G.shdsl Router

User Manual

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Congratulations!

You are about to accelerate into G.shdsl technology. Your new G.shdsl Router is an external Single-Pair High-Speed Digital Subscriber Line (SHDSL) Router, which conveniently plugs with Switch, Hub or computer. The Router connects directly to telephone line via a standard connector, RJ-11.

Description

The SHDSL (Single-Paired High Speed Digital Subscriber Loop) routers comply with G.992.2 standard. It provides business-class, multi-range form 64Kbps to 2.304Mbps payload rates over exiting single-pair copper wire. The SHDSL routers are designed not only to optimize the service bit rate from central office to customer premises also it integrates high-end



Bridging/Routing capabilities with advanced functions of Multi-DMZ, virtual server mapping and VPN pass through.

The SHDSL router allows customers to leverage the latest in broadband technologies to meet their growing data communication needs. Through the power of SHDSL products, you can access superior manageability and reliability.

Features

- Easy configuration and management with password control for various application environments
- ♦ Efficient IP routing and transparent learning bridge to support broadband Internet services
- VPN pass-through for safeguarded connections
- DMZ host/Multi-DMZ/Multi-NAT enables multiple workstations on the LAN to access the Internet for the cost of IP address
- ♦ Fully ATM protocol stack implementation over SHDSL
- ♦ PPPoA and PPPoE support user authentication with PAP/CHAP/MS-CHAP
- SNMP management with SNMPv1/SNMPv2 agent and MIB II
- ♦ Getting enhancements and new features via Internet software upgrade

Specification

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)
- > NAT ALGs for ICQ/Netmeeting/MSN/Yahoo Messenger
- DNS relay and caching (RFC1034/1035)
- > DHCP server (RFC2131/2132)

Bridging

IEEE 802.1D transparent learning bridge

Security

- DMZ host/Multi-DMZ/Multi-NAT function
- Virtual server mapping (RFC1631)
- > VPN pass-through for PPTP/L2TP/IPSec tunneling
- Natural NAT firewall

Management

- Easy-to-use web-based GUI for quick setup, configuration and management
- Menu-driven interface/Command-line interface (CLI) for local console and Telnet access

- Password protected management and access control list for administration
- SNMP management with SNMPv1/SNMPv2c (RFC1157/1901/1905) agent and MIB II (RFC1213/1493)
- Software upgrade via web-browser/TFTP server

ATM

- > Up to 8 PVCs
- ➢ UBR/CBR traffic shaping
- > OAM F5 AIS/RDI and loopback
- > AAL5

AAL5 Encapsulation

- VC multiplexing and SNAP/LLC
- Ethernet over ATM (RFC 2684/1483)
- PPP over ATM (RFC 2364)
- Classical IP over ATM (RFC 1577)

PPP

- PPP over Ethernet (RFC 2516)
- PPP over ATM (RFC 2364)
- User authentication with PAP/CHAP/MS-CHAP

WAN Interface

- SHDSL: ITU-T G.991.2 (Annex A, Annex B)
- Encoding scheme: 16-TCPAM
- Data Rate: N x 64Kbps (N=1~36)
- Impedance: 135 ohms

LAN Interface

10 Base-T LAN port (RJ-45)

Hardware Interface

- > WAN: RJ-11
- LAN: RJ-45 x 1
- Console port: RS232

Indicators

- General: PWR
- WAN: LNK, ACT
- LAN: LNK/ACT, 100M

Physical/Electrical

- Dimensions: 18.7 x 3.3 x 14.5cm (WxHxD)
- Power: 100~240VAC (via power adapter)
- Power consumption: 6 watts
- ► Temperature: 0~45 C
- Humidity: 0%~95%RH (non-condensing)

Memory

> 2MB Flash Memory, 4MB SDRAM

Getting to know about the router

This section will introduce hardware of the router.

Front Panel

The front panel contains LED status

	PWR	LNK	ACT	LNK/ACT	100M	
SHOSI		L- vv	AN	L L A	N	

LED status of 1-port router						
	LEDs	Active	Description			
	PWR	On	Power adaptor is connected to the router			
WAN	LNK	On	SHDSL line connection is established			
WAIN	ACT	On	Transmit or receive data over SHDSL link			
LAN	LNK/ACT	On	Transmit or receive data over Ethernet link			
LAIN	100M	On	LAN port acts in 100M			

Rear Panel

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



Connectors Description of 1-port router

DC-IN	Power adaptor inlet: Input voltage 18VDC
LAN	Ethernet 10BaseT for LAN port (RJ-45)
CONSOLE	RS-232C (DB9) for system configuration and maintenance
LINE	SHDSL interface for WAN port (RJ-11)

Configuration to the router

This guide is designed to lead users through Web Configuration, console port and telent of G.shdsl Router in the easiest and quickest way possible. Please follow the instructions carefully. Note: There are three methods to configure the router: serial console. Telnet and Web Browser.

Only one configuration application 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 step 3.

For Serial Console Configuration, you can skip step 1 and 2.

Step 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.

Step 2: Check the Web Browser in PC or NB

According to the Web Configuration, the PC or NB need to install Web Browser, IE or Netscape. Note: Suggest to use IE5.0, Netscape 6.0 or above and 800x600 resolutions or above.

Step 3: Check the Terminal Access Program

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

Step 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	Bridged Ethernet over ATM
RFC1577	Classical Internet Protocol over ATM
RFC2364	Point-to-Point Protocol over ATM
RFC2516	Point-to-Point Protocol over Ethernet

Step 5: Install the SHDSL Router

Caution: 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.

If the router is directly connected to PC or NB, the Ethernet cable has to be used cross over one. If the router is connected to hub or switch, be sure that the hub or switch supporting auto-sensing. If yes, both cross over and none cross over Ethernet cable are suitable. If not, only pass through Ethernet cable could be used.

- Connect the phone cable to the product and the other side of phone cable to wall jack.
- ✓ Connect the power adapter to power source.
- \checkmark Turn on the PC or NB which is used for configuration the Router.



Configuration via Web Browser

Open IE or Netscape Browser to connect the Router. Type http://192.168.0.1

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 are both *root*. For the system security, suggest to change 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.

Elle	Edit	View	Fa	vorite:	ş. (Tools Help			
未知	d. e		0		3	3 Search	Favorites	History	3.3

Enter Netv	work Passwo	rd	<u>?</u> ×
? >	Please type y	our user name and password.	
IJ	Site:	192.168.0.1	
	Realm	System Setup	
	<u>U</u> ser Name	root	
	<u>P</u> assword	****	
	🗖 <u>S</u> ave this	password in your password list	
		OK Ca	ncel

Basic Setup





Home Basic Advanced Status Admin Utility Click Bridge and CPE Side to setup **BASIC - STEP1** Bridging mode of the Router and then click Next for the next setting. Operation Mode: System Mode CROUTE BRIDGE BHDSL Mode: C CO Side @ CPE Side Cancel Reset Next Basic Advanced Status Admin Utility Home LAN Parameters BASIC - STEP2 Enter IP: 192.168.0.1 Enter Subnet Mask: 255.255.255.0 LAN: Enter Gateway: 192.168.0.254 IP Address: 192 168 D 1 Enter Host Name: SOHO Submet Marke 255 , 265 , 265 , 0 Outeway: 192 , 168 , 0 , 254 WAN1 Parameters Host Name: SOHO Enter VPI: 0 Enter VCI: 32 WAN1: Click LLC VPL In Click Next VCT: 32 Encop: C VC-mus @ LLC Back Cancel Reset Next Home Basic Advanced Status Admin Utility The screen will prompt the new configured parameters. Check the parameters and Click **BASIC - REVIEW** Restart The router will reboot with the new REVIEW: setting or Continue to configure another To let the configuration that you have changed take effect immediately, please click Restart batton to rebcontinue the serup procedure, please click Continue outton. parameters. System Operation Moder Bridge Mode System Node SHDSL Mode CPE Side a LAN Interface 192,168,0,1 **IP** Address Suinet Mask 205 205 205 0 Gateway 192 168 0 254 SOHO Hestnam · WANI interform VEL VCL AALS Encap. Cantinue Restart **Routing Mode** Routing mode contains DHCP server, Home Basic Advanced Status Admin Utility Point-to-Point Protocol over ATM and **BASIC - STEP1** Ethernet, IP over ATM and Ethernet over Operation Mode: ATM. You have to clarify which Internet

protocol is provided by ISP. System Mode @ ROUTE CBRIDGE Click ROUTE and CPE Side then press SHDSL Mode: C CO Side @ CPE Side

Next.

Cancel Resol Next

Type LAN parameters: IP Address: 192.168.0.1 Subnet Mask: 255.255.255.0 Host Name: SOHO DHCP Service: Enable The default setup is Enable DHCP server. If you want to turn off the DHCP service, choose Disable.

Home	Basic	Advanced	Status	Admin	Utili
		E	BASIC -	STEP2	
LAN:					
	IP Address 19	2 , 168 , 0	1		
	Subnet Mark: 26	5 , 255 , 265	. 0		
	Hout Name: St	XH0			
10.1	ST DHCP Service: C	Disphio @ Enghis			

DHCP Server

Dynamic Host Configuration Protocol (DHCP) is a communication protocol that lets network administrators to manage centrally and automate the assignment of Internet Protocol (IP) addresses in an organization's network. Using the Internet Protocol, each machine that can connect to the Internet needs a unique IP address. When an organization sets up its computer users with a connection to the Internet, an IP address must be assigned to each machine.

Without DHCP, the IP address must be entered manually at each computer. If computers move to another location in another part of the network, a new IP address must be entered. DHCP lets a network administrator to supervise and distribute IP addresses from a central point and automatically sends a new IP address when a computer is plugged into a different place in the network.

If the DHCP server is Enable, you have to setup the following parameters for processing it as DHCP server.

The embedded DHCP server assigns network configuration information at most 253 users accessing the Internet in the same time.

For example: If the LAN IP address is 192.168.0.1, the IP range of LAN is 192.168.0.2 to 192.168.0.51. The DHCP server assigns the IP form Start IP Address to End IP Address. The legal IP address range is form 0 to 255, but 0 and 255 are reserved for broadcast so the legal IP address range is from 1 to 254. On the other hand, you cannot assign an IP greater than 254 or less then 1. Lease time 72 hours indicates that the DHCP server will reassign IP information in every 72 hours.

Press Next to setup WAN parameters.

inenne .	Basic	Advanced	Status	Admin	Utility
		B	ASIC -	STEP3	
HCF SERVE	R:				
· General DF	CP Parcenters				
Rut IP Ad	deen 192.168.	1.2			
End IP A3	deess 192.168.	1.51			
DHS Se	rver 1: 192.168	C,1			
DNS Se	2 1891				
DNS 59	C1813				
Leade	Time 72	hours			
The second se		ta con Martin Con			
Index	M	C Address	IP Add	#55	
Index 1	M	IC Address	IP Add	*55	
Index 1 2		IC Address	IP Addi	*55	
Index 1 2 3		UC Address	IP Add	#55	
Index 1 2 3 4		C Address	IP Addi	#85	
1 2 3 4 5		IC Address			
Index 1 2 3 4 5 6		IC Address	IP Add	***	
1 2 3 4 5 5 7		IC Address	P Add [
Index 1 2 3 4 5 5 5 7 8		IC Address	IP Addu		
Index 1 2 3 4 5 5 5 7 8 9		IC Address	IP Addu		
Index 1 2 3 4 5 6 7 8 9 10		IC Address	IP Addu		

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.

LAN	WAN
Router	BAS
IP: 192.168.0.1 Netmask: 255.255.255.0	Username: test Password: test DSLAM ISP
IP: 192 168 0 2 × 51	VPI:0. VCI:33
Netmask: 255.255.255.0	Encapsulation: LLC
Gateway: 192.168.0.1	j
DNS Server: 192.168.0.1	·_····································
	Home Basic Advanced Status Admin Utility
Key in the WAN1 parameters:	BASIC - STEP4
	WAN1:
Reteast DDDA + NAT or DDDaE +	VPC p
	Addition Colomb Clic
	Protocal IPaA
Click Next to setup User name and	IPoA.
password.	EoA EoAldaT Elana Cancel Tosset New
For more NAT review NAT/DMZ in page	PPP0A+NAT
19.	MALOC 4041
	Home Basic Advanced Status Admin Utility
Type the ISP1 parameters.	BASIC - STEP5
User name and password are	
provided by your ISP.	INPE:
Deceward: test	Usement test
Password Confirm: tost	Paraward and
Idle Time: 10	Password Credins
	Idle Time: 10 minutes
• For safety the password will be	
prompt as star symbol.	Back Cancel Revet Mont

The screen will prompt the parameters that will be written in EPROM. Check the parameters before writing in EPROM.

	Deale	Nuvanueu	Status	Product I	00
		BA	SIC - R	EVIEW	
1 MILAN		D. J.			
nd WAN	Interface Para	neters Review: during take affect in	mudiately Plasse	chel Bester ball	en to mbro
rez, pleare	cârle continue butt	on	the second s		
AN INSTRU	ce:				
IP.	Address	192 168.C.1			
50	kerot Mask	255 255 255 0			
H	ost Name	SOHO			
Dee	main Name				
Trigger	OHCP service	Enable			
Star	t IP Address	192 168 0.2			
End	IP Address	192 168 0.51			
DN	S Server 1	192 168.C.1	192 168.C.1		
DN	S SHIVE Z				
DN	S Server 3	1.11			
Le	ase Time	72 hours			
able of Fixe	d DEICP Boot List				
Index	MAC	Address	IP Addres	5	
- t]		
2	12				
3					
4	5		3		
6					
6					
7	0			_	
8				_	
M.					
10					

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

VPI	0
VCI	32
AALS Encap.	L.C
Protocol	PPP over ATM
SP1 usemane	test
ISP1 password	****
Idle Time	10 minutes

Continue Restart



Type the Wan Parameters; VPI: 0	Home	Basic	1	ldvance	d B/	Status ASIC -	Admin STEP4		Utility	
	WANI:									
AALS Encap: ILLC Protocol: IPoA , EoA , IPoA + NAT or EoA + NAT	791. 901:	р (52	1							
Click Next to setup the IP parameters.	Protocol:	IPaA IPaA	30.00							
For more NAT, review NAT/DMZ in page 19.		PPPaE+	at IT NAT NAT	Eaco		Cancel	Result	hed		
	Home	Basic		Advance	ed	Status	Admin		Utility	
IP Address: 10 1 2 1					B	ASIC	- STEP5	5		
Subnet mask: 255.255.255.0	WANI:									
Gateway: 10.1.2.2	IF Aikinst	10	.1	2	1					
DNS Server 1: 168.95.1.1	Subnet Mask	255	265	265]0					
Click <u>Next</u>	Jeterway:	10		2	2					
	DNSServer 1:	168.95.	61							
	D08SServer 2	-		_						
	D0835erver3	L								

Back Cencel Reset Next

The screen will prompt the parameters that Home Basic Advanced Status Admin Utility will be written in EPROM. C parameters before writing in

will be written in EPROM. Check the parameters before writing in EPROM.	REVIEW:		BAS	SIC - REV	IEW
	To let the configur	ation that you has	e changed take effe	ect immediately, plea	ase click Restart button to reb
	 System Oper 	ation Mode:	Contraction and		
	Sw	tem Made	Boute Mode		17
	SH	DSL Node	CPE Side		
	. LAN Interfac				a_;;
		Address	192.168.0.1		1
	54	bnet Mask	256 255 255.0		
		lostname	SOHO		
	Trigge	DHCP service	Enabla		1
	 DHCP serves 	1			
	Defa	ult gateway	192.160.0.1		1
	Se	bnet mask	255.265.265.0		
	Stat	t IP address	192.168.0.2		
	Env	IP address IS Server 2	192 168 0 51		
	01	IS Server 3			
	L	ease time	72 hours		
	 Table of Flor 	d DHCP Hest List			
	Index	MAC	Address	IP Address	I
	1				-
	- 2			1	-
	4			1	
	6			1	
	6			1	
	7				
	8			1	
	9			1	
	10				-
	 WANI Jates 	fares			
	1	VPI	0		1
		VCI	32		
	A	NLS Encop.	ЦС		
		Protocol	IP over A.M		
Press Restart to restart the router working	WAI	11 IP address	10.1.2.1		
with new parameters or press continue to	WAN	Gateway	10122		
with new parameters of press continue to	DN	S Server 1	168 95.1.1		
setup another parameter.	DN	S Server 2			1
	DN	5 Server 3			
	-			Continue 1985	at

Congratulation! You are done. Your SHDSL Internet connection is established.

Advanced Setup

Advanced setup contains SHDSL, WAN, Bridge, Route, NAT/DMZ and Virtual server parameters. **BASIC** ADVANCED SHDSL . WAN BRIDGE • ROUTE • NAT/DMZ VIRTUAL SERVER STATUS ADMIN UTILITY SHDSL You can setup the Annex type, data rate and SNR margin for SHDSL parameters in SHDSL. Click SHDSL BASIC ADVANCED · WAN BRIDGE ROUTE · NAT/DMZ . VIRTUAL SERVER **STATUS** ADMIN UTILITY Home Basic Advanced Status Admin Utility Annex Type: There are two Annex types, **ADVANCED - SHDSL** Annex A and Annex B, in SHDSL. Operation Mode: Data Rate: you can setup the SHDSL data rate in the multiple of 64kbps. Setup Operation Moder Annex Type C Annex A @ Annex B SHDSL SNR margin: the margin range is Data Bate(n*64ktps): 0 (range 0-36 n=0 for adaptive mode) from 0 to 10. SHEEL SHR nurgin (range:0~10) **†** : Generally, the SNR margin does not need to be change because it will affect the data rate. Cancel Reset Finish

The screen will prompt the parameters Home Basic Advanced Status Admin Utility that will be written in EPROM. Check the **ADVANCED - SHDSL** parameters before writing in EPROM. SHDSL Parameters Review: To let the configuration that you have changed take effect immediately, please click Restart button to reb-confinue the setup procedure, please click Continue button. a SHDSL Model Annex Type Annes A Press Restart to restart the router Data Rate D (adaptive mode) working with new parameters or press **SNEXT** margin continue to setup another parameter. Canonica 8

WAN

The SHDSL router supports up to 8 PVCs. The parameters are setup in WAN.



BASIC

ADVANCED

- SHDSL
- WAN • BRIDGE
- ROUTE
- KUUTE
- NAT/DMZ
 VIRTUAL SERVER
- **STATUS**
- Contraction of the
- ADMIN
- **UTILITY**

The WAN Number 1 will be the parameters setup in Basic Setup. If you want to setup another PVC, you can configure them in WAN 2 to WAN 8. Enter the parameters.

Home Basic Advanced Status Admin Utility ADVANCED - WAN

WAY	Interface	Parameters:
1101.1	menate	T SE OTHERSER 24

* Table of Current WAN Interface Parameter:

Ne		WAN	VC	ISP
	Protace :	IF non-ATM	• V#1: p	Romann: test
	If Addept	10.1.2.1	VGI: 32	Patence2 Ferre
1	Guber: Mail:	245.255.255.D	AALS Droop: ULC	Fastward Confign: mare
			Oc9 21am UBR #	Kita Time: 10
			0:9 PCR: 2400	
	Piotace :	D sable	VPI: D	Romanne Inst
	IF Addee:	102.168.2.1	VCI: 33	Patteor2 tase
2	Suber: Made	265.266.355.0	ANES EALUP: ULC .	Patava M Confight Lase
		0.000.000.0000	USE THE USE .	ALL LOLE ID
			9.41 PCH. 2400	
	Fridaya	D sable	¥ 191. 0	Banann jest
	IF Address	182,168,3.1	VEL 34	Passes have
3	Solar Med	265,255,265,0	auid Panay ILC .	Farmen of Conditive States
		11010000-12900	Oct Starr UBR .	idia Tima: 10
			0x5 PCH: 2400	

	Partocol:	Disable	 WPE 	0	Unitatik	test
	P Address:	192.165.4.1	VCE	36	Password	
4	Secret Mak	255, 255, 255, 0	AALS Encept	110 .	Password Confirm	
			DoS Clant	UDR	idie Time	10
			Gas PER	2400	-	1
	Partoval	Disable		b	Durnane	test
	P.Addsor:	192.165.5.1	VCE	36	Password	
5	Supred Made	255,255,255,0	AALS Encept	LLC .	Passent Continue	
			Pol Class	UBR 💌	ble Thus.	10
			Des PCR:	2400	-	
	Parto-rol:	Ursable	• VPt	0	Universe	test
	PAGE	192 185 6 1	VCt	30	Password	
6	Sussed Marks	265,255,255,0	a MA Prosp	щc .	Parmard Contex	-
			RoS Class	UBR .	Idle Time	10
			QuS PER	2480	-	
	P Mitosol :	Disable	· WPE	0	UDITATIK	test
	P.Atten:	192.166.7.1	VCE	38	Passwort	
7	Georee Mark:	255.255.255.0	AALS Crospe	LLC .	Password Confirm:	
1			DoS Ciant	UBR 💌	idle Tirax	10
			DetPts	2400	-	
	Piertocol:	O saple	. V.F	0	Qpern gen u	test
	P MORE	192 188.8.1	9.1	39	P assects	
8	Satrel Mak	245 255 255 0	AALS Encope	LLC .	Passwerd Contine	
			DoS Class	UER .	Idia Time	10
				and the second sec		

Press Finish to finish setting.

The screen will prompt the parameters that will be written in EPROM. Check the parameters before writing in EPROM.

Home	Basic	Advanced	Status	Admin	Utility
		A	VANCE	D - WAN	

ten Avesen Hansto

WAN Interface Parameters Review To let the configuration that you have changed take effect immediately, please click Restart button to reb continue the setup procedure, please click Continue button.

* WANI Interface:

Protocol	IP over ATM	
IP Address	10.1.2.1	
Subnet Mask	256.265.265.0	
VPLVGL	032	
Encapsulation	LLC	
QoS Class	UBR	
CoS POR	2400	
ISP Usernaine	fast	
ISP Password		
Idle Time	10	

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

Bridge

The bridge mode can be setup the static bridge parameters.

Click Bridge to setup.



Home Basic Advanced Status Admin Utility Press Add to add the static bridge information. ADVANCED - BRIDGE Generic Bridge Parameters: · General Parameters Defudi Outerray: 132.168.0.254 Static Bridge Parameters: Table of Current MAC Entries: MAC Address LAN WAN1 - 4 WANS .8 5. Filter
6. Filter
7. Filter
8. Filter Filter 5. Filter - 1 00.00.00.00.00.00 Filter Filter Filter 4 Filter Film The screen will prompt the parameters that Basic Advanced Status Admin Utility Home will be written in EPROM. Check the ADVANCED - BRIDGE parameters before writing in EPROM. Bridge Parameters Review: To let the configuration that you have stranged take effect numericativy, please class Resear button to reboost the oper continue the strap procedure, please clack Continue button. · Generale Delidge Parameters Default Galeway 192.168.0.254 · State Bridge Parameter. Press Restart to restart the router working No MIGC Address LAN WARS WARS WARS WARS WARS WARS WARS WA with new parameters or press continue to Peal at Empty 1 setup another parameter. Restart Route If the Router is connected to more than one network, it may be necessary to set up a static route between them. A static route is a pre-determined pathway that network information must travel to reach a specific host or network. BASIC With Dynamic Routing, you can enable the Router to automatically adjust to physical changes in the network's layout. The Cable/DSL Firewall Router, **VADVANCED** SHDSL using the RIP protocol, determines the network packets' route based on the . WAN fewest number of hops between the source and the destination. The RIP BRIDGE protocol regularly broadcasts routing information to other routers on the ROUTE network. · NAT/DMZ VIRTUAL SERVER Click Route to modify the routing information. STATUS ADMIN UTILITY

	ndex	Network Av	direes.	Subret Mask	12	Gateway
1	61	0.0.01	I	ບບບບ		10122
	2				- F	
			SE Dec	No. Hogy	Erect	
• Tab	de ef Curre	at bierface RB	Parameters			
	terlace	RIP	Version	Authentication Regulated	Poisan Reverse	Authenticat
ile.						
10 (1	AA	Usable	2	None	trable	None
6 0	AAL 1 WAA1	U sable D sable	2	None None	trable Enable	Nona
	AAL 1 PAW2 SVAW2	U sable D sable D sable	2	None None None	Enable Enable Disatte	Nona Nona Nona
	AAL 1 PRAW 2 SRAW 1	U sable D sable D sable D sable	2	Nane Nase Nuse Nase	Enable Enable Disatle Disatle	None None None None
la e e e e e e e e e e e e e e e e e e e	44. 1 1974/1 204/1 1974/1 1974/1	U cable D cable D suble D suble B soble	2 	None None None None	Enable Enable Disatle Disatle	Nona Nona Nona Nona
Hom	AA. 1 744.47 744.47 744.47 744.47 8	U sable D sable D sable D sable Basic	2 2 	None None None None Status	Enable Enable Disatle Disatle Admin	Nona Nona Nona Nona Nona
Hom • Gen	C.AN SWAN SWANZ SWANZ SWANZ B	U sable D sable D sable D sable Basic	2 	None None None None	Enable Enable Disatle Disatle Admin	None None None None None
Hom • Gen	C_AA SWANG SWANG SWANG SWANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG BUANG SWANG S	U sable D sable D sable D sable BESIC sable sable Cole C D sa	2 	None None None Status	Enable Enable Disatle Disatle Admin	None None None None Utility
Hom As	CAA SWAY SWAY SWAYZ SWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ CWAYZ SWAY CWAYZ SWAY SWAY SWAY SWAY SWAY SWAY SWAY SWAY	U sable D sable D sable Basile Resie valueur: foir C D as	2 	None None Nune None Status	Enable Enable Disatle Disatle Admin	None None None None None
Hom • Gen Xx	CAA 'WAV2 'WAV2 'WAV3 CAAV	U sable D sable D sable D sable Besic Manueur: Ante C D sa every C D sa	2 	Nore Nore Nore Nore Status	Enable Enable Disatle Disatle Admin	Nors Nors Nors Nors Nors Nors
Hom As Tak	CAA SWAY SWAY SWAY SWAY SWAY SWAY SWAY SW	U cable D sable D sable D sable Basic Basic Anter C D as any C D as an interface R0	2 2 4 Advanced Advanced	Nore Nore Nore Nore Status	Enable Enable Disable Disable Disable	Norz Norz Norz Norz Norz Norz Norz Utility
Hom - Geo - Tak	CAA SWAY SWAY SWAY CWAY CWAY CWAY CWAY CWAY CWAY CWAY C	U cable D cable D soble D soble Bestie Bestie Bestie Sobe C D as an ay C D as	2 2 4 4 4 4 4 4 5 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Nore Nore Nore Nore Status status	Enable Enable Disathe Disathe Admin Paison Rovesse	Nora Nora Nora Nora Nora Nora Utility
Hom • Gen • Tak	C _AA ' WA V2 ' WA V2 ' WA V2 ' WA V3 C WA V2 ' WA V3 ' WA V2 ' WA V3 ' WA V2 ' WA V3 '	U cable D sable D sable D sable D sable Bestic Sable Cole C D as any C D as a	d 2 4 4 4 4 4 4 5 6 6 5 7 7 9 7 9 7 9 7 9 7 9 7 9 7 1 1 1 1 1 1	Nore Nore Plana Nore Status In In In In In In In In In In In In In	Enable Enable Disathe Disathe Admin Paisce Revuese Enable	Authenticat Cade Hone Hone Hone

	N082		Required	Reveise	Code
IF LAN	Disable	2	None	Brable	Hone.
C WANT	Disable	2	None	Enable	None
C WAND	Desable	- 1	None	U sable	None
C WWW	Dicable		Norw	Deable	None
C WANK	Disable	-	Norm	D soldler	None
C WARE	Disable		Nona	D seble	None
C WANE	Dioablo	[]	Nono	D soble	None
C WANT	Disable		Norie	D sable	None
A	Disable	1	None	D sable	None

RIP Mode: this parameter determines how the product handle RIP (Routing information protocol). RIP allows it to exchange routing information with other router. If set to Disable, the gateway does not participate in any RIP exchange with other router. If set Enable, the router broadcasts the routing table of the router on the LAN and incoporates RIP broadcast by other routers into it's routing table. If set silent, the router does not broadcast the routing table, but it accepts RIP broadcast packets that it receives.

To modify the RIP (Routing information

protocol) Parameters: **RIP Mode: Enable**

Press Modify

Auto RIP Summary: Enable

RIP Version: It determines the format and broadcasting method of any RIP transmissions by the gateway. RIP v1: it only sends RIP v1 messages only. RIP v2: it send RIP v2 messages in multicast and broadcast format.

Table of Current Interface RIP Parameters

Interface	RIP Mode	Version	Authentication Required	Poisan Revene	Authentication Code
LAN	Eisable *	2 *	Nose 💌	Enatle ·	-
WANT	Divisible	2	Nose	Enable	Nona
WAN2	Silent	+	Nose	Disable	Nona
WAN3	Disable	+	None	Disable	Nona
WAN4	D selle	+	None	Disable	Nona
WANS	Disable		None	Disable	Nona
W/AN6	D sable	-	Nose	Disable	Nona
WAN7	D selle	+	None	Disable	Nona
WANS	D sable		None	Disatile	Nona

* Table of Current Interface RIP Parameters

Interface	RIP Mode	Version	Authentication Required	Pelson Reverse	Authentication Code
LAN	Disable •	2.	None 💌	tonable 💌	
WANI	Disable	1	hone	Enable	None
WANZ	Disasle	1 1	None	Disable	None
WANS	Disable	-	h prise	Disable	None
WAWA	Disable	-	None	Disable	None
11/145	Dioaslo	1	Nono	Disable	None
WANE	Disable	1 -	hone	Dispbie	None
WAND	Disable	-	Norve .	Dicable	None
WANK	Jusable		None	Disable	None

Authentication required.

None: for RIP, there is no need of

authentication code.

Password: the RIP is protected by password, authentication code.

MD5: The RIP will be decoded by MD5 than protected by password, authentication code.

Poison Reserve is for the purpose of promptly broadcast or multicast the RIP while the route is changed. (ex shuting down one of the routers in routing table) Enable: the gateway will actively broadcast or multicast the information.

Disable: the gateway will not broadcast or multicast the information.

After modifying the RIP parameters, press finish.

Table of Current Interface RIP Parameter:

Interface	RIP Musie	Version	Arthentication Required	Poison Reverse	Asthentication Cude
LAN	D solate •	2.	filune 📼	Emaske •	
WAN1	Diseble	2	Nate	≣rable	Num
WAN2	Disable	1 2	MDS	Dirable	None
WAN3	Disable	-	Nore	Disable	None
VwAN4	Disable	-	Nore	Disable	None
WAN5	Disable		Noro	Dioakle	None
WANE	Disable		Nore	Disable	None
WAAN7	Disable	+	Nore	Disable	None
WANS	Disable	-	Nore	Dinable	None
2		Gannes	ÓK I	Beser	

Table of Current Interface RIP Parameters

Interface	RIP Note	Version	Authentication Required	Paison Reverse	Authentication Code
LAN	Diseb e 💌	2 *	Nona 💌	Ensbla ·	
WANN	Disable	2	Nove	Disable	None
WAND	Disable		Nate	LATING	None
VRANJ	Disable	-	Note	Disable.	None
WGANA	Disable	-	Note	Disable	None
WANS	Disable	- H - 1	None	Disable	Hone
WANE	Disable	-	Mane	Disable	None
VICANO"	Disable	-	Note	Disable	None
WANE	Disable		None	Disable	None

The screen will prompt the modified parameter. Check the parameters and perss Restart to restart the router or press Continue to setup another parameters.

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.

Press NAT/DMZ to setup the parameters.

If you want to enable the NAT/DMZ functions, click Enable. Enable the DMZ host Function is used the IP address assigned to the WAN for enabling DMZ function for the virtual IP address.

Multi-DMZ: Some users who have two or more global IP addresses assigned by ISP can be used the multi DMZ. The table is for the mapping of global IP address and virtual IP address.

Multi-NAT: Some of the virtual IP addresses (eg: 192.168.0.10 ~ 192.168.0.50) collectively use two of the global IP addresses (eg: 69.210.1.9 and 69.210.1.10). The Multi-NAT table will be setup as; Virtual Start IP Address: 192.168.0.10 Count: 40 Global Start IP Address: 69.210.1.9 Count: 2

Press Finish to continue.

The screen will prompt the parameters that will be written in EPROM. Check the parameters before writing in EPROM. Press Restart to restart the router working with new parameters or Continue to configure another parameter.

Version1.38

ionio -	Basic	Advanced	Status	Admin	Utili
		ADV	ANCED	- NAT/E	DMZ
work Addr	ess Translatio	n and DMZ Hosts	Parameters		
NAT/DM2	function:				
NATION	Z Fuartion 🖉	Disable C Enable			
DMZ Hest	i.				
DMZ Hos	tFurtion @ (Sable CEnable			
Virtual J	P.A. likeos				
Activ	 Interface: WW 	NT N			
	Line Line				
Multi-DH	Ζ:				
Mule DH	Z: al IP Address (ilohal IP Address	Interface		
Muld DH	Z: al IP Address (ilobal IP Address	Interface WAN1 •		
Mules DH	Z: al IP Address (ilobal IP Address	Interface WANT -		
Model DM	Z: al IP Address 6	ilobal IP Address	NANI • WANI •		
Model DH	Z: all IP Address f	ilobal IP Address	WANT = WANT = WANT = WANT =		
Modes DM	Z: at IF Address 6	Sobel IP Address	Interface WANT = WANT = WANT = WANT =		
 Mais DM 1 2 3 4 5 6 	Z:	Slobal IP Address	Interface WANT V WANT V WANT V WANT V		
Multi DM 1 Vinta 2 3 4 5 7 1	Z:	Slobal IP Address	Intorface WANT = WANT = WANT = WANT = WANT =		
Mais DM 1 Vina 2 Vina 3 Vina 4 Vina 5 Vina 6 Vina 6 Vina 8 Vina 8 Vina 1 Vin	Z:	Slobal IP Address	Interface WANT & WANT & WANT & WANT & WANT & WANT & WANT &		
Mais DM 1 Vina 2 3 4 6 7 8 9 1	Z: all IP Address 6	Slobal IP Address	Interface WANT & WANT & WANT & WANT & WANT & WANT & WANT & WANT &		

· Multi-NAT:

ID	Virtual Start IP Address	Count	Global Start IP Address	Count	Interface
1		a		p	WAN1 -
2		0		0	WAN1 .
з		a		0	WAN1 .
4		0		o	WANT .
5		0		0	WAN1 .

Virtual Server

For example: Specific ports on the WAN interface are re-mapped to services inside the LAN. As only 69.210.1.8 (e.g., assigned to WAN1 from ISP) is visible to the Internet, but does not actually have any services (other than NAT of course) running on gateway, it is said to be a virtual server. Request with TCP made to 69.210.1.8:80 are remapped to the server 1 on 192.168.0.2:80 for working days from Monday to Friday 8 AM to 6PM, other requests with UDP made to 69.210.1.8:25 are remapped to server 2 on 192.168.0.3:25 and always on.

You can setup the router as Index 1, protocol TCP, interface WAN1, service name test1, private IP 192.168.0.2, private port 80, public port 80, schedule from Day Monday to Friday and time 8:0 to 16:0 and index 2, protocol UDP, interface WAN1, service name test2, private IP 192.168.0.3, private port 25, public port 25, schedule always.

Click Virtual Server to configure the parameters.



- BASIC
- *** ADVANCED**
 - SHDSL
 WAN
 - BRIDGE
 - ROUTE
 - . NAT/DMZ
 - MIRTUAL SERVER
- **STATUS**
- ADMIN
- UTILITY

Press Modify for modify 1.	Home	Basic J	Idvanced	Status	Admin Utility	
					OTTE SERVE	
	Virtual Server	Mapping Paramete				
	+ Table of Co	annet Victori Server B	Data least			
	Index	Service Name	Interface	Prisate IP	Pretacal	Sdahk
	# s	-	-		Durable	
	C2	-	-	-	Disable	-
	03	-		-	Disable	-
	C.4	-			Disable	-
	Ci	-		(+))	Disable	-
	E.6	-	·		Disable	(+)
	07	-	-	- 144	Disable	-
	C8		-	+	Disable	-
	.Ca			- =-	Decable	1 2 1
	C10	-	1 - 1		Disable	-
Press Restart to restart the router or	Virtual Serv	er Mapping Par	rameters:			
	· Virtual	Seawer 1				
pross continue to setup another function	2012/2013	and the second	100			
press continue to setup another function.	Pa	stooal TCP	R			
	Int	effore: WANI				
	Smake	Name				
	fm.	rabe 11				
	Petro	ePost 0				
	Publ	ic Port IO				
	2.0	while & show				
	30	C Fram I	s Day Sunday Time 0 💌	0 • 11 23 •	day 💌 : [53 💌	
				Back	Resot Ok	

Administration

This session introduces security and simple network management protocol (SNMP) and time synchronous.

BASIC ADVANCED STATUS ADMIN SECURITY . SNMP TIME SYNC UTILITY

Security

For system secutiry, suggest to change the default user name and password in the first setup otherwise unauthorized persons can access the router and change the parameters.

There are three ways to configure the router, Web browser, telnet and serial console.

Press Security to setup the parameters.

BASIC ADVANCED STATUS

ADMIN SECURITY

- SNMP
- . TIME SYNC

UTILITY

For greater security, change the Supervisor ID and password for the gateway. If you don't set them, all users on your network can able to access the gateway using the default IP and Password root.

You can authorize five legal users to access the router via telnet or console. There are two UI modes, menu driven mode and command mode to configure the router.

Trust host pool will setup the legal IP addresses from which authorized person can configure the gateway. This is the more secure function for network administrator to setup the legal address of configuration. Configured 0.0.0.0 will allow all hosts on internet to access the router.

Click Finish to finish the setting.

The browser will prompt the configured parameters and check it before writing into EPROM.

Press Restart to restart the gateway working with the new parameters and press Continue to setup other parameters.

				ADMIN -	SECU	JRITY
Super	vise	or Profile and S	ocurity Parame	ters:		
	Sup	ervicer ID and Pas	owards			
		Supravisor ID.	rust			
	Su	ervisor Password				
	1	arrend Confirm	****			
•	Care	r Profile: User Name	User Paseword	Password Confirm	UI Mode	P
•	Dare IO 1	r Profile: User Name admin	User Pasaward	Password Confirm	UL Mode Menu	•
•	Earc 10 1 2	Prefile: User Name admin	User Password	Password Confirm	UI Mode Menu Command	
	Dare 10	r Prolike: User Name Jadmin	User Password	Password Confirm	UI Mode Menu Command Command	
	Den:	Profile: User Name Jadmin	User Password	Password Confirm	UI Mode Menu Command Command	

Home Basic Advanced Status Admin Utility

General Parameters:

Teinst Port 23

 TrustHastList: Warning. In special trashrout IP of 00.0.0 down the mereo from any hosts on internet.



ADVANCED

STATUS

ADMIN

SECURITY
 SNMF
 TIME SYNC

BASIC

SNMP

Simple Network Management Protocol (SNMP) is the protocol not only governing network management, but also the monitoring of network devices and their functions.

The router can generate SNMP traps to indicate alarm conditions, and it relies on SNMP community strings to implement SNMP security. This gateway support MIB II.

Click SNMP to configure the parameters.

		► UT	ILITY	
Direct.				HALFIG.
Basic	Advanced	Status	Admin	Utility

In the table of current community pool, you can setup the access authority.

In the table of current trap host pool, you can setup the trap host.

Press Modify to modify the community pool.

Home	Basie	Advanced	Status	Admin	Utility
			ADMIN	- SNMP	

SNMP Community and Trap Parameters:

· Table of current community pool:

index	Status	Access Right	Community
@1	Disable		
C2	Disable		
C3	Disable		
C4	Diseble		
C5	Disable		

· Table of current trap hast peel:

Index	Versien	IP Address	Community
₩£1	Disable		-
C 2	Disable		
C3	Disable		
C.4	Disable		-
C5	Disable		

Cancel Finish

SNMP Community and Trap Parameters:

· Table of current community poel:

Index	Status	Access Right	Community
1	Disable ·	Deny +	private
2	Disable		
Э	Lassole		-
4	Disable		1 <u>00</u> 0
5	Disable		() (+ ())

SNMP Community and Trap Parameters:

· Table of current community pool:

Index	Status	Access Right	Community
1	Disable 💌	Deny .	private
2	Disable	Deny	
3	Désable	Write	1.000
4	Disable	- 1	
5	Disable		

SNMP status: Enable

Access Right: Deny for deny all access Access Right: Read for access read only Access Right: Write for access read and write. Community: it serves as password for access right.

After configuring the community pool, press \overline{OK} .

TIME SYNC
 UTILITY

Click Modify to modify the trap host pool. Version: select version for trap host. IP: type the trap host IP Community: type the community password. Press OK to finish the setup.

The browser will prompt the configured parameters and check it before writing into EPROM.

Index	Version	IP Address	Community
1	Disable 💌	192.168.0.254	private
2	Disable		(mm)
З	Version 2		
4	Disable		
5	Disable		10 0000

Table of current trap hest pool.

Press <u>Restart</u> to restart the gateway working with the new parameters and press <u>Continue</u> to setup other parameters.



There are two synchronization modes: Sample Network Time Protocol (SNTP) and synchronization with PC. For synchronization with PC, select Sync with PC. The gateway will synchronize the time with the connecting PC.

SNTP is the acronym for Simple Network Time Protocol, which is an adaptation of the Network Time Protocol (NTP) used to synchronize computer clocks in the Internet. SNTP can be used when the ultimate performance of the full NTP implementation.

For SNTP, select SNTP v4.0. SNTP service: Enable Time Server: All of the time server around the world can be used but suggest to use the time server nearby Time Zone: you have to choose the right time zone.

onization: sthol: with PC : AU BINDO Tion: 000000	00x ellevat 190x 100 cm cm			
		Sync No	w	
Basic	Advanced	Status	Admin	Utility
minutor	AU		HL STR	
ethodi v4.0 💌				
etvork tine pre	ntecal:			
Service:	C Dieatle @ Enable	22		
tona Serve: 1: 1	mp-2.vt.edu			
The Server's 1	ntp aryang com	-		
TeeZone	GMIARSON RACIELS T	MERICAN	DAL TURIANA	1
Perioil(cecci:	60.	ore from a registre	end) (evened)	~ <u>21</u>
	Basic soization: etiodi uterst time pro Service Tan Serve 1: Tan Serve 1: Serve 1: Ser	Basic Advanced ADM seization: ethol: 44.0 T service: C Disable @ Enable Tare Serve: 1: rph-2:rt.edu Tare Serve: 2: rph-2:rt.edu Tare Serve: 2: rph-1:cs.mis.: edu Tare Serve: 2: rph-1:cs.mis.: edu Tare Serve: 2: rph-1:cs.mis.: edu Tare Serve: 2: rph-1:cs.mis.: edu Tare Serve: 2: rph-1:cs.mis.: edu	Basic Advanced Status ADMIN - TO seization: ethol seization: seization: Service: Objectio & Enable Tens Service: BO	Basic Advanced Status Admin ADMIN - TIME SYN seiteation: ethol: 44.0 • Senter: O Deatle @ Enable Time Serve: 1: mp. 24. edu Time Serve: 2: mp. 1.24. edu Time Serve: 2: mp. 2: mp.

Press Finish to finish the setup. The browser will prompt the configured parameters and check it before writing into EPROM.

Utility

This section will describe the utility of the product including system information, load the factory default configuration, upgrade the firmware	► BASIC
and restart the gateway.	► ADVANCED
	► STATUS
	• SYSTEM INFO • CONFIG TOOL • UPGRADE • RESTART
System Info	
Click System Info for review the information	- BACTO
	► BASIC
The browser will prompt the system information.	
	► STATUS
	• UTILITY • SYSTEM INFO • CONFIG TOOL • UPGRADE • RESTART
Config Tool	
This configuration tool has three functions: load Factory Default, Restore Configuration and Backup Configuration.	BASIC
Press Config Tool.	ADVANCED
 Load Factory Default function: it will load the factory default parameters to the gateway. 	► STATUS
† : All of the settings will be changed to factory default. On the other hand you will lose all the configured parameters.	► ADMIN
 Restore Configuration: Sometime the configuration will be crushed unintentionally. Restore configuration will help you to recover the backup configuration easily. Click Finish after selecting Restore Configuration. Browse the route of backup file then press finish. The router will 	• UTILITY • SYSTEM INFO • CONFIG TOOL • UPGRADE • RESTART
automatically restore the saved configuration.	
 Backup Configuration: After configuration, suggest to use the function to backup your router parameters in the PC. Home Basic Advanced Status UTILITY - CONFI Select Configuration Fool: 	Admin Utility
 ♦ Select the Backup Configuration and then press Finish. ♦ Browse the place of backup file 	Trus

named backup. Press Finish. The router will automatically backup the configuration.



Status

You can monitor the SHDSL status including mode, Tx power and Bitrate and Performance information including SNR margin, atteunation and CRC error count.

LAN status will prompt the MAC address, IP address, Subnet mask and DHCP client table.

WAN status will display the WAN interface information.

You can view the routing table in the status of route.

Interface status inculdes LAN and WAN statistics information.





LAN-to-LAN connection with bridge Mode

Home Basic Advanced Status Admin Utility LAN Parameters Enter IP: 192.168.0.1 **BASIC - STEP2** Enter Subnet Mask: 255.255.255.0 LAN: Enter Gateway: 192.168.0.1 Enter Host Name: SOHO IP Address 192 168 , D , 1 Submet Mark 255 , 265 , 265 , 0 WAN1 Parameters Outeway 192 , 168 , D , 1 Enter VPI: 0 Host Nama SOHO Enter VCI: 32 WANI: Click LLC Click Next VPE 0 VCI. 32 Ecosp: OVC-mus @ LLC The scream will prompt the new configured parameters. Check the parameters and Back Cancel Result Next Click Restart The router will reboot with the new setting. **CPE Side** Click Bridge and CO Side to setup Home Basic Advanced Status Admin Utility Bridging mode of the Router and then click **BASIC - STEP1** Next. Operation Mode: System Mode: CROUTE BRDGE SHDSL Made: C CO Side @ CPE Side Cancel Reset Next LAN Parameters Home Basic Advanced Status Admin Utility Enter IP: 192.168.0.2 **BASIC - STEP2** Enter Subnet Mask: 255.255.255.0 LAN: Enter Gateway: 192.168.0.2 Enter Host Name: SOHO 1P Addess: 192 . 168 . 0 12 Dubrart Markin (2005), (2005), (2005) Outrorroy, (102), (168), (0 .6 . 2 WAN1 Parameters Host Name SOHO Enter VPI: 0 Enter VCI: 32 WANI: Click LLC V71. 0 Click Next

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

Congratulation! You are done. Your SHDSL LAN-to-LAN connection is established.

VCI: 32 Bocap: ©VC-mux ∉LLC

Eack Cancel Reset Next

Configuration via Serial Console or Telnet

Serial Console

Check the connectivity of the RS-232 cable from your computer to the serial port of ROUTER. Start your terminal access program with VT100 terminal emulation. Configure the serial link with baudrate of 9600, 8 data bits, no parity check, 1 stop bit, and no flow-control, and press the SPACE key until the login screen appears. When you see the login screen, you can logon to Router.

User: admin Password: ****

Note: If you have not set any user profile for the Router, enter the factory default user "admin". When the system prompts you for a password, type "admin" to enter Router.

Telnet

Make sure the correct Ethernet cable is used for connecting the LAN port of your computer to ROUTER. The LAN LNK 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 screen appears. When you see the login screen, you can logon to Router.

User: admin Password: ****

Note: If you have not set any LAN IP of the Router, the default IP address is 192.168.0.1.

Operation Interface

For serial console and Telnet management, the ROUTER implements two operational interfaces: command line interface (CLI) and menu driven interface. The CLI mode provides users a simple interface, which is better for working with script file. The menu driven interface is a user-friendly interface to general operations. The command syntax for CLI is the same as that of the menu driven interface. The only difference is that the menu driven interface shows you all of available commands for you to select. You don't need to remember the command syntax and save your time on typing the whole command line.

The following figure gives you an example of the menu driven interface. In the menu, you scroll up/down by pressing key [] / [K], select one command by key [], and go back to a higher level of menu by key []. For example, to show the system information, just logon to the ROUTER, move down the cursor by pressing key [K] twice and select "show" command by key [], you shall see a submenu and select "system" command in this submenu, then the system will show you the general information.

	SHDSL ROUTER	
>> enable status show ping exit	Modify command privilege Show running system status View system configuration Packet internet groper command Quit system	
Command: enable Message:	a <cr>_</cr>	

Window structure

From top to bottom, the window will be divided into four parts:

- 1. Product name
- 2. Menu field: Menu tree is prompted on this field. ">>" symbol indicates the cursor place.
- 3. Configuring field: You will configure the parameters in this field. < **parameters** > indicates the parameters you can choose and < **more...**> indicates that there have submenu in the title.
- 4. Operation command for help

Menu Driven Interface Commands

Before changing the configuration, familiarize yourself with the operations list in the following table. The operation list will be shown on the window.

Menu Driven Interface Commands				
Keystroke	Description			
[UP] or I	Move to above field in the same level menu.			
[DOWN] or K	Move to below field in the same lever menu.			
[LEFT] or J	Move back to previous menu.			
[RIGHT] or L	Move forward to submenu.			
[ENTER]	Move forward to submenu.			
[TAB]	To choose another parameters.			
Ctrl + C	To quit the configuring item.			
Ctrl + Q	For help			

Menu Tree









Configuration

To setup the router, move the cursor ">>" to **enable** and press enter key. While the screen appears, type the supervisor password. The default supervisor password is **root**. The password will be prompted as "*" symbol for system secutiry.

Command: enable <CR> Message: Please input the following information.

Supervisor password: ****

In this sub menu, you can setup management features and upgrade software, backup the system configuration and restore the system configuration via utility tools. For system security Suggest to change default user name and password after foremost setting. 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.

For any changes of configuration, you have to write the new configuration to EPROM and reboot the router to work with new setting.

The screen will prompt as follow.

>> enable	Modify command privilege
setup	Configure system
status	Show running system status
show	View system configuration
write	Update flash configuration
reboot	Reset and boot system
ping	Packet internet groper command
admin	Setup management features
utility	TFTP upgrade utility
exit	Quit system

Status

You can view running system status of SHDSL, WAN, route and interface via status command.

Move cursor ">> " to status and press enter.

>>	shdsl	Show	SHDSL status
	wan	Show	WAN interface status
	route	Show	routing table
	interface	Show	interface statistics status

Show

You can view the system information, configuration and configuration in command script by **show** command.

Move cursor ">> " to **show** and press enter.

>> svstem S	Show gen	eral information
config S	Show all	configuration
script	Show all	configuration in command script
001100	JIIOW UII	configuración in commana poripe

Write

For any changes of configuration, you must write the new configuration to EPROM using **write** command and reboot the router to take affect.

Move cursor to ">> " to write and press enter.

```
Command: write <CR>
Message: Please input the following information.
Are you sure? (y/n): y
```

Reboot

To reboot the router, use **reboot** command. Move cursor to ">> " to **write** and press enter.

```
Command: reboot <CR>
Message: Please input the following information.
Do you want to reboot? (y/n): y
```

Ping

Ping command will be used to test the connection of router. Move cursor " >> " to **ping** and press enter.

Command: ping <ip> [1~65534|-t] [1~1999] Message: Please input the following information. IP address <IP> : 10.0.0.1 Number of ping request packets to send (TAB select): 1~65534 Data size [1~1999]: 32

Administration

You can modify the user profile, telnet access, SNMP (Sample Network Management Protocol), supervisor information and SNTP (Simple Network Time Protocol) in **admin**. The route is **enable → admin**.

For configuration the parameters, move the cursor ">> " to admin and press enter.

>>	user	Manage user profile
	security	Setup system security
	snmp	Configure SNMP parameter
	passwd	Change supervisor password
	Id	Change supervisor ID
	sntp	Configure time synchronization

User Profile

You can use **user** command to clear, modify and list the user profile. You can setup at most five users to access the router via console port or telent in user profile table however users who have the supervisor password can change the configuration of the router. Move the cursor " >> " to **user** and press enter key.

>> clear	Clear user profile
modify	Modify the user profile
list	List the user profile

You can delete the user by number using **clear** command. If you do not make sure the number of user, you can use **list** command to check it. **Modify** command is to modify an old user information or add a new user to user profile.

Security

Security command can be configured ten legal IP address for telnet access and port number.

Move the cursor ">> " to **security** and press enter. The default legal address is 0.0.0.0. It means that there is no restriction of IP to access the router via telnet.

>> port	Configure telent TCP port
ip_pool	Legal address IP address pool
list	Show security profile

SNMP

Simple Network Management Protocol (SNMP) is the protocol not only governing network management, but also the monitoring of network devices and their functions.

The router can generate SNMP traps to indicate alarm conditions, and it relies on SNMP community strings to implement SNMP security. This router support MIB II.

Move the cursor ">> " to **snmp** and press enter.

>> community

y Configure community parameter trap Configure trap host parameter

.....

Supervisor Password and ID

The supervisor password and ID are the last door for security but the most important. Users who access the router via web browser, console port or telent have to use the ID and password to configure the router. Suggest to change the ID and password.

SNTP

Time synchronization is an essential element for any business that relies on an IT system. The reason for this is that these systems all have clocks that are the source of time for files or operations they handle. Without time synchronization, time on these systems varies with each other or with the correct time and this can cause- virtual server schedule processes to fail and system log exposures with wrong data.

There are two methods to synchronize time, synchronize with PC or SNTPv4. If you choose synchronize with PC, the router will synchronize with PC. If you choose SNTPv4, the router will use the protocol to synchronize with the time server.

Move the cursor ">> " to **sntp** and press enter.

>> method	Select time synchronization method
service	Tigger SNTP v4.0 service
time_server1	Configure time server 1
time server2	Configure time server 2
time_server3	Configure time server 3
updaterate	Configure update period
time_zone	Configure GMT time zone offset
list	Show SNTP configuration

Utility

There are three utility tools, upgrade, backup and restore, embedded in the firmware. You can update the new firmware via TFTP upgrade tools and backup the configuration via TFTP backup tool and restore the configuration via TFTP restore tool. For upgrade, TFTP server with the new firmware will be supported by supplier but for backup and restore, you must have your own TFTP server to backup and restore the file.

Move the cursor ">> " to utility and press enter.

>> upgrade	Upgrade main software
backup	Backup system configuration
Restore	Restore system configuration

Exit

If you want to exit the system without saving, use exit command to guit system.

Setup

All of the setup parameters are located in the subdirectories of setup. Move the cursor ">> " to **setup** and press enter.

>> mode	Switch system operation mode
shdsl	Configure SHDSL parameters
wan	Configure WAN interface profile
bridge	Configure transparent bridging
route	Configure routing parameters
lan	Configure LAN interface profile
ip share	Configure NAT/PAT parameters
dhcp	Configure DHCP parameters
dns proxy	Configure DNS proxy parameters
hostname	Configure local host name
default	Restore factory default setting

Mode

The product can act as routing mode or bridging mode. The default setting is routing mode. You can change the system operation mode by using mode command. Move the cursor " >> " to **mode** and press enter.

```
Command: setup mode <Route|Bridge>
Message: Please input the following information.
```

```
System operation mode (TAB select) <Route>: Route
```

SHDSL

You can setup the SHDSL parameters by the command **shdsl**. Move the cursor ">> " to shdsl and press enter.

>> mode	Configure SHDSL mode
n*64	Configure SHDSL data rate
type	Configure SHDSL annex type
clear	Clear current CRC error count
margin	Configure SHDSL SNR margin

There are two types of SHDSL mode, STU-R and STU-C. STU-R means the terminal of central office and STU-C customer premises equipment.

You can setup the data rate by the multiple of 64Kbps- n is from 0 to 32. If you configure n is 0, the product will perform as adaptive mode.

There are two types of SHDSL Annex type, Annex-A and Annex-B.

Clear command can clear CRC error count.

Generally, you cannot need to change SNR margin, which range is from 0 to 10.

WAN

The router supports 8 PVC, private virtual circuit, and so you can setup eight WAN, WAN1 to WAN8. Move the cursor ">> " to **wan** and press enter. To setup WAN1, type **1**.

```
Command: setup wan <1~8>

Message: Please input the following information.

Interface number <1~8>: 1

>> protocol Link type protocol

address IP address and subnet mask

vpi_vci Configure VPI/VCI value

encap Configure encapsulation type

qos Configure VC QoS

isp Configure account name, password and idle time

list WAN interface configuration
```

There are four types of protocols, IPoA, EoA, PPPoA and PPPoE, which is supported by your ISP.

For PPPoA and PPPoE, you do not need to setup IP address and subnet mask.

There is an unique VPI and VCI value for Internet connection supported by ISP. The range of VIP is from 0 to 255 and VCI from 0 to 65535.

There are two types of encapsulation types, VC-Mux and LLC.

You can setup virtual circuit quality of service, VC QoS, using qos command. There are two QoS class, UBR and CBR. The peak cell rate can be configured from 64kbps to 2400kbps.

ISP command can configure account name, password and idle time. Idle time are from 0 minute to 300 minutes.

You can review the WAN interface configuration via list command.

Bridge

You can setup the bridge parameters in bridge command. If the product is configured as a router, you do not want to setup the bridge parameters. Move the cursor " >> " to **bridge** and press enter.

```
>> gateway Default gateway
static Static bridging table
```

You can setup default gateway IP via gateway command.

You can setup 20 sets of static bridge in static command.

Route

You can setup the routing parameters in route command. If the product is configured as a bridge, you do not want to setup the route parameters. Move the cursor " >> " to **route** and press enter.

>> static	Configure static routing table
RIP	Configure RIP tool

You can setup 20 sets of static route in static command.

For more RIP information, please review route in page 18.

	LAN
>> address	LAN IP address and subnet mask
attrib	NAT network type
	IP share
>> nat	Configure network address translation
pat	Configure port address translation
dmz	Configure DMZ host function

For more NAT, PAT and DMZ information, review NAT/DMZ in page 20.

DHCP

>> generic	Configure generic DHCP parameter
fixed	Configure fixed host IP address list
list	Show DHCP configuration

For more DHCP information, review DHCP server in page 10.

DNS proxy

You can setup three DNS servers in the product. The number 2 and 3 DNS servers are option. Move cursor " >> " to dns_proxy and press enter.

Command: setup dns_proxy <IP> [IP] [IP] Message: Please input the following information. DNS server 1 (ENTER for default) <168.95.1.1>: **10.0.10.1**

DNS server 2: 10.10.10.1 DNS server 3:

Host name

. _ _ _ _ _ _ _ _ _ _ _ _ _ _

Enter local host name via hostname command. Move cursor ">> " to **hostname** and press enter.

Command: setup hostname <name> Message: Please input the following information.

Local hostname (ENTER for default) <SOHO>: test

Default

If you want to restore factory default, first move the cursor ">> " to default and then press enter.

Command: setup default <name> Message: Please input the following information. Are you sure? (Y/N): **y**

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