Symmetricom

GoWide G.shdsl 4.6 E1 ATM Network Termination Unit

User Manual

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Notice

If this equipment appears to cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- Turn the equipment "OFF" and "ON".
- Connect the equipment to an outlet on a circuit different from which the receiver is connected.

Note: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Approvals

Safety: EN60950, UL 1950, C/UL to CSA 22.2 No.950, TUV, IC CS03

Emissions: EN55022/CISPR22 Class B

Immunity: EN55024

CE Mark

ETS 300019 1.3, classe 3.1E

EN 60950 Amendment 4 and EN 41003. NT is class II

EN 300 386-2, EMC directive 89/336/EEC

EN 55022 class B (1998)

EN 55024 (1998)

ETS 300 019-2-2 class T2.3 (ordinary transport)

CEI 38

ITU K.45 (enhanced level, network interface)

ETS 300 046-3 for customer interface

Warning: Use a minimum of 26AWG line cord for the DSL connection.

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Chapter 1

Product Description

This chapter provides a description of the GoWide E1 ATM.

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GoWide E1 ATM Feature Specifications

SHDSL Features

- Standard ITU-T G.shdsl (G.991.2)
- Configurable: 2-wire or 4-wire mode
- Signal format: TC-PAM
- Data rate: 192 kbps – 2.312 Mbps for 2-wire mode (GoWide 2.3 E1 ATM)

  364 kbps – 4.608 Mbps for 4-wire mode (GoWide 4.6 E1 ATM)
- Connector: RJ-45
- Impedance: 135 ohms

E1 Features

- ITU-T E1 G.703
- Signal format: HDB3
- Data rate: 2.048 Mbps
- Connectors: RJ-45 and BNC
- Impedance: 120 ohms and 75 ohms

ATM Features

- ITU-T 1.432.3
- ATM UNI v3.1
- ITU-T 1.610 including OAM F4/F5
- ATM VP and VC connection
- ATM VP and VC segment endpoint

Management Features

- Telnet configuration
- Command line interface
- Firmware upload via TFTP, BOOTP, or Web-based management
- Alarm status and power indicators
- Event logging
- Interfaces: DB-9 E1A-232 and RJ-45 Ethernet

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GoWide E1 ATM Hardware Specifications

Physical Interfaces

- Two G.shdsl ports (RJ-45)
- One E1 port (RJ-45 and BNC)
- LED indicators: Power, SHDSL, E1, and ATM
- DB-9 and RJ-45 craft ports

Physical Specifications

- Dimensions: 28.1 mm x 203.2 mm x 167.6 mm
  (1.5 in. x 8.0 in. x 6.6 in.) (H x W x D)
- Weight: 0.5 kg (1.1 lb)
- Color: Gray

Operating Environment

- Temperature: –5 °C to 45 °C (23 °F to 113 °F)
- Humidity: 5% to 90% RH, non-condensing

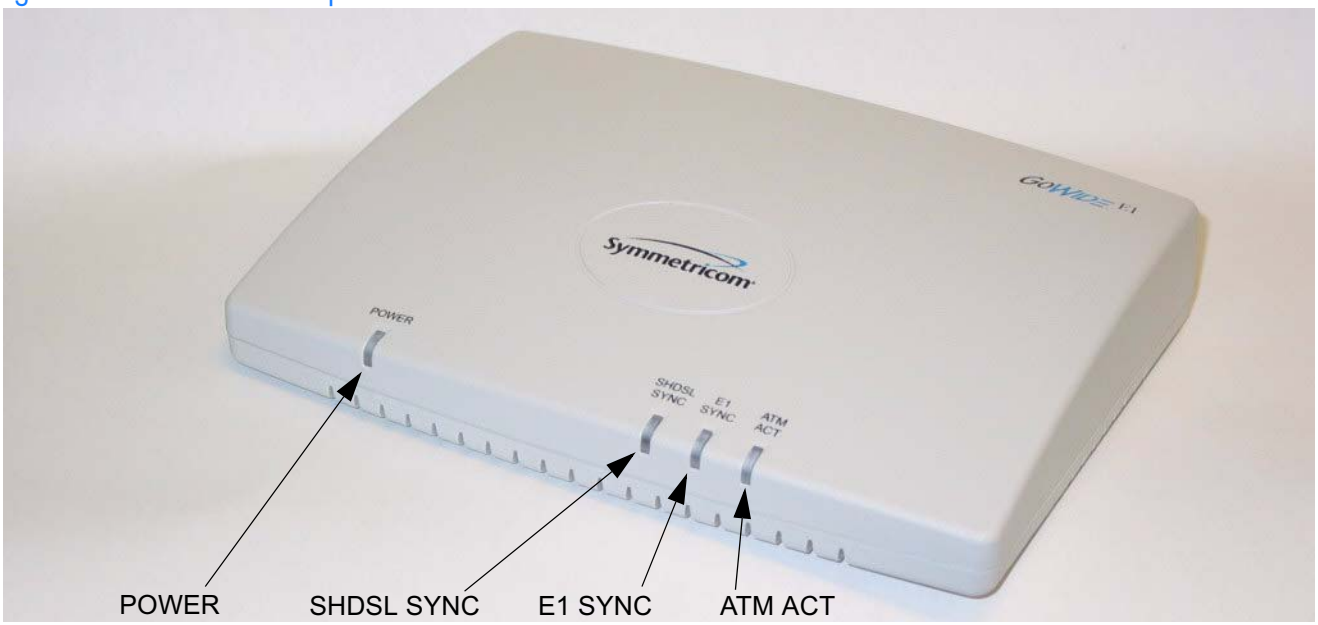
Power

- 9 VDC
- 660 mA

GoWide E1 ATM Top Panel

Figure 1 shows the GoWide E1 ATM top panel.

Figure 1. GoWide E1 ATM Top Panel



The GoWide E1 ATM top panel includes four status indicators as described in Table A.

Table A. Top Panel Status Indicators

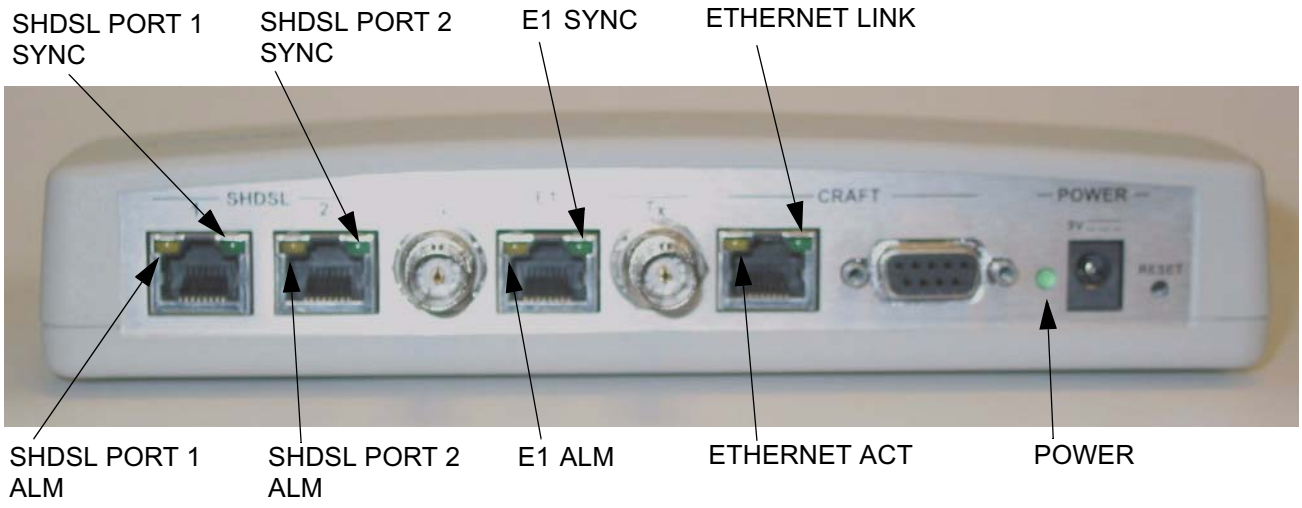
LEDs	COLOR	EXPLANATION
POWER	GREEN	ON: Device has power
		OFF: Device has no power
SHDSL SYNC*	GREEN	ON: SHDSL ports 1 (2-wire) and 2 (4-wire) are synchronized
		OFF: SHDSL ports 1 (2-wire) and 2 (4-wire) are disabled
E1 SYNC	GREEN	ON: E1 is synchronized
		OFF: E1 is disabled
ATM ACT	GREEN	ON: Device has ATM activity
		OFF: Device has no ATM activity

* When SHDSL SYNC LED is blinking, the SHDSL ports are in handshake mode.

GoWide E1 ATM Input/Output Panel

Figure 2 shows the GoWide E1 ATM input/output panel.

Figure 2. GoWide E1 ATM Input/Output Panel



The GoWide E1 ATM input/output panel includes nine status indicators as described in Table B.

Table B. Input/Output Panel Status Indicators

LEDs	COLOR	EXPLANATION
SHDSL PORT 1 ALM	YELLOW	ON: Alarm state on SHDSL port 1
		OFF: No alarm
SHDSL PORT 1 SYNC*	GREEN	ON: SHDSL port 1 is synchronized
		OFF: SHDSL port 1 is disabled
SHDSL PORT 2 ALM	YELLOW	ON: Alarm state on SHDSL port 2
		OFF: No alarm
SHDSL PORT 2 SYNC*	GREEN	ON: SHDSL port 2 is synchronized
		OFF: SHDSL port 2 is disabled
E1 ALM	YELLOW	ON: Alarm state on E1
		OFF: No alarm
E1 SYNC	GREEN	ON: E1 is synchronized
		OFF: E1 is disabled

Table B. Input/Output Panel Status Indicators (Cont'd)

LEDs	COLOR	EXPLANATION
ETHERNET ACT	YELLOW	ON: Ethernet port has activity
		OFF: Ethernet port has no activity
ETHERNET LINK	GREEN	ON: Ethernet port has a link
		OFF: Ethernet port has no link
POWER	GREEN	ON: Device has power
		OFF: Device has no power

* When SHDSL SYNC LED is blinking, the SHDSL ports are in handshake mode.

Default Settings

System Module

- IP Address : 10.0.0.1
- Password : password (minimum 4 alphabetic characters)
- Language : English

Chapter 2

Installation

This chapter provides installation-related information for the GoWide E1 ATM.

Figures three and four show the two different cable connections to the GoWide E1 ATM input/output panel. Connecting the PC to the Craft ports for management and configuration is described in Procedure A.

Figure 3. GoWide E1 ATM Input/Output Panel Cable Connections with 75 ohm coaxial Rx and Tx Cables Connected to E1 Interface

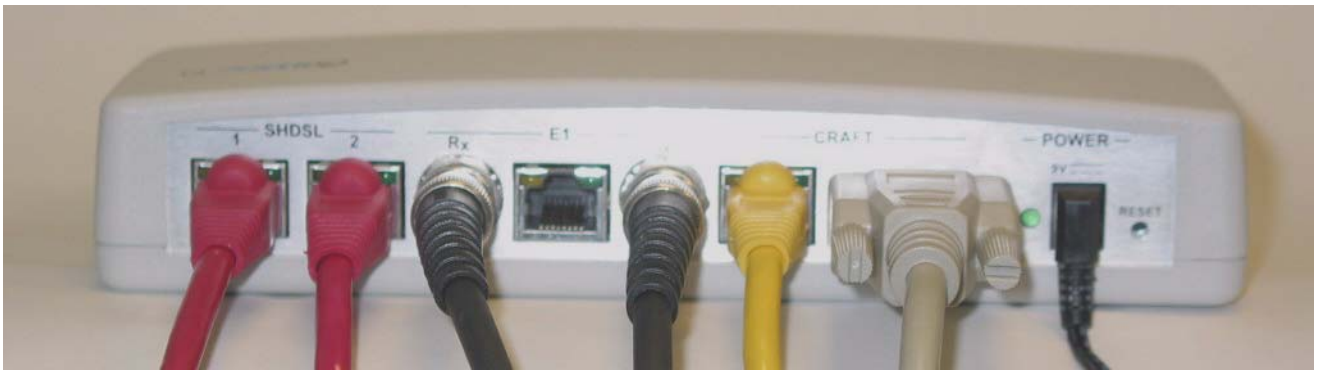
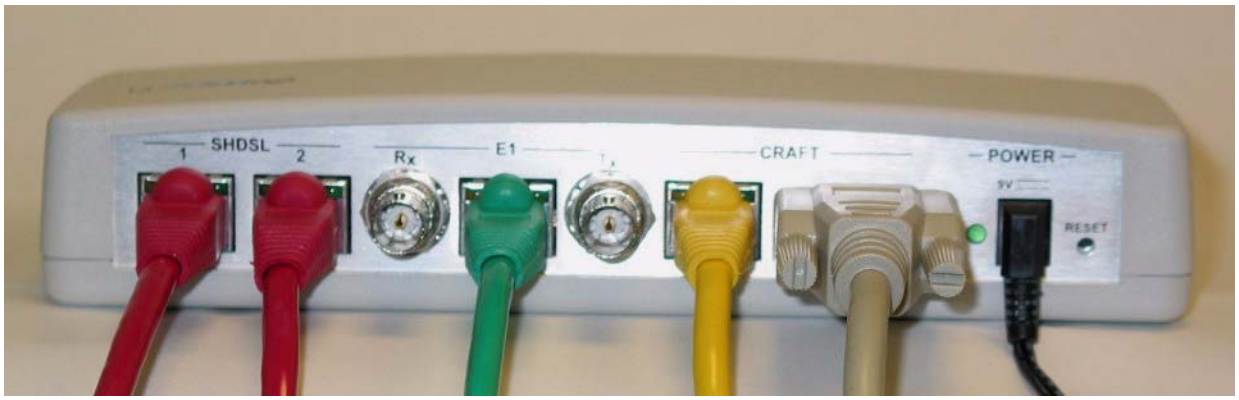


Figure 4. GoWide E1 ATM Input/Output Cable Connections with 120 ohm Twisted Pair Cable Connected to E1 Interface



Procedure A. PC Connection to the Craft Ports

Step	Procedure
1	Check that the Ethernet card and the TCP/IP protocol are installed on the PC before beginning connection.
2	Connect the Ethernet cable from the GoWide E1 ATM Ethernet ports to the PC's NIC card or the server's NIC card.
3	Connect the serial cable from the GoWide E1 ATM serial port to the PC's serial port or the server's serial port.

Procedure A. PC Connection to the Craft Ports (Cont'd)

Step	Procedure
4	Connect one end of the SHDSL cable to the DSL jack and the other end to the SHDSL "1" receptacle on the back of the GoWide E1 ATM.
5	Connect one end of the second SHDSL cable to the DSL jack and the other end to the SHDSL "2" receptacle on the back of the GoWide E1 ATM. *Note: Use the second SHDSL cable when using the GoWide E1 ATM as a 4-wire system.*
6	Connect one end of the AC adapter power cord to an AC outlet and the other end to the "POWER" receptacle on the GoWide E1 ATM.
7	The GoWide E1 ATM Power LED must be a steady green. The SHDSL LEDs will initially be blinking green and will become steady green once the connection is established.

End of Procedure

Setting Factory Defaults

The GoWide E1 ATM can be set to the Factory Default settings via the reset switch on the unit's input/output panel (see Figures three and four).

To reset the GoWide E1 ATM, press the reset button and hold down for 5 seconds while the unit is on.

Once the reset button is released, the unit will restart and the settings will revert to the factory default settings.

Note: The mode of operation for the unit, the password, and the unit IP Address will all be changed to the default settings. If you want to reboot or restart the GoWide E1 ATM, DO NOT use the reset switch. Unplug the power and reconnect it.

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Configuration and Maintenance

Chapter 3

This chapter explains specific tasks or scenarios and provides sample commands for resolving or completing GoWide E1 ATM tasks.

Configuration and Maintenance Scenarios

Set GoWide E1 ATM System Clock

When the GoWide E1 ATM unit is used for the first time, the clock is not set. The user is required to setup the correct value for the system clock before proceeding to setup other sections of the system.

To set the system clock, use the following command:

```
10.0.0.1> rtc set 02/25/2002 17:35:11
```

Use the show command to make sure the time is set correctly.

```
10.0.0.1> rtc show

Current GoWide Time : 2002 Feb 25 17:35:11
```

Once the system date and time are set correctly, the system clock will maintain the time and date even if the power is removed from the unit.

The battery for the GoWide E1 ATM system clock should last 10 years without external power being applied. The length of the battery life, however, is affected by environmental factors.

Configure IP Address

The GoWide E1 ATM unit supports static IP addresses as well as dynamically allocated addresses. The dynamically allocated address requires the presence of a DHCP server. The DHCP server must be configured correctly, so that it will supply the GoWide E1 ATM with a proper IP address. The configuration of the DHCP server is beyond the scope of this manual. Please contact the system administrator for more details.

Static IP Address

The GoWide E1 ATM can be configured to use a static IP address (see Procedure B). The GoWide E1 ATM has a default static IP address.

Procedure B. Configuring a Static IP Address

Step	Procedure

1	The first step is to locate the IP device configured on the GoWide E1 ATM system. At the console type the following command:
	
	`10.0.0.1> ip device list`
	
	`result:`
	
	`# name type dev file IP address`
	
	`device ethernet ether //edd mtu 1500 10.0.0.1`
	
	If no interface was found, the following message will appear on the screen.
	
	`00:b0:ae:00:30:bc> ip device list`
	`No interfaces have been defined`

2	The current device must be removed so that a new one may be added. To complete the following step, the user must note the name of the IP device in the previous step. `10.0.0.1> ip device delete ethernet`
3	To add a new IP device with a new static IP address, execute the following command. Note that once the IP device was deleted, the prompt now shows the MAC address rather than the IP address. `00:03:ae:00:30:bb> ip device add ethernet ether //edd 10.0.01` Once the command is issued, the prompt will now show the new static IP address.

End of Procedure

Dynamic IP Address

The dynamically allocated IP address requires the existence of a DHCP server. Procedure C describes the steps involved in changing the IP device setting to dynamic IP.

Procedure C. Dynamic IP Address

Step	Procedure

1	The first step is to locate the IP device configured on the GoWide E1 ATM system. At the console type the following command:
	`10.0.0.1> ip device list`
	`result:`
	`# name type dev file IP address`
	`device ethernet ether //edd mtu 1500 10.0.0.1`
	Note: If the IP address field already indicates DHCP, then no further configuration is required.

2	The current device must be removed so that a new one may be added. To complete the following step, the user must note the name of the IP device in the previous step. `10.0.0.1> ip device delete ethernet`
3	To add a new IP device with DHCP capability, execute the following command. Note that once the IP device was deleted, the prompt now shows the MAC address rather than the IP address. `00:03:ae:00:30:bb> ip device add ethernet ether //edd dhcp`

4	Once the IP device is initialized, a DHCP client request must be sent to retrieve a proper IP address. This would take between 2 to 10 seconds.
	`03:ae:00:30:bb> dhcpclient reset`
	`result:`
	`ip/ip0: IP address 0.0.0.0`
	`ip/ip0: IP address 192.168.190.110`
	`192.168.190.110>`

End of Procedure

Remote Access Configuration

The GoWide E1 box can be configured as a bridge or a router to transport IP traffic over the G.SHDSL link to and from the Ethernet port. The following examples will describe the various configurations. It is important to make sure that all previous bridge and router configurations are removed before attempting the following examples. Also note that the PVC used for passing traffic should be UBR (unspecified bit rate) and the PCR (peak cell rate) can be adjusted to tweak performance. The VPI and VCI settings may be different at the two ends.

How to Clear Bridge/Router Settings

In order to configure the GoWide box in bridge or router mode, it is best to clear the previous settings. First check the IP and bridge module to see if any existing device was created; use the 'device' commands to list the devices.

```
10.0.0.1> ip device
```

and

```
10.0.0.1> bridge device
```

If any devices were created, they would resemble the following:

```
#       name     type    dev file              IP address

device  ethernet ether   //edd    mtu 1500 mss   0 10.0.0.1

device  ipoa     atm     //bun    mtu 1500 mss   0 10.0.1.2
```

Once the device is listed, use the name of the device to remove them.

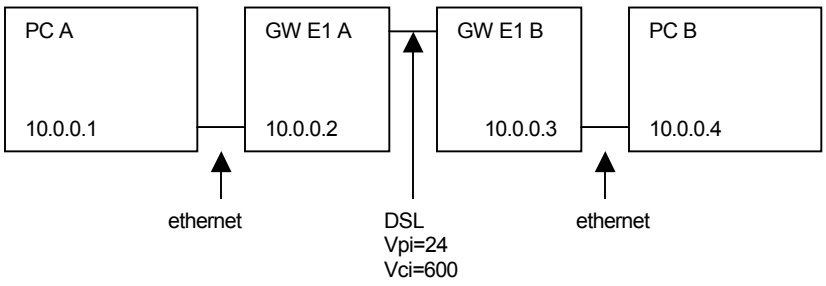
```
10.0.0.1>ip device delete [name of the device]
```

In this case, use "ip device delete ipoa".

```
10.0.0.1>bridge device delete [name of the device]
```

RFC1483 Bridged

The following section describes how to configure the GoWide E1 box with the RFC1483 bridge method. The mode can be configured as llcbridged or vcmuxbridged.



GoWide E1 Configuration - Box A

```
ip device add bridge ether //bridge 10.0.0.2

bridge device add edd

bridge device add //bun/port=shdsl/rfc1483=true/mode=llcbridged/
vpi=24/vci=600/class=ubr/pcr=200
```

To remove the bridge configuration, use the following commands:

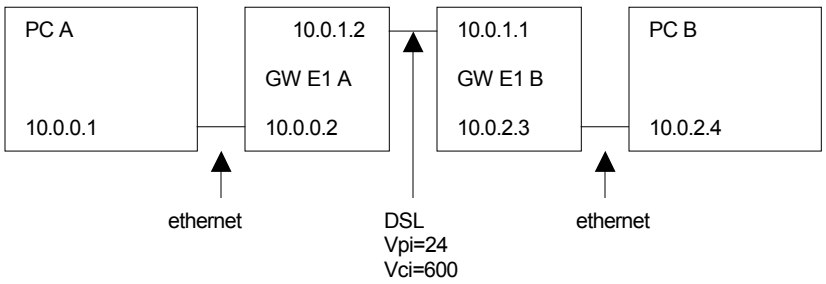
```
ip device delete bridge

bridge device delete edd

bridge device delete //bun/port=shdsl/rfc1483=true/mode=llcbridged/
vpi=24/vci=600/class=ubr/pcr=200
```

RFC1483 Routed

The following section describes how to configure the GoWide E1 box with the RFC1483 routed mode. The mode can be configured as llcrouted or vcmuxrouted.



GoWide E1 Configuration - Box A

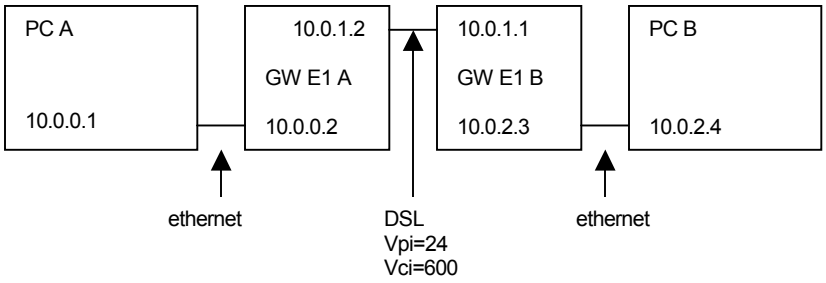
```
ip device add myrouter ptp //bun/port=shdsl/rfc1483=true/
mode=llcrouted/vpi=24/vci=600/pcr=200/class=ubr 10.0.1.2
```

To remove the previous router configuration, use the following commands:

```
ip device delete myrouter
```

IPOA Routed

The following section describes how to configure the GoWide E1 box in IPOA routed method.



GoWide E1 Configuration - Box A

```
ip device add ipoa atmpvc //atm 10.0.1.2

ip ipatm pvc add ipoa shdsl 24/600 pcr 200
```

To remove the IPOA routed configuration, use the following the commands:

```
ip ipatm pvc flush

ip device delete ipoa
```

Configure Ports

When the GoWide E1 ATM is powered up for the first time, it has already established a set of default attributes for the physical ports. These default attributes do not always satisfy the network environment in which they reside. Therefore, the user must alter the default port attributes in order for the GoWide E1 ATM to be integrated into the network.

Two sample configurations are provided below. One configuration is for the SHDSL ports, since operation on the SHDSL ports are slightly different. The second configuration will be for the E1 port.

SHDSL Configuration

The SHDSL port configuration can be accomplished through a set of SHDSL console commands. The following example will show how to change the SHDSL line attribute and then resync the line with the DSLAM. Refer to Chapter 6 for detailed syntax of the commands used in this example.

Procedure D describes the process for changing SHDSL attributes.

Procedure D. Configuring the SHDSL Port

Step	Procedure

1	The first step is to disable the lines. Doing so would end all traffic activity on the SHDSL line. Using the "shdsl startup disable" will shutdown the SHDSL port. This is necessary because the SHDSL line attribute is used during handshaking, therefore changing them when the line is synced up will have no meaning.
	
	`10.0.0.1> shdsl startup disable`
	`SHDSL HTU-CO Line-1: Line Status -- Disconnect`
	`SHDSL HTU-CO Line-1: Line is forced to disconnect`
	`SHDSL HTU-CO Line-2: Line Status -- Disconnect`
	`SHDSL HTU-CO Line-2: Line is forced to disconnect`

2	The second step is to configure the line attributes with the "set" command. In this example, we will change the HTUType to CPE and the linetype from AUTO to 4 wire mode.
	
	`10.0.0.1> shdsl set htutype cpe`
	`HTUType HTU-CPE`
	`10.0.0.1> shdsl set linetype 4`
	`LineType = Four-Wire`

3	Use the "set" command to make sure the attributes are set correctly.
	
	`10.0.0.1> shdsl set`
	`[Current Setting]`
	`HTUType HTU-CPE`
	`LineType = Four-Wire`
	`ClockSource = NTR RefClock 8k`
	`Line RateMode = Adaptive`
	`Standard = Annex_A`
	`Standard AutoDetect ---- Enable`
	`BTexactSupport ---- Disable`
	`ANFPSupport ---- Disable`
	`PowerBackoff Enable`
	`Asymmetric_PSD = Disable`
	`SNRThreshold Disable`
	`AttenuationThreshold Disable`
	`LoopbackTimeout = 0 minutes`
	`RemoteEOCRequest ---- Enable`
	`Target Margin = CM 4 SM 11`

4	Re-enable the SHDSL line to startup the sync process with the DSLAM. `10.0.0.1> shdsl startup enable`

End of Procedure

E1 Configuration

The E1 port is configured in the same fashion as the SHDSL ports, except that the E1 line does not require to be brought down in order to change the line attributes. Procedure E illustrates how to change the E1 line attribute.

Procedure E. Configuring the E1 Port

Step	Procedure

1	Use the "set" command to change the attribute.
	
	`10.0.0.1> e1 set frameformat fas`
	`FrameFormat : CCS_FAS`

2	Use the "set" command to display the E1 attribute to make the sure the settings are correct.
	
	`10.0.0.1> e1 set`
	`---------------`
	`LineCode  : HDB3`
	`FrameFormat: CAS_FAS`
	`CRC     : Enable`
	`---------------`
	`Scrambler  : Disable`
	`Coset    : Enable`
	`Cell     : Unassigned`
	`Timesolts  : 01111111111111110111111111111111`

Procedure E. Configuring the E1 Port (Cont'd)

Step	Procedure
3	Use the "status" command to make sure that there are no physical alarms. If there are alarms present, check the settings to make sure it matches the remote unit.

```
10.0.0.1> e1 status
[Current Configuration]
LineCode   : HDB3
FrameFormat: CAS_FAS
CRC        : Enable

[Current Counter]    |      Total     |    Interval
---------------------+----------------+------------------
Seconds Elapsed      |   722207       |   722207
---------------------+----------------+------------------
Framing Bit Error    |   0            |   0
Far End Block Error  |   0            |   0
Bit/CRC Error        |   0            |   0
Line Coding Violation|   0            |   0

[Current Status]  |    Alarm    |    Failure   |        Time
------------------+-------------+--------------+--------------------
CARRIER_LOST      |    NO       |      NO      | May 05 09:21:23 AM
SYNC_LOST         |    NO       |      NO      | May 05 09:21:23 AM
BLUEALARM         |    NO       |      NO      | May 05 09:21:23 AM
YELLOWALARM       |    NO       |      NO      | May 05 09:21:23 AM
REDALARM          |    NO       |      NO      | May 05 09:21:23 AM
LINECODEVIOLATION |    NO       |      NO      | May 05 09:21:23 AM
FRAMEBITERR       |    NO       |      NO      | May 05 09:21:23 AM
CRC_ERROR         |    NO       |      NO      | May 05 09:21:23 AM
FARENDBLOCKERR    |    NO       |      NO      | May 05 09:21:23 AM
------------------+-------------+--------------+--------------------
Out of Delineation|    NO       |      NO      | May 05 09:21:23 AM
------------------+-------------+--------------+--------------------
```

End of Procedure

Configure OAM Loopback (LLID)

The OAM loopback is used by the GoWide E1 ATM system to determine if the far end unit is operating correctly. OAM loopback cells are sent out per PVC to the far end unit. The far end unit will match the OAM LLID and loop the cell back. If OAM cells were lost, that would indicate the loss of that ATM channel.

The LLID contains 16 octets. The convention of LLID is defined in ITU standard (ITU-T I.610). If the user enters less than 16 octets, the system will complete the LLID by appending 0's.

Configure "myllid"

"myllid" (my loopback LLID) is the OAM LLID of the GoWide E1 ATM system currently being provisioned. The LLID is a 16-byte item based on the ITU standard (ITU-T I.610). The following example will illustrate how to provision "myllid".

```
10.0.0.1> pvcm myllid 1.2.3.45.67.89.ab.cd.ef
```

If the user entered less than 16 octets, the system will append 0's. To display the LLID after it is set, simply execute the previous command without the LLID string.

```
10.0.0.1> pvcm myllid
llid = 1.2.3.45.67.89.ab.cd.ef.0.0.0.0.0.0.0
```

Configure Traffic Parameter

The traffic parameter is used during the creation of the traffic groups. Therefore, it is preferable to configure the traffic parameter first. There are default traffic parameters. However, these traffic parameters may not suit all needs. The user has the option to modify the default or create new ones. The details of creating different types of traffic parameters are documented under the PVCM section in Chapter 5 - Console Commands. This section will illustrate some simple examples.

It is assumed that the user creates traffic parameters for each type of traffic. There are some traffic pre-defined parameters. Those traffic parameters are special and will be explained in detail later.

Procedure F shows how to configure traffic parameters.

Procedure F. Configuring Traffic Parameters

Step	Procedure
1	Create a UBR traffic parameter with the name `extp` and a peak cell rate of 3000: `10.0.0.1> pvcm tp extp UBR 3000`

2	Show the newly created traffic parameter
	
	`10.0.0.1> pvcm tp list all`
	`extp (UBR 3000)`

End of Procedure

Special Traffic Parameters

default: The default traffic parameter is a special traffic parameter. It can be used to create connections. The user will be able to change the parameter in the default traffic parameter then configure other connections with the default traffic parameter. This is done without having to delete the previous connection.

Configure Switching Parameter

The switching parameter is another parameter that should be configured before creating traffic groups. Most of the time, the switching parameter is not required. Since a buffer is in place, any drop of cells is not likely. Adding a switching parameter will also increase the network processor usage. Therefore the "none" parameter is often used in place of the switching parameter when creating a logic connection. It is possible to enable EPD/PPD (early packet discard/partial packet discard) when specifying EPD as the last argument of the switch parameter command. The various switching parameter commands are explained in Chapter 5 - Console Commands under the PVCM section. This section will show how to create a switch parameter.

Note: EPD/PPD are described in detail in Chapter 5 - Console Commands under the switch parameter section. It is generally not recommended to turn on this feature.

Procedure G describes the configuration of a switching parameter.

Procedure G. Configuring Switching Parameters

Step	Procedure
1	Create a switch parameter with the name exsp and a buffer size of 16 and statistic recording: `10.0.0.1> pvcm sp exsp 16 stats`

2	Use the list command to show the configuration
	
	`10.0.0.1> pvcm sp list all`
	`sp exsp 16 stats`

End of Procedure

Configure Traffic Group

After the E1 and SHDSL interfaces are set up correctly and no alarms are active, the user can use the PVCM commands to create traffic groups. For the PVCM commands please see the PVCM section for details. The following examples show how to create traffic groups. In both examples, the default traffic parameter is used. Also, no switching parameter is used. The previous two sections demonstrated the usage and creation of the traffic parameter and switch parameter. Refer to Chapter 5 for the syntax of the switch command as well as the traffic parameter (tp) and switch parameter (sp) command.

Symmetrical PVC between SHDSL and E1 Port

The following example creates a PVC between the SHDSL and the E1 port. In this example, traffic is switched from the VPI 10 and VCI 100 from the E1 port to VPI 10 VCI 100 of the SHDSL port. This example did not use the [in|out] parameter. Therefore, it assumes a bidirectional flow and creates two sets of PVCs (inbound

traffic and outbound traffic). This means that one PVC carries traffic from the E1 port to the SHDSL port and the other PVC carries traffic from the SHDSL port to the E1 port.

pvcm>***switch*** ex1 e1 10 100 shdsl 10 100 default none

Asymmetrical PVC between SHDSL and E1 Port

This next example will show the creation of a traffic group with different input and output PVCs. In this example, two commands are used; The first is to create the input traffic group, the second is to create the output traffic group. The first command creates a switch between SHDSL PVC (VPI 10 VCI 99) to the E1 port's PVC (VPI 10 VCI 100). The second command creates a switch between the E1 port's PVC (VPI 10 VCI 99) to the SHDSL's PVC (VPI 10 VCI 100).

pvcm>***switch*** ex2 in shdsl 10 99 e1 10 100 default none

pvcm>***switch*** ex2 out e1 10 99 shdsl 10 100 default none

Listing the Configuration

The current GoWide E1 ATM configuration can be viewed using the *config print* command.

Enter the command

```
....> config print
```

The following information is displayed:

```
10.0.0.1> config print
Module 'bridge':
Active configuration:
Filter age time: 300

No stored configuration
# Spanning tree configuration
bridge spanning enable

Module 'nat':
event 2

Module 'shdsl':
HTUType HTU-CPE
set Standard AutoDetect Enable
set RateMode Adaptive
set Standard = Annex A
set LineType = Auto
set PowerBackoff Enable
set Asymmetric_PSD = Disable
set SNRThreshold = 0
set AttenuationThreshold = 0
set LoopbackPeriod = 0 minutes
set RemoteRequest Enable
```

```
Module 'portcli':

Module 'pvcm':
ap ap1 127 255 255 255 46
tp default UBR 5453
sp default 128 stats
ap default 127 255 255 255 47
sdt test in serial shdsl 8 35 default default
tp default UBR 5453
sp default 128 stats
ap default 127 255 255 255 47
sdt test out serial shdsl 8 35 default default
myllid ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff

Module 'ip':
device add ethernet   ether  //edd      mtu 1500  10.0.0.1

subnet add ethernet.home  . 10.0.0.0         ff:ff:ff:00

rip send    ethernet 2
rip accept  ethernet 1 2



ipatm lifetime 60

# IP host table:

# Port table:
telnet     23/TCP
http       80/TCP
tftp       69/UDP
snmp       161/UDP
router     520/UDP
l2tp       1701/UDP

# SNMP configuration:
access write [password]
```

Changing the Password

After the system has booted up, the password needs to be set up before configuring the other functions on the GoWide E1 ATM.

Enter the old password

```
....> flashfs password <old password>
```

Enter the new password

```
....> flashfs config password <new password>
```

Update Flash Memory

To update the Flash File System or to save configuration files to the Flash File System, use the following commands:

Update the Flash File System

```
....> flashfs update <password>
```

Save configuration files to the Flash File System

```
....> config save <password>
```

For example, to save a configuration file:

```
....> config save <password>
....> restart
```

BOOTP Download Procedure

This section provides information on updating firmware via the BOOTP download procedure.

Notes:

- This is a generic procedure for successfully updating the firmware on to the GoWide E1 ATM via BOOTP.
- There are many firmware versions. Please contact Symmetricom's Customer Technical Assistance Center (CTAC) for additional information before beginning the download or check the support page on the Symmetricom Web site.
- Connect the GoWide E1 ATM's Ethernet port with the provided cable to the PC's NIC card.

Launching the Firmware Upgrade Utility

Procedure H describes how to launch the firmware upgrade utility.

Notes:

- When the BOOTP application is launched, it finds the local subnet and displays it with a 0 in the final octet. The user does not need to type in additional information.
- If the user enters the MAC address only and does not specify a device IP address, the BOOTP automatically determines a valid IP address for the device. This address is temporary and assigned only for the duration of the BOOTP transfer. It does not interfere with other devices on the network even if they have the same IP address.
- The MAC address of the GoWide E1 ATM is required before beginning the

download procedure. If the MAC address is not known, follow the steps as shown below:

- Start a DOS application and type the following command:

```
telnet <IP>
<IP> is the IP address of the GoWide E1 ATM
password: ********
logged on; type '@close' to close connection
```

- Enter the Administrator's password (default is password)

- Type the following command:

```
10.0.0.1> chips info
```

- The MAC address will be shown on the screen.

```
GoWide E1 ATM
Machine Name:
MAC address: 0:e0:b2:0:0:0
```


Procedure H. Launching the Firmware Upgrade Utility

Step	Procedure
1	Launch the firmware application by double-clicking on the file named **BootP.exe**.
2	Enter the **IP address** of the GoWide E1 ATM.
3	Enter the **MAC address** of the GoWide E1 ATM.
4	Select the **Choose File** icon to locate the image file from the Firmware Upgrade Utility screen.
5	The **Firmware Upgrade Utility** has been activated.
6	If the GoWide E1 ATM has a Console port, follow the instructions as shown in **GoWide E1 ATM Product Activation Using Telnet**.

End of Procedure

GoWide E1 ATM Product Activation Using Console Port

Procedure I describes the steps involved in activating the GoWide E1 ATM using the Console port.

Procedure I. GoWide E1 ATM Product Activation Using Console Port

Step	Procedure
1	Connect the GoWide E1 ATM's Ethernet port with the provided Ethernet cable to the PC's NIC card.
2	Connect a serial cable from the PC's serial port to the GoWide E1 ATM's Console port.

Procedure I. GoWide E1 ATM Product Activation Using Console Port (Cont'd)

Step	Procedure
3	Launch **Hyper Terminal** or **ProComm** and set the connection as follows: Bits per second: 9600 Data bits: 8 Parity: None Stop bits: 1 Flow control: None
4	Power **ON** the GoWide E1 ATM.
5	The words **StartUp from [Bootp/Ethernet/Flash] ,,,** will appear in the Hyper Terminal application. Immediately press the '**e character**' on the keyboard. This will initiate the Firmware update sequence on the GoWide E1 ATM. A series of dots across the screen means that the file is being downloaded.
6	Wait for the new Firmware image to be updated and the GoWide E1 ATM successfully rebooted.

7	Issue the following commands to update the firmware:
	
	`flashfs rewrite boot.bin <password>`
	`flashfs update <password>`

8	Wait for the Flash update to complete.
	End of Procedure

TFTP Download Procedure

Procedure J describes the method for downloading TFTP images.

Procedure J. TFTP Download Procedure

Step	Procedure
1	Locate the **tftp.zip** file on the CD-ROM.
2	Unzip the **tftp.zip** file and get the **tftp** folder. The following five files are in the **tftp** folder: **image** **image.comp** **tftplock.key** **tftpdownload.sh** **tftpdownload.BAT**
3	Change the directory to the **tftp** folder.
4	Edit the **tftplock.key** file to change the password; the default is "password".
5	If using a Linux machine, go to the next step. If using a Windows machine, go to step 7.

Procedure J. TFTP Download Procedure (Cont'd)

Step	Procedure
6	For a Linux machine, run **tftpdownload.sh [gowide ip]** under bash. Example: `tftpdownload.sh 192.168.180.11`
7	For a Windows machine, run **tftpdownload.BAT [gowide ip]**. Example: `tftpdownload.BAT 192.168.180.11`
8	Wait until the GoWide E1 AAL1 restarts.

End of Procedure

FTP Download Procedure

Procedure K describes the method for downloading FTP images.

Procedure K. TFTP Download Procedure

Step	Procedure
1	Locate the **ftp.zip** file on the CD-ROM.
2	Unzip the **ftp.zip** file and get the **ftp** folder. The following four files are in the **ftp** folder: **image** **image.comp** **ftpdownload.sh** **ftpdownload.BAT**
3	Change the directory to the **ftp** folder.
4	If using a Linux machine, go to steps 5 and 6. If using a Windows machine, go to steps 7 and 8.
5	For a Linux machine, run **ftpdownload.sh [gowide ip] [password]** under bash. Example: `ftpdownload.sh 192.168.180.11 password`
6	Telnet to the GoWide E1 AAL1 and perform **flashfs update** and **restart**.
7	For a Windows machine, run **ftpdownload.BAT [gowide ip]**. Example: `ftpdownload.BAT 192.168.180.11`
8	Telnet to the GoWide E1 AAL1 and perform **flashfs update** and **restart**.

End of Procedure

Performance Monitoring and Status

This chapter provides performance monitoring and status information on the GoWide E1 ATM.

Chapter 4

PVC Manager List Group

The PVC Manager is used to create different traffic groups. The PVCM command "list" can be used to display the current groups that are created.

```
10.0.0.1> pvcm list
Traffic groups:
ex2 (atm vc)
ex1 (atm vc)
```

The list command, combined with the group name, can be used to examine the group in detail. This command will also provide some information regarding the number of cells that have been switched in that particular group.

```
10.0.0.1> pvcm list ex2

Input group:

  port  vp   vc     port  vp   vc    cells

  shdsl 10   99 ==> e1    10   100   0


Output group:

  port  vp   vc     port   vp   vc    cells

    e1 10   99 ==> shdsl 10   100   0
```


Port Performance and Status

SHDSL

The console contains a number of commands which provide information on the SHDSL link status and the performance. Refer to Chapter 5 – Console Commands for detailed information regarding SHDSL console commands.

The **Set** command, used without any parameters, displays a list of SHDSL attributes that can be adjusted for the handshake process. This command is useful if the line is having trouble syncing up with the DSLAM. Adjusting one of these parameters could improve that.

```
10.0.0.1> shdsl set

[Current Setting]
HTUType HTU-CO
```

```
LineType = Auto
Line Payload Rate = 2304 (36N)
ClockSource = NTR RefClock 8k
Line RateMode = Adaptive
Standard = Annex_A
PowerBackoff Enable
Asymmetric_PSD = Disable
SNRThreshold Disable
AttenuationThreshold Disable
LoopbackTimeout = 0 minutes
RemoteEOCRequest ---- Enable
```

The **Status** command displays the line status of the SHDSL port. This includes the SNR (Signal to noise ratio), attenuation, and a number of other line status indications. This information also includes the line status information received from the remote unit via the EOC (embedded operations channel).

The **Pfm** command displays the path performance information. This information consists of ES (errored second), SES (severely error seconds), UAS (unavailable seconds), CRC, and LOSWS (loss of sync word seconds). This includes both performance information from the local unit as well as the remote unit.

The **Atm** command provides ATM counter information on the SHDSL port and also the ATM switch counter.

E1

The **Set** command, used without any parameters, displays a list of E1 line format attributes and ATM cell delineation attributes. This command is useful if the line is having trouble syncing up with the remote E1 port. Adjusting one of these parameters could improve that.

The **Status** command displays the line status of the E1 port. This includes both error counters and alarm indication.

The **Pfm** command displays the path performance information. This information consists of LES (line errored seconds), SEFS (severely errored frame seconds), ES (errored second), SES (severely errored seconds), and UAS (unavailable seconds).

The **Atm** command provides ATM counter information on the E1 port and the ATM switch counter.

BUN Attributes

All the physical ports (E1 and SHDSL) contain attributes that indicate the status of the port as well as performance data. The "bun show port" command can be used to display port attributes. Refer to the BUN console section for the usage of the command "bun show port". Attribute description can also be found under Chapter 5 for each of the ports.

Alarm Status

It is preferred that the alarm information be read from the alarm handler. However, alarm status for the physical ports can also be read from the port attributes. Individual alarms can also be disabled via the disable alarm attributes. Table C shows a list of the alarms. For a detailed description of each alarm consult the attributes tables in Chapter 5 – Console Commands.

Table C. Alarms Acronyms

Port	Alarms
E1 Data	LOS, LOF, AIS, RAI, LPF, LCD
SHDSL	SNR, ATTN, LOL, LCD, LOSW

Alarm Types and Description

Table D lists all alarm types that are currently supported in GoWide E1 ATM.

Table D. Alarm Types and Descriptions

No.	Alarm Type	Description
1	LOL	Loss of Link
2	LOS	Loss of Signal
3	OOF	Out of Frame
4	AIS	Alarm Indication Signal
5	RAI	Remote Alarm Indication
6	LCD	Loss of Cell Delineation
7	CRC	Cyclic Redundancy Check Alarm
8	BRB	(New DSL Rate) Below Required Bandwidth
9	LOSW	Loss of Sync Word
10	ATTEN	Attenuation Alarm
11	SNRM	Signal to Noise Ratio Margin Alarm
12	PDISA	Port Disabled
13	NTRF	Network Timing Recovery Failure
14	OAMRDI	OAM RDI Condition
15	OAMAIS	OAM AIS Condition

Alarm types in the GoWide E1 ATM system may be updated in different software versions. The user can always use the console command "ah show" to see all alarm types that are currently supported and the severity for each alarm type.

Refer to the AH SHOW command section in Chapter 5 – Console Commands for details.

Alarm Severity and Assignment

By default, the severity for all alarm types is set to MINOR. The user can change the severity of a particular alarm to CRITICAL, MAJOR or NONE, using the "**ah set <alarm type> <severity> [<description>]**" console command. For example, the user can type "**ah set lol critical**" to set the severity of LOL alarm to be CRITICAL.

By setting different severity levels to different alarms, the user can use severity as a parameter in search of alarms with the same severity level. For example, the user can type "**al show clog critical**" to list all critical alarms in the Current Log.

Refer to the AH SET command section in Chapter 5 – Console Commands for details.

Current and Historic Logs

All major failures on the GoWide E1 ATM system will generate alarms. The alarms that have been generated will be logged into the Current Log or Historic Log. The Current Log contains all active alarms and the Historic Log contains all cleared alarms.

Alarms are listed with the following attributes:

- Event ID: This is the ID for each active alarm with an integer value starting from 1.
- Service Affecting: This shows whether the alarm is service affecting or not. The value will be shown as "sa" (service affecting) or "na" (non-service affecting).
- Color: This specifies the "color" of the alarm. A red alarm is an alarm that originates due to problems locally, while a yellow alarm is an alarm that originates as a result of problems at a remote device.
- Severity: This indicates the severity of an alarm. There are four levels of severity: CRITICAL, MAJOR, MINOR, and NON_ALARM. This is a user configurable field and the default is MINOR for all alarm types unless the user has set it to a different one.
- Alarm Type: See the "Alarm Type" section for all alarm types currently available in the system.
- Module ID: This indicates which module the alarm was generated from.
- Source ID: This attribute is currently not supported.
- Link ID: This indicates which port the alarm was generated from (if applicable).
- Set Time: This indicates when the alarm was generated.

- Clear Time: This indicates when the alarm was cleared. (Only for Historic Log).

Among these attributes, Severity, Alarm Type, Board ID, Module ID, Source ID and Link ID are searchable attributes, which can be used to refine the search. The console command for the search is "**al show <logId> [<sev*> <type*> <bid*> <mid*> <sid*> <lid*>]**". The fields in "[]" are optional. If no attributes are provided in the "**al show clog/hlog**" command, all alarm entries will be listed.

For example, the user can type "al show clog 0 LOS 0 T1V 0 1" to list all the alarms where type is LOS, any severity, module ID is T1V, any source ID and port ID is 1.

Refer to the AL SHOW command section in Chapter 5 – Console Commands for details.

LEDs

There are five types of LEDs in the GoWide E1 ATM system:

- Power LED
- Sync LED
- Alarm LED
- Link LED
- Activity LED

There is one System (Power) LED with a status of OFF or GREEN. OFF indicates the system is powered off. GREEN indicates that the system is powered on.

There are two SYNC LEDs on the top of the unit (SHDSL and E1). On the back of the unit, the GREEN LEDs on the RJ-45 connectors also show a SYNC LED for each of the PORTs (SHDSL and E1). When the SYNC LED is GREEN, it indicates the physical layer is in sync with the remote unit.

The ATM ACT (activity) LED on the top of the unit indicates if an ATM cell is being switched through.

The PORT ACT LEDs on the RJ-45 ports on the back of the unit indicate activity for that particular port (Ethernet).

Console Commands

This chapter provides information on the console commands used by the GoWide E1 ATM.

Chapter 5

Console Commands, Usage, and Functional Description

The GoWide E1 ATM console interface is organized as a directory tree. The topmost directory contains a list of key modules and key commands. The user can type the "***help***" command to see a list of these modules and commands. Commands can be issued by typing the name of the command; sometimes arguments must be supplied. Within each module, there are commands that are associated with that module. To enter a module, simply enter the module name. The "***help***" command can be used to see the list of the commands under that module. To return to the top level, use the "***home***" command.

Console Port

The console port is located on the input/output panel of the GoWide E1 ATM. It is a standard RS-232 port. The default configuration for the console connection is: 9600 8N1. Once the console connection is established, all the commands stated in this section can be used.

General Note

The console section describes the commands that the user has access to and are needed for accessing/setting up/troubleshooting the GoWide E1 ATM.

General Usage

The following are some of the common commands that are used to navigate and use the GoWide E1 ATM console:

Home

Syntax:

home

Description:

The home command is used to return to the home directory. Home is the topmost level. This is where the user will start out when the system is first powered up. At home, the user can view all the different commands and modules offered by the system. The home command may only be issued if the current position is not the home. If the home command is issued in the home directory, an error will be returned.

Help

Syntax:

help <command>

Description:

The help command is a multi-purpose command. The help command can function as a directory listing command or as a help command. When typed without an argument, the help command lists the modules and commands available in the current directory. When the help command is issued with the name of a command, help information relevant to the command will be displayed on the screen.

Restart

Syntax:

restart

Description:

The restart command forces the system to restart. This command exists in the home directory; therefore the restart command can only be issued in the home directory.

Execute Command

Syntax:

<command name> <argument 1 .. argument 2>

Description:

A command is executed the same as it would be in DOS or UNIX; simply type the name of the command. Also, the command may need additional arguments. Refer to this section for the arguments. The user may also use the help command to display the usage of the command.

Port Configuration

The two primary interfaces on the GoWide E1 ATM is the SHDSL port and the E1 port. The console supports number of commands that can configure the port attributes and also provide performance information regarding the port.

Note: The ? can be used as argument for any of these commands. The ? argument will show the syntax for each of the commands. For example “10.0.0.1> shdsl set ?”

SHDSL

Info

Syntax:

info

Description:

Displays the SHDSL driver version as well as the SHDSL firmware version.

Set

Syntax:

set ***<attribute name> <attribute value>***

Description:

```
Usage : set HTUType {CO|CPE}
        set linetype {4 Wire|2 Wire|Auto}
        set linerate {N*64} kbps -- payload rate
        set clocksource {local|NTR}
        set ratemode {fixed|adaptive}
        set standard Annex {A | B}
        set powerbackoff {enable|disable}
        set asymmetric {disable|R1|R2|SYM} -- AnnexA R1(776),  R2(1544)
                                              AnnexB R1(2304), R2(2048)
        set SNRThreshold xx dB
        set AttenuationThreshold xx dB
        set LoopbackTimeout xx minutes
        set remoteEOCrequest {enable|disable}
        set target margin CM SM
```

Without any arguments, the set command displays SHDSL line attribute settings. The attribute values can be changed as well with the set command. Simply use the set command with the attribute name and attribute value as arguments. The usage table in the previous paragraph shows all the attributes that can be set using the set command.

Example:

```
10.0.0.1> shdsl set

[Current Setting]
HTUType HTU-CPE
LineType = Four-Wire
ClockSource = NTR RefClock 8k
Line RateMode = Adaptive
Standard = Annex_A
Standard AutoDetect ---- Enable
BTexactSupport ---- Disable
ANFPSupport ---- Disable
PowerBackoff Enable
Asymmetric_PSD = Disable
SNRThreshold Disable
AttenuationThreshold Disable
LoopbackTimeout = 0 minutes
RemoteEOCRequest ---- Enable
Target Margin = CM 4 SM 11
```

Display current setting.

```
10.0.0.1> shdsl set htutype co
HTUType HTU-CO
```

Set the HTU type to CO instead of CPE.

Startup

Syntax:

startup **<*on* | *off* | *remote* | *restart*>**

Description:

This command enables and disables the SHDSL port. If SHDSL is enabled, it will proceed to handshake with the remote side until it successfully enters the DATA mode. If the SHDSL line is already in DATA mode, the disable command will shutdown the line. The on argument enables the line and the off argument disables the line. The restart argument restarts the line from the local side and the remote argument requests the remote side to perform a restart.

Loopback

Syntax:

loopback **<*on* | *off* | *repeater* | *all*>**

Description:

This command enables and disables the SHDSL loopback. The on argument enables loopback toward network. The repeater argument issues a command to the first

repeater to request a loopback. The all argument requests all units on that loop to loopback.

Status

Syntax:

status ***<1 | 2 | all | inventory>***

Description:

This command displays the line status. The command issued without any arguments will display the status of both loops. With the argument set to 1 or 2, the command will display the loop status for the specified loop. With the argument set to all, the status display will include repeaters. The command issued with the inventory argument will display the inventory result of the local and remote unit.

Example:

Display the line status of both loops:

```
10.0.0.1> shdsl pfm

[line-1]
                     |    Local Unit          Remote Unit
---------------------+-----------------------------------------
Line Status:         |   Connected
Payload Rate:        |   2304
---------------------+-----------------------------------------
Loss Sync Detected:  |        NO
Loss Sync Failure:   |        NO                  NO
---------------------+-----------------------------------------
SNR (dB) :           |        40.9
SNR Margin:          |        16                  15
SNR Alarm:           |        NO                  NO
Attenuation:         |        01.7                02
Attenuation Alarm:   |        NO                  NO
---------------------+-----------------------------------------
ATM Status:          |        ok                  ok
HEC Error:           |        00                  00
---------------------+-----------------------------------------
Power BackOff     :  |        06                  07
Tip/Ring Reversal:   |        NO                  YES


[line-2]
                     |    Local Unit          Remote Unit
---------------------+-----------------------------------------
Line Status:         |   Disconnected
Payload Rate:        |   2304
---------------------+-----------------------------------------
Loss Sync Detected:  |        NO
Loss Sync Failure:   |        NO                  NO
---------------------+-----------------------------------------
```

```
SNR (dB) :          |        50.0
SNR Margin:         |        00                  00
SNR Alarm:          |        NO                  NO
Attenuation:        |        00.0                00
Attenuation Alarm:  |        NO                  NO
--------------------+---------------------------------------
ATM Status:         |        ok                  ok
HEC Error:          |        00                  00
--------------------+---------------------------------------
Power BackOff     : |        00                  00
Tip/Ring Reversal:  |        NO                  NO
```

Atm

Syntax:

atm <reset interval>

Description:

This command displays the ATM cell counters from both the framer and the switch. The reset interval argument will reset the interval ATM counters.

Pfm

Syntax:

pfm <***1*** | ***2*** **| *all* | reset interval**>

Description:

This command displays the line performance for both loops. The command issued without any arguments will display the line performance of both loops. With the argument set to 1 or 2, the command will display the line performance for the specified loop. With the argument set to all, the performance display will include all units. With the reset_interval argument, the interval counters will be reset.

Example:

Display the line performance of both loops:

```
10.0.0.1> shdsl pfm

[line-1]
RemoteEOCRequest ---- Enable
          |  Interval     Global       Local      Remote
----------+-------------------------------------
Seconds:  |  00153518    00153518    00153464    00153464
----------+-------------------------------------
CRC:      |  00000002    00000002    00000002    00000003
LOSW:     |  00000000    00000000    00000000    00000000
----------+-------------------------------------
ES:       |  00000001    00000001    00000001    00000001
```

```
SES:       |  00000000    00000000    00000000    00000000
UAS:       |  00000000    00000000    00000000    00000000


[line-2]
RemoteEOCRequest ---- Enable
           |  Interval     Global       Local      Remote
-----------+-------------------------------------
Seconds:   |  00000019    00000019    00000000    00000000
-----------+-------------------------------------
CRC:       |  00000000    00000000    00000000    00000000
LOSW:      |  00000000    00000000    00000000    00000000
-----------+-------------------------------------
ES:        |  00000000    00000000    00000000    00000000
SES:       |  00000000    00000000    00000000    00000000
UAS:       |  00000000    00000000    00000000    00000000
```

E1

Info

Syntax:

info

Description:

Displays the E1 driver version as well as the FPGA version.

Set

Syntax:

set ***<attribute name> <attribute value>***

Description:

```
Usage: set LineCode {HDB3}
       set FrameFormat {{CAS|MFAS}|{CCS|FAS}|Unframing}
       set CRC {Enable|Disable}
       set Scrambler {on|off}
       set Coset {Enable|Disable}
       set Cell {Idle|Unassigned}
```

Without any arguments, the set command displays the E1 line attribute settings. The attribute values can be changed as well with the set command. Simply use the set command with the attribute name and attribute value as arguments. The usage table above lists all the attributes that can be changed along with the attribute values.

Example:

```
10.0.0.1> e1 set

---------------------
LineCode    : HDB3
FrameFormat: CAS_MFAS
CRC         : Enable
---------------------
Scrambler   : Disable
Coset       : Enable
Cell        : Unassigned
Timeslots   : 01111111111111110111111111111111
```

Display current setting.

```
10.0.0.1> e1 set frameformat fas
FrameFormat : CCS_FAS
```

Set the frameformat to FAS instead of MFAS.

Loopback

Syntax:

loopback ***<line|payload|digital|off>***

Description:

This command enables and disables E1 loopback.

Status

Syntax:

status <reset interval>

Description:

This command displays the line status. The command issued without any arguments will display the line status. With the argument “reset interval” this command will reset the interval counters.

Example:

```
10.0.0.1 e1> status

[Current Configuration]
LineCode    : HDB3
FrameFormat: CAS_MFAS
CRC         : Enable
```

```
[Current Counter]    |      Total     |    Interval
---------------------+----------------+-----------------
Seconds Elapsed      |   182          |   182
---------------------+----------------+-----------------
Framing Bit Error    |   0            |   0
Far End Block Error  |   0            |   0
Bit/CRC Error        |   0            |   0
Line Coding Violation|   368067       |   368067

[Current Status]  |    Detect   |    Alarm
------------------+-------------+--------------
CARRIER_LOST      |    YES      |      YES
SYNC_LOST         |    NO       |      NO
BLUEALARM         |    NO       |      NO
YELLOWALARM       |    NO       |      NO
REDALARM          |    NO       |      NO
LINECODEVIOLATION |    NO       |      NO
FRAMEBITERR       |    NO       |      NO
CRC_ERROR         |    NO       |      NO
FARENDBLOCKERR    |    NO       |      NO
------------------+-------------+--------------
```

Atm

Syntax:

atm <reset interval>

Description:

This command, issued without any argument, displays the ATM cell counters from both the framer and the switch. With the argument “reset interval,” it will reset the interval counters.

Pfm

Syntax:

pfm

Description:

This command displays the performance counters for both loops. Without any arguments, this command will display the total counter only. The argument can also be for a 15 minute interval counter, 1 day counters, or display all the counters.

Example:

```
10.0.0.1 e1> pfm

e1> status ?

Usage: status                -- display E1 status
       status reset interval -- reset interval counter
```

```
e1> e1 status
[Current Configuration]
LineCode   : HDB3
FrameFormat: CCS_FAS
CRC        : Enable

[Current Counter]    |    Total       |    Interval
---------------------+----------------+-------------
Seconds Elapsed      |    309306      |    81
---------------------+----------------+-------------
Framing Bit Error    |    0           |    0
Far End Block Error  |    0           |    0
Bit/CRC Error        |    0           |    0
Line Coding Violation|    0           |    0

[Current Status]     |    Defect      |    Alarm
---------------------+----------------+-------------
CARRIER_LOST         |    NO          |    NO
SYNC_LOST            |    NO          |    NO
BLUEALARM            |    NO          |    NO
YELLOWALARM          |    NO          |    NO
REDALARM             |    NO          |    NO
LINECODEVIOLATION    |    NO          |    NO
FRAMEBITERR          |    NO          |    NO
CRC_ERROR            |    NO          |    NO
FARENDBLOCKERR       |    NO          |    NO


e1> pfm ?

Usage: pfm -- display E1 performance

~
e1> pfm
E1 Performace (Elapsed Time)         15 minutes (679)    24 hours (50179)
-------------------------------------------------------------------------
ES                                                0                   0
SES                                               0                   0
UAS                                               0                   0
```

RTC: Real Time Clock

The real time clock module is used to maintain the clock value while the system is powered off. The real time clock contains a battery module that will power the RTC even though there is no power to the system. The battery is able to sustain the time for nearly 10 years.

Whenever the system is powered up, the GoWide E1 ATM system timevalue will be set from the real time clock value. When the system is first powered on, the user will need to enter the correct value of the time. From then on, the real time clock will maintain the clock until the user decides to change it.

Version

Syntax:

version

Description:

This command displays the RTC module version number.

Show

Syntax:

show

Description:

The show command displays the current GoWide system time.

Example:

```
10.0.0.1> rtc show
RTC: read 05/14/2002 16:06:11

date: Tuesday, May 14 2002  time: 04:06:11 PM GMT+00:00
Daylight saving time is off
```

Set

Syntax:

set mm/dd/yyyy hh:mm:ss

Description:

The set command sets the GoWide Real Time Clock. The setdate command will set the year, month, date, and time all with one command. Using the "help setdate"

command will show the format that is required when setting the time. The setdate command will only accept time in 24 hour format.

Example:

```
10.0.0.1 rtc> set 5/1/2002 15:30:12
RTC: save 05/01/2002 15:30:12
RTC: read 05/01/2002 15:30:12

date: Wednesday, May 01 2002  time: 03:30:12 PM GMT+00:00
Daylight saving time is off
```

PVC Manager

The PVC Manager (PVCM) manages the switch traffic groups. Its functionality includes establishing switching between ports, creating traffic and switching parameters, and a number of OAM functions.

PVCM Commands

Create Switching Group

Syntax:

switch <name> [***in***|***out***] <iport> <ivpi> <ivci> <oport> <ovpi> <ovci> <tp> <sp>|none

switch <name> [***in***|***out***] <iport> <ivpi> <oport> <ovpi> <tp> <sp>|none

Description:

This command creates an input or output switching group specified by "***in***|***out***", for the traffic group specified by <name>. The first command creates a VC switching group, and the second command creates a VP switching group. If the traffic group does not already exist, a new traffic group will also be created. There is no limit for the number of traffic groups (the only limit is the number of PVCs supported by the system). There could be multiple traffic groups for the same destination site.

Each traffic group can contain up to two switching groups, one for input (specified by "***in***") and one for output (specified by "***out***").

If the "***in***|***out***" option is not specified, then this command will create both input and output groups with the same parameters. Thus the same VPI/VCI and port will be used for traffic in both directions.

Table E lists the elements used in creating a switching group.

Table E. Create Switching Group

Command Argument	Description
<name>	The name of the traffic group. Each traffic group can have up to two switching groups, one for input (specified by "***in***") and one for output (specified by "***out***"). The <name> can be used in other commands such as ***delete, show***, etc.
in|out	It specifies if the group is an input group or an output group. In general, the output port of the input group and the input port of the output group is a non-SHDSL port, while the input port of the input group and the output port of output group is an SHDSL port. If this option is not selected, both input group and output group will be created.
<iport>	Input port of the group.
<ivpi>	VPI number associated with <iport>.

Table E. Create Switching Group (Cont'd)

Command Argument	Description
<ivci>	VCI number associated with <iport>.
<oport>	Output port of the group.
<ovpi>	VPI number associated with the <oport>.
<ovci>	VCI number associated with the <oport>.
<tp>	Specify the traffic parameters to be used. <tp> can be a user defined name or "default".
<sp>|none	Specify the switch parameters to be used. <sp> can be a user defined name or "default". ***none*** means no switch parameters will be used.

Examples:

switch pr3 ***in*** shdsl 30 300 e1 30 300 tp2 sp2

This command creates a VC switching traffic group "pr3", and an input group within "pr3". The input group contains input SHDSL port "shdsl" and output non-SHDSL port "e1".

switch pr4 e1 40 shdsl 40 tp2 sp2

This command creates a VP switching traffic group "pr4", and both input and output group within "pr4". The input group contains input SHDSL port "shdsl" and output non-SHDSL port "e1", while the output group contains input non-SHDSL port "e1" and output SHDSL port "shdsl". The input and output groups are symmetrical.

Delete the Traffic Group

Syntax:

delete <name> [***in***|***out***]

delete all

Description:

If ***in*** | ***out*** option is not specified, then the whole traffic group is deleted, including the switching paths.

If the option is specified, then the specified ***in***|***out*** group will be deleted. The switching path(s) within the group will be removed at the same time. If both input and output groups are deleted, the traffic group will be removed.

Table F lists the elements used to delete the whole group or a port from the group.

Table F. Delete the whole Group or a Port from the Group

Command Argument	Description
<name>	The name of a traffic group created by the ***bond, nobond***, or ***voice*** command.
in|out	Specifies the input or output bonding/non-bonding group. If this option is not selected, the command will apply to both input and output groups.

Examples:

delete pr1 ***in***

This command deletes the input group of traffic group "pr1".

delete pr1

This command deletes traffic group "pr1".

delete all

This command deletes all traffic group(s).

List Traffic Groups

Syntax:

list [<name>]

Description:

This command lists a named traffic group, or all existing traffic groups.

If the option traffic group <name> is not specified, this command prints all existing traffic groups. If the option traffic group <name> is specified, this command prints the details of input/output groups within the traffic group.

Table G lists the elements of listing traffic groups.

Table G. List Bonding/ Non-Bonding Groups

Command Argument	Description
<name>	Traffic group name.

Examples:

list

This command lists all traffic groups.

list pr1

This command lists all the ports and switching paths of both the input and output groups of the traffic group "pr1".

Show Information of a Traffic Group

Syntax:

show <name> in|out

Description:

Prints the details of the specified traffic group, including traffic parameters and switch parameters.

Table H lists the elements of showing information of traffic groups.

Table H. Show Information of a Traffic Group

Command Argument	Description
<name>	Name of a traffic group.
in|out	Specifies the input or output group.

Examples:

show pr1 in

This command displays the detailed information of the input group of traffic group "pr1".

Display Switch Information

Syntax:

info

Description:

Prints the detailed information about the switch, such as buffering information, available ports, etc.

Set Local OAM Loopback Location ID (LLID)

Syntax:

myllid [<llid>]

Description:

This command sets the OAM loopback location ID (LLID) of this unit.

Table I lists the elements used in setting local OAM loopback location ID.

Table I. Set Local OAM Loopback Location ID (LLID)

Command Argument	Description
<llid>	OAM loopback location ID in the format of <ff.ff.ff...> (up to 16 hexadecimal numbers separated by "."). If the user enters less than 16 bytes, the system will append 0's at the end of the entered LLID string.

Examples:

myllid 1.2.3.45.67.89.ab.cd.ef

This command sets LLID.

myllid

llid=1.2.3.45.67.89.ab.cd.ef.0.0.0.0.0.0.0

This command displays LLID.

Version

Syntax:

version

Description:

Displays the version number of the PVCM module.

Help

Syntax:

help [<command>]

Description:

Print the help information of the named command.

Add Switch Parameters

Syntax:

sp <name> | ***default*** <cells> | ***none*** [***stats***] [***epd-ppd***]

Description:

Create or modify a named switch parameter or modify the default. The current options are:

- Number of cells to buffer, or none
- Statistics recording mode
- EPD/PPD mode

Early Packet Discard (EPD) and Partial Packet Discard (PPD) are methods of relieving congestion in ATM switches. Without the use of EPD/PPD, dropping a small percentage of ATM cells can result in a significant percentage of packets being errored and therefore a significant drop in performance on the link.

Once any cell in an AAL5 packet is dropped, the complete packet is redundant. There is, therefore, no advantage in transferring the other cells that make up the packet. However, the last cell in an AAL5 packet contains an “end of packet” marker and therefore should be treated specially to avoid errors seen with the next AAL5 packet on the virtual circuit. When EPD/PPD is disabled, a received ATM cell is dropped if there is no free space in the buffer. If EPD is enabled, and the first cell in a packet is received when the ring is over half full, the complete packet will be subsequently discarded. If PPD is enabled and a cell is received with no free space in the buffer, all the remaining cells that make up the packet (except the last cell) are discarded. EPD and PPD are enabled and disabled together. It is not possible to enable them separately.

Examples:

sp sp1 16 ***stats epd***

Delete Switch Parameters

Syntax:

sp delete <name>

Description:

Delete a named switch parameter.

Examples:

sp delete sp1

List Switch Parameters

Syntax:

sp list <name> | *all* [*verbose*]

Description:

Displays details about a specified switch parameter or all switch parameters. If verbose is specified, the display will provide detailed information about the switch parameter.

Examples:

sp list default ***verbose***

It shows the following:

```
Name:           default
Buffering:      64Cells
Stats enable:   Yes
EPD enable:     No
```

Add CBR Traffic Parameters

Syntax:

tp <name>|***default CBR*** <pcr01>

Description:

Create or modify a named CBR traffic parameter or modify the default. There is one type of CBR traffic parameter that may be created:

CBR.1

pcr01 Peak Cell Rate for CLP=0+1

Examples:

tp cbr1 ***CBR*** 12000

Add VBR Traffic Parameters

Syntax:

tp <name>|***default VBR*** <pcr01> <scr> <mbs> 0|1 [***tag***]

Description:

Create or modify a named VBR traffic parameter or modify the default. There are three possible VBR traffic parameters that may be created:

VBR.1

pcr01 Peak Cell Rate for CLP=0+1
scr Sustainable Cell Rate for CLP=0+1
mbs Maximum Burst Size for CLP=0+1
The 1 flag must also be set

VBR.2

pcr01 Peak Cell Rate for CLP=0+1
scr Sustainable Cell Rate for CLP=0
mbs Maximum Burst Size for CLP=0
The 0 flag must also be set

VBR.3

pcr01 Peak Cell Rate for CLP=0+1
scr Sustainable Cell Rate for CLP=0
mbs Maximum Burst Size for CLP=0
The 0 flag must also be set
The tag flag must also be set

Examples:

tp vbr3 ***VBR*** 10000 8000 10 0 ***tag***

Add UBR Traffic Parameters

Syntax:

tp <name> | ***default UBR*** <pcr01> [***tag***]

Description:

Create or modify a named UBR traffic parameter or modify the default. There are two possible UBR traffic parameters that may be created:

UBR.1

pcr01 Peak Cell Rate for CLP=0+1

UBR.2

pcr01 Peak Cell Rate for CLP=0+1
The tag flag must be set

Examples:

tp ubr1 ***UBR*** 40000

Delete Traffic Parameters

Syntax:

tp delete <name>

Description:

Delete a named traffic parameter.

Examples:

tp delete ubr1

List Traffic Parameters

Syntax:

tp list <name>|***all*** [***verbose***]

Description:

Display details about a specified traffic parameter or all switch parameters. If verbose is specified, the display will provide detailed information about the traffic parameter.

Examples:

tp list default ***verbose***

It shows the following:

```
Name:              default
Class:             UBR (UBR.1)
Peak Cell Rate:    Yes
Tagging:           No
```

Note: For the following OAM-related commands, these arguments (where applicable) take the following meanings:

`port`	Name of an ATM port
`vpi`	Numerical Virtual Path Identifier or 'any'
`vci`	Numerical Virtual Circuit Identifier or 'any'
`flags`	One or both of `f4 f5` and one or both of `etoe segm` in any order. Some commands have restrictions on the flags imposed by the OAM module – these are documented in [1].

For F4 streams, the `vci` argument must be 'any'.

Activate CC (Continuity Check)

Syntax:

ccactivate <port> <vpi> <vci> <flags> [***tx***|***rx***]

Description:

This command sends a continuity checking activate request on the specified OAM flow.

If tx|rx is not specified, both directions will be activated.

Example:

ccactivate shdsl 0 any f4 etoe tx

See also:

ccdeactivate

Disable CC

Syntax:

ccdisable <port> <vpi> <vci> <flags>

Description:

This command disables reception of activate requests on the specified OAM flow.

Example:

ccdisable shdsl 0 22 f4 etoe

See also:

ccenable

Deactivate CC

Syntax:

ccdeactivate <port> <vpi> <vci> <flags> [***tx***|***rx***]

Description:

This command sends a continuity checking deactivate request on the specified OAM flow.

If tx|rx is not specified, both directions will be deactivated.

Example:

ccdeactivate shdsl 0 any f4 etoe tx

See also:

ccactivate

Global Accept CC

Syntax:

ccglobalaccept

Description:

This command toggles behavior on reception of a CC activate request. By default, CC activate requests are accepted once CC is enabled.

Example:

ccglobalaccept

Enable CC

Syntax:

ccenable <port> <vpi> <vci> <flags>

Description:

This command enables reception of activate requests on the specified OAM flow.

Example:

ccenable shdsl 0 22 f4 etoe

See also:

ccdisable

Enable Auto-Acceptance of CC Activate Request

Syntax:

ccenableauto <port> <vpi> <vci> <flags>

Description:

This command enables automatic acceptance of received activate requests on the specified OAM flow.

Example:

ccenableauto shdsl 0 any f4 segm

See also:

ccdisableauto

Start CC Without Handshaking

Syntax:

ccstart <port> <vpi> <vci> <flags> [***tx***|***rx***]

Description:

This command starts transmission and/or reception of continuity checking cells on the specified OAM flow.

If tx|rx option is not specified, transmission starts on both directions.

Example:

ccstart shdsl 0 any f4 segm rx

See also:

ccstop

Stop CC Without Handshaking

Syntax:

ccstop <port> <vpi> <vci> <flags> [***tx***|***rx***]

Description:

This command stops transmission and/or reception of continuity checking cells on the specified OAM flow.

Example:

ccstop shdsl 0 any f4 segm rx

See also:

ccstart

Declare Fault State

Syntax:

faultbegin <port> <vpi> <vci> <flags>

Description:

This command declares a fault state on the specified OAM flow.

Example:

faultbegin shdsl 0 19 f5 segm

See also:

faultend

Disable Fault Management

Syntax:

faultdisable <port> <vpi> <vci> <flags>

Description:

This command turns off fault management for the specified OAM flow.

Example:

faultdisable shdsl 0 19 f5 segm

See also:

faultenable

Clear Fault State

Syntax:

faultend <port> <vpi> <vci> <flags>

Description:

This command clears a fault state on the specified OAM flow.

Example:

faultend shdsl 0 19 f5 segm

See also:

faultbegin

Enable Fault Management

Syntax:

faultenable <port> <vpi> <vci> <flags>

Description:

This command turns on fault management for the specified OAM flow.

Example:

faultenable shdsl 0 19 f5 segm

See also:

faultdisable

Turn On Non-Intrusive Monitoring

Syntax:

faultwatch <port> <vpi> <vci> <flags>

Description:

This command turns on fault monitoring for the specified OAM flow.

Example:

faultwatch shdsl 0 any f4 etoe

See also:

faultunwatch

Turn Off Non-Intrusive Monitoring

Syntax:

faultunwatch <port> <vpi> <vci> <flags>

Description:

This command turns off fault monitoring for the specified OAM flow.

Example:

faultunwatch shdsl 0 any f4 etoe

See also:

faultwatch

Display OAM Information

Syntax:

oaminfo <port> <vpi> <vci>

Description:

This command displays information about the specified VC/VP. Note that no flags are necessary – information about all the flows matching the specified port, vpi, and vci is displayed.

Example:

oaminfo shdsl 0 any
port shdsl vpi 0 vci any settings 0x4000041
F4-ETOE F4-SEGM F5-ETOE F5-SEGM
loopback y
cc y
cc auto
fault
fault non-intrusive
segment sinkpoint y

F4 etoe llid: ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff.ff

See also:

oamlist

List OAM Settings

Syntax:

oamlist

Description:

This command lists information about all flows that have any OAM settings.

Example:

oamlist
port shdsl vpi 0 vci any settings 0x4000041 F4_ETOE F4_SEGM
port shdsl vpi 0 vci 22 settings 0x2 F5_ETOE

See also:

oaminfo

Disable Loopback

Syntax:

lbdisable <port> <vpi> <vci> <flags>

Description:

This command disables loopback for the specified OAM flow.

Example:

lbdisable shdsl 0 any f4 etoe

See also:

lbenable, lbstats

Send Loopback Cell

Syntax:

lbsend <port> <vpi> <vci> <flags> [<***llid***>]

Description:

This command sends out a loopback cell for the specified OAM flow, with an optional loopback location identifier. If no LLID is specified, it defaults to all 1's. Any llid that is specified is padded with zeros to the full 16 octets.

The command returns immediately – the response (or lack of response) is indicated by the arrival of a message from the OAM process, which appears in the event log.

Example:

lbsend shdsl 0 any f4 etoe

lbsend shdsl 0 22 f5 segm 11.12.13

Enable Loopback

Syntax:

lbenable <port> <vpi> <vci> <flags> [***myllid***|<***llid***>]

Description:

This command enables loopback for the specified OAM flow, with an optional loopback location identifier. If no LLID is specified, it defaults to all 1's. Any llid that is specified is padded with zeros to the full 16 octets.

Example:

lbenable shdsl 0 any f4 etoe

lbenable shdsl 0 22 f5 segm 11.12.13

See also:

lbdisable, lbstats

Display Loopback Statistics

Syntax:

lbstats <port> <vpi> <vci> <flags>

Description:

This command displays loopback statistics for a specified flow. This is valid only if loopback is enabled for that flow.

Example:

lbstats shdsl 0 any f4 etoe
Statistics for port shdsl vi 0 vci any flags = f4 etoe
Loopback requests received = 5
Loopback requests dropped = 1

See also:

lbenable, lbdisable

Activate PM (Performance Monitoring)

Syntax:

pmactivate <port> <vpi> <vci> <flags> <txblk> <rxblk> [***tx***|***rx***]

Description:

This command sends a performance monitoring activate request on the specified OAM flow.

If tx|rx is not specified, both directions will be activated.

The variables txblk and rxblk are the transmit and receive block sizes respectively.

Example:

pmactivate shdsl 0 amy f4 etoe 128 128 tx

See also:

pmdeactivate

Disable PM

Syntax:

pmdisable <port> <vpi> <vci> <flags>

Description:

This command disables reception of activate requests on the specified OAM flow.

Example:

pmdisable shdsl 0 22 f5 etoe

See also:

pmenable

Deactivate PM

Syntax:

pmdeactivate <port> <vpi> <vci> <flags> [***tx***|***rx***]

Description:

This command sends a performance monitoring deactivate request on the specified OAM flow.

If tx|rx option is not specified, both directions will be deactivated.

Example:

pmdeactivate shdsl 0 any f4 etoe

See also:

pmactivate

Global Accept PM

Syntax:

pmglobalaccept

Description:

This command toggles behavior on reception of PM activate request. By default, PM activate requests are accepted once PM is enabled.

Example:

pmglobalaccept

Enable PM

Syntax:

pmenable <port> <vpi> <vci> <flags>

Description:

This command enables reception of activate requests on the specified OAM flow.

Example:

pmenable shdsl 0 22 f5 etoe

See also:

pmdisable

Enable Auto-Acceptance of PM Activate Request

Syntax:

pmenableauto <port> <vpi> <vci> <flags>

Description:

This command enables automatic acceptance of received activate requests on the specified OAM flow.

Example:

pmenableauto shdsl 0 any f4 segm

See also:

pmdisable

Start PM Without Handshaking

Syntax:

pmstart <port> <vpi> <vci> <flags> <txblk> <rxblk> [***tx***|***rx***]

Description:

This command starts transmission and/or reception of performance monitoring cells on the specified OAM flow.

If tx|rx option is not specified, transmission starts on both directions.

The variables txblk and rxblk are the transmit and receive block sizes respectively.

Example:

pmstart shdsl 0 any f4 segm 256 256 rx

See also:

pmstop

Display PM Statistics

Syntax:

pmstats <port> <vpi> <vci> <flags>

Description:

This command displays performance monitoring statistics for the specified connection.

Example:

pmstats shdsl 0 333 f5 etoe

Stop PM Without Handshaking

Syntax:

pmstop <port> <vpi> <vci> <flags> [***tx***|***rx***]

Description:

This command stops transmission and/or reception of performance monitoring cells on the specified OAM flow.

If tx|rx option is not specified, transmission stops on both directions.

Example:

pmstop shdsl 0 any f4 segm rx

See also:

pmstart

Clear Segment Sinkpoint

Syntax:

segmclr <port> <vpi> <vci> <flags>

Description:

This command removes a segment sinkpoint from this location.

Example:

segmclr shdsl 0 any f4 segm

See also:

segmset

Set Segment Sinkpoint

Syntax:

segmset <port> <vpi> <vci> <flags>

Description:

This command sets this location as a segment sinkpoint.

Example:

segmset shdsl 0 any f4 segm

See also:

segmclr

Alarm Handler

Alarm Handler handles raw alarms generated by the lower drivers and other processes. It will generate a unique ID for each active alarm, add a time stamp to any active or cleared alarm, and send it to Alarm Logger to log it and send it to Alarm Forwarder for further processing. The user can set the severity of an alarm type or the description of the alarm type. There is a configuration file ***alarm.conf*** saved in the flash, which stores the severity level and a brief description for each alarm that the user sets. The default severity value is **MINOR** for all alarms and there is a default description text string for each alarm.

When the system starts, it first checks *alarm.conf*. If it exists, the severity and description values will be read from this file. Otherwise, the default values will be used.

User can *set*, *reset* the severity and description values for a particular alarm to change the configuration file, and *show* the configuration file by using the set, reset and show commands from the CONSOLE.

After changing the configuration file, if the user wants the changes to persist after the system reboots, the user must use the "**config save**" from the Console.

AH Commands

Set

Syntax:

ah **set <alarm_type> <severity> [<alarm_description>]**

Description:

Sets an alarm, the alarm severity level, and the alarm description. The description is optional and case sensitive.

Example:

ah **set LOS critical Loss of Signal**

Sets the severity of "LOS" to "critical" and the description of "LOS" to Loss of Signal".

Valid value set:

<alarm_type>: LOL; LOS; OOF; AIS; RAI; LCD; LPF; CFD; CRC; BRB; LOSW; ATTEN; SNRM; IBCF; PDISA; NTRF

<severity>: critical; major; minor; non.

<alarm_description>: Text string (*Case sensitive*). (A default value is used if this parameter is missing.)

Reset

Syntax:

ah ***reset <alarm_type>***

Description:

Resets the severity and description to the default values.

Example:

ah **reset LOS**

Removes the previous settings and resets the severity and the description of "LOS" to the default values.

Valid value set:

<alarm_type>: LOL; LOS; OOF; AIS; RAI; LCD; LPF; CFD; CRC; BRB; LOSW; ATTEN; SNRM; IBCF; PDISA; NTRF

Show

Syntax:

ah ***show***

Description:

Show alarm configure file

Example:

ah **show**

Show the contents of *alarm.conf*.

```
192.168.160.102> ah show

---------- start of alarm.conf ----------

LOL :   minor : Loss of Link
LOS :   minor : Loss of Signal
OOF :critical : Out of Frame
AIS :   major : Alarm Indication Signal
RAI :   minor : Remote Alarm Indication
LCD :   minor : Loss of Cell Delineation
LPF :   minor : Loopback Pseudo Failure
CFD :   minor : Configuration File Damage
CRC :   minor : Cyclic Redundency Check Alarm
BRB :   minor : New DSL rate Below Required Bandwidth
========== end  of  alarm.conf ==========
```

Valid Value Set

<alarm_type>: LOL; LOS; OOF; AIS; RAI; LCD; LPF; CFD; CRC; BRB; LOSW; ATTEN; SNRM; IBCF; PDISA; NTRF

<severity>: critical; major; minor; non.

<alarm_description>: Any text string (The only field that is *case sensitive*.)

Alarm Logger

Alarm Logger basically logs all the alarms. If there is an active alarm, it will be logged into the CurrentLog and if it is a cleared alarm, it will remove the corresponding active alarm from the CurrentLog and put it into HistoryLog. The user will be able to see the detailed information about the alarm: what type of alarm it is; module ID, source ID and link ID it comes from; the time it was generated or cleared (for cleared alarm only); etc.

There are two logs in *alarm_logger* module – CurrentLog and HistoryLog. CurrentLog contains all the currently active alarms. HistoryLog contains all the cleared alarms. These two logs are stored in memory, not as files in flash. The alarm entries are listed as the most recent alarm on top of the screen.

The user can retrieve information from these two logs and perform some operations to manage the logs. By providing some attribute values, the user can find some particular alarm entry or all the possible alarm entries from each log. By omitting all trailing attribute values or by inputting 0 for all non-trailing attribute values, the user does not care about the value of this attribute and any value will match it. There are more restrictions on *delentry* than *getlatest* and *getnext*; the user has to provide either event_id or the combination of alarm_type, module_id, source_id and link_id, or both in order to perform the *delentry* command.

The maximum number of alarm entries stored in each log is **500** for CurrentLog and **1500** for HistoryLog. The user can set the size to any number between 0 and the maximum number, exclusively. If the current size is larger than the maximum size the user wants to set, the excessive alarm entries will be trimmed. If the maximum size is reached, any new incoming alarm will cause the oldest alarm to be deleted.

Operations like *delentry*, *setsize*, and *clearlog* that try to change the existing CurrentLog are dangerous. This may cause some unexpected reactions because some active alarms were manually removed.

AL Commands

Getlatest

Syntax:

al ***getlatest <logId> [<eid*> <type*> <bid*> <mid*> <sid*> <lid*>]***

Description:

Returns the latest alarm entry that matches all the fields provided

Example:

al **getlatest clog**

Finds the very latest alarm in CurrentLog

Table J lists the elements used in the getlatest valid value set.

Table J. Getlatest Valid Value Set

Value	Description
[]	optional parameters
*	use 0 as a wild card (matches any value)
<logId>	clog; hlog
<eid>	unsigned integer number except zero
<bid>	master; slave
<type>	LOL; LOS; OOF; AIS; RAI; LCD; LPF; CFD; CRC; BRB; LOSW; ATTEN; SNRM; IBCF; PDISA; NTRF
<mid>	E1D, SHDSL
<sid>	not implemented
<lid>	not implemented

Getnext

Syntax:

al ***getnext <logId> [<eid*> <type*> <bid*> <mid*> <sid*> <lid*>]***

Description:

This command returns the next alarm entry that matches all the fields provided, searching from the next entry that the current pointer points to. But where the current pointer points to totally depends on the last operation to set the current pointer.

Note: To make sure that getnext finds the expected entry, always enter *getlatest* first (which resets the current pointer to the first entry of the log) with the same parameters as *getlatest*.

Example:

al **getnext clog**

Finds the next latest alarm in the current log

Table K lists the elements used in the getnext valid value set.

Table K. Getnext Valid Value Set

Value	Description
[]	optional parameters

Table K. Getnext Valid Value Set (Cont'd)

Value	Description
*	use 0 as a wild card (matches any value)
<logId>	clog; hlog
<eid>	unsigned integer number except zero (1~4, 294, 967, 295)
<type>	LOL; LOS; OOF; AIS; RAI; LCD; LPF; CFD; CRC; BRB; LOSW; ATTEN; SNRM; IBCF; PDISA; NTRF
<bid>	master; slave
<mid>	E1D, SHDSL
<sid>	1; 2; …; 8 (Always use 0, currently not implemented)
<lid>	1; 2; …; 8 (not implemented)

Delentry

Syntax:

al ***delentry <logId> <eid> [<type> <bid> <mid> <sid> <lid>]***

Description:

Deletes the alarm entry that matches all the fields provided.

Example:

al **delentry clog**

Deletes the latest alarm entry in the current log.

Table L lists the elements used in the delentry valid value set.

Table L. Delentry Valid Value Set

Value	Description
[]	optional parameters
<logId>	clog; hlog
<eid>	unsigned integer number except zero
<type>	LOL; LOS; OOF; AIS; RAI; LCD; LPF; CFD; CRC; BRB; LOSW; ATTEN; SNRM; IBCF; PDISA; NTRF
<bid>	master; slave
<mid>	E1D, SHDSL
<sid>	not implemented

Table L. Delentry Valid Value Set

Value	Description
<lid>	not implemented

Setsize

Syntax:

al ***setsize <logId> <size>***

Description:

Sets the maximum log size for the logID.

Example:

al **setsize clog 99**

Sets the current log maximum size to be 99.

Table M lists the elements used in the setsize valid value set.

Table M. Setsize Valid Value Set

Value	Description
<logId>	clog; hlog
<size>	positive integer number between 0 and max size, exclusively

Getsize

Syntax:

al ***getsize <logId>***

Description:

Returns the maximum log size for the logID.

Example:

al **getsize clog**

Gets the current log maximum size.

Table N lists the elements used in the getsize valid value set.

Table N - Getsize Valid Value Set

Value	Description
<logId>	clog; hlog
<size>	positive integer number between 0 and max size, exclusively

Clearlog

Syntax: This page intentionally left blank.

al ***clearlog <logId>***

Description:

Removes all the alarm entries for the logID.

Example:

al **clearlog clog**

Removes all the alarm entries in the current log.

Table O lists the elements used in the clearlog valid value set.

Table O - Clearlog Valid Value Set

Value	Description
<logId>	clog; hlog

Show

Syntax:

al ***show <logId> [oam] [<sev*> <type*> <bid*> <mid*> <sid*> <lid*>]***

Description:

Lists all matched alarm entries for the logID; lists all if no attribute values are entered. Using the oam argument will display only the OAM alarms.

Example:

al **show clog**

Lists all alarm entries in the current log.

Table P lists the elements used in the show valid value set.

Table P. Show Valid Value Set

Value	Description
[]	optional parameters
*	use 0 as a wild card (matches any value)
<logId>	clog; hlog
<sev>	critical, major, minor and non
<type>	LOL; LOS; OOF; AIS; RAI; LCD; LPF; CFD; CRC; BRB; LOSW; ATTEN; SNRM; IBCF; PDISA; NTRF
<bid>	master; slave
<mid>	E1D, SHDSL
<sid>	not implemented
<lid>	not implemented
<size>	positive integer number between 0 and maximum size, exclusively

```
192.168.160.102> al show clog
event_id sa col severity type brd_id mod_id sid lid set_time
-------- -- --- -------- ---- ------ ------ --- --- ------------------
***** CurrLog: curr_size = 8, max_size = 100
```

Valid Value Set

Table Q lists the elements used in the valid value set.

Table Q. Show Valid Value Set

Value	Description
[]	optional parameters
*	use 0 as a wild card (matches any value)
<logId>	clog; hlog
<eid>	unsigned integer number except zero
<sev>	critical, major, minor and non
<type>	LOL; LOS; OOF; AIS; RAI; LCD; LPF; CFD; CRC; BRB; LOSW; ATTEN; SNRM; IBCF; PDISA; NTRF
<bid>	master; slave
<mid>	E1D, SHDSL

Table Q. Show Valid Value Set (Cont'd)

Value	Description
<sid>	not implemented
<lid>	not implemented
<size>	positive integer number between 0 and maximum size, exclusively

Interface Pin Assignments

This chapter provides information on GoWide E1 ATM interface pin assignments.

Chapter 6

Interface Pin Assignments

The console port interface pin assignments are listed in Table R.

Table R. Console Port Interface Pin Assignments

Signal Name	Pin
TXD	2
RXD	3
GND	5

The digital subscriber line (RJ-45) interface pin assignments are listed in Table S.

Table S. Digital Subscriber Line (RJ-45) Interface Pin Assignments

Signal Name	Pin
NC	1
NC	2
NC	3
Tip	4
Ring	5
NC	6
NC	7
NC	8

The Ethernet (RJ-45) interface pin assignments are listed in Table T.

Table T. Ethernet (RJ-45) Interface Pin Assignments

Signal Name	Pin
RD +	1
RD –	2
TD +	3
TD –	6

The E1 (RJ-45) interface pin assignments are listed in Table U.

Table U. E1 (RJ-45) Interface Pin Assignments

Signal Name	Pin
Tip TX	1
Ring TX	2
Shield	3
Tip RX	4
Ring RX	5
Shield	6
NC	7
NC	8

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Chapter 7

G.shdsl Configuration

This chapter provides information on specific instances of G.shdsl configuration.

G.shdsl Configuration

Only expert users should change the settings in the G.shdsl Setting page. The default settings are shown in Table V.

Table V. G.shdsl Default Settings

Item	Setting
Unit Type	CPE
Standard	Auto
Asymmetric PSD	Disable
Power Backoff	Enable

The Unit Type is set as a Network Termination Unit, Customer Premise Equipment (CPE), which enables the unit to be connected to a Central Office (CO) unit, usually a DSLAM.

The Standard is set to Auto, but can be manually changed to either Annex A or B.

The Asymmetric PSD (Power Spectral Density) allows the selection of what type of power spectral density mask the transceiver will use. The possible values are R1 (768 kbps for Annex A), R2 (1544 kbps for Annex A) or Disable (use symmetric PSD).

The Power Backoff is set to Enable, which allows the transmit power on the DSL link to be reduced by 6 dB when the estimated power loss is 6 dB or less.