

# **SHDSL5008 Software User Manual (Version:1.0)**

**August 2008**

## Table of content

Chapter 1	Overview .....	4
1.1	SHDSL5008 Overview .....	4
1.2	System Specialty .....	4
1.3	Software Specialty .....	4
1.4	Hardware Specifications .....	6
Chapter 2	SHDSL Command Line .....	7
2.1	Command Line Specialties .....	7
2.2	Command Line help .....	7
2.3	Command Line editing .....	8
2.4	Error Information .....	9
2.5	Three way to visit line card .....	9
2.5.1	Visit line card by Hyper-Terminals .....	9
2.5.2	Long distance login through TELNET .....	12
2.5.3	Web Login .....	13
Chapter 3	Basic Configuration Command .....	14
3.1	Login User Management .....	14
3.1.1	Adding a new login user .....	14
3.1.2	Configuring user's password .....	14
3.1.3	Configuring a user's level .....	14
3.1.4	Deleting a user .....	15
3.1.5	Displaying all existing user .....	15
3.2	Management configuration .....	15
3.2.1	Modifying IP address .....	15
3.2.2	Displaying IP interface .....	16
3.2.3	Checking management physical port information .....	16
3.3	VLAN configuration .....	16
3.3.1	Adding VLAN .....	16
3.3.2	Adding vlaninterface .....	17
3.3.3	Configuring PVID .....	17
3.4	Router configuration .....	17
3.4.1	Adding a default gateway / router .....	17
3.4.2	Modifying default gateway .....	17
3.4.3	Deleting default gateway .....	17
3.4.4	Checking path information .....	17
Chapter 4	Port Configuration .....	19
4.1	SHDSL physical port parameter configuration .....	20
4.2	SHDSL Port Query .....	21
4.2.1	particular query .....	21
4.2.2	Port status query .....	21
4.3	SHDSL transport configuration .....	22
4.4	SHDSL Transport query .....	22
4.5	Bridge interface configuration .....	23

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4.5.1	Introduction of VLAN based on bridge port .....	23
4.5.2	ADD VLAN .....	24
4.5.3	Adding the interface to VLAN .....	24
4.5.4	Setting interface PVID .....	24
4.5.5	Checking MAC transmission list .....	25
4.6	Query command relevant to Bridge interface .....	25
4.6.1	Querying bridge interface.....	25
4.6.2	Querying bridge interface configuration .....	26
4.6.3	Querying bridge interface status .....	26
4.6.4	Querying VLAN configuration .....	27
4.7	Operation & Maintenance .....	27
4.7.1	Restarting the system .....	27
4.7.2	Clearing system configuration .....	27
4.7.3	Restoring default configuration.....	27
4.7.4	Save configuration .....	27
4.7.5	Ping command.....	27
Annex	.....	29

# Chapter 1 Overview

## 1.1 SHDSL5008 Overview

SHDSL5008 is a high quality and good performance SHDSL device with standard 8-port RJ21 subscriber interfaces integrated. SHDSL5008 is designed with 8 symmetric up/down-link speed, which can extend up to 6.5km with about 2.3Mbps. SHDSL5008 improves the transmission performance, economizes the resource and is easy to installation and maintenance.

## 1.2 System Specialty

- ITU-T G.992.1 G.shdsl
- Access 8 SHDSL users simultaneously
- External voice separator
- Supports multi-mode automatic self-testing function
- Supports control of each port on the individual broadband function
- Supports mix transmission of voice and data
- Supports energy-save-consumption for inactive port (L0/L2/L3)

## 1.3 Software Specialty

- ❑ **ATM**
  - Supports ATM signaling UNI 3.1&4.0
  - Supports Compliant Traffic management、QoS、Queue and traffic shaping in ATM forum TM4.1
  - Supports ATM cell-header translation、VC exchange、VP across connection、ATM cell broadcasting function
  - Support ATM OAM cell processing, congestion/buffer

management function

- Support multi-protocol encapsulation function in RFC2684 Ethernet based ATM AAL5
- PPP (RFC 2364) over ATM
- RFC 1483
- RFC 1577 (IP over ATM)
- AAL0, AAL2, AAL5
- ATM Service Class: UBR/VBR/CBR
- 32 VCs

❑ **VLAN**

- Support VLAN marked IEEE 802.1Q
- Support port-based VLAN
- Support isolate-user-VLAN characteristics
- Support GARP VLAN registration protocol (GVRP)

❑ **Management**

- Support local management through RS232 ports
- Support command line interface (CLI)
- Support Telnet long distance deploy
- Support HTTP based servers and CGI resolved Web browse Management
- support for clients

❑ **Safety specification**

- Password protection
- User level control

❑ **Uplink and upgrade**

- Support BOOTP Client, BOOT Server upgrade
- Support WEB upgrades

❑ **Maintenance**

- Support debugging information output

- Support PING

## 1.4 Hardware Specifications

### □ Main System

- Power supply: 220V AC, 47~63 Hz or -36~-72V DC
- Max. power consumption: <15W
- Dimension: 440mm (W) ×225mm (D) ×44.5mm (H)
- Working temperature: 0~ 50°C
- Humidity: 5%~95% with no condensation
- Reliability: MTBF≥140,000 hours
- Built-in voice separator

## Chapter 2 SHDSL Command Line

SHDSL5008 provides amount of commands through the command line interface, it can satisfy operating maintenance requirements.

### 2.1 Command Line Specialties

- Local configuration by Console (RS-232) port
- Local or long distance login configuration by Telnet
- Command level protection. Different levels of user can only execute current commands authorized to their appropriate levels
- User can enter "?" to get online help at any time
- Provide FTP service, to simplified uploading and downloading files
- Provide a function similar to DosKey to execute history commands
- Command Line interpreter provides multiple intelligent command parse method, to convenient for user output

### 2.2 Command Line help

The Command Line interface provides online help assistance to users as following:

- Entirety help
- Part help

1) In the command line prompt, if type '?', it lists all the commands and their descriptions.

>?

2) If type in Command with space and '?', then the related keywords

and help file will be listed.

For example:

**>ip ?**

3) When type in Command with a space and '?'. If '?' occupy the position for parameter, then the definition for parameter will be listed. If no parameter on '?' position, then <CR> will be shown and this command is repeated in the next command line which can be executed by typing <Enter>.

4) If type a string followed by '?', it lists all commands beginning with the string. For example:

**>i?  
Igmpp imdebug ip**

5) Type a command followed by a string with "?", it lists all commands contain the keywords begin with the string.

For example:

**> ip s?  
Set show**

6) Input the first few letters of the keyword in the command, then press<tab>. It displays the complete keyword with the assumption that the first few letters are not confused with other commands.

## 2.3 Command Line editing

Command line interface provides basic command edit function:

key	Attribute
Normal key	Provide basic command input,case sensitive
Backspace	Delete one character ahead
→	Move the cursor one character after
←	Move the cursor one character ahead
↑	Display history command
↓	
Del	Delete the character on the cursor



## 2.4 Error Information

If the command passes the syntax checking, then the command is well executed; otherwise, it causes an error with the error report. The following list contains the most common error information:

English error information	Error reason
Unrecognized command	No command find
	No keyword find
	Parameter type error
	Parameter overflow
Insufficiency arguments supplied	No input parameter
Error: specified node not found by path	No target find
Too many arguments supplied	Input parameter overflow

## 2.5 Three way to visit line card

There are three ways to visit SHDSL5008:

- A) Connect the serial port on the SHDSL with those on the network computers by a serial port cable. Login SHDSL using the hyper-terminal program in the computer to manage the SHDSL.
- B) Local/long distance login via TELNET
- C) Local/long distance login via WEB

### 2.5.1 Visit line card by Hyper-Terminals

#### Step 1:

To set up the local configuration environment, please connect a PC to the console (RS-232) port on SHDSL5008 by a standard RS-232 cable, as shown in .

Local Configuration

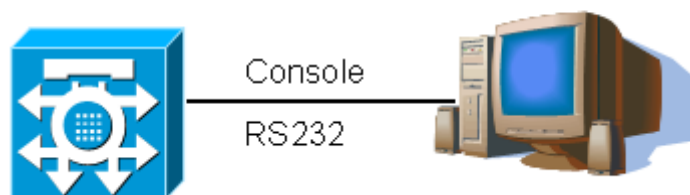


Figure 2-1 Local Configuration

**Step 2:**

Open Hyper-Terminal as the following path:

'Start'⇒ all programs⇒accessories⇒Hyper-Terminal

Then the following window will be prompted.



Figure 2-2 New Connection Window

After inputting the name, click "ok", system shows the following window:



Figure 2-3 Choose COM port in PC

Connect port setup and select the serial ports communicate with SHDSL (usually choose COM1 or COM2). Notice, please choose the serial port that your PC use, click ok and Figure 2-4 window

shows:

**Step 3:**

Parameter setup is shown in Figure 2-4 (bit rate is 9600)

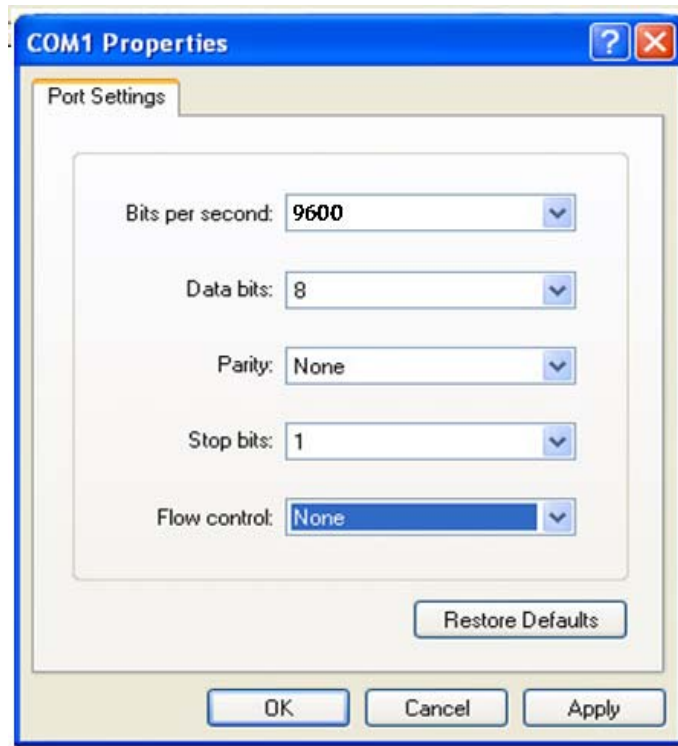


Figure 2-4 Port Setting for COM1

Then the screen shows:



Figure 2-5 Login/off Window

Input user name (long in): admin (default), password: admin (default, changeable), press Enter, show "-->" character, which means you are in Command Line prompt, then use Command Line to configuration Line card as shown in the :

```
You must supply a username
Login: admin
Password: ****
Login successful
--> _
```

Figure 2-6 Login Interface

## 2.5.2 Long distance login through TELNET

### Step 1:

Connect PC to the uplink port with crossover cable, as shown in Figure 2-7.

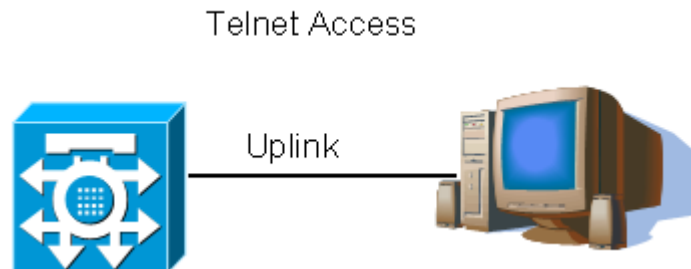


Figure 2-7 Connect to SHDSL5008 by Telnet access

### Step 2:

Open PC command line prompt, use Telnet command to login SHDSL5008, system default IP address: 192.168.1.32. For example:

```
C:\telnet 192.168.1.32
```

Similar to serial port, type in the login and password window correctly, Command Line prompt in line card will be shown.

### 2.5.3 Web Login

**Step 1:**

Connect PC to the uplink port with crossover cable, as shown in Figure 2-7

**Step 2:**

Start a browser, and type `http://192.168.1.32` in the IP address column

## Chapter 3 Basic Configuration Command

### 3.1 Login User Management

User management includes adding/deleting user, configuring the level of a user, setting a user's password and so no.

#### 3.1.1 Adding a new login user

**【Syntax】** `system add user <username>` or  
`system add login <username>`

**【Usage】** <username> is the name of the new added user, it can be any name ,but it must be case sensitive.

**【Example】** -->`system add user root`

#### 3.1.2 Configuring user's password

**【Syntax】** `system set user <username> password`  
`<password>`

**【Usage】** <username> is the user who wants to modify the name, <password> is the password that needs changing.

**【Example】** -->`system set user root password 123456`

#### 3.1.3 Configuring a user's level

**【Syntax】** `system set login <username> access <access level>` or `system set user <username> access <access level>`

**【Usage】** <username> is setting user.

<access level> defines three levels of the user, namely default/engineer/superuser. Default is the lowest priority level, which means he can not configure the user information on system, add any configuration (including user and interface), configuring password, switching to another user, entering console ode, login through WEB, but it can modify the existing configuration. Engineer is the middle level, who can configure any information except for user's login

information. Superuser is the highest level means the user has the right to configure any information.

**【Example】** --> *system set user root access superuser*

### 3.1.4 Deleting a user

**【Syntax】** `system delete user <username>` or  
`system delete login <username>`

**【Usage】** <username> is the username to be deleted

**【Example】** --> *system delete user root*

### 3.1.5 Displaying all existing user

**【Syntax】** `system list users`

**【Usage】** name is the username, may conf, may conf web ,may Dialin show the login mode, access level means the user's level, Comment means the user's comment.

**【Example】** --> *system list users*

Users:

		May	May conf.	May	Access	
ID	Name	Conf.	web	Dialin	Level	Comment
1	admin	ENABLED	ENABLED	disabled	superuser	Created by CLI
2	Hitch	ENABLED	ENABLED	disabled	superuser	test

## 3.2 Management configuration

### 3.2.1 Modifying IP address

**【Syntax】** `ip set interface iplan ipaddress <ip address>`  
`<netmask>`

**【Usage】** <ip address> <netmask> means the IP address and netmask of the port to be modified, iplan is the management interface, and it is a virtual layer 3 interface

**【Example】** --> *ip set interface manager ipaddress 192.168.1.32*  
*255.255.255.0*

### 3.2.2 Displaying IP interface

**【Syntax】** ip list interface

**【Usage】** the displaying information is shown as the following graph, ip address shows the IP address of the port ; DHCP column shows whether DHCP is able; transport column shows the transport bind with this port, if it says "bridged", it means there is no binding.

**【Example】** --> ip list interface

IP Interfaces:

ID	Name	IP Address	DHCP	Transport
1	iplan	192.168.1.32	disabled	<BRIDGE>

### 3.2.3 Checking management physical port information

**【Syntax】** port ethernet status

**【Usage】** Displaying the ethernet port status.

**【Example】** --> port ethernet status

MAC	=	00:02:02:00:00:02
RxOk	=	0
RxBroadcastPackets	=	0
RxErrorPackets	=	0
TxOk	=	0
TxCollisions	=	0
TxErrorPackets	=	0
Connected	=	false
FullDuplex	=	false
LinkSpeed	=	100000
resetDefaults	=	false

## 3.3 VLAN configuration

### 3.3.1 Adding VLAN

**【Syntax】** bridge add vlan <vlanname> <vid> DefaultFdb

**【Usage】** before configuring vlan you should add a vlan first, the value of is<vid> 0-4094.

**【Example】** --> bridge add vlan vlan100 100 DefaultFdb



### 3.3.2 Adding vlaninterface

**【Syntax】** bridge add vlaninterface <vlannname> tagged ethernet

**【Usage】** add ethernet to vlan tagged vlaninterface.

**【Example】** --> *bridge add vlaninterface vlan100 tagged uplink*

### 3.3.3 Configuring PVID

**【Syntax】** bridge set interface ethernet pvid <vid>

**【Usage】** <vid> is the PVID of the ethernet interface.

**【Example】** --> *bridge set interface uplink pvid 100*

## 3.4 Router configuration

### 3.4.1 Adding a default gateway / router

**【Syntax】** ip add defaultroute gateway <gateway ip>

**【Usage】** <gateway ip> is the ip address of the system gateway.

**【Example】** --> *ip add defaultroute gateway 172.16.0.1*

### 3.4.2 Modifying default gateway

**【Syntax】** ip set route default gateway <gateway ip>

**【Usage】** <gateway ip> is the new gateway ip address.

**【Example】** --> *ip set route default gateway 172.16.0.2*

### 3.4.3 Deleting default gateway

**【Syntax】** ip delete route <name>

**【Usage】** <name> is name of route, the default gateway name is "default".

**【Example】** --> *ip delete route default*

### 3.4.4 Checking path information

**【Syntax】** ip list routes

**【Usage】** The displaying information is shown as the following graph, in which name means the name of the route,

destination is the goal address, netmask means the goal mask, gateway/interface shows the next hop or gateway. The following graph shows the default gateway.

**【Example】** --> *ip list routes*

*IP routes:*

<i>ID</i>	<i>Name</i>	<i>Destination</i>	<i>Netmask</i>	<i>Gateway / Interface</i>
1	default	0.0.0.0	0.0.0.0	172.16.0.2

## Chapter 4 Port Configuration

SHDSL5008 has ATM port, RFC transport and bridge interfaces. Port means physical port which practically exists; transport is for the transmission which SHDSL5008 accomplishes through software, in other words, transport is only a virtual port used to receive data from physical port and accomplishes the transmission by software; interface is also a virtual port realized by software and it has two types: bridge interface and ip interface. Interface is used to realize the data transmission of a transport. Bridge interface is used for Layer 2 transmission and ip interface is used for Layer 3 transmission.

SHDSL5008 provides 8 SHDSL physical ports and 1 Ethernet physical ports, SHDSL physical port is defined as a0~a7 in the system and each SHDSL port corresponds to a transport which adopts rfc1483B LLC encapsulation to realize DATA transmission between ATM and Ethernet. SDHSL transport is defined as wb0~wb7 in the system. Besides, each transport is binded with a bridge interface to realize Layer 2 transmission. SHDSL Interface is defined as wan0~wan7. Ethernet physical port is service Ethernet port or management port. Service Ethernet port is used for data transmission and it is defined as Ethernet in the system .Each data Ethernet port corresponds to transport. Ethernet is bonded to the ip interface--iplan, to realize layer 3 transmissions.

## 4.1 SHDSL physical port parameter configuration

**【Syntax】** port <SHDSL port> set <parameter> <value>

**【Usage】** <shdsl port> is a SHDSL physical port, <parameter> is the name of the parameter, <value> is the value of the parameter.

The mostly used parameters are as follows:

**AutoStart:** to configure whether a SHDSL port can automatically start, it can be configured as false or true. When it is "false" if a port is closed this time, when it is restarted next time, the port is still closed. if it is set "true", no matter a port is open or closed, when it is restarted next time, the port will automatically become active.

**ActivateLine:** to configure a SHDSL port open/closed. It can be configured Abort, Start, or None, Abort means if a SHDSL port is closed, when it is restarted next time, the port is still closed. If you want it to be "forever closed", you need to configure the parameter "AutoStart" as "false" except for configuring "ActivateLine" to "abort"; Start means to start a closed port ; None means doing nothing .

**MaxLineRate:** the max Line Rate of a SHDSL port, the unit is bps and the default value is 2312000.

**MinLineRate:** the min Line Rate of a SHDSL port, the unit is bps and the default value is 200000.

**LineProbeEnable:** to configure a SHDSL port Line rate fixed or adaptive, it can be configured as ProbEnable or ProbDisable, if set LineProbeEnable to ProbEnable, the SHDSL port rate is adaptive, else if set LineProbeEnable to ProbeDisable ,the SHDSL port rate is fixed.

**TransmissionMode :** to configure a SHDSL port transmissionmode, it can be configured as Region1 or Region2, if set to Region1, the port transmissionmode is AnnexA, else if set transmissionmode to Region2, the shdsl port transmission mode is AnnexB.

**【Example】** -->port a0 set Autostart true.

## 4.2 SHDSL Port Query

### 4.2.1 particular query

**【Syntax】** port <shdsl port> show

**【Usage】** this command can only query the parameter of one port each time, <shdsl port> refers to shdsl physical port. The mostly used parameters are shown in the following table:

Parameter name	Description
Connected	"true" means connected and "false" means non-connected
MinLineRate	min Line Rate of a SHDSL port
MaxLineRate	max Line Rate of a SHDSL port
TransmissionMode	Transmissionmode is AnnexA or AnnexB
AtucGsOpState	Real time state of a port ,handshake means a handshake is going along and there is no signal on the port; Training means a new link is being created; Showtime means there is already a link; Idle means the port is free
LineProbeEnable	SHDSL port rate adaptive or fixed
StatusActualLineRate	Actual LineRate when connected

**【Example】** -->port a0 show

### 4.2.2 Port status query

**【Syntax】** port <shdsl port> status

**【Usage】** <shdsl port> refers to a shdsl physical port, this command can only be used to query some common SHDSL parameters which are simplified ones of SHDSL port for particular query. Please refer to SHDSL particulate query for details.

**【Example】** -->port a0 status

ActivateLine	= None
Connected	= false
Whip	= Inactive
MinLineRate	= 200000
MaxLineRate	= 2312000
GsAutoRetrain	= Enable

<i>GsArCrcCheck</i>	= <i>Enable</i>
<i>GsArFramerSyncCheck</i>	= <i>Enable</i>
<i>GsArSnrMarginCheck</i>	= <i>Enable</i>
<i>GsArSnrMarginThreshold</i>	= <i>1_DB</i>
<i>GsArRetrainTime</i>	= <i>3</i>
<i>GsOpState</i>	=
<i>GsEocState</i>	= <i>OnLine</i>
<i>StatusMaxAttainableLineRate</i>	= <i>0</i>
<i>StatusActualLineRate</i>	= <i>0</i>
<i>EndpointCurrAtn</i>	= <i>0</i>
<i>EndpointCurrSnrMgn</i>	= <i>0</i>
<i>EndpointCurrStatus</i>	= <i>No Defects</i>
<i>WireInterface</i>	= <i>2Wire</i>
<i>GsArCrcThreshold</i>	= <i>1</i>
<i>PortSpeed</i>	= <i>2000</i>
<i>resetDefaults</i>	= <i>false</i>

### 4.3 SHDSL transport configuration

**【Syntax】** `rfc1483 set transport <shdsl transport>  
<parameter> <value>`

**【Usage】** <shdsl port> refers to SHDSL transport, <parameter> refers to the parameter to be configured, <value> is the value of the parameter. Refer to the following parameters for details:

**VPI/VCI:** SHDSL is transmitting ATM cells which adopt PVC connection. vpi value/ vci value is one method to express ATM PVC. The vpi value and vci value of the SHDSL modem must be identical with the value configured in the SHDSL, otherwise the communication is not available.

**【Example】** `--> rfc1483 set transport wb0 vpi 0  
--> rfc1483 set transport wb0 vci 35`

### 4.4 SHDSL Transport query

**【Syntax】** `rfc1483 show transport <shdsl transport>`

**【Usage】** to query a SHDSL transport configuration. <transport> refers to a SHDSL transport. This command can be used to query vpi/vci configuration

**【Example】** `--> rfc1483 show transport wb0`  
RFC1483 Transport: wb0

*Description : wb0*

---

*Encapsulation : LlcBridged*

*ATM Port : a0*

*Tx VPI : 8*

*Rx VPI : 8*

*Tx VCI : 35*

*Rx VCI : 35*

*ATM Traffic Class : UBR*

*Peak Cell Rate : 2000*

*Burst Tolerance : N/A*

*Sustainable Cell Rate : N/A*

*Max Burst Size : N/A*

*Max Cell Rate : N/A*

*Packet Priority Levels : N/A*

*Packet Priority Levels : N/A*

## **4.5 Bridge interface configuration**

Bridge interface is mostly used to configure interface type and the parameters relevant to layer 2 transmission, including VLAN based on bridge interface.

### **4.5.1 Introduction of VLAN based on bridge port**

The VLAN of SHDSL5008 based on bridge interface standard, the default is VLAN1, it added to device. If the port need to configurate VLAN, setting up VLAN firstly and configurate VLAN ID, then added the bridge interface to VLAN. It can also set different PVID to separate the port through the different port, and then there is no signal on the port. If the several port need to communicate with each other, added it to the VLAN.

After Ethernet interface accept the data from SHDSL interface, checking the data whether signed with tag .If signed, transmitting

directly. If not, transmitting the data package according to generally.

## 4.5.2 ADD VLAN

**【Syntax】** bridge add vlan <vlan name> <vlan id>  
DefaultFdb

**【Usage】** <vlan name> is a new name of VLAN, <vlan id> is VID of VLAN, DefaultFdb refers to data transmission list of VLAN for device default

**【Example】** --> *bridge add vlan10 10 DefaultFdb*

## 4.5.3 Adding the interface to VLAN

**【Syntax】** bridge add vlaninterface <vlan name>  
tagged/untagged DefaultFdb

**【Usage】** <vlan name> refers to the existing name of VLAN.  
<interface> refers to bridge interface.

**【Example】** --> *bridge add vlaninterface vlan10 untag wan0*  
--> *bridge add vlaninterface vlan10 tag uplink*

## 4.5.4 Setting interface PVID

**【Syntax】** bridge set interface <name> pvid <vid>

**【Usage】** <vlan name> refers to the existing name of VLAN.  
<interface> refers to bridge interface.

**【Example】** --> *bridge set interface wan0 pvid 10*

Typical interface VLAN configuration:

Configuring different VLAN respective form 1 ~ 8 to realize interface isolation. Each interface belongs to different VLAN.

```
bridge add vlan vlan1 10 DefaultFdb
bridge add vlan vlan2 20 DefaultFdb
bridge add vlan vlan3 30 DefaultFdb
bridge add vlan vlan4 40 DefaultFdb
bridge add vlan vlan5 50 DefaultFdb
bridge add vlan vlan6 60 DefaultFdb
bridge add vlan vlan7 70 DefaultFdb
bridge add vlan vlan8 80 DefaultFdb
bridge add vlaninterface vlan1 untagged wan0
bridge add vlaninterface vlan2 untagged wan1
```



```

bridge add vlaninterface vlan3 untagged wan2
bridge add vlaninterface vlan4 untagged wan3
bridge add vlaninterface vlan5 untagged wan4
bridge add vlaninterface vlan6 untagged wan5
bridge add vlaninterface vlan7 untagged wan6
bridge add vlaninterface vlan8 untagged wan7
bridge add vlaninterface vlan1 tagged uplink
bridge add vlaninterface vlan2 tagged uplink
bridge add vlaninterface vlan3 tagged uplink
bridge add vlaninterface vlan4 tagged uplink
bridge add vlaninterface vlan5 tagged uplink
bridge add vlaninterface vlan6 tagged uplink
bridge add vlaninterface vlan7 tagged uplink
bridge add vlaninterface vlan8 tagged uplink
bridge set interface wan0 pvid 10
bridge set interface wan1 pvid 20
bridge set interface wan2 pvid 30
bridge set interface wan3 pvid 40
bridge set interface wan4 pvid 50
bridge set interface wan5 pvid 60
bridge set interface wan6 pvid 70
bridge set interface wan7 pvid 80
    
```

#### 4.5.5 Checking MAC transmission list

**【Syntax】** bridge list ucastentries DefaultFdb

**【Usage】** checking the MAC address transmission list on device

**【Example】** --> bridge list ucastentries DefaultFdb

ID / Type	MAC Address	Receive Interface
1   Special	0:2:2:0:0:2	LocalIntf
Egress Interfaces:		
2   Dynamic	0:c:6e:40:dc:a1	uplink
Egress Interfaces:		

## 4.6 Query command relevant to Bridge interface

### 4.6.1 Querying bridge interface

**【Syntax】** bridge list interfaces

**【Usage】** to query bridge interface list including VLAN configuration of a bridge interface and the bonding between bridge interface and transport.

**【Example】** --> *bridge list interfaces*

## 4.6.2 Querying bridge interface configuration

**【Syntax】** *bridge show interface <interface>*

**【Usage】** this command is used to query the type of an interface and the pvid configuration, etc.

**【Example】** --> *bridge show interface wan0*

*Bridge Interface: wan0*

```
Name: wan0
Filter Type: All
Port Filter: All
PVID: 1
New Priority:
Acceptable Frame Type: ALL
Ingress Filtering: disabled
User Priority: 0
Transport: wb0
Leave Mode: Normal
```

## 4.6.3 Querying bridge interface status

**【Syntax】** *bridge show interfaces <interface>*

**【Usage】** <interface> includes Uplink interface and SHDSL interface. Using this command, you can query the transmission data statistics of an interface, including sending Stat. receiving Stat. and losing data Stat.

**【Example】** --> *bridge show interfaces wan0*

*Bridge Interface: wan0*

```
Rx Frames | Tx Frames | Transmit | Unknown VLAN|
          |          | Delay Discards | Discards |
-----|-----|-----|-----|
Buffer O/F | Ingress | Frame Type
Discards | Discards | Discards
-----|-----|-----|
0 | 1 | 0 | 0 |
0 | 0 | 0 | 0 |
-----|-----|-----|
```

## 4.6.4 Querying VLAN configuration

**【Syntax】** bridge list vlans

**【Usage】** To query the state of VLAN configuration and VALN of all interface.

**【Example】** --> *bridge list vlans*

## 4.7 Operation & Maintenance

### 4.7.1 Restarting the system

**【Syntax】** system restart

**【Usage】** restart the whole equipment.

**【Example】** --> *system restart*

### 4.7.2 Clearing system configuration

**【Syntax】** system config clear

**【Usage】** clear all system configuration,including virtual port and configuration to be deleted.such as transport ,bridge interface,ip interface and Vlan,etc.

**【Example】** --> *system config clear*

### 4.7.3 Restoring default configuration

**【Syntax】** system config restore factory

**【Usage】** recover default system configuration

**【Example】** --> *system config restore factory*

### 4.7.4 Save configuration

**【Syntax】** system config save

**【Usage】** save system configuration

**【Example】** --> *system config save*

### 4.7.5 Ping command

**【Syntax】** ip ping <ip address>

**【Usage】** <ip address> is the corresponding address used to check whether the management interface can communicate with the management terminal.  
Common errors are shown as follows :  
No route to host: there is no gateway  
Request timed out: the correspondence is not available.

**【Example】** --> *ip ping 172.16.0.100*

*ping: PING 172.16.0.100: 32 data bytes*

*ping: 40 bytes from 172.16.0.100: seq=0, ttl=128, rtt<10ms*

## Annex

Thank you for choosing SHDSL5008 IP SHDSL equipment. In order to get your feedback on our product, please fill out the following form with your advices and fax it back to the service center or pass it back through MSN. Your wonderful ideas are welcome.

1. Please fill out your advice in the corresponding position.(sign “√” )

Grades Commands	Excellent	good	common	bad
Easy to use				
Express Clear				
Content integrity				
Content correct				
Reasonable structure				
Chart explanation				
Set form				
All satisfaction				

2. In your opinions, what is kind of improvement we need to do. (sign “√”)

- Improve the structure of scheduling
- Improve the catalogue structure
- The expression should be more clearly
- The expression should be more concise
- Increased more graphic description
- Increased typical case
- Don't be professional
- Providing more information to help

Please explain your suggestion mentioned above in details:

3. Which content in the manual you are satisfied with?

4. Other suggestions:

In order to contact with you in time, please fill out your information as follows:

Name: \_\_\_\_\_ Position: \_\_\_\_\_ Tel: \_\_\_\_\_  
 Unit: \_\_\_\_\_ E-mail: \_\_\_\_\_  
 Address: \_\_\_\_\_ Date: \_\_\_\_\_