User Manual

G.SHDSL .bis Router



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1 Descriptions

CTC SHDTU04b Series 2/4-Wire SHDSL.bis EFM Bridges/Routers comply with the latest G.SHDSL.bis technology standards and supports symmetric data rate up to 15.3Mbps/Pair under TC-PAM 128. It provides a secure and symmetrical high-speed connectivity over existing copper-line infrastructure that is ideal for service providers as well as SOHO and SME users.

SHDTU04b supports back to back connectivity for long reach Ethernet extension. Users can make a direct connection between two SHDSL.bis routers by using a standard telephone cable, and configure one as CO and the other as CPE. The connection offers a cost effective solution for service providers and SME users who need high-speed dedicated network applications.

The SHDSL.bis EFM routers are integrated with high-end Bridging/Routing capabilities that support flexible traffic management policies and Quality of Service, enabling business-class Ethernet services with flexibility of mapping user traffic into Ethernet flows. The unit can be managed by different ports and applications including comprehensive command-line interface (CLI), Telnet, user-friendly GUI-based Web Browser Interface and SNMP.

The SHDSL.bis routers help customers to meet their growing data communication needs by the latest broadband technologies. Through the power of SHDSL.bis products, you can access superior manageability and reliability.

1.1 Features

- ✓ Symmetrical high-speed Ethernet service with SHDSL.bis, backward compatible with SHDSL
- ✓ Support both EFM mode and ATM mode(1 PVC)
- ✓ Support point to point connectivity
- ✓ Support dying gasp

1.2 Specification

WAN Interface

- SHDSL.bis: ITU-T G.991.2 (2004) Annex A/B/F/G supported
- Support EFM Bonding and SHDSL M-Pair mode
- Encoding scheme: TC-PAM 16/32/64/128
- Data Rate:

N x 64 Kpbs (N=3~89) using TC-PAM 16/32 Max. 5.696Mbps (1-Pair) Max. 11.392Mbps (2-Pair)

N x 64 Kbps (N=3~239) using TC-PAM 64/128 Max. 15.296 Mbps (1-Pair) Max. 30.592 Mbps (2-Pair)

Impedance: 135 ohms. Compliant with IEEE 802.3ah

LAN Interface

 4-Ports 10/100M Switch, Auto-negotiation for 10/100Base-TX and Half/Full Duplex, Auto-MDIX Supported.

Bridging

- Up to 1024 MAC address learning bridge
- IEEE 802.1D transparent learning bridge
- IEEE 802.1Q/1P VLAN Port-based/Tagging
- QoS Class-based (Prioritization/Traffic/DSCP Mark), Rate Limiting, Up to 8 priority queues

Routing

- Support IP/TCP/UDP/ARP/ICMP/IGMP protocols
- IP routing with static routing and RIPv1/RIPv2 (RFC1058/2453)
- IP multicast and IGMP proxy (RFC1112/2236)
- Network address translation (NAT/PAT) (RFC1631)
- DHCP server, client and relay (RFC2131/2132)
- DNS relay/proxy and caching (RFC1034/1035)
- Dynamic DNS
- IP precedence (RFC 791)

ATM

- Multiple Protocols over AAL5
- Ethernet over ATM (RFC 2684/1483)
- 1 PVC

EFM

- EFM mode compliant to IEEE 802.3,
- PPP over Ethernet (RFC2516)
- Support of OAMPDU information and functionality (ITU-T Y.1731)
- OAMPDU Event Notification, Variable Request, Variable Response, Loopback Control

• VLAN base QOS (802.1P/Q), Priority Queue

Network Protocol

- VoIP(SIP) pass-through
- IPv4 (ARP/RARP, TCP/UDCP, ICMP)
- SNTP (Time Zone/ Daylight Savings)

Security

- Natural NAT/PAT firewall
- DMZ host
- Virtual server mapping (RFC1631)
- Advanced stateful packet inspection (SPI) firewall Denial of Service (DoS)
- Application level gateway for URL and keyword blocking (Content Filter)
- Access Control List (ACL)
- Support PAP/CHAP/MS-CHAP client

Management

- Web-based GUI for quick setup, configuration and management
- Command-line interface (CLI) for local console and Telnet/SSH access
- Password protected management and access control list for administration
- Remote management via WWW/SSH/Telnet local/remote
- Real-time system log logging
- SNMP SNMPv1/SNMPv2 (RFC 1157/1901/1905) and MIB-II (RFC 1213/1493)
- Software upgrade via Web-browser/CLI, supported TFTP/FTP
- Dying Gasp

Diagnostics/Monitoring

- Routing Table
- Packet Statistics

Hardware Interface

- WAN: RJ-45 x 1
- LAN: RJ-45 x 4
- Console Port: RS232 female
- Reset Button: Load factory default
- Power Jack

Indicators

- System: PWR, ALM
- WAN 1~4: LNK/ACT
- LAN 1~4: LINK/ACT

Physical / Electrical

- Dimensions: 18.7 x 3.3 x 14.5cm (WxHxD)
- Power: 100~240VAC (via power adapter)
- Power Consumption: 9 watts Max
- Operating Temperature: 0~45°C
- Storage Temperature: -20°C~70°C

• Humidity: 0%~95%RH (non-condensing)

Memory

• 128MB Flash Memory, 64MB DDR2 DRAM

Regulatory

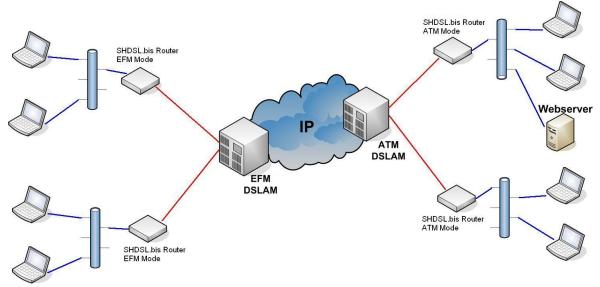
- CE
- FCC Part 15 Class A
- VCCI
- EN60950

*CTC reserves the right to change specifications without prior notice.

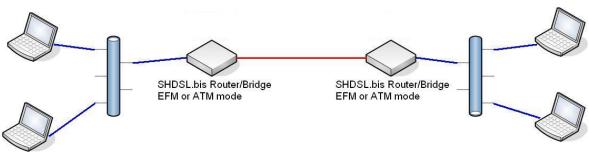
Order Information

| SHDTU04bF-ET10RS | 2-Wire G.SHDSL.bis EFM Router with 4 LAN Port |
|-------------------|--|
| SHDTU04bFA-ET10RS | 4-Wire G.SHDSL.bis EFM Router with 4 LAN Ports |

1.3 Applications



Combination with EFM or ATM DSLAM



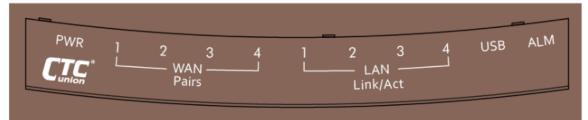
Point-to-point connection

2 Getting to know about the router

This chapter introduces the main features of the router.

2.1 Front Panel

The front panel contains LEDs which show status of the router.

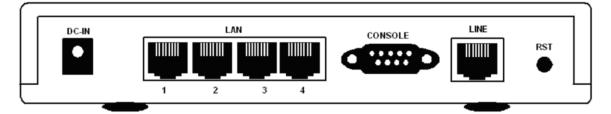


LED status of SHDSL.bis Router

| LEDs | | Active | Description | |
|------|-----------|--------|---|--|
| PWR | PWR | | The power adaptor is connected to this device | |
| | | On | SHDSL.bis line 1 connection is established | |
| | LINK 1 | Blink | SHDSL.bis line 1 handshake | |
| | | DIIIIK | Transmit or received data over SHDSL.bis link 1 | |
| | | On | SHDSL.bis line 2 connection is established | |
| | LINK 2 | Blink | SHDSL.bis line 2 handshake | |
| DSL | | DIIIIK | Transmit or received data over SHDSL.bis link 2 | |
| DJL | | On | SHDSL.bis line 3 connection is established | |
| | LINK 3 | Blink | SHDSL.bis line 3 handshake | |
| | | DIIIIK | Transmit or received data over SHDSL.bis link 3 | |
| | LINK 4 | On | SHDSL.bis line 4 connection is established | |
| | | Blink | SHDSL.bis line 4 handshake | |
| | | DIIIIK | Transmit or received data over SHDSL.bis link 4 | |
| | LINK/ACT1 | On | Ethernet cable is connected to LAN 1 | |
| | | Blink | Transmit or received data over LAN 1 | |
| | LINK/ACT2 | On | Ethernet cable is connected to LAN 2 | |
| LAN | LINIVACIZ | Blink | Transmit or received data over LAN 2 | |
| LAN | LINK/ACT3 | On | Ethernet cable is connected to LAN 3 | |
| | LINKACIS | Blink | Transmit or received data over LAN 3 | |
| | LINK/ACT4 | On | Ethernet cable is connected to LAN 4 | |
| | | Blink | Transmit or received data over LAN 4 | |
| | | On | SHDSL.bis line connection is dropped | |
| ALM | ALM | | SHDSL.bis self-test | |
| | | Off | No Alarm | |

2.2 Rear Panel

The rear panel of SHDSL.bis router is where all of the connections are made.

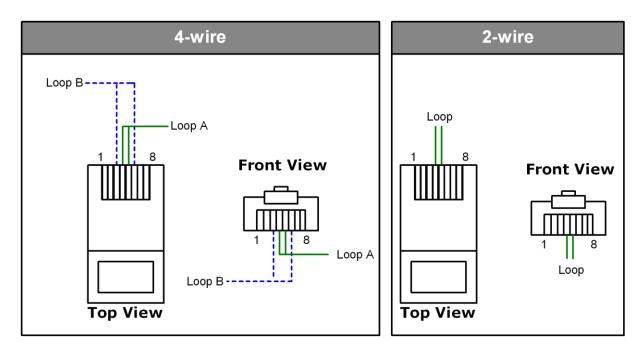


| Connectors Description of SHDSL.bis Router | | | | |
|--|---|--|--|--|
| DC-IN | Power adaptor inlet: Input voltage 12VDC | | | |
| LAN (1,2,3,4) | Four Ethernet10/100BaseT auto-sensing and auto-MDI/MDIX for LAN ports | | | |
| | (RJ-45) | | | |
| CONSOLE | RS- 232C (DB9) for system configuration and maintenance | | | |
| LINE | SHDSL.bis interface for WAN port (RJ-45) | | | |
| RST | Reset button for reboot or load factory default | | | |



- The reset button can be used only in one of two ways.
- (1) Press the Reset Button for 1 second to make the system reboot.
- (2) Pressing the Reset Button for 4 seconds will make the system load the factory default settings and lose your existing configuration. When you want to change its configuration but forget the user name or password, or if the product is having problems connecting to the Internet and you want to configure it again by clearing all configurations, press the Reset Button for 4 seconds with a paper clip or sharp pencil.

2.3 SHDSL.bis Line Connector



Below figure show the SHDSL.bis line cord plugs pin asignment:

2.4 Console Cable

Below figure show the cosole cable pins asignment:

| Pin Number | Description | Figure |
|------------|---------------|-----------|
| 1 | No connection | |
| 2 | RxD (O) | |
| 3 | TxD (I) | |
| 4 | No connection | 5 4 3 2 1 |
| 5 | GND | |
| 6 | No connection | 9876 |
| 7 | CTS (O) | |
| 8 | RTS (I) | |
| 9 | No connection | |

3 Install the Router

This chapter will guide you to install the SHDSL.bis Router via Web Configuration and Serial Console. Please follow the instructions carefully.

Note: There are three methods to configure the router: Serial console, Telnet or Web Browser. Only one configuration method is used to setup the Router at any given time. Users have to choose one method to configure it.

For Web configuration, you can skip item 3. For Serial Console Configuration, you can skip item 1 and 2.

3.1 Check List

(1) Check the Ethernet Adapter in PC or NB

Make sure that Ethernet Adapter had been installed in PC or NB used for configuration of the router. TCP/IP protocol is necessary for web configuration, so please check the TCP/IP protocol whether it has been installed.

(2) Check the supported Web Browser in PC or NB

In order to set up the routeter by Web Configuration, your PC or notebook computer needs to install the supported web browser

(3) Check the Terminal Access Program

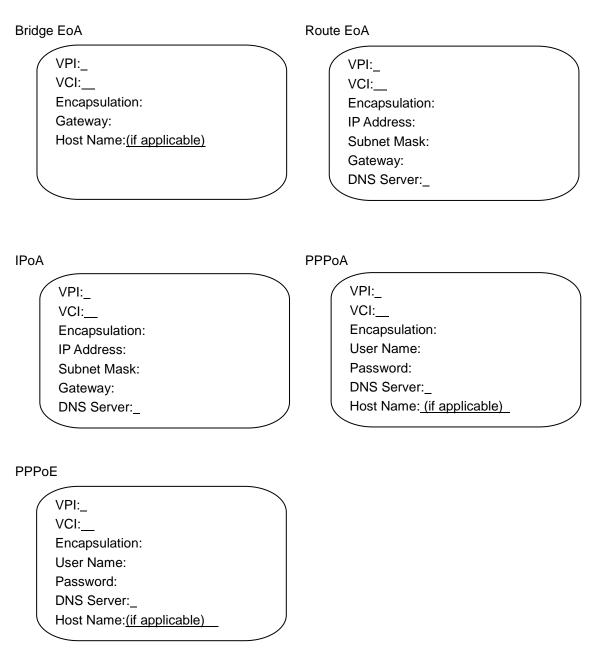
For Serial Console and Telnet Configuration, users need to setup the terminal access program with VT100 terminal emulation.

(4) Determine Connection Setting

Users need to know the Internet Protocol supplied by your Service Provider and determine the mode of setting.

| Protocol Selection | | | | |
|--------------------|---------------------------------------|--|--|--|
| RFC1483 | Ethernet over ATM | | | |
| RFC1577 | Classical Internet Protocol over ATM | | | |
| RFC2364 | Point-to-Point Protocol over ATM | | | |
| RFC2516 | Point-to-Point Protocol over Ethernet | | | |

The difference Protocols need to setup difference WAN parameters. After knowing the Protocol provided by ISP, you have to ask the necessary WAN parameters to setup it.



3.2 Install the SHDSL.bis Router

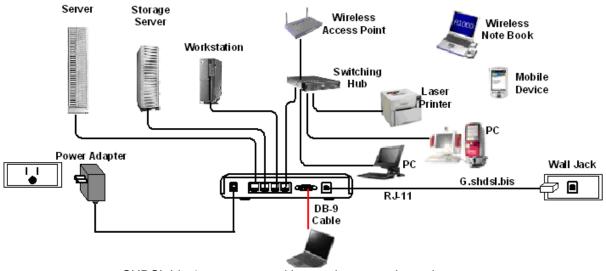


To avoid possible damage to this Router, do not turn on the router before Hardware Installation.

- Connect the power adapter to the port labeled DC-IN on the rear panel of the product.
- Connect the Ethernet cable.

Note: The router supports auto-MDI/MDIX switching so both straight through and cross-over Ethernet cable can be used.

- Connect the phone cable to the router and the other side of phone cable to wall jack.
- Connect the power adapter to power source inlet.
- Turn on the PC or NB, which is used for configuration the Router.



SHDSL.bis 4-ports router with complex network topology

4 Configuration via Web Browser

OVERVIEW

The web configuration is an HTML-based management interface for quick and easy set up of the SHDSL.bis Routers by using an Internet browser.

After properly connecting the hardware of SHDSL.bis router as previously explained. Launch your web browser and enter http://192.168.1.1

The default IP address and sub net-mask of the Router are 192.168.1.1 and 255.255.255.0. Because the router acts as DHCP server in your network, the router will automatically assign IP address for PC or NB in the network.



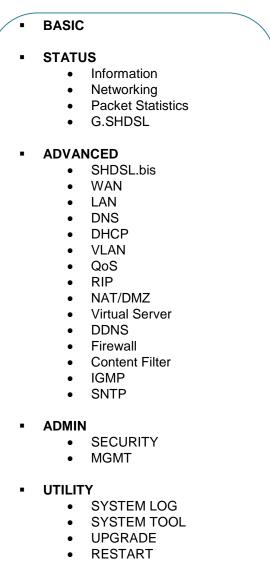
Type User Name root and Password root and then click OK.

The default user name and password both is *root*. For the system security, suggest changing them after configuration.

Note: After changing the User Name and Password, strongly recommend you to save them because another time when you login, the User Name and Password have to be used the new one you changed.

Function Listing

Below is the full function list of G.SHDSL.bis router



LOGOUT

4.1 Basic Setup

OVERVIEW

Basic setup includes Bridge and Routing operation modes. User can use it to setup the SHDSL.bis router quickly. After completing it successfully, you can access Internet or use a pair of SHDSL.bis Routers as LAN extenders. This is the easiest and quickest way to setup the router.

| △BASIC | | :: Info | Ready | |
|-----------------|---|---------|--------------------------|----------------------------|
| ≜ STATUS | • | | | |
| ADVANCED | • | | | INFORMATION |
| | + | | | |
| * UTILITY | + | - | Device Information | |
| ©LOGOUT | | | Host Name | зоно |
| 0200001 | | | HW MCSV | 1466-0000-XXXXXXX |
| | | | SW MCSV | 147A-0000-012272A6 |
| | | | Software Version | 012 |
| | | | Ethernet MAC Address | 00:E0:92:31:23:24 |
| | | | Serial Number | |
| | | Ī | DSL Chip Name | PEF22628V1.2 |
| | | Ī | DSL Hardware Pair Number | 2 |
| | | Ē | DSL Firmware Version | 1.1-1.9.0001_eLP |
| | | | System Current Time | 2016/05/03 08:59:16 |
| | | Г | System Update Time | 7 days 23 hr 55 min 24 sec |

Click BASIC for basic installation.

| | | | | G.Shdsl.bis |
|---------|--------|--------------------|---------------|-------------|
| BASIC | : Info | Ready | | |
| STATUS | | | BASIC | |
| ADMIN • | • | G.SHDSL | | |
| | · . | Transfer Mode | | |
| LOGOUT | | | | |
| | | Pair Mode | | |
| | | STU Mode | STU-R | |
| | | Multiplexing | | |
| | | VPI | 0 | |
| | | VCI | 32 | |
| | | WAN | | |
| | | Mode | Routing | |
| | | Encapsulation | RFC 1483 | |
| | | WAN-IP | | |
| | | IP Address Type | Dynamic | |
| | | IP Address | 0.0.0.0 | |
| | | Subnet Mask | 0.0.0.0 | |
| | | Gateway IP Address | 0.0.0.0 | |
| | | LAN | | |
| | | IP Address | 192.168.5.20 | |
| | | Subnet Mask | 255.255.255.0 | |
| | | | Apply Cancel | |
| | < | | | |

G.SHDSL

| Item | Description |
|---------------|---|
| Transfer Mode | Click on the drop-down list and select Transfer Mode as ATM(Asynchronous Transfer Mode) or PTM(Packet Transfer Mode). |
| | ATM uses asynchronous time-division multiplexing, and encodes data into small, fixed-sized packets called cells. |
| | SHDSL interfaces support Packet Transfer Mode (PTM). In PTM, packets (IP, PPP, Ethernet, MPLS, and so on) are transported over DSL links as an alternative to using Asynchronous Transfer Mode (ATM). PTM is based on the Ethernet in the First Mile (EFM) IEEE 802.3ah standard. |
| Pair Mode | Click on the drop-down list and select Pair Mode as Pair-1, Pair-2 or Pair-4. |
| | Pair-1 for 2-Wire SHDSL.bis Router Pair-2 for 4-Wire SHDSL.bis Router |
| STU Mode | Click on the drop-down list and select STU Mode as STU-C or STU-R |
| | STU-C means the terminal of central office and STU-R means customer premise equipment. For point to point application, STU-C is the server/master unit while STU-R is the client/slave unit. |
| Multiplexing | Click on the drop-down list and select Multiplexing used by your ISP as VC or LLC. |
| | VC-mux (VC-based Multiplexing): Each protocol is assigned to a specific virtual circuit. VC-based multiplexing may be dominant in environments where dynamic creation of large numbers of ATM VCs is fast and economical. |
| | LLC (LLC-based Multiplexing): One VC carries multiple protocols with protocol identifying information being contained in each packet header. Despite the extra bandwidth and processing overhead, this method may be advantageous if it is not practical to have a separate VC for each carried protocol. |
| | *This is available only when you select ATM as Transfer Mode. |
| VPI | Enter the VPI(Virtual Path Identifier) range from 0 to 255. |
| VCI | *This is available only when you select ATM as Transfer Mode. Enter the VCI(Virtual Channel Identifier) range from 32 to 65535. |
| VCI | *This is available only when you select ATM as Transfer Mode. |
| | This is available only when you select Arri as indusice mode. |

WAN

| Item | Description | |
|---------------|--|--|
| Mode | Click on the drop-down list and select Mode as Routing or Bridge | |
| | Choose Routing if your ISP provides you with only one IP address and you need several computers to use the same Internet account. Choose Bridge when your ISP provides you with more than one IP address and you need several computers to get individual IP address from your ISP's DHCP server. When Bridge is selected, NAT, DHCP server and Firewall become unavailable. | |
| Encapsulation | sulation Click on the drop-down list and select Encapsulation used by your ISP as PPPoE or RFC1483 | |

WAN-IP

| Item | Description |
|--------------------|--|
| IP Address Type | Click on the drop-down list and select IP Address Type as Static or Dynamic |
| | A static IP address is a fixed IP provided by your ISP. A dynamic IP address is different every time when you connect to the Internet. |
| IP Address | Enter IP address for WAN when select Static IP address Type. |
| Submask | Enter a subnet mask in dotted decimal notation when select Static IP address Type. |
| Gateway IP Address | Enter a gateway IP address provided by your ISP when select Static IP address Type. |

LAN

| Item | Description |
|-------------|--|
| IP Address | Enter IP address for LAN |
| Subnet Mask | Enter a subnet mask in dotted decimal notation when select Static IP address |
| | Туре. |

When select PPPoE as Encapsulation, you are required to enter the User Name and Password provided by your ISP.

PPPoE

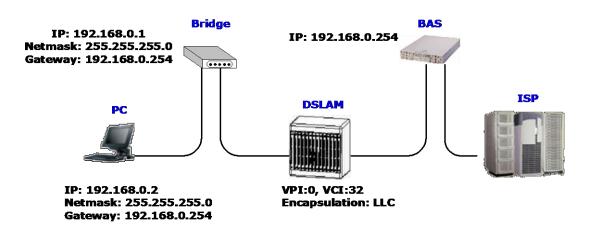
| Item | Description |
|-----------|---|
| User Name | Enter User Name provided by the ISP for PPPoE |
| Password | Enter Password provided by the ISP for PPPoE |

| G.SHDSL Transfer Mode PTM • Pair Mode Pair Mode PAIR-1 • STU Mode STU-R • WAN Mode Bridge • Encapsulation PPPoE • WAN-IP IP Address Type Dynamic • IP Address 0.0.0.0 Subnet Mask 0.0.0.0 Gateway IP Address 0.0.0.0 LAN IP Address 192.168.5.20 | | |
|--|--------------------|--------------|
| G.SHDSL Transfer Mode PAIR-1 • Pair Mode PAIR-1 • STU Mode STU-R • WAN Mode Bridge • Encapsulation PPPoE • WAN-IP IP Address Type Dynamic • IP Address 0.0.0.0 Subnet Mask 0.0.0.0 Gateway IP Address 0.0.0.0 | IP Address | 192.168.5.20 |
| G.SHDSL Transfer Mode PTM • Pair Mode PAIR-1 • STU Mode STU-R • WAN Mode Bridge • Encapsulation PPPoE • WAN-IP IP Address Type Dynamic • IP Address 0.0.0.0 | | |
| G.SHDSL Transfer Mode PAIR-1 • Pair Mode PAIR-1 • STU Mode STU-R • WAN Mode Bridge • Encapsulation PPPoE • WAN-IP IP Address Type Dynamic • IP Address 0.0.0 | Gateway IP Address | 0.0.0 |
| G.SHDSL Transfer Mode PAIR-1 • Pair Mode PAIR-1 • STU Mode STU-R • WAN Mode Bridge • Encapsulation PPPoE • WAN-IP IP Address Type Dynamic • | Subnet Mask | 0.0.0 |
| G.SHDSL Transfer Mode PAIR-1 • Pair Mode PAIR-1 • STU Mode STU-R • WAN Mode Bridge • Encapsulation PPPoE • WAN-IP | IP Address | 0.0.0 |
| G.SHDSL Transfer Mode PTM • Pair Mode PAIR-1 • STU Mode STU-R • WAN Mode Bridge • Encapsulation PPPoE • | IP Address Type | Dynamic • |
| G.SHDSL Transfer Mode PTM •) Pair Mode PAIR-1 •) STU Mode STU-R •) WAN Mode Bridge •) | | |
| G.SHDSL Transfer Mode PTM • Pair Mode PAIR-1 • STU Mode STU-R • WAN | Encapsulation | |
| G.SHDSL Transfer Mode PTM • Pair Mode PAIR-1 • STU Mode STU-R • | | Bridge • |
| G.SHDSL Transfer Mode PTM • Pair Mode PAIR-1 • | | |
| G.SHDSL Transfer Mode PTM • | | |
| G.SHDSL | | |
| • | | DTM - |
| EAS. | | |
| T BAS | | BASI |

4.1.1 Reference diagram

Bridge mode

When configured in Bridge Mode, the router will act as a pass-through device and allow the workstations on your LAN to have public addresses directly on the internet.

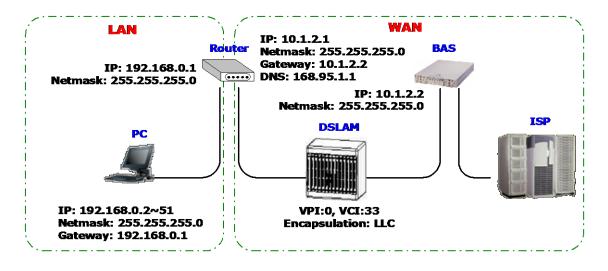


IPoA or EoA

IPoA (Dynamic IP over ATM) interfaces carries IP packets over AAL5. AAL5 provides the IP hosts on the same network with the data link layer for communications. In addition, to allow these hosts to communicate on the same ATM networks, IP packets must be tuned somewhat. AS the bearer network of IP services, ATM provides high speed point-to-point connections which considerably improve the bandwidth performance of IP network. On the other hand, ATM provides excellent network performance and perfect QoS.

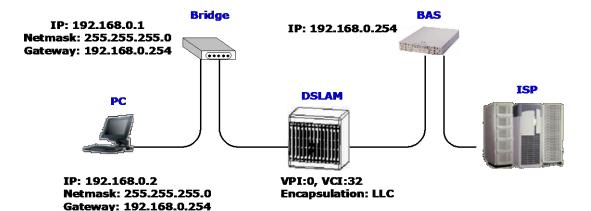
EoA (Ethernet-over-ATM) protocol is commonly used to carry data between local area networks that use the Ethernet protocol and wide-area networks that use the ATM protocol. Many telecommunications industry networks use the ATM protocol. ISPs who provide DSL services often use the EoA protocol for data transfer with their customers' DSL modems.

EoA can be implemented to provide a bridged connection between a DSL modem and the ISP. In a bridged connection, data is shared between the ISP's network and their customer's as if the networks were on the same physical LAN. Bridged connections do not use the IP protocol. EoA can also be configured to provide a routed connection with the ISP, which uses the IP protocol to exchange data.



PPPoE or PPPoA

PPPoA (point-to-point protocol over ATM) and PPPoE (point-to-point protocol over Ethernet) are authentication and connection protocols used by many service providers for broadband Internet access. These are specifications for connecting multiple computer users on an Ethernet local area network to a remote site through common customer premises equipment, which is the telephone company's term for a modem and similar devices. PPPoE and PPPoA can be used to office or building. Users share a common Digital Subscriber Line (DSL), cable modem, or wireless connection to the Internet. PPPoE and PPPoA combine the Point-to-Point Protocol (PPP), commonly used in dialup connections, with the Ethernet protocol or ATM protocol, which supports multiple users in a local area network. The PPP protocol information is encapsulated within an Ethernet frame or ATM frame.



4.2 STATUS

OVERVIEW

STATUS allows you to monitor the current status of the SHDSL.bis Router including basic software and hardware information, networking status, detailed packet statistics and G.SHDSL(WAN) status.

| ⊕BASIC | |
|---------------------|---|
| ≜ STATUS | |
| - Information | |
| 🗢 Networking | |
| 🗢 Packet Statistics | |
| G.SHDSL | |
| & ADVANCED | • |
| ≗ADMIN | • |
| *UTILITY | • |
| ⊚LOGOUT | |
| | |

| Information | Basic Device Information including Host Name, HW MCSV, SW MCSV, Software Version, MAC Address, Serial Number, DSL Chip information, System Time and System Update Time. |
|-------------------|---|
| Networking | Current status of Network, DSL and Route Table. |
| Packet Statistics | System Status and Packet statistics for WAN port and LAN port. |
| G.SHDSL | Mode, Line rate and Performance information including SNR margin, atteunation and CRC error count. |

4.2.1 Information

STATUS > Information

| ⊕BASIC | :: Info | Ready | |
|------------------------------|----------|--|--|
| ≜ STATUS | • | | |
| | | | INFORMATION |
| Networking Packet Statistics | | | |
| G.SHDSL | | Device Information | |
| | _ | Host Name | ѕоно |
| | <u> </u> | HW MCSV | 1466-0000-XXXXXXXX |
| | | SW MCSV | 147A-0000-012272A6 |
| | • | Software Version | 012 |
| ©LOGOUT | | Ethernet MAC Address | 00:E0:92:31:23:24 |
| | | Serial Number | |
| | | DSL Chip Name | PEF22628V1.2 |
| | | DSL Hardware Pair Number | 2 |
| | | DSL Firmware Version | 1.1-1.9.0001_eLP |
| | | System Current Time | 2016/05/03 11:33:35 |
| | | System Update Time | 8 days 2 hr 29 min 43 sec |
| | | DSL Chip Name DSL Hardware Pair Number DSL Firmware Version System Current Time | 2 1.1-1.9.0001_eLP 2016/05/03 11:33:35 |

INFORMATION page displays basic device information including Host Name, HW MCSV, SW MCSV, Software Version, Ethernet MAC Address, Serial Number, DSL Chip Name, DSL Hardware Pair Number, DSL Firmware Version, System Current Time and System Update Time.

| 4.2.2 | NETWORKING | |
|-------|------------|--|
|-------|------------|--|

STATUS > Networking

| △BASIC | : Info | Ready | | |
|---------------|--------|--|-------------------------|--------------------------|
| 👜 STATU S 🗸 🗸 | | | | |
| ADVANCED - | | | STATUS - NETWORKING | |
| ADMIN + | | | | Refresh Interval: None • |
| * UTILITY - | | | | |
| © LOGOUT | | Natural Otatus | | |
| | - | Network Status | Router | |
| | | WAN IP | 192.168.0.86 | |
| | | Netmask | 255.255.255.0 | |
| | | Gateway | 192.168.0.250 | |
| | | LAN IP | 192.168.5.20 | |
| | | Netmask | 255.255.255.0 | |
| | | Primary DNS | 168.95.1.1 | |
| | | Secondary DNS | 168.95.192.1 | |
| | | DSL Status | NI | |
| | | Transfer Mode | PTM | |
| | | Server Type | STU-R | |
| | | Standard Mode | ANNEX_B/G | |
| | | DSL Status | Up | |
| | | DSL UpRate | 5696 kbps | |
| | | DSL DownRate | 5696 kbps | |
| | | Route Table | | |
| | | Destination Gateway GenMask Flags | Metric Ref Iface | |
| | | 192.168.5.0 0.0.0.0 255.255.255.0 U 192.168.0.0 0.0.0.0 255.255.255.0 U | 0 lan | |
| | | 192.168.0.0 0.0.0 255.255.255.0 0 0.0.0.0 192.168.0.250 0.0.0.0 UG | 0 0 ptm0 0 0 default | |
| | | 1021100.0230 0.0.0 00 | | |

NETWORKING STATUS page displays Network Status, DSL Status and Route Table information

4.2.3 PACKET STATISTICS

STATUS > Packet Statistics

| ⇔BA SIC | | :: Info | Ready | | | | | | | | | | - | |
|-----------|---|---------|---------------------|--------|--------------|--------------------|--------------------|------------|---------|------------|-----|---------------|----------|------|
| 👜 STATU S | - | _ | | | | | | | | | | | | |
| @ADVANCED | - | | | | | | STATU | S - P | PACKE | T STA | TUS | | | |
| | - | | | | | | | | | | | Refresh Inter | val: Non | ne 🔹 |
| * UTILITY | • | | | | | | | | | | | | | |
| © LOGOUT | | | System Status | | | | | | | | | | | |
| | | Ī | System Up Time | | | 8 days 3 hr 35 min | 34 sec | | | | | | | |
| | | [| Current Date / Time | | | 2016/05/03 12:39: | 25 | | | | | | | |
| | | | CPU Usage | | | 8% | | | | | | | | |
| | | [| Memory Usage | | | 50% | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | WAN Port | | | | | | | | | | | |
| | | Ī | Node | Status | | | TX RX B/s Packe | Rx Erro | Rx B/s | Up Time | | | | |
| | | [| 1-1483 | Up |][| 0 0 19 | 297 0 | 0 | 4970288 | 9 1:15:08 | | | | |
| | | | | | | | | | | | | | | |
| | | _ | LAN Port | | | | | | | | | | | |
| | | | Interface | | atus | | | ket P | Packet | ollisions | | | | |
| | | [| Ethernet | 1001 | M/Full-Duple | x | 6592 | 571 | 79 0 | | | | | |

PACKET STATUS page displays System Status and packet statistics for WAN port and LAN port.

| 121 | G.SHDSL | | |
|-------|---------|--|--|
| 4.2.4 | U.SHDSL | | |
| | | | |

STATUS > G.SHDSL

| | | | | | G.Shdsl.bis |
|----------------|---|---------|----------------|---------------|--------------------------|
| ⇔BASIC | | :: Info | Ready | | |
| ≜ STATUS | • | | | | |
| @ADVANCED | • | | | STATUS - G.SH | IDSL |
| & ADMIN | + | | | | Refresh Interval: None • |
| * UTILITY | + | | | | |
| SLOGOUT | | . | G.SHDSL Status | | |
| | | 1 | Ch Name | CPE/Ch-1 | CO/Ch-1 |
| | | | State | CONNECTED | CONNECTED |
| | | | Annex | ANNEX-B/G | ANNEX-B/G |
| | | | TCLayer | EFM | EFM |
| | | | Line Rate | 5696 kbps | 5696 kbps |
| | | | SNR | 18 | 19 |
| | | | LoopAttn | 0 dB | 0 dB |
| | | | TxPower | 8 dBm | 8 dBm |
| | | | CRC | 0 | 0 |
| | | | | | |

G.SHDSL STATUS page displays current status of DSL line including Channel Name, State, Annex, TCLayer, Line Rate, SNR, Loop Attenuation, TxPower and CRC.

4.3 Advanced Setup

OVERVIEW

Advanced setup includes SHDSL.bis, WAN, LAN, DNS, DHCP, VLAN, QoS, RIP, NAT/DMZ, Virtural Server, DDNS, Firewall, Content Filter, IGMP and SNTP.

Note: The advanced functions are only for advanced users to setup advanced functions. The incorrect setting of advanced functions will affect the performance or result system error, even disconnection.

| @BASIC | |
|---------------------|---|
| ≜STATUS | • |
| | |
| 🗢 SHD SL.bis | |
| - WAN | |
| 🛏 LAN | |
| 🗢 DNS | |
| 🗢 DHCP | |
| - VLAN | |
| -= QoS | |
| - RIP | |
| - NAT/DMZ | |
| 🗢 Virtual Server | |
| 🛥 DDNS | |
| 🗢 Firewall | |
| 🗢 Content Filter | |
| - IGMP | |
| L ₌ SNTP | |
| ::ADMIN | • |
| * UTILITY | - |
| ⊚LOGOUT | |

4.3.1 SHDSL.bis

ADVANCED>SHDSL.bis

| | | | | G.S | Shdsl.bis |
|-----------------|---|---------|------------------|----------------------|-----------|
| ⇔BASIC | | :: Info | Ready | | |
| ≜ STATUS | • | | | | |
| @ADVANCED | • | | AD | ANCED - SHDSL.bis | |
| & ADMIN | • | | | | |
| *UTILITY | • | | егvice Туре | | 7 |
| SLOGOUT | | P | air Mode | PAIR-1 V | |
| | | Pa | air Config | | - |
| | | | | Channel | |
| | | M | lode Type | STU-R V | |
| | | L | ine Probe | Enable | |
| | | т | ransfer Max Rate | 5696 v (Kbps) | |
| | | П | ransfer Min Rate | 192 • (Kbps) | |
| | | S | tandard Mode | ANNEX_B/G • | |
| | | M | lodulation | AUTO(PAM16/PAM32) • | |
| | | | (| Apply Cancel | |

Service Type

| Item | Description | | |
|-----------|---|--|--|
| Pair Mode | Click on the drop-down list and select Pair Mode as Pair-1, Pair-2 or Pair-4. | | |
| | Pair-1 for 2-Wire SHDSL.bis Router | | |
| | Pair-2 for 4-Wire SHDSL.bis Router | | |

Pair Config

| Item | Description |
|-------------------|---|
| Mode Type | Click on the drop-down list and select STU Mode as STU-C or STU-R |
| | STU-C means the terminal of central office and STU-R means customer |
| | premise equipment. For point to point application, STU-C is the |
| | server/master unit while STU-R is the client/slave unit. |
| Line Probe | Click on the drop-down list and select Enable to enable Line Probe or Disable to diable Line Probe. |
| | For adaptive mode, you have to Enable Line Probe function. The router will |
| | adapt the data rate automatically according to the line status. |
| Transfer Max Rate | Select the maximum rate for sending and receiving data. |
| Transfer Min Rate | Select the minimum rate for sending and receiving data. |
| Standard Mode | There are four Annex types: Annex A (ANSI), Annex B (ETSI), Annex AF and |
| | Annex BG . |
| | Select the Standard Mode supported by your ISP. |
| | For point to point applications, you may choose one of the four types |
| | according to which line rate you need. |
| Modulation | Select the modulation supported by your ISP. |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

4.3.2 WAN

ADVANCED>WAN

| | | | | (| G.Shdsl.bis |
|----------------|---|---------|----------------|----------------|-------------|
| | | :: Info | Ready | | |
| ≜ STATUS | • | | | | |
| | • | | A | DVANCED - WAN | |
| | • | | | | |
| *UTILITY | • | | General | | |
| ⊚LOGOUT | | | Transfer Mode | PTM • | |
| | | 1 | Operation Mode | Routing | |
| | | | Encapsulation | PPPoE • | |
| | | | User Name | | |
| | | | Password | | |
| | | : | Service Name | | |
| | | 1 | P Address | | |
| | | | Mode | DHCP Static IP | |
| | | | IP | 0.0.0.0 | |
| | | : | Subnet Mask | 0.0.0.0 | |
| | | • | Gateway IP | 0.0.0.0 | |
| | | | (| Apply Cancel | |

General

| Item | Description |
|----------------|--|
| Transfer Mode | Click on the drop-down list and select Transfer Mode as ATM(Asynchronous |
| | Transfer Mode) or PTM(Packet Transfer Mode). |
| | |
| | ATM uses asynchronous time-division multiplexing, and encodes data into |
| | small, fixed-sized packets called cells. |
| | |
| | SHDSL interfaces support Packet Transfer Mode (PTM). In PTM, packets (IP, |
| | PPP, Ethernet, MPLS, and so on) are transported over DSL links as an |
| | alternative to using Asynchronous Transfer Mode (ATM). PTM is based on the |
| Operation Mode | Ethernet in the First Mile (EFM) IEEE 802.3ah standard. Click on the drop-down list and select Operation Mode as Routing or Bridge |
| operation Houe | Click on the drop-down list and select operation mode as routing of bridge |
| | Choose Routing if your ISP provides you with only one IP address and you need several computers to use the same Internet account. Choose Bridge when your ISP provides you with more than one IP address and you need several computers to get individual IP address from your ISP's DHCP server. When Bridge is selected, NAT, DHCP server and Firewall become unavailable. |
| Encapsulation | Click on the drop-down list and select Encapsulation used by your ISP as PPPoE or RFC1483 |
| | When select PPPoE as Encapsulation, you are required to enter the User |
| | Name and Password provided by your ISP. |
| User Name | Enter User Name provided by the ISP for PPPoE |
| Password | Enter Password provided by the ISP for PPPoE |
| Service Name | Enter Service name for PPPoE |

IP Address

| Item | Description |
|--------------------|--|
| IP Address Type | Click on the drop-down list and select WAN IP Address Type as Static or Dynamic |
| | A static IP address is a fixed IP provided by your ISP. A dynamic IP address is different every time when you connect to the Internet. |
| IP Address | Enter IP address for WAN when select Static IP address Type. |
| Submask | Enter a subnet mask in dotted decimal notation when select Static IP address Type. |
| Gateway IP Address | Enter a gateway IP address provided by your ISP when select Static IP address Type. |

4.3.3 LAN

ADVANCED>LAN

| | | | | | | G.SI | h <mark>d</mark> sl.bis |
|----------------|----------|---------|-------------|---|----------------|------|-------------------------|
| BASIC | | :: Info | Ready | | | | |
| ≜ STATUS | • | | | | | | |
| ADVANCED | * | | | 4 | ADVANCED - LAN | | |
| | • | | | | | | |
| *UTILITY | . | | P Setting | | N | | |
| ⊗LOGOUT | | L | AN IP | | 192.168.5.20 | | |
| | | s | Subnet Mask | | 255.255.255.0 | | |
| | | | | | Apply Cancel | | |

IP Setting

| Item | Description |
|-------------|--|
| LAN IP | Enter IP address for LAN |
| Subnet Mask | Enter a subnet mask in dotted decimal notation when select Static IP address |
| | Туре. |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

| 4.3.4 DNS |
|-----------|
|-----------|

ADVANCED>DNS

| | | | | | G.Shdsl.bis |
|-------------------|----------|---------|-------------------|---|-------------|
| BASIC | | :: Info | Ready | | |
| ≜ STATUS | • | | | | |
| ADVANCED | • | | | ADVANCED - DNS | |
| &ADMIN | • | | | | |
| *UTILITY | . | | DNS Server | | |
| SLOGOUT | | | First DNS Server | Obtained From ISP 0.0.0.0 | |
| | | | Second DNS Server | Oblained From ISP UserDefined DNS Relay | |
| | | | Third DNS Server | None 0.0.0.0 | |
| | | | | Apply Cancel | |

DNS Server

| Item | Description |
|-------------------|---|
| First DNS Server | Click on the drop-down list and select below options for DNS Servers; |
| Second DNS Server | |
| Third DNS Server | Obtained From ISP : Select this option when your ISP dynamically assigns the DNS server information. |
| | User Defined : Select this option when you have the IP address of a DNS server. |
| | DNS Relay : Select this option when your ISP uses IPCP DNS server extensions and the SHDSL.bis Router acts as DNS proxy. |
| | None: Select this option when you don't want to configure DNS servers. |

ADVANCED>DHCP

| | | | | | | | G. | Shdsl.bis |
|----------------------|---|---------|--------------------------|-----------------|-------------|-----------|-----------------------|-----------|
| ⇔BASIC | | :: Info | Ready | | | | | |
| ≜ STATUS | • | | | | | | | |
| <pre>@ADVANCED</pre> | • | | | ADVANCED - DHCP | | | | |
| ADMIN . | • | | 2002 | | | | | |
| * UTILITY | • | | DHCP | | | | | |
| ©LOGOUT | | | DHCP | | Server • | | | |
| | | | IP Pool Starting Address | | 192.168.5.3 | 3 | | |
| | | | Pool Size | | 32 | | | |
| | | | Lease Time | | 300 | Sec(s) | | |
| | | | Client List | | | | | _ |
| | | | Host Name | State | | | IP MAC Expire Time | d |
| | | | Static DHCP | | | | | |
| | | | IP Address | | | IP List 🔻 | | |
| | | | MAC Address | | | Add | | |
| | | | Static List | | | | | |
| | | | IP | | MAC | | | |
| | | | | | Apply | Cancel | | |

DHCP

| Item | Description |
|--------------------------|--|
| DHCP | Click on the drop-down list and select below options for DHCP; |
| | None : Select this option to disable DHCP server. Server : Select this option when the router can assign IP addresses. Then enter the fields for IP Pool Starting Address, Pool Size and Lease Time. Relay : Select this option the router will relay DHCP requests and responses between the remote server and the clients. Then enter the field for Remote DHCP Server. |
| IP Pool Starting Address | Enter the 1 st address in the IP address pool. |
| | *This field is required only when you enable DHCP server. |
| Pool Size | Enter the size of IP address pool. |
| | *This field is required only when you enable DHCP server. |
| Lease Time | Enter the lease time for IP addresses. |
| | *This field is required only when you enable DHCP server. |

Client List

The table displays the list and status of clients with their Host Name, State, IP address, MAC and Expired Time.

Static DHCP

| Item | Description |
|-------------|--|
| IP Address | Enter IP address to change the static DHCP setting |
| MAC Address | Enter the MAC address of the Ethernet device. |

Static List

The table displays IP addresses and MAC added to the Static DHCP list.

VLAN (Virtual Local Area Network) allows a physical network to be partitioned into multiple logical networks. Devices on a logical network belong to one group. A device can belong to more than one group. With VLAN, a device cannot directly talk to or hear from devices that are not in the same group.

With MTU (Multi-Tenant Unit) applications, VLAN is vital in providing isolation and security among the subscribers. When properly configured, VLAN prevents one subscriber from accessing the network resources of another on the same LAN.

VLAN also increases network performance by limiting broadcasts to a smaller and more manageable logical broadcast domain. In traditional switched environments, all broadcast packets go to each every individual port. With VLAN, all broadcasts are confined to a specific broadcast domain.

The IEEE 802.1Q defines the operation of VLAN bridges that permit the definition, operation, and administration of VLAN topologies within a bridged LAN infrastructure.

The router supports two types of VLAN: 802.1Q Tag-Based VLAN and Port-Based VLAN.

VID: (Virtual LAN ID) It is an definite number of ID range from 1 to 4094. PVID: (Port VID) It is an untagged member from 1 to 4094 of default VLAN.

ADVANCED>VLAN

ADVANCED - VLAN

| vctive Mode Off On | | | | | | | | | |
|-----------------------|------|------------|---------|-----------|---------|---------|---------|--|--|
| Group Config | | | | | | | | | |
| Entry | VID | MGMT | | | VVAN | | | | |
| No. | | | 1 | 2 | 3 | 4 | 1 | | |
| 1 | 1 | ۲ | UnTag 💌 | UnTag 💌 | UnTag 💌 | UnTag 💌 | UnTag 💌 | | |
| 2 | 0 | \odot | UnTag 🔻 | UnTag 🔻 | UnTag 💌 | UnTag 🔻 | UnTag 💌 | | |
| 3 | 0 | \bigcirc | UnTag 🔻 | UnTag 🔻 | UnTag 💌 | UnTag 🔻 | UnTag 💌 | | |
| 4 | 0 | \odot | UnTag 🔻 | UnTag 🔻 | UnTag 💌 | UnTag 🔻 | UnTag 🔻 | | |
| 5 | 0 | \odot | UnTag 💌 | • UnTag 💌 | UnTag 💌 | UnTag 🔻 | UnTag 🔻 | | |
| 6 | 0 | \odot | UnTag 💌 | UnTag 🔻 | UnTag 💌 | UnTag 💌 | UnTag 💌 | | |
| 7 | 0 | \bigcirc | UnTag 💌 | • UnTag ▼ | UnTag 💌 | UnTag 🔻 | UnTag 🔻 | | |
| 8 | 0 | \bigcirc | UnTag 💌 | UnTag 🔻 | UnTag 💌 | UnTag 💌 | UnTag 🔻 | | |
| 9 | 0 | \bigcirc | UnTag 🔻 | UnTag 🔻 | UnTag 💌 | UnTag 🔻 | UnTag 🔻 | | |
| 10 | 0 | \bigcirc | UnTag 🔻 | UnTag 🔻 | UnTag 💌 | UnTag 💌 | UnTag 🔻 | | |
| 11 | 0 | \bigcirc | UnTag 🔻 | UnTag 🔻 | UnTag 💌 | UnTag 💌 | UnTag 🔻 | | |
| 12 | 0 | \odot | UnTag 🔻 | UnTag 🔻 | UnTag 💌 | UnTag 💌 | UnTag 🔻 | | |
| | PVID | | 1 | 1 | 1 | 1 | 1 | | |
| 颁Note:VID/PID:1~4094. | | | | | | | | | |

VLAN Mode

Apply Cancel

VLAN Mode

| Item | Description |
|-------------|-----------------------------|
| Active Mode | Active 802.1Q VLAN function |
| | |
| | On: Enable VLAN Configure |
| | Off: Disable VLAN Configure |

Group Config (Summary Table)

| Item | Description |
|-------------|---|
| Name | This field displays the name of the VLAN group |
| VID | This field displays the ID number for a VLAN group. |
| MGMT | Specify the selected VLAN group as manageable. |
| Port Number | The columns display the VLAN settings on each port. |
| | "Tag" for a tagged port. |
| | " UnTag " for an untagged port. |
| | "Not Group" for ports without VLAN settings. |
| PVID | This field displays the ID number of the VLAN group |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.



QoS is the function to decide the priorities of setting IPs to transfer packets under the situation of overloading bandwidth. Use QoS set up for traffic management of the SHDSL.bis router.

ADVANCED>QoS

| | | | | | | G.Shds | l.bis |
|----------------|--------|--------------------------------------|--------|---------|--------|--------|-------|
| ⊗BASIC | ::Info | Ready | | | | | |
| ≜ STATUS · | • | | | | • | | |
| @ADVANCED · | • | | ADVANO | CED - Q | 05 | | |
| & ADMIN | • | GENERAL CLASS SETUP | | | | | |
| *UTILITY | • | GENERAL CLASS SETUP | | | | | |
| ⊚LOGOUT | | QoS | | | | | |
| | | Active QoS | | | | | |
| | | WAN Managed Bandwidth | | 100000 | (kbps) | | |
| | | Setting Traffic priority by | | | | | |
| | | 1. Ethernet Priority & IP Precedence | | ON V | | | |
| | | 2. Packet Length | | ON V | | | |
| | | | Apply | Cancel | | | |

General

QoS

| Item | Description |
|--------------------------------------|---|
| Active QoS | Active QoS for traffic management |
| WAN Management Bandwidth | Specify the bandwidth allocated to WAN using QoS. |
| | Matching the bandwidth to WAN's actual speed is recommended. |
| Ethernet Priority & IP Precedence | This field is not effective when traffic matches the class configured under CLASS SETUP . |
| | When select ON and traffic doesn't match the class configured under CLASS SETUP , the router assigns priority to unmatched traffic based on IEEE 802.1p priority level, IP precedence. |

| | When select OFF, unmatched traffic is mapped to Queue Two. | | | | | | | |
|--|---|--|--|--|--|--|--|--|
| Packet Length This field is not effective when traffic matches the class of CLASS SETUP. | | | | | | | | |
| | When select ON and traffic doesn't match the class configured under CLASS SETUP , the router assigns priority to unmatched traffic based on IEEE 802.1p priority level, Packet Length. | | | | | | | |
| | When select OFF, unmatched traffic is mapped to Queue Two. | | | | | | | |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning. CLASS SETUP

| • | ⇔BA SIC | | ::Info | F | Ready | | | | | |
|---|-----------|---|--------|-------|-----------|-------------|-----------|----------|----------|--------|
| | 👜 STATU S | - | | _ | _ | | | | | |
| | ADVANCED | - | | GENE | RAL | CLASS SETUP | | | | |
| | | | | | | | | | | |
| | * UTILITY | • | | Class | s Setup | | | | | |
| L | ©LOGOUT | | | Add | a new Cla | ss : | | Add | | |
| | | | | No | Active | Name | Interface | | Priority | Modify |
| | | | | 1 | | TEMP | | From LAN | 0 | |
| | | | | | | | | | Apply | Cancel |

G Shdel his

Click on Add to create a new class

| | | | G.Sr |
|----------------------------|---------------------------------|-------------|------|
| nfo Ready | | | |
| | | | |
| Class Configuration | | | |
| Active | | | |
| Name | Default | | |
| Interface | From LAN | | |
| Priority | 2 (Default) | | |
| Order | 2 💌 | | |
| Tag Configuration | | | |
| DSCP Value | Same | | |
| 802.1Q Tag | Same | | |
| Filter Configuration | | | |
| Source | | | |
| Address 000.000.000 | Subnet Netmask 255.255.255.0 | Exclude | |
| □ Port 1 | ~ 1 | Exclude | |
| □ MAC 00:00:00:00:00:0 | MAC Mask ffiffiffiffiff | Exclude | |
| Destination | | | |
| Address 000.000.000 | Subnet Netmask 255.255.255.0 | Exclude | |
| Port 1 | ~ 1 | Exclude | |
| MAC 00:00:00:00:0 | MAC Mask ff:ff:ff:ff:ff:ff | Exclude | |
| Others | | | |
| Service FTP V | | | |
| Protocol TCP | | Exclude | |
| Packet Length 64 | ~ 64 | Exclude | |
| DSCP 0 (0~6 | i3) 🗆 Exclude | | |
| Ethernet Priority 0-BE | Exclude | | |
| □ VLAN ID 1 (1~409 | 94) 🗆 Exclude | | |
| Physical Port 1 | Exclude | | |
| | Back | Save Cancel | |

Class Configuration

| Item | Description | | | | |
|-----------|---|--|--|--|--|
| Active | Activate the classifier | | | | |
| Name | Enter the name of the classifier | | | | |
| Interface | Select from WAN or from LAN for the traffic of the classifier | | | | |
| Priority | Assign priority to the traffic of the classifier | | | | |
| Order | Ordering number of the classifier | | | | |

Tag Configuration

| Item | Description |
|------------|---|
| DSCP Value | Select Same to keep the DSCP field in the packets. |
| | Select Auto to map the DSCP value to 802.1 priority level automatically |
| 802.1Q Tag | Select Same to keep the priority setting and VLAN ID of the frames. |
| | Select Auto to map 802.1 priority level to the DSCP value automatically |

Filter Configuration

| Item | Description | | |
|--------------------------------|---|--|--|
| Active Activate the classifier | | | |
| Name | Enter the name of the classifier | | |
| Interface | Select from WAN or from LAN for the traffic of the classifier | | |
| Priority | Assign priority to the traffic of the classifier | | |
| Order | Ordering number of the classifier | | |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

| 4.3.8 | RIP |
|-------|-----|
| 1.3.0 | |

RIP (Routing Information Protocol) allows one router to exchange routing information with another.

ADVANCED>RIP

| | | | | | | | | | | G.S | hdsl.b | is |
|----------------|---|--------|----------------|-----------|---------|---------|----------|----------|--------------|--------|--------|----|
| ⇔BASIC | | ::Info | Ready | | | | | | | | | |
| ≜ STATUS | • | | | | | | | | | | | |
| @ADVANCED | • | | ADVANCED - RIP | | | | | | | | | |
| 4 ADMIN | • | | | | | | | | | | | |
| * UTILITY | • | | RIP Entry | Direction | Version | Bassiya | AuthTune | AuthCada | SpiltHorizon | Madifi | | |
| ⊚LOGOUT | | | # | Direction | version | Passive | минтуре | AuthCode | SpinHorizon | would | | |
| | | | 1 | Off | V2 | Off | None | - | On | | | |
| | | | 2 | Off | V2 | Off | None | - | On | ß | | |
| | | | | | | | | | | | | |

Click Modify to edit each entry information

RIP>Entry Config

| | | | | | G.Shdsl.bis |
|----------------------|---|---------|---------------|------|-------------|
| ⇔BASIC | | :: Info | Ready | | |
| ≜ STATUS | • | | | | |
| <pre>@ADVANCED</pre> | • | | | ADVA | NCED - RIP |
| & ADMIN | • | | | | |
| * UTILITY | • | 1 | Entry Config | | |
| ⊚LOGOUT | | | No. | | |
| | | | Direction | | Off • |
| | | | Version | | V2 • |
| | | | Auth Type | | None |
| | | | Auth Code | | |
| | | | Spilt Horizon | | On • |
| | | | | Back | Apply |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Entry Config

| Item | Description | | | | |
|-----------|---|--|--|--|--|
| Direction | Select Directions from: Off: No RIP packets will be sent, and incoming RIP packets will be ignored Both: Routing table will be broadcasted periodically and incorporated received information from both direction In Only: Only RIP information received will be incorporated Out Only: Only broadcast device's routing table periodically | | | | |
| Version | Select from: | | | | |

| RIP-V1 : Only sends RIP v1 messages only RIP-V2 : Sends RIP v2 messages in multicast and broadcast format | | | | | |
|--|--|--|--|--|--|
| Auth Type | Select from (1)Simple (2)MD5 | | | | |
| Auth Code | Enter the Corresponded Authentication Code for the Type picked above | | | | |
| Split Horizon | Enable or Disable Split Horizon feature | | | | |

Click Apply to save the parameters changed or Back to return to previous page

4.3.9 NAT/DMZ

NAT (Network Address Translation) is the translation of an Internet Protocol address (IP address) used within one network to a different IP address known within another network. One network is designated the inside network and the other is the outside. Typically, a company maps its local inside network addresses to one or more global outside IP addresses and reverse the global IP addresses of incoming packets back into local IP addresses. This ensure security since each outgoing or incoming request must go through a translation process, that also offers the opportunity to qualify or authenticate the request or match it to a previous request. NAT also conserves on the number of global IP addresses that a company needs and lets the company to use a single IP address of its communication in the Internet world.

DMZ (Demilitarized zone) is a computer host or small network inserted as a "neutral zone" between a company private network and the outside public network. It prevents outside users from getting direct access to a server that has company private data.

In a typical DMZ configuration for an enterprise, a separate computer or host receives requests from users within the private network to access via Web sites or other companies accessible on the public network. The DMZ host then initiates sessions for these requests to the public network. However, the DMZ host is not able to initiate a session back into the private network. It can only forward packets that have already been requested.

Users of the public network outside the company can access only the DMZ host. The DMZ may typically also have the company's Web pages so these could serve the outside world. However, the DMZ provides access to no other company data. In the event that an outside user penetrated the DMZ host's security, the Web pages might be corrupted, but no other company information would be exposed.

| | | | | G.Shdsl.bis |
|-----------------|---|-------------------|--------------------|-------------|
| ⇔BASIC | | Info Ready | | |
| ≜ STATUS | • | | | |
| @ADVANCED | • | | ADVANCED - NAT/DMZ | |
| & ADMIN | + | | | |
| * UTILITY | - | NAT v.s DMZ Setup | | |
| SLOGOUT | | NAT/DMZ Mode | Enable O Disable | |
| SLUGUUT | | DMZ Host | 0.0.0 | |
| | | | Apply Cancel | |

ADVANCED>NAT/DMZ

NAT v.s DMZ Setup

| Item | Description |
|--------------|--|
| NAT/DMZ Mode | Select to Enable or Disable NAT/DMZ mode |
| DMZ Host | Assign IP address for the DMZ Host |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

4.3.10 Virtual Server

ADVANCED>Virtual Server

| | | | | | | G.5 | Shdsl.bis |
|-----------------|---|---------|-------------------|--------------|------------|----------------|---------------------|
| BASIC | | :: Info | Ready | | | | |
| ≜ STATUS | • | | | | _ | | |
| @ADVANCED | • | | | ADVANCE | D - | VIRTUAL SERVER | |
| & ADMIN | • | | | | | | |
| * UTILITY | • | | Virtual Server | | | | |
| ⊚LOGOUT | | | Service Name | | | www • | |
| | | | Server IP Address | | | Set from DHCP |) |
| | | | | | | Add | |
| | | | Entry List | | | | |
| | | | # Active | Service Name | | Port Range | Server IP Action |
| | | | | Ар | ply | Cancel | |

Virtual Server

| Item | Description |
|-------------------|--|
| Service Name | Select the desired Service name from the drop down list with predefined parameters or manually define the Service with corresponded IP address and Port range. |
| Server IP Address | Specify the IP address of the Service's Hosting Server |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

ADVANCED>DDNS

| | | | | | G.Shdsl.bis |
|----------------------|---|---------|----------------------|-------|----------------------|
| ⇔BASIC | | :: Info | Ready | | |
| ≜ STATUS | • | | | | |
| <pre>@ADVANCED</pre> | • | | | ADVAN | CED - DDNS |
| & ADMIN | • | | | | |
| *UTILITY | • | - | DDNS | | ○ On ⊛ Off |
| ©LOGOUT | | | | | |
| | | , | Provides | | www.DynDNS.org |
| | | | Service Type | | Dynamic DNS • |
| | | | Host Name | | |
| | | | User Name | | |
| | | | Password | | |
| | | | Enable Wildcard | | |
| | | | IP Policy | | Use WAN IP Address 🔹 |
| | | | Specified IP Address | | 0.0.0.0 |
| | | | | Apply | Cancel |

DDNS

| Item | Description | | |
|----------------------|--|--|--|
| Enable | Select On to enable or Off to disable DDNS function | | |
| Providers | Drop down menu to select desired DNS service provider | | |
| Service Type | Select the type of service you have registered with your DDNS service provider. It can be one of the following: | | |
| | Dynamic DNS: Static DNS: | | |
| | Custom DNS: | | |
| Host Name | Domain name assigned to the device by the DDNS provider | | |
| User Name | Username for the registered DDNS service provider | | |
| Password | Password for the registered DDNS service provider | | |
| Enable Wildcard | Check the box to enable Wildcard feature | | |
| IP Policy | Use WAN IP Address : Update the IP address of the Host Name with the WAN IP address | | |
| | Server Auto Detect: This allows DDNS server to automatically detect and use the IP address of the NAT router that has a public IP address. Note: therefore, select this option only when there is at least one NAT router available in-between device and DDNS server | | |
| Specified IP Address | Specified IP Address: Specify a static IP address for the Host Name. Input the static IP address for the Host Name if IP Policy is selected with Specified IP Address option. | | |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

4.3.12 FIREWALL

ADVANCED>FIREWALL

| | | | G.Shdsl.bis |
|----------------------|---|--|-------------|
| BASIC | | ⊞Info Ready | |
| ≜ STATUS | • | | |
| <pre>@ADVANCED</pre> | • | ADVANCED - FI | REWALL |
| ADMIN | • | | |
| *UTILITY | - | Firewall Setup | |
| SLOGOUT | | Firewall Settings OFF | © ON |
| | | Generall Rule | |
| | | Protection DoS Attach Stateful Firewall (SPI) Protection Enclosed TCP/UDP opened session valid | |
| | | Apply Cancel | |

Firewall Setup

| Item | Description | | |
|-------------------|--|--|--|
| Firewall Settings | Select OFF to disable Firewall, or ON to enable Firewall | | |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

| 4.3.13 | Content Fil | tor |
|--------|-------------|-----|
| 4.5.15 | Content Fil | ler |

Content Filter allows you to limit access to specific websites based on keywords in the URL

ADVANCED>Content Filter

| | Ready | | _ |
|-------------|---------------|-------------------|-----|
| • | | | |
| 1 | | ADVANCED - CONT | ENT |
| - | | | |
| Url F | | v | |
| Mode | e r Config | ● Off On | |
| Filter # | | Keyword | |
| 1 | ○ Off ⊛ On | max 64 characters | _ |
| 2 | ○ Off ⊛ On | max 64 characters | _ |
| 3 | ⊛ Off ☉ On | max 64 characters | |
| 4 | ® Off ○ On | 000000 | |
| 5 | ⊛ Off ☉ On | max 64 characters | |
| 6 | ® Off ○ On | 000000 | |
| 7 | ○ Off ⊛ On | 00 | |
| 8 | ® Off ○ On | max 64 characters | |
| 9 | ○ Off ⊛ On | 00 | |
| 10 | ○ Off ⊛ On | max 64 characters | |
| 11 | ® Off ○ On | max 64 characters | |
| 12 | ® Off ○ On | max 64 characters | |
| 13 | ® Off ○ On | max 64 characters | |
| 14 | ® Off ○ On | max 64 characters | |
| 15 | ® Off ○ On | max 64 characters | |
| 16 | ® Off ○ On | max 64 characters | |

Url Filter

| Item | Description | | |
|------|--|--|--|
| Mode | Select OFF to disable Content Filter, or ON to enable Content Filter feature | | |

G.Shdsl.bis

Filter Config

| Item | Description | |
|---------|--|--|
| Mode | Turning Off or On of the selected Filter condition | |
| Keyword | Specify the desired keywords to be filtered with | |

4.3.14 IGMP

IGMP (Internet Group Multicast Protocol) is a network layer protocol which is used to establish membership in a Multicast group.

ADVANCED>IGMP

| | | | G.Shdsl.bis |
|----------------|---|------------|-----------------|
| BASIC | | Info Ready | |
| 🗄 STATUS | • | | |
| @ADVANCED | • | | ADVANCED - IGMP |
| | • | | |
| *UTILITY | • | IGMP | |
| ⊚LOGOUT | | Mode | None |
| | | | Apply Cancel |
| | | | |

IGMP

| Item | Description |
|------|--|
| Mode | Select from the drop down menu for desired IGMP modes: |
| | None: Don't support any of the IGMP |
| | IGMP-v1: Support only version1 |
| | IGMP-v2: Support only version2 |
| | IGMP-v3: Support only version3 |
| | IGMP-all: Support all the available versions |

ADVANCED>SNTP

| | | | G.Shdsl.bis | | |
|----------------|---------|--------------------------------|--|--|--|
| ⇔BASIC | :: Info | Ready | | | |
| 🗄 STATUS 🗸 🗸 | | | NCED - SNTP | | |
| ⊘ADVANCED • | | | | | |
| &ADMIN + | | Time Setup | | | |
| *UTILITY + | | Current Time | | | |
| ⊚LOGOUT | | Current Time (hh:mm:ss) | 16:11:10 | | |
| | _ | Current Date (yyyy-mm-dd) | 2016-05-09 | | |
| | | Time and Date Setup | | | |
| | | | O Manual | | |
| | | New Time (hh:mm:ss) | | | |
| | | New Date (yyyy/mm/dd) | 2016 / 05 / 09 | | |
| | | | Get from Time Server | | |
| | | Time Protocol NTP (RFC-1305) • | | | |
| | | Time Server Address | time.nist.gov | | |
| | | Time and Date Setup | | | |
| | | Time Zone | (GMT+00:00) Greenwich Mean Time : Dublin Edinburgh, Lisbon, London 🔻 | | |
| | | Daylight Savings : | | | |
| | | Atom Date | First V Sunday V of January V(2017-01-01) at | | |
| | | Start Date | 0 o'clock | | |
| | | End Date | First V Sunday V of January V(2017-01-01) at | | |
| | | End Date | 0 o'clock | | |
| | | Apply | Cancel | | |

Time Setup

| Item | Description |
|-------------------------|--|
| Current Time (hh:mm:ss) | Display current system time |
| Current Date | Display current system date |
| (yyyy-mm-dd) | |
| | *Manual |
| New Time (hh:mm:ss) | Manually define the new time |
| New Date (yyyy/mm/dd) | Manually define the new date |
| | *Get from Time Server |
| Time Protocol | Time protocol used to communicate with Time server |
| Time Server Address | Specify the IP address or URL of the Time server |
| Time Zone | Specify the Time zone |
| Daylight Savings | Check box to enable Daylight Savings function |
| Start Date | Specify the date when daylight saving starts |
| End Date | Specify the date when daylight saving ends |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

4.1 ADMIN

Overview

Administration session introduces security and management features (SNMP, WWW, TELNET, SSH) of the SHDSL.bis router.

| ⇔BASIC | |
|------------------|---|
| ≜STATUS | - |
| ADVANCED | + |
| | |
| | |
| | |
| * UTILITY | • |
| ⊚LOGOUT | |

4.1.1 Security

ADMIN>SECURITY

| | | | | | | | G.Shdsl.b | ois |
|-----------------|---|---------|------------------------|-------|--------|-----------|-----------|-----|
| | | :: Info | Ready | | | | | |
| ≜ STATUS | • | | | | | | | |
| @ADVANCED | • | | | ADMIN | - SECI | JRITY | | |
| :2:ADMIN | • | | | | | | | |
| * UTILITY | • | | System Setup | | | | | ī |
| ⊚LOGOUT | | | System Name | | ѕоно | | | 1 |
| | | | Domain Name | | soho | | | 1 |
| | | | Authentication Timeout | | 5 | minute(s) | | 1 |
| | | | System Password | | | | | |
| | | | Admin Password | | | | | I |
| | | | Retype Admin Password | | | | | I. |
| | | | | Apply | Cancel | | | |

System Setup

| Item | Description |
|------------------------|--|
| System Name | Enter desirable System/Host Name |
| Domain Name | Enter desirable Domain Name |
| Authentication Timeout | Enter desirable Authentication Timeout period in minutes |

System Password

| Item | Description |
|-----------------------|---------------------------------------|
| Admin Password | Enter Password |
| Retype Admin Password | Enter Password again for confirmation |

For system security, please change the default password in the first setup otherwise unauthorized persons can access the router and change the parameters. If you don't change it, all users on your network can access the router using the default password: "**root**".

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

4.1.2 Management

| SIC | - Death | |
|--------|--------------------|--------------------|
| | nfo Ready | |
| | | ADMIN - MANAGEMENT |
| MIN 👻 | | |
| LITY 👻 | SNMP WWW TELNET S | SH |
| BOUT | SNMP | |
| | Port | 161 |
| | Access Status | ALL |
| | SNMP Configuration | |
| | Get Community | public |
| | Set Community | private |
| | | public private |
| | Trap Community | |
| | | |
| | | |
| | Trap Destination | |
| | | |
| | | Apply Cancel |
| | | |
| | | |
| | | |

Simple Network Management Protocol (SNMP) defines the exchange of messages between a network management client and a network management agent for remote management of network nodes. These messages contain requests to get and set variables that exist in network nodes in order to obtain statistics, set configuration parameters, and monitor network events. SNMP communications can occur over LAN or WAN connection.

The router can generate SNMP traps to indicate alarm conditions, and it relies on SNMP community strings to implement SNMP security. The SHDSL.bis routers support SNMPv1/SNMPv2 (RFC 1157/1901/1905) and MIB-II (RFC 1213/1493)

Click SNMP to configure the parameters for remote management via SNMP.

SNMP

| Item | Description |
|---------------|---|
| Port | Enter port number for the SNMP service |
| Access Status | Click on the drop-down list and select ALL to allow the service or Disable to disable the remote management service |

SNMP Configuration

| Item | Description |
|---------------|--|
| Get Community | Enter the password for the incoming Get and Get Next requests from the |
| | management station. The default is public which allows all requests. |

| Set Community Enter the password for the incoming Set requests from the manage station. The default is public which allows all requests. | | |
|---|---|--|
| | station. The default is public which allows all requests. | |
| Trap Community | Enter the password sent with each trap to the SNMP manager. The default | |
| | is public which allows all requests. | |
| Trap Destination | Enter the IP address of the station to send SNMP traps | |

Click on Apply to save the parameters or Cancel to start configuring this page from beginning.

| 4.1.2.2 | WWW |
|---------|-----|
| | |

Click WWW to configure the parameters for remote management via WWW

| | | | | | | G.Sh | dsl.bis |
|----------------|---------|---------------|--------|-----|------------------|------|---------|
| ⇔BASIC | :: info | Ready | | | | | |
| 🗄 STATUS 🗸 🗸 | | | | | | | |
| ⊘ADVANCED | | | | | MIN - MANAGEMENT | | |
| &ADMIN + | | | | | | | |
| *UTILITY - | | SNMP WWW | TELNET | SSH | | | |
| ⊗LOGOUT | | www | | | | | |
| | | Port | | | 80 | | |
| | | Access Status | | | ALL | | |
| | | | | | Apply Cancel | | |

WWW

| Item | Description |
|---------------|---|
| Port | Enter port number for remote management via WWW |
| Access Status | Click on the drop-down list and select ALL to allow the service or Disable to disable the remote management service |

4.1.2.3 TELNET

Click TELNET to configure the parameters for remote management via TELNET

| | | | G.Shdsl.bis |
|----------------|---|---------------------|--------------------|
| ⇔BASIC | | Info Ready | |
| ≜ STATUS | • | | |
| @ADVANCED | • | | ADMIN - MANAGEMENT |
| | • | | |
| *UTILITY | • | SNMP WWW TELNET SSH | |
| ⊚LOGOUT | | Telnet | |
| | | Port | 23 |
| | | Access Status | ALL • |
| | | | Apply Cancel |

TELNET

| Item | Description |
|---------------|---|
| Port | Enter port number for remote management via TELNET |
| Access Status | Click on the drop-down list and select ALL to allow the service or Disable to disable the remote management service |

| | SSH | 4.1.2.4 |
|--|-----|---------|
|--|-----|---------|

Click SSH to configure the parameters for remote management via SSH

| | | | | | | | | G .9 | Shdsl.bis |
|----------------|---|---------|---------------|--------|-----|-----------|------------|-------------|-----------|
| ⇔BASIC | | :: Info | Ready | | | | | | |
| ≜ STATUS | • | | | | | | | | |
| ⊘ADVANCED | • | | | | | ADMIN - N | IANAGEMENT | | |
| ADMIN | • | | | | | | | | |
| * UTILITY | • | | SNMP WWW | TELNET | SSH | | | | |
| ⊚LOGOUT | | | SSH | | | | | | _ |
| | | | Port | | | 22 | | |] |
| | | | Access Status | | | ALL | • | |] |
| | | | | | | Apply | Cancel | | |

SSH

| Item | Item Description | | |
|---------------|---|--|--|
| Port | Enter port number for remote management via SSH | | |
| Access Status | Click on the drop-down list and select ALL to allow the service or Disable to disable the remote management service | | |

4.2 Utility

Overview

This section describes the utility of the SHDSL.bis router including:

| SYSTEM LOG | Capturing log information |
|-------------|--|
| SYSTEM TOOL | Backup and restore configuration, and load the factory default |
| STSTEMTOOL | configuration |
| UPGRADE | Upgrade the firmware |
| RESTART | Restart the router. |

| ≜ STATUS | • |
|------------------|---|
| ØADVANCED | • |
| ADMIN | • |
| ☆UTILITY | |
| SYSTEM LOG | |
| 🗢 SYSTEM TOOL | |
| 🗢 UPGRADE | |
| | |
| © LOGOUT | |

4.2.1 SYSTEM LOG

UTILITY>SYSTEM LOG

| | | | | | | | | G .S | Shdsl.bis |
|----------------|---|---------|-----------|----------------------|---------|---------|-------------|-------------|-----------|
| ⇔BASIC | | :: Info | R | eady | | | | | |
| ≜ STATUS | • | | | | | | | | |
| @ADVANCED | • | | | UTILITY - SYSTEM LOG | | | | | |
| | • | | | | | | | | |
| *UTILITY | • | | Syster | n Log | | | | | · |
| ⊚LOGOUT | | | Log Optic | on All Logs 🔻 | | Refresh | Clear Log | | |
| | | | # | Time | Message | Source | Destination | NOTES | |

SHDSL.bis routers support detailed logging information via System Log function. The system log protocol allows devices to send event notification messages across an IP network to syslog servers that collect the event message. The router can generate a syslog message and send it to a syslog server.

You may click Refresh to renew the Sytem Log page or Clear Log to delete all log information.

| 4.2.2 | System Too | J. |
|-------|------------|----|
| +.2.2 | System 100 | 4 |

UTILITY>SYSTEM TOOL

| ©BASIC Info Ready | |
|--|--|
| | |
| ≜ STATUS ▼ | |
| VADVANCED + UTILITY - SYSTEM TOOL | |
| ±ADMIN ▼ | |
| *UTILITY * Backup | |
| ©LOGOUT Click Backup to download config file | |
| Backup | |
| Restore | |
| File Path Upload | |
| Progress 0% | |
| | |
| Factory Default | |
| Click Reset to reset factory settings. | |
| Reset | |

System Tool provides three main functions: Backup Configuration, Restore Configuration and Load Factory Default settings.

Click Backup to save config.cfg in your computer.

To restore a previously saved config file from your computer. Click Browse to select the file and then click Upload.

Click Reset to load factory default settings to the router. A warning message will appear. Confirm by clicking on OK.

4.2.3 Upgrade

UTILITY>UPGRADE

| | | | G.St |
|------------------|----------|-------------------------------------|--|
| @BASIC | : | Info Ready | |
| ≜ STATUS | • | | |
| ØADVANCED | • | | UTILITY - UPGRADE |
| | + | | |
| * UTILITY | . | Firmware Upgrade | |
| ⊚LOGOUT | | Firmware Version | 5242-0000-01220160422 |
| 0100001 | | File Path | ₩₩ Upload |
| | | Progress | 0% |
| | | A Pick a SHDSL's firmware image and | click "Upload" to upgrade. After the F/W upgrade completed, the SHDSL router will turn |
| | | to Login page. | |

You can upgrade the SHDSL.bis router using the upgrade function.

Click Browse to select the firmware file and then click Upload. The system will reboot automatically after finish the firmware upgrade operation.

| 4.2.4 |
|-------|
|-------|

UTILITY>RESTART

| | | | G.Shdsl.bis |
|-----------------------|---|---|-------------|
| @BASIC | | Info Ready | |
| ≜ STATUS | • | | |
| @ADVANCED | • | UTILITY - RESTART | |
| : ADMIN | • | | |
| * UTILITY | + | System Reboot | ī |
| ℕLOGOUT | | Click Restart to reboot device, waiting a minute and will redirect to Login page. | |
| | | Restart | |
| | | | |

Use RESTART to reboot the SHDSL.bis router.

Click on Restart to reboot the system.

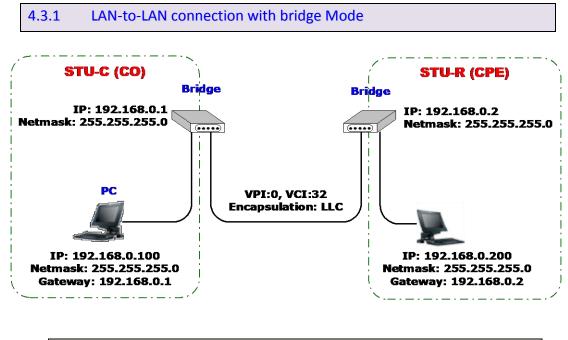
4.3 LOGOUT

Overview

To logout the router, click on LOGOUT. A warning message will appear. Confirm by clicking on OK.

| ⇔BASIC | |
|----------------------|---|
| ≜ STATUS | • |
| <pre>@ADVANCED</pre> | • |
| | • |
| * UTILITY | • |
| ⊚LOGOUT | |

Example



4.3.1.1 CO side

Click Bridge and CO Side to setup Bridging mode of the Router and then click Next.

| Home | Basic | Advanced | Status | Admin | Utility |
|--------------|-----------------|------------|------------|---------|---------|
| | | | BASIC - | STEP1 | |
| Operation Mo | de: | | | | |
| System M | Iode: O ROUTE | BRIDGE | | | |
| SHDSL M | Iode: 💿 CO Side | C CPE Side | | | |
| | | Ca | ncel Rese | t Next | 1 |
| | | Ca | incel Rese | nt Next | |

| Home | Basic | Advanced | Status | Admin | Utility |
|-----------|--------------|--------------|---------|-------|---------|
| | | | BASIC - | STEP2 | |
| LAN: | | | | | |
| LAN: | | | | | |
| IP Addre | ss: 192 . 16 | 58.0.1 | | | |
| Subnet Ma | sk: 255 . 25 | 55 . 255 . 0 | | | |
| Gatew | ay: 192 . 16 | 58 . 0 . 1 | | | |
| Host Na | ne: SOHO | | | | |
| WAN1: | | | | | |
| VPI: O | 1 | | | | |
| VCI: 3 | 2 | | | | |
| Encap.: (| VC-mux 🖲 LL | .C | | | |
| | | | | | |
| | | Back | Cancel | Reset | Next |

Enter LAN Parameters IP: 192.168.1.1 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1 Host Name: SOHO

Enter WAN1 Parameters

| VPI: (|) |
|--------|------|
| VCI: 3 | 32 |
| Click | LLC |
| Click | Next |

The screen will prompt the new configured parameters. Check the parameters and Click Restart The router will reboot with the new setting.

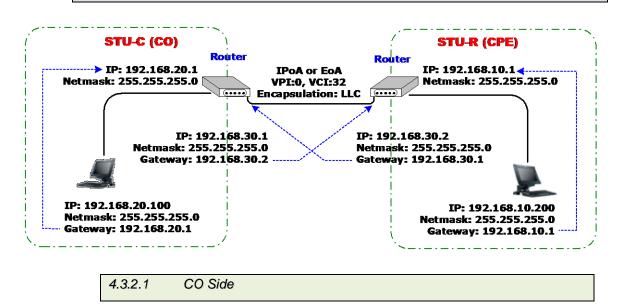
| | 4.3.1.2 | CPE Side | | | | | | | |
|--|--|---------------|----------|-----------|--------|---------|-----------|------|--|
| Click Bridae | and CPE Sic | le to setup B | ridge mo | de of the | Router | and the | n click N | ext. | |
| | asic Advance | | Admin | Utility | | | | | |
| | | BASIC - S | STEP1 | | | | | | |
| Operation Mode: | | | | | | | | | |
| System Mode: SHDSL Mode: | C ROUTE C CO Side C CO Side C CPE S | ide | | | | | | | |
| |) | Cancel Reset | Next | | | | | | |
| Home B | asic Advanced | Status | Admin | Utility | | | | | |
| | | BASIC - S | TEP2 | | | | | | |
| LAN: | | | | | | | | | |
| IP Address: 11 Subnet Mask: 24 Gateway: 11 Host Name: S | 92 . 168 . 0 | 2 0 2 | | | | | | | |
| WAN1: | | | | | | | | | |
| VPI: 0 VCI: 32 Encap.: CVC-r | nux © LLC | | | | | | | | |
| | Back | Cancel R | eset Nex | t | | | | | |
| | | | | | | | | | |

Enter LAN Parameters IP: 192.168.1.2 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.2 Host Name: SOHO

Enter WAN1 Parameters VPI: 0 VCI: 32 Click LLC Click Next

The screen will prompt the new configured parameters. Check the parameters and Click Restart The router will reboot with the new setting.

4.3.2 LAN to LAN connection with routing mode



Click ROUTE and CO Side to setup Routing mode of the Router and then click Next

| Home | Basic | Advanced | Status | Admin | Utility |
|-----------|------------------|-------------------|---------|-------|---------|
| | | 1 | BASIC - | STEP2 | |
| LAN: | | | | | |
| | IP Address: 192 | . 168 . 0 | . 1 | | |
| S | Subnet Mask: 255 | . 255 . 255 | . 🖸 | | |
| | Host Name: SOH | 10 | | | |
| Trigger D | HCP Service: C D | isable 🛛 🖲 Enable | | | |
| | | | | | |
| 155 | | Back | Cancel | Reset | Next |

Type LAN parameters: IP Address: 192.168.20.1 Subnet Mask: 255.255.255.0 Host Name: SOHO DHCP Service: Disable or Enable For more DHCP service, review the chapter on DHCP Service

| nomo | Daalo | Huvanou | อเลเนอ | Autom | ounity |
|---------|----------------------|---------|---------|-------|--------|
| | | 1 | BASIC - | STEP4 | |
| WAN1: | | | | | |
| | VPI: 0 | | | | |
| 7 | VCI: 32 | | | | |
| AAL5 En | cap: O VC-mux | • LLC | | | |
| Proto | IPoA | | | | |
| | EoA EoA+NAT | Back | Cancel | Reset | Next |
| | PPPoA+NA PPPoE+NA | | | | |

Type the **WAN1** Parameters; **VPI**: 0

VCI: 32 AAL5 Encap: LLC Protocol: IPoA, EoA, IPoA + NAT or EoA + NAT Note: The Protocol used in CO and CPE have to be the same. Click Next to setup the IP parameters.

For more understanding about $\ensuremath{\text{NAT}}$, review the chapter of $\ensuremath{\text{NAT}}/\ensuremath{\text{DMZ}}$.

| BASIC - STEP5 VANI: IP Address: 10 1 2 1 Subnet Mask: 255 255 0 0 Gateway: 10 1 2 0 Gateway: 10 1 2 0 Gateway: 10 1 2 2 DNS Server1: 168.95.1.1 0 0 DNS Server2: 0 0 0 DNS Server3: 0 0 0 P Address: 192.168.20.1 0 0 ubnet Mask: 255.255.255.0 0 0 | Home | Basic | Advanced | Status | Admin | Utility |
|---|---------------|------------|-------------|---------|-------|---------|
| IP Address: 10 . 1 . 2 . 1 Subnet Mask: 255 . 255 . 0 Gateway: 10 . 1 . 2 . 2 DNS Server 1: 168.95.1.1 DNS Server 2: DNS Server 3: Back Cancel Reset Next P Address: 192.168.20.1 | | | E | BASIC - | STEP5 | |
| Subnet Mask: 255 255 0 Gateway: 10 1 2 2 DNS Server 1: 168.95.1.1 0 0 0 DNS Server 2: 0 0 0 0 0 DNS Server 3: 0 0 0 0 0 0 P Address: 192.168.20.1 0 0 0 0 0 0 | VAN1: | | | | | |
| Gateway: IO I IO DNS Server 1: 168.95.1.1 DNS Server 2: | IP Address: | 10 . 1 | . 2 1 | | | |
| DNS Server 1: [168.95.1.1 DNS Server 2: DNS Server 3: Back Cancel Reset Next P Address: 192.168.20.1 | Subnet Mask: | 255 . 25 | 6 . 255 . 0 | | | |
| DNS Server 2: DNS Server 3: Back Cancel Reset Next | Gateway: | 10 . 1 | . 2 . 2 | | | |
| DNS Server 3: Back Cancel Reset Next Address: 192.168.20.1 | DNS Server 1: | 168.95.1.1 | | | | |
| Back Cancel Reset Next Address: 192.168.20.1 | DNS Server 2: | | | | | |
| Back Cancel Reset Next Address: 192.168.20.1 | DNS Server 3: | | | | | |
| Back Cancel Reset Next Address: 192.168.20.1 | | | | | | |
| | | | Back | Cancel | | |
| | | 100 1 | CO 00 4 | | | |
| ubnet Mask: 255.255.255.0 | Address | 5. 192.1 | 08.20.1 | | | |
| | ubnet Ma | sk: 255 | 5.255.255 | .0 | | |

Subnet Mask: 255.255.255.0 Gateway: 192.169.30.2 Click Next

The screen will prompt the parameters that we will write in NVRAM. Check the parameters before writing in NVRAM.

Press Restart to restart the router working with new parameters or press continue to setup another parameter.

| | 4.3.2.2 | CPE side | | |
|-------------|-----------|-----------------------|--|--|
| Click ROUTE | and CPE S | Side then press Next. | | |

| Home | Basic | Advanced | Status | Admin | Utility |
|--------------|----------------|------------|------------|--------|---------|
| | | 1 | BASIC - | STEP1 | |
| Operation Mo | le: | | | | |
| System M | ode: @ ROUTE | C BRIDGE | | | |
| SHDSL M | ode: C CO Side | € CPE Side | | | |
| | | Ca | incel Rese | t Next | 1 |
| | | | | | |

| Home | Basic | Advanced | Status | Admin | Utility |
|-----------|------------------|------------------|---------|-------|---------|
| | | 1 | BASIC - | STEP2 | |
| LAN: | | | | | |
| | IP Address: 192 | . 168 . 0 | . 1 | | |
| 2 | Subnet Mask: 255 | . 255 . 255 | . 0 | | |
| | Host Name: SO | HO | | | |
| Trigger D | HCP Service: C [| Disable 💿 Enable | | | |

IP Address: 192.168.10.1 Subnet Mask: 255.255.255.0 Host Name: SOHO DHCP Service: Disable or Enable For more DHCP service, review the chapter of DHCP Service.

Type the WAN1 Parameters:

| Home | Basic | Advanced | Status | Admin | Utility | |
|----------------|----------------------|-------------|-----------|------------|-----------|------|
| | | E | BASIC - | STEP4 | | |
| WAN1: | | | | | | |
| Ţ | PI: 0 | | | | | |
| V | CI: 32 | | | | | |
| AAL5 End | ap: OVC-mux | .€ LLC | | | | |
| Proto | rol: IPoA | | | | | |
| <u>8</u> | IPoA+NAT | _ | | | | |
| | EoA+NAT | Back | Cancel | Reset | Next | |
| | PPPoA+NA PPPoE+NA | | | | | |
| VPI : 0 | | | | | | |
| VCI: 32 | | | | | | |
| AAL5 En | can II (| 2 | | | | |
| | | | | | | |
| Protocol: | IPoA , E | EoA , IPoA | + NAI | or EoA + N | IAI | |
| Note: The | Protoco | l used in C | CO and C | PE have | to be the | samo |
| Click Nex | t to setu | p the IP pa | arameters | 6. | | |

For more understanding about NAT, review the chapter of NAT/DMZ.

| Home | Basic | Advanced | Status | Admin | Utility |
|--|----------------------------------|-----------------------------------|--------|-------|---------|
| | | E | ASIC - | STEP5 | |
| WAN1: | | | | | |
| IP Address: Subnet Mask: Gateway: DNS Server 1: DNS Server 2: DNS Server 3: | 255 . 25 10 . 1 168.95.1.1 | . 2 . 1 5 . 255 . 0 . 2 . 2 | | | |
| | | Back | Cancel | Reset | Next |
| P Address | s : 192.1 | 68.30.2 | | | |
| Subnet ma | sk : 258 | 5.255.255. | 0 | | |
| Gateway: 1 | 92.169 | .30.1 | | | |
| Click Next | | | | | |

The screen will prompt the parameters that we will write in NVRAM. Check the parameters before writing in NVRAM.

Press Restart to restart the router working with new parameters or press continue to setup another parameter.

5 Configuration via Serial Console or Telnet

In this section, the basic of console line configuration will be described on below.

| 5.1 | Introduction |
|-------|------------------|
| 5.1.1 | L Serial Console |

Check the connectivity of the RS-232 cable. Connect the male 9-pin end of console port of the router and connect the female end to a serial port of your computer.

Start your terminal access program by VT100 terminal emulation with the following parameters:

| Parameter | Value |
|--------------|-----------|
| Baud Rate | 115200bps |
| Data Bits | 8 |
| Parity Check | No |
| Stop Bits | 1 |
| Flow-control | No |

Press the <u>SPACE</u> key until the login screen appears. When you see the login screen, you can logon to Router.

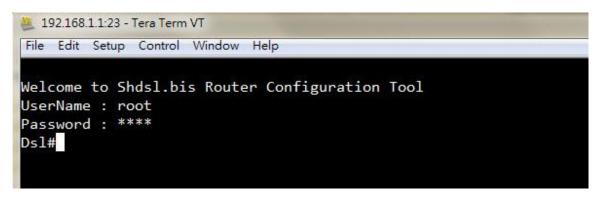
| 5242-0000-1220160511 |
|--|
| Beta r400 |
| Wed May 11 05:34:57 UTC 2016 |
| |
| Welcome to Shdsl.bis Router Configuration Tool |
| UserName : root |
| Password : **** |

Note: Only SPACE key invoke the login prompt. Pressing other keys does not work.

Note: The factory default User and Password are "root" for both.



Make sure the correct Ethernet cable connected the LAN port of your computer to this Router. The LAN LNK LED indicator on the front panel shall light if a correct cable is used. Starting your Telnet client with VT100 terminal emulation and connecting to the management IP of Router, wait for the login prompt appears. Input User and Password after login screen pop up,



User: root Password: ****

Note: The default IP address is 192.168.1.1.

5.2 Main menu

When enter to prompt screen, you can input command ? to view the available top level menus of each command set:

For example: type ? after the #, will display the current level of available command sets as below:

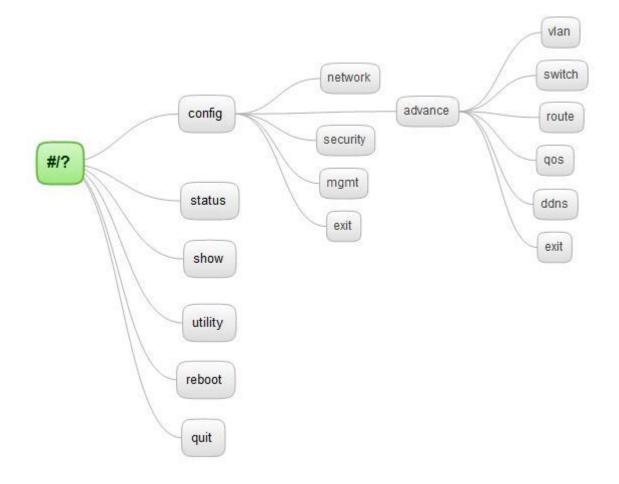
| Dsl#? | |
|---------|---------------------------|
| config | enter submenu system |
| status | enter submenu status |
| show | enter submenu information |
| utility | enter submenu utility |
| test | test tool(DebugVersion) |
| ps | show ps |
| reboot | reboot system |
| shell | enter linux shell |
| mib | enter submenu mib |
| quit | logout |
| Dsl# | |

Top level Command set Description:

| Command | Description | |
|---------|--|--|
| | Config parameters of router by entering submenu: | |
| | network | |
| oonfig | advance | |
| config | security | |
| | mgmt. | |
| | exit | |
| status | View the status of router. | |
| show | Show the system and configuration of router. | |
| utility | Upgrade software and backup and restore configuration. | |
| test | Test tool (DebugVersion) | |
| ps | | |
| reboot | Reset and boot system. After you have completed all necessary setting, | |
| | make sure to apply the new configuration to NVRAM and reboot the system, | |

| | otherwise, all of your changes will not take effect. |
|-------|--|
| Shell | Enter linux shell |
| Mib | Enter submenu mib |
| quit | Quit system. |

5.3 Key CLI Command tree overview







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