

G.SHDSL .bis Router

User Manual

Version 0.04

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Change Note:

Date	Editor	Description	Version Note
2016/4	Vincent	Initial Draft v0.01	v0.01
2016/5	Charlie	Revise Web GUI information Revise wording errors	v0.02
2016/5	Venti	Revise VLAN GUI	v0.03
2016/6	Venti	Revise Basic, WAN, VLAN, Admin/Security, Syslog , Information, MGMT GUI Revise Syslog server setting	V0.04

1 Descriptions

Proscend 5200N Series 2/4/8-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. Up to four pairs can be bonded together for aggregated bandwidth over 61 Mbps. 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.

5200N 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
- ✓ EFM bonding up to 61 Mbps (8-Wires, TC-PAM 128)
- ✓ 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)
 - Max. 22.784Mbps (4-Pair)
 - N x 64 Kpbs (N=3~239) using TC-PAM 64/128
 - Max. 15.296 Mbps (1-Pair)
 - Max. 30.592 Mbps (2-Pair)
 - Max. 61.184 Mbps(4-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
- 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

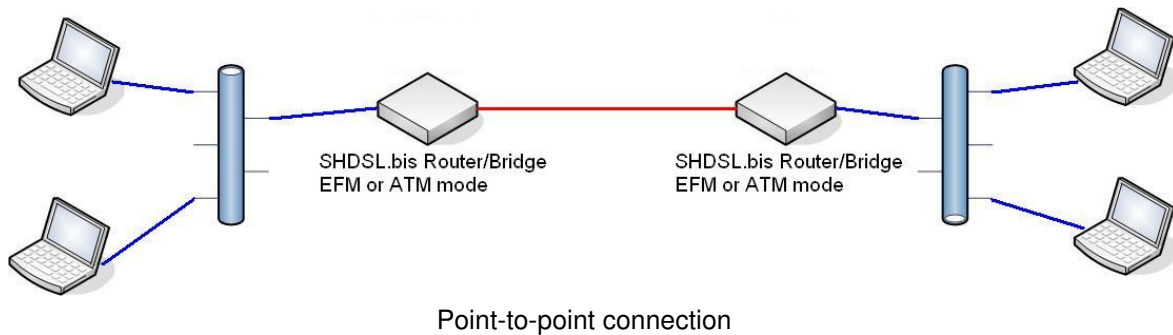
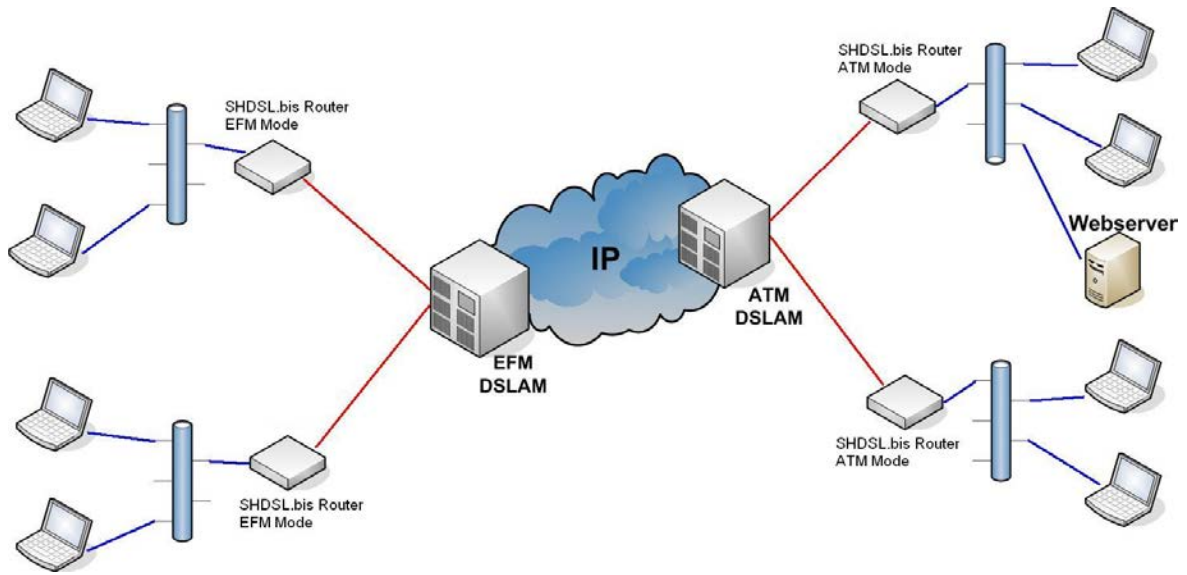
- CE
- FCC Part 15 Class A
- VCCI
- EN60950

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

Order Information

5210N	2-Wire G.Shdsl.bis EFM Router with 4 LAN Port
5220N	4-Wire G.Shdsl.bis EFM Router with 4 LAN Ports
5240N	8-Wire G.Shdsl.bis EFM Router with 4 LAN Ports

1.3 Applications

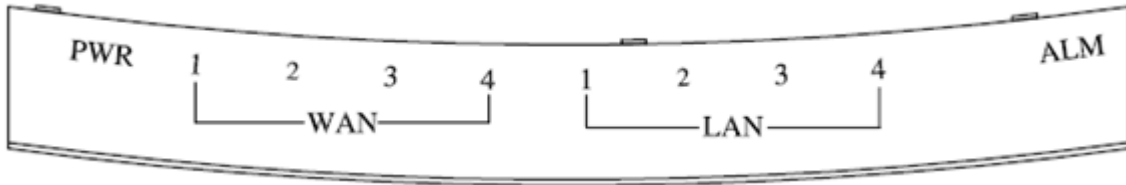


2 Getting to know about the router

This chapter introduces the main features of the router.

2.1 Front Panel

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

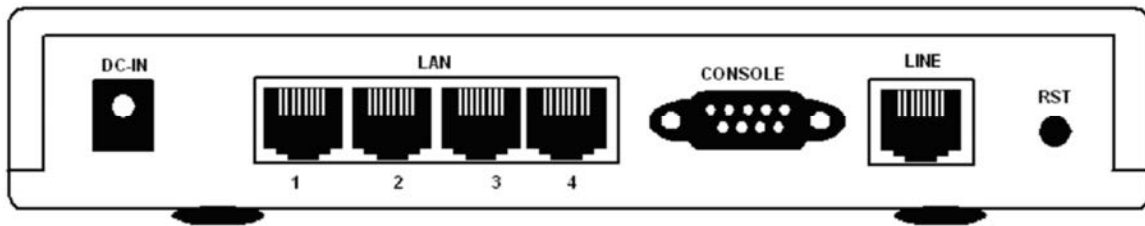


LED status of SHDSL.bis Router

LEDs	Active	Description	
PWR	On	The power adaptor is connected to this device	
DSL	LINK 1	On	SHDSL.bis line 1 connection is established
		Blink	SHDSL.bis line 1 handshake Transmit or received data over SHDSL.bis link 1
	LINK 2	On	SHDSL.bis line 2 connection is established
		Blink	SHDSL.bis line 2 handshake Transmit or received data over SHDSL.bis link 2
	LINK 3	On	SHDSL.bis line 3 connection is established
		Blink	SHDSL.bis line 3 handshake 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 Transmit or received data over SHDSL.bis link 4
LAN	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
		Blink	Transmit or received data over LAN 2
	LINK/ACT3	On	Ethernet cable is connected to LAN 3
		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
ALM	On	SHDSL.bis line connection is dropped	
	Blink	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

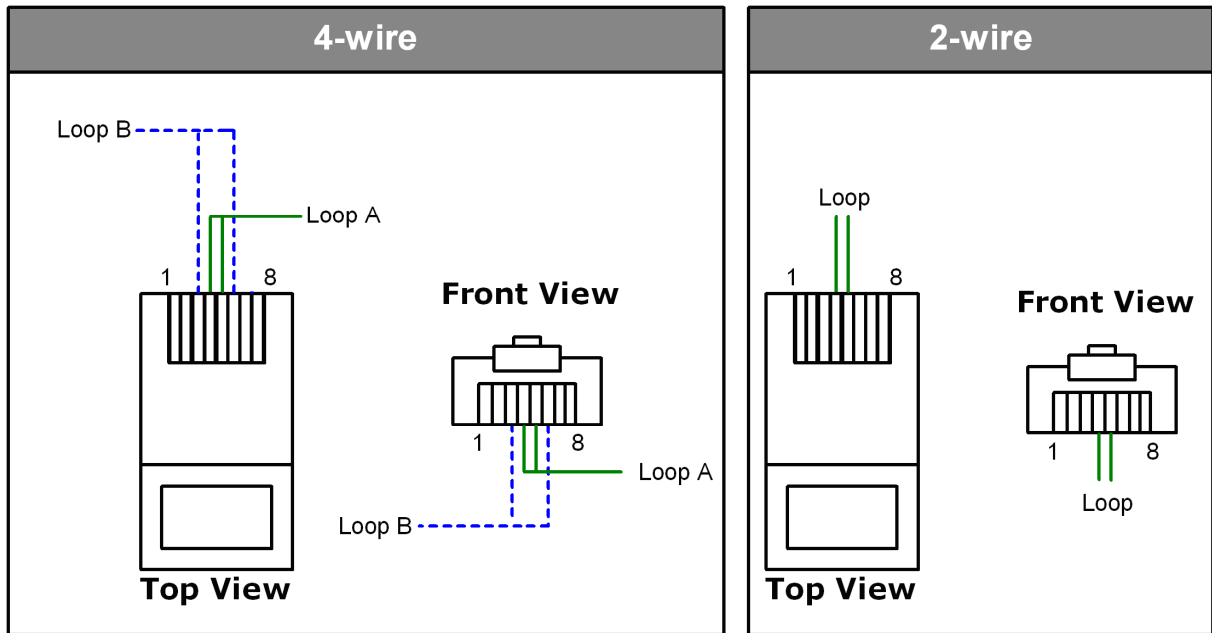


The reset button can be used only in one of two ways.

- (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 assignment:



2.4 Console Cable

Below figure show the console cable pins assignment:

Pin Number	Description	Figure
1	No connection	
2	RxD (O)	
3	TxD (I)	
4	No connection	
5	GND	
6	No connection	
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 router 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.

Bridge EoA

VPI: _
VCI: __
Encapsulation:
Gateway:
Host Name: (if applicable)

Route EoA

VPI: _
VCI: __
Encapsulation:
IP Address:
Subnet Mask: _
Gateway:
DNS Server: _

IPoA

VPI: _
VCI: __
Encapsulation:
IP Address:
Subnet Mask: _
Gateway:
DNS Server: _

PPPoA

VPI: _
VCI: __
Encapsulation:
User Name:
Password:
DNS Server: _
Host Name: (if applicable)

PPPoE

VPI: _
VCI: __
Encapsulation:
User Name:
Password:
DNS Server: _
Host Name: (if applicable)

3.2 Install the SHDSL.bis Router

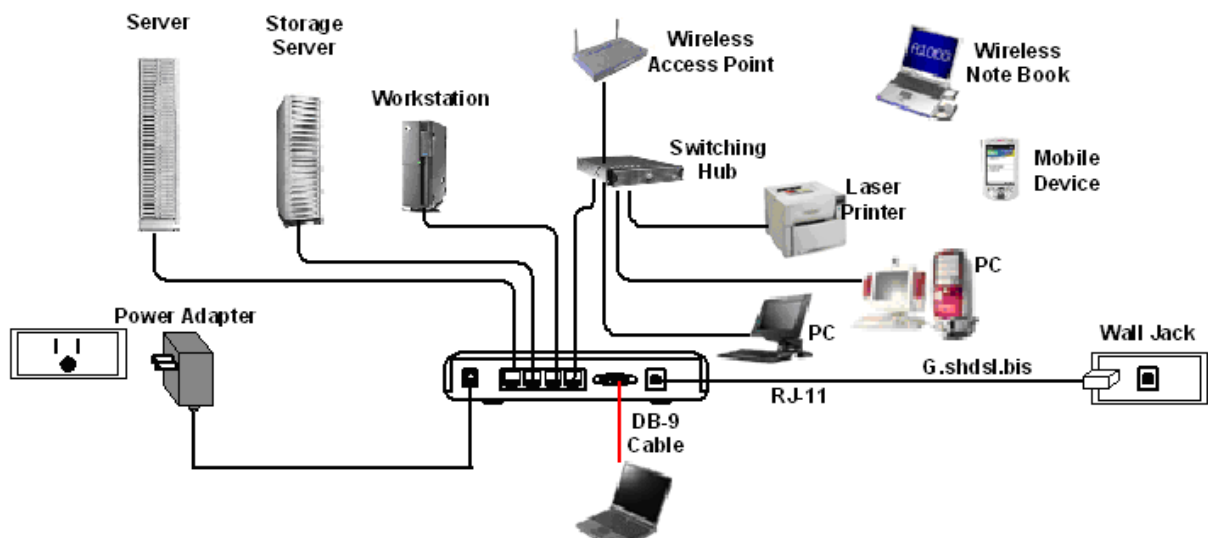


To avoid possible damage to this Router, do not turn on the router before Hardware Installation.

- 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

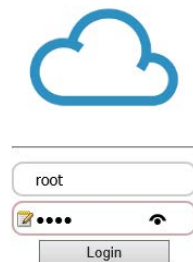
4 Configuration via Web Browser

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://192.168.0.1> as URL

The default IP address and sub net-mask of the Router is 192.168.0.1 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

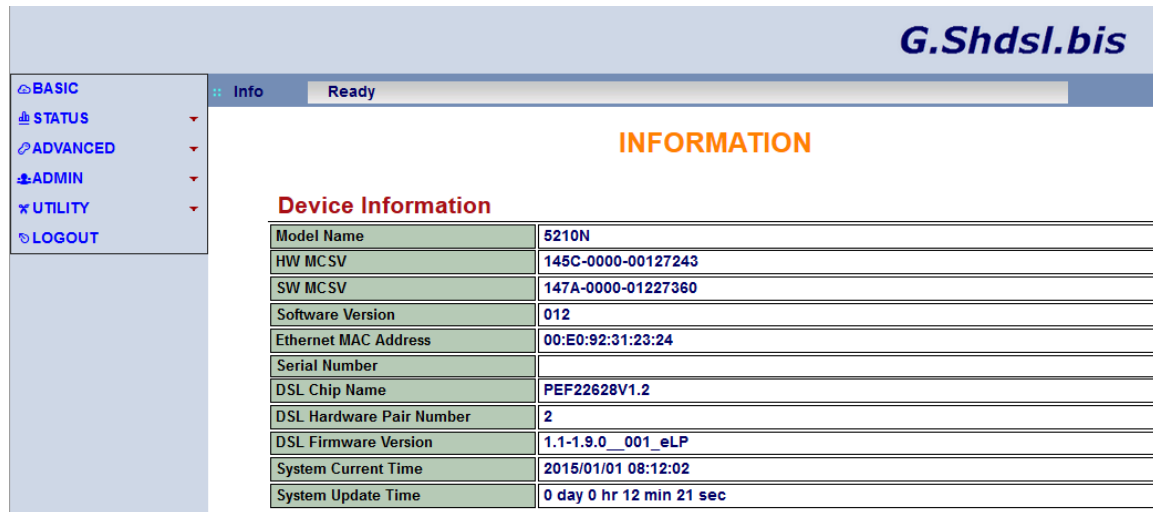
Below is the full function list of G.Shdsl.bis router

- **BASIC**
- **STATUS**
 - Information
 - Networking
 - Packet Statistics
 - G.SHDSL
- **ADVANCED**
 - SHDSL.bis
 - WAN
 - LAN
 - DNS
 - DHCP
 - VLAN
 - QoS
 - RIP
 - NAT/DMZ
 - Virtual Server
 - DDNS
 - Firewall
 - Content Filter
 - IGMP
 - SNTP
- **ADMIN**
 - SECURITY
 - MGMT
- **UTILITY**
 - SYSTEM LOG
 - SYSTEM TOOL
 - UPGRADE
 - RESTART
- **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.



G.Shdsl.bis

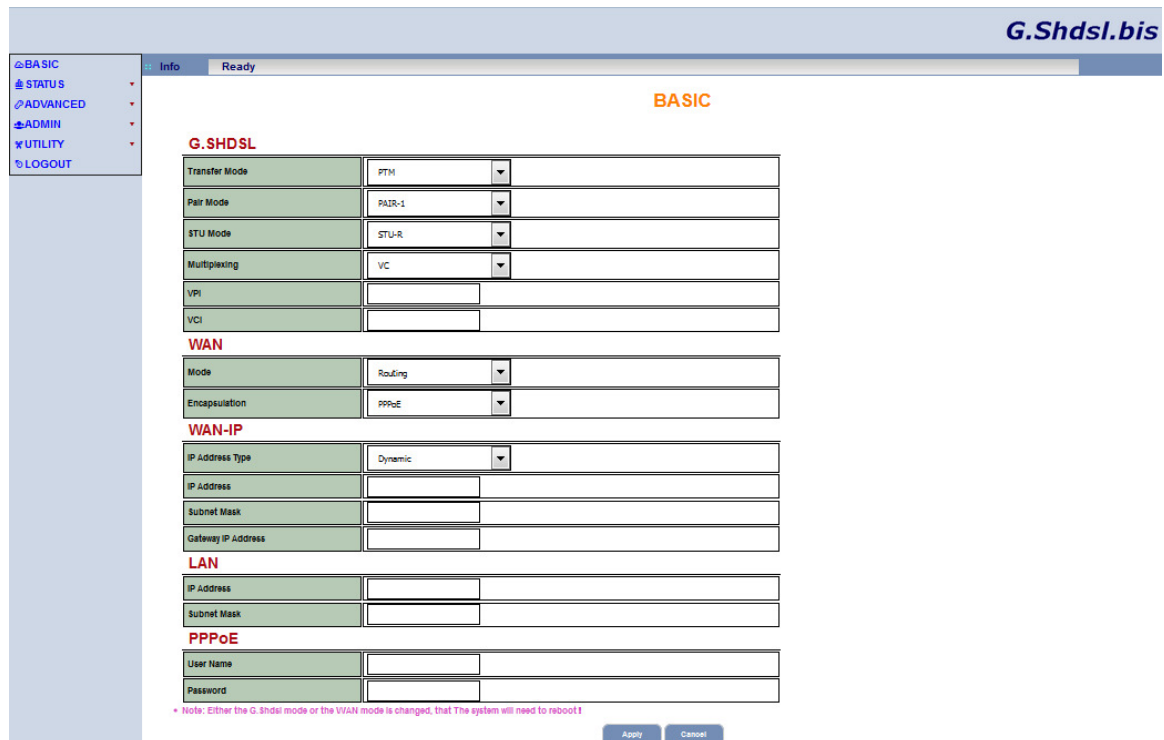
Info Ready

INFORMATION

Device Information

Model Name	5210N
HW MCSV	145C-0000-00127243
SW MCSV	147A-0000-01227360
Software Version	012
Ethernet MAC Address	00:E0:92:31:23:24
Serial Number	
DSL Chip Name	PEF22628V1.2
DSL Hardware Pair Number	2
DSL Firmware Version	1.1-1.9.0_001_eLP
System Current Time	2015/01/01 08:12:02
System Update Time	0 day 0 hr 12 min 21 sec

Click **BASIC** for basic installation.



G.Shdsl.bis

Info Ready

BASIC

G.SHDSL

Transfer Mode	PTM
Pair Mode	PAIR-L
STU Mode	STU-R
Multiplexing	VC
VPI	
VCI	

WAN

Mode	Routing
Encapsulation	PPPoE

WAN-IP

IP Address Type	Dynamic
IP Address	
Subnet Mask	
Gateway IP Address	

LAN

IP Address	
Subnet Mask	

PPPoE

User Name	
Password	

* Note: Either the G.Shdsl mode or the WAN mode is changed, that The system will need to reboot!

Apply Cancel

G.SHDSL

Item	Description
Transfer Mode	<p>Click on the drop-down list and select Transfer Mode as ATM(Asynchronous Transfer Mode) or PTM(Packet Transfer Mode).</p> <p>ATM uses asynchronous time-division multiplexing, and encodes data into small, fixed-sized packets called cells.</p> <p>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.</p> <p><i>*Note: This mode is changed, the system will need to reboot.</i></p>
Pair Mode	<p>Click on the drop-down list and select Pair Mode as Pair-1, Pair-2 or Pair-4.</p> <p>Pair-1 for 2-Wire Shdsl.bis Router Pair-2 for 4-Wire Shdsl.bis Router Pair-4 for 4-Wire Shdsl.bis Router</p>
STU Mode	<p>Click on the drop-down list and select STU Mode as STU-C or STU-R</p> <p>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.</p>
Multiplexing	<p>Click on the drop-down list and select Multiplexing used by your ISP as VC or LLC.</p> <p>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.</p> <p>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.</p> <p><i>*This is available only when you select ATM as Transfer Mode.</i></p>
VPI	<p>Enter the VPI(Virtual Path Identifier) range from 0 to 255.</p> <p><i>*This is available only when you select ATM as Transfer Mode.</i></p>
VCI	<p>Enter the VCI(Virtual Channel Identifier) range from 32 to 65535.</p> <p><i>*This is available only when you select ATM as Transfer Mode.</i></p>

WAN

Item	Description
Mode	<p>Click on the drop-down list and select Mode as Routing or Bridge</p> <p>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.</p> <p><i>*Note: This mode is changed, the system will need to reboot.</i></p>
Encapsulation	<p>Click on the drop-down list and select Encapsulation used by your ISP as PPPoE or RFC1483</p>

WAN-IP

Item	Description
IP Address Type	<p>Click on the drop-down list and select IP Address Type as Static or Dynamic</p> <p>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.</p>
IP Address	<p>Enter IP address for WAN when select Static IP address Type.</p>
Submask	<p>Enter a subnet mask in dotted decimal notation when select Static IP address Type.</p>

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 Type.

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

The screenshot shows a web-based configuration interface for a router. On the left is a navigation menu with options: BASIC, STATUS, ADVANCED, ADMIN, UTILITY, and LOGOUT. The main content area is titled 'BASIC' and contains several configuration sections:

- 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), 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).
- PPPoE:** User Name (masked), Password (masked).

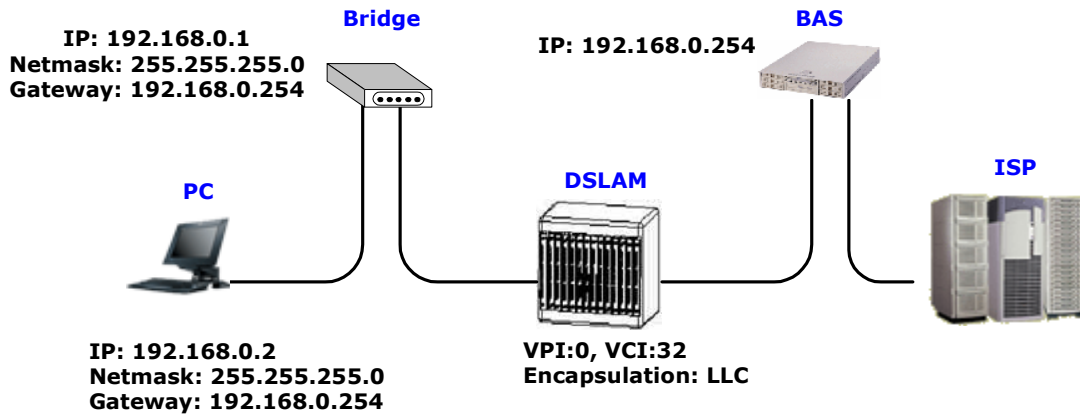
At the bottom right of the configuration area, there are two buttons: 'Apply' and 'Cancel'.

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

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.

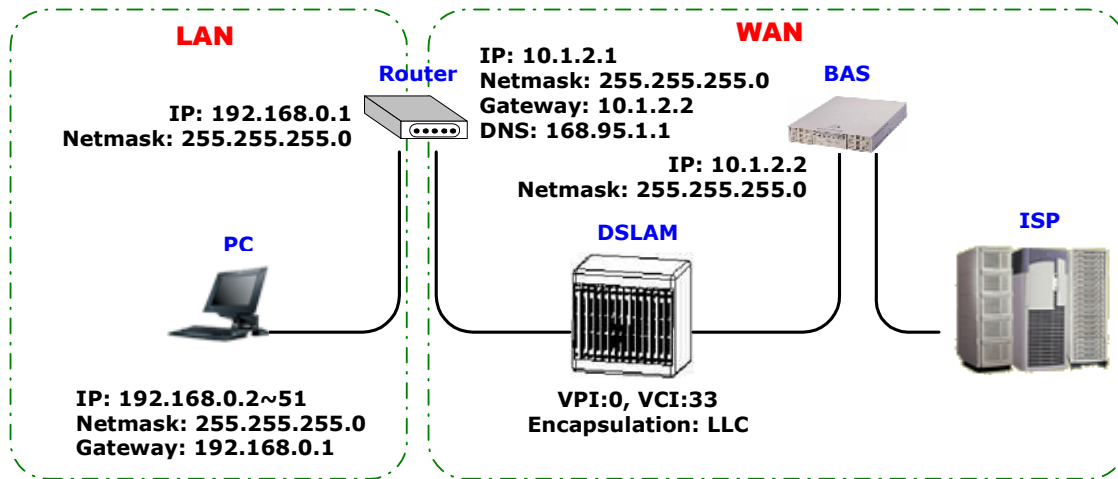


IPoA or EoA

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.

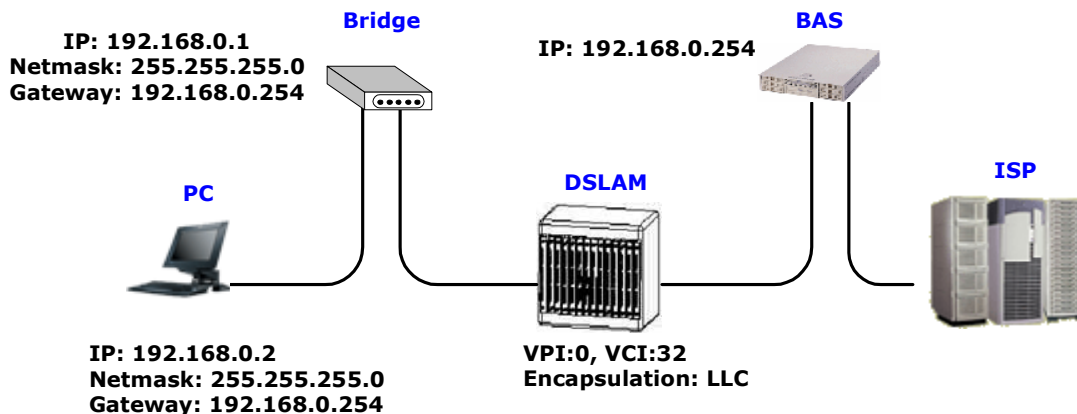
EoA (Ethernet-over-ATM) protocol is commonly used to carry data between local area networks that use the Ethernet protocol and wide-area networks that use the ATM protocol. Many telecommunications industry networks use the ATM protocol. ISPs who provide DSL services often use the EoA protocol for data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



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, attenuation and CRC error count.

4.2.1 Information

STATUS > Information

G.Shdsl.bis

Info
Ready

INFORMATION

Device Information

Model Name	5210N
HW MCSV	145C-0000-00127243
SW MCSV	147A-0000-01227360
Software Version	012
Ethernet MAC Address	00:E0:92:31:23:24
Serial Number	
DSL Chip Name	PEF22628V1.2
DSL Hardware Pair Number	2
DSL Firmware Version	1.1-1.9.0_001_eLP
System Current Time	2015/01/01 08:12:02
System Update Time	0 day 0 hr 12 min 21 sec

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

G.Shdsl.bis

Info
Ready

STATUS - NETWORKING

Refresh Interval: None

Network Status

Mode	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

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	0	0	lan
192.168.0.0	0.0.0.0	255.255.255.0	U	0	0	ptm0
0.0.0.0	192.168.0.250	0.0.0.0	UG	0	0	default

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

4.2.3 PACKET STATISTICS

STATUS > Packet Statistics

STATUS - PACKET STATUS Refresh Interval:

System Status

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

Node	Status	Tx Packet	Tx Error	Tx B/s	Rx Packet	Rx Error	Rx B/s	Up Time
1-1483	Up	0	0	19297	0	0	49702889	1:15:08

LAN Port

Interface	Status	Tx Packet	Rx Packet	Collisions
Ethernet	100M/Full-Duplex	6592	5779	0

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

4.2.4 G.SHDSL

STATUS > G.SHDSL

G.Shdsl.bis

STATUS - G.SHDSL Refresh Interval:

G.SHDSL Status

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

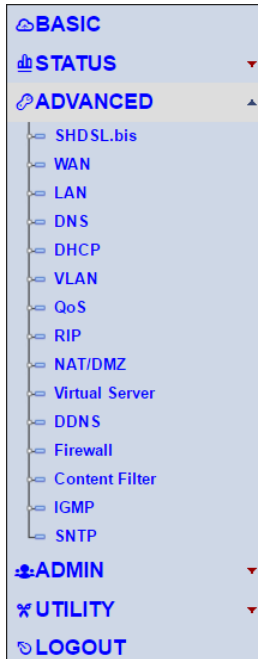
G.SHDSL STATUS page displays current status of DSL line including Channel Name, State, Annex, TCLayer, Line Rate, SNR, Loop Attenuation, TxPower and CRC.

4.3 Advanced Setup

OVERVIEW

Advanced setup includes SHDSL.bis, WAN, LAN, DNS, DHCP, VLAN, QoS, RIP, NAT/DMZ, Virtual 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.



4.3.1 SHDSL.bis

ADVANCED>SHDSL.bis

The screenshot shows the configuration page for SHDSL.bis. The page title is "G.Shdsl.bis" and the sub-page title is "ADVANCED - SHDSL.bis". The "PAIR Type" is set to "PAIR-4". The "Channel Config" table is as follows:

	Channel
Mode Type	STU-R
Line Probe	Enable
Transfer Max Rate	5696 (Kbps)
Transfer Min Rate	192 (Kbps)
Standard Mode	ANNE_X_B/G
Modulation	AUTO

Below the table, there are four bullet points:

- The modulation AUTO Mode indicated both TCPAM-16 and TCPAM-32
- TCPAM-64/128 did not support Line Probe Disable!
- In TCPAM-64/128 will reset the value of each channel!
- The GPE modulation in TCPAM-16/32 will follow up the CO configuration!

At the bottom right, there are "Apply" and "Cancel" buttons.

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-4 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 disable 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. Note: The TCPAM-64/128 did not support Line Probe Disable.
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

ADVANCED - WAN

General

Transfer Mode	PTM
Operation Mode	Routing
Encapsulation	BNET ENCAP(RFC 1483)

IP Address

Mode	<input checked="" type="radio"/> DHCP <input type="radio"/> Static IP
------	---

Advanced

Mtu	1500
-----	------

* Either the Transfer mode or the Operation mode is changed, that The system will need to reboot!

Apply Cancel

ADVANCED - WAN

General

Transfer Mode: PTM

Operation Mode: Routing

Encapsulation: PPPoE

User Name: []

Password: []

IP Address

Mode: DHCP Static IP

Advanced

MTU: 1500

* Either the Transfer mode or the Operation mode is changed, that The system will need to reboot!

Apply Cancel

General

Item	Description
Transfer Mode	<p>Click on the drop-down list and select Transfer Mode as ATM(Asynchronous Transfer Mode) or PTM(Packet Transfer Mode).</p> <p>ATM uses asynchronous time-division multiplexing, and encodes data into small, fixed-sized packets called cells.</p> <p>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.</p> <p>Note: This mode is changed, the system will need to reboot.</p>
Operation Mode	<p>Click on the drop-down list and select Operation Mode as Routing or Bridge</p> <p>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.</p> <p>Note: This mode is changed, the system will need to reboot.</p>
Encapsulation	<p>Click on the drop-down list and select Encapsulation used by your ISP as PPPoE or RFC1483</p> <p>When select PPPoE as Encapsulation, you are required to enter the User Name and Password provided by your ISP.</p>
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	<p>Click on the drop-down list and select WAN IP Address Type as Static or Dynamic</p> <p>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.</p>
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.

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

4.3.3 LAN

ADVANCED>LAN



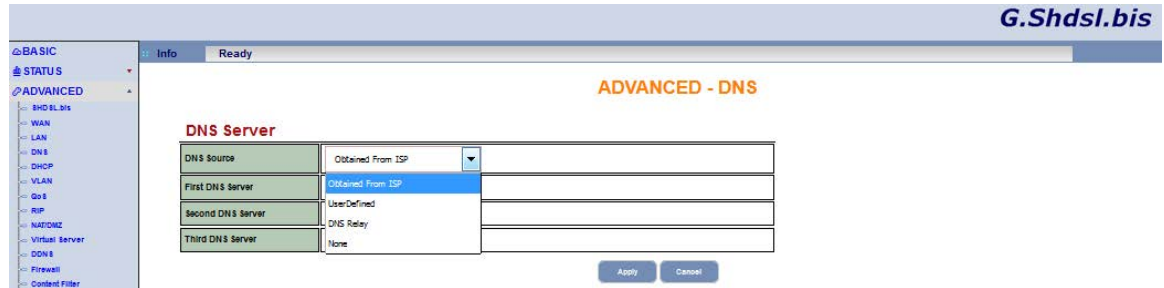
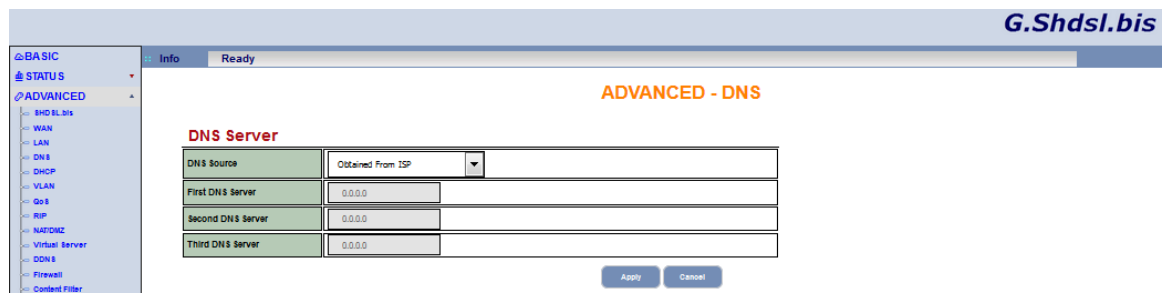
IP Setting

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

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

4.3.4 DNS

ADVANCED>DNS



DNS Server

Item	Description
First DNS Server	Click on the drop-down list and select below options for DNS Servers; 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.
Second DNS Server	
Third DNS Server	

None: Select this option when you don't want to configure DNS servers.

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

4.3.5 DHCP

ADVANCED>DHCP

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.

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

4.3.6 VLAN

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

VLAN Mode

Mode: Off On

Group Config

Entry No.	VID	MGMT	LAN				WAN
			1	2	3	4	1
1	1	<input checked="" type="radio"/>	Untag	Untag	Untag	Untag	Untag
2	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
3	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
4	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
5	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
6	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
7	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
8	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
9	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
10	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
11	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
12	0	<input type="radio"/>	Untag	Untag	Untag	Untag	Untag
PVID			1	1	1	1	1

Note: VID/PVID : 1~4094.
Notes: The LAN / WAN's PVID need to belong to valid entry's VID.

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 Note: The LAN/WAN's PVID need to belong to valid entry's VID.

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

4.3.7 QoS

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

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.
Packet Length	When select OFF, unmatched traffic is mapped to Queue Two.
	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, 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

Click on **Add** to create a new class

Class Configuration

Item	Description
Active	Activate the classifier
Name	Enter the name of the classifier
Interface	Only from LAN Side 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

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

ADVANCED>RIP

G.Shdsl.bis

Info Ready

ADVANCED - RIP

RIP Entry

#	Direction	Version	Passive	AuthType	AuthCode	SpiltHorizon	Modify
1	Off	V2	Off	None	-	On	<input checked="" type="checkbox"/>
2	Off	V2	Off	None	-	On	<input checked="" type="checkbox"/>

Click **Modify** to edit each entry information

RIP>Entry Config

G.Shdsl.bis

Info Ready

ADVANCED - RIP

Entry Config

No.	1
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

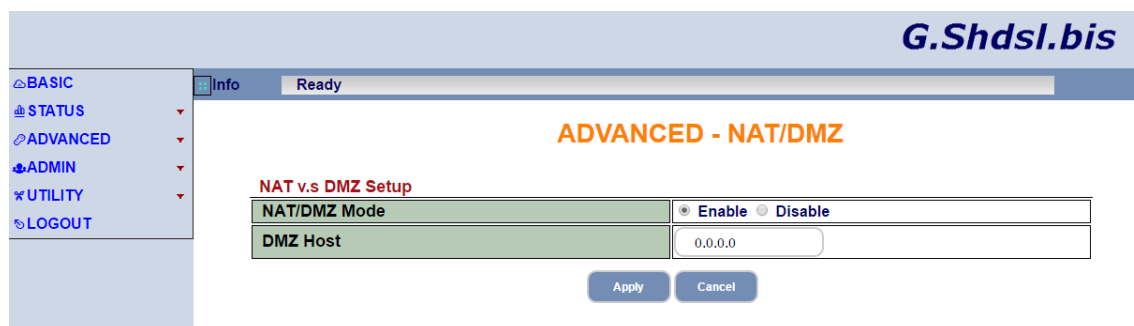
NAT (Network Address Translation) is the translation of an Internet Protocol address (IP address) used within one network to a different IP address known within another network. One network is designated the inside network and the other is the outside. Typically, a company maps its local inside network 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.

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

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.

4.3.11 DDNS

ADVANCED>DDNS

G.Shdsl.bis

Info Ready

ADVANCED - DDNS

DDNS

Enable	<input type="radio"/> On <input checked="" type="radio"/> Off
Provides	www.DynDNS.org
Service Type	Dynamic DNS
Host Name	
User Name	
Password	
Enable Wildcard	<input type="checkbox"/>
IP Policy	Use WAN IP Address
Specified IP Address	0.0.0.0

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: Specify a static IP address for the Host Name.
Specified IP Address	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

Info Ready

ADVANCED - FIREWALL

Firewall Setup

Firewall Settings	<input checked="" type="radio"/> OFF <input type="radio"/> ON
General Rule	
<ul style="list-style-type: none"> • Protection DoS Attach • Stateful Firewall (SPI) Protection • Enclosed TCP/UDP opened session valid 	

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 Filter

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

ADVANCED>Content Filter

G.Shdsl.bis

ADVANCED - CONTENT FILTER

Uri Filter

Mode: Off On

Filter Config

#	Mode	Keyword
1	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
2	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
3	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
4	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
5	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
6	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
7	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
8	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
9	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
10	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
11	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
12	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
13	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
14	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
15	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters
16	<input checked="" type="radio"/> Off <input type="radio"/> On	max 64 characters

* The Content keywords is major point out in the address of the URL !

Apply Cancel

Uri Filter

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

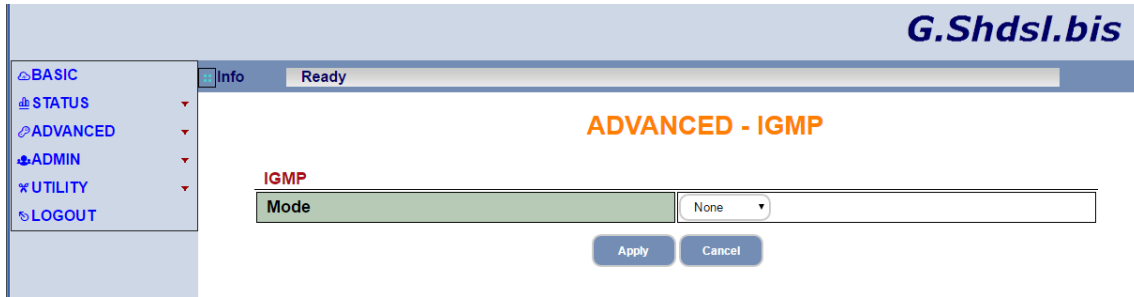
Filter Config

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

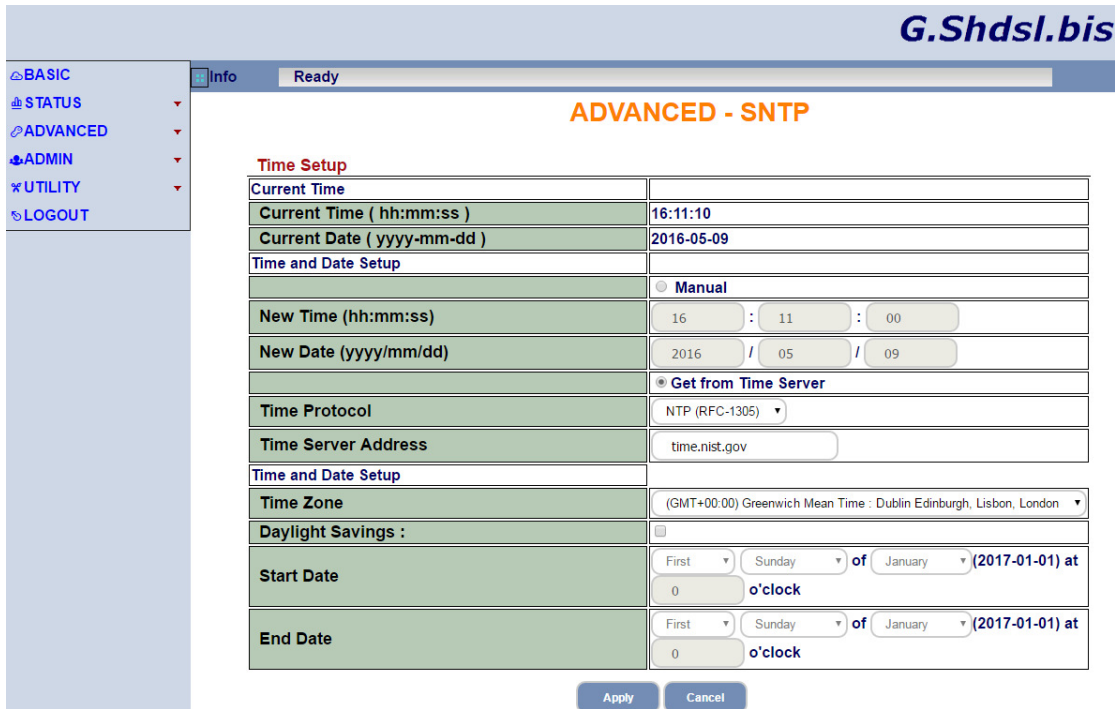


IGMP

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

4.3.15 SNTP

ADVANCED>SNTP



Time Setup

Item	Description
Current Time (hh:mm:ss)	Display current system time
Current Date (yyyy-mm-dd)	Display current system date
	*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.



4.1.1 Security

ADMIN>SECURITY

G.Shdsl.bis

- ⊞ BASIC
- ⊞ STATUS
- ⊞ ADVANCED
- ⊞ ADMIN
- SECURITY
- MGMT
- ✕ UTILITY
- ⊞ LOGOUT

ADMIN - SECURITY

System Setup

System Host Name	SOHO	(Max:60)
Domain Name	soho	(Max:24)
Authentication Timeout	5	minute(s)

• The character support [A-Z], [a-z], [0-9], [{dash} , _{under-line}]

System Password

Level	Admin	▼
Admin Password	<input type="password"/>	
Retype Admin Password	<input type="password"/>	

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

Note: The character support [A-Z], [a-z], [0-9], [_ (underline), -(dash), .(dot)]

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

ADMIN>MGMT

The screenshot displays the 'ADMIN - MANAGEMENT' configuration page for a G.Shdsl.bis router. The interface includes a left-hand navigation menu with options: BASIC, STATUS, ADVANCED, ADMIN, UTILITY, and LOGOUT. The main configuration area is titled 'ADMIN - MANAGEMENT' and features four tabs: SNMP, WWW, TELNET, and SSH. The 'SNMP' tab is active, showing the following configuration fields:

- Port:** 161
- Access Status:** ALL
- SNMP Configuration:**
 - Get Community:** public
 - Set Community:** private
 - Trap Community:** public, private
 - Trap Destination:** (empty fields)

At the bottom of the configuration area, there are 'Apply' and 'Cancel' buttons.

4.1.2.1 SNMP

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 WAN 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 management 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

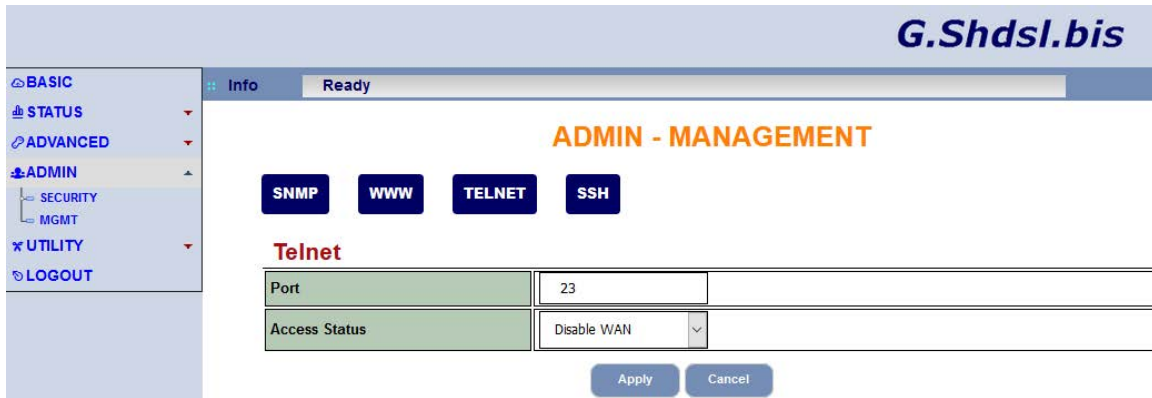
The screenshot shows the router's configuration interface. At the top right, the logo 'G.Shdsl.bis' is visible. On the left, there is a navigation menu with options: BASIC, STATUS, ADVANCED, ADMIN, UTILITY, and LOGOUT. The main area is titled 'ADMIN - MANAGEMENT' and contains four buttons: SNMP, WWW, TELNET, and SSH. Below these buttons, the 'WWW' configuration form is displayed. It has two input fields: 'Port' with the value '80' and 'Access Status' with a dropdown menu set to 'ALL'. At the bottom of the form are 'Apply' and 'Cancel' buttons.

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 WAN to disable the remote management service

4.1.2.3 TELNET

Click **TELNET** to configure the parameters for remote management via TELNET



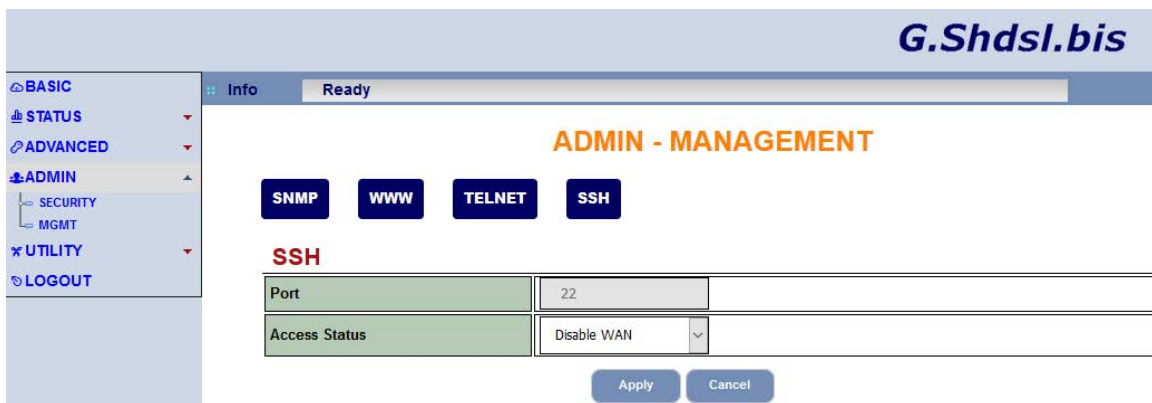
TELNET

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 WAN to disable the remote management service

Default: The TELNET allow accessible from LAN side only.

4.1.2.4 SSH

Click **SSH** to configure the parameters for remote management via SSH



SSH

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 WAN to disable the remote management service

Default: The SSH allow accessible from LAN side only.

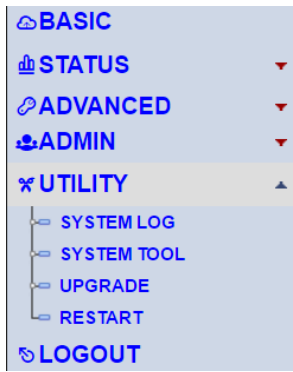
4.2 Utility

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 configuration
UPGRADE	Upgrade the firmware

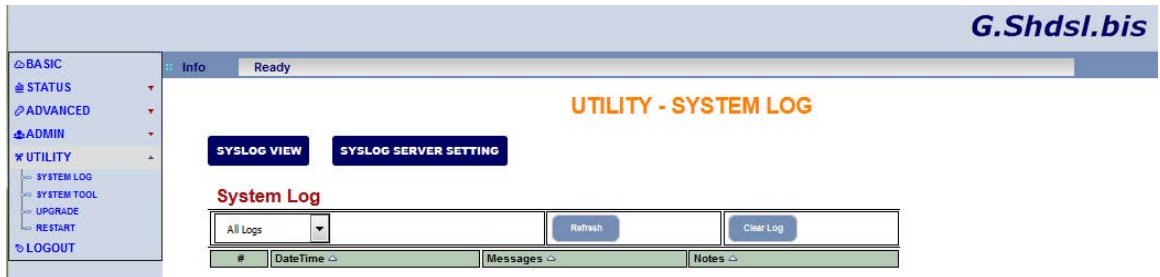
RESTART	Restart the router.
----------------	---------------------



4.2.1 SYSTEM LOG

4.2.1.1 SYSTEM LOG

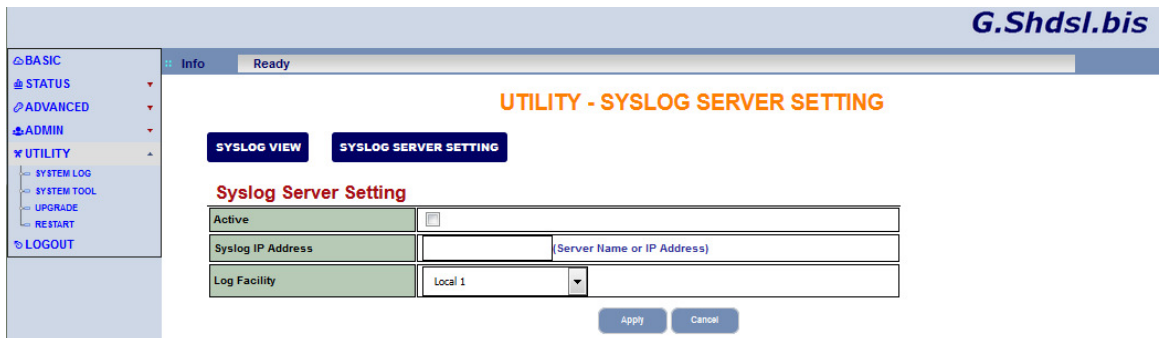
UTILITY>SYSTEM LOG



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 System Log page or **Clear Log** to delete all log information.

4.2.1.2 SYSTEM LOG Server Setting



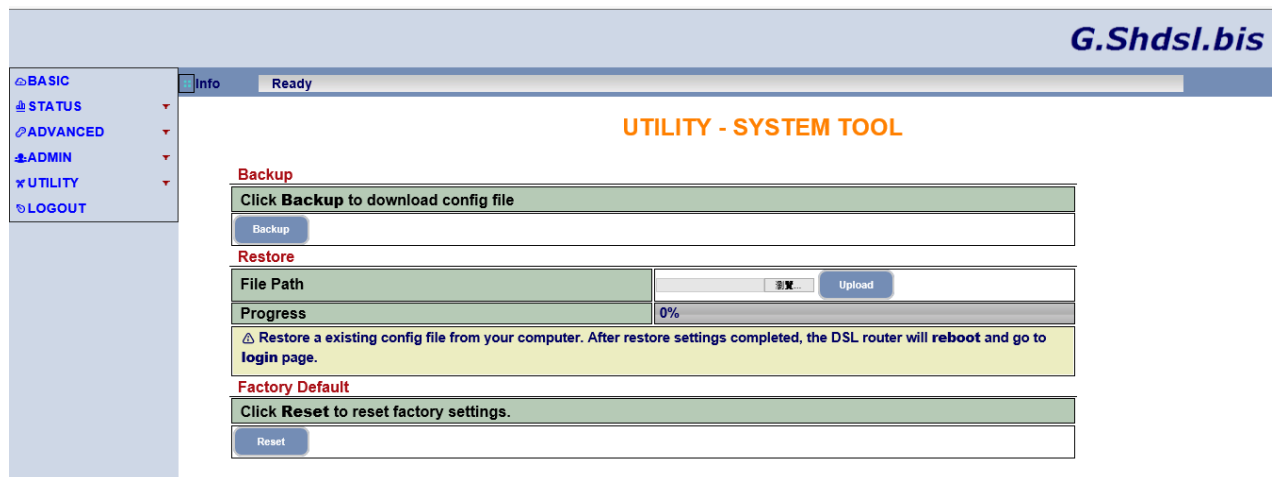
SYSLOG Server Setting

Item	Description
Active	Activate the syslog server

Syslog IP Address	Enter IP address for syslog server
Log Facility	The log facility allows you to log the messages to different files in the syslog server. Refer to the documentation of your syslog program for more details.
Priority	Assign priority to the traffic of the classifier
Order	Ordering number of the classifier

4.2.2 System Tool

UTILITY>SYSTEM TOOL



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

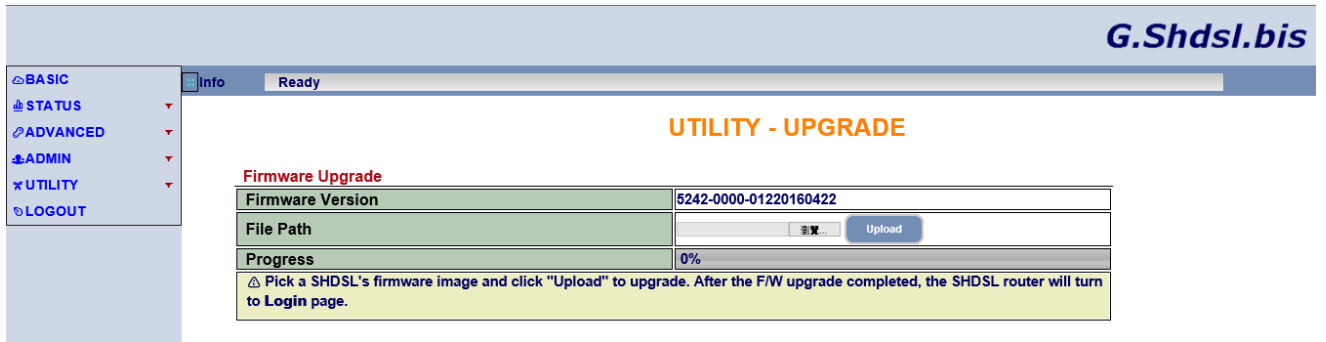
Click **Backup** to save config.cfg in your computer.

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

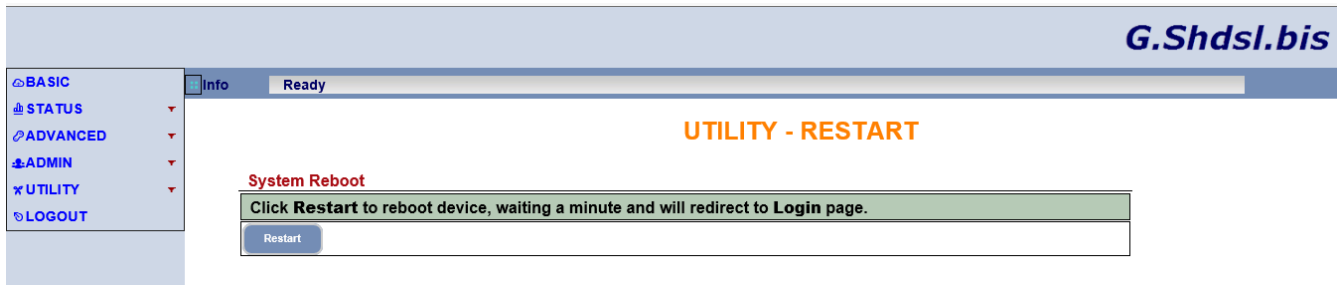


You can upgrade the SHDSL.bis router using the upgrade function.

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 Restart

UTILITY>RESTART



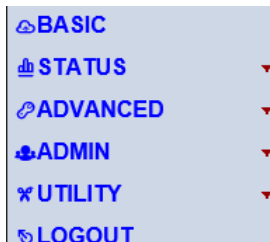
Use RESTART to reboot the SHDSL.bis router.

Click on **Restart** to reboot the system.

4.3 LOGOUT

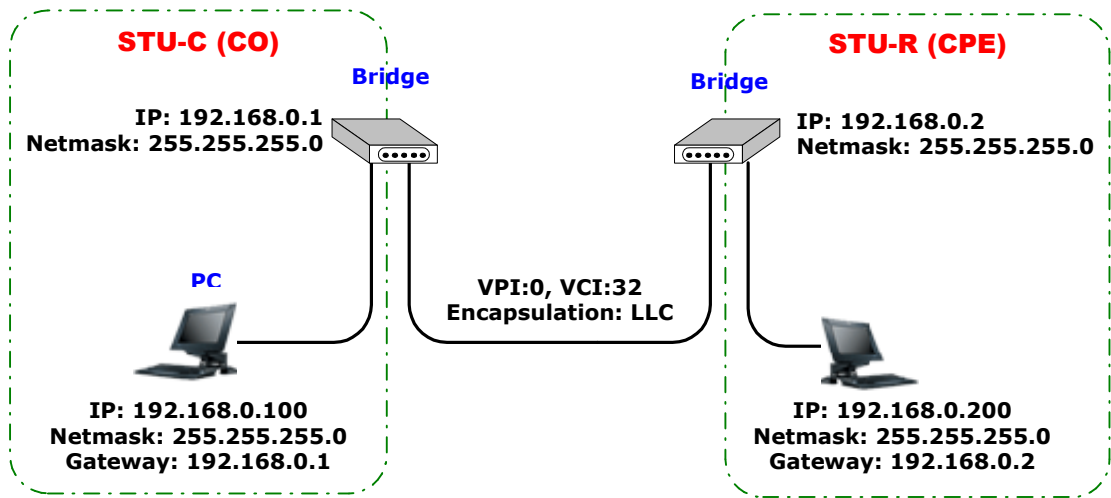
Overview

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



Example

4.3.1 LAN-to-LAN connection with bridge Mode



4.3.1.1 CO side

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

The screenshot shows the 'BASIC - STEP1' configuration page. The 'Operation Mode' section has 'System Mode' set to BRIDGE (selected) and 'SHDSL Mode' set to CO Side (selected). There are 'Cancel', 'Reset', and 'Next' buttons at the bottom.

The screenshot shows the 'BASIC - STEP2' configuration page. The 'LAN' section has IP Address: 192.168.0.1, Subnet Mask: 255.255.255.0, Gateway: 192.168.0.1, and Host Name: SOHO. The 'WAN1' section has VPI: 0, VCI: 32, and Encap.: LLC (selected). There are 'Back', 'Cancel', 'Reset', and 'Next' buttons at the bottom.

Enter **LAN** Parameters

IP: 192.168.0.1

Subnet Mask: 255.255.255.0

Gateway: 192.168.0.1

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.

4.3.1.2 CPE Side

Click **Bridge** and **CPE** Side to setup Bridge mode of the Router and then click **Next**.

Home Basic Advanced Status Admin Utility

BASIC - STEP 1

Operation Mode:

System Mode: ROUTE BRIDGE

SHDSL Mode: CO Side CPE Side

Cancel Reset Next

Home Basic Advanced Status Admin Utility

BASIC - STEP 2

LAN:

IP Address: 192 . 168 . 0 . 2

Subnet Mask: 255 . 255 . 255 . 0

Gateway: 192 . 168 . 0 . 2

Host Name: SOHO

WAN1:

VPI: 0

VCI: 32

Encap.: VC-mux LLC

Back Cancel Reset Next

Enter **LAN** Parameters

IP: 192.168.0.2

Subnet Mask: 255.255.255.0

Gateway: 192.168.0.2

Host Name: SOHO

Enter **WAN1** Parameters

VPI: 0

VCI: 32

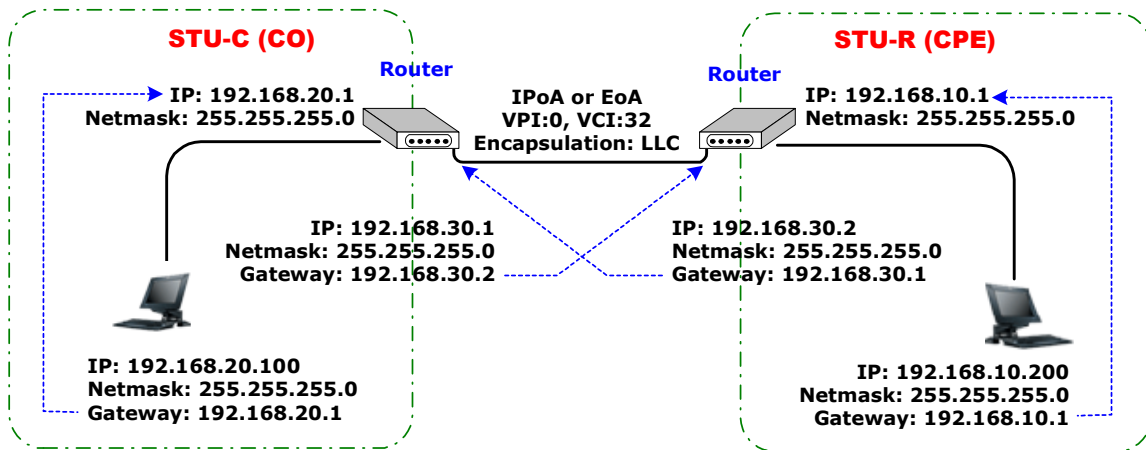
Click **LLC**

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



4.3.2.1 CO Side

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

Home	Basic	Advanced	Status	Admin	Utility		
BASIC - STEP2							
LAN:							
IP Address:	192	.	168	.	0	.	1
Subnet Mask:	255	.	255	.	255	.	0
Host Name:	SOHO						
Trigger DHCP Service:	<input type="radio"/> Disable <input checked="" type="radio"/> Enable						
<input type="button" value="Back"/> <input type="button" value="Cancel"/> <input type="button" value="Reset"/> <input type="button" value="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

Home	Basic	Advanced	Status	Admin	Utility
BASIC - STEP4					
WAN1:					
VPI:	0				
VCI:	32				
AAL5 Encap:	<input type="radio"/> VC-mux <input checked="" type="radio"/> LLC				
Protocol:	<div style="border: 1px solid black; padding: 2px;"> IPoA IPoA+NAT EoA EoA+NAT PPPoA+NAT PPPoE+NAT </div>				
<input type="button" value="Back"/> <input type="button" value="Cancel"/> <input type="button" value="Reset"/> <input type="button" value="Next"/>					

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 NAT, review the chapter of NAT/DMZ .

Home Basic Advanced Status Admin Utility

BASIC - STEP5

WAN1:

IP Address: 10 . 1 . 2 . 1

Subnet Mask: 255 . 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

IP Address: 192.168.20.1

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 Side then press Next.

Home Basic Advanced Status Admin Utility

BASIC - STEP1

Operation Mode:

System Mode: ROUTE BRIDGE

SHDSL Mode: CO Side CPE Side

Cancel Reset Next

Home	Basic	Advanced	Status	Admin	Utility
BASIC - STEP2					
LAN:					
IP Address: <input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="10"/> . <input type="text" value="1"/>					
Subnet Mask: <input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="0"/>					
Host Name: <input type="text" value="SOHO"/>					
Trigger DHCP Service: <input type="radio"/> Disable <input checked="" type="radio"/> Enable					
<input type="button" value="Back"/> <input type="button" value="Cancel"/> <input type="button" value="Reset"/> <input type="button" value="Next"/>					

Type LAN parameters:

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
BASIC - STEP4					
WAN1:					
VPI: <input type="text" value="0"/>					
VCI: <input type="text" value="32"/>					
AAL5 Encap: <input type="radio"/> VC-mux <input checked="" type="radio"/> LLC					
Protocol: <input type="text" value="IPoA"/>					
<input type="button" value="Back"/> <input type="button" value="Cancel"/> <input type="button" value="Reset"/> <input type="button" value="Next"/>					

VPI: 0

VCI: 32

AAL5 Encap: VC-mux LLC

Protocol: IPoA , EoA , IPoA + NAT or EoA + NAT

Note: The Protocol used in CO and CPE have to be the same.

Click to setup the IP parameters.

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

Home	Basic	Advanced	Status	Admin	Utility
BASIC - STEP5					
WAN1:					
IP Address: <input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="30"/> . <input type="text" value="2"/>					
Subnet Mask: <input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="255"/> . <input type="text" value="0"/>					
Gateway: <input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="30"/> . <input type="text" value="1"/>					
DNS Server 1: <input type="text" value="168.95.1.1"/>					
DNS Server 2: <input type="text"/>					
DNS Server 3: <input type="text"/>					
<input type="button" value="Back"/> <input type="button" value="Cancel"/> <input type="button" value="Reset"/> <input type="button" value="Next"/>					

IP Address: 192.168.30.2

Subnet mask: 255.255.255.0

Gateway: 192.169.30.1

Click

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 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
Baudrate	9600bps
Data Bits	8
Parity Check	No
Stop Bits	1
Flow-control	No

Press the `SPACE` key until the login screen appears. When you see the login screen, you can logon to Router.

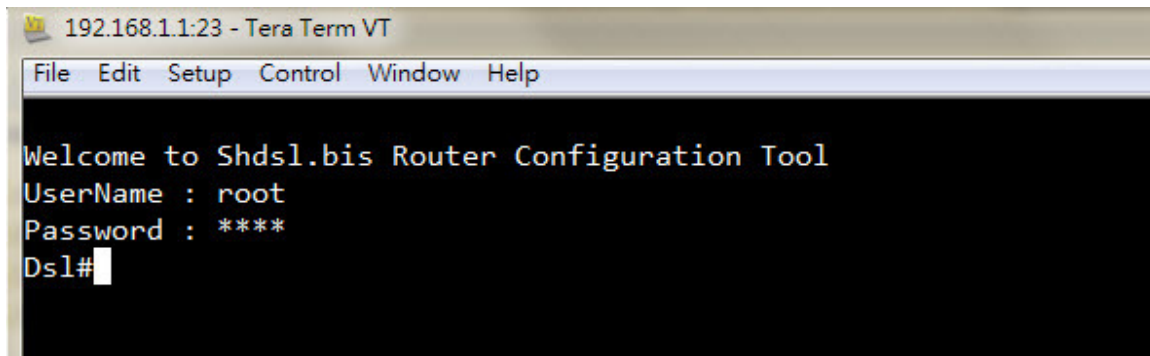
```
5242-0000-1220160511
Beta r400
Wed May 11 05:34:57 UTC 2016
=====
Welcome to Shdsl.bis Router Configuration Tool
UserName : root
Password : ****
```

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.

5.1.2 Telnet

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 192.168.0.1.

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	Config parameters of router by entering submenu: network advance 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

