   | Use Interface mer_0_35/mas_8_35  |
| Wireless              |  |
| Voice                 | Save/Apply   |
| Management            |  |
|                       |  |
| <                     | <u>×</u>   |

Figure 38. Advanced Setup – Routing – Default Gateway

If "Enable Automatic Assigned Default Gateway" checkbox is selected, this router 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. Click 'Apply' button to save it. NOTE: If changing the Automatic Assigned Default Gateway from unselected to selected, You must reboot the router to get the automatic assigned default gateway.

3.4.6.2 Routing – Static Route

| Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>Quality of Servic<br>Routing<br>Default Gatew<br>Static Route<br>RIP<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management                | Routing Static Route (A maximum 32 entries can be configured)         Destination Subnet Mask Gateway Interface Remove         Add       Remove         Add       Remove   |
|--|--|
| Device Info<br>Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>Quality of Servic<br>Routing<br>Default Gatew<br>Static Route<br>RIP<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management | Routing Static Route Add         Enter the destination network address, subnet mask, gateway AND/OR available WAN interface then click "Save/Apply" to add the entry to the routing table.         Destination Network         Address:         Subnet Mask:         Use Gateway IP Address         W Use Interface         Mer_0_35/has_8_35         Save/Apply |

Page 39 of 69

## 3.4.6.3 Routing - RIP

**Device Info Advanced Setup** WAN LAN NAT Security Quality of Servic Routing **Default Gatew** Static Route RIP DNS DSL Port Mapping Wireless Voice Diagnostics Management

#### Routing -- RIP Configuration

To activate RIP for the device, select the 'Enabled' radio button for Global RIP Mode. To configure an individual interface, select the desired RIP version and operation, followed by placing a check in the 'Enabled' checkbox for the interface. Click the 'Save/Apply' button to save the configuration, and to start or stop RIP based on the Global RIP mode selected.

| Interface | VPI/VCI | Vers | ion | Operatio | on | Enabled |
|-----------|---------|------|-----|----------|----|---------|
| br0       | (LAN)   | 2    | ~   | Active   | *  |         |
| nas_8_35  | 8/35    | 2    | *   | Passive  | *  |         |

### Figure 41. Advanced Setup – Routing – RIP

To activate RIP for the device, select the 'Enabled' radio button for Global RIP Mode. To configure an individual interface, select the desired RIP version and operation, followed by placing a check in the 'Enabled' checkbox for the interface. Click the 'Apply' button to save the configuration, and to start or stop RIP based on the Global RIP mode selected

## 3.4.7 DNS

>

3.4.7.1 DNS Server

| Device Info       | DNS Server Configuration  |
|-------------------|---|
| Advanced Setup    | If 'Enable Automatic Assigned DNS' checkbox is selected, this router will accept the first    |
| WAN               | received DNS assignment from one of the PPPoA, PPPoE or MER/DHCP enabled PVC(s) during        |
| LAN               | the connection establishment. If the checkbox is not selected, enter the primary and optional |
| NAT               | secondary DNS server IP addresses. Click 'Save' button to save the new configuration. You     |
| Security          | must reboot the router to make the new configuration effective.                               |
| Quality of Servic |   |
| Routing           | Enable Automatic Assigned Divis   |
| DNS               |   |
| DNS Server        | Primary DNS server: 10.0.10.1   |
| Dynamic DNS       |   |
| DSL               | Secondary DNS server.   |
| Port Mapping      |   |
| Wireless          | Save  |
| Voice             | Sure  |
| Diagnostics       |   |
| Management        |   |
|                   |   |
|                   |   |
|                   |   |
| ×                 |   |
| •                 | Figure 42 Advanced Setup – DNS – DNS Server   |
|                   |   |

If 'Enable Automatic Assigned DNS' checkbox is selected, 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 the checkbox is not selected, enter the primary and optional secondary DNS server IP addresses. Click 'Save' button to save the new configuration. You must reboot the router to make the new configuration effective.

3.4.7.2 Dynamic DNS

| A<br>Device Info<br>Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>Quality of Servic<br>Routing<br>DNS<br>DNS Server<br>Dynamic DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management | Dynamic DNS         The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname in any of the many domains, allowing your DSL router to be more easily accessed from various locations on the Internet.         Choose Add or Remove to configure Dynamic DNS.         Hostname Username Service Interface Remove         Add |
|--|---|
| Cevice Info<br>Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security   | Figure 43. Advanced Setup – DNS – Dynamic DNS         Add dynamic DDNS         This page allows you to add a Dynamic DNS address from DynDNS.org or TZO.         D-DNS provider   |
| Quality of Servic<br>Routing<br>DNS<br>DNS Server<br>Dynamic DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management  | Hostname mer_0_35/nas_8_35   DynDNS Settings Username Password Save/Apply   |
| <  | Figure 44. Advanced Setup – DNS – Dynamic DNS – Add   |

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname in any of the many domains, allowing your DSL router to be more easily accessed from various locations on the Internet.

| Device Info   Advanced Setup   WAN   LAN   Security   Quality of Servic   Disi   Point Mapping   Wan   LAN   Wireless   Voice   Disi   Disi   Point Mapping   Wan   LAN   Wan   Lan   Management   Oblice Enabled   Disi   Disi   Point Mapping   Wan   LAN   Wan   LAN   Nation   Oblice Enabled   Disi   Dis  | 348 DS                 | II.                               |
|--|------------------------|-----------------------------------|
| bevice Info<br>Advanced Setup<br>WAN<br>NAT<br>Security<br>Quality of Servic<br>Routing<br>DNS<br>Select the modulaton below.<br>G G.Dmt Enabled<br>G.Lite Enabled<br>G.Lite Enabled<br>G.ADS.2.E Enabled<br>ADS.2.E Enabled<br>G.ADS.2.E Enabled<br>G.ADS.2 | <u>^</u>               | DSI Settings                      |
| Advanced Setup Select the modulation below.   WAN G.Dmt Enabled   LAN G.Dmt Enabled   Security I.1.13 Enabled   Quality of Servit ADSL2 Enabled   Routing ADSL2 Enabled   DNS ADSL2 Enabled   Dist Port Mapping   Wireless Outer pair   Capability Bitswap Enable   Imagement Outer pair   Capability Bitswap Enable   Select the test mode below.   Wan Nar   LAN Nar   Select the test mode below.   Wan Outer pair   Advanced Setup Advanced Settings   Select the test mode below.   Wan   LAN   NAT   Select the test mode below.   Wireless   Voice   Disl.   Port Mapping   OL3   | ce Info                | Doe Settings                      |
| WAN   LAN   NAT   Security   Quality of Servic   Routing   DNS   DSi.   Port Mapping   Wireless   Voice   Diagnostics   Management   | nced Setup             | Select the modulation below.      |
| NAT   Security   Quality of Servic   Routing   DNS   Voice   Disgnostics   Management   Voice   Device Info   Advanced Settings   Select the test mode below.   WAN   LAN   NAT   Security   Quality of Servic   Routing   DNS   DSI   Pot Mapping   Wireless   Voice   Disgnostics   Management       Select the phone line pair below.     Outer pair   Outer pair   Outer pair   Outer pair   Select the phone line pair below.   Select the phone line pair below.   Outer pair   Outer pair   Select the test mode below.   WAN   Management   Disl. Advanced Settings   Select the test mode below.   Wireless   Voice   Disl.   Disl. Apply   On retrain   Disl.   Disgnostics   Management   |                        | ☑ G.Dmt Enabled                   |
| Number T1.413 Enabled   Security Annext. Enabled   Quality of Servit Annext. Enabled   Routing Annext. Enabled   DNS Annext. Enabled   Port Mapping Annext. Enabled   Vice Inmer pair   Outer pair   Coulder pair   Coulder pair   Save/Apply   Advanced Settings   Security   Quality of Servit   No   Management     Device Info   Advanced Settings   Security   Quality of Servit   Normal   Security   Quality of Servit   Normal   Nart   Security   Quality of Servit   Normal   Nart   Security   Quality of Servit   Normal   Nart   Dispositis   Management     Vice   Dispositis   Management   | N<br>T                 | ☑ G.lite Enabled                  |
| Voice   Dispositions   Management   Port Mapping   Wireless   Voice   Diagnostics   Management   Capability   Bitswap Enable   Save/Apply   Advanced Settings   Advanced Settings   Select the test mode below.   Ohrormal   ORererb   OMedley   ONo retrain   Disposities   Management  | 1<br>nuritar           | ☑ T1.413 Enabled                  |
| A ArnexL Enabled<br>DNS<br>DSL<br>Port Mapping<br>Vireless<br>Voice<br>Diagnostics<br>Management<br>Capability<br>DSL Advanced Settings<br>SRA Enable<br>SRA Enable<br>SRA Enable<br>Save/Apply Advanced Settings<br>Select the test mode below.<br>Normal<br>Reverb<br>Select the test mode below.<br>Normal<br>Reverb<br>Medley<br>Mineless<br>No retrain<br>DIS<br>DSL<br>Apply Tone Selection  | ality of Servic        | ☑ ADSL2 Enabled                   |
| DNS   DSL   Port Mapping   Wireless   Voice   Diagnostics   Management   Capability   Elstwap Enable   SRA Enable   Save/Apply   Advanced Setup   WAN   LAN   NAT   Security   Quality of Servit   Routing   DNS   DSL   Port Mapping   Wireless   Voice   Device Info   Advanced Setup   WAN   LAN   NAT   Security   Quality of Servit   Routing   DNS   DSL   Port Mapping   Wireless   Voice   Diagnostics   Management  | uting                  | AnnexL Enabled                    |
| DSL   Port Mapping   Wireless   Voice   Diagnostics   Management   Select the phone line pair below. Outer pair Capability Bitswap Enable Srew(Apply) Advanced Settings Select the test mode below. Normal Reverb Mireless Voice Disl Port Mapping Wireless Voice Diagnostics Management Voice Diagnostics Management Imagement Disl Port Mapping Wireless Voice Diagnostics Management Voice Diagnostics Management Voice Diagnostics Management Imagement Diagnostics Management Imagement Diagnostics Management Imagement Imagement Disl Port Mapping Mireless Voice Diagnostics Management Imagement Imagement Imagement Imagement Disl Port Mapping Imagement I  | s                      | ■ ADSI 2+ Enabled                 |
| Port Mapping   Wireless   Voice   Disgnostics   Management   Select the phone line pair below. Outer pair Capability Bitswap Enable SRA Enable Save/Apply Advanced Settings Select the test mode below. Normal Nererain Normal Nor etrain DNS DSL Port Mapping Wireless Voice Disgnostics Management Nor left Management Nor etrain Nor etrain Old Nor etrain Nor etra   | L                      |                                   |
| Wireless Select the phone line pair below.   Diagnostics Inner pair   Outer pair Outer pair   Capability Bitswap Enable   SRA Enable Save/Apply   Advanced Settings   Poter Info Advanced Settings Select the test mode below. Mand Nor mal Nor mal Nor etrain Oldery Nor etrain Oldery Nor etrain Oldery Nor etrain Oldery Oldery Contract of the set mode below. Medley On Mapping Vice Diagnostics Management Value   | rt Mapping             |                                   |
| Voice Diagnostics   Management Outer pair   Capability Bitswap Enable   SRA Enable Save/Apply   Advanced Settings   Pevice Info   Advanced Settup   WAN   LAN   NAT   Security   Quality of Servic   Routing   Disl   Pot Mapping   Wireless   Voice   Diagnostics   Management          Save/Apply Advanced Settings   Select the test mode below.   Normal   Nor retrain   Oli 3       Apply Tone Selection   Apply Tone Selection   | less                   | Select the phone line pair below. |
| Disgnostics<br>Management<br>Capability<br>Bitswap Enable<br>SRA Enable<br>Save/Apply Advanced Settings<br>Advanced Settup<br>VAN<br>LAN<br>NAT<br>Security<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Disgnostics<br>Management<br>V   | e                      | ⊙ Inner pair                      |
| Management Capability Bitswap Enable Save/Apply Advanced Settings  DSL Advanced Settings  Advanced Settings  Select the test mode below.  Normal Reverb Normal Reverb Nor etrain DIS DSL Port Mapping Wireless Voice Diagnostics Management  Voice Voi   | nostics                | O Outer pair                      |
| Capability<br>Bitswap Enable<br>SRA Enable<br>Save/Apply Advanced Settings<br>Advanced Setup<br>WAN<br>LAN<br>NAT<br>Security<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management  | agement                |                                   |
| Bitswap Enable<br>SRA Enable<br>SRA Enable<br>Save/Apply Advanced Settings<br>Select the test mode below.<br>WAN<br>LAN<br>NAT<br>Security<br>Quality of Servic<br>Routing<br>DNS<br>DSL<br>Pot Mapping<br>Wireless<br>Yoice<br>Diagnostics<br>Management<br>V   |                        | Capability                        |
| Save/Apply Advanced Settings  Advanced Settings  Select the test mode below.  NAT Security Quality of Servic Routing DNS DSL Pott Mapping Wireless Voice Diagnostics Management  |                        | ☑ Bitswap Enable                  |
| Save/Apply Advanced Settings     Device Info   Advanced Settings   Advanced Settings   WAN   LAN   NAT   Security   Quality of Servic   Normal   ONor retrain   OL3     Mapply   Tone Selection  |                        | SRA Enable                        |
| Advanced Setup   WAN   LAN   NAT   Security   Quality of Servic   Routing   DNS   DSL   Port Mapping   Voice   Diagnostics   Management   Apply Tone Selection   | ce Info                | DSL Advanced Settings             |
| WAN   LAN   NAT   Security   Quality of Servic   Routing   DNS   DSL   Port Mapping   Wireless   Voice   Diagnostics   Management  | ce Info<br>inced Setup | Select the test mode below.       |
| NAT ORVORMAI<br>Reverb<br>Security Of Servic<br>Routing ONO retrain<br>DNS OL3<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management  | N                      |                                   |
| Security OReverb<br>Quality of Servic<br>Routing ON or retrain<br>DNS OL3<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management   | T                      | © Normai                          |
| Quality of Servic<br>Routing<br>DNS OL3<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management   | curity                 | OReverb                           |
| Routing ONo retrain   DNS OL3   DSL Port Mapping   Wireless Apply Tone Selection   Voice Diagnostics   Management  | ality of Servic        | OMedley                           |
| DNS OL3<br>DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management   | uting                  | ONo retrain                       |
| DSL<br>Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management  | S                      | OL3                               |
| Port Mapping<br>Wireless<br>Voice<br>Diagnostics<br>Management   | L                      |                                   |
| Wireless<br>Voice<br>Diagnostics<br>Management   | rt Mapping             | Apply Topo Soloction              |
| Voice<br>Diagnostics<br>Management   | less                   |                                   |
| Management   | 3                      |                                   |
|  | nostics                |                                   |
| <b>▼</b>   | igement                |                                   |
| ~  |                        |                                   |
| <b>v</b>   |                        |                                   |
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|  |                        |                                   |

Page 43 of 69

|          |     |             |              |             |              | ADS          | L Ton        | e Setl       | ings         |              |             |              |              |             |     |
|----------|-----|-------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|-------------|-----|
|          |     |             |              |             |              |              | Up           | strea        | m Tor        | ies          |             |              |              |             |     |
|          | )   | ☑1          | ☑2           | <b></b> 3   | ₹4           | ☑ 5          |              |              | ₩8           |              | <b>☑</b> 10 | <b>☑</b> 11  | <b>⊡</b> 12  | ☑13         |     |
| ☑1       | 6   | ☑ 17        | ✓18          | <b>☑</b> 19 | 20           | 21           | 22           | 23           | 24           | 25           | 26          | 27           | 28           | 29          |     |
|          |     |             |              |             |              |              | Dow          | nstre        | am To        | ones         |             |              |              |             |     |
| 3        | 32  | <b>∨</b> 33 | <b>≥</b> 34  | <b>≥</b> 35 | <b>☑</b> 36  | 37           | 38           | <b>3</b> 9   | <b>₩</b> 40  | <b>₽</b> 41  | ₹42         | ✓43          | <b>☑</b> 44  | ☑ 45        | v   |
| •4       | 18  | ✔ 49        | ☑ 50         | ☑ 51        | <b>☑</b> 52  | ☑ 53         | <b>№</b> 54  | ☑ 55         | ☑ 56         | ☑ 57         | <b>⊻</b> 58 | <b>№</b> 59  |              | <b>☑</b> 61 | V   |
|          | 54  | ✓65         |              | ✓67         | €68          | ✓69          | ☑70          | ₽71          | ₹72          | ₹73          | ✓74         | ₹75          | ₹76          | ₹77         |     |
| 28       | 30  | 81          | ☑82          | ₹83         | ☑84          | ☑85          | ₩86          | 87           | 88           | ₩89          | <b>₽</b> 90 | 91           | <b>₽</b> 92  |             | Ŀ   |
| <b>9</b> | 96  | ₽97         | <b>₽</b> 98  |             | <b>☑</b> 100 | <b>☑</b> 101 | <b>☑</b> 102 | <b>☑</b> 103 | ☑ 104        | <b>☑</b> 105 | ☑ 106       | <b>☑</b> 107 | 108          | 109         | ) 🖸 |
| ☑1       | 12  | ✓113        | <b>☑</b> 114 | ☑ 115       | <b>☑</b> 116 | ☑ 117        | 118          | ☑ 119        | 120          | ☑ 121        | ☑ 122       | ☑ 123        | <b>⊡</b> 124 | ☑ 125       | 5 💽 |
| ☑ 1      | 28  | ✓129        | ☑ 130        | ✓ 131       | ☑132         | ✓133         | ☑134         | ☑135         | <b>№</b> 136 | ☑ 137        | 138         | ☑ 139        | ☑ 140        | ☑ 141       |     |
| ☑1       | .44 | ✓145        | ☑ 146        | ☑147        | ☑148         | ☑ 149        | ☑150         | ☑ 151        | ☑152         | ☑153         | ☑154        | ☑155         | <b>⊡</b> 156 | ☑157        | 7 💽 |
| ☑1       | .60 | ✓ 161       | ☑ 162        | ☑ 163       | ☑ 164        | ☑ 165        | ☑ 166        | ☑ 167        | ☑ 168        | ☑ 169        | ☑ 170       | ☑ 171        | ☑172         | 173         | 3 💽 |
| ☑1       | .76 | ✓ 177       | ☑ 178        | ☑ 179       | ☑ 180        | ✓ 181        | ☑ 182        | ✓ 183        | <b>№</b> 184 | ☑ 185        | ☑ 186       | ☑ 187        | 188          | 189         | ) 💽 |
| ☑ 1      | 92  | ✓ 193       | <b>☑</b> 194 | ☑ 195       | <b>№</b> 196 | ☑ 197        | ☑ 198        | ☑ 199        | 200          | 201          | 202         | 203          | 204          | 205         | 5 🗹 |
| 2        | 208 | 209         | 210          | 211         | 212          | 213          | 214          | 215          | 216          | 217          | 218         | 219          | 220          | 221         |     |
| 2        | 224 | 225         | 226          | 227         | 228          | 229          | 230          | 231          | 232          | 233          | 234         | 235          | 236          | 237         | 7 💽 |
|          |     |             |              |             |              |              |              |              |              |              | -           | -            | -            | mar         | -   |

Figure 45. Advanced Setup - DSL

Change the settings only you know the actual meaning of each setting. Please leave as it if you don't know how to configure it.



| rem    | g groups wi<br>e button wi | t this feature, you must create mapping<br>aces using the Add button. The Removi<br>interfaces to the Default group. | twork. To supp<br>and WAN inte<br>d the ungroup | independent net<br>appropriate LAN<br>grouping and ad | AN<br>AN<br>Curity  |
|--------|----------------------------|--|---|---|---------------------|
| e Edit | Remove                     |  | Interfaces                                      | Group Name  | uality of Servic    |
|        |                            | 2, nas_0_35, nas_8_35, USB, Wireless   | ENET-1, ENE                                     | Default   | NS                  |
|        |                            |  |   |   | gnostics<br>agement |
|        |                            |  |   |   |                     |
|        |                            |  |   |   |                     |
|        |                            |  |   |   |                     |
|        |                            |  |   |   |                     |

Figure 47. Advanced Setup – Port Mapping – More than one Bridge interfaces

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.

The number of the entry you can add depends on how many Bridge interfaces exist.

| ~                 | and an class in deal 2000                | 2413A   |
|-------------------|--|---|
| Device Info       | Port Mapping Configu                     | ration  |
| Advanced Setup    | To create a new manning                  | aroup:  |
| WAN               | 1. Enter the Group name                  | and select interfaces from the available interface list and add it to the |
| LAN               | grouped interface list usi               | ng  |
| NAT               | the arrow buttons to crea                | ate the required mapping of the ports. The group name must be             |
| Security          | unique.                                  |   |
| Quality of Servic |  |   |
| Routing           | 2. Click Save/Apply butto                | n to make the changes effective immediately                               |
| DNS               | Note that the selecter                   | interfaces will be removed from their existing groups and                 |
| DSL               | added to the new gro                     | up.   |
| Port Mapping      |  |   |
| Wireless          | Group Name:                              |   |
| Voice             |  |   |
| Diagnostics       | Grouped                                  | Available   |
| Management        | Interfaces                               | Interfaces  |
| 5                 |  |   |
|                   | nas_0_35                                 | ENET-1<br>ENET-2  |
|                   |  | USB   |
|                   | ->                                       | Wireless  |
|                   |  |   |
| ~                 | <u></u>                                  |   |
| < · · · >         |  |   |
|                   |  |   |
| <u>.</u>          | unique.                                  | · · · · · · · · · · · · · · · · · · ·                                     |
| Device Info       |  |   |
| Advanced Setup    | <ol><li>Click Save/Apply butto</li></ol> | n to make the changes effective immediately                               |
| WAN               |  |   |
| LAN               | added to the new gro                     | I interraces will be removed from their existing groups and               |
| NAT               | added to the new gro                     | up.   |
| Security          | Group Name:                              |   |
| Quality of Servic | Group Name.                              |   |
| Routing           | Grouped                                  | Available   |
| DNS               | Interfaces                               | Interfaces  |
| DSL               |  |   |
| Port Mapping      | nas_0_35                                 | ENET-1  |
| Wireless          |  | USB   |
| Voice             |  | Wireless  |
| Diagnostics       |  |   |
| Management        | <  |   |
|                   |  |   |
|                   |  |   |
|                   |  |   |
|                   |  |   |
|                   |  | Save/Apply  |
| < >               |  |   |
|                   | Figure 48. Advar                         | nced Setup – Port Mapping – Add   |

Page 46 of 69

## 3.5 Wireless

Use the Wireless screen to configure the AH4021 for wireless access. It is separated into 6 parts:

Basic Security MAC Filter Wireless Bridge Advanced Station Info

The configurable items for each part would be described in the following.

## 3.5.1 Basic

| Device Info     | Wireless Basic   |
|-----------------|--|
| dvanced Setup   | This page allows you to configure basic features of the wireless LAN interface. You can enable |
| Nireless        | or disable the wireless LAN interface, hide the network from active scans, set the wireless    |
| Basic           | network name (also known as SSID) and restrict the channel set based on country                |
| Security        | requirements.  |
| MAC Filter      | Click "Apply" to configure the basic wireless options.   |
| Wireless Bridge |  |
| Advanced        | ☑ Enable Wireless  |
| Station Info    | □ Hide Access Point  |
| Voice           | SSID: ABCDE  |
| Diagnostics     | RSSID: 00:03:C0:36:6R:0C   |
| Management 📃    |  |
|                 | Country: ALL   |
|                 |  |
|                 |  |
|                 | Save/Apply   |
|                 |  |
|                 |  |
|                 |  |
|                 |  |
|                 |  |
| *               |  |

Figure 49. Wireless – Basic

This page has clearly described the configurable features.

3.5.2 Security

| Device Info<br>Advanced Setup<br>Wireless<br>Basic<br>Security<br>MAC Filter<br>Wireless Bridge<br>Advanced<br>Station Info<br>Voice<br>Diagnostics<br>Management | Wireless Security<br>This page allows you the<br>the network authentic<br>is required to authenti<br>Click "Apply" to config<br>Network<br>Authentication: | to configure security features of the wireless LAN interface. You can sets ation method, selecting data encryption, specify whether a network key cate to this wireless network and specify the encryption strength. ure the wireless security options. | •    |
|---|--|---|------|
| C C C C C C C C C C C C C C C C C C C   | WEP Encryption:<br>is required to authent<br>Click "Apply" to config<br>Network  | Disabled  Cate to this wireless network and specify the encryption strength. Ure the wireless security options.   | ~    |
| Wireless<br>Basic<br>Security<br>MAC Filter<br>Wireless Bridge<br>Advanced<br>Station Info<br>Voice<br>Diagnostics<br>Management                                  | Authentication:<br>WEP Encryption:<br>Encryption Strength:   | Enabled<br>128-bit  Set Encryption Keys<br>Save/Apply   | < nu |

Page 48 of 69

| Device Info     | Wireless Settings Encryption Keys   |  |
|-----------------|---|--|
| Advanced Setup  | Enter 13 ASCII characters or 26 bexadecimal digits for 128-bit encryption keys. |  |
| Wireless        |   |  |
| Basic           | Network Key 1:  |  |
| Security        | Natural Kay D   |  |
| MAC Filter      | Network Key 2.  |  |
| wireless Bridge | Network Key 3:  |  |
| Station Info    | Network Key 4:  |  |
| Voice           | Current Network Key:  |  |
| Diagnostics     |   |  |
| Management      | Save/Apply  |  |
|                 | our of the bar  |  |
|                 |   |  |
|                 |   |  |
|                 |   |  |
|                 |   |  |
|                 |   |  |
|                 |   |  |
|                 |   |  |
|                 |   |  |

Figure 50. Wireless – Security

**Network Authentication:** Set the network Authentication method. 802.1X and WPA require setting valid RADIUS parameters. WPA-PSK requires a valid WPA Pre-Shared Key to be set.

**802.1X**: As the IEEE standard for access control for wireless and wired LANs, 802.1x provides a means of authentication and authorizing devices to attach to a LAN port. This standard defines the Extensible Authentication Protocol (EAP), which uses a central authentication server to authenticate each user on the network.

**WPA/WPA2**: The Wi-Fi Alliance put together WPA/WPA2 as a data encryption method for 802.11 wireless LANs. WPA is an industry-supported, pre-standard version of 802.11i utilizing the Tempoal Key Integrity Protocol (TKIP), which fixes the problems of WEP, including using dynamic keys.

WPA/WPA2 Pre-Shared Key: Set the WPA/WPA2 Pre-Shared Key (PSK).

**WPA/WPA2 Group Rekey Interval:** Set the WPA/WPA2 Group Rekey Interval in seconds. Leave blank or set to zero to disable periodic re-keying.

**Radius Server:** Set the IP address of the RADIUS server to use for authentication and dynamic key derivation.

Page 49 of 69

**RADIUS Server** is responsible for receiving user connection requests, authenticating the user, and then returning all of the configuration information necessary for the client to deliver the server to the user.

**Radius Port:** Sets the UDP port number of the RADIUS server. The port number is usually 1812 or 1645 and depends on the server.

Radius Key: Set the shared secret for the RADIUS connection.

**Data Encryption (WEP):** Selecting **Off** disables WEP data encryption. Selecting **WEP** enables WEP data encryption and requires that a valid network key be set and selected unless **802.1X** is enabled.

WEP, short for Wired Equivalent Privacy, is a protocol for wireless LANs or local area networks. This WEP is defined in the 802.11 Standard. WEP is designed so security levels are maintained at the same level as the wired LAN. WEP's aim is to provide security by encrypting data over radio waves. WEP protects data as it's transmitted from one end point to another. WEP is used at two lowest layers, the data link and physical layer. WEP is designed to make up for the inherent security in wireless transmission as compared to wired transmission.

**Shared Key Authentication:** Set whether shared key authentication is required to associate. A valid network key must be set and selected if required.

3.5.3 MAC Filter

| Control of the second s | Wireless MAC Filter<br>MAC Restrict Mode:  Disabled  Allow  Deny MAC Address Remove Add Remove   |
|--|--|
| Device Info<br>Advanced Setup<br>Wireless<br>Basic<br>Security<br>MAC Filter<br>Wireless Bridge<br>Advanced<br>Station Info<br>Voice<br>Diagnostics<br>Management  | Wireless MAC Filter   Enter the MAC address and click "Apply" to add the MAC address to the wireless MAC address filters.   MAC   Address:   Save/Apply  |
|  | $\frac{1}{1} = \frac{1}{1} = \frac{1}$ |

This page allows users to **Add/Remove** hosts with the specified MAC addresses that are able or unable to access the wireless network. When users decide to use **Allow**, only the MAC addressed in the user defined list can access the wireless network. When users use **Deny**, only the user specified MAC addresses are unable to access to wireless network.

|   | Allow or <b>Deny</b> is checked  | l.  |   |
|---|--|---|---|
| 3.5.4   | Wireless Bridge  |   |   |
| Device Info<br>Advanced Setup<br>Wireless<br>Basic<br>Security<br>MAC Filter<br>Wireless Bridge<br>Advanced<br>Station Info<br>Voice<br>Diagnostics<br>Management | Wireless Bridge         This page allows you to configur<br>can select Wireless Bridge (also<br>point functionality. Selecting Acc<br>functionality will still be available<br>Select Disabled in Bridge Restric<br>bridge will be granted access. S<br>restriction. Only those bridges s<br>Click "Refresh" to update the re<br>Click "Save/Apply" to configure to<br>AP Mode:         AP Mode:       Ac         Bridge Restrict:       Dis | re wireless bridge features of the wireless LAN interface. You<br>known as Wireless Distribution System) to disables access<br>ess Point enables access point functionality. Wireless bridge<br>le and wireless stations will be able to associate to the AP.<br>ct which disables wireless bridge restriction. Any wireless<br>telecting Enabled or Enabled(Scan) enables wireless bridge<br>selected in Remote Bridges will be granted access.<br>mote bridges. Wait for few seconds to update.<br>the wireless bridge options.<br>xxxxs Point<br>sabled<br>v |   |
|   | Figure 52. Wire  | Refresh Save/Apply<br>eless – Wireless Bridge   | ~ |

Note: The MAC addresses in the list would immediately take effect when

It allows the users to configure wireless bridge features of the wireless LAN interface. You can select Wireless Bridge (also known as Wireless Distribution System) to disables acess point functionality. Selecting Acess Point enables access point functionality. Wireless bridge functionality will still be available and wireless stations will be able to associate to the AP. Select Disabled in Bridge Restrict which disables wireless bridge restriction. Any wireless bridge will be granted access. Selecting Enabled or Enabled(Scan) enables wireless bridge restriction. Only those bridges selected in Remote Bridges will be granted access.

3.5.5 Advanced

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Page 52 of 69



**Channel:** Select the appropriate channel from the list provided to correspond with your network settings. All devices in your wireless network must use the same channel in order to function correctly.

Page 53 of 69

**Rate:** The default setting is **Auto**. The range is from 1 to 54Mbps. The rate of data transmission should be set depending on the speed of your wireless network. You can select from one transmission speed, or keep the default setting, Auto, to have the IAD automatically use the fastest possible data rate.

**Multicast Rate:** The default setting is **54Mbps**. The range is from 1 to 54Mbps. The rate of data transmission should be set depending on the speed of your wireless network. You can select from one transmission speed, or keep the default setting, to have the IAD automatically use the fastest data rate for multicast packets.

Basic Rate: Select the basic rate that wireless clients must support.

**Fragmentation Threshold:** This value should remain at its default setting of 2346. The range is 256~2346 bytes. It 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 this value too low may result in poor network performance. Only minor modifications of this value are recommended.

**RTS Threshold:** This value should remain at its default setting of **2347**. The range is 0~2347 bytes. Should you encounter inconsistent data flow, only minor modifications are recommended. If a network packet is smaller than the packet RTS threshold size, the RTS/CTS mechanism will not be enabled. The IAD sends Request of 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.

**DTIM Interval:** The default value is **3**. This value, between 1 and 255 milliseconds, 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 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.

**Beacon Interval:** The default value is **100**. Enter a value between 1 and 65535 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.

**XPress<sup>TM</sup> Technology:** Select to enable/disable this proprietary mode.

**54g**<sup>TM</sup> **Mode:** Select the mode to **54g Auto** for the widest compatibility. Select the mode to **54g Performance** for the fastest performance among 54g certified equipment. Set the mode to **54g LRS** if you are experiencing difficulty with legacy 802.11b equipment.

**54g protection:** In **Auto** mode the IAD will use RTS/CTS to improve 802.11g performance in mixed 802.11g/802.11b networks. Turn protection **off** to maximize 802.11g throughput under most conditions.

WMM (WiFi Multimedia): Select to enable/disable the support.

| 3.5.6                    |   | Station Info  |
|--------------------------|---|---|
| Device Info              | ^ | Wireless Authenticated Stations                                   |
| Advanced Setup           |   | This page shows authenticated wireless stations and their status. |
| Basic                    |   | BSSID Associated Authorized                                       |
| Security<br>MAC Filter   |   |   |
| Wireless Bridge          |   | Refresh   |
| Advanced<br>Station Info |   |   |
| Voice                    |   |   |
| Management               |   |   |
|                          |   |   |
|                          |   |   |
|                          |   |   |
|                          |   |   |
|                          |   |   |
| < >                      | ~ |   |
|                          |   | Figure 54. Wireless – Station Info                                |

Authenticated wireless stations and their status will be shown here.

## 3.6 Voice

Users can configure the MGCP related parameters, start MGCP client to make VoIP call.

Page 55 of 69

| Voice MGCP conf        | figuration  | ^   |
|------------------------|---|---|
|                        |   |   |
| Enter the MGCP relate  | ed parameters   |   |
|                        |   |   |
| Click "Stop MGCP clier | nt" before changing the parameters and click "Start MGCP client" to   |   |
| save the MGCP param    | leters.   |   |
| Call Agent ID          |   |   |
| Address:               | 172.24.1.98   |   |
| MGCP client name:      | TECOM_AH4021  |   |
| AALN:                  | 1   |   |
| Interface name:        | br0 - bridge 👻  |   |
| Preferred codec:       | Auto 🖌  |   |
| Country setting:       | China   |   |
| Call Agent port numbe  | er: 2727  |   |
| MGC port number:       | 2427  |   |
| TX Gain:               | 0 dB 💌  |   |
| RX Gain:               | 0 dB 🗸  |   |
| PSTN access code:      | 999   |   |
| Heartbeat Time:        | 60  |   |
|                        | Start MGCP client   |   |
|                        | Voice MGCP conf<br>Enter the MGCP relate<br>Click "Stop MGCP cliet<br>save the MGCP param<br>Call Agent IP<br>Address:<br>MGCP client name:<br>AALN:<br>Interface name:<br>Preferred codec:<br>Country setting:<br>Call Agent port number<br>MGC port number:<br>TX Gain:<br>RX Gain:<br>PSTN access code:<br>Heartbeat Time: | Voice MGCP configuration         Enter the MGCP related parameters         Click "Stop MGCP client" before changing the parameters and click "Start MGCP client" to save the MGCP parameters.         Call Agent IP         Address:         MGCP client name:         TECOM_AH4021         AALN:         Interface name:         br0 - bridge •         Preferred codec:         Auto •         Country setting:         China •         Call Agent port number:         2727         MGC port number:         2427         TX Gain:       0 dB •         PSTN access code:       999         Heartbeat Time:       60 |

Call Agent IP Address: IP address of the Call Agent (softswitch).

MGCP client name: Domain name of MGC gateway.

**AALN:** Starting number of Endpoint name (format: AALN/x for TEL1, AALN/x+1 for TEL2).

Interface Name: Interface that VoIP packets will be sent to.

**Preferred codec:** The selected codec will be put in the first position of the list when negotiating with another MGC endpoint.

Country setting: Select the appropriate country to have correct tone plan.

Call Agent port number: The UDP port that Call Agent uses for signaling.

MGC port number: The UDP port that AH4021 uses for signaling.

TX/RX Gain: Transmitting/receiving gain level control.

**PSTN access code:** The access code for access to PSTN line. It is valid for TEL1 only. Please make sure that the access code will not be conflict with any feature access code provided by your service provider.

**Heartbeat time:** The duration for AH4021 to send a Heartbeat packet to the Call Agent. If you believe that you have correct configuration but the VoIP LED is on and off

continuously, the Call Agent may not support this function and you must turn it off ('0' means disable).

Click the "Stop MGCP client" before changing the configuration. Click the "Start MGCP client" to start the VoIP service with the settings shown.

## 3.7 Diagnostics

| Device Info  | pppoe_0_35_1 Diagnostics   |  |  |    |
|--|--|--|--|----|
| Advanced Setup<br>Wireless<br>Voice<br>Diagnostics | Your modem is capable of testing you<br>a test displays a fail status, click "Re<br>sure the fail status is consistent. If th<br>troubleshooting procedures.   | ur DSL coni<br>run Diagno<br>ne test con                                     | ection. The individual tests are listed below.<br>tic Tests" at the bottom of this page to mak<br>inues to fail, click "Help" and follow the | If |
| Management   | Test the connection to your loca   | l network  |  |    |
|  | Test your Ethernet<br>Connection:  | PASS   | elp  |    |
|  | Test your USB Connection:  | DOWN H   | elp  |    |
|  |  | DACO 1   |  |    |
|  | Test your Wireless Connection:   | PASS   | elp  |    |
|  | Test your Wireless Connection:<br>Test the connection to your DSL<br>Test ADSL Synchronization:  | service p  | rovider<br>Heln  |    |
|  | Test your Wireless Connection:<br>Test the connection to your DSL<br>Test ADSL Synchronization:<br>Test ATM OAM F5 segment ping  | PASS <u>r</u><br>service p<br>PASS<br>: PASS                                 | rovider<br>Help<br>Help  |    |
|  | Test your Wireless Connection:<br>Test the connection to your DSL<br>Test ADSL Synchronization:<br>Test ATM OAM F5 segment ping<br>Test ATM OAM F5 end-to-end pi   | PASS <u>F</u><br>service p<br>PASS<br>: PASS<br>ing: PASS                    | rovider<br>Help<br>Help  |    |
|  | Test your Wireless Connection:<br>Test the connection to your DSL<br>Test ADSL Synchronization:<br>Test ATM OAM F5 segment ping<br>Test ATM OAM F5 end-to-end pi<br>Test the connection to your Inte   | PASS P<br>service p<br>PASS<br>PASS<br>ing: PASS<br>ernet serv               | rovider<br>Help<br>Help<br>Help  |    |
|  | Test your Wireless Connection:<br>Test the connection to your DSL<br>Test ADSL Synchronization:<br>Test ATM OAM F5 segment ping<br>Test ATM OAM F5 end-to-end pi<br>Test the connection to your Inte<br>Test PPP server connection:                                  | PASS<br>service p<br>PASS<br>ing: PASS<br>ernet serv<br>PASS                 | rovider<br>Help<br>Help<br>Ce provider   |    |
|  | Test your Wireless Connection:<br>Test the connection to your DSL<br>Test ADSL Synchronization:<br>Test ATM OAM F5 segment ping<br>Test ATM OAM F5 end-to-end pi<br>Test the connection to your Inte<br>Test PPP server connection:<br>Test authentication with ISP: | PASS<br>service p<br>PASS<br>PASS<br>ing: PASS<br>ernet serv<br>PASS<br>FAIL | rovider<br>Help<br>Help<br>Help<br>Ce provider<br>Help<br>Help   |    |

This page allows users to test the Ether port connection, DSL port connection, connection to the Internet Service Provider. If a test displays a fail status, click "Test" at the bottom of the page to make sure the fail status is consistent. If the test continues to fail, click "Help" to follow the troubleshooting procedure.

## 3.8 Management

The system administrator can do the following functions to manage the configurations, events, SNMP information, user accounts, and software update of the AH4021.

Settings System Log SNMP Agent Internet Time Access Control Update Software Save/Reboot

## 3.8.1 Settings

System Administrator can do the AH4021 settings backup, update, and restore here. The settings can be saved from AH4021 to PC. The saved setting file can also be loaded from PC to AH4021. These 2 functions can help the system

administrator to manage large amount of AH4021s efficiently. Restore Default would set the AH4021 with the factory default configuration.



Click "Backup Settings" to save the settings to a file on the Local PC.

3.8.1.2 Update



Page 59 of 69

Click "Restore Default Settings" to restore the factory default settings. This would be helpful when the settings mass up.

## 3.8.2

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

| Device Info                | System Log   |
|----------------------------|--|
| Advanced Setup<br>Wireless | The System Log dialog allows you to view the System Log and configure the System Log |
| Voice                      | opuons.  |
| Diagnostics                | Click "View System Log" to view the System Log.                                      |
| Management                 |  |
| Settings                   | Click "Configure System Log" to configure the System Log options.                    |
| System Log                 |  |
| SNMP Agent                 | View System Log  |
| Internet Time              | view system Log  |
| Access Control             |  |
| Update Softwar             |  |
| Save/Reboot                |  |
|                            |  |
|                            |  |
|                            |  |
|                            |  |
|                            |  |
|                            |  |
|                            |  |
| <                          | ×  |
|                            | Figure 60. Management – System Log   |

Page 60 of 69

| Device Info     Advanced Setup                          | System Log Configuration<br>If the log mode is enabled, the system will begin to log all the selected events. For the Log   |
|---|---|
| Wireless<br>Voice<br>Diagnostics<br>Management          | 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. |
| System Log<br>System Log<br>SNMP Agent<br>Internet Time | Select the desired values and click 'Save/Apply' to configure the system log options.<br>Log: ○Disable ⊙Enable  |
| Access Control<br>Update Softwar<br>Save/Reboot         | Log Level:     Debugging       Display Level:     Debugging       Mode:     Local   |
| ×   | Save/Apply  |

Figure 61. Management - System Log - Configure

Configure the System Log option. There're 8 levels of Log Level and Display Level, Emergency, Alert, Critical, Error, Warning, Notice, Informational, Debugging. The Log Level implies that what log level is applied to AH4021 to do the log. The Display Level would just show the users the log message that they want to know. As a result, Display Level was just a subset of the retrieved from the total log message which was logged according to the setting of the Log Level. If the "Mode" is set to "Remote" or "Both", the log messages would be sent to the specified UDP port of the specified log server.

## 3.8.3 SNMP Agent

System Administrator could enable or disable the embedded SNMP Agent here. SNMP Agent would allow a management application to retrieve statistics and status from AH4021.

|                | ^ | townshipston new advant lauter  |
|----------------|---|---|
| Device Info    |   | SNMP - Configuration  |
| Advanced Setup |   | Simple Network Management Protocol (SNMP) allows a management application to retrieve |
| Voice          |   | statistics and status from the SNMP agent in this device.                             |
| Diagnostics    |   |   |
| Management     |   | Select the desired values and click "Apply" to configure the SNMP options.            |
| Settings       |   |   |
| System Log     |   | SNMP Agent © Disable O Enable   |
| SNMP Agent     |   | Poad Community public   |
| Access Control |   |   |
| Update Softwar |   | Set Community: private  |
| Save/Reboot    |   | System Name: Tecom AH4021   |
|                |   | System Location: unknown  |
|                |   | System Contact: Tecom Technical Support   |
|                |   | Trap Manager IP: 0.0.0.0  |
|                |   |   |
|                |   | Save/Apply  |
|                |   |   |
|                |   |   |
|                |   |   |
|                |   |   |
|                | ~ |   |
|                |   |   |

Figure 62. Management – SNMP Agent

Enable or Disable the SNMP Agent. The detail function of the Read Community, Set Community, System Name, System Location, System Contact, Trap Manager IP would not be described here.

| 3.8.4                      | Internet Time  |
|----------------------------|--|
| Device Info                | Time settings  |
| Advanced Setup<br>Wireless | This page allows you to the modem's time configuration.    |
| Voice                      | ☑ Automatically synchronize with Internet time servers     |
| Diagnostics                |  |
| Management                 | First NTP time   |
| Settings                   | server:  |
| System Log                 | Second NTP time server: None                               |
| SNMP Agent                 |  |
| Internet Time              | Time zone offset: (GMT-12:00) International Date Line West |
| Access Control             |  |
| Update Softwar             | Save/åpply   |
| Save/Reboot                | Save/Apply   |
| ~                          |  |
|                            |  |
|                            |  |
|                            |  |
|                            |  |
|                            |  |
|                            |  |
|                            | v  |
| < >                        |  |
|                            | Figure 63. Management – Internet Time                      |

Page 62 of 69

This page allows you to configure the NTP time server so the AH4021 can have correct system time. It is useful for reviewing the System Log.

#### 3.8.5 Access Control

The AH4021 browser management tool is protected by a security password. System Administrator could set the password for three accounts: admin, support, and user. Also, an Access Control list can be defined in "IP Addresses". User from the allowed IP address can only access the AH4021. The "Services" list the service daemons which can be enabled for LAN side, WAN side, or both. It supports the ACL capability which can assign at least 16 IP addresses for management, and AH4021 can be configured and managed by ACL IP addresses only.

## 3.8.5.1 Services

| ice           |          |                           |          |
|---------------|----------|---------------------------|----------|
| gnostics      |          |                           |          |
| nagement      | Services | LAN                       | WAN      |
| ttings        | FTP      | 🗹 Enable                  | 🗆 Enable |
| tem Log       | НТТР     | ☑ Enable                  | 🗆 Enable |
| MP Agent      | ICMD     | Enable                    | Enable   |
| ernet Time    |          |                           |          |
| cess Control  | SNMP     | Enable                    | L Enable |
| Services -    | SSH      | ☑ Enable                  | Enable   |
| P Addresses   | TELNET   | 🗹 Enable                  | 🗆 Enable |
| asswords      | TETP     | 🗹 Enable                  | Enable   |
| pdate Softwar |          | Contraction of the second |          |
| ave/Reboot    | [        | Save/Apply                |          |
|               |          | ,,                        |          |
|               |          |                           |          |

| Services | LAN      | WAN      |
|----------|----------|----------|
| FTP      | 🗹 Enable | 🗖 Enable |
| HTTP     | 🗹 Enable | 🗆 Enable |
| ICMP     | Enable   | 🗆 Enable |
| SNMP     | 🗹 Enable | 🗆 Enable |
| SSH      | 🗹 Enable | 🔲 Enable |
| TELNET   | 🗹 Enable | 🔲 Enable |
| TETP     | ☑ Enable | 🗆 Enable |

Figure 64. Management - Access Control - Services

Mark the Enable of the WAN and LAN for each service. FTP, HTTP, ICMP, SNMP, SSH, TELNET, TFTP are supported in the AH4021.

3.8.5.2 IP Addresses

| Device Info<br>Advanced Setup<br>Wireless<br>Voice<br>Diagnostics<br>Management<br>Settings<br>System Log<br>SNMP Agent<br>Internet Time<br>Access Control<br>Services<br>IP Addresses<br>Passwords<br>Update Softward<br>Save/Reboot | Access Control IP Address         The IP Address Access Control mode, if 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.         Access Control Mode: <ul> <li>Disable</li> <li>Enable</li> <li>IP Address Remove</li> <li>Add</li> <li>Remove</li> <li>Add</li> <li>Remove</li> <li>Ter Address Control – IP Addresses</li> <li>Figure 65. Management – Access Control – IP Addresses</li> <li>Click "Add" to add an IP address to the Access Control List. Mark the Remove option of the specified IP address, then click "Remove" to remove the IP address from the ACL.</li> </ul> |
|---|--|
| Device Info<br>Advanced Setup<br>Wireless<br>Voice<br>Diagnostics<br>Management<br>Settings<br>System Log<br>SNMP Agent<br>Internet Time<br>Access Control<br>Services<br>IP Addresses  | Access Control Passwords         Access to your DSL router is controlled through three user accounts: admin, support, and user.         The user name "admin" has unrestricted access to change and view configuration of your DSL Router.         The user name "support" is used to allow an ISP technician to access your DSL Router for maintenance and to run diagnostics.         The user name "user" can access the DSL Router, view configuration settings and statistics, as well as, update the router's software.         Use the fields below to enter up to 16 characters and click "Apply" to change or create  |
| Passwords<br>Update Softwar<br>Save/Reboot  | passwords. Note: Password cannot contain a space.         Username:         Old Password:         New Password:         Confirm Password:  |



| 3.8.6   |  |
|---|--|
| Device Info<br>Advanced Setup<br>Wireless<br>Voice                                    |  |
| Management<br>Settings<br>System Log<br>SNMP Agent<br>Internet Time<br>Access Control |  |
| Update Softwar<br>Save/Reboot   |  |

×

### Tools -- Update Software

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 box below or click the "Browse" button to locate the image file.

Step 3: Click the "Update 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: 瀏覽...

| Undate Software |
|-----------------|
| opuace ourchare |



The new released software could be updated from the Local PC side or remotely. Click the "Browse" to locate the new software image file in the PC. Then, "Update Software" to proceed the software update.

## 3.8.7 Save/Reboot



Click "Save/Reboot" to reboot the AH4021. The AH4021 would automatically save the configuration before reboot, so that modified settings would take effect after reboot.

Page 66 of 69

## 4 Appendix

## ATM

- Support up to 8 ATM PVCs, and all PVCs work well concurrently and independently
- Supports UBR, CBR, and rt-VBR and nrt-VBR service classes
- Provides ATM layer functionality
- Supports MPoA functionality (RFC2684)
- Supports PPPoA (RFC2364)
- Supports IP over ATM (IPoA)
- The format of data packet between ATU-C and AH4021 support ATM cell format specified in ITU-T Rec. I.361
- Supports ATM Forum UNI 3.1/4.0 PVC

## ADSL

- Support ANSI T1.413 Issue 2
- Support ITU-T G.992.1 (G.DMT), G.992.2 (G.Lite) G.992.3 (ADSL 2), and G.992.5 (ADSL 2+)
- Multiple protocol over AAL5 (RFC2684)
- Support ATM cell format ITU -T I.361
- ATM Forum UNI 3.1/4.0 PVC
- Support up to 8 PVCs -traffic shaping (CBR, UBR, rt-VBR, nrt-VBR)
- Supports AIS, RDI, and OAM F4/F5 loopback

## **PPP Support**

- PPPoA (RFC 2364)
- PPPoE (RFC 2516)

## Bridging

- Ethernet to ADSL self -learning. Transparent Bridging
- Filtering functions MAC address filtering and protocol filtering for up-link (IEEE802.1d)

## Routing

- RIP v1/v2
- Static routing
- NAT with ALGs
- DHCP Server/Relay/Client
- DNS Relay
- NAT/NAPT
- IGMP Proxy

## VolP

- Support SIP (RFC3261)/MGCP (RFC3435)
- Supports RTP/RTCP (RFC1889)
- Voice codec: G.711, G.726, G.729a (optional), G.723.1 (optional)
- G.168 Echo Cancellation
- Support FAX/modem tone detection and auto-fallback to G.711
- Support ITU-T T.38 standard (optional)

- Supports MGCP NAT Traversal (Heartbeat) (IETF draft-aoun-mgcp-nat-package-02) (MGCP only)
- Support call hold, call waiting, call forwarding, caller ID, call progress tone, call transfer, call conference (SIP only)

## Radio - WLAN

- Standard: IEEE 802.11g and 802.11b
- Media Access Control: CSMA/CA with ACK
- Modulation: OFDM /CCK
- Frequency Range (Range depends on different country):
- Output Power: 15 dBm (typical)
- Sensitivity: -67 (54Mbps) / -83 (11Mbps) dBm (typical)
- Data Rate: 54, 48, 36, 24, 18, 12, 11, 6, 5.5, 2, 1Mbps, auto-fallback

## Radio - Bluetooth (optional)

- Standard: Bluetooth SIG Spec V1.2
- Sensitivity: -85 dBm (typical)
- Data Rate: 1 Mbps
- Output Power: 17 dBm (typical)

## Security

- Password protected system management
- User authentication for PPP (PAP/CHAP/MSCHAP)
- Firewall
  - Stateful Inspection IDS
- Packet Filtering
- SSH
- Access Control List
  - Wireless Security: Support WEP (64, 128-bit) encryption 802.1x and WPA/WAP2 authentication MAC Address-based access control WDS support

## QoS

- ATM: CBR, rt-VBR, nrt-VBR, UBR
- IP: IP ToS function (RFC 1349), supports priority queues for upstream traffic based on ToS field.

## **Configuration Management**

- LAN/WAN management via Telnet interface or Web-based browser interface
- SNMP MIB 2 management (RFC 1213)
- Firmware upgrade available by TFTP/ FTP/HTTP
- Status display and event report from Web-based management

## **Physical Interfaces**

- One Asymmetrical Digital Subscriber Line (ADSL) interface (RJ-11)
- Two 10/100BaseT Ethernet port (RJ-45)
- One USB port

- Two Telephone interfaces (RJ-11)
- Antenna: Dual Antenna diversity system
- PSTN Backup line (RJ-11) (shares the same port for ADSL)

## **Power Requirement**

- Input: 110/220 VAC, 50/60 Hz
- Output: 16 VDC, 900 mA

## **Operating Environment**

- Temperature:  $0 \sim 40^{\circ} C$
- Humidity: 10 to 90%, non- condensing

## **Physical Specification**

- Dimension: 208 (W) x 148 (L) x 42 (H) mm

Page 69 of 69