



***PacketStar*<sup>®</sup> PSAX**  
**12-Port Medium-Density**  
**DS1/E1/DS0A CES Module**  
**User Guide (DS0A Mode)**  
**for *PacketStar*<sup>®</sup> PSAX Multiservice Media**  
**Gateways**

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This document was prepared by the Information Design and Development Team of Lucent Technologies, *PacketStar* PSAX products. Offices are located in Landover, Maryland, USA.

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## Warranty Information

### Software and Hardware Limited Warranties

Lucent Technologies provides a 90-day limited software warranty, and a one-year limited hardware warranty on this product. Refer to the *Software License and Limited Warranty Agreement* and the *Lucent Technologies InterNetworking Systems Global Warranty* that accompanied your package for more information.

### Warranty Warnings

**▲ CAUTION:**  
Modifying or tampering with PSAX chassis components may void your warranty. Any modification to this equipment not expressly authorized by Lucent Technologies may void your granted authority to operate such equipment.

**▲ CAUTION:**  
When inserting modules into the chassis, slide them gently, not forcefully. Excessive force may cause the modules to be seated improperly in the chassis, and result in possible damage to the module or the chassis. Install or remove modules one at a time. Doing this aids in preventing the PSAX system from indicating any erroneous failure messages, and allows the PSAX system to reinitialize and display the accurate configuration of the module that is inserted.

**▲ CAUTION:**  
Shipping the chassis with removable I/O, server, or CPU modules installed may cause damage to the chassis and the modules. Damage to any of the components in the system resulting from shipping the chassis with removable modules installed will void your warranty. Only Lucent-authorized personnel should ship the PSAX chassis with a module installed.

## Safety Warnings and Information

When installing and operating the *PacketStar*<sup>®</sup> PSAX Multiservice Media Gateway, follow the safety guidelines provided below to help prevent serious personal injury and damage to the equipment. Please read all warnings and instructions supplied before beginning installation or configuration of the equipment. In addition to the general safety information provided below,

you should also refer to the user and installation guides for other important safety information and procedures.

## Regulatory Standards Compliance

### Safety and Electromagnetic Compatibility (EMC)

The following *PacketStar* PSAX systems are compliant with applicable safety and EMC standards when configured with the 12-Port Medium-Density DS1/E1/DS0A CES module (model 24N64):

- PSAX 1000 system
- PSAX 1250 system
- PSAX 2300 system
- PSAX 4500 system

Please refer to the appropriate *PacketStar* PSAX Multiservice Media Gateway user guide or installation guide for additional information.

### Telecommunications

- FCC Part 68 (USA)
- CS-03 Issue 8 (Canada)

## Regulatory Statements

### USA Regulatory Statements

#### FCC Part 68

This equipment complies with Part 68 of the FCC rules. On the back of the PSAX chassis is a label that contains the FCC registration number, in addition to other information. You must provide this information to the telephone company, if they request it. The FCC requires Lucent Technologies to provide you with the following information:

1. This equipment has digital service interface capabilities using RJ-48C and RJ-48H connectors. The facility interface codes with which this equipment complies for digital services are as follows: 04DU9-BN, 04DU9-DN, 04DU9-1KN, and 04DU9-1SN. This equipment has loop start interface capabilities using an RJ-11C connector. The facility interface code with which this equipment complies for service is 02LS2. The service order codes for this equipment are 6.0F for the T1 interface and 9.0Y for the loop start interface.
2. An FCC-compliant telephone network interface jack is built into this equipment and is compatible with interconnections that are Part 68 compliant.

## Legal Notices, Safety, and Regulatory Information

### Regulatory Statements

3. The REN for the Voice 2-Wire Office module when used in this equipment is 0.7B.
4. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service might be required. But if advance notice is not practical, the telephone company will notify you as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe this is necessary.
5. The telephone company might make changes in its facilities, equipment, operations, or procedures that could affect the operation of this equipment. If this happens, the telephone company will provide advance notice for you to make necessary modifications to maintain uninterrupted service.
6. If you experience trouble with this equipment, or need repairs or warranty information, please refer to the *Lucent Technologies InterNetworking Systems Global Warranty* that accompanied your PSAX product shipment for instructions on obtaining technical support in your area.

If this equipment is causing harm to the telephone network, the telephone company might request that you disconnect the equipment until the problem is resolved.

7. This equipment has no user-serviceable parts.

This equipment cannot be used on public coin telephone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact your state public utility commission, public service commission, or corporation commission for information.

## Canadian Regulatory Statements

### CS-03 Issue 8

**NOTICE: This equipment meets applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.**

The Ringer Equivalence Number (REN) assigned to the Voice 2-Wire Office module denotes the percentage of the total load to be connected to a telephone loop, which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the REN of all devices does not exceed 5.

The REN for the Voice 2-Wire Office module when used in the PSAX system is 0.7B.

### SH-03 Version 8

**AVIS: Le présent matériel est conforme aux spécifications techniques d'Industrie Canada applicables au matériel terminal. Cette conformité est confirmée par le numéro d'enregistrement. Le sigle, IC,**

**placé devant le numéro d'enregistrement, signifie que l'enregistrement s'est effectué conformément à une déclaration de conformité et indique que les spécifications techniques d'Industrie Canada ont été respectées. Il n'implique pas qu'Industrie Canada a approuvé le matériel.**

Le nombre équivalent de sonnerie (REN) attribué au module central bifilaire (Voice 2-Wire Office) correspond au pourcentage de la charge totale à connecter à un circuit téléphonique bifilaire; il est utilisé par l'appareil pour prévenir la surcharge. Le circuit peut être terminé par n'importe quelle combinaison d'appareils, à la seule condition que le total des REN de ces derniers ne dépasse pas cinq.

Lorsqu'il est utilisé dans le système PSAX, le module central bifilaire possède un REN de 0,7 B.

## Legal Notices, Safety, and Regulatory Information

### Regulatory Statements

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# 1 Getting Started



## Purpose of This Guide

The *PacketStar® 12-Port Medium-Density DS1/E1/DS0A CES Module User Guide (DS0A Mode)* provides information about the following:

- Configuring the ports, channels, and interfaces for the 12-Port Medium-Density DS1/E1/DS0A CES module when it is configured for the DS0A mode
- Provisioning connections for PVCs, SVCs, and SPVCs

**Note:** If you are using this module to provision connections for the first time, you should read through this guide before beginning the provisioning process.

## Audience for This Guide

The information in this guide is intended for users who will configure ports and channels for the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode), configure the interface types, and provision connections for the PSAX Multiservice Media Gateway system using the console interface. To configure ports and channels for the 12-Port Medium-Density DS1/E1/DS0A CES module when it is configured for the DS1 mode, see the *PacketStar® PSAX 12-Port Medium-Density DS1/E1/DS0A CES Module User Guide (DS1 Mode)*, 255-700-297.

## What You Should Know

Before you use this document or operate a *PacketStar* PSAX device, you should already understand and have experience with the following:

- Ethernet network capabilities
- Internet Protocol capabilities
- Data network design
- Telephony network design

## Related Reading

### Lucent Technologies Information Products

#### Product Information Library

## Chapter 1 Getting Started

### About Lucent Technologies

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To install and configure your PSAX system and I/O and server modules, read the PSAX publications provided on your Lucent Technologies *PacketStar* PSAX Multiservice Media Gateways Products, Product Information Library CD-ROM.

#### Printed Documents

For your convenience, many of the documents included on the *PacketStar* PSAX Multiservice Media Gateways Product Information Library CD-ROM are also available in printed form. You can order these documents through the Lucent Technologies Customer Information Center Web site at: [www.lucentdocs.com](http://www.lucentdocs.com).

#### Other Publications

Numerous books are currently available on the subject of basic telecommunications technology and specific protocols. In addition to such general reading, you should also be familiar with the specifications identified in the appendix entitled "Reference Information" at the end of this guide.

## About Lucent Technologies

Lucent Technologies is the communications systems and technology company formed through the restructuring of AT&T. We bring with us a tradition of more than 125 years of experience and a dedication to superior customer service.

Lucent Technologies manufactures, sells, and services a complete line of customer premises communications units, and commercial and multimedia communications and messaging systems designed and supported by our research and development unit, Bell Laboratories.

Our legacy and our spirit of innovation allow Lucent to provide our customers with the tools needed to communicate effectively, any time and anywhere, and to integrate the latest technologies into real-life solutions that help make business work.

## For More Information

To learn more about the *PacketStar* PSAX family of Multiservice Media Gateways and the complete line of Lucent Technologies products, visit our Web site at [www.lucent.com](http://www.lucent.com).

## About the *PacketStar*<sup>®</sup> PSAX Product Family

Lucent Technologies provides a complete range of PSAX Multiservice Media Gateways in the *PacketStar* PSAX family, as described in Table 1-1.

Table 1-1. PacketStar PSAX Product Family

Target Market	Device Name	Application/Description
Carrier-Class Office	PSAX 1000	<p>The <i>PacketStar</i> PSAX 1000 Multiservice Media Gateway is designed to provide a full range of central office-based multiservice media gateway functions. Ideal for the central office or a large enterprise's multiservice media gateway, the <i>PacketStar</i> PSAX 1000 system provides highly reliable network access for time-division multiplex voice, frame relay, and ATM data applications.</p> <p>Supporting six slots (19-inch chassis) for common equipment modules and I/O and server modules, a 1.2 Gbps ATM cell bus architecture, carrier-class reliability, full redundancy, and a full range of interfaces such as DS1/E1, DS3/E3, OC-12c/STM-4c, 10/100Base-T Ethernet, and serial, the PSAX 1000 system is a cost-effective access switch solution for connecting to legacy equipment.</p>
Carrier-Class Office	PSAX 1250	<p>The <i>PacketStar</i> PSAX 1250 Multiservice Media Gateway is designed to provide a full range of central office-based multiservice ATM access functions. Ideal for the central office or a large enterprise's multiservice media gateway, the <i>PacketStar</i> PSAX 1250 system provides highly reliable network access for time-division multiplex voice, frame relay, and ATM data applications.</p> <p>Supporting ten slots (19-inch chassis) or 14 slots (23-inch chassis) for I/O and server modules, a 1.2 Gbps ATM cell bus architecture, carrier-class reliability, full redundancy, and a full range of interfaces such as DS1/E1, DS3/E3, OC-12c/STM-4c, 10/100Base-T Ethernet, and serial, the PSAX 1250 system is a cost-effective access switch solution for bridging to legacy equipment.</p>
Carrier-Class Office	PSAX 2300	<p>The <i>PacketStar</i> PSAX 2300 Multiservice Media Gateway offers carrier-grade, high-density multiservice ATM access functions. Designed as the multiservice media gateway for the central office or for a large enterprise customer, the <i>PacketStar</i> PSAX 2300 system provides network access for time-division multiplex voice, frame relay, and ATM data applications.</p> <p>Supporting 15 slots for I/O and server modules, a 3.9 Gbps ATM cell bus architecture, carrier-class reliability, full redundancy, provisions for OC-12c/STM-4c interfaces, N x T1/E1 module protection switching, and a full range of interfaces such as DS1/E1, DS3/E3, 10/100Base-T Ethernet, and serial, the PSAX 2300 system solves many demanding and diverse network design challenges with ease.</p>

Table 1-1. *PacketStar* PSAX Product Family (Continued)

Target Market	Device Name	Application/Description
Carrier-Class Office	PSAX 4500	<p>The <i>PacketStar</i> PSAX 4500 Multiservice Media Gateway offers up to 10 Gbps of switching capacity, the highest in the <i>PacketStar</i> family, and carrier-class reliability. The PSAX 4500 system offers an unmatched range of service capabilities, end-to-end traffic prioritization, “any-service, any-channel” flexibility, and breakthrough voice technology. The new high-performance midplane design supports 15 interface slots.</p> <p>In four segments, the unique PSAX 4500 midplane allows each segment to be scaled independently to provide nonblocking, redundant chassis bandwidths beyond 10 Gbps. Protection for two groups of four multiport DS3, STS-1e, and E3 modules is provided via an N:1 protection scheme using rear access line interface modules. The protection module can fill in so that on the failure of any one of the four modules, traffic is maintained.</p> <p>Using the latest voice-compression technology, the DSP2x Voice Server modules deliver service providers eight times the capacity of traditional time division multiplex circuits while maintaining toll quality and reducing costs by nearly 30 percent per channel. A single PSAX 4500 system at the edge of the carrier network can transition traffic from a large number of network customers over high-speed OC-12c/STM-4c trunks into the ATM core, managing the whole quickly and efficiently, down to the individual permanent virtual circuit.</p>

## Text Conventions

### Text Types Used in This Document

### Selecting Options, Fields, and Commands

Follow these guidelines to select an option, field, or command on the PSAX console interface windows and to navigate through the windows:

- **To select an option, field, or command**, do one of the following:
  - ~ Press the Up, Down, Left, or Right Arrow to highlight (reverse video image) the option name, field name, or command you want to select and press Enter.
  - ~ Use the alternate keys, K=UP, H=LEFT, L=RIGHT to highlight (reverse video image) the option name, field name, or command you want to select and press Enter. (You can optionally redefine these alternate keys from the User Options window, which is accessible from the Console Interface Main Menu window.)
  - ~ To quickly select a command, you can also simultaneously press Ctrl and the letter underlined in the command.

Once an option name, field, or command is selected, the system responds as described in Table 1-2.

**Table 1-2. System Responses to Selecting Options, Fields, or Commands**

For a selected...	the following occurs:
option name	The window corresponding to the option name is displayed.
field	<p>The following variations occur:</p> <ul style="list-style-type: none"> <li>• The field entry area is blank or contains the default or previously entered value. Press Enter to enter or change data in this field. Press Enter again to exit edit mode.</li> <li>• The field entry area, like the field name, is displayed in reverse video image and contains a predefined set of values, which you can view or select by pressing Enter to navigate forward through these values. To navigate backward through these field values, press Ctrl+H or the Backspace key.</li> </ul> <p>Read-only fields, which you cannot change, are enclosed in square brackets (example: [LineStyle]).</p>
command	<p>The following variations occur:</p> <ul style="list-style-type: none"> <li>• A message in the information line indicating an error or successful completion of the command is displayed.</li> <li>• The next higher level or previous window (<i>window name</i>) is displayed.</li> <li>• The next lower level or succeeding window (<i>window name</i>) is displayed.</li> </ul>

- **To navigate through the Console windows**, use the shortcuts listed in Table 1-3.

**Table 1-3. Shortcut Keys for Navigating Console Interface Windows**

If you want to...	press...
redisplay the previous window	Ctrl+B on the window.
redisplay the Console Interface Main Menu window	Ctrl+G on the window.
refresh the window	Ctrl+R on the window.

## Help Information

The Help windows are accessible from any window in the PSAX system console interface. To access the Help windows, press the ? (Question Mark) key on any window. In addition to the Help windows, the Console Interface windows display contextual help in the information line at the bottom of each window. Contextual help provides information about the command or field

currently highlighted on that window. The information line also displays error codes and responses to commands. All responses and notifications are recorded in a trap log. See Appendix A in the appropriate *PacketStar* PSAX Multiservice Media Gateway user guide for details on displaying the trap log and explanations of the trap messages.

To view the Help windows from the Console Interface Main Menu window, perform the following procedure.

### Viewing and Navigating the Help Windows

**Begin**

- 1 On the window for which help is desired, press the ? (question mark) key.

The Help window for the current console window is displayed (see Figure 1-1):

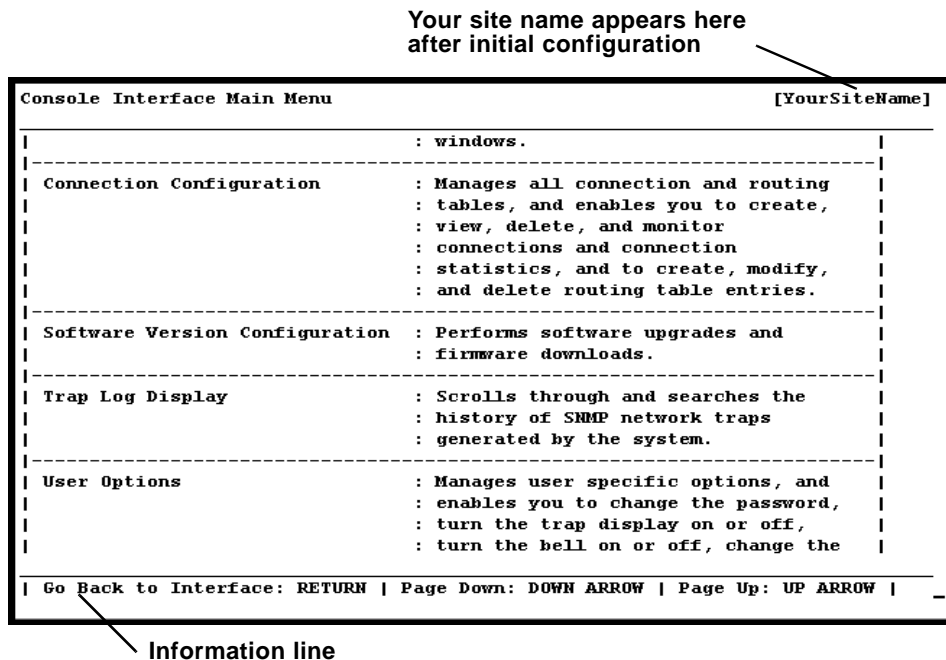


Figure 1-1. Main Menu Help Window

- 2 To display the remaining Help windows for the current console window, press the Down Arrow key.
- 3 To scroll backward through the Help windows for the current console window, press the Up Arrow key.
- 4 To exit Help and return to the current console window, press the Enter key.

**End**

## Technical Support

If you experience a problem with your PSAX system, refer to the *Lucent Technologies InterNetworking Systems Global Warranty*, which accompanied your shipment, for instructions on obtaining support in your area.

## Comments on This Guide

To comment on the *PacketStar® 12-Port Medium-Density DS1/E1/DS0A CES Module User Guide (DS0A Mode)*, please complete the comment card that accompanied your shipment and mail it to the following address:

Senior Manager, Information Design and Development Team  
Lucent Technologies  
*PacketStar* PSAX Products  
8301 Professional Place  
Landover, MD 20785  
USA

You can also fax the comment card to us at: 301-809-4540.

## Before You Begin

Before you start configuring and using your new 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode), be sure you:

- Record your site-specific specifications such as the IP addresses you will use, and the connections and interfaces you will need. Decide which user names and passwords you will assign.
- Make sure you have IP connectivity to all PSAX devices to be managed
- Determine the numbering scheme for the in-band connections you will be using

## Chapter 1 Getting Started

### Before You Begin

---

# 2 Module Description



## Overview of This Module

The 12-Port Medium-Density DS1/E1/DS0A CES module (Figure 2-1) provides DS0A AAL1 circuit emulation services to support SS7 traffic across the network. It also provides a line rate of 64 Kbps per DS0A port. Each port can be independently configured to provide for unstructured CES. For a description of the 12-Port Medium-Density DS1/E1/DS0A CES module when it is configured in the DS1 mode, see the *PacketStar® PSAX 12-Port Medium-Density DS1/E1/DS0A CES Module User Guide (DS1 Mode)*, 255-700-297.

**Note:** The E1 signaling mode and the ISDN PRI service are not currently supported.

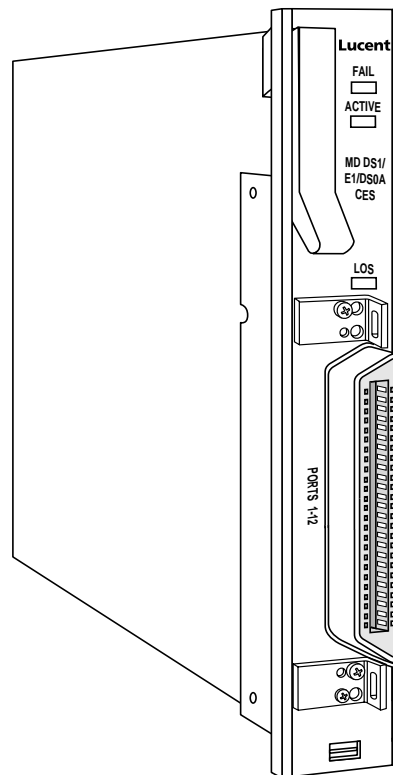


Figure 2-1. 12-Port Medium-Density DS1/E1/DS0A CES Module

## DS0A Mode

With the DS0A interface, the 12-Port Medium-Density DS1/E1/DS0A CES module facilitates the development of in-depth maintenance testing of the links used in the Common Channel Signaling (CCS) network. This access to the CCS link circuit allows the network elements, such as Signaling Transfer Point (STP), to perform link monitoring, automatic link turn down, and trouble sectionalization down to the circuit component level.

Link error performance monitoring of the SS7 signal quality is performed within the protocol structure. Signaling link error is done by two functions. One is on an in-service basis and provides the criteria for taking the link out of service; the other is provided while a link is in the proving state of the initial alignment procedure.

The DS0A is the basic unmultiplexed 64 Kbps DS0 signal carrying a single circuit or channel in the CCS network. This bipolar, NRZ signal is used within 1500 feet of 24-gauge cable from the module interface to the CCS network STP interface. The DS0A signal combines 56 Kbps of SS7 customer data with 8 Kbps of control data. This signal is achieved by the insertion of a control bit after each block of seven information bits. Bits 1 through 7 are used to transmit user information; bit 8 is used for network control. When repeated, this process yields the 64 Kbps DS0A signal. This signal must be aligned with both the bit and byte clocks. The composite clock signal synchronizes bit and byte timing. Figure 2-2 illustrates the DS0A clock and signal formats. Refer to Bellcore TR-TSY-000458 and TR-OPT-000489.

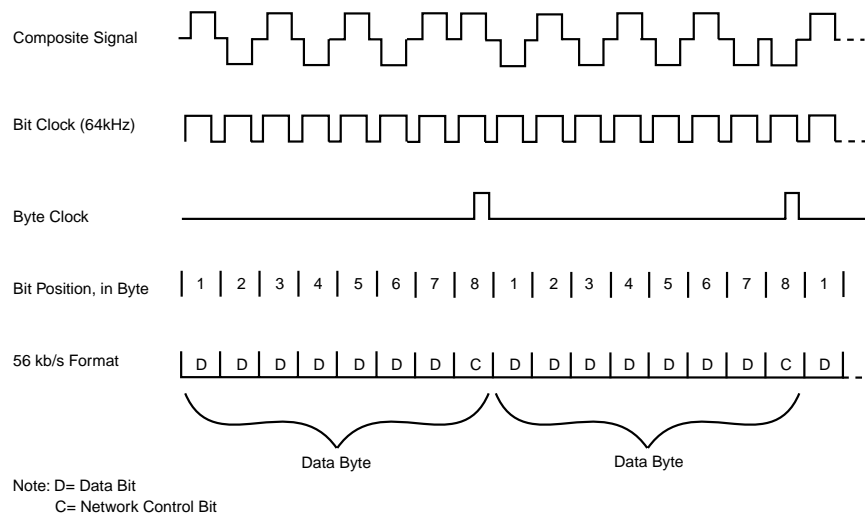


Figure 2-2. DS0A Clock and Signal Formats

## Interoperability

The DS0A signal format allows the 12-Port Medium-Density DS1/E1/DS0A CES module to exchange information with the Multiserial and Quadserial modules that support bit stuffing and 56K-64K CES conversion. The 12-Port Medium-Density DS1/E1/DS0A CES module also terminates the synchro-

nous DS0A signal and creates an AAL1 CES connection. The DS0A signals may be individually multiplexed into a DS1 AAL1 CES stream for transport using the 12-Port Medium-Density DS1 Multiservice, 1-Port Channelized DS3 CES, 1-Port Channelized STS-1e, and 12-Port Medium-Density DS1/E1/DS0A CES modules.

Figure 2-3 shows the interoperability of the 12-Port Medium-Density DS1/E1/DS0A CES module with other PSAX Multiservice Media Gateway modules within an ATM and TDM network. With this module, the PSAX transports SS7 traffic between STPs or other switches in a voice switched network. Note that all local interfaces must be locked to the same composite clock timing source for both rate and phase.

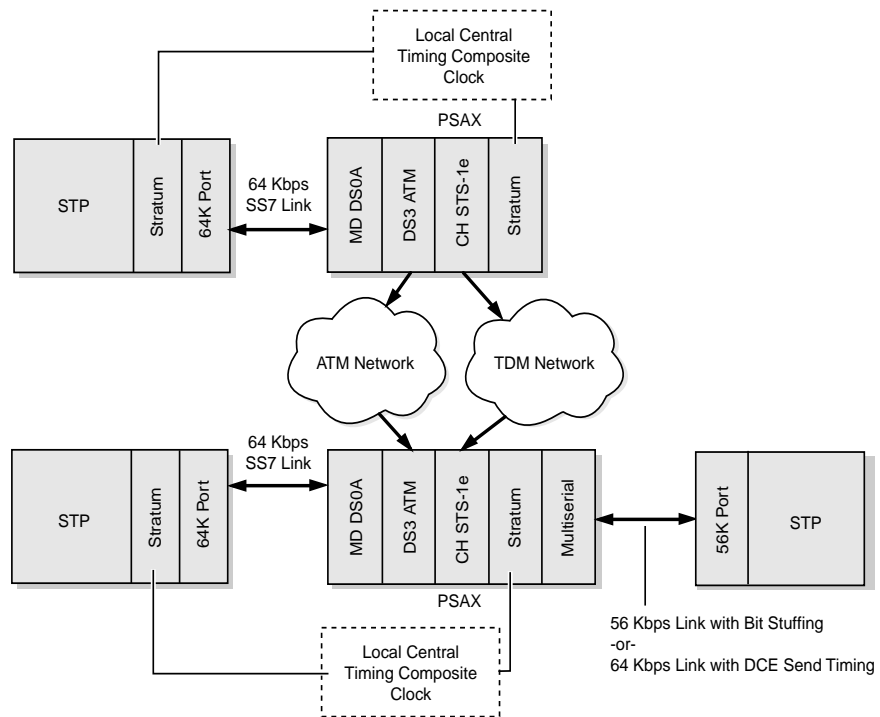


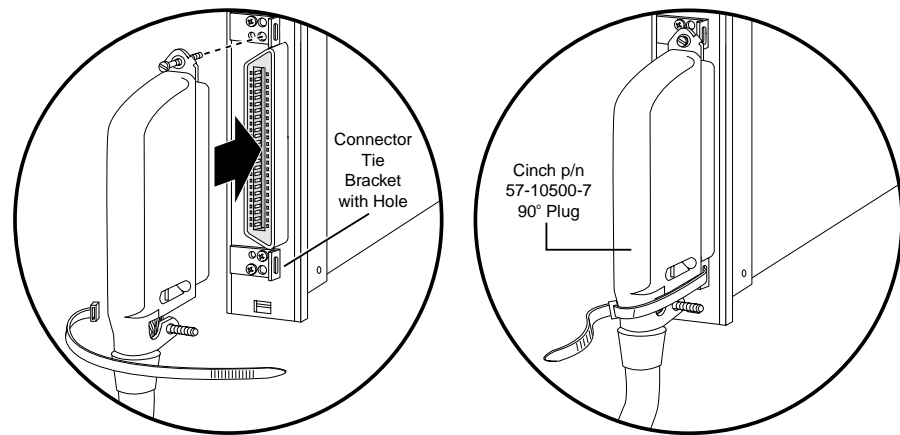
Figure 2-3. 12-Port Medium-Density DS1/E1/DS0A CES Module (DS0A Mode) Network Interoperability

## Connection Options

The 12-Port Medium-Density DS1/E1/DS0A CES module connects to user equipment via a shielded 10-foot Lucent cable assembly (COMCODE 300468030). An equivalent shielded cable with an RJ-48H connector (for example, a Cinch p/n 57-10500-7, 90° plug, a Cinch p/n 57-30500-4, 180° plug, a Cinch p/n 57-10500-271, 270° plug, or equivalent) may also be used. See Figure 2-4 for an illustration of this connection.

## Chapter 2 Module Description

### Connection Options



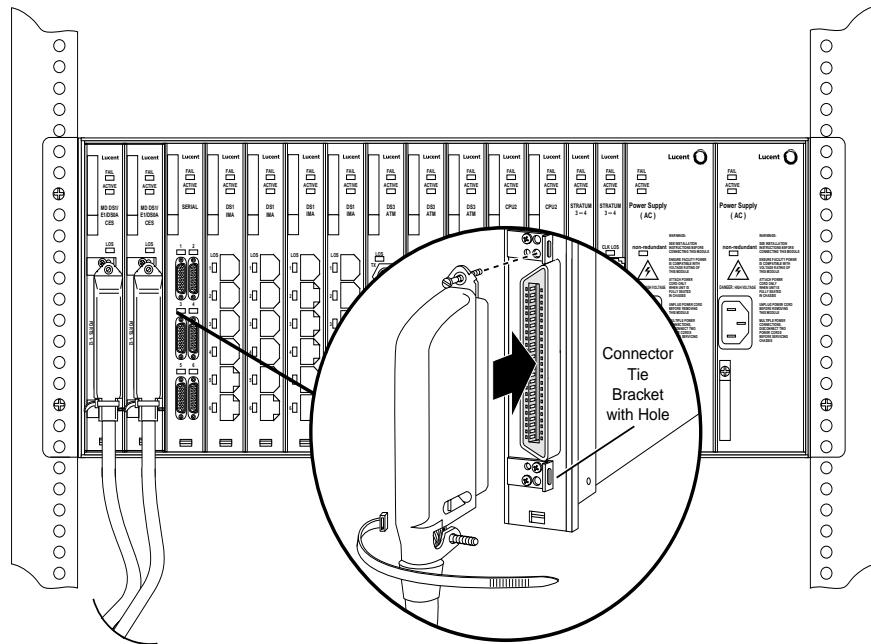
**Figure 2-4. 12-Port MD DS1/E1/DS0A CES Module Cable Connection (with Cinch connector)**

Typically, this cable is used to connect the module to one of the following patch panels:

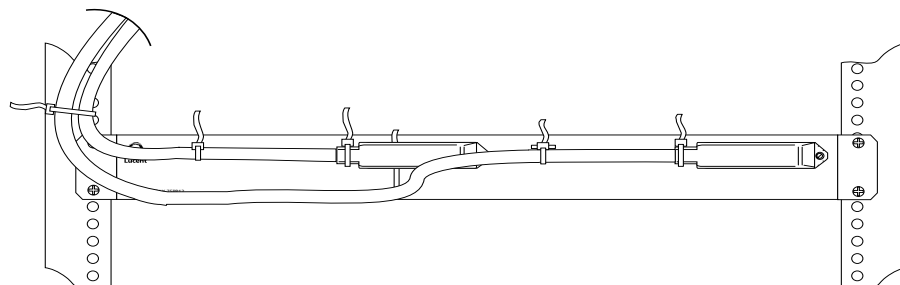
- 12-port BNC Patch Panel (impedance 75 ohms) (COMCODE 300298569) (E1 mode only)
- 24-port RJ Patch Panel (impedance 100 ohms) (COMCODE 300298551)
- 48-port RJ Patch Panel (impedance 100 ohms) (COMCODE 300298544).

**Note:** The Telco connector on this module is not the same as the Mini-Champ connector on the 12-Port Medium-Density DS1 Multiservice module and the 12-Port Medium-Density DS1 IMA module.

Figure 2-5 and Figure 2-6 show the connectors of two modules connected to a 24-port RJ Patch Panel (COMCODE 300298551).

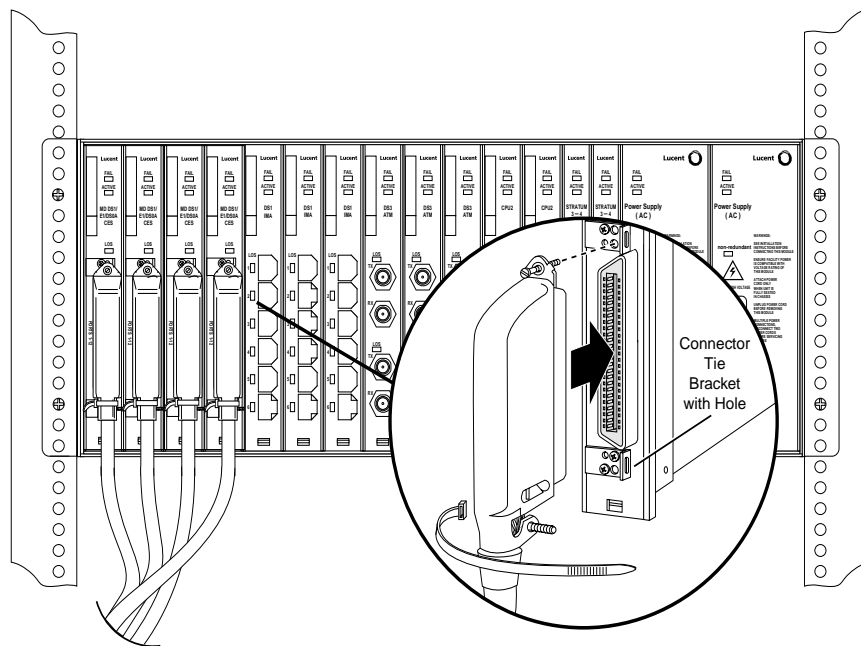


**Figure 2-5. 12-Port Medium-Density DS1/E1/DS0A CES Modules Connected to 24-port RJ Patch Panel (Telco frame with modules)**

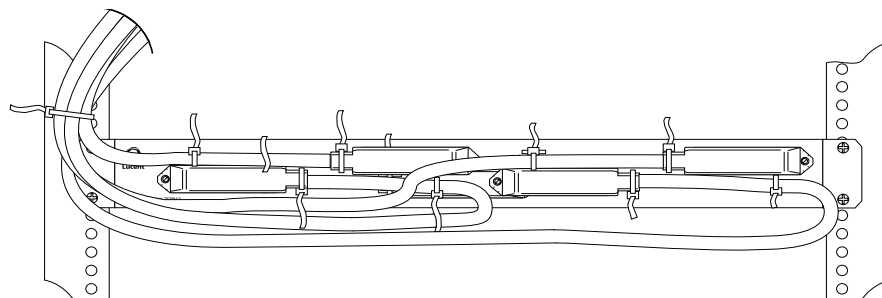


**Figure 2-6. 12-Port Medium-Density DS1/E1/DS0A CES Modules Connected to 24-port RJ Patch Panel (Telco frame with patch panel)**

Figure 2-7 and Figure 2-8 show the connectors of four modules connected to a 48-port RJ Patch Panel (COMCODE 300298551).



**Figure 2-7. 12-Port Medium-Density DS1/E1/DS0A CES Modules Connected to 48-port RJ Patch Panel (Telco frame with modules)**



**Figure 2-8. 12-Port Medium-Density DS1/E1/DS0A CES Modules Connected to 48-port RJ Patch Panel (Telco frame with patch panel)**

These patch panels are separately orderable. See the *Packetstar® PSAX CO Patch Panel and Cable Installation Guide*, 255-700-117, for instructions. Further connections to user equipment may be made per the specifications outlined in ANSI T1.403-1999. See Appendix A, “Pin Configurations,” for more details.

## Software Features

The 12-Port Medium-Density DS1/E1/DS0A CES (DS0A Mode) module supports the following circuit emulation services:

- Unstructured DS0A signal transport
- 1x64 Kbps CES with AAL1
- Trunk Conditioning

## Hardware Features

The 12-Port Medium-Density DS1/E1/DS0A CES (DS0A Mode) module provides the following hardware features:

- Number of ports: 12
- Connector type: one 25-pair, 100-ohm, RJ-48H, 50-pin Telco connector (receptacle) (see Appendix A for pinouts)
- Line rate: 64 Kbps
- Physical interfaces supported: ANSI T1.403; ITU-T G.703, ITU G.704; Bellcore TR-TSY-000458, TR-OPT-000489
- Line encoding mode: AMI
- Loopback capabilities: line loopback, transmit pattern, monitor pattern mode, transmit and monitor pattern mode
- Line buildout: Up to 1500 feet
- Framing mode: N/A
- Transmit clock: composite clock DS0A set as synchronization source for Stratum
- Pulse: 15.6 ms pulse width NRZ, 8.0 V pp, per TR-TSY-000458

## Hardware Specifications

Table 2-1 shows the general physical and environmental hardware specifications for the I/O and server modules.

**Table 2-1. Physical Hardware Specifications for the I/O and the Server Modules**

Specification	Description
Dimensions	17.3 cm high x 2.41 cm wide x 23.2 cm deep (6.8 in. high x 0.95 in. wide x 9.13 in. deep)
Weight	0.45 kg (1.0 lb.)
Operating temperature	0° to 50° C (32° to 122° F)
Operating humidity	5% to 85% relative humidity
Storage temperature	-40° to 70° C (-40° to 158° F)

## Performance and Power Specifications

Table 2-2 describes the chassis speed, power consumption, and memory allocation specifications for this module.

**Table 2-2. Performance and Power Specifications for the 12-Port Medium-Density DS1/E1/DS0A CES Module (DS0A Mode)**

Module	Total Amount of SDRAM	Module Program and Data Space	Maximum Input Buffer *	Output Buffer	Chassis Speed †	Power Consumption
12-Port Medium-Density DS1/E1/DS0A CES (MD DS1/E1/DS0A CES)	8 MB	8 MB	2 cells/port	16 cells/port	High Speed	11.5 W

\* The I/O buffers carry 16,384 cells per megabyte.

† This column relates only to the performance of the module in a PSAX chassis. The speed relates to the performance of the data being passed through the midplane or backplane of a chassis. A high-speed module will only run at high speed (1.23 Gbps) in a chassis that has a high-speed bus (PSAX 4500 chassis). High-speed modules will only run at 650 Mbps in any other chassis. Low-speed modules will always run at 650 Mbps in any chassis.

## Module Placement

The 12-Port Medium-Density DS1/E1/DS0A CES module is installed in any PSAX chassis slot intended to contain an I/O or server module, with the following exception: the DS0A mode currently is only supported in the PSAX 1250 chassis. If you are installing the module in a newly installed PSAX chassis, be sure to follow your facility site plan for placing this module in the correct location in the chassis.

**Note:** When operating this module in the DS0A mode, the Stratum 3–4 module you use in the chassis should be one with the PEC NS20N053DC and COMCODE 300412699, or a subsequent model.

## LED Indicators

Table 2-3 describes how the light-emitting diode (LED) indicators on the 12-Port Medium-Density DS1/E1/DS0A CES module faceplate respond to different module conditions. These LEDs indicate if the module is installed and operating properly.

**Table 2-3. LED Indicators for the 12-Port Medium-Density DS1/E1/DS0A CES Module**

<b>Module Status</b> <b>LED</b>	<b>Initial Power-On</b>	<b>No Configured Ports</b>	<b>One or More Configured Ports</b>	<b>No Cable on Port</b>	<b>Cable on Port</b>
FAIL (red)	Lights briefly <sup>1</sup>	Not lit	Lights only when the module is not functioning	N/A	N/A
ACTIVE (green)	Lights briefly <sup>1</sup>	Not lit	Lights only when the module is functioning properly	N/A	N/A
LOS [Loss of Signal] (yellow)	Lights briefly <sup>2</sup>	N/A	Lights only when a port is configured and no signal is received	Lights	<ul style="list-style-type: none"> <li>• Does not light if signal is being received</li> <li>• Lights if signal is missing</li> </ul>
<p><sup>1</sup>Note: After power is initially applied to the system and the system boot is complete, the FAIL and ACTIVE LEDs indicate whether the module has no configured ports (red), or one or more configured ports (green).</p> <p><sup>2</sup>Note: After power is initially applied to the system and the system boot is complete, this loss of signal LED indicates whether the port has a cable connected to it.</p>					

## Chapter 2 Module Description

### Hardware Features

---

# 3 Configuring Ports and Channels Using the Console



## Overview of This Chapter

This chapter describes how to configure ports and channels for the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode) on the PSAX Multiservice Media Gateway system console interface.

## Loopback Configuration Options

To aid network troubleshooting and testing, loopback capability is provided for the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode). The loopback option on the module port and channel configuration window enables you to verify the integrity of a port by transmitting a received signal back to the source. Selecting a loopback option is described in the module configuration procedure provided in this chapter.

Figure 3-1 illustrates the line loop option.

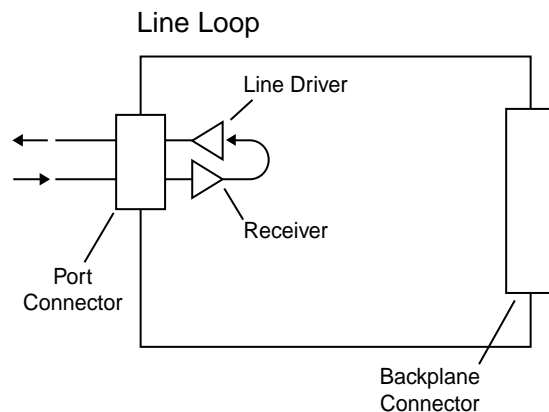


Figure 3-1. Line Loop Loopback Configuration Option

## Configuring the Module

The 12-Port Medium-Density DS1/E1/DS0A CES module has 12 physical ports, which may be used for DS0A circuit emulation services. You must first configure the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode) before setting up connection provisioning. To configure ports and channels for the 12-Port Medium-Density DS1/E1/DS0A CES module (DS1

Mode), see the *PacketStar® PSAX 12-Port Medium-Density DS1/E1/DS0A CES Module User Guide (DS1 Mode)*, 255-700-297.

**Note:** The E1 signaling mode is not supported in this release.

## Configuring Ports and Channels in the DS0A Mode

To configure the 12-Port Medium-Density DS1/E1/DS0A CES module ports and channels, perform the steps in the following procedure.

### Configuring the Ports and Channels

#### *Begin*

- 1 On the Console Interface Main Menu window (see Figure 3-2), select the Equipment Configuration option and press Enter.

```
Console Interface Main Menu                               [YourSiteName]

Site-Specific Configuration
Equipment Configuration
Connection Configuration
Software Version Configuration
Trap Log Display
User Options
Diagnostics
Remote Database Operation

Save Configuration
Leave Console Interface

* Use the underlined letter with the control key as a hotkey.
* Press Ctrl-G at any time to go back to the Main Menu.
* Press ? at any time for help.

-----
Configure and manage ports, channels, and interfaces.
```

Figure 3-2. Console Interface Main Menu Window (Equipment Configuration Selected)

The Equipment Configuration window is displayed (see Figure 3-3 and Figure 3-4).

Equipment Configuration						[YourSiteName]
Slot	Card Type	Status	Alarm Status	SW Version	PEC	Serial #
1	MD-DS1E1DSOA	Primary	NoAlarm	V07.01	NS24N640AA	022820021230
2	MD-DS1E1DSOA	Primary	NoAlarm	V07.01	NS24N640AA	022820021231
3	MD-DS1E1DSOA	Primary	NoAlarm	V07.01	NS24N640AA	022820021232
<b>4</b>	<b>MD-DS1E1DSOA</b>	<b>Primary</b>	<b>NoAlarm</b>	<b>V07.01</b>	<b>NS24N640AA</b>	<b>022820021233</b>
5	MD-DS1-IMA	Primary	NoAlarm	V07.01	NS23N640AA	022820021234
6	MD-DS1-IMA	Primary	NoAlarm	V07.01	NS23N640AA	022820021235
7	MD-DS1-IMA	Primary	NoAlarm	V07.01	NS23N640AA	022820021236
8	MD-DS1-IMA	Primary	NoAlarm	V07.01	NS23N640AA	022820021237
9	Aps-0C-3cMM	Primary	NoAlarm	V07.01	NS20N720BA	022820021238
10	Aps-0C-3cMM	Primary	NoAlarm	V07.01	NS20N720BA	022820021239
11	CPU 2	Primary	NoAlarm	V07.01	NS20N201EA	022820021240
12	CPU 2	Primary	NoAlarm	V07.01	NS20N201EA	022820021241
13						
14						
15						
16						
17						

Update Equipment Display                      Page Down                      Go Back to Main Menu ->

Press RETURN to configure the equipment in slot 4

Figure 3-3. Equipment Configuration Window (As Displayed on the PSAX 1250, PSAX 2300, and PSAX 4500 Console, Page 1)

2 Select **Page Down** to display page 2 of this window (Figure 3-4).

Equipment Configuration						[YourSiteName]
Slot	Card Type	Status	Alarm Status	SW Version	PEC	Serial #
21	Stratum	Standby	NoAlarm		NS20N051AA	1000046076
<b>22</b>	<b>Stratum</b>	<b>Primary</b>	<b>NoAlarm</b>		<b>NS20N051AA</b>	<b>1000046065</b>
23	PwrSupply	Primary	NoAlarm		IS20N040AB	1000002457
24	PwrSupply	Primary	NoAlarm		IS20N040AB	1000002302
25	None					

Update Equipment Display                      Page Up                      Go Back to Main Menu ->

Press RETURN to configure the equipment in slot 22.

Figure 3-4. Equipment Configuration Window (As Displayed on the PSAX 1250, PSAX 2300, and PSAX 4500 Console, Page 2 )

- On the Equipment Configuration window, select an **MD-DS1E1DS0A-** module in the Card Type column and press Enter. The 12-Port Medium-Density DS0A Port Configuration window is displayed (see Figure 3-5).

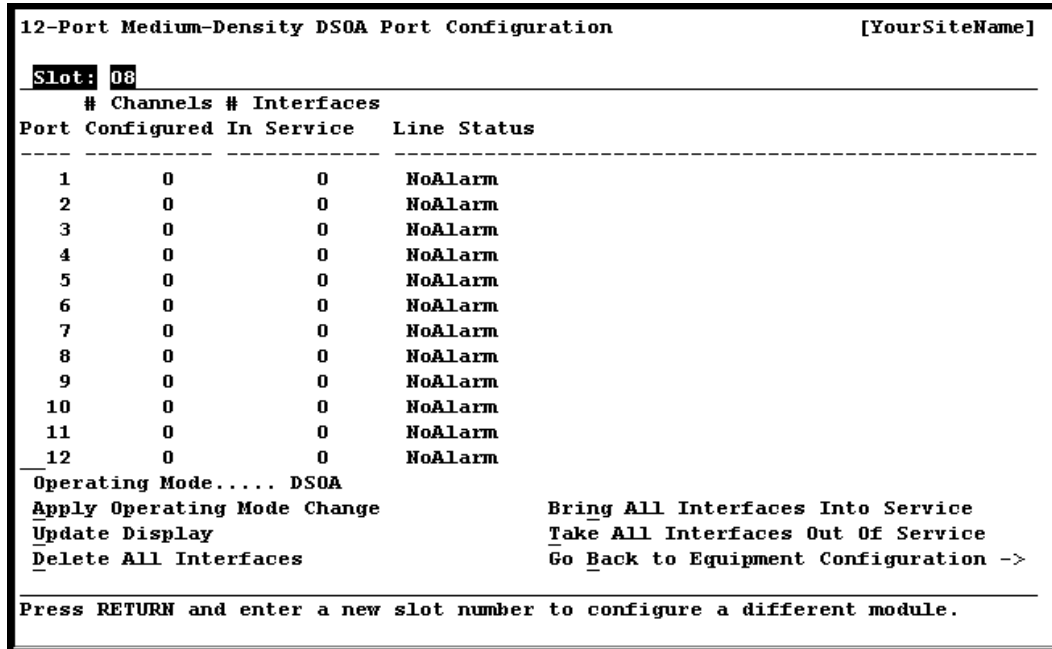


Figure 3-5. 12-Port Medium-Density DS0A Port Configuration Window

This window allows you to select a physical port (1–12) to configure. It also provides the operational status of the channels and interfaces for each port.

**Commands**

The commands in this window have the following functions:

Command	Function
<b>Apply Operating Mode Change</b>	Changes the mode in which the module will operate. After changing the value to <b>DS1</b> or <b>DS0A</b> in the Operating Mode field, select this command to apply the change. The module reboots until the window reflects your selection.  <b>Note:</b> All interfaces must be unconfigured, out of service, and deleted before using this command.
<b>Update Display</b>	Updates the values in the fields to show the most current configuration. Use this command to display the most current information in the Line Status field.

Command	Function
<b>Delete All Interfaces</b>	Deletes the configured interfaces for the 12 ports. You must take all interfaces out of service (using the <b>Take All Interfaces Out Of Service</b> command) before you can use this command to delete all the configured interfaces.
<b>Bring All Interfaces Into Service</b>	Brings the out-of-service configured interfaces for the 12 ports to in-service status.
<b>Take All Interfaces Out Of Service</b>	Takes the in-service configured interfaces for the 12 ports to out-of-service status. You must use this command first before using the <b>Delete All Interfaces</b> command.
<b>Go Back to Equipment Configuration</b>	Redisplays the Equipment Configuration window.

**Field Descriptions** The fields in this window are described in Table 3-1.

**Table 3-1. Field Descriptions for the 12-Port Medium-Density DS0A Port Configuration Window**

Field Name	Field Values	Description
Slot: nn	Default: <b>N/A</b> Range: Variable Format: Numeric	The PSAX chassis slot that the selected module occupies.
Port (display only)	Default: <b>N/A</b> Range: 1-12 Format: Numeric	The physical port on the module.
# Channels Configured	Default: <b>0</b> Range: 0-1 Format: Numeric	The number of channels configured for this port.
# Interfaces Configured	Default: <b>0</b> Range: 0-1 Format: Numeric	The number of interfaces configured for this port that are operationally in service.
Line Status (display only)	Default: <b>No Alarm</b> Range: N/A Format: Predefined	The alarm status of the physical port. Displays the most current information when the <b>Update Display</b> command is selected. <b>Note:</b> Shows <b>No Alarm</b> when no interfaces are configured.
Operating Mode	Default: <b>DS1</b> Range: DS1, DS0A Format: Predefined	Allows you to change the operating mode value to <b>DS1</b> or <b>DS0A</b> . Select the <b>Apply Operating Mode Change</b> command to apply the change. <b>Note:</b> All interfaces must be unconfigured, out of service, and deleted before changing the operating mode.

- 4 Select the line with the port you want to configure. The 12-Port Medium-Density DS0A Port and Channel Configuration window is displayed (see Figure 3-6).

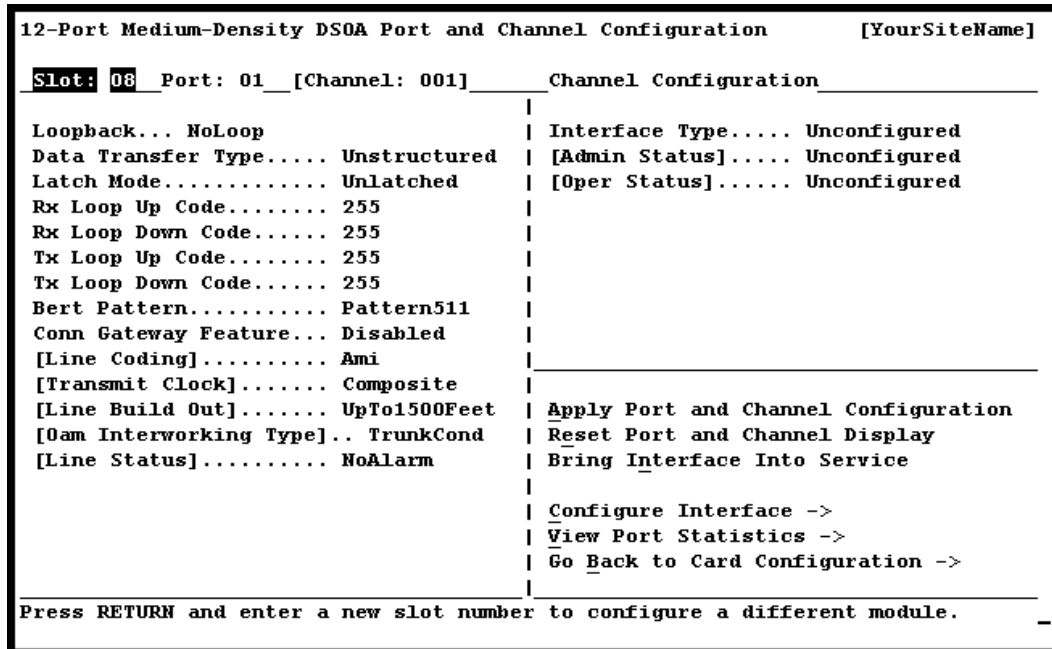


Figure 3-6. 12-Port Medium-Density DS0A Port and Channel Configuration Window

### Commands

The commands in this window have the following functions:

Command	Function
<b>Apply Port and Channel Configuration</b>	For the current port, applies the port configuration field values.  <b>Note:</b> The <b>CompositeClockDS0A</b> value must be selected in the Synchronization Source field in the Stratum Configuration window to apply this configuration. Otherwise, the following trap message will appear: StratumSyncSourceNot-CompositeClock.
<b>Reset Port and Channel Display</b>	Resets the port configuration fields to the last set of saved values.
<b>Bring Interface Into Service</b>	Brings the out-of-service configured interface for the channel to in-service status. The value <b>InService</b> is displayed in the [Admin Status] field.

Command	Function
<b>Take Interface Out Of Service</b>	Takes the in-service configured interface to out-of-service status. The value <b>OutOfService</b> is displayed in the [Admin Status] field.
<b>Configure Interface</b>	Displays the Circuit Emulation Interface Configuration window.
<b>View Port Statistics</b>	Displays the 12-Port Medium-Density DS0A Port Statistics window.
<b>Go Back to Card Configuration</b>	Redisplays the 12-Port Medium-Density DS0A Port Configuration window.

**Field Descriptions**      5 Enter values in the fields on this window according to the information provided in Table 3-2.

**Table 3-2. Field Descriptions for the 12-Port Medium-Density DS0A Port and Channel Configuration Window**

Field Name	Field Values	Description
Loopback	Default: <b>NoLoop</b> Range: N/A Format: Predefined	Indicates whether the port is to be used for loopback testing and, if so, the type of loopback to be performed.
	<b>NoLoop</b>	Indicates that the port will not be used for loopback.
	<b>LineLoop</b>	Indicates that line loop will be used on this port. The received signal will be sent through the receiver and the line driver, and then back out to the originating point.
	<b>TransmitPat</b>	Indicates that a loop code will be transmitted toward the port. <b>Note:</b> This feature is not supported in this release.
	<b>MonitorPatMode</b>	Indicates that transparent data for a particular loop code will be monitored from the port. <b>Note:</b> This feature is not supported in this release.
	<b>TransmitandMonitorPatMode</b>	Indicates that a loop code will be transmitted toward the port, and that transparent data for a particular loop code will be monitored from the port. <b>Note:</b> This feature is not supported in this release.
Data Tx Type (Data Transfer Type)	Default: <b>Unstructured</b> Range: N/A Format: Predefined	Indicates the data transfer type for the interface on this port.
	<b>Unstructured</b>	Indicates that this port has a non-selectable, unstructured (and unchannelized) interface.

**Table 3-2. Field Descriptions for the 12-Port Medium-Density DS0A Port and Channel Configuration Window**

Field Name	Field Values	Description
Latch Mode	Default: <b>Unlatched</b> Range: N/A Format: Predefined	Displays the latch mode status for a particular loop code. <b>Note:</b> This feature is not supported in this release.
	<b>Unlatched</b>	Indicates that the latch mode is disabled.
	<b>Latched</b>	Indicates that the latch mode is enabled.
Rx Loop Up Code	Default: <b>255</b> Range: 0-255 Format: numeric	Indicates the code that activates the line loop mode. <b>Note:</b> This feature is not supported in this release.
Rx Loop Down Code	Default: <b>255</b> Range: 0-255 Format: numeric	Indicates the code that activates the no loop status. <b>Note:</b> This feature is not supported in this release.
Tx Loop Up Code	Default: <b>255</b> Range: 0-255 Format: numeric	Indicates the transmit loop code that causes the far end to enter a line loop mode. <b>Note:</b> This feature is not supported in this release.
Tx Loop Down Code	Default: <b>255</b> Range: 0-255 Format: numeric	Indicates the transmit loop code that causes the far end to exit a line loop mode. <b>Note:</b> This feature is not supported in this release.
Bert Pattern	Default: <b>Pattern511</b> Range: N/A Format: Predefined alphanumeric	Displays the pattern selected for the bit error rate test (BERT). A known pattern of bits is transmitted, and errors received are counted to figure the BER. <b>Note:</b> This feature is not supported in this release.
	<b>Pattern511</b>	Indicates that a 511-bit pattern is used for the BERT.
	<b>Pattern2047</b>	Indicates that a 2047-bit pattern is used for the BERT.
Conn Gateway Feature	Default: <b>Disabled</b> Range: N/A Format: Character	Displays the status of the connection gateway feature. <b>Note:</b> This feature is not supported in this release.
	<b>Disabled</b>	Indicates that the connection gateway feature is disabled. See the <i>PacketStar® Connection Gateway API Specification</i> for more details.
	<b>Enabled</b>	Indicates that the connection gateway feature is enabled.
[Line Coding] (display only)	Default: <b>Ami</b> Range: N/A Format: Predefined	Indicates the type of line coding to be used on this port. (The data format that lets either end of the communications channel correctly interpret messages from the other.)
	<b>Ami</b>	Alternate mark inversion. Indicates zero code suppression.

Table 3-2. Field Descriptions for the 12-Port Medium-Density DS0A Port and Channel Configuration Window

Field Name	Field Values	Description
[Transmit Clock] (display only)	Default: <b>Composite</b> Range: N/A Format: Predefined	Indicates the timing source to be used on this port. The timing source is a signal that provides a timing reference for a transmission link.
	<b>Composite</b>	Indicates that <b>CompositeClockDS0A</b> is used as the timing source. <b>Note:</b> The <b>CompositeClockDS0A</b> value must be selected in the Synchronization Source field in the Stratum Configuration window.
[Line Build Out] (display only)	Default: <b>UpTo1500Feet</b> Range: N/A Format: Predefined	Indicates the non-selectable output attenuation.
	<b>UpTo1500Feet</b>	Indicates the DS0A signal level is transmitted to be received from 0 to 1500 feet
[Oam Interworking Type] (display only)	Default: <b>TrunkCond</b> Range: N/A Format: Predefined	Displays the communications mode selected between the CE and ATM sides of a connection on this port during alarm conditions.
	<b>TrunkCond</b>	Indicates that trunk conditioning will be done for each channel of this port whose corresponding ATM side is alarmed. This improves the communication of the trunk status for TDM traffic. See the <i>PacketStar PSAX Multiservice Media Gateway Trunk Conditioning Application Note</i> for more details.
[Line Status] (display only)	Default: <b>NoAlarm</b> Range: N/A Format: Character	Indicates the line status of the interface. This field can represent multiple failures and a loopback state simultaneously.
	<b>NoAlarm</b>	No alarm is present
	<b>LossOfSignal</b>	Near-end loss of signal.
	<b>RcvAIS</b>	Near-end receiving all 1's.
	<b>RcvTestCode</b>	Near-end detects a test code specified by the user.
	<b>OtherFailure</b>	Any line status not defined here.
Interface Type	Default: <b>Unconfigured</b> Range: N/A Format: predefined character	Indicates the type of end-to-end connection protocol that governs the transmission parameters of the configured channel interface.
	<b>Unconfigured</b>	This interface is not configured.
	<b>CircuitEmulation</b>	This interface is configured for the circuit emulation interface.

**Table 3-2. Field Descriptions for the 12-Port Medium-Density DS0A Port and Channel Configuration Window**

Field Name	Field Values	Description
[Admin Status] (display only)	Default: <b>Unconfigured</b> Range: N/A Format: predefined character	Displays the administrative status of this channel.
	<b>Unconfigured</b>	The interface for this channel is not configured.
	<b>InService</b>	The interface has been brought into service with the <b>Bring Interface Into Service</b> command.
	<b>OutOfService</b>	The interface has not yet been brought into service, or its in-service interface has been set to out of service with the <b>Take Interface Out of Service</b> command.
[Oper Status] (display only)	Default: <b>Unconfigured</b> Range: N/A Format: predefined character	Displays the operational status of this channel and whether the channel is exchanging a valid signal.
	<b>Unconfigured</b>	This channel is not operational because the interface is not configured.
	<b>InService</b>	The configured interface is currently operational, that is, capable of receiving and sending signals.
	<b>OutOfService</b>	The configured interface is not currently operational, that is, not capable of receiving and sending signals, because no connection exists.

- 6 Select **CircuitEmulation** in the Interface Type field.
- 7 Select the **Apply Port and Channel Configuration** command.
- 8 Select the **Bring Interface Into Service** command.
- 9 Select the **Configure Interface** command. The Circuit Emulation Interface Configuration window is displayed. See Chapter 5, “Configuring the Interfaces Using the Console,” for a description of this window.
- 10 Repeat steps 1-9 under “Configuring Ports and Channels in the DS0A Mode” for the remainder of the ports, as needed.

**Note:** Be sure to complete the module port and channel configuration and then the interface configuration for each port before beginning the configuration of a new port.

- 11 You can save the values permanently to the Multiservice Media Gateway system database now, or before you exit the current session of the Multiservice Media Gateway system console interface. See “Saving the Equipment Configuration and Logging Off” on page 3-12.

End

## Port Statistics

### Viewing 12-Port Medium-Density DS0A Port Statistics

Begin

To view statistics for a port, from the 12-Port Medium-Density DS0A Port and Channel Configuration window (Figure 3-6), select the **View Port Statistics** command. The 12-Port Medium-Density DS0A Port Statistics window (see Figure 3-7) is displayed.

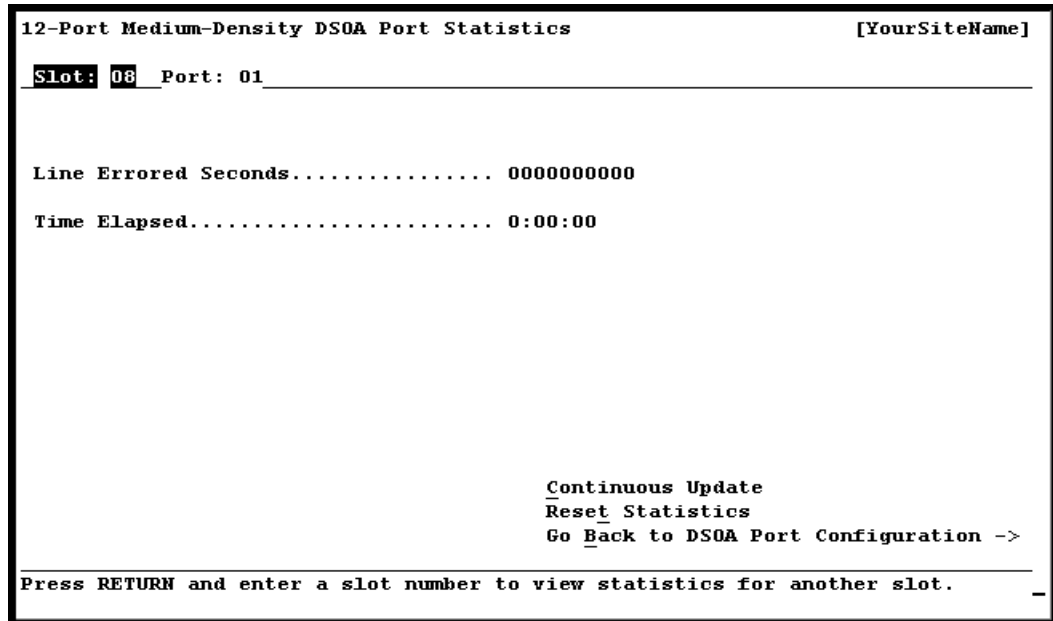


Figure 3-7. 12-Port Medium-Density DS0A Port Statistics Window

### Commands

The commands in this window have the following functions:

Command	Function
<b>Continuous Update</b>	Updates the values in the fields every second.

## Chapter 3 Configuring Ports and Channels Using the Console

### Saving the Equipment Configuration and Logging Off

Command	Function
<b>Reset Statistics</b>	Sets all field values to 0.
<b>Go Back to DS0A Port Configuration</b>	Redisplays the 12-Port Medium-Density DS0A Port and Channel Configuration window.

**Field Descriptions** The fields in this window are described in Table 3-3.

**Table 3-3. Field Descriptions for the 12-Port Medium-Density DS0A Port Statistics Window**

Field Name	Field Values	Description
Line Errored Seconds	Default: <b>000000000</b> Range: N/A Format: numeric	Displays the number of line errored seconds encountered by the DS0A port in the previous 24-hour period. A line errored second is a second in which one or more line code violation error events were detected.
Time Elapsed	Default: <b>0:00:00</b> Range: N/A Format: numeric in hours, minutes, seconds: <i>h:mm:ss</i>	Displays the time elapsed in hours, minutes, and seconds since the last reset.

## Saving the Equipment Configuration and Logging Off

After configuring the module ports and channels, the interface types for each port and channel, and the connections, you must save the values to the PSAX system database. It is recommended that you save your values frequently as you progress through your work, at a minimum, after finishing each stage of work:

- Configuring each module in your system
- Configuring the connections in your system
- Before exiting your current console session

Perform the following procedure to permanently save the values for your system.

### **CAUTION:**

**If your system or location loses power or your current session ends abnormally while you are in the process of configuring the system, and you have not yet saved the values permanently, you will lose all unsaved values you have applied on the various windows.**

---

#### **Begin**

- 1 To return to the Console Interface Main Menu window, press Ctrl+G.

On the Console Interface Main Menu window, **[Modified]** is displayed next to the **Save Configuration** command, indicating you have made changes to your system that are not yet saved to the database.

- 2 Select the **Save Configuration** command.

Wait a few seconds while the system writes the values to the PSAX system database. The system displays the following message while it is executing this command:

```
Saving the equipment and connection information
```

When this function is completed, the system displays the following message:

```
T-SaveConfiguration: saveConfigurationReasonCode=All-OK
```

You can now safely exit the current session.

- 3 Select the **Leave Console Interface** command.

You are now logged off the PSAX system console interface.

#### **End**

---

## Chapter 3 Configuring Ports and Channels Using the Console

### Saving the Equipment Configuration and Logging Off



# 4 Configuring Ports and Channels Using the *AQueView*<sup>®</sup> System



## Overview of This Chapter

This chapter describes how to set the values for the port and channel configuration for the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode), using the *AQueView* Element Management System (EMS).

## Before You Begin

Before you begin to configure the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode), be sure that you have:

- Configured your basic system (see the appropriate *Navis*<sup>™</sup> *AQueView*<sup>®</sup> *Element Management System User Guide*)
- Configured the Stratum 3–4 module (see the appropriate *Navis*<sup>™</sup> *AQueView*<sup>®</sup> *Element Management System User Guide*)

## Loopback Configuration Options

To aid network troubleshooting and testing, loopback capability is provided for the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode). The loopback option on the module port and channel configuration window for the module enables you to verify the integrity of a port by transmitting a received signal back to the source. Selecting a loopback option is described in Chapter 3.

## Using the Right-Click Menu

You can perform various functions in the *AQueView* system by clicking the right mouse button. This section describes the right-click menu options you can use in the various windows in the *AQueView* system when configuring ports and channels.

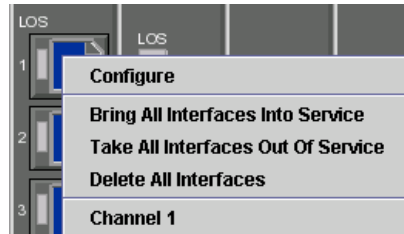


Figure 4-1. Sample Port Configuration (Displaying Right-Click Menu)

Option	Function
<b>Configure</b>	Opens the port and channel configuration window of a module.
<b>Bring All Interfaces Into Service</b>	Sets all configured interfaces on a channel administratively into service.
<b>Take All Interfaces Out of Service</b>	Takes all configured interfaces on a channel administratively out of service.
<b>Delete All Interfaces</b>	Deletes all configured interfaces that are not in service. To delete interfaces, you must first take them administratively out of service.

### Context-Sensitive Help

If you right-click on a field in a port configuration window, a description of that field appears (see Figure 4-2):

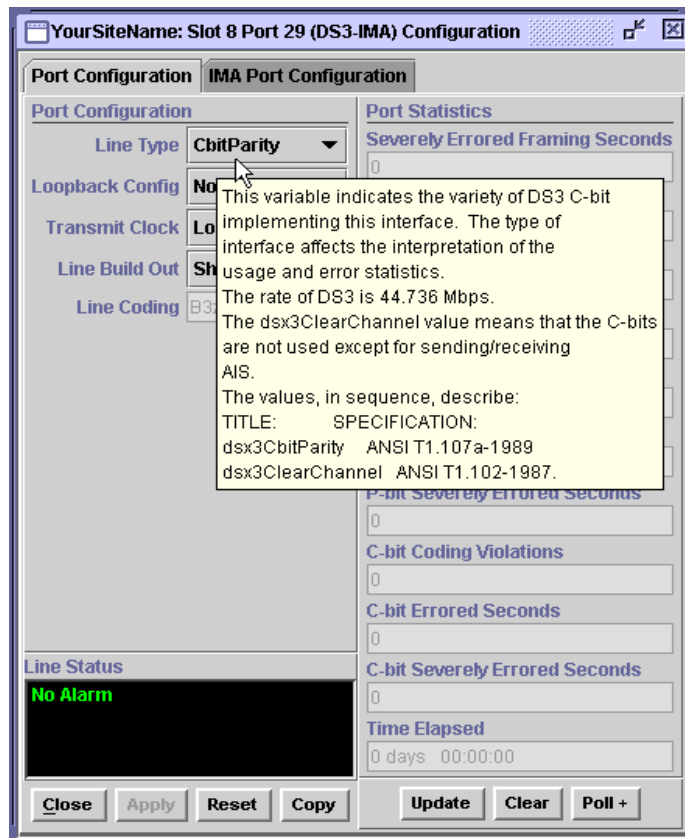


Figure 4-2. Sample of Context-Sensitive Help (Displayed on a Port and Channel Configuration Window)

You must first configure the 12-Port Medium-Density DS1/E1/DS0A CES before you can set up connection provisioning.

## Accessing Port and Channel Configuration Options

Perform the steps in the following procedure to access the port and channel configuration functions for the *AQueView* system.

### Begin

- 1 Log in to the *AQueView* system as a user with Administrator or Configurator access privileges.
- 2 From the Device List or the Open Device window (press Ctrl+D or Ctrl+O), open the PSAX device that contains the module on which you want to configure a port or channel.

The PSAX device that you opened appears in the Front Panel, and its components are also displayed in the Device Tree (see Figure 4-3).

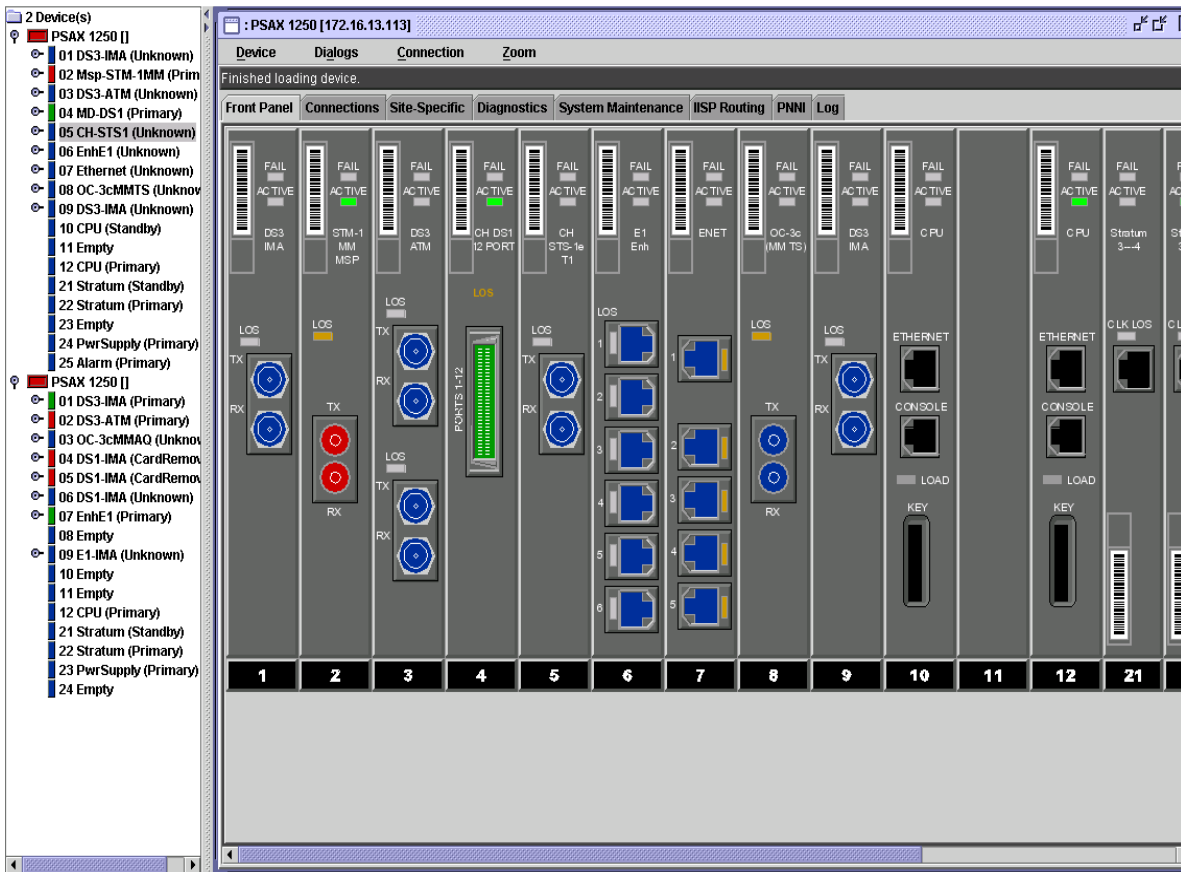


Figure 4-3. Device Tree and Device Window (Displaying a Typical Setup)

*End*

## Configuring the Module

### Changing the Operating Mode

When all ports are unconfigured and out of service, you can switch between the two available operating modes of the module.

To change the module's operating mode to **DS0A**, perform the steps in the following procedure.

*Begin*

- 1 Click the bar code image on the Front Panel (see Figure 4-4), or click the name of the module in the Device Tree.
- 2 Select Module Configuration.

The Module Information window appears (see Figure 4-5).

Information about the values in the fields on this window are provided in Table 4-1.

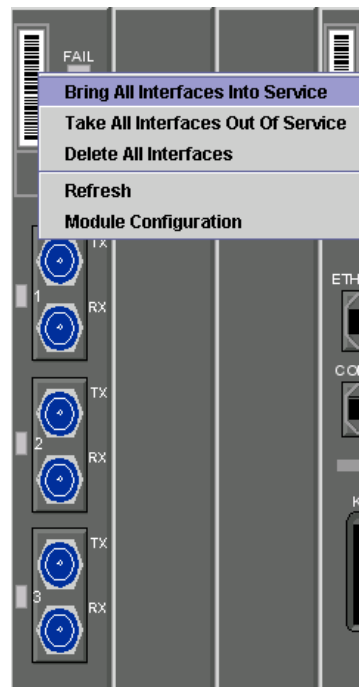
- 3** In the Operating Mode field, select **DS0A** and click **Apply**.

A trap message appears, stating that a module was “removed” and a new module was “inserted.”

- 4** Click **Close**.

**End**

---



**Figure 4-4. Module Right-Click Menu**

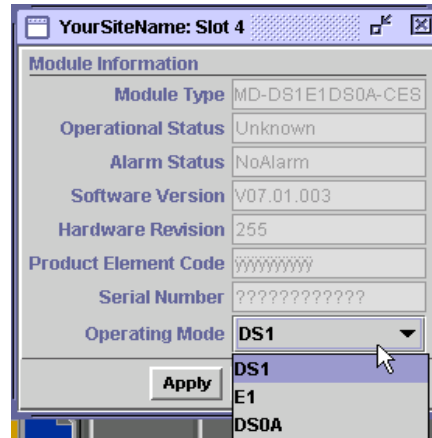


Figure 4-5. Module Information Window

**Buttons**

The buttons on this window have the following functions:

Button	Function
<b>Apply</b>	Applies the configuration field value you set.
<b>Close</b>	Closes this window.

**Field Descriptions**

Table 4-1. Field Descriptions for the Module Information Window

Field Name	Field Values	Description
Slot	Default: <b>N/A</b> Range: 1–25, depending on chassis type Format: Numeric	Indicates the slot number in the PSAXdevice.
Module Type	Default: <b>N/A</b> Range: from PSAX system database Format: Predefined	Indicates the name of the module in the slot. All modules supported by the PSAX systems and the AQueView system are listed in the section "I/O and Server Modules" in this chapter.

Table 4-1. Field Descriptions for the Module Information Window (Continued)

Field Name	Field Values	Description
Operational Status	Default: <b>Unknown</b> Range: N/A Format: Predefined	Displays the operational mode of the module.
	<b>Unknown</b>	Indicates that the module has not been configured.
	<b>Primary</b>	Indicates for an I/O or server module that at least one port or channel on the module has been configured.  Indicates for a CPU module that this module is the primary CPU module.
	<b>Standby</b>	Indicates that the module, in redundant systems, is operating as the backup module to the primary module.  Indicates for the CPU module, in redundant systems, that this module is the backup CPU module.
Alarm Status	Default: <b>No Alarm</b> Range: N/A Format: Predefined	Displays the present alarm condition of the module. For the alarm status conditions, see the table, "Alarm Status Descriptions for PSAX Modules on the Equipment Configuration Window," in the Reference Appendix. For the alarm status conditions, see "Obtaining Hardware Operating Status Data for I/O Modules" in Chapter 6.
Software Version	Default: <b>N/A</b> Range: (from module firmware) Format: Predefined	Displays the version of PSAX system software with which the modules' firmware was released. The software version is encoded in the module firmware. Because not all modules require firmware upgrades with every new PSAX system software release, the software version that is displayed in this window may be lower than the CPU system software that is currently running on the PSAX system. See the most recent <i>Release Note</i> document for the latest software and firmware lineup information.
Hardware Revision	Default: <b>N/A</b> Range: (from module firmware) Format: Predefined	Displays the version of the hardware for the selected module.

Table 4-1. Field Descriptions for the Module Information Window (Continued)

Field Name	Field Values	Description
Product Element Code	Default: <b>N/A</b> Range: (from module firmware) Format: Predefined	Displays the product element code (PEC) used to identify and order this type of module. The PEC is encoded in the module firmware.
Serial Number	Default: <b>N/A</b> Range: (from module firmware) Format: Predefined	Displays the unique serial number of the individual module. The product serial number is encoded in the module firmware. The format of this field is the following: PSAX System Rel. 6.5.0 and later: 12-digit number in the format: <i>YYVVDDnnnnnnn</i> , where <i>YY</i> = year of manufacture <i>VV</i> = vendor ID code (manufacturer and location) <i>DD</i> = date code of manufacture (either month or week depending on vendor's preference) <i>nnnnnnn</i> = sequential number, which in conjunction with <i>YY</i> , <i>VV</i> , and <i>DD</i> , creates a unique number for each hardware component in the PSAX product line For existing products with the 10-digit serial number used in Rel. 6.5.0 or later systems, this number is displayed with two preceding zeros. PSAX Rel. 6.3.0 and earlier: 10-digit number. For products with 12-digit serial numbers used in Rel. 6.3.0 or earlier systems, the first two digits ( <i>YY</i> ) are not displayed.
Operating Mode	Default: <b>N/A</b> Range: (module-dependent) Format: Predefined	Displays the module type for those modules that can be switched between two module types, for example, DS3 and E3. This field is displayed only for modules that support a switchable module type, for example, the 3-Port Unstructured DS3/E3 CES, the 3-Port Channelized DS3/STS1-e CES, and the 1-Port OC-12c/STM-4 modules.

## Configuring the Ports

Perform the steps in the following procedure to configure ports for the 12-Port Medium-Density DS1/E1/DS0A CES module.

---

### Begin

- 1 To open the Port and Channel Configuration window, do one of the following:
  - In the Front Panel, double-click the left mouse button on the port you want to view or configure (see Figure 4-6).

- In the Front Panel, double-click the right mouse button on the port and a menu appears. Click **Configure** in the menu that appears.
- In the Device Tree, double-click the left mouse button on desired port symbol or identifier with the left mouse button.
- In the Device Tree, select a port then click the right mouse button on the Device Tree and a menu appears. Click **Configure** in the menu that appears.

The 12-Port Medium-Density DS1/E1/DS0A CES Module Port Configuration window appears (see Figure 4-7).

- 2 To configure a port, select a port entry, or double-click the right mouse button and a menu appears (see Figure 4-8).

The 12-Port Medium-Density DS1/E1/DS0A CES Module Port and Channel Configuration window appears (see Figure 4-9).

The 12-Port Medium-Density DS1/E1/DS0A CES Module Port and Channel Configuration window has two sections:

- The Port Configuration page allows you to:
  - ~ Select port settings
  - ~ View port statistics, which display line errors and coding violations
  - ~ View line status
- The Channel Configuration page allows you to:
  - ~ Select an interface
  - ~ Open the Interface Configuration window to configure the interface
  - ~ Select multiple channels, DS0 strapping, and interfaces

**Note:** All interfaces must be out of service before changes can be made to the port settings; otherwise, the **Apply** button will appear to be ghosted.

- 3 Enter values in the fields on this window according to the information provided in Table 4-1.
- 4 Click **Apply**.



Figure 4-6. Front Panel View of the 12-Port Medium-Density DS1/E1/DS0A CES Module

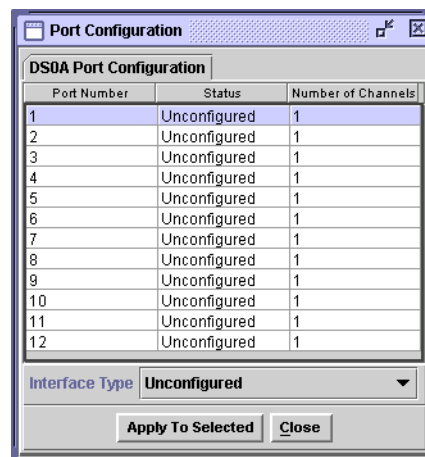


Figure 4-7. 12-Port Medium-Density DS1/E1/DS0A CES Module Port Configuration Window

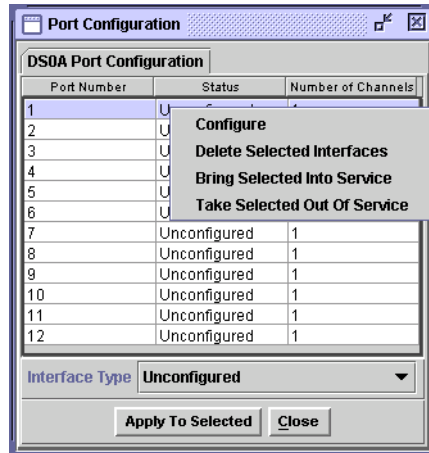


Figure 4-8. 12-Port Medium-Density DS1/E1/DS0A CES Module Port Configuration Window (Menu Displayed)

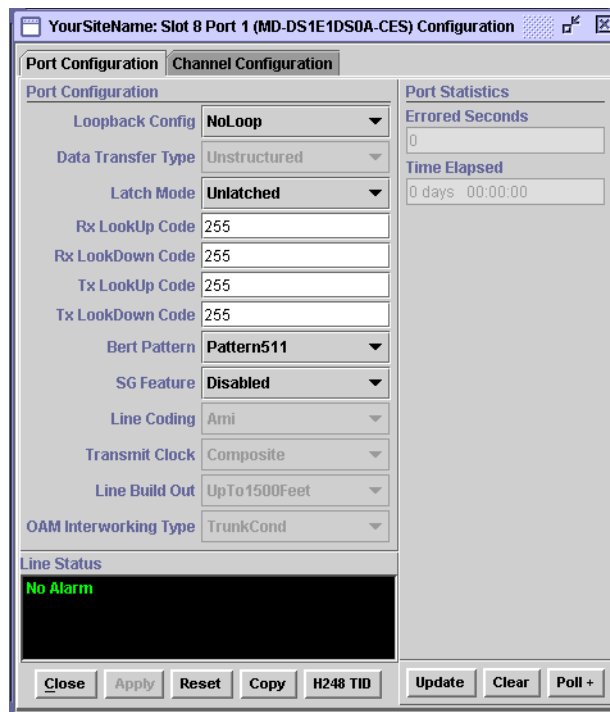


Figure 4-9. 12-Port Medium-Density DS1/E1/DS0A CES Module Port and Channel Configuration Window

**Buttons**

The buttons on this window have the following functions:

Button	Function
<b>Close</b>	Closes this window.
<b>Apply</b>	Applies the configuration field value you set.
<b>Reset</b>	Resets the fields to the last set of applied values.
<b>Copy</b>	Copies this configuration to a range of ports.
<b>H248 TID</b>	Opens the H.248 Termination ID window.
<b>Update</b>	Updates the information in the fields.
<b>Clear</b>	Removes the values in the Port Statistics panel and resets them to 0.
<b>Poll- or Poll+</b>	<b>Poll+</b> initiates the continuous update of statistics. <b>Poll-</b> suspends polling.

### Field Descriptions

Table 4-2. Field Descriptions for the 12-Port Medium-Density DS0A Port and Channel Configuration Window

Field Name	Field Values	Description
Loopback Config	Default: <b>NoLoop</b> Range: N/A Format: Predefined	Indicates whether the port is to be used for loopback testing and, if so, the type of loopback to be performed.
	<b>NoLoop</b>	Indicates that the port will not be used for loopback.
	<b>LineLoop</b>	Indicates that line loop will be used on this port. The received signal will be sent through the receiver and the line driver, and then back out to the originating point.
	<b>TransmitPat</b>	Indicates that a loop code will be transmitted toward the port. <b>Note:</b> This feature is not supported in this release.
	<b>MonitorPatMode</b>	Indicates that transparent data for a particular loop code will be monitored from the port. <b>Note:</b> This feature is not supported in this release.
	<b>TransmitandMonitorPatMode</b>	Indicates that a loop code will be transmitted toward the port, and that transparent data for a particular loop code will be monitored from the port. <b>Note:</b> This feature is not supported in this release.

Table 4-2. Field Descriptions for the 12-Port Medium-Density DS0A Port and Channel Configuration Window

Field Name	Field Values	Description
Data Transfer Type	Default: <b>Unstructured</b> Range: N/A Format: Predefined	Indicates the data transfer type for the interface on this port.
	<b>Unstructured</b>	Indicates that this port has a non-selectable, unstructured (and unchannelized) interface.
Latch Mode	Default: <b>Unlatched</b> Range: N/A Format: Predefined	Displays the latch mode status for a particular loop code. <b>Note:</b> This feature is not supported in this release.
	<b>Unlatched</b>	Indicates that the latch mode is disabled.
	<b>Latched</b>	Indicates that the latch mode is enabled.
Rx Loop Up Code	Default: <b>255</b> Range: 0-255 Format: numeric	Indicates the code that activates the line loop mode. <b>Note:</b> This feature is not supported in this release.
Rx Loop Down Code	Default: <b>255</b> Range: 0-255 Format: numeric	Indicates the code that activates the no loop status. <b>Note:</b> This feature is not supported in this release.
Tx Loop Up Code	Default: <b>255</b> Range: 0-255 Format: numeric	Indicates the transmit loop code that causes the far end to enter a line loop mode. <b>Note:</b> This feature is not supported in this release.
Tx Loop Down Code	Default: <b>255</b> Range: 0-255 Format: numeric	Indicates the transmit loop code that causes the far end to exit a line loop mode. <b>Note:</b> This feature is not supported in this release.
Bert Pattern	Default: <b>Pattern511</b> Range: N/A Format: Predefined alphanumeric	Displays the pattern selected for the bit error rate test (BERT). A known pattern of bits is transmitted, and errors received are counted to figure the BER. <b>Note:</b> This feature is not supported in this release.
	<b>Pattern511</b>	Indicates that a 511-bit pattern is used for the BERT.
	<b>Pattern2047</b>	Indicates that a 2047-bit pattern is used for the BERT.
Conn Gateway Feature	Default: <b>Disabled</b> Range: N/A Format: Character	Displays the status of the connection gateway feature. <b>Note:</b> This feature is not supported in this release.
	<b>Disabled</b>	Indicates that the connection gateway feature is disabled. See the <i>PacketStar® Connection Gateway API Specification</i> for more details.
	<b>Enabled</b>	Indicates that the connection gateway feature is enabled.

**Table 4-2. Field Descriptions for the 12-Port Medium-Density DS0A Port and Channel Configuration Window**

Field Name	Field Values	Description
[Line Coding] (display only)	Default: <b>Ami</b> Range: N/A Format: Predefined	Indicates the type of line coding to be used on this port. (The data format that lets either end of the communications channel correctly interpret messages from the other.)
	<b>Ami</b>	Alternate mark inversion. Indicates zero code suppression.
[Transmit Clock] (display only)	Default: <b>Composite</b> Range: N/A Format: Predefined	Indicates the timing source to be used on this port. The timing source is a signal that provides a timing reference for a transmission link.
	<b>Composite</b>	Indicates that <b>CompositeClockDS0A</b> is used as the timing source. <b>Note:</b> The <b>CompositeClockDS0A</b> value must be selected in the Synchronization Source field in the Stratum Configuration window.
[Line Build Out] (display only)	Default: <b>UpTo1500 Feet</b> Range: N/A Format: Predefined	Indicates the non-selectable output attenuation.
	<b>UpTo1500Feet</b>	Indicates the DS0A signal level is transmitted to be received from 0 to 1500 feet
[Oam Interworking Type] (display only)	Default: <b>TrunkCond</b> Range: N/A Format: Predefined	Displays the communications mode selected between the CE and ATM sides of a connection on this port during alarm conditions.
	<b>TrunkCond</b>	Indicates that trunk conditioning will be done for each channel of this port whose corresponding ATM side is alarmed. This improves the communication of the trunk status for TDM traffic. See the <i>PacketStar PSAX Multiservice Media Gateway Trunk Conditioning Application Note</i> for more details.
Line Status (display only)	Default: <b>NoAlarm</b> Range: N/A Format: Character	Indicates the line status of the interface. This field can represent multiple failures and a loopback state simultaneously.
	<b>NoAlarm</b>	No alarm is present
	<b>LossOfSignal</b>	Near-end loss of signal.
	<b>RcvAIS</b>	Near-end receiving all 1's.
	<b>RcvTestCode</b>	Near-end detects a test code specified by the user.
	<b>OtherFailure</b>	Any line status not defined here.

Table 4-2. Field Descriptions for the 12-Port Medium-Density DS0A Port and Channel Configuration Window

Field Name	Field Values	Description
Interface Type	Default: <b>Unconfigured</b> Range: N/A Format: predefined character	Indicates the type of end-to-end connection protocol that governs the transmission parameters of the configured channel interface.
	<b>Unconfigured</b>	This interface is not configured.
	<b>CircuitEmulation</b>	This interface is configured for the circuit emulation interface.
[Admin Status] (display only)	Default: <b>Unconfigured</b> Range: N/A Format: predefined character	Displays the administrative status of this channel.
	<b>Unconfigured</b>	The interface for this channel is not configured.
	<b>InService</b>	The interface has been brought into service with the <b>Bring Interface Into Service</b> command.
	<b>OutOfService</b>	The interface has not yet been brought into service, or its in-service interface has been set to out of service with the <b>Take Interface Out of Service</b> command.
[Oper Status] (display only)	Default: <b>Unconfigured</b> Range: N/A Format: predefined character	Displays the operational status of this channel and whether the channel is exchanging a valid signal.
	<b>Unconfigured</b>	This channel is not operational because the interface is not configured.
	<b>InService</b>	The configured interface is currently operational, that is, capable of receiving and sending signals.
	<b>OutOfService</b>	The configured interface is not currently operational, that is, not capable of receiving and sending signals, because no connection exists.

## Copying a Port Configuration

The **Copy** button on the Port and Channel Configuration window of each I/O module enables you to copy a port configuration to a range of ports. To copy a port configuration to a range of ports, perform the steps in the following procedure from the appropriate Port and Channel Configuration window.

**Begin**

- 1 On the Port Configuration page, click **Copy**.

The Copy Port Configuration window appears with the slot and port of the module you selected in the Start At: and Stop At: panels (see Figure 1-1).

- 2 Select the range of slots and ports to which you wish the port configuration to be copied.
- 3 To copy the interface configuration of this module, click the box beside Copy interface configuration.
- 4 To overwrite the existing interface configuration of the destination ports, click the box beside Overwrite configured interfaces (this option is only available if Copy interface configuration is selected).

To overwrite the port specified in the Stop At column, it must be out of service. This ensures the avoidance of accidentally deleting or overwriting circuits that are currently in service.

**Note:** The **Overwrite configured interfaces** option is ghosted until you click the box beside Copy interface configuration.

- 5 Click **Copy**.

The port configuration is copied to the range of ports you selected.

**End**

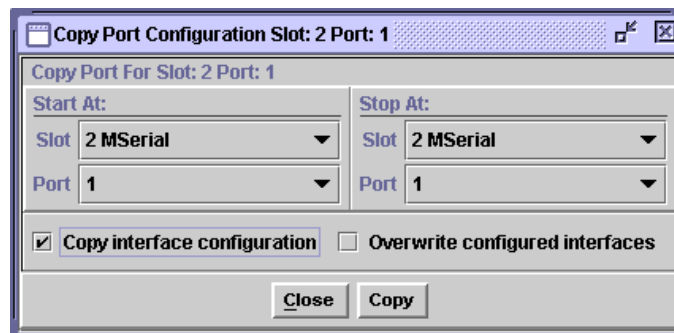


Figure 4-10. Sample Copy Port Configuration Window

**Buttons**

The buttons in this window have the following functions:

Button	Function
<b>Close</b>	Closes this window.
<b>Copy</b>	Copies this interface to a range of channels.

**Configuring the Channels**

Perform the steps in the following procedure to configure channels for the 12-Port Medium-Density DS1/E1/DS0A CES.

**Begin**

- 1 Click the Channel Configuration tab.

The Channel Configuration window appears (see Figure 4-11).

The Channel Configuration page allows you to:

- Select and apply an interface
- Select DS0s and apply strapping
- Open the Interface Configuration window to configure the interface

**Note:** All interfaces must be out of service before changes can be made to the port settings or the **Apply** button will appear to be ghosted.

- 2 Select the channels to be configured as described in Table 4-4:

- 3 In the DS0 Strapping panel of the Channel Configuration window, select the channel's DS0 strapping and click **Apply**.

**Note:** You cannot select DS0s, nor apply strapping, on an unchannelized port.

- 4 In the Channel Configuration page (see Figure 4-11), either click the arrow in the Interface Type field (in the middle of the window), or double-click the channel in the Interface Type field, and select an interface from the list.

- 5 Click **Apply to Selected**.

**Note:** You can double-click in the channel in the Interface Type field to select a new interface only when an interface is not currently selected for that channel. If an interface is applied for a channel and you double-click on it in the Interface Type field, the Interface Configuration window appears.

- 6 Click **Close**.

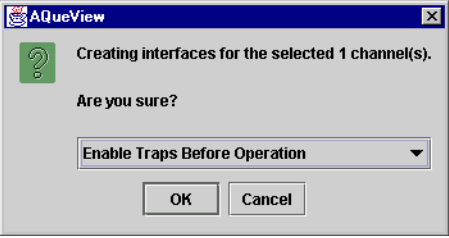
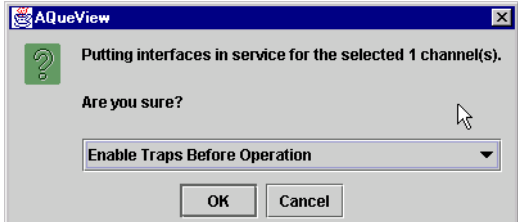

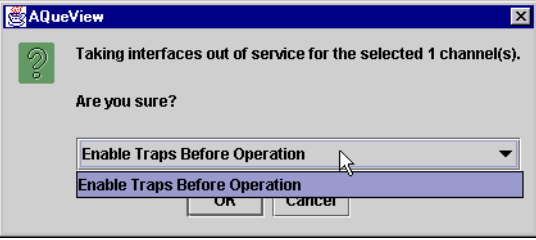
- 7 In the Front Panel, right-click the mouse on the port that contains the channels you configured in Step 2.

- 8 Select Bring All Interfaces Into Service.

A confirmation window appears (see the following table).

9 Do one of the following actions as described in the following table.

Table 4-3. Enabling or Disabling Traps Decision Table

If you are performing this action...	and you...	then do this...
creating an interface and applying it to a channel 	want to enable traps	select Enable Traps Before Operation and click <b>OK</b> .
OR bringing an interface into service  OR deleting an interface 	want to disable traps	select Disable Traps Before Operation and click <b>OK</b> .
taking an interface out of service 	decide not to complete this action	click <b>Cancel</b> .
	want to enable traps	click <b>OK</b> .
	want to disable traps	click <b>Cancel</b> . When taking an interface out of service, you cannot disable traps because the interfaceOutOfServiceNotify trap is permanently activated on the device.
	decide not to complete this action	click <b>Cancel</b> .

The confirmation window closes.

To view the status of interface traps, click the Trap Activation tab and select **Interface Events** in the Show traps from: field at any time.

- 10 Repeat steps Step 2–Step 3 to configure more channels.

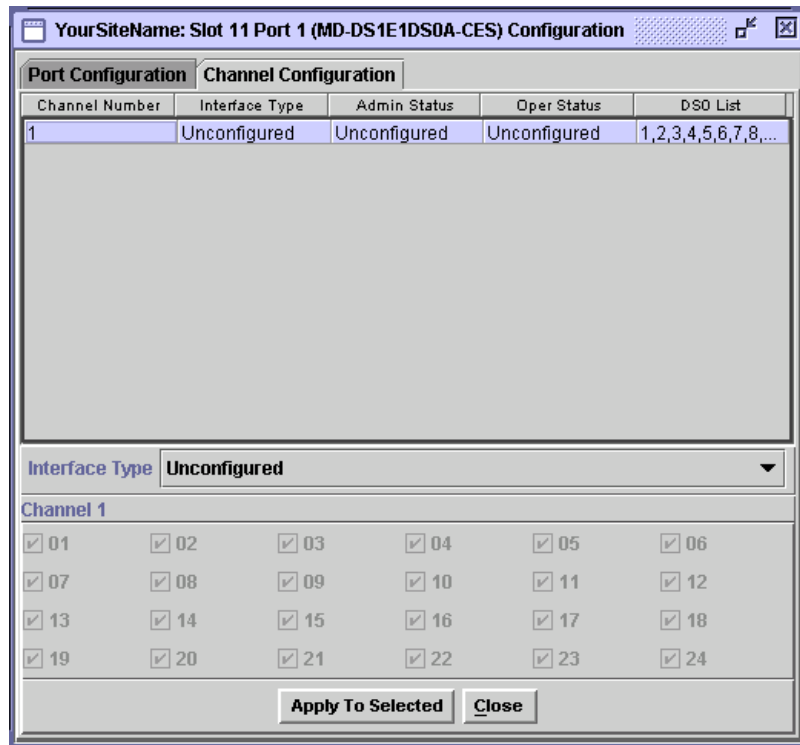


Figure 4-11. 12-Port Medium-Density DS1/E1/DS0A CES Module Channel Configuration Page

### Buttons

The buttons in this window have the following functions:

Button	Function
<b>Apply to Selected</b>	Applies the configuration field value you set.
<b>Close</b>	Closes this window.

Table 4-4. Selecting Channels for Configuration

If you want to select...	then do this...
a single channel	click the channel in the list.

*End*

## Viewing Port Statistics

You can view statistics for this port on the Port Statistics panel of the 12-Port Medium-Density DS1/E1/DS0A CES Module Port and Channel Configuration window (see Figure 4-9).

Descriptions of the data fields for the Port Statistics panel are given in Table 4-5.

**Table 4-5. Field Descriptions for the 12-Port Medium-Density DS0A Port Statistics Window**

Field Name	Field Values	Description
Line Errored Seconds	Default: <b>000000000</b> Range: N/A Format: numeric	Displays the number of line errored seconds encountered by the DS0A port in the previous 24-hour period. A line errored second is a second in which one or more line code violation error events were detected.
Time Elapsed	Default: <b>0:00:00</b> Range: N/A Format: numeric in hours, minutes, seconds: <i>h:mm:ss</i>	Displays the time elapsed in hours, minutes, and seconds since the last reset.

# 5 Configuring the Interfaces Using the Console



## Overview of This Chapter

This chapter provides instructions for configuring the circuit emulation interface type for the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode) using the console.

## Before You Begin

Before you can set interface configuration values, you must select the interface type value in the Interface Type field on the 12-Port Medium-Density DS0A Port and Channel Configuration window.

For a matrix of interface types by PSAX I/O module types, see the Interface Types by I/O Module Types table in the appendix, “Reference Information.”

## Errors in Applying Interfaces to Ports

An error can occur when you apply an interface to a port or channel. If an error condition occurs, the Multiservice Media Gateway sends an SNMP trap that usually appears in the console Trap Log Display (accessible from the Console Interface Main Menu window). The list below includes the most common interface errors that cause the PSAX system to display a message. (See the appendix, “SNMP Trap Messages,” for more information about the SNMP traps related to interface errors).

- Entering values into fields that are outside of the configurable range of values
- Attempting to configure an interface for a port or channel that has already been configured
- Attempting to configure an interface that is already in service (must be out of service to be configured or change field values)
- Entering field values that are not recognized by the PSAX system software

## Configuring the Circuit Emulation Interface

This section provides instructions for configuring an I/O module for the Circuit Emulation interface.

### Configuring the Circuit Emulation Interface

**Begin**

- 1 When you select the value **CircuitEmulation** as the interface type on the Port and Channel configuration window, the Circuit Emulation Interface Configuration window (see Figure 5-1) is displayed.

```
Circuit Emulation Interface Configuration [YourSiteName]
Slot: 04 Port: 01 Channel: 001
CAS Idle abcd Pattern.... 0
CAS Busy abcd Pattern.... 15
Data Pattern..... 127
TC Final abcd Bits..... CasBusy
With_Egress_Interface
DownStream Interworking... TrunkCond
Bring Interface Into Service
Add Interface
Delete Interface and Return -> | Go Back to Port Configuration ->
Press RETURN and enter the abcd bit pattern for CAS Idle.
```

Figure 5-1. Circuit Emulation Interface Configuration Window

The commands on this window have the following functions:

Command	Function
<b>Bring Interface Into Service</b>	Brings an out-of-service configured interface to in-service status. The value <b>InService</b> is displayed in the [Admin Status] field. <b>Note:</b> This command is displayed when the [Admin Status] field is <b>OutOfService</b> . You must first configure the interface before you can use this command.
<b>Take Interface Out of Service</b>	Takes an in-service configured interface to out-of-service status. The value <b>OutOfService</b> is displayed in the [Admin Status] field. <b>Note:</b> This command is displayed when the [Admin Status] field is <b>InService</b> . You must use this command first before using the <b>Delete Interface and Return</b> command.
<b>Add Interface</b>	Applies the configuration field values you set.
<b>Delete Interface and Return</b>	Deletes an out-of-service interface and redisplay the Port and Channel Configuration window for the module you are configuring. <b>Note:</b> You must first take interface out of service (using the <b>Take Interface Out of Service</b> command) before you can use this command.
<b>Go Back to Port Configuration</b>	Redisplay the Port and Channel Configuration window of the module you are configuring.

**Field Descriptions**

The values for the fields on this window are described in Table 5-1.

- 2 Enter the values in the fields on this window according to the information provided in Table 5-1.

**Table 5-1. Field Descriptions for the Circuit Emulation Interface Configuration Window**

Field Names	Field Values	Description
CAS Idle abcd Pattern	Default: <b>0</b> Range: 0–15 Format: Numeric	Signaling abcd bit pattern for first 2.5 seconds.
CAS Busy abcd Pattern	Default: <b>15</b> Range: 0–15 Format: Numeric	Signaling abcd bit pattern after 2.5 seconds.
Data Pattern	Default: <b>127 (idle pattern)</b> Range: 0–255 Format: Numeric	The data pattern to be transmitted out on a circuit emulation port, if no user data is available for the transmission.
TC Final abcd Bits	Default: <b>CasBusy</b> Range: N/A Format: Predefined	Specifies the bit pattern to be transmitted after 2.5 seconds.
	<b>CasBusy</b>	CAS busy bit pattern transmitted after 2.5 seconds.
	<b>CasIdle</b>	CAS idle bit pattern transmitted after 2.5 seconds.
<b>With_Egress_Interface, Left Panel</b>		
DownStream Interworking	Default: <b>TrunkCond</b> Range: N/A Format: predefined alphanumeric	Trunk conditioning will be done with ATM network. The PSAX system will generate an idle data pattern in the payload of ATM cells to send a signal to indicate a connection failure.  For more information, see the <i>Trunk Conditioning Application Note for PacketStar® PSAX Multiservice Media Gateways</i> .
	<b>Unsupp</b>	No interworking will be done with ATM network. The PSAX system will not send a signal to indicate a connection failure. Do not choose this value if you want to enable trunk conditioning.
	<b>OAM</b>	OAM interworking will be done with ATM network. The PSAX system will use ATM OAM cells to send a signal to indicate a connection failure. You can use this value if all the ATM switches along the connection support ATM OAM cells. You must use this value if you selected <b>Unframed1s</b> in the UpStrmIntrworking field on the Port and Channel Configuration window of the module you are configuring. The PSAX system does not support upstream interworking of unframed 1s with a downstream setting of trunk conditioning.
<b>Right Panel</b>		

**Table 5-1. Field Descriptions for the Circuit Emulation Interface Configuration Window**

Field Names	Field Values	Description
[Admin Status] (display only)	Default: <b>OutOfService</b> Range: N/A Format: Predefined	Indicates whether the interface is configured and brought into service or not.
	<b>OutOfService</b>	The interface is not configured and brought into service.
	<b>InService</b>	The interface is configured and brought into service.
[Oper Status] (display only)	Default: <b>OutOfService</b> Range: N/A Format: predefined alphanumeric	Indicates whether any condition is preventing the interface from passing traffic.
	OutOfService	Indicates that a condition is preventing the interface from passing traffic.
	InService	Indicates that no condition is preventing the interface from passing traffic.

- 3 To bring the interface to in-service status, select the **Bring Interface Into Service** command and press Enter.

The value **InService** is displayed in the [Operational Status] field.

*End*

---

**Activating the Circuit Emulation Interface** To bring the interface to in-service status, select the **Bring Interface Into Service** command and press Enter.

The value **InService** is displayed in the [Operational Status] field.

## Chapter 5 Configuring the Interfaces Using the Console

### Configuring the Circuit Emulation Interface

# 6 Configuring the Interfaces Using the AQueView® System



## Overview of This Chapter

This chapter provides instructions for configuring the circuit emulation interface type on the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A mode) using the *AQueView* EMS.

## Before You Begin

Before you can set interface configuration values, you must select an interface type value other than **Unconfigured** in the Interface Type field on the 12-Port Medium-Density DS0A Port and Channel Configuration window.

For a matrix of interface types by PSAX I/O module types, see the Interface Types by I/O Module Types table in the appendix, “Reference Information.”

## Errors in Applying Interfaces to Ports

An error can occur when you apply an interface to a port or channel. (See the appendix, “SNMP Trap Messages,” for more information about the SNMP traps related to interface errors).

- Entering values into fields that are outside of the configurable range of values
- Attempting to configure an interface for a port or channel that has already been configured
- Attempting to configure an interface that is already in service (must be out of service to be configured or change field values)

## Configuring the Circuit Emulation Interface

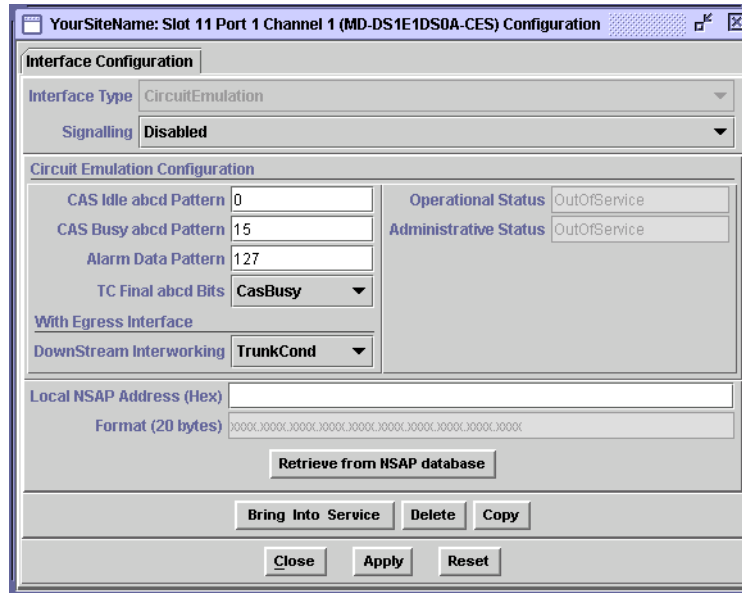
### Accessing the Circuit Emulation Interface Configuration Window

This section provides instructions for configuring an I/O module for the Circuit Emulation interface.

From the appropriate Channel Configuration page, select and apply the value **CircuitEmulation** as the interface type on any channel.

The Circuit Emulation Interface Configuration window appears (see Figure 6-1).

**Chapter 6 Configuring the Interfaces Using the AQueView® System**  
 Configuring the Circuit Emulation Interface



**Figure 6-1. Circuit Emulation Interface Configuration Window**

**Buttons**

The buttons on this window have the following functions:

Button	Function
<b>Retrieve from NSAP database</b>	When you enter an ATM NSAP address in the Local NSAP Address (Hex) field and click this button, the Select NSAP window displays. You can retrieve or add this NSAP address into the Select NSAP window.
<b>Calculate Navis NSAP Address</b>	<b>Note:</b> This button appears only when you configure user properties to include the Navis NSAP format. For more information, see the appropriate <i>AQueView® Element Management System User Guide</i> .  Automatically calculates the local NSAP address, and populates the NSAP address in the NSAP Address (Hex) field using the Navis algorithm for the slot, port, and channel selected in the fields on the bottom right panel.
<b>Bring Into Service (displays when the Administrative Status field is OutOfService)</b>	Brings an out-of-service configured interface to in-service status. The value <b>InService</b> displays in the Administrative Status field.  You must first configure the interface before you can use this button.

Button	Function
<b>Take Out of Service (displays when the Administrative Status field is InService)</b>	Takes an in-service configured interface to out-of-service status. The value <b>Out of Service</b> displays in the Administrative Status field.  You must use this button first before using the <b>Delete</b> button.
<b>Delete</b>	Deletes an out-of-service interface and redisplay the Port and Channel Configuration window for the module you are configuring.  You must first take interface out of service (using the <b>Take Out of Service</b> button) before you can use the <b>Delete</b> button.
<b>Copy</b>	Copies this interface to a range of slots, ports, and channels.
<b>Close</b>	Closes this window.
<b>Apply</b>	Applies the configuration field value you set.
<b>Reset</b>	Resets the fields to the last set of applied values.

### Configuring Circuit Emulation Interface Values

To set the values for the Circuit Emulation interface, perform the steps in the following procedure.

---

**Begin**

- 1** Enter values in the fields on this window according to the information provided in Table 6-1.

### Field Descriptions

**Table 6-1. Field Descriptions for the Circuit Emulation Interface Configuration Window**

Field Names	Field Values	Description
Interface Type	Default: <b>N/A</b> Range: N/A Format: predefined alphanumeric	Circuit Emulation displays as the interface type.
Signaling	Default: <b>CCS Clear Channel signaling</b> Range: N/A Format: predefined alphanumeric	The type of signaling used. <b>Note:</b> This field is displayed only when configuring the circuit emulation interface on the 6-Port Multiserial, the 6-Port Enhanced DS1 Multiservice, and the 1-Port Channelized DS3 modules.
	<b>CCS Clear Channel signaling</b>	Clear channel signaling—ABCD signaling bits not used.
	<b>CAS (channel-associated signaling)</b>	Channel associated signaling—signaling bit transport based on ATM Forum standard for ABCD signaling bits. ISDN requires the use of the whole port. Will not function with CAS.
Speed Adaptation	Default: <b>Enabled</b> Range: N/A Format: predefined alphanumeric	Refers to robbed-bit signaling in circuit emulation interfaces. Similar functionality is referred to as the adaptive property of the transmit clock source in T1/E1 interfaces.
	<b>Disabled</b>	Refers to robbed-bit signaling in circuit emulation interfaces.
CAS Idle abcd Pattern	Default: <b>0</b> Range: 0–15 Format: Numeric	Signaling abcd bit pattern for first 2.5 seconds.
CAS Busy abcd Pattern	Default: <b>15</b> Range: 0–15 Format: Numeric	Signaling abcd bit pattern after 2.5 seconds.
Data Pattern	Default: <b>127 (idle pattern)</b> Range: 0–255 Format: Numeric	The data pattern to be transmitted out on a circuit emulation port, if no user data is available for the transmission.
TC Final abcd Bits	Default: <b>CasBusy</b> Range: N/A Format: Predefined	Specifies the bit pattern to be transmitted after 2.5 seconds.
	<b>CasBusy</b>	CAS busy bit pattern transmitted after 2.5 seconds.
	<b>CasIdle</b>	CAS idle bit pattern transmitted after 2.5 seconds.

Table 6-1. Field Descriptions for the Circuit Emulation Interface Configuration Window

Field Names	Field Values	Description
DownStream Interworking	Default: <b>TrunkCond</b> Range: N/A Format: predefined alphanumeric	Trunk conditioning will be done with ATM network. The PSAX system will generate an idle data pattern in the payload of ATM cells to send a signal to indicate a connection failure.
	<b>Unsupp</b>	No interworking will be done with ATM network. The PSAX system will not send a signal to indicate a connection failure. Do not choose this value if you want to enable trunk conditioning.
	<b>OAM</b>	OAM interworking will be done with ATM network. The PSAX system will use ATM OAM cells to send a signal to indicate a connection failure. You can use this value if all the ATM switches along the connection support ATM OAM cells. You must use this value if you selected <b>Unframed1s</b> in the UpStrmIntrworking field on the Port and Channel Configuration window of the module you are configuring. The PSAX system does not support upstream interworking of unframed 1s with a downstream setting of trunk conditioning.
[Admin Status] (display only)	Default: <b>OutOfService</b> Range: N/A Format: Predefined	Indicates whether the interface is configured and brought into service or not.
	<b>OutOfService</b>	The interface is not configured and brought into service.
	<b>InService</b>	The interface is configured and brought into service.
[Oper Status] (display only)	Default: <b>OutOfService</b> Range: N/A Format: predefined alphanumeric	Indicates whether any condition is preventing the interface from passing traffic.
	OutOfService	Indicates that a condition is preventing the interface from passing traffic.
	InService	Indicates that no condition is preventing the interface from passing traffic.
Local NSAP Address (Hex)	Default: <b>Hexadecimal</b> Range: N/A Format: Hexadecimal	The ATM NSAP address of the local end of the connection, in hexadecimal notation. Enter the NSAP address of the local ATM interface.

## Adding NSAP Addresses

**Note:** Step 2 through Step 4 are optional. If you do not want to add or retrieve an NSAP address, skip to Step 5.

If an NSAP address exists in the NSAP address database for a given device, the local NSAP address automatically retrieved and displayed on the Interface Configuration window. You may choose to add an NSAP address for a slot, port, and channel in the NSAP address database and retrieve it by clicking **Retrieve from NSAP database**.

- 2 To add or retrieve an NSAP address, enter a valid NSAP address in the Local NSAP Address (Hex) field and click **Retrieve from NSAP database**.

If the value entered in the Local NSAP Address (Hex) field is valid, the field becomes ghosted. The Select NSAP window appears (see the following figure).

You can populate the Slot, Port, Channel, and NSAP Address fields for an existing device, or add a new entry, and click **Add**.

- 3 To display the NSAP addresses previously configured for a PSAX device, either select a remote device from the pull-down menu, or type the IP address of the remote device in the Remote Switch IP field.

The list of NSAP addresses previously configured for that PSAX device is displayed in the table.

- 4 Select the desired entry (slot, port, channel, and NSAP address) and click **Retrieve**.

The Local NSAP Address (Hex) field becomes populated in the window.

**Note:** If the desired remote device does not appear in the Remote Switch IP pull-down menu, do the following:

- a. Highlight the Remote Switch IP field and enter the IP address that corresponds to the PSAX device you want to include.
- b. Type the desired values into the Slot, Port, and Channel fields and
- c. Click **Add**.

The *AQueView* system adds this information to the database file.

**Note:** If you want to include a new entry for an existing device already in the database, select the device from the pull-down menu in the Remote Switch IP field, and type the desired values into the Slot, Port, and Channel fields and click **Add**. The *AQueView* system adds this entry to the database file.

**Note:** If you add database entries through the *AQueView* system, save these database changes to the text editor file by using the main AQueView Menu Bar. Click View > NSAP Database > Save.

- 5 To apply the interface configuration values, click **Apply**.

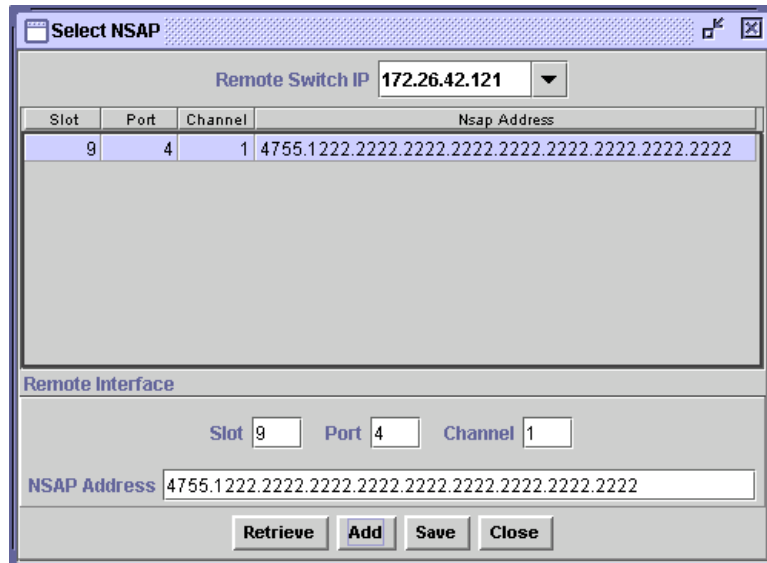


Figure 6-2. Select NSAP Window

**Buttons**

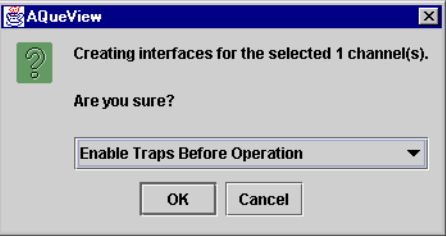
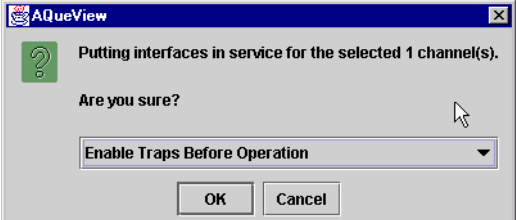
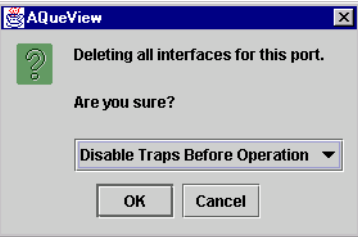
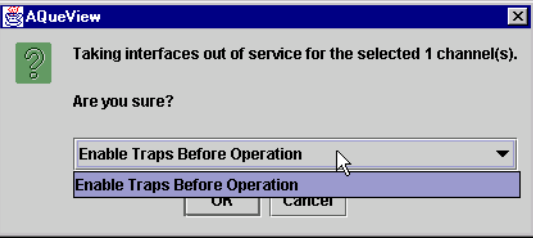
The buttons in this window have the following functions:

Button	Function
<b>Retrieve</b>	Enters the NSAP address for a device that is selected on the Select Remote NSAP window into the Remote NSAP Address field of the Interface Configuration window.
<b>Add</b>	Adds a new slot, port, channel, NSAP address mapping entry for the specified device.
<b>Save</b>	Stores any modifications to the NSAP address database.
<b>Close</b>	Closes this window.

A confirmation window appears (see the following table).

6 Do one of the following actions as described in the following table.

Table 6-2. Enabling or Disabling Traps Decision Table

If you are performing this action...	and you...	then do this...
creating an interface and applying it to a channel 	want to enable traps	select Enable Traps Before Operation and click <b>OK</b> .
	want to disable traps	select Disable Traps Before Operation and click <b>OK</b> .
OR bringing an interface into service 		
OR deleting an interface 		
taking an interface out of service 	want to enable traps	click <b>OK</b> .
	want to disable traps	click <b>Cancel</b> . When taking an interface out of service, you cannot disable traps because the interfaceOutOfServiceNotify trap is permanently activated on the device.
	decide not to complete this action	click <b>Cancel</b> .

The confirmation window closes.

To view the status of interface traps, click the Trap Activation tab and select **Interface Events** in the Show traps from: field at any time.

# 7 Provisioning Connections Using the Console



## Overview of This Chapter

This chapter describes how to set up PVC and SPVC connections in the PSAX Multiservice Media Gateway systems for service provisioning and how to view statistics data for billing and performance monitoring. It also contains instructions for making the following types of connections:

- PVC connections:
  - ~ Circuit Emulation-to ATM VCC
  - ~ Circuit Emulation-to Circuit Emulation VCC
- SPVC connection: Circuit Emulation-to-ATM VCC

## Before You Begin

Before you provision connections for the module, you must have first completed the following tasks:

- Set the configuration values for one or more ports on the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A Mode).
- Set the configuration values for the circuit emulation interface type on the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A Mode).
- Selected the **CircuitEmulation** interface type value in the Interface Type field on the 12-Port Medium-DensityDS0A Port and Channel Configuration window.

For a matrix of connection types by interface types, see the Connection Types by Interface Types table in the appendix, “Reference Information.”

## Data Flow in PVC Connections

PVCs consist of connections between ports on the various PSAX I/O modules. When setting up some types of connections, you can set up data traffic to flow in several ways, depending on the type of connection as follows:

- Duplex (Point-to-Point)
  - Data flows in two directions between the two connection points (interface side A and interface side B).
- Simplex

## Chapter 7 Provisioning Connections Using the Console

### Provisioning PVC Connections

Data flows in only one direction, from side A to side B, or from side B to side A.

- Point-to-Multipoint

Data flows in only one direction, from one point on side A to several points on side B, or from one point on side B to several points on side A.

## Provisioning PVC Connections

---

### Begin

- 1 Log onto the PSAX system (see the appropriate *PacketStar* PSAX Multi-service Media Gateway user guide for instructions).

The Console Interface Main Menu window (see Figure 7-1) is displayed.

```
Console Interface Main Menu                                     [YourSiteName]

Site-Specific Configuration
Equipment Configuration
Connection Configuration
Software Version Configuration
Trap Log Display
User Options
Diagnostics
Remote Database Operation

Save Configuration
Leave Console Interface

* Use the underlined letter with the control key as a hotkey.
* Press Ctrl-G at any time to go back to the Main Menu.
* Press ? at any time for help.

Create, configure, view, and manage connections.
```

Figure 7-1. Console Interface Main Menu Window (Connection Configuration Selected)

- 2 Select the **Connection Configuration** command and press Enter.

The Connection Configuration Menu window (see Figure 7-2) is displayed.

```

Connection Configuration Menu                                     [YourSiteName]

PVC Configuration:      ATM-to-ATM VCC
                        ATM-to-ATM VPC
                        Circuit Emulation-to-ATM VCC
                        Circuit Emulation-to-Circuit Emulation
                        VBR-to-ATM VCC
                        VBR-to-VBR
                        Bridge-to-ATM VCC
                        Bridge-to-Bridge (k)
                        Frame Relay-to-ATM VCC
                        Frame Relay-to-Frame Relay
                        In-Band Management IP PVC
                        AAL2 Trunk Connection (w) (PVC only)
                        GR303-to-AAL2 VCC/PVC (z)

SVC Configuration:     ATM-to-ATM VCC/VPC (n)
                        IISP VBR Routing Table (@)
                        IISP CBR Routing Table

SPVC Configuration:    SPVC Configuration Screen (y)

                                                                Go Back to Main Menu->

Create, delete, view, and manage ATM-to-ATM VCC PVCs.

```

Figure 7-2. Connection Configuration Menu Window (ATM-to-ATM VCC Option Selected)

- 3 Follow the procedures in the appropriate sections of this chapter for the types of connections you want to configure.

*End*

## Adding Circuit Emulation-to-ATM VCC PVC Connections

This is a CBR type of connection. A DSP2x Voice Server module must be present and configured in the PSAX system to enable coding translation, voice compression, silence detection, echo cancellation, and tone detection features. This type of connection also supports the use of a backup ATM interface with the option of automatic switchback.

You can process voice traffic using circuit emulation-to-ATM VCC PVC connection through a DSP2x Voice Server module by selecting one of the pulse code modulation (PCM) types in the Coding Translation field.

**Note:** The OAM feature is supported for this connection type and can be enabled on the Connection window. Statistical OAM information is provided on the related Connection Statistics window. Parameters for OAM operation can be configured from the Diagnostics Menu window. See the appropriate *PacketStar* PSAX Multiservice Media Gateway user guide for more details.

Perform the steps in the following procedure to create a circuit emulation-to-ATM VCC PVC connection.

**Creating a Circuit Emulation-to-ATM VCC Connection**

**Provisioning a Circuit Emulation-to-ATM PVC Connection**

*Begin*

- 1 On the Connection Configuration Menu window, select Circuit Emulation-to-ATM VCC and press Enter.

The Circuit Emulation-to-ATM VCC PVC Table (see Figure 7-3) window is displayed.

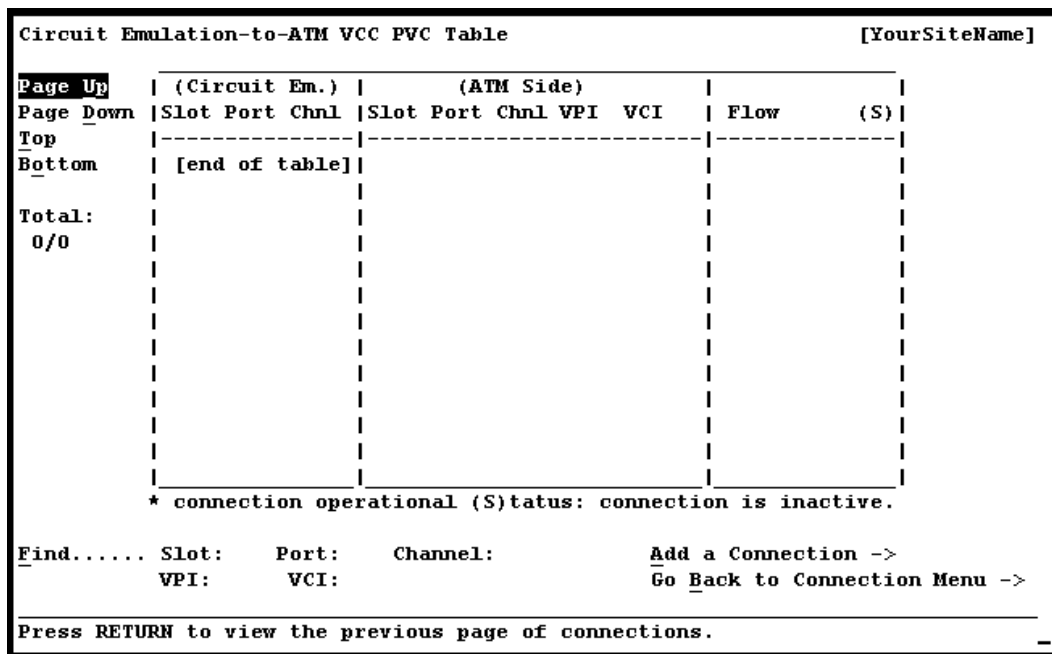


Figure 7-3. Circuit Emulation-to-ATM VCC PVC Table Window

**Note:** At the time of initial installation, the Circuit Emulation-to-ATM VCC PVC Table window is empty. After you have set up connections, this window displays all the connections of this type in the system.

**Commands**

The commands on this window have the following functions:

Command	Function
Page Up	Scroll up one page.
Page Down	Scrolls down one page.
Top	Displays entries at the top of the table.
Bottom	Displays entries at the bottom of the table.

Command	Function
<b>Find . . .</b>	Searches the table for a connection using the given interface. To find a particular connection, enter values in the Slot, Port, Channel, VPI, and VCI fields. If the connection exists, it displays on the first line of the table.
<b>Add a Connection</b>	Displays the CE-to-ATM VCC PVC Connection window.
<b>Go Back to Connection Menu</b>	Redisplays the Connection Configuration Menu window.

### Field Descriptions

The display fields on this window provide the following information about all the circuit emulation-to-ATM VCC PVC connections in the PSAX system:

**Table 7-1. Field Descriptions for the CE to ATM VCC PVC Table Window**

Field Name	Description
Circuit Em.	This panel displays the information for all circuit emulation sides of the connections. The connection entries are displayed in ascending numerical order by slot, then by port and channel.
ATM Side	This panel displays the information for all ATM interface sides of the connections. The connection entries are displayed in ascending numerical order by slot, then by port, channel, VPI, and VCI.
Flow	This panel is displayed whether the following fields are set to <b>None</b> or <b>Disabled</b> : Voice Compression, Silence Detection, Echo Cancellation, Tone Detection, Coding Translation.
Total: 0/0	The first number in this field indicates the number of the connection table entry on the first line of the currently displayed window. The second number indicates the total number of connection table entries for this connection type.

- 2 Select the **Add a Connection** command and press Enter. The Circuit Emulation-to-ATM VCC PVC Connection (see Figure 7-4) window is displayed.

## Chapter 7 Provisioning Connections Using the Console

### Provisioning PVC Connections

**Connection Capacity of DSP2x Modes** If the user is configuring DSP parameters on the connection, see the following table for connection limits.

**Table 7-2. Connection Capacity of DSP2x Algorithm Sets**

DSP2x Voice Server Module Configuration Scenarios	Connections per DSP Chip (D)	Chips per Module (N)	Maximum Number of Connections (D X N) per Module
<b>DSP2C Voice Server (32 DSP chips per module)</b>			
Std. AAL2 and Non-Mux AAL2, AlgoSet 1 (Echo Cancellation to 128 msec)	7	32	224
Std. AAL2 and Non-Mux AAL2, AlgoSet 2 (DSP2A, G726), AlgoSet 3 (DSP2B, G729a), AlgoSet 4 (fax relay)	4	32	128
<b>DSP2D Voice Server (48 DSP chips per module)</b>			
Std. and Non-mux AAL2, AlgoSet 1	7	48	336
Non-mux AAL2, AlgoSets 2 and 3	4	48	192
AAL1 AlgoSet5 (Echo Cancellation to 64 msec)	21	48	1008
Std. AAL2 AlgoSet 6 (G726, G729a/b, G168, v17, v29, v21, v27)	8	48	384
GR-303 Monitoring	24	48	1152
<b>DSP2E Voice/Data Server (8 DSP chips per module)</b>			
Std. AAL2, or AAL5-to-AAL2, AlgoSet 6	6 voice chips support pure voice	8	48
	2 chips support wireless voice/data packets in 15 to 256 byte frame sizes	84	168
<b>DSP2F Data Server (8 DSP chips per module)</b>			
Std. AAL2 AlgoSet 7	8 chips support wireless voice/data packets in 15 to 256 byte frame sizes	84	672

```

Circuit Emulation-to-ATM VCC PVC Connection [YourSiteName]

  Circuit Emulation Interface      ATM Interface
-----|-----
Slot..... 0                      Slot..... 0  VPI..... 0
Port..... 1                      Port..... 1  VCI..... 0
Channel.... 1                    Channel.... 1  VI/VUNI... 0 / 0
                                      [AAL2 Cid].. 0

[FailCause A/B].. /
Service Type... Cbr-1
Flow..... Duplex
SAR Type..... Aall
Conformance Type... Best-effort
OAM STATUS.... Unsupp
[Backup PVC]... No
[Active PVC]... Primary
[Conn Status].. Inactive

Display Next Connection
Configure Connection Parameters ->
Delete Connection
View Connection Statistics ->
Add/View Backup PVC->
Go Back to Connection Table ->

Press RETURN to edit the slot number for side A.

```

Figure 7-4. Circuit Emulation-to-ATM VCC PVC Connection Window

**Commands**

The commands on this window have the following functions:

Command	Function
<b>Display Next Connection</b>	Displays the next connection of this type in the table.
<b>Add This Connection</b>	Adds a connection having the values currently displayed on the window.
<b>Configure Connection Parameters</b>	Displays the Circuit Emulation-to-ATM VCC PVC Connection Parameters window.
<b>Delete Connection</b>	Deletes the connection having the values currently displayed on the window.
<b>View Connection Statistics</b>	Displays the Circuit Emulation-to-ATM VCC PVC Statistics window.
<b>Add/View Backup PVC</b>	Displays the backup PVC connection for this primary connection or enables you to add a backup PVC for this primary PVC.
<b>Go Back to Connection Table</b>	Redisplays the Circuit Emulation-to-ATM VCC PVC Connection Table window.

## Chapter 7 Provisioning Connections Using the Console

### Provisioning PVC Connections

- Field Descriptions**      **3** Enter values in the fields on this window according to the information provided in Table 7-3.

**Table 7-3. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Window**

Field Names	Field Values	Description
Circuit Emulation Interface		Field values in this panel relate to the circuit emulation side of the connection that will send and receive signals.
ATM Interface		Field values in this panel relate to the ATM interface side of the connection that will send and receive signals.
Slot	Default: <b>0</b> Range: Variable depending on chassis type Format: Numeric	Enter the slot number containing the module for which you are creating a connection. Enter slot numbers for both sides of the connection.
Port	Default: <b>1</b> Range: Variable Format: Numeric	Enter the port number on the module for which you are creating a connection. Enter port numbers for both sides of the connection.
Channel	Default: <b>1</b> Range: CE side: 1–24 (DS1), ATM side: 1 Format: Numeric	On the Circuit Emulation Interface side, enter the channel number of the port on the module for which you are creating a connection. On the ATM Interface side, do not change the default value ( <b>1</b> ) in this field.
VPI	Default: <b>0</b> Range: 0–255 (ATM UNI); 0–4095 (NNI) Format: Numeric	Enter the virtual path identifier for the ATM side of the connection.
VCI	Default: <b>0</b> Range: 32–65535 Format: Numeric	Enter the virtual channel identifier for the ATM side of the connection.
VI/VUNI	Default: <b>0/0</b> Range: 0–255 Format: Numeric	Virtual interface/Virtual ATM UNI, which provides bandwidth allocation restrictions. This field is currently available only on the OC-12c/STM-4c 1+1 MM/SM APS/MSP) and OC-3c APS and STM-1 MSP modules. When disabled, the default value is 0. The virtual UNI (VUNI) associates itself with the egress part of the A2B or B2A side of the connection.
AAL2 Cid (display only unless SAR type is Aal2Std)	Default: <b>0</b> Range: 8–255 per trunk (0–7 not available; reserved) Format: Numeric	Enter a channel identifier only if the value <b>Aal2Std</b> is selected in the SAR Type field described below.

Table 7-3. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Window

Field Names	Field Values	Description
[FailCause A/B] (display only)	Default: <b>N/A</b>	Presents the AAL2 status reason code for both sides of the connection.
Service Type	Default: <b>Cbr-1</b> Range: Cbr-1 Cbr-2 Cbr-3 Cbr-4 Format: Alpha-numeric	Multiservice Media Gateway system-supported quality of service (QoS) class. See the <i>PacketStar Multiservice Media Gateway User Guide</i> for a description of each service type.
Flow	Default: <b>Duplex</b> Range: N/A Format: Character	Direction of the flow of data traffic in this connection. <b>Note:</b> The values change on either side of the connection window as you scroll through this field.
	<b>SimplexA2B,</b> <b>SimplexB2A,</b> <b>PointToMulti</b> <b>pointA2B,</b> <b>PointToMulti</b> <b>pointB2A</b>	Select the appropriate value.
SAR Type	Default: <b>Aal1</b> Range: Variable Format: Alphanumeric	Indicates the segmentation and reassembly (SAR) type of the incoming data stream.
	<b>Aal1</b>	AAL1
	<b>Aal2Std</b>	AAL2 Standard. <b>Note:</b> Choose this type for AAL2 trunking. Enter the associated channel identifier in the AAL2 field in the upper right panel.
	<b>Non-Mux-Aal2</b>	Non-multiplexed AAL2 (Lucent proprietary)

Table 7-3. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Window

Field Names	Field Values	Description
Conformance Type	Default: <b>Best-effort</b> Range: N/A Format: Alphanumeric	The type of traffic control option used for ATM cells. The traffic descriptor combination specifies which traffic parameters are used for traffic control, determines the number and type of cells that are admitted into a congested queue, and determines whether high-priority cells are tagged as low-priority cells when traffic exceeds the traffic parameter thresholds. <b>Note:</b> See the Reference Tables appendix in this guide for ATM Traffic Descriptors for a detailed description of the values for this field, including representative examples.
	<b>Best-effort</b>	This traffic descriptor allows the system to attempt to send all cells in a "best effort" fashion, without specifying traffic parameters, similar to the AQueMan algorithm.
	<b>1B-NT-0+1</b>	This traffic descriptor uses the parameters one bucket, no tagging, cell loss priority (CLP)=0+1 cells (high and low priority).
	<b>2B-NT-0+1-0+1</b>	This traffic descriptor uses the parameters two buckets, no tagging, CLP=0+1 cells (high and low priority) for bucket 1, and CLP=0+1 cells (high and low priority) for bucket 2.
	<b>2B-NT-0+1-0</b>	This traffic descriptor uses the parameters two buckets, no tagging, CLP=0+1 cells (high and low priority) for bucket 1, and CLP=0 cells (high priority) for bucket 2.
	<b>2B-T-0+1-0</b>	This traffic descriptor uses the parameters two buckets, CLP=0+1 cells (high and low priority) for bucket 1, and tagging for CLP=0 cells (high priority) in bucket 2.
	<b>Best-effort-tag</b>	This traffic descriptor allows the system to tag all CLP=0 (high priority) cells to change them to CLP=1 (low priority) cells during congestion, and then attempt to send all cells in a "best effort" fashion, without specifying any other traffic parameters, similar to the AQueMan algorithm.

Table 7-3. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Window

Field Names	Field Values	Description
OAM STATUS	Default: <b>Unsupp</b> Range: N/A Format: Character	The PSAX system is used as a termination point for ATM traffic, and will process AIS/RDI cells.
	<b>Unsupp</b>	OAM is not in use.
	<b>End-Pt</b>	Use this value to enable trunk conditioning. For more information, see the <i>Trunk Conditioning Application Note for PacketStar® PSAX Multiservice Media Gateways</i> .
	<b>End-Seg-Pt</b>	The PSAX system is used as both a termination point and a segment point for ATM traffic.
[Backup PVC] (display only)	Default: <b>No Yes</b> Range: N/A Format: Character	Indicates whether a backup PVC has been configured.
[Active PVC]	Default: <b>No</b> (before connection parameters are configured) Default: <b>Primary</b> (after connection parameters are configured) Range: N/A Format: Character	Indicates whether a backup PVC has been configured. When <b>Primary</b> is displayed, the backup PVC is not in use.
[Conn Status] (display only)	Default: <b>Inactive</b> Range: N/A Format: Character	Indicates whether the connection is passing traffic.
	<b>Inactive</b>	The connection is not passing traffic.
	<b>Active</b>	The connection is passing traffic.

- 4 To add (apply) the connection configuration, select the **Add This Connection** command and press Enter.
- 5 To review this connection, select the **Go Back to Connection Table** command and press Enter (or press Ctrl+B).  
The Circuit Emulation-to-ATM VCC PVC Table window is displayed with the values you just applied.
- 6 To add more connections of this type, repeat steps 2–5 for more connections as needed.
- 7 To permanently save these connections, press Ctrl+G to return to the Console Interface Main Menu window.

- 8 Select **Save Configuration**, and press Enter to store the values to the Multiservice Media Gateway system database.

*End*

### Adding Circuit Emulation-to-ATM VCC PVC Connection Parameters

*Begin*

To add DSP parameters to your connection, perform the following procedure.

- 1 From the Circuit Emulation-to-ATM VCC PVC Connection window (see Figure 7-4) select the **Configure Connection Parameters** command, or press Ctrl+C.

The Circuit Emulation-to-ATM VCC PVC Connection Parameters window is displayed (see Figure 7-5).

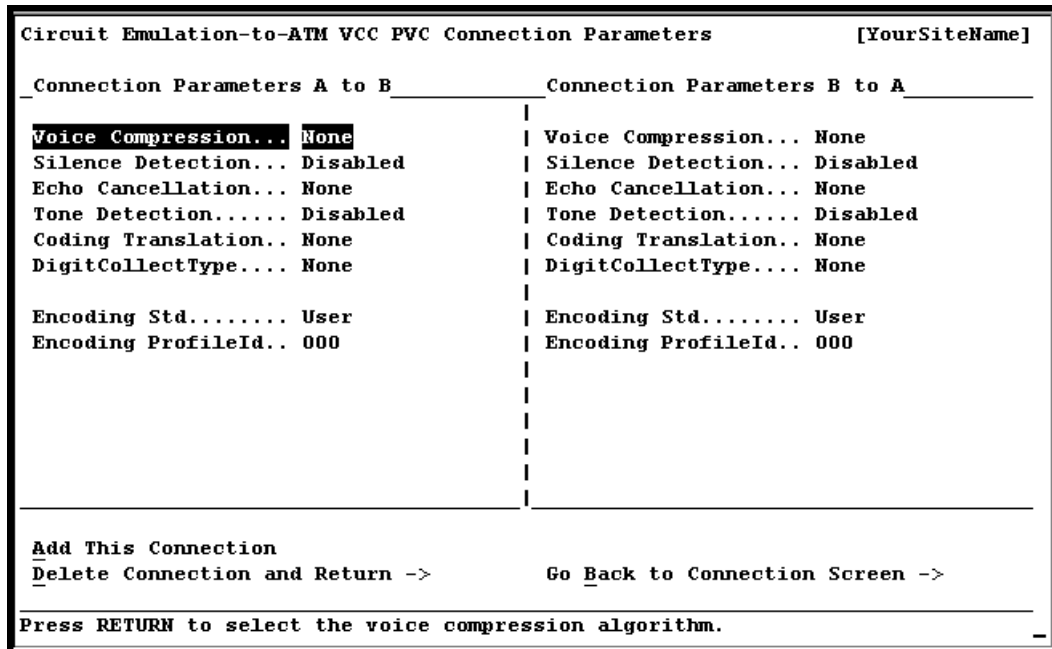


Figure 7-5. Circuit Emulation-to-ATM VCC PVC Connection Parameters Window

The commands on this window perform the following functions:

Command	Function
<b>Add This Connection</b>	Adds a connection having the values currently displayed on the window.
<b>Delete Connection and Return</b>	Deletes the connection having the values currently displayed on the window.
<b>Go Back to Connection Table</b>	Redisplays the Circuit Emulation-to-ATM VCC PVC Connection Table window.

- 2 Enter values in the fields on this window according to the information provided in the following table:

**Table 7-4. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Parameters Window**

Field Name	Field Values	Description
<b>Connection Parameters A to B Left Panel; Connection Parameters B to A Right Panel</b>		
Voice Compression	Default: <b>None</b> Range: N/A Format: predefined alphanumeric <b>G726-16k</b> <b>G726-24k</b> <b>G726-32k</b> <b>G726-40k</b> <b>G729a-8k</b>	If you want data traffic for this connection to be processed through the DSP2x Voice Server modules, do not use the default value. Instead, select the desired type and rate of voice compression from the list of choices.
Silence Detection	Default: <b>Disabled</b> Range: N/A Format: predefined alphanumeric <b>Enabled</b>	If you want data traffic for this connection to be processed through the DSP2x Voice Server modules, do not use the default value. Choosing <b>Enabled</b> enables Silence Detection.
Echo Cancellation	Default: <b>None</b> Range: N/A Format: predefined alphanumeric <b>G.165-nearEnd</b> <b>G.168</b>	If you want data traffic for this connection to be processed through the DSP2x Voice Server modules, do not use the default value. Select <b>G165-nearEnd</b> if you want to enable Echo Cancellation on this connection.
Tone Detection	Default: <b>Disabled</b> Range: N/A Format: predefined alphanumeric	If you want data traffic for this connection to be processed through the DSP2x Voice Server modules, use <b>Bypass</b> .
	<b>Bypass</b>	The value <b>Bypass</b> indicates that the fax tones are to be recognized and data sent by fax is not to be processed by compression and echo cancellation.
	<b>FaxRelay</b>	The fax calling tone is detected.
	<b>FxRlyMdmBypass</b>	Fax Relay Modem Bypass. Fax Relay is detected and modem is done in bypass mode.
Coding Translation	Default: <b>None</b> Range: N/A Format: predefined alphanumeric <b>MuLaw2muLaw</b> <b>ALaw2aLaw</b> <b>MuLaw2aLaw</b> <b>ALaw2MuLaw</b>	If you want data traffic for this connection to be processed through the DSP2x Voice Server modules, do not use the default value. The other values indicate the desired type of pulse code modulation (PCM) translation. You must specify one of these PCM types to enable data traffic processing through the DSP2x Voice Server modules.

**Table 7-4. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Parameters Window**

Field Name	Field Values	Description
[DigitCollectType] (display only unless SAR type selected is Aal2Std in the SAR Type field on lower left panel of window).	Default: <b>None</b> Range: N/A Format: Predefined alphanumeric	This feature is currently not supported. The digital tone setting.
Encoding Std	Default: <b>User</b> Range: N/A Format: predefined alphanumeric	Defined encoding profiles from industry standards. <b>Note:</b> Values chosen for this field must be compatible with the Encoding Profile ID (next field).
	<b>User</b>	No restrictions or checks are done. The user may select any combination of parameters.
	<b>ATMForum</b>	ATM Forum profile defined by <i>af-vmoa-0145.000</i> , <i>Voice and Multimedia Over ATM–Loop Emulation Service Using AAL2</i> and <i>af-vtoa-0113.000</i> , <i>ATM Trunking Using AAL2 for Narrowband Services</i> .
	<b>Itu-t</b>	ITU-T profile defined by <i>I-366-2</i> , <i>AAL2 Service-Specific Convergence Sublayer for Narrowband Services</i> .
Encoding ProfileID	Default: <b>0</b> Range: 1–256. <b>Note:</b> Do not leave the value in this field as <b>0</b> , as <b>0</b> is not usually used, and therefore meaningless.	<b>Note:</b> Values chosen for this field must be compatible with the Encoding Std (previous field). If the encoding profile is user-defined, both ends of the connection <b>must</b> use the same profile. If the encoding profile is ITU-T, use the encoding profile from <i>ITU-T 1.366.2 Annex P</i> . If the encoding profile is ATM Forum, use the encoding profiles from <i>af-vmoa-0145.000</i> and/or <i>af-vtoa-0113.000</i> . The encoding method for each channel is based on packet length and the received user-to-user indication (UUI) of that channel, according to whatever encoding standard you are using. Enter the encoding profile ID for the AAL2 connection. For example, the encoding profile for PCM-64 is “1”.

- 3** To add (apply) the connection configuration, select the **Add This Connection** command and press Enter.
- 4** To review this connection, select the **Go Back to Connection Screen** command and press Enter (or press Ctrl+B).

The Circuit Emulation-to-ATM VCC PVC Connection window is displayed.

- 5 To add more connections of this type, repeat steps 1–3 for more connections as needed.
- 6 To permanently save these connections, press Ctrl+G to return to the Console Interface Main Menu window.
- 7 Select **Save Configuration**, and press Enter (or press Ctrl+A) to store the values to the Multiservice Media Gateway system database.

*End*

**Connection Statistics Viewing Connection Statistics**

*Begin*

- 1 From the Circuit Emulation-to-ATM VCC PVC Connection window, select the **View Connection Statistics** command press Enter. The Circuit Emulation-to-ATM VCC PVC Statistics window is displayed.

Circuit Emulation Interface		ATM Interface	
Slot.....	1	Slot.....	5 VPI..... 10
Port.....	1	Port.....	1 VCI..... 32
Channel.....	1	Channel....	1
Cells Encoded.....	5.1257 e7	AIS Rx/Tx.....	6 /8
Cells Decoded.....	5.1257 e7	RDI Rx/Tx.....	6 /8
Encoded Odometer....	5.1257 e7	cell Drop/Tag..	0 /0
Decoded Odometer....	5.1257 e7	Cells Received.....	5.1257 e7
		Cells Transmitted...	5.1257 e7
		Received Odometer...	5.1257 e7
		Transmitted Odometer	5.1257 e7
Time Elapsed.....	5 days 06:18:28	<b>Reset Odometers</b>	
Time Since Reset....	03:29:27	Continuous Update	
		Display Stats for Next Connection	
		Go Back to Connection Display ->	

Press RETURN to Reset all Odometers.

Figure 7-6. Circuit Emulation-to-ATM VCC PVC Statistics Window

**Commands**

The commands in this window have the following functions:

Command	Function
<b>Reset Odometers</b>	Returns all statistics odometers to the value 0.
<b>Continuous Update</b>	Updates the values in the fields every second.

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### Provisioning PVC Connections

Command	Function
<b>Display Stats for Next Connection</b>	Displays the statistics for the next selected connection.
<b>Go Back to Connection Display</b>	Redisplays the Circuit Emulation-to-ATM VCC PVC Connection window.

### Field Descriptions

- Enter values in the fields on this window according to the information provided in Table 7-5.

**Table 7-5. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Statistics Window**

Field Name	Field Values	Description
Circuit Emulation Interface		The circuit emulation side of the connection that will send and receive signals.
ATM Interface		The ATM interface side of the connection that will send and receive signals.
Slot	Default: <b>0</b> Range: Variable depending on the chassis type Format: Numeric	Enter the slot number containing the module for which you are creating a connection. Enter slot numbers for both sides of the connection.
Port	Default: <b>1</b> Range: 1 to 8 Format: Numeric	Enter the port number on the module for which you are creating a connection. Enter port numbers for both sides of the connection.
Channel	Default: <b>1</b> (both sides) Range: 1 to 24 (DS1) 1 to 31 (E1) Format: Numeric	On the Circuit Emulation Interface side, enter the channel number of the port on the module for which you are creating a connection. On the ATM Interface side, do not change the default value ( <b>1</b> ) in this field.
VPI	Default: <b>0</b> Range: 0 to 255 Format: Numeric	Virtual path identifier. Enter a value for ATM side of the connection.
VCI	Default: <b>32</b> Range: 32 to 65535 Format: Numeric	Virtual channel identifier. Enter a value for the ATM side of the connection.
Cells Encoded (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of encoded (transmitted) user cells going into interface side A during the amount of time shown in the Time Elapsed field (that is, since the circuit was created).
Cells Decoded (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of decoded (received) user cells going out of interface side A during the amount of time shown in the Time Elapsed field (that is, since the circuit was created).

Table 7-5. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Statistics Window

Field Name	Field Values	Description
Encoded Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of encoded user cells going into interface side B since the connection was created.
Decoded Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of decoded user cells decoded going out of interface side B since the connection was created.
Time Elapsed (display only)	Default: <b>00:00:00</b> Range: N/A Format: Time in hours (xx), minutes (xx), seconds (xx)	Total time elapsed for OAM statistics collection since the circuit was established.
Time Since Reset (display only)	Default: <b>00:00:00</b> Range: N/A Format: Time in hours (xx), minutes (xx), seconds (xx)	Total time elapsed for OAM statistics collection since the last time the <b>Reset Odometers</b> command was used. <b>Note:</b> The <b>Reset Odometers</b> command on the statistics window resets only the odometer fields and the corresponding clock. Other counters increment for the life of the circuit.
AIS Rx/Tx (display only)	Default: <b>0/0</b> Range: N/A Format: Numeric	Number of OAM alarm indication signal cells received and transmitted.
RDI (display only)	Default: <b>0/0</b> Range: N/A Format: Numeric	Number of OAM remote defect indication cells received and transmitted.
Cells Received (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of received OAM cells going into interface side A during the amount of time shown in the Time Elapsed field (i.e., since the circuit was created).
Cells Transmitted (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of transmitted OAM cells going out of interface side A during the amount of time shown in Time Elapsed field (i.e., since the circuit was created.)
Received Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	Total number of ATM cells received since odometer was last reset.
Transmitted Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	Total number of ATM cells transmitted since odometer was last reset.

**Backup Connection Steps to View/Add a Circuit Emulation-to-ATM VCC Backup PVC Connection**

*Begin*

- 1 From the Circuit Emulation -to-ATM VCC PVC Connection window, select the **Add/View Backup PVC** command and press Enter.

The Circuit Emulation -to-ATM VCC Backup PVC Connection window is displayed (see Figure 7-7).

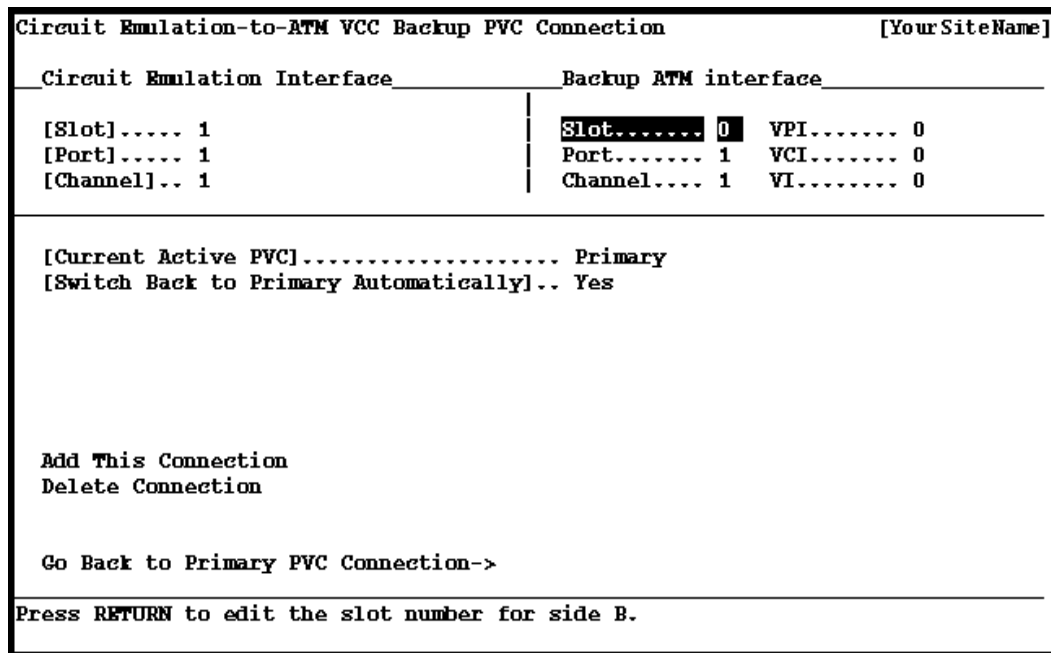


Figure 7-7. Circuit Emulation -to-ATM VCC Backup PVC Connection Window

**Commands**

The commands on this window have the following functions:

Command	Function
<b>Add This Connection</b>	Adds connection entered on Backup ATM interface right panel.
<b>Delete Connection</b>	Deletes backup connection.
<b>Go Back to Primary PVC Connection</b>	Returns to ATM-to-ATM VCC PVC Connection window.

**Field Descriptions**

- 2 Enter values in the fields on this window according to the information provided in Table 1-6.

Table 7-6. Field Descriptions for the Circuit Emulation-to-ATM VCC Backup PVC Window

Field Name	Field Values	Description
Slot	Default: <b>N/A</b> Range: Listed as available from the PSAX device Format: Numeric	Select the slot containing the module for which you are creating a connection. <b>Note:</b> This field is display only for the circuit emulation interface.
Port	Default: <b>N/A</b> Range: Determined by the number of ports available on the module selected in the Slot field Format: Numeric	Select the port number on the module for which you are creating a connection. <b>Note:</b> This field is display only for the circuit emulation interface.
Channel	Default: <b>N/A</b> Range: Determined by the number of channels available on the port selected in the Port field Format: Numeric	Select the channel number of the port on the module for which you are creating a connection. <b>Note:</b> This field is display only for the circuit emulation interface.
[Current Active PVC] (display only)	Default: <b>None</b> Range: N/A Format: Character	Indicates that the connection is inactive.
	<b>Primary</b>	Indicates that the primary connection is active (carrying user traffic).
	<b>Backup</b>	Indicates that the backup connection is active (carrying user traffic).
[Switch Back to Primary Automatically] (display only)	Default: <b>Yes</b> Range: N/A Format: Character	CPU monitors primary connection. If primary connection becomes available, backup will switch back connection to <b>Primary</b> .
	<b>No</b>	Not currently supported. Once active, the backup connection will not switch back to primary connection automatically if <b>Primary</b> becomes available.
<b>Backup ATM Interface (right panel)</b>		
Slot	Default: <b>N/A</b> Range: Listed as available from the PSAX device Format: Numeric	Select the slot containing the module for which you are creating a backup connection.

**Table 7-6. Field Descriptions for the Circuit Emulation-to-ATM VCC Backup PVC Window (Continued)**

Field Name	Field Values	Description
Port	Default: <b>N/A</b> Range: Determined by the number of ports available on the module selected in the Slot field Format: Numeric	Select the port number on the module for which you are creating a backup connection.
Channel	Default: <b>N/A</b> Range: Determined by the number of channels available on the port selected in the Port field Format: Numeric	Select the channel number of the port on the module for which you are creating a backup connection.
VPI	Default: <b>0</b> Range: 0–255 Format: Numeric	The virtual path identifier assigned to this backup interface.
VCI	Default: <b>32</b> Range: 32–4000 Format: Numeric	The virtual channel identifier assigned to this backup interface.
VI	Default: <b>0</b> Range: 0-255 Format: Numeric	Backup virtual interface, which provides bandwidth allocation restrictions. Currently available only on the OC-3c APS and STM-1 MSP modules.

**3** Press Ctrl+G and select the Save Configuration option.

**End**

## Adding Circuit Emulation-to-Circuit Emulation VCC PVC Connections

This connection type has fixed-rate [constant bit rate (CBR)] traffic. To enable coding translation and echo cancellation, at least one DSP2x Voice Server module (DSP2A through DSP2F series) must be present and configured. You can process voice traffic using circuit emulation connections through a DSP2x Voice Server module by selecting one of the pulse code modulation (PCM) types in the Coding Translation field. Perform the steps in the following procedure to create a circuit-emulation-to-circuit emulation connection.

## Creating a Circuit Emulation-to-Circuit Emulation Connection

### Provisioning a Circuit Emulation-to-Circuit Emulation Connection

#### Begin

Use the steps in the following procedure to add a circuit-emulation-to-circuit emulation connection, starting at the Connection Configuration Menu window.

- 1 On the Connection Configuration Menu window, select Circuit Emulation-to-Circuit Emulation and press Enter.

The Circuit Emulation-to-Circuit Emulation PVC Table window is displayed (see Figure 7-8).

Circuit Emulation-to-Circuit Emulation PVC Table				[YourSiteName]
Page Up	{Side A}		{Side B}	
Page Down	Slot	Port	Chnl	Flow (S)
Top	-----		-----	
Bottom	[end of table]			
Total:				
0/0				
* connection operational (S)status: connection is inactive.				
Find..... Slot: Port: Channel:				Add a Connection ->
				Go Back to Connection Menu ->
Press RETURN to view the previous page of connections.				

Figure 7-8. Circuit Emulation-to-Circuit Emulation PVC Table Window

**Note:** At the time of initial installation, the Circuit Emulation-to-Circuit Emulation PVC Table is empty. After you have set up connections, this window displays all the connections of this type in the system.

## Commands

The commands on this window have the following functions:

Command	Function
Find . . .	To find a particular connection, enter values in the Slot, Port, Channel, VPI, and VCI fields. If the connection exists, it displays on the first line of the table.

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### Provisioning PVC Connections

Command	Function
<b>Add a Connection</b>	Displays the Circuit Emulation-to-Circuit Emulation PVC Connection window.
<b>Go Back to Connection Menu</b>	Redisplays the Connection Configuration Menu window.

### Field Descriptions

The display fields on this window provide the following information about all the circuit emulation-to-circuit emulation VCC PVC connections in the PSAX system:

**Table 7-7. Field Descriptions for the CE to CE PVC Table Window**

Field Name	Description
Circuit Emulation Side A	This panel displays the information for all circuit emulation A sides of the connections. The connection entries are displayed in ascending numerical order by slot, then by port and channel.
Circuit Emulation Side B	This panel displays the information for all circuit emulation B sides of the connections.
Flow	This panel displays the direction of the data traffic flow for the connections.
Total: 0/0	The first number in this field indicates the number of the connection table entry on the first line of the currently displayed window. The second number indicates the total number of connection table entries for this connection type.

- 2 Select the **Add a Connection** command and press Enter.

The Circuit Emulation-to-Circuit Emulation PVC Connection (see Figure 7-9) window is displayed.

### Connection Capacity of DSP2x Modes

If the user is configuring DSP parameters on the connection, see the following table for connection limits.

**Table 7-8. Connection Capacity of DSP2x Modes**

DSP2x Voice Server Module Algorithm Set Modes	Connections per DSP Chip (D)	Chips per Module (N)	Maximum Number of Connections (D X N) per Module
<b>DSP2C Voice Server (32 DSP chips per module)</b>			
Std. AAL2 and Non-Mux AAL2, AlgoSet 1 (Echo Cancellation to 128 msec)	7	32	224
Std. AAL2 and Non-Mux AAL2, AlgoSet 2 (DSP2A, G726), AlgoSet 3 (DSP2B, G729a), AlgoSet 4 (fax relay)	4	32	128
<b>DSP2D Voice Server (48 DSP chips per module)</b>			

Table 7-8. Connection Capacity of DSP2x Modes (Continued)

DSP2x Voice Server Module Algorithm Set Modes	Connections per DSP Chip (D)	Chips per Module (N)	Maximum Number of Connections (D X N) per Module
Std. and Non-mux AAL2, AlgoSet 1	7	48	336
Non-mux AAL2, AlgoSets 2 and 3	4	48	192
AAL1 AlgoSet5 (Echo Cancellation to 64 msec)	21	48	1008
Std. AAL2 AlgoSet 6 (G726, G729a/b, G168, v17, v29, v21, v27)	8	48	384
GR-303 Monitoring	24	48	1152
<b>DSP2E Voice/Data Server (8 DSP chips per module)</b>			
Std. AAL2, or AAL5-to-AAL2, AlgoSet 6	6 voice chips support pure voice	8	48
	2 chips support wireless voice/data packets	84	168
<b>DSP2F Data Server (8 DSP chips per module)</b>			
Std. AAL2 AlgoSet 7	8 chips support wireless voice/data packets	84	672

## Chapter 7 Provisioning Connections Using the Console

### Provisioning PVC Connections

```

Circuit Emulation-to-Circuit Emulation PVC Connection [YourSiteName]

  Circuit Emulation Interface A      Circuit Emulation Interface B
  -----|-----
Slot..... 0 | Slot..... 0
Port..... 1 | Port..... 1
Channel..... 1 | Channel..... 1

  Connection Parameters A to B      Connection Parameters B to A
  -----|-----
Coding Translation.. None | Coding Translation.. None
Echo Cancellation... None | Echo Cancellation... None

[FailCause A/B].... NULL /NULL | Display Next Connection
Flow..... Duplex | Add This Connection
Interworking..... Disabled | Delete Connection
Service Type..... Chr-1 | View Connection Statistics ->
[Conn Status]..... Inactive | Go Back to Connection Table ->

Press RETURN to edit the slot number for side A.
  
```

Figure 7-9. Circuit Emulation-to-Circuit Emulation PVC Connection Window

#### Commands

The commands on this window have the following functions:

Command	Function
<b>Display Next Connection</b>	Displays the next connection of this type in the table.
<b>Add This Connection</b>	Adds a connection having the values currently displayed on the window.
<b>Delete Connection</b>	Deletes the connection having the values currently displayed on the window.
<b>View Connection Statistics</b>	Displays the Circuit Emulation-to-Circuit Emulation PVC Statistics window.
<b>Go Back to Connection Table</b>	Redisplays the Circuit Emulation-to-Circuit Emulation PVC Connection Table window.

#### Field Descriptions

- Enter values in the fields on this window according to the information provided in Table 7-9.

Table 7-9. Field Descriptions for the Circuit Emulation-to-Circuit Emulation PVC Connection Window

Field Name	Field Value	Description
Circuit Emulation Interface Side A	Default: <b>Predefined</b> Range: N/A Format: Predefined	Specifies Side A of the connection that sends and receives signals. This is the near-end side of the connection, closest to the hybrid digital-to-analog circuit, where the echo is created. The DSP2x module will cancel the echo before the traffic is transmitted out the Side B interface. To cancel the near-end echo, select a voice processing parameter other than <b>None</b> in the Echo Cancellation field below.
Circuit Emulation Interface Side B	Default: <b>Predefined</b> Range: N/A Format: Predefined	Specifies Side B of the connection that will send and receive signals. Far-end echo on this side must be canceled at the far end.
Slot	Default: <b>Variable</b> Range: Chassis dependent Format: Numeric	Specifies the user-supplied slot number containing the module for both sides of the connection.
Port	Default: <b>Variable</b> Range: Module dependent Format: Numeric	Specifies the user-supplied port number on the module for both sides of the connection.
Channel	Default: <b>N/A</b> Range: 1–25, CE side (DS1) Format: Numeric	Specifies the channel number of the port on the module for both sides of the connection.

## Chapter 7 Provisioning Connections Using the Console

### Provisioning PVC Connections

**Table 7-9. Field Descriptions for the Circuit Emulation-to-Circuit Emulation PVC Connection Window**

Field Name	Field Value	Description
Coding Translation	Default: <b>None</b> Range: As noted below Format: Predefined	If you want data traffic for this connection to be processed through any DSP2x Voice Server module with a coding translation parameter, do not use the default value. The other values indicate the desired type of pulse code modulation (PCM) translation. You must specify one of these PCM types to enable data traffic processing through any DSP2x Voice Server modules.
	<b>None</b>	No coding translation is selected on the connection.
	<b>MuLaw2muLaw</b>	American and Japanese compression and expansion ( <i>companding</i> ) standard is used on Sides A and B of the connection.
	<b>ALaw2aLaw</b>	European companding standard is used on Sides A and B of the connection.
	<b>MuLaw2aLaw</b>	American/Japanese to European companding standard is used between sending Side A and receiving Side B of the connection.
	<b>ALaw2MuLaw</b>	European to American/Japanese companding standard is used between sending Side A and receiving Side B of the connection.
Echo Cancellation	Default: <b>None</b> Range: As noted below Format: Predefined	If you using voice applications, an echo cancellation algorithm is recommended (select a value other than <b>None</b> ).
	<b>None</b>	No echo cancellation is used on the connection.
	<b>G165-nearEnd,</b>	ITU-T G.165 echo cancellation for the near end of the connection is used.
	<b>G168</b>	ITU-T G.1658 echo cancellation is used.
[FailCause A/B] (display only)	Default: <b>Null/Null</b> Range: N/A Format: Predefined	Presents the AAL2 status reason failure cause code for both sides of the connection.
Flow	Default: <b>Duplex</b> Range: As noted below Format: Predefined	Specifies the direction of the flow of data traffic in this connection.
	<b>Duplex</b>	Traffic flows in both directions.
	<b>SimplexA2B</b>	Traffic flows from Side A to Side B only.

Table 7-9. Field Descriptions for the Circuit Emulation-to-Circuit Emulation PVC Connection Window

Field Name	Field Value	Description
Interworking	Default: <b>Disabled</b> Range: As noted below Format: Predefined	Specifies the conversion between ATM OAM cells and circuit emulation alarms.
	<b>Disabled</b>	Disables the conversion between ATM OAM cells and circuit emulation alarms.
	<b>Enabled</b>	Enables the conversion between ATM OAM cells and circuit emulation alarms.
Service Type	Default: <b>Cbr-1</b> Range: As noted below Format: Predefined	Multiservice Media Gateway system-supported quality of service (QoS) class.
	Cbr-1	Constant bit rate, queue 1
	Cbr-2	Constant Bit rate, queue 2
	Cbr-3,	Constant Bit rate, queue 3
	Cbr-4	Constant Bit rate, queue 4

- 4 To add (apply) the connection configuration, select the **Add This Connection** command and press Enter.
- 5 To review this connection, select the **Go Back to Connection Table** command and press Enter (or press Ctrl+B).  
  
The Circuit Emulation-to-Circuit Emulation PVC Table window is displayed with the values you just applied.
- 6 To add more connections of this type, repeat steps 2 through 5 for more connections as needed.
- 7 To permanently save these connections, press Ctrl+G to return to the Console Interface Main Menu window.
- 8 Select the **Save Configuration** command, and press Enter to store the values in the PSAX system database.

**End**

## Viewing Connection Statistics

To view statistics for this connection, use the following procedure.

From the Circuit Emulation-to-Circuit Emulation PVC Connection window, select the **View Connection Statistics** command and press Enter.

The Circuit Emulation-to-Circuit Emulation Statistics window is displayed (see Figure 7-10).

## Chapter 7 Provisioning Connections Using the Console

### Provisioning PVC Connections

Circuit Emulation-to-Circuit Emulation Statistics		[YourSiteName]
Circuit Emulation Interface A	Circuit Emulation Interface B	
Slot..... 1	Slot..... 1	
Port..... 3	Port..... 4	
Channel..... 1	Channel..... 1	
Cells Encoded..... 1.6482 e7	Cells Encoded..... 1.6482 e7	
Cells Decoded..... 1.6482 e7	Cells Decoded..... 1.6482 e7	
Encoded Odometer..... 1.6482 e7	Encoded Odometer..... 1.6482 e7	
Decoded Odometer..... 1.6482 e7	Decoded Odometer..... 1.6482 e7	
Time Elapsed..... 01:07:18	<b>Reset Odometers</b>	
Time Since Reset..... 01:07:18	Continuous Update	
	Display Stats for Next Connection	
	Go Back to Connection Display ->	
Press RETURN to Reset all Odometers.		

Figure 7-10. Circuit Emulation-to-Circuit Emulation Statistics Window

#### Commands

The commands in this window have the following functions:

Command	Function
<b>Reset Odometers</b>	Returns all statistics odometers to zero.
<b>Continuous Update</b>	Updates the values in the fields every second.
<b>Display Stats for Next Connection</b>	Displays the statistics for the next selected connection.
<b>Go Back to Connection Display</b>	Redisplays the connection window.

#### Field Descriptions

The fields on this window are described in Table 7-10.

Table 7-10. Field Descriptions for Circuit Emulation-to-Circuit Emulation Statistics Window

Field Name	Field Values	Description
Cells Encoded (display only)	Default: <b>0</b> Range: N/A Format: numeric	Number of cells encoded going into interface side A or B during the amount of time shown in Time Elapsed field since the circuit was established.
Cells Decoded (display only)	Default: <b>0</b> Range: N/A Format: numeric	Number of cells decoded going out of interface side A or B during the amount of time shown in Time Elapsed field since the circuit was established.
Encoded Odometer (display only)	Default: <b>0</b> Range: N/A Format: numeric	Total number of cells encoded going into interface side A or B since this counter was reset.
Decoded Odometer (display only)	Default: <b>0</b> Range: N/A Format: numeric	Total number of cells decoded going out of interface side A or B since this counter was reset.
Time Elapsed (display only)	Default: <b>00:00:00</b> Range: N/A Format: numeric	Time elapsed since the circuit was established.
Time Since Reset (display only)	Default: <b>00:00:00</b> Range: N/A Format: numeric	Time elapsed since the last time the <b>Reset Statistics</b> command was used.  The <b>Reset Statistics</b> command on the statistics window resets only the odometer fields and the corresponding clock. Other counters increment for the duration of the circuit.

## Provisioning SPVC Connections

### Adding Circuit Emulation-to-ATM VCC SPVC Connections

#### Creating a Circuit Emulation-to-ATM Connection

Perform the steps in the following procedure to create a circuit emulation-to-ATM VCC SPVC connection.

#### Steps to Create a Circuit Emulation-to-ATM SPVC Connection

##### **Begin**

- 1 On the SPVC Connection Configuration Menu window, select Circuit Emulation-to-ATM VCC(y), and press Enter.



**Display Field Descriptions** The display-only fields on this window provide the following information about all the circuit emulation-to-ATM VCC SPVC connections in the PSAX system:

**Table 7-11. Field Descriptions for the CE to ATM VCC SPVC Table Window**

Field Name	Description
Circuit Emulation Side	This column displays the information for all circuit emulation sides of the connections. The connection entries are displayed in ascending numerical order by slot, then by port and channel.
Remote Port Address	This column displays the ATM NSAP address for the remote end of the connection in hexadecimal notation.
Flow	This column displays the direction of the data traffic flow for the connections.
Total: 0/0	The first number in this field indicates the number of the connection table entry on the first line of the currently displayed window. The second number indicates the total number of connection table entries for this connection type.

- 2 Select the **Add a Connection** command and press Enter.

The Circuit Emulation-to-ATM VCC SPVC Connection window is displayed (see Figure 7-12).

**Connection Capacity of DSP2x Modes** If the user is configuring DSP parameters on the connection, see the following table for connection limits.

**Table 7-12. Connection Capacity of DSP2x Algorithm Sets**

DSP2x Voice Server Module Configuration Scenarios	Connections per DSP Chip (D)	Chips per Module (N)	Maximum Number of Connections (D X N) per Module
<b>DSP2C Voice Server (32 DSP chips per module)</b>			
Std. AAL2 and Non-Mux AAL2, AlgoSet 1 (Echo Cancellation to 128 msec)	7	32	224
Std. AAL2 and Non-Mux AAL2, AlgoSet 2 (DSP2A, G726), AlgoSet 3 (DSP2B, G729a), AlgoSet 4 (fax relay)	4	32	128
<b>DSP2D Voice Server (48 DSP chips per module)</b>			
Std. and Non-mux AAL2, AlgoSet 1	7	48	336
Non-mux AAL2, AlgoSets 2 and 3	4	48	192
AAL1 AlgoSet5 (Echo Cancellation to 64 msec)	21	48	1008
Std. AAL2 AlgoSet 6 (G726, G729a/b, G168, v17, v29, v21, v27)	8	48	384
GR-303 Monitoring	24	48	1152
<b>DSP2E Voice/Data Server (8 DSP chips per module)</b>			

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### Provisioning SPVC Connections

**Table 7-12. Connection Capacity of DSP2x Algorithm Sets (Continued)**

DSP2x Voice Server Module Configuration Scenarios	Connections per DSP Chip (D)	Chips per Module (N)	Maximum Number of Connections (D X N) per Module
Std. AAL2, or AAL5-to-AAL2, AlgoSet 6	6 voice chips support pure voice	8	48
	2 chips support wireless voice/data packets in 15 to 256 byte frame sizes	84	168
<b>DSP2F Data Server (8 DSP chips per module)</b>			
Std. AAL2 AlgoSet 7	8 chips support wireless voice/data packets in 15 to 256 byte frame sizes	84	672

```

Circuit Emulation-to-ATM VCC SPVC Connection [YourSiteName]
-----
Circuit Emulation Interface           ATM Interface
Slot..... 0 | [Slot]..... 0 [VPI]..... 0
Port..... 1 | [Port]..... 1 [VCI]..... 0
Channel..... 1 | [Channel].... 1 [VUNI]..... 0
-----
Connection Type. ActiveSvc           SAR Type..... Non-Mux-Aal2
Service Type.... Chr-2              Retry Limit..... 0
Flow..... Duplex                   Retry Interval(sec).... 1
-----
Remote NSAP Addr..
-----
[Oper Status].... Other             [Last Rls Cause]..... 0
[Last Rls Diag]..                  [Retry Failure Count].. 0
[Admin Status]... OutOfService     Priority..... 3
-----
Bring Into Service                  Configure DSP2 Parameters ->
Display Next Connection             Add This Connection
Continuous Update                  Delete Connection
Restart This Connection             View Connection Statistics ->
                                   Go Back to Connection Table ->
-----
Press RETURN to edit the slot number for side A.

```

**Figure 7-12. Circuit Emulation-to-ATM VCC SPVC Connection Window**

### Commands

The commands on this window have the following functions:

## Chapter 7 Provisioning Connections Using the Console

### Provisioning SPVC Connections

Command	Function
<b>Bring Into Service</b>	Brings this out-of-service connection into service so that the connection is available to make or receive calls.
<b>Take Out Of Service</b>	Takes this in-service connection out of service so that the connection is not available to make or receive calls.
<b>Display Next Connection</b>	Displays the next connection of this type in the PSAX system (all connections of this type are displayed on the Circuit Emulation-to-ATM VCC SPVC Table window).
<b>Continuous Update</b>	Updates the values in the fields every second.
<b>Restart This Connection</b>	Restarts the connection establishment procedure for this connection when the value <b>InService</b> is displayed in the [Admin Status] field.
<b>Configure DSP2 Parameters</b>	Displays the DSP2 Parameter Configuration window.
<b>Add This Connection</b>	Adds a connection having the values currently displayed on the window.
<b>Delete Connection</b>	Deletes the out-of-service connection currently displayed on the window.
<b>View Connection Statistics</b>	Displays the Circuit Emulation-to-ATM VCC SPVC Statistics window.
<b>Go Back to Connection Table</b>	Redisplays the Circuit Emulation-to-ATM VCC SPVC Table window.

## Chapter 7 Provisioning Connections Using the Console

### Provisioning SPVC Connections

#### Field Descriptions

- Enter values in the fields on this window according to the information provided in Table 7-13.

**Table 7-13. Field Descriptions for the Circuit Emulation-to-ATM SPVC Connection Window**

Field Name	Field Values	Description
Circuit Emulation Interface	Default: <b>N/A</b> Range: N/A Format: N/A	The circuit emulation side of the connection that will send and receive signals.
ATM Interface	Default: <b>N/A</b> Range: N/A Format: N/A	The ATM interface side of the connection that will send and receive signals.
Slot	Default: <b>N/A</b> Range: variable Format: Numeric	Enter the circuit emulation-side slot number containing the module for which you are creating a connection. The range of slot numbers varies with the chassis type.
Port	Default: <b>N/A</b> Range: variable Format: Numeric	Enter the circuit emulation-side port number on the module for which you are creating a connection. The range of port numbers varies with the module type.
Channel	Default: <b>N/A</b> Range: variable Format: Numeric	Enter circuit emulation-side channel number for the port on the module for which you are creating a connection. The range of channel numbers varies with the module type.
[VPI ] (display only)	Default: <b>0</b> Range: 0–225 (ATM UNI); 0–4095 (NNI) Format: numeric	Virtual path identifier (ATM side).
[VCI] (display only)	Default: <b>0</b> Range: 0– 65535 Format: numeric	Virtual channel identifier (ATM side).
Connection Type	Default: <b>ActiveSvc</b> Range: N/A Format: predefined alphanumeric	The type of SPVC connection. See Chapter 2 of the <i>PacketStar® PSAX DSP2x Voice Server Module User Guide</i> for rules.
	<b>ActiveSvc</b>	Selecting the value <b>ActiveSvc</b> attempts calls.
	<b>PassiveSvc</b>	Selecting the value <b>PassiveSvc</b> accepts calls. Several fields are not displayed when this value is selected.

Table 7-13. Field Descriptions for the Circuit Emulation-to-ATM SPVC Connection Window

Field Name	Field Values	Description
Service Type	Default: <b>Cbr-2</b> Range: N/A Format: predefined alphanumeric	Specifies the PSAX system-supported quality of service (QoS) class. For a description of the QoS classes, see the reference appendix in this guide. The type selected causes the conformance type for the connection to be derived from the class of service. This derived value is enforced by the UPC setting of the I/O module.
	<b>Cbr-2</b>	Constant bit rate, queue 2
	<b>Cbr-3</b>	Constant bit rate, queue 3
	<b>Cbr-4</b>	Constant bit rate, queue 4
Flow	Default: <b>Duplex</b> Range: N/A Format: alphanumeric	Direction of flow of data traffic in this connection.
	<b>Duplex</b>	Data flows in two directions between the two connection points (interface side A and interface side B).
	<b>SimplexA2B</b>	Data flows in only one direction, from side A to side B.
	<b>PointToMultipoint A2B</b>	Data flows in only one direction, from one point on side A to several points on side B.
	<b>Simplex B2A</b>	Data flows in only one direction, from side B to side A.
	<b>PointToMultipoint B2A</b>	Data flows in only one direction, from one point on side B to several points on side A.
Remote NSAP Addr	Default: <b>N/A</b> Range: N/A Format: hexadecimal	The ATM NSAP address of the remote end of the connection, in hexadecimal notation. Enter the NSAP address of the remote circuit emulation or ATM interface. This field is displayed only when <b>ActiveSvc</b> is selected as the connection type.
SAR Type	Default: <b>Non-Mux-Aal2</b> Range: N/A Format: alphanumeric	The type of segmentation and reassembly of data. If you are upgrading your PSAX system software, see the note at the end of this table.
	<b>Non-Mux-Aal2</b>	Non-multiplexed AAL2. Choose this type to configure an SPVC if you are using DSP parameters with the connection. If you are using structured, channelized DS1/T1 service, see the note at the end of this table.
	<b>Aal1</b>	AAL1 (uncompressed CBR).

## Chapter 7 Provisioning Connections Using the Console

### Provisioning SPVC Connections

**Table 7-13. Field Descriptions for the Circuit Emulation-to-ATM SPVC Connection Window**

Field Name	Field Values	Description
Retry Limit	Default: <b>0</b> Range: 0–65535 Format: numeric	Maximum limit on how many consecutive unsuccessful call setup attempts can be made before stopping the attempts to set up the connection. The value <b>0</b> indicates no limits and results in an infinite number of retries. See the reference appendix in this guide for the description of ATM User-Network Specification, Version 3.1, Cause Codes. This field is displayed only when <b>ActiveSvc</b> is selected as the connection type.
Retry Interval(sec)	Default: <b>1</b> Range: 0–3600 Format: numeric (sec)	The number of seconds between retry intervals. The value <b>0</b> results in a retry with no delay. This field is displayed only when <b>ActiveSvc</b> is selected as the connection type.
[Oper Status] (display only)	Default: <b>Other</b> Range: N/A Format: Character	Operational status of the connection.
	<b>Other</b>	None of the types specified below.
	<b>EstablishmentInProgress</b>	The connection is not operational, but call attempts are ongoing.
	<b>Connected</b>	The connection is currently operational.
	<b>RetriesExhausted</b>	The retry limit has been reached and call attempts have ceased.
	<b>NoAddressSupplied</b>	No remote address has been configured, so no call attempts are initiated.
	<b>LowerLayerDown</b>	The PVC endpoint is out of service.
	<b>WaitingForCall</b>	The passive endpoint of a SPVC connection is waiting for call from an active side.
	<b>WaitingForRetryTimer</b>	The active endpoint of a SPVC connection is waiting for the retry timer to expire so that it can retry the call.
[Last Rls Diag] (display only)	Default: <b>N/A</b> Range: N/A Format: predefined alphanumeric	Last release diagnosis. The text explains how the connection was released and reported by the far end of the connection.
[Retry Failure Count] (display only)	Default: <b>N/A</b> Range: N/A Format: predefined alphanumeric	Displays how many times the call retry failed since the last successful call setup. When a call is released, the PSAX system continues to retry up to the retry limit that is specified in the Retry Limit field. See the ATM UNI 3.0 specification for more information.

Table 7-13. Field Descriptions for the Circuit Emulation-to-ATM SPVC Connection Window

Field Name	Field Values	Description
[Last Rls Cause] (display only)	Default: <b>0</b> Range: N/A Format: numeric	Displays the last release cause code. The cause code indicates a reason why the last attempted call was released. See the reference appendix in this guide for the description of SPVC Connection Cause Codes. <b>Note:</b> This field is displayed only when you select the value <b>ActiveSVC</b> in the Conn Type field.
[Admin Status] (display only)	Default: <b>OutOfService</b> Range: N/A Format: predefined alphanumeric	Indicates whether the connection is attempting to make calls or receive calls.
	<b>OutOfService</b>	Indicates that the connection is not available to attempt making or receiving calls.
	<b>InService</b>	Indicates that the connection is available to attempt making calls or receiving calls.
Priority	Default: <b>3</b> Range: 1–6 Format: numeric	Specifies the the user-defined priority level of this connection. To ensure that a wireless SPVC connections is not affected in the event that an ATM IMA link fails, you can assign a priority level that you define. Typically, level 1 is the highest priority and level 6 is the lowest.

**Note:** SAR type for using structured, channelized DS1/T1 service: You must select nonmultiplexed AAL2 when using structured, channelized DS1/T1 service on the following modules: 1-Port Channelized DS3 Multiservice, 1-port Channelized DS3 CES, 1-Port Channelized STS-1e, T1 Format, 3-Port Channelized DS3/STS-1e CES, 6-Port Enhanced DS1 Multiservice, 6-Port Enhanced E1 Multiservice, 21-Port High-Density E1 Multiservice, and 12-Port Medium-Density DS1 Multiservice. Save your SPVC connection configurations before upgrading your PSAX system software, or you will have to re-enter these configurations.

- 4 To add (apply) the connection configuration, select the **Add This Connection** command and press Enter.

*End*

### Configuring Digital Signal Processing (DSP2) Parameters

### Configuring DSP2 Parameters on the Circuit Emulation-to-ATM VCC SPVC Connection

*Begin*

- 1 From the Circuit Emulation-to-ATM VCC SPVC Connection window, select the **Configure DSP2 Parameters** command and press Enter (or press Ctrl+C).

## Chapter 7 Provisioning Connections Using the Console

### Provisioning SPVC Connections

The Circuit Emulation-to-ATM VCC SPVC DSP2 Parameters window is displayed.

```
Circuit Emulation-to-ATM VCC SPVC DSP2 Parameters [YourSiteName]
-----
DSP2 Parameters In                               DSP2 Parameters Out
-----
Voice Compression... None                       | Voice Compression... None
Silence Detection... Disabled                   | Silence Detection... Disabled
Echo Cancellation... None                      | Echo Cancellation... None
Tone Detection..... Disabled                   | Tone Detection..... Disabled
Coding Translation.. None                      | Coding Translation.. None
-----
Add This Connection
Delete Connection and Return ->               Go Back to Connection Screen ->
-----
Press RETURN to select the voice compression algorithm.
```

Figure 7-13. Circuit Emulation-to-ATM VCC SPVC DSP2 Parameters Window

#### Commands

The commands on this window have the following functions:

Command	Function
<b>Add This Connection</b>	Adds a connection having the values currently displayed on the window.
<b>Delete Connection and Return</b>	Deletes the connection having the values currently displayed on the window.
<b>Go Back to Connection Table</b>	Redisplays the Circuit Emulation-to-ATM VCC SPVC Connection window.

#### Field Descriptions

- 2 Enter values in the fields on this window according to the information provided in Table 7-14.

Table 7-14. Field Descriptions for the Circuit Emulation-to-ATM SPVC DSP2 Parameters Window

Field Names	Field Values	Description
Voice Compression	Default: <b>None</b> Range: N/A Format: Predefined alphanumeric <b>None, G726-16k, G726-24k, G726-32k, G726-40k, G729a-8k</b>	If you want data traffic for this connection to be processed through a DSP2x Voice Server module, do not select the default value <b>None</b> . To enable voice compression, select the desired type and rate of voice compression from the list of values. <b>Note:</b>
Silence Detection	Default: <b>Disabled</b> Range: N/A Format: Predefined alphanumeric	If you want data traffic for this connection to be processed through a DSP2x Voice Server module, do not select the default value <b>Disabled</b> . <b>Note:</b>
	<b>Disabled</b>	Disables silence detection.
	<b>Enabled</b>	Enables silence detection.
Echo Cancellation	Default: <b>None</b> Range: N/A Format: Predefined alphanumeric <b>None, G165-nearEnd, G168</b>	If you want data traffic for this connection to be processed through a DSP2x Voice Server module, do not select the default value <b>None</b> . If you want to enable echo cancellation on this connection, select <b>G165-nearEnd</b> or <b>G168</b> . <b>Note:</b>
Tone Detection	Default: <b>Disabled</b> Range: N/A Format: Predefined alphanumeric	If you want data traffic for this connection to be processed through a DSP2x Voice Server module, select the value <b>Bypass</b> . <b>Note:</b>
	<b>Disabled</b>	<b>Note:</b> Disables tone detection
	<b>Bypass</b>	<b>Note:</b> Indicates that the fax tones are to be recognized and data sent by fax is not to be processed by compression and echo cancellation.
Coding Translation	Default: <b>None</b> Range: N/A Format: predefined alphanumeric <b>None, MuLaw2muLaw, ALaw2aLaw, MuLaw2aLaw, ALaw2MuLaw</b>	<b>Note:</b> If you want data traffic for this connection to be processed through a DSP2x Voice Server module, do not select the default value <b>None</b> . To enable coding translation, select one of the values for pulse code modulation (PCM) translation. Selecting the value <b>None</b> actually uses Mu-law to Mu-law as the default PCM type. If used, noise will result on E1 circuits. If you are configuring this parameter for the 6-Port Enhanced DS1 or E1 modules, select the value <b>ALaw2aLaw</b> .

- 3 After entering the values you want for the DSP2 parameters, select the **Add This Connection** command (or press Ctrl+A).

## Chapter 7 Provisioning Connections Using the Console

### Provisioning SPVC Connections

- 4 To review this connection, select the **Go Back to Connection Table** command and press Enter (or press Ctrl+B).

The Circuit Emulation-to-ATM VCC SPVC Table window is returned, displaying the values you just applied.

- 5 To add more connections of this type, repeat steps 2 through 5 for more connections as needed.
- 6 To permanently save these connections, press Ctrl+G to return to the Console Interface Main Menu window, select Save Configuration, and press Enter to store the values to the PSAX system database.

**End**

### Viewing Connection Statistics

From the Circuit Emulation-to-ATM VCC SPVC Connection window, select the **View Connection Statistics** command and press Enter. The Circuit Emulation-to-ATM VCC SPVC Statistics window is displayed (see Figure 7-14).

Circuit Emulation Interface		ATM Interface	
Slot.....	8	Slot.....	4
Port.....	6	Port.....	1
Channel.....	2	Channel.....	1
		VPI.....	0
		VCI.....	33100
Cells Encoded.....	1.1557 e5	Cells Received.....	1.1557 e5
Cells Decoded.....	1.1557 e5	Cells Transmitted...	1.1557 e5
Encoded Odometer.....	1.1557 e5	Received Odometer...	1.1557 e5
Decoded Odometer.....	1.1557 e5	Transmitted Odometer	1.1557 e5
Time Elapsed.....	00:11:23	<b>Reset Odometers</b>	
Time Since Reset.....	00:11:23	Continuous Update	
		Display Stats for Next Connection	
		Go Back to Connection Display ->	
Press RETURN to Reset all Odometers.			

Figure 7-14. Circuit Emulation-to-ATM VCC SPVC Statistics Window

### Commands

The commands in this window have the following functions:

Command	Function
<b>Reset Odometers</b>	Returns all statistics odometers to zero.
<b>Continuous Update</b>	Updates the values in the fields every second.

Command	Function
<b>Display Stats for Next Connection</b>	Displays the statistics for the next selected connection.
<b>Go Back to Connection Display</b>	Redisplays the Circuit Emulation-to-ATM VCC SPVC Connection window.

**Field Descriptions** The fields on this window are described in Table 7-15.

**Table 7-15. Field Descriptions for the Circuit Emulation-to-ATM VCC SPVC Statistics Window**

Field Names	Field Values	Description
Circuit Emulation Interface		The circuit emulation side of the connection that will send and receive signals.
ATM Interface		The ATM interface side of the connection that will send and receive signals.
Slot (display only)	Default: <b>0</b> Range: Chassis-dependent Format: numeric	The slot number containing the module for which you are creating a connection.
Port (display only)	Default: Range: Module-dependent Format: numeric	The port number on the module for which you are creating a connection.
Channel (display only)	Default: <b>1</b> Range: CE side: 1–24 (DS1) 1–31 (E1) ATM side:1 Format: numeric	On the Circuit Emulation Interface side, enter the channel number of the port on the module for which you are creating a connection. On the ATM Interface side, do not change the default value ( <b>1</b> ) in this field.
VPI (display only)	Default: <b>0</b> Range: 0–255 Format: numeric	Virtual path identifier (ATM side).
VCI (display only)	Default: <b>32</b> Range: 32–65535 Format: numeric	Virtual channel identifier (ATM side).
Cells Encoded (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: numeric	Number of cells encoded going into either interface side during the amount of time shown in Time Elapsed field (that is, since the circuit was created).
Cells Decoded (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: numeric	Number of cells decoded going out of either interface side during the amount of time shown in Time Elapsed field (that is, since the circuit was created).

## Chapter 7 Provisioning Connections Using the Console

### Provisioning SPVC Connections

**Table 7-15. Field Descriptions for the Circuit Emulation-to-ATM VCC SPVC Statistics Window**

Field Names	Field Values	Description
Encoded Odometer (display only)	Default: <b>0.0000 e0</b> Range: $0-(2^{31}-1)$ Format: numeric	Total number of cells encoded going into either interface side since the odometer was last reset.
Decoded Odometer (display only)	Default: <b>0.0000 e0</b> Range: $0-(2^{31}-1)$ Format: numeric	Total number of cells decoded going out of either interface side since the odometer was last reset.
Time Elapsed (display only)	Default: <b>00:00:00</b> Range: N/A Format: Time in hours (xx), minutes (xx), seconds (xx)	Time elapsed since the circuit was established.
Time Since Reset (display only)	Default: <b>00:00:00</b> Range: NA Format: Time in hours (xx), minutes (xx), seconds (xx)	Time elapsed since the last time the <b>Reset Odometers</b> command was used. This command resets only the odometer fields and the corresponding clock. Other counters increment for the life of the circuit.
Cells Received (display only)	6.5000 e1 (default)	Number of valid cells received since the virtual circuit or virtual path was established.
Cells Transmitted (display only)	6.5000 e1 (default)	Number of valid cells transmitted since the virtual circuit or virtual path was established.
Received Odometer (display only)	6.5000 e1 (default)	Total number of ATM cells received since odometer was last reset.
Transmitted Odometer (display only)	6.5000 e1 (default)	Total number of ATM cells transmitted since odometer was last reset.

# 8 Provisioning Connections Using the AQueView® System



## Overview of This Chapter

This chapter describes how to set up PVC and SPVC connections in the PSAX Multiservice Media Gateway systems for service provisioning and how to view statistics data for billing and performance monitoring. It also contains instructions for making the following types of connections:

- PVC connections:
  - ~ Circuit Emulation-to ATM VCC
  - ~ Circuit Emulation-to Circuit Emulation VCC
- SPVC connection: Circuit Emulation-to-ATM VCC

## Before You Begin

Before you provision connections for the module, you must have first completed the following tasks:

- Set the configuration values for one or more ports on the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A Mode).
- Set the configuration values for the circuit emulation interface type on the 12-Port Medium-Density DS1/E1/DS0A CES module (DS0A Mode).
- Selected the **CircuitEmulation** interface type value in the Interface Type field on the 12-Port Medium-Density DS0A Port and Channel Configuration window.

For a matrix of connection types by interface types, see the Connection Types by Interface Types table in the appendix, “Reference Information.”

## Data Flow in PVC Connections

PVCs consist of connections between ports on the various PSAX I/O modules. When setting up some types of connections, you can set up data traffic to flow in several ways, depending on the type of connection as follows:

- Duplex (Point-to-Point)
  - Data flows in two directions between the two connection points (interface side A and interface side B).
- Simplex
  - Data flows in only one direction, from side A to side B, or from side B to side A.
- Point-to-Multipoint

Data flows in only one direction, from one point on side A to several points on side B, or from one point on side B to several points on side A.

## Managing Connections

Within the Connections tab are four tabs that open the following pages:

- By default, the Listing page appears when you click the Connections tab. The Listing page displays all existing connections established on the device by default, that you can filter. Connections can be created from this window by clicking the right mouse button to display the connections menu. The number in parentheses on the tab is the number of connections in the list.
- The Filter page enables you to sort and view connection types listed on the Listing page by connection type, slot, port, and channel
- The SPVC NSAP Address page allows you to enter new SPVC NSAP addresses and to view a list of existing SPVC NSAP addresses
- The AAL2 Trunk page allows you to add AAL2 trunk entries

**Note:** AAL2 is not supported on all I/O modules.

### Listing Page

To access the Listing page, click the Connections tab in the Device window.

Type	Status	A-Intf	A-S/P/C	VPI/DL...	VCI A	B-Intf	B-S/P/C	VPI/DL...	VCI B	Flow	Bad
ATM-to-ATM_VCC	Inactive	AtmUni3-0	05/05/001	13	133	AtmUni3-0	05/06/001	13	133	Duplex	N
ATM-to-ATM_SPVC	LowerLayerDo...	AtmUni3-0	04/01/001	10	100	-	-	0	0	Duplex	
ATM-to-ATM_SPVC	LowerLayerDo...	AtmUni3-0	04/01/001	12	144	-	-	0	0	Duplex	
ATM-to-ATM_SPVC	LowerLayerDo...	AtmUni3-0	04/01/001	13	134	-	-	0	0	Duplex	
ATM-to-ATM_SPVC	LowerLayerDo...	AtmUni3-0	04/01/001	13	144	-	-	0	0	Duplex	
ATM-to-ATM_SPVC	Other	AtmUni3-0	04/01/001	78	188	-	-	0	0	Duplex	
Circuit_Emulation-to-AT...	LowerLayerDo...	CircuitEmulation	04/02/001	-	-	-	-	-	-	Duplex	
Frame_Relay-to-ATM_S...	WaitingForRetr...	FrameRelayUni	05/04/001	77	-	-	-	-	-	Duplex	
Frame_Relay-to-ATM_S...	WaitingForCall	FrameRelayUni	05/04/001	78	-	-	-	-	-	Duplex	
VBR-to-ATM_SPVC	LowerLayerDo...	TerminalEmul...	04/04/001	-	-	-	-	-	-	Duplex	
VBR-to-ATM_SPVC	Other	AtmUni3-0	04/01/001	58	-	-	-	-	-	Duplex	
ATM-to-ATM_SPVC	LowerLayerDo...	AtmUni3-0	04/01/001	60	-	-	-	0	-	Duplex	
ATM-to-ATM_SPVP	LowerLayerDo...	AtmUni3-0	04/01/001	61	-	-	-	0	-	Duplex	
VBR-to-ATM_Std_AAL2...	Inactive	HdlicPassThro...	05/02/001	-	-	-	-	-	-	-	
VBR-to-ATM_Std_AAL2...	Inactive	HdlicPassThro...	05/02/002	-	-	-	-	-	-	-	
VBR-to-ATM_Std_AAL2...	Inactive	HdlicPassThro...	05/02/003	-	-	-	-	-	-	-	
VBR-to-ATM_Std_AAL2...	Inactive	HdlicPassThro...	05/02/004	-	-	-	-	-	-	-	

Figure 8-1. Listing Page

**Buttons**

The buttons on the Listing page have the following functions:

Button	Function
<b>Find</b>	Searches the table and displays a matching text string entered in the Show connections containing: field.
<b>Reset</b>	Removes text entered in the Show connections containing: field.

**Searching for Specific Connection Entries**

In the Listing and the SPVC NSAP Address pages, you can search for any combination of letters or numbers (a text string), and the page will change its display to show only the entries that contain the text string you enter.

For example, the Listing page shown in Figure 8-2 has hundreds of connection entries. It is quicker to search this page based on a text string than to scroll up and down the page looking for a specific entry.

Perform the steps in the following procedure to search for entries using a text string.

**Note:** This procedure uses the Listing page, but the procedure is the same for the SPVC NSAP Address page.

**Begin**

- 1 Click the Connections tab.

The Listing page appears (see Figure 8-2).

Type	Status	A-Intf	A-S/P/C	VPI/DLC	VCI A	B-Intf	B-S/P/C	VPI/DLC	VCI B	Flow	Bac
Bridge-to-ATM_PVC	Active	Bridge	11/06/001	-	-	AtmUni3-1	02/02/001	0	212	Undefined	N
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-1	-	-	AtmUni3-1	02/02/001	0	101	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-2	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-3	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-4	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-5	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-6	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-7	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-8	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-9	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-10	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-11	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-12	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-13	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-14	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-15	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-16	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-17	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-18	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-19	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-20	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-21	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-22	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-23	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-24	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-25	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-26	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-27	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-28	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-29	-	-	AtmUni3-1	02/01/001	10	100	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-30	-	-	AtmUni3-1	02/01/001	10	100	-	

**Figure 8-2. Listing Page (Displaying Multiple Entries)**

- 2 In the Show connections containing: field (at the bottom of the Listing page) or Show table entries containing: field (in the middle of the SPVC NSAP Address page), enter a string of letters and/or numbers that you want to find. (In this example, 19 is used.)
- 3 Click **Find**.

The page displays the entries that contain the text string you entered (see Figure 8-3).

Front Panel												
Connections		Site-Specific	Diagnostics	System Maintenance	ISP Routing	PNNI	Log					
Listing( 14 )	Filter	SPVC NSAP Address	AAL2 Trunk									
Type	Status	A-Intf	A-S/P/C	VPI/DLC...	VCI A	B-Intf	B-S/P/C	VPI/DLC...	VCI B	Flow	Backup	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-119	-	-	AtmUni3-1	02/01/001	10	100	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-190	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-191	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-192	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-193	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-194	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-195	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-196	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-197	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-198	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-199	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-219	-	-	AtmUni3-1	02/01/001	10	200	-	-	
GR303_AAL2_PVC_VCC	Active	GR303-IG 2	CallRef-319	-	-	AtmUni3-1	02/01/001	10	300	-	-	

Show connections containing : 19

Figure 8-3. Listing Page (Displaying Search Results)

- 4 To perform another search, repeat Step 2 and Step 3 as often as needed.
- 5 To return the page to its original display, click **Reset**.

**End**

## Viewing Connection Details

To view the connections for a specific PSAX device, view the Listing page in the Connections tab for that PSAX device. To view the detailed information for a specific connection, double-click the connection in the Connections page.

### Displaying and Updating Connection Information

- You can do either of the following to view the Display Connection window:
- ~ Click on any entry in the Listing page, right-click the mouse, and select Display from the right-click menu
  - ~ Create a connection, and the Display Connection window will appear for the selected connection

Up to four tabs may be displayed within the Display Connection window: Primary, Statistics, Backup, and Utilization.

### Display Connection Tabs

Clicking the Primary tab displays the Primary page, which contains the same information as the Create Connection window for the selected connection.

Clicking the Statistics tab displays the Statistics page, which contains statistical information for the selected connection.

Clicking the Backup tab displays the Backup page, which can be displayed for all PVC and SPVC connection types. You can use the Backup page to establish a backup PVC or SPVC connection. Backup connections can be created at any time after the primary connection has been established.

Clicking the Utilization tab displays the Utilization page, which can be displayed for all PVC and SPVC connection types. You can use the Utilization page to calculate and display the average number of cells per second, the average number of bits per second for a given PVC or SPVC and for a given time interval (from 20 seconds to 5 minutes).

## Filtering the Listing Page by Connection Type

This section describes how to filter the Listing page in the Connections tab by choosing the types of connections that should be displayed. You can determine which connection types appear in the Listing page of the Connections tab. This is accomplished by making selections in the Filter By Connection Type and Filter By Interface panels in the Filter page of the Connections tab (see Figure 8-4).

Perform the steps in the following procedure to filter the Listing page by the types of connections you select in the Filter page.

---

### Begin

- 1 In the Device window, click the Connections tab.  
The Listing page appears.
- 2 Click the Filter tab and the Filter page appears (see Figure 8-4).

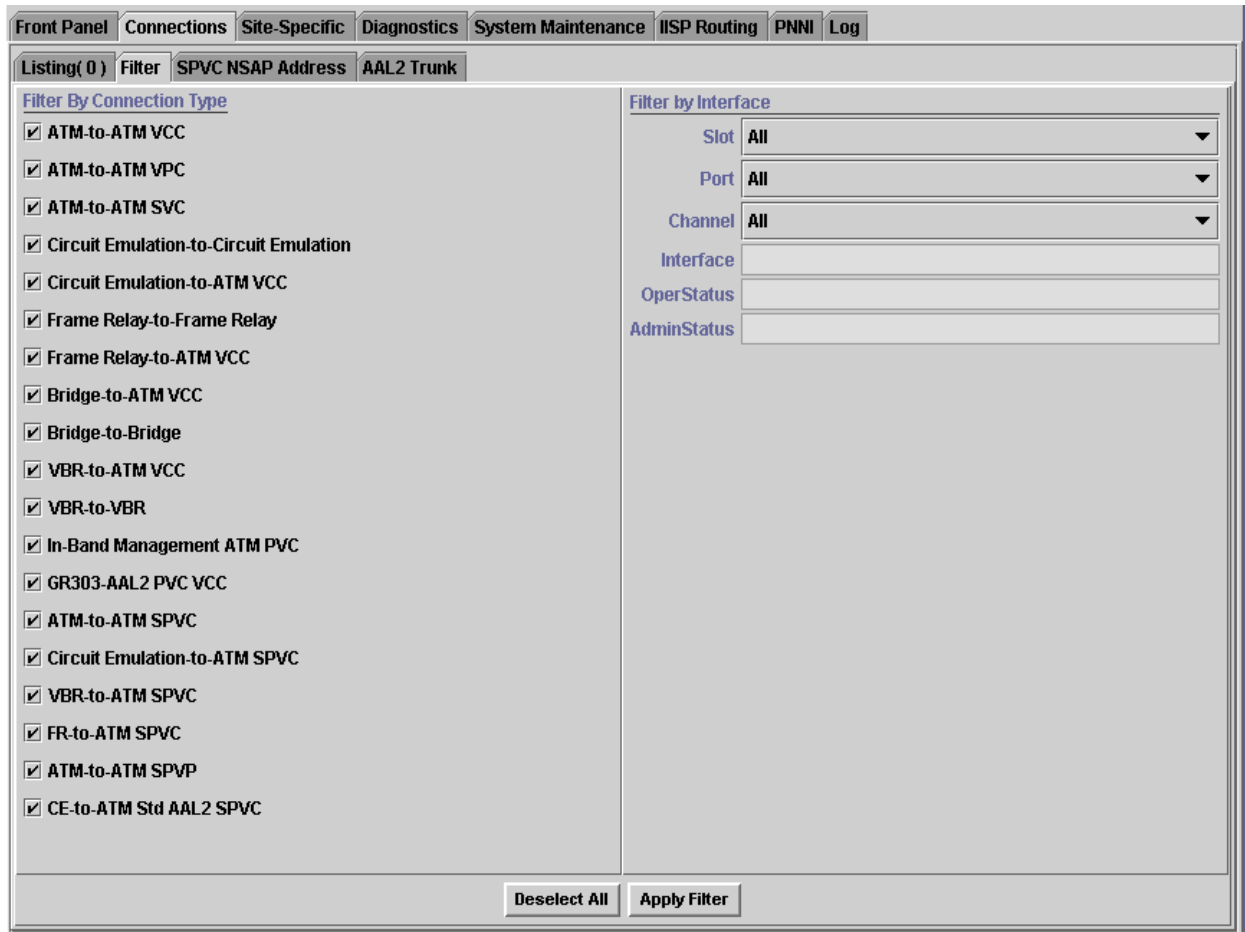


Figure 8-4. Filter Page

The Filter page contains the Connection Type and Filter By Interface panels.

### Buttons

The buttons in this window have the following functions:

Button	Function
<b>De-select All</b>	Removes check marks from all connection types and changes the button label to <b>Select All</b> .

Button	Function
<b>Select All</b>	Places check marks in all connection types and changes the button label to <b>De-select All</b> .
<b>Apply Filter</b>	Filters the connection types that you checked, or that you selected on the Filter By Interface panel (see “The Filter By Interface panel in the Filter page lets you select specific locations on the PSAX device by which to filter the list of connections. This panel contains the following user-selectable options:”).

- 3 Remove the check mark next to any connection type that you do not wish to view in the Listing page.
- 4 If you want to filter the Listing page further, make selections in the Filter By Interface panel (see “The Filter By Interface panel in the Filter page lets you select specific locations on the PSAX device by which to filter the list of connections. This panel contains the following user-selectable options:”).
- 5 When finished selecting all the desired filters, click **Apply Filter**.

**Note:** Only the connection types you selected will appear in the Listing page.

*End*

The Filter By Interface panel in the Filter page lets you select specific locations on the PSAX device by which to filter the list of connections. This panel contains the following user-selectable options:

- Slot—Allows you to view only connections from a specific module or from all modules.
- Port—Allows you to view only connections from a specific port or from all ports
- Channel—Allows you to view only connections from a specific channel or from all channels

Perform the steps in the following procedure to filter the Connection List by PSAX hardware.

*Begin*

- 1 In the Device window, click the Connections tab.  
The Listing page appears.
- 2 Click the Filter tab and the Filter page appears.

- 3 In the Filter by Interface panel (see Figure 8-4), select the following values:
  - a. A module in the Slot field to remove any connection that does not begin or end at the module from the Listing page.
  - b. A port number in the Port field to remove any connection that does not begin or end at a port with that number from the Listing page.
  - c. A channel number in the Channel field to remove any connection that doesn't begin or end at a port with that channel from the Listing page.
- 4 If you want to filter the Listing page further, make selections in the Filter By Connection Type panel (see "This section describes how to filter the Listing page in the Connections tab by choosing the types of connections that should be displayed. You can determine which connection types appear in the Listing page of the Connections tab. This is accomplished by making selections in the Filter By Connection Type and Filter By Interface panels in the Filter page of the Connections tab (see Figure 8-4).").
- 5 When finished selecting all the needed filters, click **Apply Filter**.

**Note:** Only the types of connections you selected will appear in the Listing page.

**End**

---

## SPVC NSAP Addresses

You can enter new SPVC NSAP addresses and view a list of existing SPVC NSAP addresses on the SPVC NSAP Address page (see Figure 8-5).

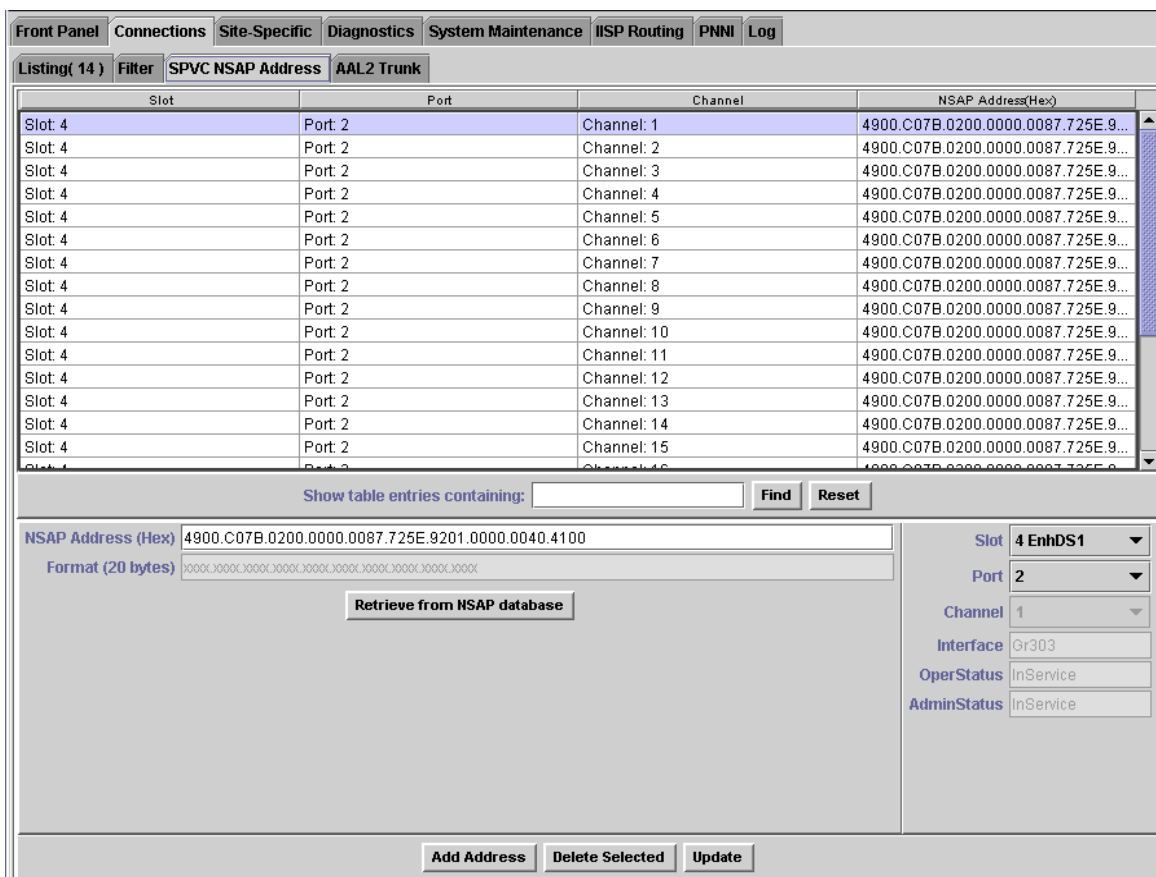


Figure 8-5. SPVC NSAP Address Page

**Buttons**

The buttons on this window have the following functions:

Button	Function
<b>Find</b>	Searches the table and displays a matching text string entered in the Show table entry containing: field.
<b>Reset</b>	Removes text entered in the Show table entry containing: field and de-selects any selected entries.
<b>Retrieve from NSAP database</b>	Searches the entries listed on this page for the NSAP address entered in the NSAP Address (Hex) field.
<b>Add Address</b>	Adds the information you entered in the fields on the bottom right panel to the SPVC NSAP Address page.
<b>Delete Selected</b>	Removes the selected entry from the SPVC NSAP Address page.
<b>Update</b>	Refreshes the SPVC NSAP Address page manually.

For information about using the NSAP address database, see the appropriate *Navis™ AQueView® Element Management System User Guide*.

**End**

## AAL2 Trunk Configuration

You can add an AAL2 trunk entry using the slot, port, and channel of an I/O module that supports ATM and circuit emulation on the AAL2 Trunk page.

**Note:** Upon initial configuration, this window displays “ADD” in its title; upon updating this configuration, this window displays “VIEW” in its title.

**Table 8-1. Field Descriptions for the AAL2 Trunk Config Entry Window**

Field Name	Field Values	Description
<b>AAL2 Interface (Left Panel)</b>		
Slot	Default: <b>N/A</b> Range: Variable Format: Numeric	Indicates the slot number for the module for which you want to add an AAL2 trunk on the ATM side output. The range of slot numbers varies with the chassis type.
Port	Default: <b>N/A</b> Range: Variable Format: Numeric	Indicates the port number on the module indicated in the Slot field to which you want to add an AAL2 trunk on the ATM side output. The range of port numbers varies with the module type.
Channel	Default: <b>N/A</b> Range: Variable Format: Numeric	Indicates the channel number associated with the port indicated on the Port field to which you want to add an AAL2 trunk on the ATM side output. The range of channel numbers varies with the module type.
VPI	Default: <b>0</b> Range: 0–255 (user-to-user interface, output side), 0–4095 (network-to-network interface, output side) Format: Numeric	Indicates a virtual path identifier value for the ATM output side of the connection. User-to-user and network-to-network interface types are configured on the ATM UNI or PNNI Configuration windows. <b>Note:</b> If using FaxRelayMode on the DSP2C or DSP2D Voice Server Module, the send and receive sides must use the same value.
VCI	Default: <b>0</b> Range: 32–65535, 5–32 (signaling disabled) Format: Numeric	Indicates a virtual channel identifier value for the ATM output side of the connection.

Table 8-1. Field Descriptions for the AAL2 Trunk Config Entry Window

Field Name	Field Values	Description
VI	Default: <b>0</b> Range: 0–255 Format: Numeric	Indicates a virtual interface value, which provides bandwidth allocation restrictions for the ATM output side. VI support must be enabled on the appropriate Interface Configuration window. Currently available only on OC-3c 1+1 APS and STM-1 1+1 MSP modules. When the virtual interface is disabled, the default value is <b>0</b> .
<b>Traffic Parameters In (Left Panel)</b>		
Peak Rate (cps)	Default: <b>1</b> Range: 0–99999999 Format: cps	Enter a peak rate value to set the maximum allowed cell transmission rate (cells per second), defining the shortest time period allowed between cells. When setting this value, calculate the line rate for the module and the amount of bandwidth you are setting up for each interface for the module. <b>Note:</b> Ensure that the peak cell rate for the connection is correct. The CAC function uses this value to determine whether or not a call can be completed to the subscriber line.
Sustained Rate (cps)	Default: <b>1</b> Range: 0–99999999 Format: cps	Enter a SCR with CLP (cell loss priority) =0 (high priority) cells or the peak cell rate (PCR) with CLP=0 cells. For VBR traffic, the value you set is the SCR, or the average cell transmission rate (cells per second), for the CLP=0 cells, as allowed by your traffic contract. For CBR traffic, the value you set is the PCR, or the maximum allowed transmission rate (cells per second), for the CLP=0 cells, as allowed by your traffic contract. When setting this value, calculate the line rate for the module and the amount of bandwidth you are allotting for each interface on the module.
Max Burst Size (cells)	Default: <b>1</b> Range: 0–99999999 Format: cps	Enter a value for the maximum number of cells that can be received at the peak cell rate. This setting allows a burst of cells to arrive at a rate higher than that of the sustained cell rate. If the burst is larger than anticipated, the additional cells are either tagged or dropped. When setting this value, calculate the line rate for the module and the amount of bandwidth you are setting up for each interface for the module.
Available Bandwidth (display only)	Default: <b>N/A</b> Range: variable Format: cps	Indicates the total ingress and egress bandwidth available for the trunk. This value is based on line rate, or on what you set in the Peak Rate and Sustained Rate fields. Adding CE connections to the trunk decreases the amount of available bandwidth, as indicated in this field.

Table 8-1. Field Descriptions for the AAL2 Trunk Config Entry Window

Field Name	Field Values	Description
Conformance Type	Default: <b>Best-effort</b> Range: N/A Format: Predefined	Indicates the type of traffic control option used for ATM cells. The traffic descriptor combination specifies which traffic parameters are used for traffic control, determines the number and type of cells that are admitted into a congested queue, and determines whether high-priority cells are tagged as low-priority cells when traffic exceeds traffic parameter thresholds.
	<b>Best-effort</b>	This traffic descriptor allows the system to attempt to send all cells in a “best-effort” fashion, without specifying traffic parameters, similar to the AQueMan algorithm.
	<b>One-bucket-notag-0plus1</b>	This traffic descriptor uses the parameters one bucket, no tagging, cell loss priority (CLP)=0+1 cells (high and low priority).
	<b>Two-bucket-notag-0plus1-0plus1</b>	This traffic descriptor uses the parameters two buckets, no tagging, CLP=0+1 cells (high and low priority) for bucket 1, and CLP=0+1 cells (high and low priority) for bucket 2.
	<b>Two-bucket-notag-0plus1</b>	This traffic descriptor uses the parameters two buckets, no tagging, CLP=0+1 cells (high and low priority) for bucket 1, and CLP=0 cells (high priority) for bucket 2.
	<b>Two-bucket-tag-0plus1</b>	This traffic descriptor uses the parameters two buckets, CLP=0+1 cells (high and low priority) for bucket 1, and tagging for CLP=0 cells (high priority) in bucket 2.
	<b>Best-effort-tag</b>	This traffic descriptor allows the system to tag all CLP=0 (high priority) cells to always change them to CLP=1 (low priority) cells. The system then attempts to send all cells in a “best-effort” fashion, without specifying any other traffic parameters, similar to the AQueMan algorithm.
<b>Connection Features (Left Panel)</b>		
[FailCause B] (display only)	Default: <b>Null</b> Range: N/A Format: Predefined	Indicates the AAL2 connection status reason code.

Table 8-1. Field Descriptions for the AAL2 Trunk Config Entry Window

Field Name	Field Values	Description
Oam Status	Default: <b>Unsupp</b> Range: N/A Format: Predefined	Indicates the type of OAM to be used for the connection.
	<b>Unsupp</b>	OAM is not in use. <b>Note:</b> Do not select a value other than <b>Unsupp</b> for V.5 or GR-303 applications if you are configuring AAL2 trunks to an IAD; connection totals on these protocols are typically more than 2000, which exceeds the limit allowed for OAM.
	<b>End-Pt</b>	The PSAX system is used as a termination point for ATM traffic, and will process AIS/RDI cells. <b>Note:</b> The OAM loopback test is supported for end-to-end connections only. <b>Note:</b> You must use Release 7.1.0 or later for the value <b>End-Pt</b> to work for GR-303 connections.
	<b>End-Seg-Pt</b>	Has the characteristics of both an end point and a segment point. <b>Note:</b> You must use Release 7.1.0 or later for the value <b>End-Seg-Pt</b> to work for GR-303 connections.
Service Type	Default: <b>Cbr-1</b> Range: N/A Format: Predefined <b>Cbr-1, Cbr-2, Cbr-3, Cbr-4, Ubr, Vbr-nrt2, Vbr-nrt1, Vbr-rt2, Vbr-rt1, Vbr-express</b>	Specifies a PSAX system-supported quality of service (QoS) class. For a description for the QoS classes, see the section, "Quality of Service Classes for ATM Traffic," in the reference appendix of any <i>PacketStar</i> PSAX Multiservice Media Gateway user guide.
Traffic Flow (display only)	Default: <b>Duplex</b> Range: N/A Format: Predefined	Presents the direction of the flow of data traffic in this connection. Duplex data flows in two directions between the two connection points (interface side A and interface side B).
	<b>Duplex</b>	Data flows back and forth between connection terminations.
	<b>SimplexA2B</b>	Data flows in only one direction from side A to side B.
	<b>SimplexB2A</b>	Data flows in only one direction from side B to side A.
	<b>PointToMultipoint A2B</b>	Point-to-multipoint data flows in only one direction, from one point on side A to several points on side B, or from one point on side B to several points on side A.

Table 8-1. Field Descriptions for the AAL2 Trunk Config Entry Window

Field Name	Field Values	Description
GR303 Support	Default: <b>Disabled</b> Range: N/A Format: Predefined	Disables or enables support for the GR-303 interface.
	<b>Disabled</b>	Disables the GR-303 interface.
	<b>Enabled</b>	Enables the GR-303 interface. This field must be enabled if you are using AAL2 trunking on a GR-303 interface.
Connection Status (display only)	Default: <b>Inactive</b> Range: N/A Format: Predefined	Indicates the current status of the connection. The value indicates whether the connection is passing traffic.
	<b>Inactive</b>	The connection is inactive and not passing traffic.
	<b>Active</b>	The connection is active and passing traffic.
Combined Use Timer	Default: <b>4</b> Range: 0–99 Format: Numeric	Specifies the amount of time the host processor will wait for a cell to fill. The combined use timer (CuTimer) is set to zero, so that every ATM cell transmitted contains only one AAL2 packet. The first octet of the AAL2 packet header follows immediately after the Start Field in the ATM cell payload. If the AAL2 packet payload is less than 44 octets, the remainder of the ATM cell payload following the end of the AAL2 packet is filled with zeros as padding. Each increment of CuTimer is 5 msec waiting time. The default value <b>4</b> indicates a wait of 20 msec (4 x 5 msec) before an ATM cell is sent out.  If using the DSP2E/F Voice/Data Server modules, set this value to <b>1</b> (5 msec.).
<b>Traffic Parameters Out (Right Panel)</b>		
Peak Rate (cps)	Default: <b>1</b> Range: 0–999999999 Format: cps	Enter a peak rate value to set the maximum allowed cell transmission rate (cells per second), defining the shortest time period allowed between cells. When setting this value, calculate the line rate for the module and the amount of bandwidth you are setting up for each interface for the module.  <b>Note:</b> Ensure that the peak cell rate for the connection is correct. The call admission control (CAC) function uses this value to determine whether or not a call can be completed to the subscriber line.

Table 8-1. Field Descriptions for the AAL2 Trunk Config Entry Window

Field Name	Field Values	Description
Sustained Rate (cps)	Default: <b>1</b> Range: 0–999999999 Format: cps	Enter a sustained cell rate (SCR) with CLP (cell loss priority) =0 (high priority) cells or the peak cell rate (PCR) with CLP=0 cells. For VBR traffic, the value you set is the SCR, or the average cell transmission rate (cells per second), for the CLP=0 cells, as allowed by your traffic contract. For CBR traffic, the value you set is the PCR, or the maximum allowed transmission rate (cells per second), for the CLP=0 cells, as allowed by your traffic contract. When setting this value, calculate the line rate for the module and the amount of bandwidth you are allotting for each interface on the module.
Max Burst Size (cells)	Default: <b>1</b> Range: 0–999999999 Format: cps	Enter a value for the maximum number of cells that can be received at the peak cell rate. This setting allows a burst of cells to arrive at a rate higher than that of the sustained cell rate. If the burst is larger than anticipated, the additional cells are either tagged or dropped. When setting this value, calculate the line rate for the module and the amount of bandwidth you are setting up for each interface for the module.
<b>Connection Features, Right Panel</b>		
IWF Type	Default: <b>None</b> Range: As noted below Format: Predefined	Specifies the Interworking function type on assigning AAL2 connections to compatible DSP chips on the DSP2C through DSP2F Voice Server modules.
	<b>None</b>	Allows the assignment of standard AAL2 connections to DSP chips on the DSP2C Voice Server module that are configured as <b>AlgoSet1</b> through <b>AlgoSet3</b> , and on the DSP2E/F as <b>AlgoSet1</b> and <b>AlgoSet6</b> . This parameter <b>allows</b> the mixture of pure voice (CE-to-ATM) with data (VBR-to-ATM) in the same AAL2 trunk group, such as is used in the European LES trunking standard V.5.2. This parameter supports applicable connection types of previous PSAX system software releases.
	<b>Packet-pipe</b>  <b>Note:</b> Packet-pipe <b>cannot</b> be used on the DSP2C Voice Server module.	Allows the assignment of standard AAL2 connections to DSP chips on the DSP2E/F modules that are configured as <b>AlgoSet7</b> . This parameter will <b>not</b> allow the mixture of pure voice (CE-to-ATM) with data (VBR-to-ATM) in the same AAL2 trunk group. This parameter supports applicable connection types for pure data (VBR-to-ATM) in wireless applications.

Table 8-1. Field Descriptions for the AAL2 Trunk Config Entry Window

Field Name	Field Values	Description
Dsp Resource Selection	Default: <b>Automatic</b> Range: As noted below Format: Predefined	Specifies whether the DSP resources are allocated.
	<b>Automatic</b>	The DSP resource manager selects DSPs from a chassis-wide pool.
	<b>Manual</b>	The DSP resource manager selects DSPs from a particular module designated in <b>Dsp Slot Id</b> field.
Dsp Slot Id	Default: <b>0</b> Range: Chassis dependent from Format: Numeric	When the Dsp Resource Selection field is set to <b>Manual</b> , you designate the DSP2x Voice Server Module slot number in the Dsp Slot Id field that you want the DSP Resource Manager to select DSPs from. If no DSP resource is available on the DSP2x module in the designated slot, the connection will be rejected. If the Dsp Resource Selection field is set to <b>Automatic</b> , the <b>Dsp Slot Id</b> field displays which DSP2x module slot the trunk is using after it has been bound to a DSP2x module.
Num of DSP Chnl	Default: <b>0</b> Range: 0–xxxx. Dependent on number of modules inserted into chassis Format: Numeric	Specifies the number of DS0s that can be reserved as DSP channels. If the IWF Type is <b>Packet-Pipe</b> , the bandwidth configured by you for the trunk calculates how many DS0s fit into the trunk. For example, the DS0 line rate is approximately 171 cps. If you want 200 cps, the bw actually allocated is 200/171, or 1.16 DS0s. The CAC reserves the DS0 resource when the first connection is made on the trunk.  If the value is left at the default 0, the number of reserved DS0s is best-effort.

*End*

## Restoring Connections

In previous versions of the PSAX system EMS, if you want to change the interface configuration of an interface that is currently the Side A or Side B portion of an existing connection, you must delete and recreate the interface, thus implicitly deleting the connection. The Connection Restore feature, introduced in *AQueView* EMS Release 5.1, allows you to automatically restore connections after their corresponding interfaces have been manually recreated.

In order for this feature to work properly, the connection.restore property in the aqv.properties file must be set to **true**. The default setting of this property is **false**.

Perform the steps in the following procedures to change an existing interface and restore its corresponding connection.

## Saving a Connection

---

### Begin

- 1 Take the appropriate Interface Configuration window out of service and delete it.

A confirmation window appears (see Figure 8-6).

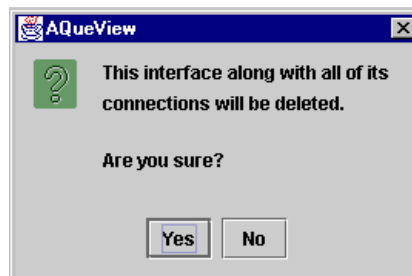


Figure 8-6. Interface Delete Confirmation Window

- 2 Click **Yes** or **No** (see Table 8-2).

Table 8-2. Selecting Yes or No on the Delete Interface Confirmation Window

If You Click...	Then...
Yes	proceed to the next step.
No	the remainder of this section on restoring connections is not applicable to you.

A confirmation window appears (see Figure 8-7).

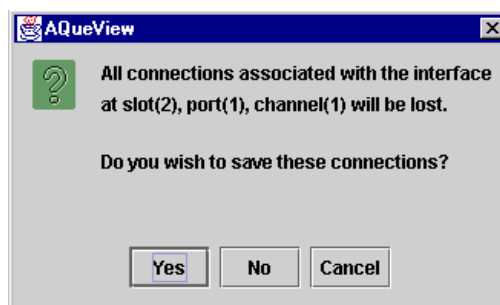


Figure 8-7. Save Connection Confirmation Window

- 3 Click **Yes**, **No**, or **Cancel** (see Table 8-3).

**Table 8-3. Selecting Yes or No on the Save Connection Confirmation Window**

If You Click...	This is What Happens
Yes	The interface and its corresponding connection are deleted. The system has temporarily saved the connection. Proceed to step 5.
No	The interface and its corresponding connection are deleted. After clicking this button, the connection cannot be restored using the Connection Restoral feature. <b>Note:</b> The remainder of this procedure is not applicable to you if you click this button.
Cancel	The interface is not deleted. No connections are lost. <b>Note:</b> The remainder of this procedure is not applicable to you if you click this button.

**Note:** The next procedure is only applicable if you clicked **Yes** in steps 2 and 3.

*End*

## Restoring a Connection

*Begin*

### **WARNING:**

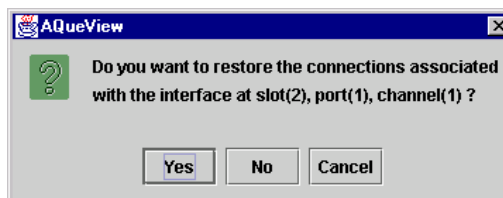
The Connection Restore feature cannot be used after the *AQueView* system is terminated, nor if you lose power to your workstation while the *AQueView* system is running. Lucent recommends that you immediately reconfigure the desired interface after deleting it, and then restore its corresponding connection.

- 1 Recreate the interface with the desired values using the same slot, port, and channel as the interface that you deleted.

**Note:** The interface you reconfigure must be the same interface type that you deleted unless it is an ATM interface.

- 2 Bring the interface into service.

A confirmation window appears (see Figure 8-8).



**Figure 8-8. Connection Restore Confirmation Window (During Interface Configuration)**

- 3 Click **Yes**, **No**, or **Cancel** (see Table 8-4).

**Table 8-4. Restore Connection Confirmation Window Choices (First Method)**

If You Click...	Then...
Yes	<p>the connection is restored. The connection reappears on the Listing page.</p> <p>After the connection is restored, the connection restore list is maintained by the Multiservice Media Gateway system until you manually delete it (see “”). If you delete another interface that results in a loss of connections, the connection restore list will be overwritten. Thus, the old connection restore list will be lost if the connection has not already been restored.</p> <p><b>Note:</b> The remainder of this procedure is not applicable to you if you click this button.</p>
No	<p>the interface is deleted and all associated connections are lost. After clicking this button, the connection cannot be restored using the Connection Restoral feature.</p> <p><b>Note:</b> The remainder of this procedure is not applicable to you if you click this button.</p>
Cancel	<p>connections are not restored but can be restored at a later time as long as power is supplied to the <i>AQueView</i> system and the <i>AQueView</i> system is running (see the warning on the previous page). When you are ready to restore the connection, proceed to step 8.</p>

**Note:** The remainder of this procedure is only applicable if you clicked **Cancel** in step 7.

- 4 Do one of the following to restore the connection:
  - a On the Device Menu Bar, select Connection > Restore.

- b Click the Connections tab. Then click the right mouse button within the Listing page, and a menu appears. Select Restore.

A confirmation window appears (see Figure 8-9).

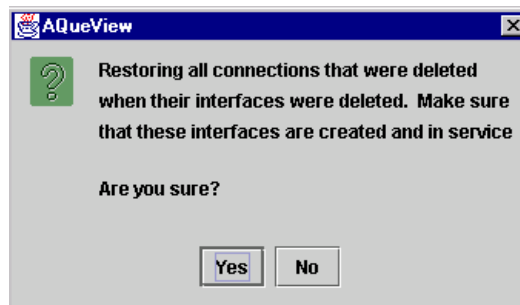


Figure 8-9. Restore Connection Confirmation Window (Using Connection Menu)

- 5 Click **Yes** or **No** (see Table 8-5).

Table 8-5. Restore Connection Confirmation Window Choices (Second Method)

If You Click...	This is What Happens
Yes	The connection is restored. The connection reappears on the Listing page.
No	Connections are not restored but can be restored at a later time as long as power is supplied to the <i>AQueView</i> system and the <i>AQueView</i> system is running (see the warning on the previous page). When you are ready to restore the connection, begin this procedure from step 8.

*End*

## Deleting the Connection Restore List

*Begin*

- 1 Do one of the following to delete the connection restore list from the Multiservice Media Gateway system:
  - a On the Device Menu Bar, select Connection > Clear Restore.
  - b Click the Connections tab. Then click the right mouse button within the Listing page, and a menu appears. Select Clear Restore.

A confirmation window appears (see Figure 8-10).

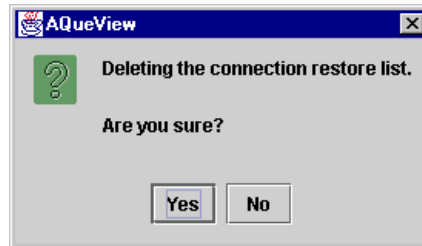


Figure 8-10. Delete Connection Restore Confirmation Window

- 2 Click **Yes** or **No** (see Table 8-6).

Table 8-6. Delete Restore Connection Confirmation Window Choices

If You Click...	This is What Happens
Yes	The connection restore list deleted.
No	The connection restore list will remain as is intact unless it is overwritten (see Table 8-4).

*End*

## Errors Creating Connections

This section provides instructions on how to create connections and describes the errors that can occur when you are creating them.

If an error occurs while creating a connection, the *AQueView* system displays an error message. There are many causes for these errors, but the errors that occur the most frequently are described below:

- Using an out-of-range VPI, VCI, or DCLI
- Selecting an interface that does not support flow settings that are entered
- Selecting out-of-range transmission parameters
- Attempting to create a connection on an unconfigured interface or an interface that has never been brought into service
- Exceeding the maximum bandwidth available for a VBR and CBR connection
- Attempting to create a connection that already exists
- Attempting to use a VCI, VPI, DCLI, or channel that is already allocated elsewhere

For more information about these SNMP trap messages, see the appendix “SNMP Trap Messages” in the appropriate *PacketStar® PSAX Multiservice Media Gateway User Guide*.

**Note:** An interface for the appropriate port and channels must be applied and the interfaces must be brought into service at least once before creating a connection.

**Note:** To create a non-UBR connection type, the committed rates and burst sizes must be adjusted to match a portion of the available bandwidth.

## Using the Right-Click Menu

You can perform various functions in the *AQueView* system by clicking the right mouse button. This section describes the right-click menu options you can use in the various windows in the *AQueView* system when creating connections.

## Connection Provisioning

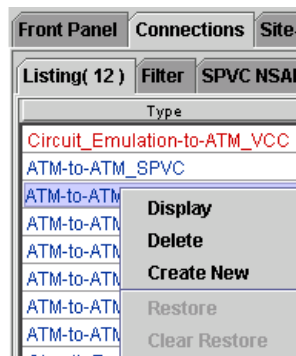


Figure 8-11. Connection Configuration Right-Click Menu Options

Table 8-7. Descriptions of the Connection Provisioning Right-Click Menu Options

Option	Description
Display	Displays the Display Connection window for the specified connection
Delete	Eliminates all selected connections  You can select multiple connections to delete simultaneously by holding the Ctrl key while highlighting the connections with the mouse.
Create New	Makes a new connection on any existing interfaces

## Context-Sensitive Help

When you right-click on a field in a connection configuration window, a description of that field appears (see Figure 8-12):

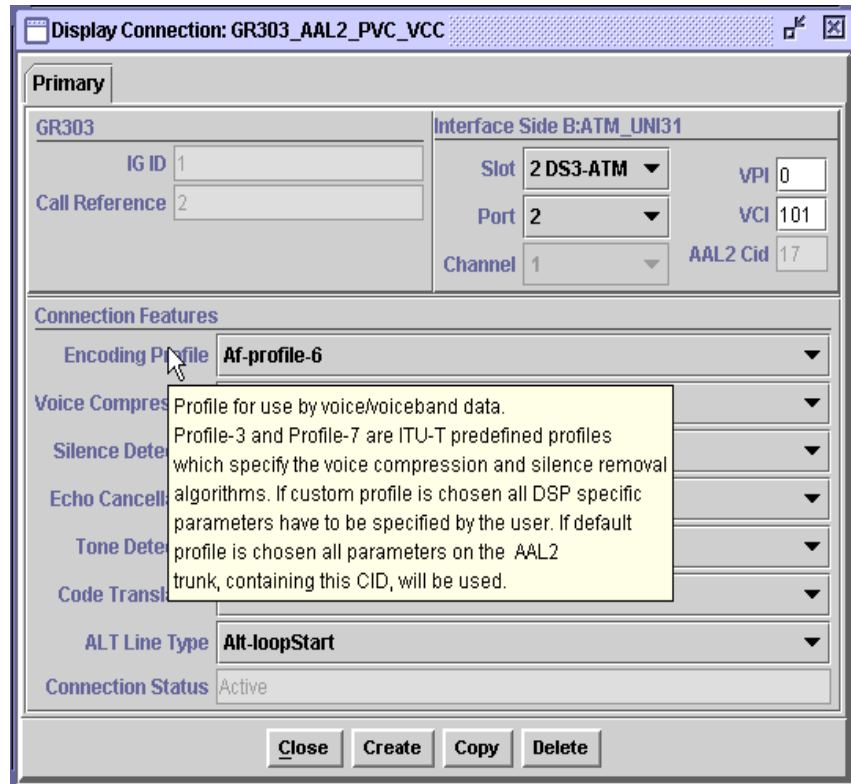


Figure 8-12. Sample of Context-Sensitive Help (As Displayed on a Display Connection Window)

## Provisioning PVC Connections

### Adding Circuit Emulation-to-ATM VCC PVC Connections

This is a CBR type of connection. This type of connection also supports the use of a backup ATM interface with the option of automatic switchback.

Perform the steps in the following procedure to create a circuit emulation-to-ATM VCC PVC connection.

#### Creating a Circuit Emulation-to-ATM VCC Connection

#### Creating a Circuit Emulation-to-ATM VCC PVC Connection

##### *Begin*

- 1 In the Device window, click the Connections tab.

The Listing page appears.

- 2 Click the right mouse button and a menu appears. Click **Create New**.  
The Create Connection window appears (see Figure 8-13).

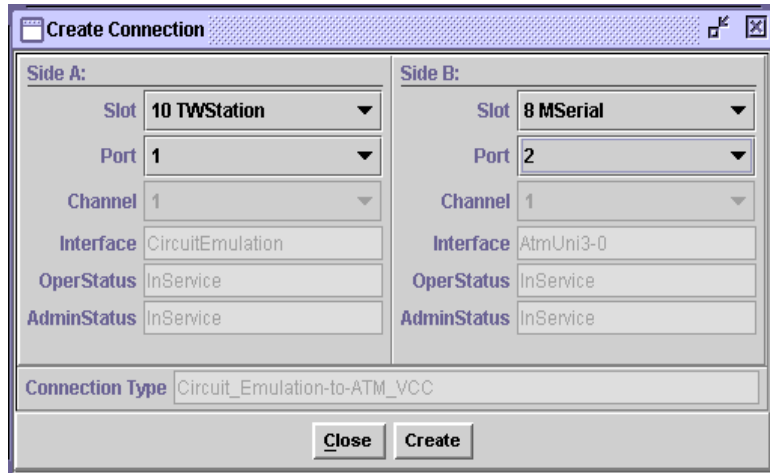


Figure 8-13. Create Connection Window

- 3 On the Side A and Side B panels, select the desired slot, port, and channel to identify the connection endpoints within the PSAX system.

Based on these parameters, the corresponding connection type appears in the Connection Type field at the bottom of the window. If the values selected in the Side A and Side B panels do not correspond to a valid type of connection, or if one of the selected channels is unconfigured, **None** appears in the Connection Type field.

- 4 Click **Create**.

The Create Circuit Emulation\_to\_ATM Virtual Circuit Connection window appears (see Figure 8-14).

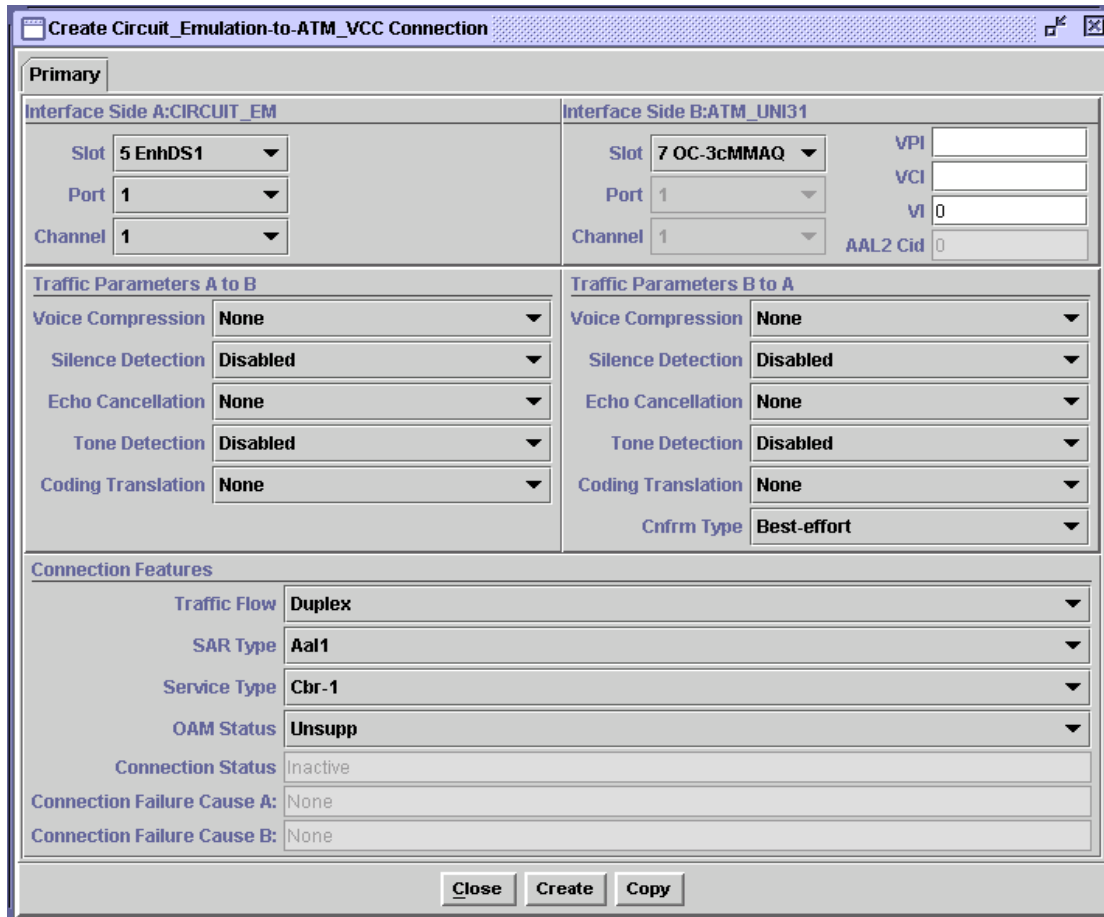


Figure 8-14. Create Circuit Emulation\_to\_ATM VCC Connection Window

**Buttons**

The buttons on this window have the following functions:

Button	Function
<b>Close</b>	Closes this window.
<b>Create</b>	Establishes the connection you configured.
<b>Copy</b>	Copies this configuration information to a range of interfaces.

**Field Descriptions**      5 Select the values for the fields on this window from the values given in Table 8-8.

**Table 8-8. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Window**

Field Names	Field Values	Description
Interface Side A:CIRCUIT_EM		Field values in this panel relate to the circuit emulation side of the connection that will send and receive signals.
Interface Side B:ATM_UNI30,ATM_UNI31, ATM_IISP, PNNI10		Field values in this panel relate to the ATM interface side of the connection that will send and receive signals.
Slot (display only)	Default: <b>0</b> Range: Variable depending on chassis type Format: Numeric	The slot number containing the module for which you are creating a connection.
Port (display only)	Default: <b>1</b> Range: Variable Format: Numeric	The port number on the module for which you are creating a connection.
Channel (display only)	Default: <b>1</b> Range: CE side: 1–24 (DS1), ATM side: 1 Format: Numeric	The channel on which you are creating a connection.
VPI (displayed on Interface Side B panel only)	Default: <b>0</b> Range: 0–255 (ATM UNI); 0–4095 (NNI) Format: Numeric	Enter the virtual path identifier for the ATM side of the connection.
VCI (displayed on Interface Side B panel only)	Default: <b>0</b> Range: 32–65535 Format: Numeric	Enter the virtual channel identifier for the ATM side of the connection.
VI/VUNI (displayed on Interface Side B panel only)	Default: <b>0/0</b> Range: 0–255 Format: Numeric	Virtual interface/Virtual ATM UNI, which provides bandwidth allocation restrictions. This field is currently available only on the OC-12c/STM-4c 1+1 MM/SM APS/MSP) and OC-3c APS and STM-1 MSP modules. The virtual UNI (VUNI) associates itself with the egress part of the A2B or B2A side of the connection.
AAL2 Cid (display only unless SAR type is Aal2Std)	Default: <b>0</b> Range: 8–255 per trunk (0–7 not available; reserved) Format: Numeric	Enter a channel identifier only if the value <b>Aal2Std</b> is selected in the SAR Type field described below.

Table 8-8. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Window

Field Names	Field Values	Description
Traffic Flow	Default: <b>Duplex</b> Range: N/A Format: Character	Direction of the flow of data traffic in this connection. <b>Note:</b> The values change on either side of the connection window as you scroll through this field.
	<b>SimplexA2B,</b> <b>SimplexB2A,</b> <b>PointToMulti</b> <b>pointA2B,</b> <b>PointToMulti</b> <b>pointB2A</b>	Select the appropriate value.
SAR Type	Default: <b>Aal1</b> Range: Variable Format: Alphanumeric	Indicates the segmentation and reassembly (SAR) type of the incoming data stream.
	<b>Aal1</b>	AAL1
	<b>Aal2Std</b>	AAL2 Standard. <b>Note:</b> Choose this type for AAL2 trunking. Enter the associated channel identifier in the AAL2 field in the upper right panel.
	<b>Non-Mux-Aal2</b>	Non-multiplexed AAL2 (Lucent proprietary)

Table 8-8. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Window

Field Names	Field Values	Description
Cnfrm Type (displayed on the <b>Traffic Parameters B to A</b> panel only)	Default: <b>Best-effort</b> Range: N/A Format: Alphanu- meric	The type of traffic control option used for ATM cells. The traffic descriptor combination specifies which traffic parameters are used for traffic control, determines the number and type of cells that are admitted into a congested queue, and determines whether high-priority cells are tagged as low-priority cells when traffic exceeds the traffic parameter thresholds.
	<b>Best-effort</b>	This traffic descriptor allows the system to attempt to send all cells in a "best effort" fashion, without specifying traffic parameters, similar to the AQueMan algorithm.
	<b>One-bucket-notag-0plus1</b>	This traffic descriptor uses the parameters one bucket, no tagging, cell loss priority (CLP)=0+1 cells (high and low priority).
	<b>Two-bucket-notag-0plus1-0plus1</b>	This traffic descriptor uses the parameters two buckets, no tagging, CLP=0+1 cells (high and low priority) for bucket 1, and CLP=0+1 cells (high and low priority) for bucket 2.
	<b>Two-bucket-notag-0plus1</b>	This traffic descriptor uses the parameters two buckets, no tagging, CLP=0+1 cells (high and low priority) for bucket 1, and CLP=0 cells (high priority) for bucket 2.
	<b>Two-bucket-tag-0plus1</b>	This traffic descriptor uses the parameters two buckets, CLP=0+1 cells (high and low priority) for bucket 1, and tagging for CLP=0 cells (high priority) in bucket 2.
	<b>Best-effort-tag</b>	This traffic descriptor allows the system to tag all CLP=0 (high priority) cells to change them to CLP=1 (low priority) cells during congestion, and then attempt to send all cells in a "best effort" fashion, without specifying any other traffic parameters, similar to the AQueMan algorithm.
Service Type	<b>nVbr-nrt2</b> <b>Vbr-nrt1</b> <b>Vbr-rt2</b> <b>Vbr-rt1</b> <b>Vbr-express</b> <b>Cbr-4</b> <b>Cbr-3</b> <b>Cbr-2</b> <b>Cbr-1</b>	PSAX system-supported quality of service (QoS) class. See the Reference Tables appendix in this guide for a detailed description of the values for this field.

Table 8-8. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Window

Field Names	Field Values	Description
OAM Status	Default: <b>Unsupp</b> Range: N/A Format: Character	The PSAX system is used as a termination point for ATM traffic, and will process AIS/RDI cells.
	<b>Unsupp</b>	OAM is not in use.
	<b>End-Pt</b>	Use this value to enable trunk conditioning.
	<b>End-Seg-Pt</b>	The PSAX system is used as both a termination point and a segment point for ATM traffic.
[Active PVC]	Default: <b>No</b> (before connection parameters are configured) Default: <b>Primary</b> (after connection parameters are configured) Range: N/A Format: Character	Indicates whether a backup PVC has been configured. When <b>Primary</b> is displayed, the backup PVC is not in use.
Connection Status (display only)	Default: <b>Inactive</b> Range: N/A Format: Character	Indicates whether the connection is passing traffic.
	<b>Inactive</b>	The connection is not passing traffic.
	<b>Active</b>	The connection is passing traffic.
Connection Failure Cause A (display only)	Default: <b>None</b> Range: N/A Format: Predefined	This field presents the AAL2 status reason code for the A side of the connection.
	<b>None</b>	Indicates that no failure is present.
	<b>Physical</b>	Indicates that a physical level failure is present, such as when an I/O module or cable is removed from the PSAX device, or an I/O module receives an LOS or LOF alarm. This changes the operational status of the interface to Outof-Service.

**Table 8-8. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC Connection Window**

Field Names	Field Values	Description
Connection Failure Cause B (display only)	Default: <b>None</b> Range: N/A Format: Predefined	This field presents the AAL2 status reason code for the B side of the connection.
	<b>None</b>	Indicates that no failure is present.
	<b>Physical</b>	Indicates that a physical level failure is present, such as when a an I/O module or cable is removed from the PSAX device, or an I/O module receives an LOS or LOF alarm. This changes the operational status of the interface to Outof-Service.

If the parameters are valid, the Connections window appears with the new connection in the Listing page, and the Display Connection window appears with tabs that contain details about the connection (see Figure 8-15): Primary, Statistics, and Backup.

If a parameter is invalid, a Connection Creation Failed message appears, stating the reason for the failure.

**End**

**Primary Page**

The Primary page displays the information used to create the connection. See Table 8-8 for field descriptions.



Figure 8-15. Display Connection: Circuit\_Emulation-to-ATM\_VCC (Primary Page)

**Primary Page Buttons** The buttons on the Primary page have the following functions:

Button	Function
<b>Close</b>	Closes this window.
<b>Create</b>	Establishes the connection you configured.
<b>Copy</b>	Copies this configuration information to a range of interfaces.
<b>Delete</b>	Deletes the connection.

**Statistics Page** The Statistics page displays the statistics for this connection (see Figure 8-16).

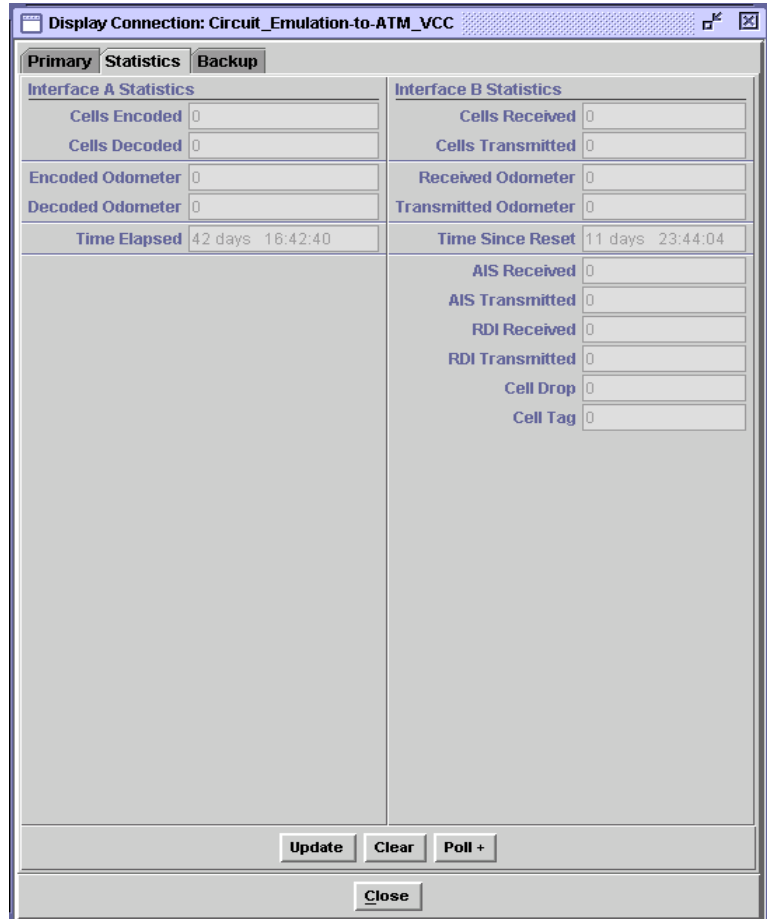


Figure 8-16. Display Connection: Circuit\_Emulation-to-ATM\_VCC (Statistics Page)

**Statistics Page Buttons**

The buttons on the Statistics page have the following functions:

Button	Description
<b>Update</b>	Refreshes the statistics manually.
<b>Clear</b>	Resets the resettable statistics to zero.
<b>Poll</b>	<b>Poll +</b> continuously update the statistics and changes the button label to <b>Poll-</b> . <b>Poll-</b> terminates polling and changes the button label to <b>Poll+</b> .
<b>Odometer</b>	Restarts counting in the Cells Transmitted and Cells Received fields in the Interface Side A and Interface Side B panels, and to view the transmitted cells and received cells in the Interface Side A and Interface Side B panels. This button is displayed only on the ATM-to-ATM VCC PVC and ATM-to-ATM VPC PVC Statistics pages.

## Chapter 8 Provisioning Connections Using the AQueView® System

### Provisioning PVC Connections

Button	Description
<b>Close</b>	Closes this window.
<b>Restart</b>	Restarts connection establishment procedure for the connections that were not previously set up.

**Field Descriptions** The values for the fields on this window are given in Table 8-9.

**Table 8-9. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC StatisticsPage**

Field Name	Field Values	Description
Cells Encoded (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of encoded (transmitted) user cells going into interface side A during the amount of time shown in the Time Elapsed field (that is, since the circuit was created).
Cells Decoded (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of decoded (received) user cells going out of interface side A during the amount of time shown in the Time Elapsed field (that is, since the circuit was created).
Encoded Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of encoded user cells going into interface side B since the connection was created.
Decoded Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of decoded user cells decoded going out of interface side B since the connection was created.
Time Elapsed (display only)	Default: <b>00:00:00</b> Range: N/A Format: Time in hours (xx), minutes (xx), seconds (xx)	Total time elapsed for OAM statistics collection since the circuit was established.
Cells Received (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of received OAM cells going into interface side A during the amount of time shown in the Time Elapsed field (i.e., since the circuit was created).
Cells Transmitted (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	The total number of transmitted OAM cells going out of interface side A during the amount of time shown in Time Elapsed field (i.e., since the circuit was created.)
Received Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	Total number of ATM cells received since odometer was last reset.
Transmitted Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: Numeric	Total number of ATM cells transmitted since odometer was last reset.

Table 8-9. Field Descriptions for the Circuit Emulation-to-ATM VCC PVC StatisticsPage

Field Name	Field Values	Description
Time Since Reset (display only)	Default: <b>00:00:00</b> Range: N/A Format: Time in hours (xx), minutes (xx), seconds (xx)	Time elapsed since the last time the <b>Clear</b> button was used.
AIS Received (display only)	Default: <b>0</b> Range: N/A Format: numeric	Number of alarm indication signal (AIS) cells received.
AIS Transmitted (display only)	Default: <b>0</b> Range: N/A Format: numeric	Number of AIS cells transmitted.
RDI Received (display only)	Default: <b>0</b> Range: N/A Format: numeric	Number of remote defect indicator (RDI) cells received.
RDI Transmitted (display only)	Default: <b>0</b> Range: N/A Format: numeric	Number of remote defect indicator (RDI) cells transmitted.
Cell Drop (display only)	Default: <b>0</b> Range: N/A Format: numeric	Number of cells dropped on incoming side of interface A or B.
Cell Tag (display only)	Default: <b>0</b> Range: N/A Format: numeric	Number of cells tagged on incoming side of interface A or B.

**Backup Page**

The Backup page displays the information used to create the connection (see Figure 8-17).



Figure 8-17. Display Connection: Circuit\_Emulation-to-ATM\_VCC (Backup Page)

**Backup Page Buttons** The buttons on the Backup page have the following functions:

Button	Function
<b>Create Backup PVC</b>	Establishes the backup VCC PVC connection you configured. You cannot create a backup VCC PVC connection without selecting an ATM interface type in the Backup ATM Interface panel. Therefore, this button is active when the Slot, Port, and Channel fields correspond to an ATM interface type in the Interface field. Otherwise, the button will be ghosted.
<b>Close</b>	Closes this window.

**Field Descriptions** Select the values for the for fields as described in Table 8-10.

**Table 8-10. Field Descriptions for the Display Connection: Circuit Emulation-to-ATM VCC Backup Page**

Field Name	Field Values	Description
Slot	Default: <b>N/A</b> Range: Listed as available from the PSAX device Format: Numeric	Select the slot containing the module for which you are creating a connection. <b>Note:</b> This field is display only for the circuit emulation interface.
Port	Default: <b>N/A</b> Range: Determined by the number of ports available on the module selected in the Slot field Format: Numeric	Select the port number on the module for which you are creating a connection. <b>Note:</b> This field is display only for the circuit emulation interface.
Channel	Default: <b>N/A</b> Range: Determined by the number of channels available on the port selected in the Port field Format: Numeric	Select the channel number of the port on the module for which you are creating a connection. <b>Note:</b> This field is display only for the circuit emulation interface.
Interface (display only)	Range: <b>Unconfigure</b> dAtmUni3-0 AtmUni3-1 IispUser IispNetwork CircuitEmulation DbCirEm FrameRelayUni FrameRelayNni Pri_Isdn_Network Pri_Isdn_User HldcPassThrough AtmPnni1-0 Format: Alphanumeric	The interface type that is configured on the slot, port, and channel (selected in the Slot, Port, and Channel fields).
OperStatus (display only)	Default: <b>OutOfService</b> Range: N/A Format: Character	Indicates that the interface is not operational.
	<b>InService</b>	Indicates that the interface is operational.

Table 8-10. Field Descriptions for the Display Connection: Circuit Emulation-to-ATM VCC Backup Page

Field Name	Field Values	Description
AdminStatus (display only)	Default: <b>OutOfService</b> Range: N/A Format: Character	Indicates that some condition is preventing the port from being configured with an interface..
	<b>InService</b>	Indicates that no conditions are preventing the port from being fully operational
VPI	Default: <b>0</b> Range: 0–255 Format: Numeric	The virtual path identifier assigned to this backup interface.
VCI	Default: <b>32</b> Range: 32–4000 Format: Numeric	The virtual channel identifier assigned to this backup interface.
VI	Default: <b>0</b> Range: 0-255 Format: Numeric	Backup virtual interface, which provides bandwidth allocation restrictions. Currently available only on the OC-3c APS and STM-1 MSP modules.
Automatic Switch-back	Default: <b>Yes</b> Range: N/A Format: Character	CPU monitors primary connection. If primary connection becomes available, backup will switch back connection to <b>Primary</b> .
	<b>No</b>	Not currently supported. Once active, the backup connection will not switch back to primary connection automatically if <b>Primary</b> becomes available.
Current Active PVC	Default: <b>None</b> Range: N/A Format: Character	Indicates that the connection is inactive.
	<b>Primary</b>	Indicates that the primary connection is active (carrying user traffic).
	<b>Backup</b>	Indicates that the backup connection is active (carrying user traffic).

## Adding Circuit Emulation-to-Circuit Emulation VCC PVC Connections

This is a fixed-rate connection and has no service types. Perform the steps in the following procedure to create a circuit-emulation-to-circuit emulation connection.

### Creating a Circuit Emulation-to-Circuit Emulation VCC PVC Connection

*Begin*

- 1 In the Device window, click the Connections tab.

The Listing page appears.

- 2 Click the right mouse button and a menu appears. Select Create New.  
The Create Connection window appears (see Figure 8-18).

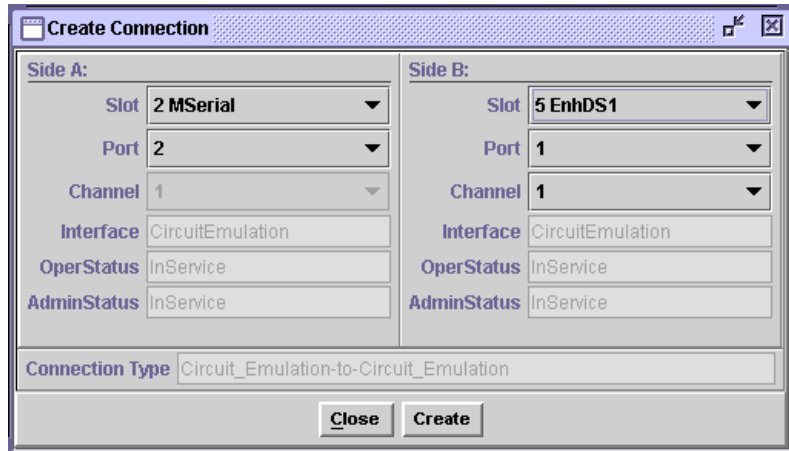


Figure 8-18. Create Connection Window

- 3 On the Side A and Side B panels, select the desired slot, port, and channel to identify the connection endpoints within the PSAX system.

Based on these parameters, the corresponding connection type appears in the Connection Type field at the bottom of the window. If the A-side and B-side parameters do not correspond to a valid type of connection, or if one of the selected channels is unconfigured, **None** will appear in the Connection Type field.

- 4 Click **Create**.

The Create Circuit Emulation\_to\_Circuit Emulation Connection window appears (see Figure 8-19).

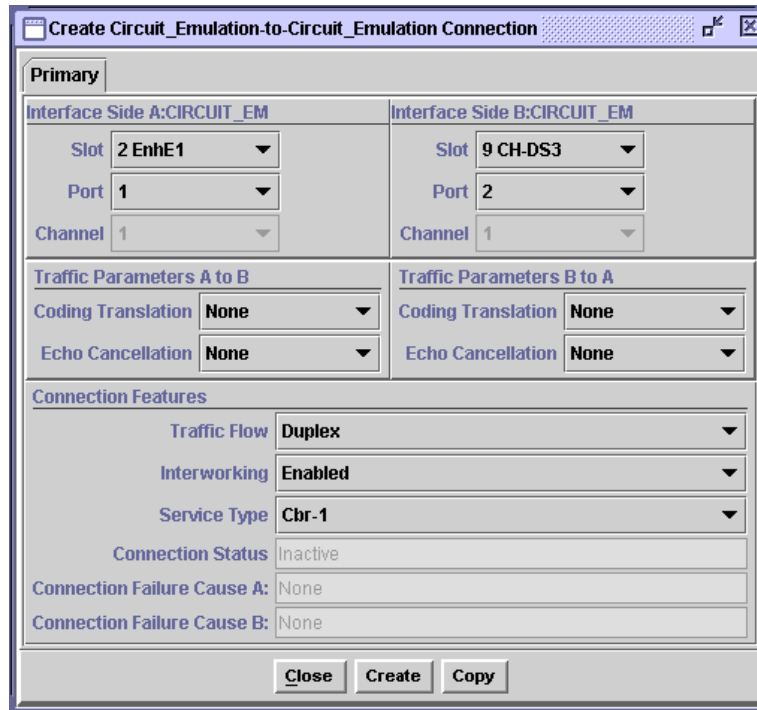


Figure 8-19. Create Circuit Emulation\_to\_Circuit Emulation Connection Window

**Buttons**

The buttons on this window have the following functions:

Button	Function
<b>Close</b>	Closes this window.
<b>Create</b>	Establishes the connection you configured.
<b>Copy</b>	Copies this configuration information to a range of interfaces.

**Field Descriptions**

- 5 Select the values for the fields on this window from the values in Table 8-11.

Table 8-11. Field Descriptions for the Circuit Emulation-to-Circuit Emulation PVC Connection Window

Field Name	Field Value	Description
Interface Side A:CIRCUIT_EM	Default: <b>Predefined</b> Range: N/A Format: Predefined	Specifies Side A of the connection that sends and receives signals. This is the near-end side of the connection, closest to the hybrid digital-to-analog circuit, where the echo is created. The DSP2x module will cancel the echo before the traffic is transmitted out the Side B interface. To cancel the near-end echo, select a voice processing parameter other than <b>None</b> in the Echo Cancellation field below.
Interface Side B:CIRCUIT_EM	Default: <b>Predefined</b> Range: N/A Format: Predefined	Specifies Side B of the connection that will send and receive signals. Far-end echo on this side must be canceled at the far end.
Slot	Default: <b>Variable</b> Range: Chassis dependent Format: Numeric	Select the slot number containing the module for both sides of the connection.
Port	Default: <b>Variable</b> Range: Module dependent Format: Numeric	Select the port number containing the module for both sides of the connection.
Channel	Format: Numeric	Select the channel number containing the module for both sides of the connection.

Table 8-11. Field Descriptions for the Circuit Emulation-to-Circuit Emulation PVC Connection Window

Field Name	Field Value	Description
Coding Translation	Default: <b>None</b> Range: As noted below Format: Predefined	If you want data traffic for this connection to be processed through any DSP2x Voice Server module with a coding translation parameter, do not use the default value. The other values indicate the desired type of pulse code modulation (PCM) translation. You must specify one of these PCM types to enable data traffic processing through any DSP2x Voice Server modules.
	<b>None</b>	No coding translation is selected on the connection.
	<b>MuLaw2muLaw</b>	American and Japanese compression and expansion ( <i>companding</i> ) standard is used on Sides A and B of the connection.
	<b>ALaw2aLaw</b>	European companding standard is used on Sides A and B of the connection.
	<b>MuLaw2aLaw</b>	American/Japanese to European companding standard is used between sending Side A and receiving Side B of the connection.
	<b>ALaw2MuLaw</b>	European to American/Japanese companding standard is used between sending Side A and receiving Side B of the connection.
Echo Cancellation	Default: <b>None</b> Range: As noted below Format: Predefined	If you using voice applications, an echo cancellation algorithm is recommended (select a value other than <b>None</b> ).
	<b>None</b>	No echo cancellation is used on the connection.
	<b>G165-nearEnd,</b>	ITU-T G.165 echo cancellation for the near end of the connection is used.
	<b>G168</b>	ITU-T G.1658 echo cancellation is used.
Traffic Flow	Default: <b>Duplex</b> Range: As noted below Format: Predefined	Specifies the direction of the flow of data traffic in this connection.
	<b>Duplex</b>	Traffic flows in both directions.
	<b>SimplexA2B</b>	Traffic flows from Side A to Side B only.
Interworking	Default: <b>Disabled</b> Range: As noted below Format: Predefined	Specifies the conversion between ATM OAM cells and circuit emulation alarms.
	<b>Disabled</b>	Disables the conversion between ATM OAM cells and circuit emulation alarms.
	<b>Enabled</b>	Enables the conversion between ATM OAM cells and circuit emulation alarms.

Table 8-11. Field Descriptions for the Circuit Emulation-to-Circuit Emulation PVC Connection Window

Field Name	Field Value	Description
Service Type	Default: <b>Cbr-1</b> Range: As noted below Format: Predefined	Multiservice Media Gateway system-supported quality of service (QoS) class.
	Cbr-1	Constant bit rate, queue 1
	Cbr-2	Constant Bit rate, queue 2
	Cbr-3,	Constant Bit rate, queue 3
	Cbr-4	Constant Bit rate, queue 4
Connection Status (display only)	Default: Inactive, Active	Displays the current status of the connection. The value indicates whether the connection is passing traffic.
Connection Failure Cause A (display only)	Default: <b>None</b> Range: N/A Format: Predefined	General connection failure cause.
	<b>None</b>	Indicates that no failure is present.
	<b>Physical</b>	Indicates that a physical level failure is present, such as when a an I/O module or cable is removed from the PSAX device, or an I/O module receives an LOS or LOF alarm. This changes the operational status of the interface to OutofService.
Connection Failure Cause B (display only)	Default: <b>None</b> Range: N/A Format: Predefined	General connection failure cause.
	<b>None</b>	Indicates that no failure is present.
	<b>Physical</b>	Indicates that a physical level failure is present, such as when a an I/O module or cable is removed from the PSAX device, or an I/O module receives an LOS or LOF alarm. This changes the operational status of the interface to OutofService.

If the parameters are valid, the Connections window appears with the new connection in the Listing page, and the Display Connection window appears with tabs that contain details about the connection (see Figure 8-20): Primary and Statistics.

If a parameter is invalid, a Connection Creation Failed message appears, stating the reason for the failure.

**End**

### Primary Page

The Primary page displays the information used to create the connection. See Table 8-11 for field descriptions.

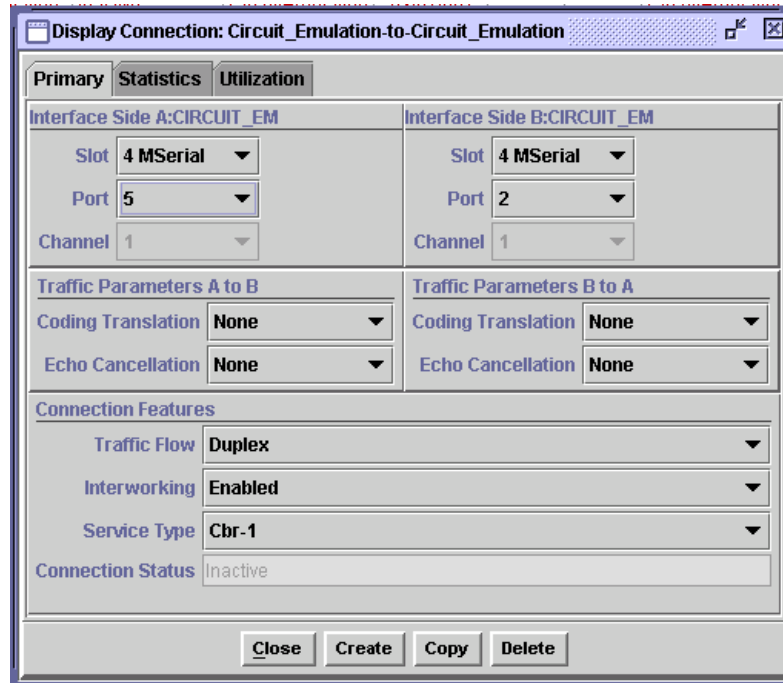


Figure 8-20. Display Connection: Circuit\_Emulation-to-Circuit\_Emulation (Primary Page)

**Primary Page Buttons** The buttons on the Primary page have the following functions:

Button	Function
<b>Close</b>	Closes this window.
<b>Create</b>	Establishes the connection you configured.
<b>Copy</b>	Copies this configuration information to a range of interfaces.
<b>Delete</b>	Deletes the connection.

**Statistics Page** The Statistics page displays the statistics for this connection.

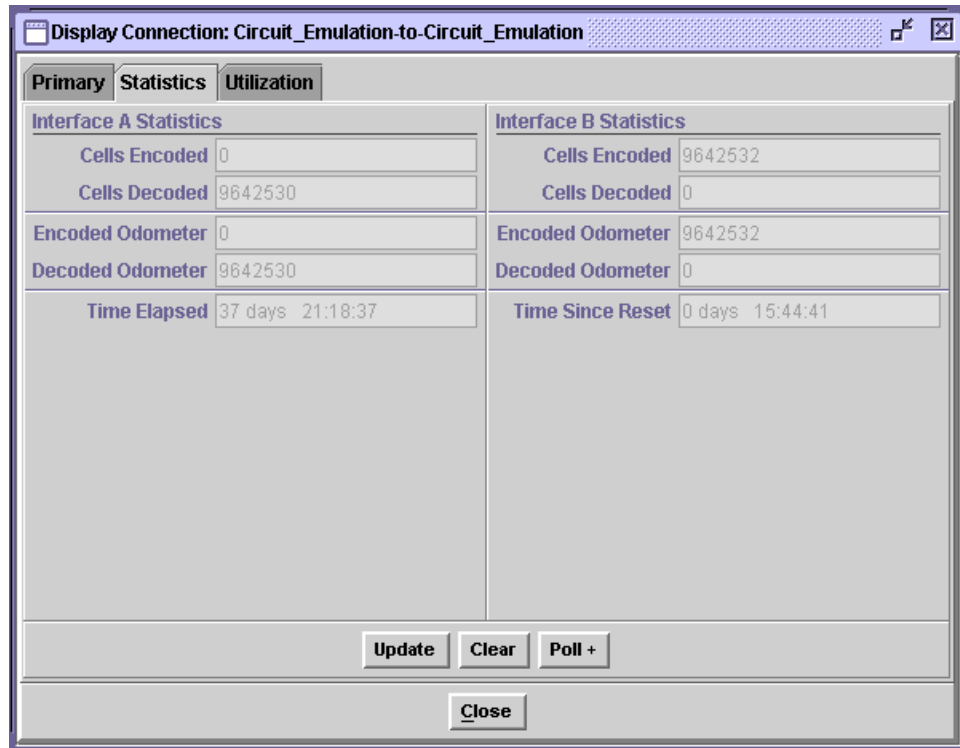


Figure 8-21. Display Connection: Circuit\_Emulation-to-Circuit\_Emulation Statistics Page

**Statistics Page Buttons**

The buttons on the Statistics page have the following functions:

Button	Description
<b>Update</b>	Refreshes the statistics manually.
<b>Clear</b>	Resets the resettable statistics to zero.
<b>Poll</b>	<b>Poll +</b> continuously update the statistics and changes the button label to <b>Poll-</b> . <b>Poll-</b> terminates polling and changes the button label to <b>Poll+</b> .
<b>Odometer</b>	Restarts counting in the Cells Transmitted and Cells Received fields in the Interface Side A and Interface Side B panels, and to view the transmitted cells and received cells in the Interface Side A and Interface Side B panels. This button is displayed only on the ATM-to-ATM VCC PVC and ATM-to-ATM VPC PVC Statistics pages.
<b>Close</b>	Closes this window.
<b>Restart</b>	Restarts connection establishment procedure for the connections that were not previously set up.

**Field Descriptions** The values for the fields on this window are described in Table 8-12.

**Table 8-12. Field Descriptions for Circuit Emulation-to-Circuit Emulation PVC Connection StatisticsPage**

Field Name	Field Values	Description
Cells Encoded (display only)	Default: <b>0</b> Range: N/A Format: numeric	On the Interface A Statistics panel, the number of cells encoded going into interface side A during the amount of time shown in Time Elapsed field since the circuit was established.  On the Interface B Statistics panel, the number of cells encoded going into interface side B during the amount of time shown in Time Elapsed field since the circuit was established.
Cells Decoded (display only)	Default: <b>0</b> Range: N/A Format: numeric	On the Interface A Statistics panel, the number of cells decoded going out of interface side A during the amount of time shown in Time Elapsed field since the circuit was established.  On the Interface B Statistics panel, the number of cells decoded going out of interface side B during the amount of time shown in Time Elapsed field since the circuit was established.
Encoded Odometer (display only)	Default: <b>0</b> Range: N/A Format: numeric	On the Interface A Statistics panel, the number of cells encoded going into interface side A since this counter was reset.  On the Interface B Statistics panel, the number of cells encoded going into interface side B since this counter was reset.
Decoded Odometer (display only)	Default: <b>0</b> Range: N/A Format: numeric	On the Interface A Statistics panel, the number of cells decoded going out of interface side A since this counter was reset.  On the Interface B Statistics panel, the number of cells decoded going out of interface side B since this counter was reset.
Time Elapsed (display only)	Default: <b>00:00:00</b> Range: N/A Format: numeric	Time elapsed since the circuit was established.
Time Since Reset (display only)	Default: <b>00:00:00</b> Range: N/A Format: numeric	Time elapsed since the last time the <b>Clear</b> button command was used.  The <b>Clear</b> button on the statistics page resets only the odometer fields (labelled as Odometer) and the corresponding clock. Other counters increment for the duration of the circuit.

## Provisioning SPVC Connections

### Adding Circuit Emulation-to-ATM VCC SPVC Connections

Perform the steps in the following procedure to create a circuit emulation-to-ATM VCC SPVC connection.

### Creating a Circuit Emulation-to-ATM SPVC Connection

**Begin**

- 1 In the Device window, click the Connections tab.  
The Listing page appears.
- 2 Click the right mouse button and a menu appears. Click **Create New**.  
The Create Connection window appears (see Figure 8-22).

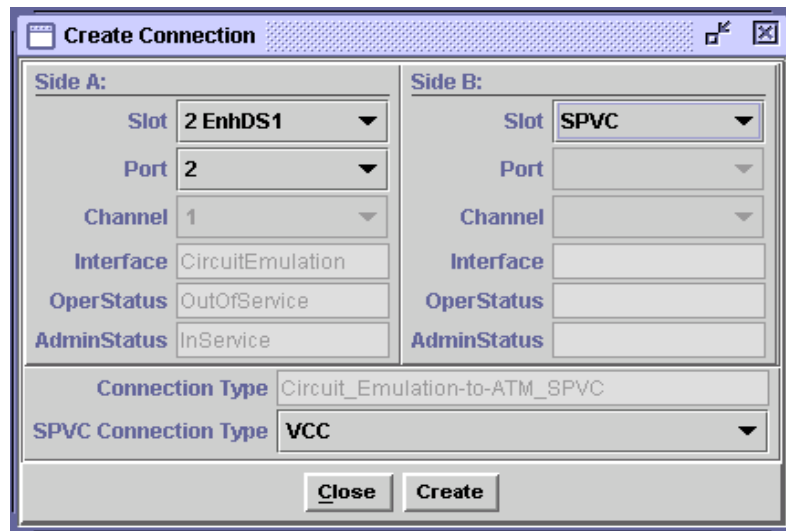


Figure 8-22. Create Connection Window

- 3 On the Side A panel, select the appropriate slot, port, and channel for a module that is configured with the circuit emulation interface. The interface name appears in the Interface Type field.
- 4 On the Side B panel, select **SPVC**.  
The SPVC Connection Type field displayed.
- 5 Select **VCC**.
- 6 Click **Create**.

The Create CE\_to\_ATM SPVC Connection window appears (see Figure 8-23).

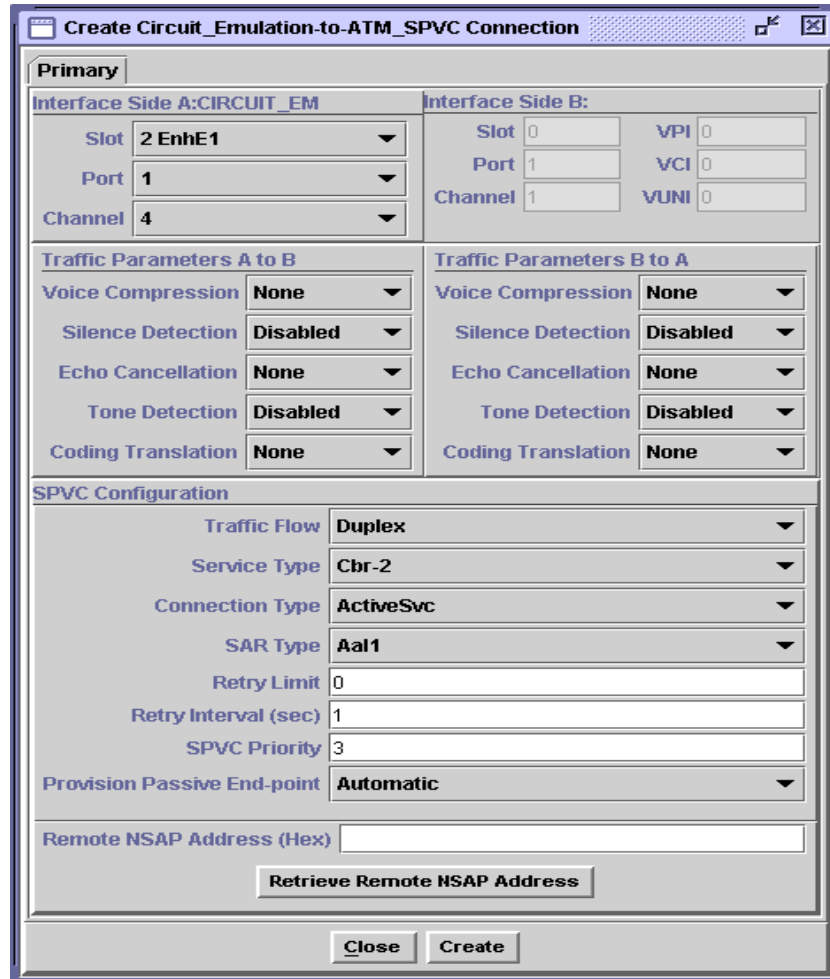


Figure 8-23. Create Circuit Emulation\_to\_ATM SPVC Connection Window

### Buttons

The buttons on this window have the following functions:

Button	Function
<b>Retrieve Remote NSAP Address</b>	If you have previously established an NSAP address database, click this button to retrieve an entry from this list to populate the Remote NSAP Address (Hex) field.
<b>Close</b>	Closes this window.
<b>Create</b>	Establishes the connection you configured.
<b>Copy</b>	Copies this configuration information to a range of interfaces.

**Field Descriptions**      7 Select the values for the fields on this window from the values given in Table 8-13.

**Table 8-13. Field Descriptions for the Circuit Emulation-to-ATM SPVC Connection Window**

Field Name	Field Values	Description
Circuit Emulation Interface	Default: <b>N/A</b> Range: N/A Format: N/A	The circuit emulation side of the connection that will send and receive signals.
Slot	Default: <b>N/A</b> Range: variable Format: Numeric	Enter the slot number on side A containing the module for which you are creating a connection. The range of slot numbers varies with the chassis type.
Port	Default: <b>N/A</b> Range: variable Format: Numeric	Enter the port number on side A for the module for which you are creating a connection. The range of port numbers varies with the module type.
Channel	Default: <b>N/A</b> Range: variable Format: Numeric	Enter the channel on side A for the port on the module for which you are creating a connection. The range of channel numbers varies with the module type.
[VPI ] (display only)	Default: <b>0</b> Range: 0–225 (ATM UNI); 0–4095 (NNI) Format: numeric	Virtual path identifier (ATM side).
[VCI] (display only)	Default: <b>0</b> Range: 0– 65535 Format: numeric	Virtual channel identifier (ATM side).
Voice Compression	Default: <b>None</b> Range: N/A Format: predefined alphanumeric <b>G726-8k,</b> <b>G726-16k,</b> <b>G726-24k,</b> <b>G726-32k,</b> <b>G726-40k</b>	If you want data traffic for this connection to be processed through a DSP2x Voice Server module, do not select the default value <b>None</b> . To enable voice compression, select the desired type and rate of voice compression from the list of values.
Silence Detection	Default: <b>Disabled</b> Range: N/A Format: predefined alphanumeric	If you want data traffic for this connection to be processed through a DSP2x Voice Server module, do not use the default value <b>Disabled</b> .
	<b>Disabled</b>	Disables silence detection.
	<b>Enabled</b>	Enables silence detection.

Table 8-13. Field Descriptions for the Circuit Emulation-to-ATM SPVC Connection Window

Field Name	Field Values	Description
Echo Cancellation	Default: <b>None</b> Range: N/A Format: alphanumeric <b>None,</b> <b>G165-nearEnd,</b> <b>G168</b>	If you want data traffic for this connection to be processed through a DSP2x Voice Server module, do not use the default value <b>None</b> . If you want to enable echo cancellation on this connection, select the value <b>G165-nearEnd</b> or <b>G168</b> .
Tone Detection	Default: <b>Disabled</b> Range: N/A Format: predefined alphanumeric	If you want data traffic for this connection to be processed through a DSP2x Voice Server module, select the value <b>Bypass</b> .
	<b>Disabled</b>	Disables tone detection.
	<b>Bypass</b>	Indicates that the fax tones are to be recognized and data sent by fax is not to be processed by compression and echo cancellation.
Coding Translation	Default: <b>None</b> Range: N/A Format: predefined alphanumeric <b>None,</b> <b>MuLaw2muLaw,</b> <b>ALaw2aLaw,</b> <b>MuLaw2aLaw,</b> <b>ALaw2MuLaw</b>	If you want data traffic for this connection to be processed through a DSP2x Voice Server module, do not use the default value <b>None</b> . To enable coding translation, select one of the values for pulse code modulation (PCM) translation. Selecting the value <b>None</b> actually uses Mu-law to Mu-law as the default PCM type. <b>Note:</b> If you are configuring this parameter for the 6-Port Enhanced DS1 or E1 modules, select the value <b>ALaw2aLaw</b> .
Traffic Flow	Default: <b>Duplex</b> Range: N/A Format: predefined alphanumeric	Direction of flow of data traffic in this connection.
	<b>Duplex</b>	Data flows in two directions between the two connection points (interface side A and interface side B).
	<b>SimplexA2B</b>	Data flows in only one direction, from side A to side B.
	<b>PointToMultipoint A2B</b>	Data flows in only one direction, from one point on side A to several points on side B.
	<b>Simplex B2A</b>	Data flows in only one direction, from side B to side A.
	<b>PointToMultipoint B2A</b>	Data flows in only one direction, from one point on side B to several points on side A.

Table 8-13. Field Descriptions for the Circuit Emulation-to-ATM SPVC Connection Window

Field Name	Field Values	Description
Service Type	Default: <b>Cbr-2</b> Range: N/A Format: Predefined alphanumeric	Specifies the PSAX system-supported quality of service (QoS) class. For a description of the QoS classes, see the reference appendix in this guide. The type selected causes the conformance type for the connection to be derived from the class of service. This derived value is enforced by the UPC setting of the I/O module.
	<b>Cbr-2</b>	Constant bit rate, queue 2.
	<b>Cbr-3</b>	Constant bit rate, queue 3.
	<b>Cbr-4</b>	Constant bit rate, queue 4.
Connection Type	Default: <b>ActiveSvc</b> Range: N/A Format: Predefined alphanumeric	The type of SPVC connection.
	<b>ActiveSvc</b>	Selecting the value <b>ActiveSvc</b> attempts calls.
	<b>PassiveSvc</b>	Selecting the value <b>PassiveSvc</b> accepts calls. Several fields are not displayed when this value is selected.
SAR Type	Default: <b>Non-Mux-Aal2</b> Range: N/A Format: predefined alphanumeric	The type of segmentation and reassembly of data. If you are upgrading your PSAX system software, see the note at the end of this table.
	<b>Non-Mux-Aal2</b>	Non-multiplexed AAL2. Choose this type to configure an SPVC if you are using DSP parameters with the connection. If you are using structured, channelized DS1/T1 service, see the note at the end of this table.
	<b>Aal1</b>	AAL1 (uncompressed CBR).
Retry Limit	Default: <b>0</b> Range: N/A Format: numeric	Maximum limit on how many consecutive unsuccessful call setup attempts can be made before stopping the attempts to set up the connection. A value of zero indicates no limits. See the reference appendix in this guide for the description of ATM User-Network Specification, Version 3.1, Cause Codes. This field is displayed only when <b>ActiveSvc</b> is selected as the connection type.
Retry Interval (sec)	Default: <b>12</b> Range: N/A Format: numeric (sec)	The number of seconds between attempts to retry call setup after a failed attempt. The value <b>0</b> results in a retry with no delay. This field is displayed only when <b>ActiveSvc</b> is selected as the connection type.

Table 8-13. Field Descriptions for the Circuit Emulation-to-ATM SPVC Connection Window

Field Name	Field Values	Description
Remote NSAP Address	Default: <b>N/A</b> Range: N/A Format: hexadecimal	The ATM NSAP address of the remote end of the connection, in hexadecimal notation. Enter the NSAP address of the remote ATM interface. This field is displayed only when <b>ActiveSvc</b> is selected as the connection type.
Provision Passive End-Point	Default: <b>Automatic</b> Range: N/A Format: predefined alphanumeric	Provides the ability to automatically set up end-to-end provisioning (provisioning SPVCs at two different points).
	<b>Automatic</b>	When an active SPVC connection is created using the <i>AQueView</i> system, selecting this value results in the passive end-point being provisioned automatically. The information about where to provision the passive end-point is obtained from the NSAP database using the Remote NSAP Address (Hex) field for the active SPVC connection. You must already have configured your NSAP addresses so that automatic provisioning works properly.
	<b>None</b>	Disables automatic end-to-end provisioning.
Operational Status	Default: <b>Other</b> Range: N/A Format: Character	Operational status of the connection. <b>Note:</b> This field is displayed only on the Display Connection window, not on the Create Connection window.
	<b>Other</b>	None of the types specified below.
	<b>EstablishmentIn-Progress</b>	The connection is not operational, but call attempts are ongoing.
	<b>Connected</b>	The connection is currently operational.
	<b>RetriesExhausted</b>	The retry limit has been reached and call attempts have ceased.
	<b>NoAddressSupplied</b>	No remote address has been configured, so no call attempts are initiated.
	<b>LowerLayerDown</b>	The PVC endpoint is out of service.
	<b>WaitingForCall</b>	The passive endpoint of a SPVC connection is waiting for call from an active side.
<b>WaitingForRetry-Timer</b>	The active endpoint of a SPVC connection is waiting for the retry timer to expire so that it can retry the call.	

Table 8-13. Field Descriptions for the Circuit Emulation-to-ATM SPVC Connection Window

Field Name	Field Values	Description
Last Releases Diagnostic	Default: <b>N/A</b> Range: N/A Format: predefined alphanumeric	Last release diagnosis. The text explains how the connection was released and reported by the far end of the connection. <b>Note:</b> This field is displayed only on the Display Connection window, not on the Create Connection window.
Retry Failure Count	Default: <b>N/A</b> Range: N/A Format: predefined alphanumeric	Displays how many times the call retry failed since the last successful call setup. When a call is released, the PSAX system continues to retry up to the retry limit that is specified in the Retry Limit field. See the ATM UNI 3.0 specification for more information. <b>Note:</b> This field is displayed only on the Display Connection window, not on the Create Connection window.
Last Release Cause (display only)	Default: <b>0</b> Range: N/A Format: numeric	Displays the last release cause code. The cause code indicates a reason why the last attempted call was released. See the reference appendix in this guide for the description of SPVC Connection Cause Codes. <b>Note:</b> This field is displayed only on the Display Connection window, not on the Create Connection window.

**Note:** SAR type for using structured, channelized DS1/T1 service: You must select nonmultiplexed AAL2 when using structured, channelized DS1/T1 service on the following modules: 1-Port Channelized DS3 Multiservice, 1-port Channelized DS3 CES, 1-Port Channelized STS-1e, T1 Format, 3-Port Channelized DS3/STS-1e CES, 6-Port Enhanced DS1 Multiservice, 6-Port Enhanced E1 Multiservice, 21-Port High-Density E1 Multiservice, and 12-Port Medium-Density DS1 Multiservice. Save your SPVC connection configurations before upgrading your PSAX system software, or you will have to re-enter these configurations.

If the parameters are valid, the Connections window appears with the new connection in the Listing page, and the Display Connection window appears with tabs that contain details about the connection (see Figure 8-24): Primary, and Statistics.

If a parameter is invalid, a Connection Creation Failed message appears, stating the reason for the failure.

**End**

**Primary Page**

The Primary page displays the information used to create the connection. See Table 8-13 for field descriptions.

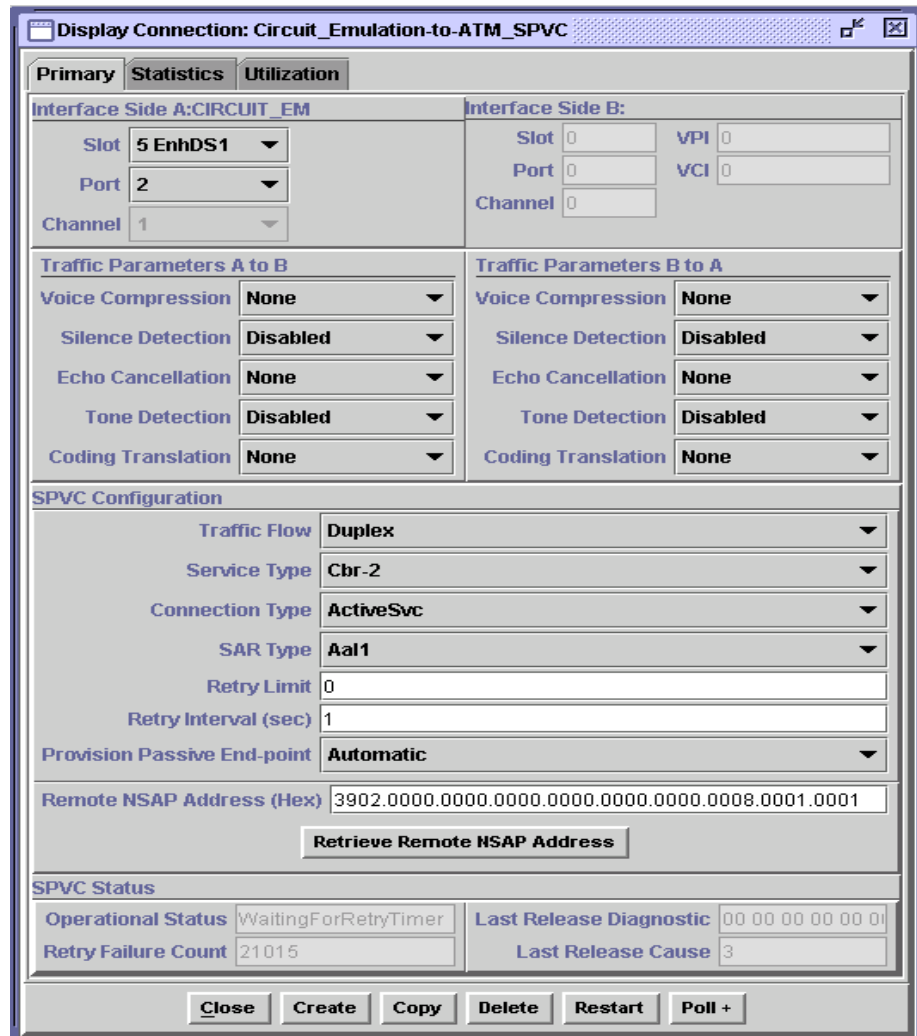


Figure 8-24. Display Connection: Circuit\_Emulation-to-ATM SPVC (Primary Page)

**Primary Page Buttons** The buttons at the bottom of the window have the following functions:

Button	Function
<b>Retrieve Remote NSAP Address</b>	If you have previously established an NSAP address database, click this button to retrieve an entry from this list to populate the Remote NSAP Address (Hex) field.
<b>Close</b>	Closes this window.
<b>Create</b>	Establishes the connection you configured.
<b>Copy</b>	Copies this configuration information to a range of interfaces.
<b>Delete</b>	Deletes the connection.

Button	Function
<b>Restart</b>	Restarts the connection.
<b>Poll</b>	Continuously update the statistics and changes the button label to <b>Poll-</b> . Terminates polling. Changes the button label to <b>Poll+</b> .

**Statistics Page**

The Statistics page displays the statistics for this connection (see Figure 8-25).



Figure 8-25. Display Connection: Circuit\_Emulation-to-ATM SPVC (Statistics Page)

**Statistics Page Buttons**

The buttons on the Statistics page have the following functions:

Button	Description
<b>Update</b>	Refreshes the statistics manually.
<b>Clear</b>	Resets the resettable statistics to zero.

Button	Description
<b>Poll</b>	<b>Poll +</b> continuously update the statistics and changes the button label to <b>Poll-</b> . <b>Poll-</b> terminates polling and changes the button label to <b>Poll+</b> .
<b>Odometer</b>	Restarts counting in the Cells Transmitted and Cells Received fields in the Interface Side A and Interface Side B panels, and to view the transmitted cells and received cells in the Interface Side A and Interface Side B panels. This button is displayed only on the ATM-to-ATM VCC PVC and ATM-to-ATM VPC PVC Statistics pages.
<b>Close</b>	Closes this window.
<b>Restart</b>	Restarts connection establishment procedure for the connections that were not previously set up.

**Field Descriptions** The values for the fields on this window are described in Table 8-14.

**Table 8-14. Field Descriptions for the Circuit Emulation-to-ATM VCC SPVC Statistics Window**

Field Names	Field Values	Description
Cells Encoded (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: numeric	Number of cells encoded going into either interface side during the amount of time shown in Time Elapsed field (that is, since the circuit was created).
Cells Decoded (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: numeric	Number of cells decoded going out of either interface side during the amount of time shown in Time Elapsed field (that is, since the circuit was created).
Encoded Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: numeric	Total number of cells encoded going into either interface side since the odometer was last reset.
Decoded Odometer (display only)	Default: <b>0.0000 e0</b> Range: 0-(2 <sup>31</sup> -1) Format: numeric	Total number of cells decoded going out of either interface side since the odometer was last reset.
Time Elapsed (display only)	Default: <b>00:00:00</b> Range: N/A Format: Time in hours (xx), minutes (xx), seconds (xx)	Time elapsed since the circuit was established.
Cells Received (display only)	6.5000 e1 (default)	Number of valid cells received since the virtual circuit or virtual path was established.
Cells Transmitted (display only)	6.5000 e1 (default)	Number of valid cells transmitted since the virtual circuit or virtual path was established.

**Table 8-14. Field Descriptions for the Circuit Emulation-to-ATM VCC SPVC Statistics Window**

Field Names	Field Values	Description
Received Odometer (display only)	6.5000 e1 (default)	Total number of ATM cells received since odometer was last reset.
Transmitted Odometer (display only)	6.5000 e1 (default)	Total number of ATM cells transmitted since odometer was last reset.
Time Since Reset (display only)	Default: <b>00:00:00</b> Range: N/A Format: Time in hours (xx), minutes (xx), seconds (xx)	Time elapsed since the last time the <b>Clear</b> button was used. This button resets only the odometer fields (labelled as <b>Odometer</b> ) and the corresponding clock. Other counters increment for the life of the circuit.

## Deleting Connections

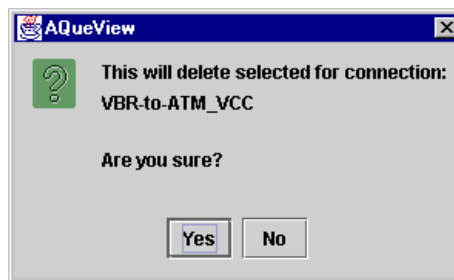
Perform the steps in the following procedure to delete a connection.

### Procedure to Delete a Connection

*Begin*

- 1 In the Device window, click the Connections tab.  
The Listing page appears.
- 2 Do one of the following:
  - ~ Double-click the connection to be deleted in the Connections List. The Display Connection window appears. Click **Delete**.
  - ~ Right-click the entry of the connection you wish to delete. A menu appears. Select **Delete**.

A window appears, prompting you to confirm the deletion (see Figure 8-26).



**Figure 8-26. Sample Delete Connection Confirmation Window**

- 3 Click **Yes** to delete the connection.

*End*

## Chapter 8 Provisioning Connections Using the AQueView® System

### Deleting Connections

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# A Pin Configurations



## Overview of This Appendix

This appendix describes the pin assignments for the connectors on the 12-Port Medium-Density DS1/E1/DS0A CES module. Use the following information to connect correctly configured cables to this module.

## Configurations for the 12-Port MD DS1/E1/DS0A CES Module Connectors

The following table shows the pin configurations for the 12-Port Medium-Density DS1/E1/DS0A CES module connector. Each port consists of two transmit and two receive pins. Note that two pins are not used.

**Table A-1. Telco Connector Pinouts for the 12-Port MD DS1/E1/DS0A CES Module**

Top Row Ring Pin #	Bottom Row Tip Pin #	Network Signal Pair Connector	Port Connector
1	26	Tx 1	1
2	27	Tx 2	2
3	28	Tx 3	3
4	29	Tx 4	4
5	30	Tx 5	5
6	31	Tx 6	6
7	32	Tx 7	7
8	33	Tx 8	8
9	34	Tx 9	9
10	35	Tx 10	10
11	36	Tx 11	11
12	37	Tx 12	12
13	38	Do Not Use	Do Not Use
14	39	Rx 1	1
15	40	Rx 2	2
16	41	Rx 3	3
17	42	Rx 4	4
18	43	Rx 5	5
19	44	Rx 6	6

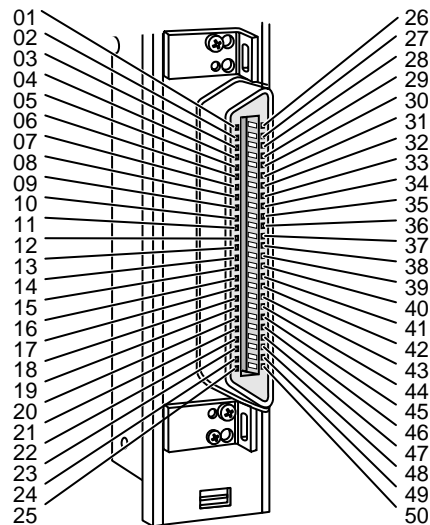
## Appendix A Pin Configurations

Configurations for the 12-Port MD DS1/E1/DS0A CES Module Connectors

**Table A-1. Telco Connector Pinouts for the 12-Port MD DS1/E1/DS0A CES Module**

Top Row Ring Pin #	Bottom Row Tip Pin #	Network Signal Pair Connector	Port Connector
20	45	Rx 7	7
21	46	Rx 8	8
22	47	Rx 9	9
23	48	Rx 10	10
24	49	Rx 11	11
25	50	Rx 12	12

The 12-Port Medium-Density DS1/E1/DS0A CES module port connector mates with a shielded 10-foot Lucent cable assembly (COMCODE 300468030). An equivalent shielded cable with an RJ-48H connector (for example, a Cinch p/n 57-10500-7, 90° plug, a Cinch p/n 57-30500-4, 180° plug, a Cinch p/n 57-10500-271, 270° plug, or equivalent) may also be used (see Chapter 2, "Module Description," and Figure A-1). The pin wiring for this cable, shown in Table A-2, details the RJ-48H network connection to the user equipment. You can connect to this cable per the specifications outlined in ANSI T1.403-1999.



**Figure A-1. Pin Locations on the Telco Port Socket Connector**

## Appendix A Pin Configurations

Configurations for the 12-Port MD DS1/E1/DS0A CES Module Connectors

**Table A-2. Standard 25-Pair Telco Connector to RJ-48H Cable Wiring**

Port Connector	Signal Name	Telco Socket Pin	RJ-48H Pin	Twisted Pair	Wire Color	Input/Output
1	TRING_1	1	39	1	Blue/White	Output
1	TTIP_1	26	14	1	White/Blue	Output
2	TRING_2	2	1	2	Orange/White	Output
2	TTIP_2	27	26	2	White/Orange	Output
3	TRING_3	3	40	3	Green/White	Output
3	TTIP_3	28	15	3	White/Green	Output
4	TRING_4	4	2	4	Brown/White	Output
4	TTIP_4	29	27	4	White/Brown	Output
5	TRING_5	5	41	5	Gray/White	Output
5	TTIP_5	30	16	5	White/Gray	Output
6	TRING_6	6	3	6	Blue/Red	Output
6	TTIP_6	31	28	6	Red/Blue	Output
7	TRING_7	7	42	7	Orange/Red	Output
7	TTIP_7	32	17	7	Red/Orange	Output
8	TRING_8	8	4	8	Green/Red	Output
8	TTIP_8	33	29	8	Red/Green	Output
9	TRING_9	9	43	9	Brown/Red	Output
9	TTIP_9	34	18	9	Red/Brown	Output
10	TRING_10	10	5	10	Gray/Red	Output
10	TTIP_10	35	30	10	Red/Gray	Output
11	TRING_11	11	44	11	Blue/Black	Output
11	TTIP_11	36	19	11	Black/Blue	Output
12	TRING_12	12	6	12	Orange/Black	Output
12	TTIP_12	37	31	12	Black/Orange	Output
Do Not Use	Do Not Use	13	13	13	Green/Black	
Do Not Use	Do Not Use	38	38	13	Black/Green	
1	RRING_1	14	45	14	Brown/Black	Input
1	RTIP_1	39	20	14	Black/Brown	Input
2	RRING_2	15	7	15	Gray/Black	Input
2	RTIP_2	40	32	15	Black/Gray	Input
3	RRING_3	16	46	16	Blue/Yellow	Input
3	RTIP_3	41	21	16	Yellow/Blue	Input
4	RRING_4	17	8	17	Orange/Yellow	Input
4	RTIP_4	42	33	17	Yellow/Orange	Input
5	RRING_5	18	47	18	Green/Yellow	Input
5	RTIP_5	43	22	18	Yellow/Green	Input

## Appendix A Pin Configurations

Configurations for the 12-Port MD DS1/E1/DS0A CES Module Connectors

**Table A-2. Standard 25-Pair Telco Connector to RJ-48H Cable Wiring (Continued)**

Port Connector	Signal Name	Telco Socket Pin	RJ-48H Pin	Twisted Pair	Wire Color	Input/Output
6	RRING_6	19	9	19	Brown/Yellow	Input
6	RTIP_6	44	34	19	Yellow/Brown	Input
7	RRING_7	20	48	20	Gray/Yellow	Input
7	RTIP_7	45	23	20	Yellow/Gray	Input
8	RRING_8	21	10	21	Blue/Violet	Input
8	RTIP_8	46	35	21	Violet/Blue	Input
9	RRING_9	22	49	22	Orange/Violet	Input
9	RTIP_9	47	24	22	Violet/Orange	Input
10	RRING_10	23	11	23	Green/Violet	Input
10	RTIP_10	48	36	23	Violet/Green	Input
11	RRING_11	24	50	24	Brown/Violet	Input
11	RTIP_11	49	25	24	Violet/Brown	Input
12	RRING_12	25	12	25	Gray/Violet	Input
12	RTIP_12	50	37	25	Violet/Gray	Input

# B Reference Information



## Overview of This Appendix

This appendix contains reference information that is helpful while configuring your PSAX system. The following types of information are provided:

- ATM Traffic Descriptors
- ATM User-Network Interface Specification Cause Codes Table, Version 3.1 (for Connection Retry)
- DSP Tone Detection Modes Table
- DSP2C Module Channel Reduction When Using Fax Relay Mode Table
- Industry Compliance Specifications Table
- Connection Types by Interfaces Type Table
- Interface Types by I/O Module Types Table
- Minimum AAL2 Trunk Size Requirements Tables
- Module Alarm Status Table
- Quality of Service (QoS) Information Tables

## ATM Traffic Descriptors

### Purpose of Traffic Descriptors

When you create a PVC, you can select one of several traffic descriptors by entering the desired value in the Conformance Type field on the user interface windows for certain connection types. The traffic descriptor specifies which traffic parameters are used for traffic control. It also determines the number and type of cells that are admitted into a congested queue, and whether high-priority cells are tagged as low-priority cells when traffic exceeds the traffic parameter thresholds.

### Connections Supporting Traffic Descriptors

The traffic descriptors used in the *PacketStar* Multiservice Media Gateway system software are supported for the following types of connections:

- ATM-to-ATM VCC PVC
- ATM-to-ATM VPC PVC
- Bridge-to-ATM VCC PVC
- Circuit Emulation-to-ATM VCC PVC
- Frame Relay-to-ATM VCC PVC
- In-band ATM PVC
- VBR-to-ATM VCC PVC

## Appendix B Reference Information

### ATM Traffic Descriptors

The available traffic descriptors are as follows:

- Best effort (Best-effort)  
This traffic descriptor allows the system to attempt to send all cells in a “best effort” fashion, without specifying traffic parameters, similar to the AQueMan algorithm. The Multiservice Media Gateway might drop some or all cells during congestion.
- Best effort with tagging (Best-effort-tag)  
This traffic descriptor allows the system to tag all CLP=0 (high priority) cells to change them to CLP=1 (low priority) cells, and then attempt to send all cells in a “best effort” fashion, without specifying any other traffic parameters, similar to the AQueMan algorithm. The network might drop some or all cells during congestion.
- One bucket, with no tagging for cells with both CLP bit=0 and CLP bit=1 (1B-NT-0+1)  
This traffic descriptor uses the parameters one bucket, no tagging, cell loss priority (CLP)=0+1 cells (high and low priority). The Multiservice Media Gateway ignores the CLP bit value and drops all cells violating the value set for the peak cell rate (PCR).
- Two buckets, with no tagging for cells with both CLP bit=0 and CLP bit=1 (2B-NT-0+1-0+1)  
This traffic descriptor uses the parameters two buckets, no tagging, CLP=0+1 cells (high and low priority) for bucket 1, and CLP=0+1 cells (high and low priority) for bucket 2. The Multiservice Media Gateway ignores the CLP bit value for cells passing into bucket 1 and drops all cells violating the value set for the PCR. The remainder of the cells are passed to bucket 2. The Multiservice Media Gateway ignores the CLP bit value for cells passing into bucket 2, and drops all cells violating the value set for the sustainable cell rate (SCR).
- Two buckets, with no tagging for cells with both CLP bit=0+1 and CLP bit=0 (2B-NT-0+1-0)  
This traffic descriptor uses the parameters two buckets, no tagging, CLP=0+1 cells (high and low priority) for bucket 1, and CLP=0 cells (high priority) for bucket 2. For bucket 1, the Multiservice Media Gateway ignores the CLP bit value for cells passing into bucket 1 and drops all cells violating the value set for the PCR. For bucket 2, the system takes one of the following actions:
  - ~ When the connection is configured for variable bit rate (VBR) traffic, the Multiservice Media Gateway drops all CLP=0 cells violating the value set for the SCR in bucket 2.
  - ~ When the connection is configured for constant bit rate (CBR) traffic, the Multiservice Media Gateway drops all CLP=0 cells violating the value set for the PCR in bucket 2.
- Two buckets, for cells with CLP bit=0 and CLP bit=0 (2B-NT-0+1-0)  
This traffic descriptor uses the parameters two buckets, tagging, CLP=0+1 cells (high and low priority) for bucket 1, and CLP=0 cells (high priority) for bucket 2. For bucket 1, the Multiservice Media Gateway ignores the

CLP bit value for cells passing into bucket 1 and drops all cells violating the value set for the PCR. For bucket 2, the system takes one of the following actions:

- ~ When the connection is configured for variable bit rate (VBR) traffic, the Multiservice Media Gateway tags all CLP=0 cells violating the value set for the SCR to CLP=1 in bucket 2.
- ~ When the connection is configured for constant bit rate (CBR) traffic, the Multiservice Media Gateway tags all CLP=0 cells violating the value set for the PCR to CLP=1 in bucket 2.

The network then might drop some or all cells during congestion.

## ATM User-Network Interface Specification Cause Codes Table

SPVC connection cause codes, displayed in the Last RIs Cause field on all the SPVC connection configuration windows, are provided in Table B-1. The word Yes in the “Prompts a Retry” column indicates that if the cause code number, shown in the “Cause Code” column, is reported by the equipment at the far (remote) end, the PSAX system will try to establish the connection again up to the number of times specified in the Retry Limit field on the SPVC connection configuration windows. The ATM Forum UNI and Frame Relay Forum FRF.4 standards use many (but not all) of the same cause codes, and these standards reference ITU-T standards for many of the cause codes.

**Table B-1. Connection Cause Codes for SPVCs**

Cause Code	Description	Prompts a Retry	Referenced Standard
1	Unallocated (unassigned) number. The called party number is not currently assigned. As a result, the called party cannot be reached.	No	ITU-T Q.850
2	No route to specified transit network. The equipment sending this cause code received a request to route the call through an unknown transit network. The transit network is unknown to the equipment because it does not exist or does not serve the equipment.	No	ITU-T Q.850
3	No route to destination. The network through which the call was routed does not serve the destination. As a result, the called party cannot be reached.	Yes	ITU-T Q.850
10	VCC is unacceptable. The VPI/VCI is unacceptable to the sending entity for use in the call.	No	ATM Forum UNI 3.0/3.1
16	Normal call clearing.	No	ITU-T Q.850
17	User is busy. The called party is unable to accept another call because the user-busy condition has been encountered.	Yes	ITU-T Q.850

## Appendix B Reference Information

### ATM User-Network Interface Specification Cause Codes Table

**Table B-1. Connection Cause Codes for SPVCs (Continued)**

Cause Code	Description	Prompt s a Retry	Referenced Standard
18	No user is responding. A called party did not respond to a call establishment message with either an alerting or connect indication within a designated time period.	No	ITU-T Q.850
21	Call was rejected. Although the equipment sending this cause code is neither busy nor incompatible, the equipment sending this cause code does not want to accept the call. The cause can be generated by the network to indicate that the call might have been cleared as a result of a supplementary service constraint.	No	ITU-T Q.850
22	Number was changed. The number of the called party is no longer assigned. A new number must be used to call the called party.	No	ITU-T Q.850
23	User rejects all calls with calling line identification restriction (CLIR). The called party returns this cause code when the call comes in without calling party number information and the called party requires this information.	No	ATM Forum UNI 3.0/3.1
27	Destination is out of order. The user cannot reach the destination because the interface to the destination is not functioning properly; that is, a signaling message could not be delivered to the destination.	Yes	ITU-T Q.850
28	Number format is not valid (address incomplete). The called party is unreachable because the number of the called party is not in the proper format or it is not complete.	No	ITU-T Q.850
30	Response to STATUS ENQUIRY. A STATUS message was sent in response to receipt of a STATUS ENQUIRY message.	Yes	ITU-T Q.850
31	Normal unspecified. A normal event occurred for which no other cause applies. As a result, the event is normal but unspecified.	No	ITU-T Q.850
32	Too many pending ADD PARTY requests currently exist.	Yes	ATM Forum PNNI 1.0
35	Requested VPCI/VCI is not available. The SPVC attempted to use a VPCI/VCI that is unavailable.	Yes	ITU-T Q.2610
36	VPCI/VCI assignment failure. A VPCI/VCI could not be assigned to the SPVC.	Yes	ITU-T Q.2610
37	User cell rate is unavailable. The requested cell rate is unavailable for the SPVC.	Yes	ITU-T Q.2610
38	Network is out of order (not used in this implementation agreement). The problem will probably last a long period of time; that is, an immediate retry of the call is not likely to succeed.	Yes	ITU-T Q.850
41	Temporary failure. The problem will probably last a short period of time; that is, an immediately retry of the call has a good chance to succeed.	Yes	ITU-T Q.850

## Appendix B Reference Information

### ATM User-Network Interface Specification Cause Codes Table

**Table B-1. Connection Cause Codes for SPVCs (Continued)**

Cause Code	Description	Prompts a Retry	Referenced Standard
43	Access information was discarded. The network failed to deliver access information to the remote user (for example, user-to-user, low-layer compatibility, high-layer compatibility, or subaddress).	Yes	ITU-T Q.850
44	Circuit is unavailable. The requested circuit or channel is not available.	No	ITU-T Q.850
45	No VPCI/VCI is available. A VPCI/VCI is not available for the SPVC.	Yes	ITU-T Q.2610
47	Resource is unavailable or unspecified. A resource is unavailable, and no other cause code exists to report this event.	Yes	ITU-T Q.850
49	Quality of service is unavailable. The requested QoS class is unavailable for the SPVC.	No	ITU-T Q.850
51	User cell rate is unavailable. The requested cell rate is unavailable for the SPVC.	Yes	ATM Forum UNI 3.0/3.1
53	PGL was changed. The call was cleared due to a change in the peer group leader (PGL).	No	ATM Forum PNNI 1.0
57	Bearer capability is not authorized. The SPVC user requested a bearer capability for which the user is not authorized.	No	ITU-T Q.850
58	Bearer capability is not presently available. The SPVC user requested a bearer capability that is not available at this time.	No	ITU-T Q.850
63	Service or option is unavailable or unspecified. A service or option is unavailable, and no other cause code exists to report this event.	No	ITU-T Q.850
65	Bearer capability is not implemented. The equipment that generated this cause code does not support the requested bearer capability.	No	ITU-T Q.850
73	Combination of traffic parameters is not supported.	No	ATM Forum UNI 3.0/3.1
78	AAL parameters cannot be supported.	No	ITU-T Q.2610
81	Call reference value is not valid. The equipment that sends this cause code has received a message with a call reference that is not currently in use on the user-network interface.	No	ITU-T Q.850
82	Identified channel does not exist. The equipment sending this cause code received a request to use a channel that was not activated on the call interface. For example, if a user subscribed to those channels on a primary rate interface numbered from 1 to 12, this cause code would be generated if the user equipment or the network attempts to use channels 13 through 23.	No	ITU-T Q.850
88	Incompatible destination. The equipment sending this cause code received a request to establish a call with low-layer compatibility, or other compatibility attributes that cannot be accommodated, for example, data rate.	No	ITU-T Q.850

## Appendix B Reference Information

### ATM User-Network Interface Specification Cause Codes Table

**Table B-1. Connection Cause Codes for SPVCs (Continued)**

Cause Code	Description	Prompt s a Retry	Referenced Standard
89	Endpoint reference is not valid. The equipment sending this cause code received a message with an endpoint reference that is currently not in use on the user-network interface.	No	ATM Forum UNI 3.0/3.1
91	Transit network selection is not valid. A transit network identification was received that is not formatted correctly. Correct formats are defined in the standard, Q.931, Annex C.	No	ITU-T Q.850
92	Too many pending ADD PTY requests were generated on the SPVC. This condition occurs when the calling party sends an ADD PTY request, but the network cannot accept another ADD PTY message because its queues are full. This condition is temporary.	No	ATM Forum UNI 3.0/3.1
93	AAL parameters cannot be supported.	No	ITU-T Q.2610
95	Unspecified message is not valid. This cause code reports a message event that is not valid when no other message cause code that is not valid applies.	No	ITU-T Q.850
96	Mandatory information element is missing. The equipment sending the cause code received a message that is missing a mandatory information element.	No	ITU-T Q.850
97	Message type is nonexistent or not implemented. The equipment sending the cause code received one of the following message types: <ul style="list-style-type: none"> <li>• Not defined</li> <li>• Defined but not implemented by the equipment sending the cause code</li> </ul>	No	ITU-T Q.850
99	Information element is nonexistent or not implemented. The equipment sending the cause code received a message that includes information elements or parameters that meet one of the following criteria: <ul style="list-style-type: none"> <li>• Not recognized because the elements or parameters are not defined</li> <li>• Defined but not implemented by the equipment sending the cause code</li> </ul> The cause code indicates that the elements or parameters were discarded. However, the information element is not required to be present in the message so that the equipment sending the cause code can process the message.	No	ITU-T Q.850
100	Information element content is not valid. The equipment sending this cause code received an information element that the equipment has implemented, but one or more fields in the information element are coded in a way that has not been implemented.	No	ITU-T Q.850
101	Message type is not compatible with call state. A message was received that is incompatible with the call state.	Yes	ITU-T Q.850

**Table B-1. Connection Cause Codes for SPVCs (Continued)**

Cause Code	Description	Prompt s a Retry	Referenced Standard
102	Recovery on timer expiration. A procedure has been initiated by the expiration of a timer that is related to error handling procedures.	Yes	ITU-T Q.850
104	Message length is not correct.	No	ATM Forum UNI 3.0/3.1
111	Unspecified protocol error. A protocol error occurred for which no defined protocol error exists.	No	ITU-T Q.850
127	Optional information element content error (nonstandard). This cause code indicates the occurrence of internetworking with a network that does not provide cause codes for actions that it takes. The precise cause for any message that is sent cannot be determined.	No	ITU-T Q.850
128	Next node is unreachable.	No	ATM Forum PNNI 1.0
160	DTL transit is not my node ID.	No	ATM Forum PNNI 1.0

## DSP Tone Detection Modes Table

**Table B-2. DSP Tone Detection Modes\* and Associated Processing Performed**

Tone Mode	Processing Performed
Disabled	Ignores fax tones and modem tones
Bypass	If a fax tone or modem tone is received, the firmware switches to G.711 mode (64 Kbps) and bypasses echo cancellation, if enough bandwidth is available.
Fax Relay	If a fax tone is received, the firmware switches to a channel configured for FaxRelayMode and performs fax demodulation / remodulation. If a modem tone is received, the firmware ignores it
Fax Relay/Modem Bypass	If a fax tone is received, the firmware switches to a channel configured for FaxRelayMode and performs fax demodulation/remodulation. If a modem tone is received, the firmware switches to G.711 mode (64 Kbps) and bypasses echo cancellation, if enough bandwidth is available.

\* Modes selected on the CE-to-ATM VCC PVC connection window

## Appendix B Reference Information

### DSP2C Module Channel Reduction When Using Fax Relay Mode Table

# DSP2C Module Channel Reduction When Using Fax Relay Mode Table

**Table B-3. Channel Reduction Availability Caused by Fax Relay Connections vs. Voice Processing Connections on a DSP2C Module**

Number of DSPs for Fax Relay	Total Connections Assigned for Fax Relay	Percent of All DSP Connections Assigned for Fax Relay	Remaining Voice Processing Available Channels*
1	4	3%	124
2	8	6%	120
3	12	9%	116
4	16	13%	112
5	20	16%	108
6	24	19%	104
7	28	22%	100
8	32	25% †	96
9	36	28%	92
10	40	31%	88
11	44	34%	84
12	48	38%	80
13	52	41%	76
14	56	44%	72
15	60	47%	68
16	64	50%	64

\* For every fax transmission call, both the originally assigned DSP resource, plus the fax relay DSP resource, are consumed for the duration of the call. Thus, the total remaining DSP connections is reduced by twice the number of connections using fax mode service.

† Utilization of DSP resources for fax relay above 25% is not considered realistic for most service provider environments. If this value exceeds 25%, then the number of available DSP connections for pure voice mode calls is reduced to less than 50% of connections available on the DSP2C module.

## Industry Compliance Specifications Table

Compliance specifications for the *PacketStar*<sup>®</sup> PSAX Multiservice Media Gateway I/O and server modules are contained in Table B-4.

**Table B-4. Industry Compliance Specifications**

Feature Name/Product Name	Specification Title	Notes
Integrated Local Management Interface (ILMI) ILMI over PNNI Channelized DS3, Channelized STS-1e, DS1 IMA, DS3 IMA, E1 IMA, DS3 ATM, E3 ATM, Enhanced DS1, Enhanced E1, High-Density E1, High Speed, Medium-Density DS1, Multi-Serial, OC-3c Single-Mode/Multi-Mode/APS, STM-1 Single-Mode/Multi-Mode/MSP, OC-12c/STM-4c, and Quadserial modules	af-ilmi-0065.000 Integrated Local Management Interface (ILMI)	
Channelized DS3, Channelized STS-1e, DS1 IMA, DS3 IMA, E1 IMA, DS3 ATM, E3 ATM, Enhanced DS1, Enhanced E1, High-Density E1, High Speed, Medium-Density DS1, OC-3c Single-Mode/Multi-Mode/APS, STM-1 Single-Mode/Multi-Mode/MSP, OC-12c/STM-4c, and Quadserial modules	af-pnni-0026.000 Interim Inter-Switch Signaling Protocol (IISP)	
ATM Maintenance Mode ATM PNNI 1.0 interface ETSI ISDN Support In-band Management SVC Soft Permanent Virtual Circuits (SPVCs) SPVC Support for CES with DSP2 Modules Channelized DS3, Channelized STS-1e, DS1 IMA, DS3 IMA, E1 IMA, DS3 ATM, E3 ATM, DSP2A/B/C/D Voice Server, Enhanced DS1, High-Density E1, Medium-Density DS1, OC-3c Single-Mode/Multi-Mode/APS, STM-1 Single-Mode/Multi-Mode/MSP, OC-12c/STM-4c, and Quadserial modules	af-pnni-0055.000 Private Network-Network Interface (PNNI)	SPVCs- Annex C: Soft PVC Procedures for circuit emulation, frame relay, and terminal emulation  Annex G, mandatory requirements

**Appendix B Reference Information**  
 Industry Compliance Specifications Table

**Table B-4. Industry Compliance Specifications (Continued)**

Feature Name/Product Name	Specification Title	Notes
ATM Maintenance Mode In-band Management SVC	af-pnni-0066000 Private Network-Network Inter- face (PNNI) Addendum (Soft PVC)	
Channelized DS3, Channelized STS-1e, DS1 IMA, DS3 IMA, E1 IMA, DS3 ATM, E3 ATM, Enhanced DS1, Enhanced E1, High-Density E1, High Speed, Medium-Density DS1, Multi- Serial, OC-3c Single- Mode/Multi-Mode/APS, STM-1 Single-Mode/Multi-Mode/MSP, OC-12c/STM-4c, and Quadserial modules	af-sig-0061.000 User-Network Interface (UNI) 4.0	
Traffic Management (UPC Sup- port) Route Server-to-ATM Interworking	af-tm-0121.000 Traffic Management, Usage Parameter Control	Route Server-to-ATM Interworking: Section 5.5
Channelized DS3, Channelized STS-1e, DS1 IMA, DS3 IMA, E1 IMA, DS3 ATM, E3 ATM, Enhanced DS1, Enhanced E1, High-Density E1, High Speed, Medium-Density DS1, Multi-Serial, OC-3c Single- Mode/Multi-Mode/APS, STM-1 Single-Mode/Multi-Mode/MSP, OC-12c/STM-4c, and Quadserial modules	af-uni-0010.001 User-Network Interface (UNI) 3.0	
PSAX 1000 Multiservice Media Gateway Channelized DS3, Channelized STS-1e, DS1 IMA, DS3 IMA, E1 IMA, DS3 ATM, E3 ATM, Enhanced DS1, Enhanced E1, High-Density E1, High Speed, Medium-Density DS1, Multi- Serial, OC-3c Single- Mode/Multi-Mode/APS, STM-1 Single-Mode/Multi-Mode/MSP, OC-12c/STM-4c, and Quadserial modules	af-uni-0010.002 User-Network Interface (UNI) 3.1 44.736 Mbps Ds3 Layer	

Table B-4. Industry Compliance Specifications (Continued)

Feature Name/Product Name	Specification Title	Notes
GR-303 DLC Services VTOA AAL2 Trunking Narrow-band Services	af-vmoa-0145.000 Voice and Multimedia Over ATM-Loop Emulation Service Using AAL2	
Carrier Group AIS Alarm I.610 OAM F4/F5 Processing (remote defect indication [RDI] and alarm indication signal [AIS])  Channelized DS3, Channelized STS-1e, Channelized DS3/STS-1e CES, DS1 IMA, DS3 IMA, E1 IMA, Enhanced DS1, Enhanced E1, High-Density E1, Medium-Density DS1, Multi-Serial, Quadserial and Unstructured DS3/E3 CES modules	af-vtoa-0078.000 Circuit Emulation Service 2.0	Includes 56 (DS1), Nx64 (DS1, E1)
AAL2 Trunking	af-vtoa-0089.000 ATM Trunking Using AAL1 for Narrow Band Services V1.0	
I.610 OAM F4/F5 Processing (remote defect indication [RDI] and alarm indication signal [AIS])	af-vtoa-0098.000 VTOA AAL1 Trunking Services	
	af-vtoa-0119.000 Low Speed Circuit Emulation Service	
GR-303 DLC Services	ANSI T1.401 Interface Between Carriers and Customer Installations- Analog Voice Grade Switched Access Lines Using Loops-start and Ground-start Signaling	
GR-303 DLC Services	ANSI T1.405 Network-to-customer Installation Interfaces- Direct-inward Dialing Analog Voice Grade Switched Access Using Loop-reverse Battery Signaling	
GR-303 DLC Services	ANSI T1.409 Network-to-Customer Installation Interfaces- Analog Voice Grade Special Access Lines Using E&M Signaling	

**Appendix B Reference Information**  
 Industry Compliance Specifications Table

**Table B-4. Industry Compliance Specifications (Continued)**

Feature Name/Product Name	Specification Title	Notes
GR-303 DLC Services VTOA AAL2 Trunking Narrow-band Services	ANSI T1.602 Integrated Services Digital Network (ISDN)- Data-link Layer Signaling Specification for Application at the User-Network Interface	
GR-303 DLC Services VTOA AAL2 Trunking Narrow-band Services	ANSI T1.607; T1.607a Digital Subscriber Signaling System Number 1 (DSS1)-Layer 3 Signaling Specification for Circuit-switched Bearer Services	T1.607a is for GR-303 DLC Services
	DSL Forum TR 017 ATM over ADSL Recommendations	
GR-303 DLC Services VTOA AAL2 Trunking Narrow-band Services	EIA-464-B Requirements for Private Branch Exchange (PBX) Switching Equipment	
	ETSI 300 012-1 Integrated Services Digital Network (ISDN); Basic User-Network Interface; Layer 1 Specification and Test Principles	
ETSI ISDN Support	ETSI 300 125	Annex C: Soft PVC Procedures
	ETSI 300 324-1 V5.1 Interface for the Support of Access Network (AN) Part 1: V5.1 Interface Specification	ITU-T G. 964 and G.965 are functionally equivalent to ETSI EN 300 324-1 and ETSI EN 300 347-1 respectively. In cases where detail differences exist between the ITU-T and ETSI versions of the specifications, the ETSI versions of the specifications should apply.
	ETSI 300 347-1 V5.2 Interface for the Support of Access Network (AN) Part 1: V5.2 Interface Specification	ITU-T G. 964 and G.965 are functionally equivalent to ETSI EN 300 324-1 and ETSI EN 300 347-1 respectively. In cases where detail differences exist between the ITU-T and ETSI versions of the specifications, the ETSI versions of the specifications should apply.

**Table B-4. Industry Compliance Specifications (Continued)**

Feature Name/Product Name	Specification Title	Notes
	ETSI 300 402-1 Integrated Services Digital Network (ISDN), Digital Subscriber Signaling System No. 1 (DSS1) Protocol; Data Link Layer, Part 1: General Aspects	
	ETSI 300 402-2 Integrated Services Digital Network (ISDN); Digital Subscriber System No. 1 (DSS1) protocol; Data Link Layer, Part 2: General Protocol Specification	
Channelized DS3, Channelized STS-1e, DS3 Frame Relay, Enhanced DS1, Enhanced E1, High-Density E1, Medium-Density DS1, Multi-Serial and Quadserial modules	FRF.1.1 User-to-Network (UNI) Implementation Agreement	
Channelized DS3, Channelized STS-1e, DS3 Frame Relay, Enhanced DS1, Enhanced E1, High-Density E1, Medium-Density DS1, Multi-Serial and Quadserial modules link management interface (LMI) services between two network-network interface (NNI) services	FRF.2.1 Frame Relay Network-to-Network (NNI) Implementation Agreement LMI services between two NNI services	
Channelized DS3, Channelized STS-1e, DS3 Frame Relay, Enhanced DS1, Enhanced E1, High-Density E1, Medium-Density DS1, Quadserial, and Route Server modules	FRF.5 Frame Relay ATM/PVC Network Internetworking Implementation Agreement	
In-band Management Channelized DS3, Channelized STS-1e, DS3 Frame Relay, Enhanced DS1, Enhanced E1, High-Density E1, Medium-Density DS1, Multi-Serial, Quadserial, and Route Server modules	FRF.8 Frame Relay ATM/PVC Service Internetworking Implementation Agreement	
	GR-820-CORE OTGR Section 5.1 Generic Transmission Surveillance	

**Appendix B Reference Information**  
 Industry Compliance Specifications Table

**Table B-4. Industry Compliance Specifications (Continued)**

Feature Name/Product Name	Specification Title	Notes
Channelized DS3, Channelized STS-1e, Enhanced DS1, Medium Density DS1, and Tones and Announcements Server modules	GR-822-CORE	For milliwatt test refer to Section 5.2.1.2 T1.207a For type 105 termination test, refer to Section 5.2.5 T1.207a and Section 6.1.2.3 For type 108 termination test, refer to Section 5.3.1 T1.207a and Section 6.1.2.4
I.610 OAM F4/F5 Processing (remote defect indication [RDI] and alarm indication signal [AIS])	TR-NWT-00170 Bellcore Digital Cross-Connect System Generic Requirements and Objectives	
	IETF RFC 1157 Simple Network Management Protocol (SNMP) Version 1.0	
	IETF RFC 1595 Definitions of Managed Objects for the SONET/SDH Interface Types	
	IETF RFC 1661 Point-to-Point Protocol	
	IETF RFC 1662 PPP in HDLC-like Framing	
	IETF RFC 1700 Assigned Numbers	
	IETF RFC 2364 PPP Over AAL5	
	ITU-T E.164 Overall Network Operation, telephone service, service operation, and human factors: Operation, numbering, routing and mobile services International operation- Numbering plan of the international telephone service	
	ITU-T G.702 General Aspects of Digital Transmission Systems— Terminal Equipment: Digital Hierarchy Bit Rates	

Table B-4. Industry Compliance Specifications (Continued)

Feature Name/Product Name	Specification Title	Notes
1.544 Mbps, 2.048 Mbps, 44.736 Mbps; includes channel-associated signaling (CAS) ABCD in-band signaling	ITU-T G.704 Synchronous frame structures used at 1544, 6312, 2048, 8488 and 44 736 Kbps hierarchical levels	
	ITU-T G.706 Frame alignment and cyclic redundancy check (CGC) procedures relating to basic frame structures defined in Recommendation G.704	
	ITU-T G.707 Transmission Systems and Media—Digital transmission systems— Terminal equipment— General: Network node interface for the synchronous digital hierarchy (SDH)	
Annex A: Voice compression (8 Kbps) Annex B: Silence suppression	ITU-T G.729 General Aspects of Digital Transmission Systems: Coding of Speech at 8 Kbps Using Conjugate-Structure Algebraic-Code-Excited Linear-Prediction (CS-ACELP)	
	ITU-T G.732 General Aspects of Digital Transmission Systems Terminal Equipments: Characteristics of Primary PCM Multiplex Equipment Operating at 2048 Kbit/s	
	ITU-T G.736 General Aspects of Digital Transmission: Characteristics of a Synchronous Digital Multiplex Equipment Operating at 2048 kbits/sec	
	ITU-T G.751 Digital multiplex equipments operating at the third order bit rate of 34 368 kbit/s and the fourth order bit rate of 139 264 Kbps and using positive justification	

**Appendix B Reference Information**  
 Industry Compliance Specifications Table

**Table B-4. Industry Compliance Specifications (Continued)**

Feature Name/Product Name	Specification Title	Notes
	ITU-T G.823 The control of jitter and wander within digital networks which are based on the 2048 Kbps hierarchy	
Includes Multiplex Section Protection (MSP)	ITU-T G.832 Transmission Systems and Media, Digital Systems and Networks— Digital transmission systems—Digital networks— Network capabilities and functions: Transport of SDH Elements on PDH Networks—Frame and Multiplexing Structures	
Intra-office and short haul	ITU-T G.957 Optical interfaces for equipment and systems relating to the synchronous digital hierarchy	Long haul not supported
	ITU-T G.964 V-Interfaces at the Digital Local Exchange (LE)- V5.1 Interface (based on 2048 Kbps) for the Support of Access Network (AN)	ITU-T G. 964 and G.965 are functionally equivalent to ETSI EN 300 324-1 and ETSI EN 300 347-1 respectively. In cases where detail differences exist between the ITU-T and ETSI versions of the specifications, the ETSI versions of the specifications should apply.
	ITU-T G.965 V-Interfaces at the Digital Local Exchange (LE) - V5.1 Interface (based on 2048 Kbps) for the Support Of Access Network (AN)	ITU-T G. 964 and G.965 are functionally equivalent to ETSI EN 300 324-1 and ETSI EN 300 347-1 respectively. In cases where detail differences exist between the ITU-T and ETSI versions of the specifications, the ETSI versions of the specifications should apply.
	ITU-T G.991.2 Draft: Single-pair high speed digital subscriber line (SHDSL) transceivers	
	ITU-T G.992.1 Asymmetric Digital Subscriber Line (ADSL) transceivers	

**Table B-4. Industry Compliance Specifications (Continued)**

Feature Name/Product Name	Specification Title	Notes
	ITU-T G.992.2 Splitterless Asymmetric Digital Subscriber Line (ADSL) transceivers	
	ITU-T H.248 H.248 Base Root Package	Annex E.2
	ITU-T I.121 Integrated Services Digital Network (ISDN) General Structure and Service Capabilities: Broadband Aspects of ISDN	
	ITU-T I.150 B-ISDN ATM Functional characteristics	
	ITU-T I.321 Integrated Services Digital Network (ISDN) Overall Network Aspects and Functions, ISDN User-Network Interfaces: B-ISDN Protocol Reference Model and its Application	
	ITU-T I.356 B-ISDN ATM layer cell transfer performance	ABR not supported
I.610 OAM F4/F5 Processing (remote defect indication [RDI] and alarm indication signal [AIS])	ITU-T I.361 B-ISDN ATM Layer Specification	
	ITU-T I.363 B-ISDN ATM Adaptation Layer specification	Only AAL1, AAL2, and AAL5 are supported
	ITU-T I.363.1 B-ISDN ATM Adaptation Layer specification: Type 1 AAL	
Multiplexing support	ITU-T I.363.2 B-ISDN ATM Adaptation Layer specification: Type 2 AAL	
	ITU-T I.363.5 B-ISDN ATM Adaptation Layer specification: Type 5 AAL	

**Appendix B Reference Information**  
 Industry Compliance Specifications Table

**Table B-4. Industry Compliance Specifications (Continued)**

Feature Name/Product Name	Specification Title	Notes
VTOA AAL2 Trunking Narrow-band Services	ITU-T I.366.1 Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL type 2	
Channelized DS3, Channelized STS-1e, DS3 Frame Relay, Enhanced DS1, Enhanced E1, High-Density E1, Medium-Density DS1, Multi-Serial, and Quadserial modules	ITU-T I.370 Congestion Management for ISDN Frame Relay Bearing Service	
Channelized DS3, Channelized STS-1e, DS3 Frame Relay, High-Density E1, Medium-Density DS1, Multi-Serial and Quadserial modules	ITU-T I.371 Traffic control and congestion control in B-ISDN	ABR not supported
	ITU-T I.372 Integrated Services Digital Network (ISDN) Overall Network Aspects and Functions: Frame Relaying Bearer Service Network-to-Network Interface Requirements	
	ITU-T I.413 Integrated Services Digital Network (ISDN) User-Network Interfaces: B-ISDN User-Network Interface	
	ITU-T I.430 Basic User-Network Interface - Layer 1 Specification	
Channelized DS3, Channelized STS-1e, Channelized DS3/STS-1e CES, DS3 Frame Relay, Enhanced DS1, Enhanced E1, High-Density E1, Medium-Density DS1, Multi-Serial, and Quadserial modules	ITU-T I.431 Integrated Services Digital Network (ISDN) User-Network Interfaces: Primary Rate User-Network Interface—Layer 1 Specification	
Scrambling, header error control (HEC) processing, cell delineation	ITU-T I.432 B-ISDN User-Network Interface—Physical layer Specification	
	ITU-T I.432.1 B-ISDN User-Network Interface: Physical Layer Specification- General Characteristics	

Table B-4. Industry Compliance Specifications (Continued)

Feature Name/Product Name	Specification Title	Notes
	ITU-T I.432.2 B-ISDN User-Network- Physical Layer Specification: 155 520 Kbps and 622 080 Kbps operation	
	ITU-T I.432.3 B-ISDN User-Network Interface: Physical Layer Specification for 1.544 Mbps and 2.048 Mbps	
	ITU-T I.432.4 B-ISDN User-Network- Physical Layer Specification: 51 840 Kbps Operation	
Carrier Group AIS Alarm Dual-homed PVCs I.610 OAM F4/F5 Processing (remote defect indication [RDI] and alarm indication signal [AIS]) Channelized DS3, Channelized STS-1e, Channelized DS3/STS-1e CES, DS3 ATM, E3 ATM, DS1 IMA, DS3 IMA, E1 IMA, Enhanced DS1, Enhanced E1, DSP2A/B/C/D Voice Server, Route Server, High-Density E1, High Speed, Medium-Density DS1, Multi-Serial, Quadserial, OC-3c Single-Mode/Multi-Mode/APS, STM-1 Single-Mode/Multi-Mode/MSP, OC-12c/STM-4c modules and Unstructured DS3/E3 CES modules	ITU-T I.610 B-ISDN operation and maintenance principles and functions	
	ITU-T Q.922 Digital Subscriber Signaling System No.1 (DSS 1) Data Link Layer: ISDN Data Link Layer Specification for Frame Mode Bearer Services	Annex A
	ITU-T Q.921 Digital Subscriber Signaling system No. 1, ISDN User-Network interface- Data Link Layer Specification	

**Appendix B Reference Information**  
 Industry Compliance Specifications Table

**Table B-4. Industry Compliance Specifications (Continued)**

Feature Name/Product Name	Specification Title	Notes
<ul style="list-style-type: none"> <li>• AAL1 Trunking CCS (Q.931)</li> <li>• AAL1 Trunking CCS (Q.931/QSIG), AAL1 Trunking CAS</li> <li>• AAL2 Trunking CCS (Q.931)</li> </ul>	ITU-T Q.931 Switching and Signaling - Digital subscriber Signalling System No. 1 - Network layer: Digital Subscriber Signaling System No. 1 (DSS 1) - ISDN User-Network Interface Layer 3 Specification for Basic Call Control	
	ITU-T Q.933 Annex A Digital Subscriber Signaling System No. 1—Integrated Services Digital Network (ISDN) Digital Subscriber Signaling System No. 1 (DSS 1)—Signaling Specifications for Frame Mode Switched and Permanent Virtual Connection Control and Status Monitoring	
ATM UNI interfaces (3.0, 3.1, 4.0)	ITU-T Q.2110 B-ISDN SAAL Service Specific Connection Oriented Protocol (SSCOP)	
ATM UNI interfaces (3.0, 3.1, 4.0)	ITU-T Q.2130 B-ISDN SAAL Service Specific Coordination Function (SSCF) for Support of Signaling at the User-Network Interface	
	ITU-T Q.2931 B-ISDN Application protocols for access signalling—Broadband Integrated Services Digital Network (B-ISDN)— Digital Subscriber Signalling System No. 2 (DSS 2)—User Network Interface (UNI) Layer 3 Specification For Basic Call/Connection Control	
	ITU-T Q.2941.2 Draft: Broadband Integrated Services Digital Network (B-ISDN)- Digital Subscriber Signaling System No. 2 (DSS2): Generic identifier transport (	

**Table B-4. Industry Compliance Specifications (Continued)**

Feature Name/Product Name	Specification Title	Notes
	ITU-T Q.2971 B-ISDN—DSS 2—User-network interface layer 3 specification for point-to-multipoint call/connection control	
	ITU-T V.8 Procedures For Starting Sessions of Data Transmission Over the General Switched Telephone Network	
	ITU-T V.25 Automatic Answering Equipment and General Procedures for Automatic Calling Equipment on the General Switched Telephone Network Including Procedures for Disabling of Echo Control Devices for Both Manually and Automatically Established Calls	
	X.144 User information transfer performance parameters for data networks providing international frame relay PVC service	

## Interface Type by Connection Type Table

Table B-5. Connection Type by Interface Type Table

Interface	ATM IISP (Network/User)	ATM IMA	ATM PNNI 1.0	ATM UNI 3.0/3.1/4.0	Bridge	CAS TrunkLine	Circuit Emulation	Dynamic BW Circuit Emul.	Frame Relay (UNI, NNI)	GR-303	HDLC Pass-through	PRI ISDN (Network/User)	Terminal Emulation	Virtual Interface (OC-3, STM-1, OC-12/STM-4 APS/MSP Modules Only)
Connection														
AAL2 Trunking	X	X	X	X										X
ATM-to-ATM virtual channel connection (VCC) PVC	X	X	X	X										X
ATM-to-ATM virtual path connection (VPC) PVC	X	X	X	X										
Bridge-to-ATM VCC PVC	X	X	X	X	X									X
Bridge-to-bridge PVC					X									
Circuit emulation-to ATM VCC PVC	X	X	X	X			X	X						X
Circuit emulation-to circuit emulation PVC							X	X						
Frame relay-to-ATM VCC PVC	X	X	X	X					X					X
Frame relay-to-frame relay PVC									X					
In-band management ATM PVC	X	X	X	X										
Variable bit rate (VBR)-to-ATM VCC PVC	X	X	X	X							X		X	X
VBR-to-VBR PVC											X		X	
ATM-to-ATM IISP constant bit rate (CBR) SVC	X	X	X	X										
ATM-to-ATM IISP VBR SVC	X	X	X	X										

Table B-5. Connection Type by Interface Type Table (Continued)

Interface	ATM IISP (Network/User)	ATM IMA	ATM PNNI 1.0	ATM UNI 3.0/3.1/4.0	Bridge	CAS TrunkLine	Circuit Emulation	Dynamic BW Circuit Emul.	Frame Relay (UNI, NNI)	GR-303	HDLC Pass-through	PRI ISDN (Network/User)	Terminal Emulation	Virtual Interface (OC-3, STM-1, OC-12/STM-4 APS/MSP Modules Only)
Connection														
ATM-to-ATM VCC SPVC	X	X	X	X										
Circuit emulation-to-ATM VCC SPVC	X	X	X	X			X	X						X
CE-to-ATM Std AAL2 VCC SPVC		X	X	X			X							
Frame relay-ATM VCC SPVC	X	X	X	X					X					
VBR-to-ATM VCC SPVC	X	X	X	X	X						X		X	
VBR-to-ATM Std AAL2 VCC SPVC		X	X	X							X		X	

## Interface Type by I/O Module Type Table

Table B-6 shows the available interface types for each *PacketStar* PSAX I/O module used in the *PacketStar* PSAX Multiservice Media Gateway. This table does not include other PSAX modules that are not I/O modules, which include: the Alarm module, the DSP2x Voice Server modules, the Route Server module, and the Tones and Announcements Server module.

**Appendix B Reference Information**  
Interface Type by I/O Module Type Table

**Table B-6. Interface Types by I/O Module Types**

Interface	ATM IISP (Network/User)	ATM IMA	ATM PNNI 1.0	ATM UNI 4.0	ATM UNI 3.0/3.1	Bridge	CAS Trunkline	Circuit Emulation	Dynamic Bandwidth Circuit Emulation	Frame Relay (UNI, NNI)	GR-303	HDLC Pass-through	PRI ISDN (Network/User)	Routing	Terminal Emulation
Module															
<b>DS1/T1 Interface Modules</b>															
6-Port DS1 IMA ( <b>IMA DS1</b> )	X	X	X	X	X										
6-Port Enhanced DS1/T1 Multiservice ( <b>DS1/T1 Enh</b> )	X		X		X		X	X	X	X	X	X	X		
12-Port Medium-Density DS1 Multiservice ( <b>MD DS1</b> )	X		X	X	X			X		X	X	X	X		
12-Port Medium-Density DS1 IMA ( <b>MD DS1 IMA</b> )	X	X	X	X	X							X			
<b>E1 Interface Modules</b>															
6-Port E1 IMA ( <b>IMA E1</b> )	X	X	X	X	X										
6-Port Enhanced E1 Multiservice ( <b>E1 Enh</b> )	X		X	X	X		X	X		X		X	X		
21-Port High-Density E1 Multiservice ( <b>HD E1</b> )	X		X	X	X			X		X		X	X		
21-Port High-Density E1 IMA ( <b>HD E1 IMA</b> )	X	X	X	X	X										
<b>DS3, E3, and STS-1e Interface Modules</b>															
1-Port Channelized DS3 Multiservice ( <b>CH DS3</b> )	X		X	X	X		X	X		X	X	X	X		
1-Port Channelized DS3 CES ( <b>CH DS3</b> )															
1-Port DS3 IMA ( <b>DS3 IMA</b> )	X	X	X	X	X										

Table B-6. Interface Types by I/O Module Types (Continued)

Interface	ATM IISP (Network/User)	ATM IMA	ATM PNNI 1.0	ATM UNI 4.0	ATM UNI 3.0/3.1	Bridge	CAS Trunkline	Circuit Emulation	Dynamic Bandwidth Circuit Emulation	Frame Relay (UNI, NNI)	GR-303	HDLC Pass-through	PRI ISDN (Network/User)	Routing	Terminal Emulation
Module															
1-Port Unchannelized DS3 Frame Relay ( <b>DS3 FR</b> )										X					
2-Port DS3 ATM ( <b>DS3 ATM</b> )	X		X	X	X										
2-Port E3 ATM ( <b>E3 ATM</b> )	X		X	X	X										
3-Port Channelized DS3/STS-1e CES ( <b>CH DS3/STS-1e</b> )								X							
3-Port DS3/E3 ATM ( <b>DS3/E3 ATM</b> )	X		X	X	X										
3-Port Unstructured DS3/E3 CES ( <b>UNSTR DS3/E3 CES</b> )								X							
<b>STS-1e Interface Modules</b>															
1-Port Channelized STS-1e, T1 Format ( <b>CH STS-1e T1</b> )	X		X		X			X		X	X	X	X		
<b>OC-3c Interface Modules</b>															
1-Port OC-3c Single-Mode with AQueMan ( <b>OC-3c (SM AQ)</b> )	X		X	X	X										
1-Port OC-3c Multimode with Traffic Shaping ( <b>OC-3c (MM TS)</b> )	X		X	X	X										

**Appendix B Reference Information**  
Interface Type by I/O Module Type Table

**Table B-6. Interface Types by I/O Module Types (Continued)**

Interface	ATM IISP (Network/User)	ATM IMA	ATM PNNI 1.0	ATM UNI 4.0	ATM UNI 3.0/3.1	Bridge	CAS Trunkline	Circuit Emulation	Dynamic Bandwidth Circuit Emulation	Frame Relay (UNI, NNI)	GR-303	HDLC Pass-through	PRI ISDN (Network/User)	Routing	Terminal Emulation
Module															
1-Port OC-3c Single-Mode with Traffic Shaping ( <b>OC-3c (SM TS)</b> )	X		X	X	X										
1-Port OC-3c 1+1 APS Multimode ( <b>OC-3c MM APS</b> )	X		X	X	X										
1-Port OC-3c 1+1 APS Single-Mode ( <b>OC-3c SM APS</b> )	X		X	X	X										
<b>STM-1 Interface Modules</b>															
1-Port STM-1 Multimode with AQueMan ( <b>STM-1 (MM AQ)</b> )	X		X	X	X										
1-Port STM-1 Single-Mode with AQueMan ( <b>STM-1 (SM AQ)</b> )	X		X	X	X										
1-Port STM-1 Multimode with Traffic Shaping ( <b>STM-1 (MM TS)</b> )	X		X	X	X										
1-Port STM-1 Single-Mode with Traffic Shaping ( <b>STM-1 (SM TS)</b> )	X		X	X	X										
1-Port STM-1 1+1 MSP Multimode ( <b>STM-1 MM MSP</b> )	X		X	X	X										

Table B-6. Interface Types by I/O Module Types (Continued)

Interface	ATM IISP (Network/User)	ATM IMA	ATM PNNI 1.0	ATM UNI 4.0	ATM UNI 3.0/3.1	Bridge	CAS Trunkline	Circuit Emulation	Dynamic Bandwidth Circuit Emulation	Frame Relay (UNI, NNI)	GR-303	HDLC Pass-through	PRI ISDN (Network/User)	Routing	Terminal Emulation
Module															
1-Port STM-1 1+1 MSP Single-Mode ( <b>STM-1 SM MSP</b> )	X		X	X	X										
<b>OC-12c/STM-4c Interface Modules</b>															
1-Port OC-12c/STM-4c 1+1 APS/MSP Multimode ( <b>OC-12c/STM-4c MM</b> )	X		X	X	X										
1-Port OC-12c/STM-4c 1+1 APS/MSP Single-Mode ( <b>OC-12c/STM-4c SM</b> )	X		X	X	X										
<b>Voice 2-Wire Interface Modules</b>															
4-Port Voice 2-Wire Office ( <b>VOICE 2WO</b> )								X*							
8-Port Voice 2-Wire Station ( <b>VOICE 2WS</b> )								X*							
<b>Serial Interface Modules</b>															
2-Port High Speed ( <b>HIGH SPEED</b> )	X			X	X			X†							
Quadserial ( <b>QUAD SERIAL</b> )	X		X		X			X		X		X			
6-Port Multiserial ( <b>SERIAL</b> )					X			X		X		X			X
<b>Ethernet Interface Modules</b>															
Ethernet ( <b>ENET</b> )						X									X
4-Port Ethernet ( <b>ENET</b> )						X									X

## Appendix B Reference Information

### Module Alarm Status Table

\* European modules do not support this interface with the 8-Port Voice 2-Wire Station or 4-Port 2-Wire Office module.

† Port 2 only.

## Module Alarm Status Table

The alarm status descriptions for the Alarm Status field on the Equipment Configuration window are provided in Table B-7. When underscored numbers are displayed in this field, they represent one or more ports on the module that currently have a loss of signal.

**Table B-7. Alarm Status Descriptions for Modules on the Equipment Configuration Window**

Number	Alarm Status	Module Type Affected	Description
1	NoAlarm/CardPresent	I/O	<b>NoAlarm</b> indicates that the module is not configured. <b>CardPresent</b> indicates that the module is configured and that no alarm conditions exist.
2	WrongCardType	I/O	One type of module was configured in this slot in the chassis, but a different module now occupies this slot.
3	LineFailed	All	The line has failed.
4	CardRemoved	All	A module has been configured and then removed.
5	ReferenceClockFailed	Stratum	The timing reference clock has failed.
6	CompositeClockFailed	Stratum	The timing composite clock has failed.
7	Overload	Power Supply	The Power Supply is operating under an overload condition.
8	Plus5vFailed	Power Supply	The 5 V dc Power Supply output has failed.
9	Plus120vFailed	Power Supply	The 120 V ac Power Supply input has failed.
10	Minus48vFailed	Power Supply	The -48 V dc Power Supply output has failed.
11	UnknownAlarm	I/O	The reason for failure is not known.
12	CompleteClockFailed	Stratum	The timing complete clock has failed.
13	BackplaneCircuitryFailed	All	The chassis backplane circuit board is not operating.
14	PowerFailed	Power Supply	Power failed

## Quality of Service (QoS) Information Tables

Table B-8 details the PSAX system support of defined ATM QoS classes.

**Table B-8. PSAX System-Supported Quality of Service Classes**

ATM Service Class	Description
Constant Bit Rate (CBR)	This service operates on a connection basis and offers consistent delay predictability. CBR is used for applications such as circuit emulation, voice, and video.
Variable Bit Rate—Real Time (VBR-RT)	This service operates on a connection basis and offers very low delay variance but requires access to a variable amount of network bandwidth. VBR-RT is used for such applications as packet video and voice.
Variable Bit Rate—Non-real Time (VBR-NRT)	This service operates on both a connection and connectionless basis and allows delay variance between the delivery of cells. VBR-NRT is used for data applications that have potentially bursty traffic characteristics, including LAN interconnections, CAD/CAM, and multimedia. This class can be used to support switched multimegabit data service (SMDS).
Unspecified Bit Rate (UBR)	This service operates on a connection basis and allows for raw cell or best-effort transport by the network. In UBR service, cells are transported by the network whenever bandwidth is available and traffic is presented by the user. Data using UBR service is more apt to be discarded during peak traffic times in deference to data using other classes of service.

Table B-9 illustrates the attributes of the classes of service supported by the PSAX system software.

**Table B-9. Class of Service Descriptions**

	Constant Bit Rate (CBR)	Variable Bit Rate Real Time (VBR-RT)	Variable Bit Rate Non-real Time (VBR-NRT)	Unspecified Bit Rate (UBR)
QoS Class	Class 1	Class 2	Classes 3, 4	Class 5
Applications	Voice and video	Packet video and voice	Data	
Bit Rate	Constant	Variable		

**Appendix B Reference Information**  
Quality of Service (QoS) Information Tables

**Table B-9. Class of Service Descriptions (Continued)**

	Constant Bit Rate (CBR)	Variable Bit Rate Real Time (VBR-RT)	Variable Bit Rate Non-real Time (VBR-NRT)	Unspecified Bit Rate (UBR)
Timing Required at Source or Destination	Required		Not required	
Service Examples	Private line	Compressed voice	Frame relay, switched multi-media data service	Raw cell, Ethernet
AAL	1	2	3/4 and 5	3/4 and 5

The following tables illustrate how ATM classes of service correspond to internal priority levels as the AQueMan algorithm functions. Table B-10 identifies the cell loss and cell delay tolerance of each service class, with internal priorities. Table B-11 lists the class-of-service choices available when configuring PVC connections on a PSAX system and shows service examples for each PVC connection type. The service examples in Table B-11 are intended simply as illustrations and you should choose your service class based on your network applications supported by the PSAX system. The flexibility of the PSAX system allows you to tailor the system based on the required service applications by selecting the appropriate priority levels.

**Table B-10. Cell Loss and Cell Delay Characteristics of ATM Service Classes**

ATM Classes of Service	QoS Classes Supported by the PSAX System	Cell Loss Tolerance	Cell Delay Tolerance	Internal Priority
Constant Bit Rate (CBR)	Class 1	High	Very Low	CBR-1
	Class 1	High	Very Low	CBR-2
	Class 1	High	Low	CBR-3
	Class 1	High	Low	CBR-4
Variable Bit Rate (VBR) Variable Bit Rate—Real Time (VBR-RT)	Class 2	Very Low	Very Low	VBR-1
	Class 2	Low	Low	VBR-2
	Class 2	Low	Low	VBR-3
Variable Bit Rate—Non-real Time (VBR-NRT)	Classes 3, 4	Low	Medium	VBR-4
	Classes 3, 4	Low	High	VBR-5
Unspecified Bit Rate (UBR)	Class 5	Very High	Very High	VBR-6

**Table B-11. Mapping ATM Service Classes to PSAX System Priority Levels**

ATM Classes of Service	Internal Priority	PVC Connection Configuration Selections	Service Examples
Constant Bit Rate (CBR)	CBR-1	CBR1	911 calls
	CBR-2	CBR2	Preferred customers
	CBR-3	CBR3	Standard
	CBR-4	CBR4	Cellular
Variable Bit Rate (VBR)	VBR-1	VBR-express	Network management
Variable Bit Rate—Real Time (VBR-RT)	VBR-2	VBR-RT1	Real-time videos
	VBR-3	VBR-RT2	MPEG 1-2/JPEG
Variable Bit Rate—Non-real Time (VBR-NRT)	VBR-4	VBR-NRT1	Frame relay data
	VBR-5	VBR-NRT2	FTP/e-mail transfer
Unspecified Bit Rate (UBR)	VBR-6	UBR	Internet Protocol data

**Appendix B Reference Information**  
Quality of Service (QoS) Information Tables

# Glossary



## Numeric

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1+1 APS (automatic protection switching)	In a North American SONET, 1+1 protection switching is commonly referred to as automatic protection switching (APS). See APS for additional information.
1+1 MSP (multiplex section protection)	In a European synchronous digital hierarchy (SDH) network, 1+1 protection switching is commonly referred to as multiplex section protection (MSP). See MSP for additional information.
100Base-T	This IEEE standard specifies the transmission of data at 100 Mbps on Ethernet networks.
10Base-T	This IEEE standard (802.3) specifies the transmission of data at 10 Mbps on Ethernet networks with twisted-pair cabling and a wiring hub, referred to as a 10Base-T hub.
10-nibble header space	In a protocol data unit (PDU), the 40 bits of protocol control information located at the beginning of the PDU.
5ESS switch	A digital Central Office electronic switching system made by Lucent, typically used at an end office, which serves local subscribers.

## A

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AAL	ATM adaptation layer. The protocol layer that allows multiple applications to have data converted to and from the ATM cell. AAL also refers to a protocol used to translate higher layer services into the size and format of an ATM cell.
AAL1	ATM adaptation layer type 1. This layer supports Class A traffic (uncompressed, digitized voice and video).
AAL2	ATM adaptation layer type 2. This layer supports Class B traffic (variable bit rate compressed voice and video).
AAL2 trunking	A communication line established between two switching systems that supports Class B traffic (AAL2).
AAL3/4	ATM adaptation layer 3/4. This layer supports Class C and D traffic (variable bit rate compressed voice and video).
AAL5	ATM adaptation layer type 5. This layer supports Class C traffic (connection-oriented variable bit rate [VBR] data traffic and signaling messages, used predominantly for classical IP [CLIP] over ATM and LAN Emulation [LANE] traffic)
ABCD signaling bits	Bits robbed from bytes in each DS0 or T1 channel in particular subframes, which are then used to carry in-band all status information.

## Glossary

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ABR	available bit rate. ABR changes after a connection is established, and allows the receiving device to accept data from a variety of transmitting devices which are operating at different speeds, without the need to set up data rates in advance.
ACELP	algebraic code excited linear prediction. This voice-coding algorithm standardized by the ITU-T in G.729 provides voice compression. ACELP is specified by the Frame Relay Forum as one of the minimum voice compression algorithms required for network-to-network interoperability.
active/standby mode	Alternate terms for working/protection. See Automatic protection switching.
adaption service permanent virtual circuit	See AS-PVC.
adaptive differential pulse code modulation	See ADPCM.
address	A data structure or logical convention used to identify a device on a network.
address mask	A bit combination used to describe which portion of an address refers to the network or subnet, and which portion refers to the host.
address resolution protocol	See ARP.
administrative weight	See AW.
administrator	A user who has full read-write capabilities on all PSAX devices managed by the <i>AQueView</i> Element Management System. <i>See also</i> Configurator; Monitor
ADPCM	adaptive differential pulse code modulation. This type of audio encoding is a reduced bit rate variant of PCM audio encoding, which uses fewer bits by determining the difference between consecutive speech samples.
advertising	In the context of packet switching, a reference to routing or service updates that are sent at specified intervals. This method allows other routers on the network to maintain lists of usable routes.
aggregation	A reference to an instance when the border nodes at the ends of an outside link assign a token number to the outside link, and the same number is associated with all uplinks associated with the outside link (an aggregation token). In the parent and all higher-level peer groups, all uplinks with the same aggregation token are aggregated.
AIS	alarm indication signal. This signal is used in-band maintenance to ensure that a line is working properly.
alarm	An message that warns an administrator about a network problem.
alarm indication signal	See AIS.

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A-Law	This ITU-T companding standard used in PCM systems for conversion between analog and digital signals. The A-Law standard is primarily used in European telephone networks.
algebraic code excited linear prediction	See ACELP.
alternate mark inversion	See AMI.
alternating current	See AC.
American National Standards Institute	See ANSI.
American Standard Code for Information Exchange	See ASCII.
AMI	alternate mark inversion. The signaling format used for T1 lines. This format allows the “one” pulses to have an alternating priority.
analog	Voice vibrations converted to electrical signals which have frequencies with varying amplitudes. An analog signal implies continuous operation, in contrast to a digital signal, which is broken up into individual bits of data.
ANSI	American National Standards Institute. This organization is a U.S. standards body that accredits standards for programming languages, communications, and networking. It is also the U.S. representative to the International Organization for Standardization.
API	application program (or programming) interface. A software routine which uses a specialized language and message format to communicate between an application program and another program, or operating system, that provides services to it. Standard software interrupts, calls, and data formats are used to initiate contact with network services, mainframe communications programs, telephone equipment, or program-to-program applications.
application program interface (also application programming interface)	See API.
APS	automatic protection switching. This feature provides network resiliency by automatically switching to a secondary line when the primary line fails or is operating on an unacceptably high error rate. SONET allows either 1+1 or 1:N architecture. The 1+1 architecture has permanent electrical bridging at both ends of the serviced equipment. At the transmit end, identical signals are transmitted over primary and secondary circuits and then tested at the receive end. The 1:N protection switch architecture is one in which any of the “N” (any number of) service channels (primary circuits) can be bridged to a single optical protection channel (secondary circuit).

## Glossary

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AQueMan algorithm	<p>A traffic management algorithm that also supports ATM Forum classes of service. This adaptive algorithm allocates bandwidth by statistically multiplexing traffic within two sets of queues according to weighted priorities. One set of queues addresses the avoidance of cell loss, which is normally a concern for data traffic, while the other manages cell transfer delay, which is critical to voice and some video traffic.</p> <p>Within each set of queues, the AQueMan algorithm assigns internal priorities even more specialized than the ATM Forum class definitions. Generally, the lower the assigned priority number, the greater the access to bandwidth and the less likelihood of loss.</p>
<i>AQueView</i> Provisioning Client	<p>A software package that enables the end-to-end provisioning of SPVCs across a network of PSAX Multiservice Media Gateways from a single location.</p>
<i>AQueView</i> <sup>®</sup> Element Management System	<p>This <i>PacketStar</i> software product is a graphical user interface (GUI)-based element management tool that is used to provision the <i>PacketStar</i> PSAX Multiservice Media Gateway systems. The <i>AQueView</i> system enables a network of PSAX products to be managed and provisioned with easy-to-use windows from a single location.</p>
architecture	<p>The design of the hardware and software components of a system that controls how all the various components interoperate with each other and with other devices or systems.</p>
ARP	<p>address resolution protocol. This low-level protocol maps IP addresses, or other non-ATM addresses to the target ATM device. Once the ATM device has been identified, an ARP server can send it data, as long as the session is maintained.</p>
ASCII	<p>American Standard Code for Information Exchange. This coding standard specifies the representation of characters in a binary format.</p>
AS-PVC	<p>adaption service permanent virtual circuit. This type of circuit allows ATM adaptation services to be connected by ATM switched virtual circuits. AS-PVC specifies parameters (such as circuit emulation) for the sending device, specifying the receiving device.</p>
asynchronous transfer mode	<p>See ATM.</p>
ATM	<p>asynchronous transfer mode. This cell-switching technology converts multiple incoming streams of information into fixed-length cells of 53 bytes, that are composed of a 48-byte information field and a five-byte address header. ATM enables high-speed transmission of data, voice, and video over the same lines, at speeds up to 13.22 Gbps.</p>
ATM adaptation layer	<p>See AAL.</p>

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ATM addressing	This addressing scheme enables an operating system to find a specific piece of ATM information in the application memory. Every memory location has an address. ATM addressing provides user-specific virtual path identifier/virtual channel identifier (VPI/VCI) coding, bandwidth allocation, and quality of service (Qos) information.
ATM edge switch	A device that resides at the edge of a carrier network and provides access from the end user to a carrier's ATM network backbone.
ATM Forum	This organization is a consortium of corporations who develop hardware and software products using ATM to facilitate the development, deployment, and standardization of ATM protocols and specifications.
ATM Forum Implementation Agreements	The formal documents use for the implementation of the standards for ATM specifications agreed on by the ATM Forum.
ATM interface management entities	See IME.
ATM terminal emulation interface	Terminal emulation is an application that follows an intelligent computing device to mimic the operation of a nonprogrammable terminal for communication with a mainframe computer or a minicomputer. This communication is made possible by inserting special printed circuit boards into the systemboard of the emulating device, and/or special software. The <i>PacketStar</i> PSAX 6-Port Multiserial module supports this interface.
ATM traffic policing	This software feature provides basic data on the amount and type of ATM traffic handled by the network.
ATM traffic shaping	A method for controlling bursty data traffic exiting from a PSAX back- or midplane via the OC-3c APS or STM-1 MSP modules. (For specific configuration instructions, see the appropriate module user guide). Also see cell bus traffic shaping, bursty.
ATM UNI	ATM user-network interface. The interface between a user's equipment and an ATM public network service or into an ATM switch on a private enterprise network.
ATM virtual channel	This type of channel provides a virtual connection that uses all the addressing bits of the cell header to move traffic from one link to another.
authentication	A procedure that establishes the legitimacy of users and defines the parameters of the sessions they establish. Authentication can be thought of as a security measure that controls and defines network access. It is always the first task performed when a session is started. The range of authentication parameters that can be set depend upon the specific authentication system employed.

## Glossary

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automatic protection switching	See APS.
automatic switchback	An automatic return from the backup CPU module to the primary CPU module is performed by the system, after a fault line has been cleared.
available bit rate	See ABR.
AW	administrative weight. This parameter allows network architects to indicate relative link preference when deciding between alternate routes.

## B

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B channel	A channel that carries 56-Kbps or 64-Kbps of user data on a line using ISDN D-channel signaling.
B8ZS	bipolar 8-zero substitution. This encoding scheme is used for transmitting data bits over T1 transmission systems. This scheme is “smarter” than the B7ZS scheme, because it transparently adds a one-bit as needed to ensure that no more than seven zero-bits are ever transmitted in a row. However, unlike the B7ZS scheme, the B8ZS scheme provides a “clear channel” capability, which allows each of the 24 channels to carry 64 Kbps of data.
backbone	The portion of a communications network that carries the heaviest traffic and employs high-speed transmission pathways. In a wide area network (WAN), the backbone is that portion that links all the individual local area networks (LANs) together.
backhauling	A technique in which data traffic is transmitted beyond its endpoint and back to its endpoint. In fiber-optic data transmission, backhauling is a traffic management technique used to diminish the cost of multiplexing and demultiplexing.
backplane	A circuit board in a chassis in which various modules or components are connected on one side to the central processing unit. Typically, a backplane runs at a very high capacity bandwidth, and carries a high number of connections, addressing information, and signaling. A backplane is also sometimes called the backplane bus. Also see midplane.
backward direction rate	This rate is the rate of speed data transmissions take as they move toward the head-end of a broadband LAN.
bandwidth	The amount of data a channel can transmit in a given period of time. Bandwidth is measured in bits (not bytes) per second on digital networks, while on analog networks, it is measured in Hertz (cycles per second).

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bandwidth classification	The types of bandwidth are narrowband, wideband, and broadband, and are used to describe the capacity of a communications channel. <u>Narrowband</u> generally refers to some number of 64 Kbps channels (Nx64) and provides aggregate bandwidth less than 1.544 Mbps (24x64 Kbps, or T1 rate). <u>Wideband</u> is 1.544 Mbps to 45 Mbps (T1 to T3 rate), while <u>broadband</u> operates at 45 Mbps (T3 rate) or higher.
base station	In a wireless communication, the base station receives and transmits all calls in its cell to the MSC, which is located outside the cell (also see MSC).
basic rate interface	See BRI.
Bc	committed burst size. This parameter is used in frame relay, and is the maximum number of bits transferred during time interval "T." Time interval "T" is the time interval over which the number of bits used to average the number of bits transmitted is averaged. The formula to calculate "T" is: $Bc/CIR = T$ .
Be	excess burst size. This parameter is used in frame relay, and is the maximum number of uncommitted bits transferred during time interval "T". The formula to calculate "T" is: $Bc/CIR = T$ .
bearer channel	This basic communication channel has no enhanced or value-added services other than bandwidth transmission capability.
Bellcore	The research and development arm formed by the Regional Bell Operating Companies (RBOCs). Bellcore, now Telcordia Technologies, focused on developing standards and procedures for the RBOCs. A prime example is the Bellcore standard NEBS, Network Equipment Building Standards. Network carriers who interoperate with RBOCs typically are required to obtain Level 3 NEBS compliance on their telecommunications equipment.
BER	bit error rate. This parameter is the ratio of error bits to the total number of bits transmitted, usually expressed as a number to the power of 10.
binaries	Software programs written in binary, machine-readable code that has been compiled or assembled.
bipolar 8 Zero substitution	See B8ZS.
B-ISDN	Broadband Integrated Services Digital Network. This type of communications channel has the capability to integrate any type of communications signals (voice, data, image, or multimedia) and carry them over a single broadband channel at 150 Mbps, and higher.
bit	The word created from the term <i>binary digit</i> , which represents the value high or low, or yes or no. A bit is written as either the value zero or the value 1.
bit error rate	See BER.

## Glossary

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bit stuffing	The technique of inserting a zero-bit into a string of one-bits to prevent the receiver from interpreting the series of one-bits as something else, such as a flag control character. The sender inserts the zero-bit automatically, and the receiver automatically deletes it.
BITS	building integrated timing supply. A single-building master timing that provides and distributes timing to a wireline network's lower levels.
bits per second	See bps.
block-error correction scheme	This scheme provides a method for accomplishing forward error correction (FEC) to compensate for error bursts created in data transmission. This method is done by specifying a polynomial that plots, or statistically samples, a large number of points in a data block.
bps	bits per second. This unit of measure indicates the number of bits transmitted every second during data transmission.
BRI	basic rate interface. This interface is composed of two B-channels (bearer channels) at 64 Kbps and a data D-channel (data channel) at 16 Kbps. The bearer B-channels are designed for PCM voice, slow-scan video conferencing, Group 4 facsimile data, or other types of data that can fit into a full-duplex 64,000 bps channel. The D-channel used to receive information about incoming calls and to transmit information about outgoing calls. It is also used for accessing slow-speed data networks, such as packet-switched networks.
bridge	A link that connects several LANs, but provides no routing. Each bit of information is transferred to all other bridges on the LANs, which creates the potential for a bridge to clog a network. Routers have generally replaced bridges.
bridging	A link across a circuit that is made by placing one test lead from a test set or a conductor from another circuit and placing it on one conductor of another circuit, and then doing the same thing to the second conductor.
broadband	In a WAN environment, a description of a transmission capability greater than 45 Mbps (T3 rate), that frequently operates on a fiber-optic transmission line.
Broadband Integrated Services Digital Network	See B-ISDN.
bucket	A discrete sample of data.
building integrated timing supply	See BITS.
burst errors	Transmission errors that occur when data is transmitted in short spurts.

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bursty	A reference to data that is transmitted in large, short spurts that typically exceed traffic contracts. Traffic over a local area network is usually bursty. See also cell bus traffic shaping, ATM traffic shaping.
bus	<ol style="list-style-type: none"><li>1. An electrical connection allowing two or more wires or lines to be connected together. Common in electrical and computer use.</li><li>2. Broadcast and unknown server (an ATM term), working in conjunction with a LAN emulation server, the bus automatically registers and resolves differences between LAN MAC addresses and ATM addresses by labeling each device transmission with both addresses.</li></ol>
byte	A series of consecutive binary digits operated upon as a unit.

**C**

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CAC	connection admission control. The set of actions a network takes during a call setup or renegotiation phase that determine whether to accept or reject a connection request.
CAD/CAM	computer-aided design/computer-aided manufacturing. A computer and its related software and terminals that is used to design and manufacture all types of hardware devices. CAD terminals are often run over LANs and/or WANs.
call control	A term used by the telephone companies to describe the setting up, monitoring, and tearing down of telephone calls. First person call control is done by a person or a computer via a desktop telephone, or a computer attached to that telephone, or the computer attached to the desktop phone line. Third-party call control controls the call through a connection directly to the switch (PBX).
call controller	A device that sets up, monitors, and tears down telephone calls.
call establishing procedure	See CEP.
call multiplexing	When a PSAX Multiservice Media Gateway switches back and forth between a number of instruction sequences so rapidly it seems as if several tasks are being executed simultaneously. This rapid switching means that no one transaction can overload the Multiservice Media Gateway while other transactions have their service requests neglected.
call states	A condition that exists on both the user side and the network side of the transaction. They define which messages can be accepted by the user or the network entity, and how they are expected to react to those messages. As the user or network entity moves from call state to call state, the call switching process is accomplished.
caller ID	A service, offered by local telephone companies, that displays the calling party's number on a special display device.

## Glossary

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CAPs	competitive access providers. Businesses that compete with the local telephone networks.
carrier-grade	The classification for a device that has passed safety and environmental compliance certifications and has "4-9s" or "5-9s" reliability (i.e., 99.99% online during 1 year, or 99.999% online during 1 year). Reliability is obtained by having redundant power supplies, clocks, CPUs, etc., as well as protected trunk lines. For example, if a fiber gets cut by a backhoe, the traffic automatically switches to a different fiber.
CAS	channel-associated signaling. Signaling in which the signals necessary to switch a given circuit are transmitted via the circuit itself, or via a signaling channel permanently associated with it.
CBR	constant bit rate. An ATM service that supports a constant or guaranteed rate to transport services such as video or voice, as well as circuit emulation. CBR requires rigorous timing control and performance parameters.
CCITT	Consultative Committee for International Telephony and Telegraphy, formerly known as the United National International Telecommunications Union, or ITU. This organization establishes technical recommendations for telephone and data transmission.
CCS	common-channel signaling. A high-speed, packet-switched communications network, distinctive from public packet switched and message networks. CCS is used to carry addressed signaling messages for individual trunk circuits and/or database-related services between signaling points in the CCS network.
CD-ROM	compact disk, read-only memory. A disk on which large amounts of digitized read-only data can be stored.
CDVT	Cell Delay Variation Tolerance. The upper bound of variability in cell delay for an ATM layer connection.
CE	<ol style="list-style-type: none"><li>1. circuit emulation. A connection over a virtual channel-based network which provides service that is indistinguishable from a real, point-to-point, fixed bandwidth circuit.</li><li>2. Communities European. See EC for additional information.</li><li>3. connection end point, an ATM term.</li></ol>
cell	The fixed-length packet used to carry data across an ATM network. A cell consists of 53 bytes, five of which carry header information.

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cell bus traffic shaping	A method for controlling the bursty flow of data traffic entering a PSAX back- or midplane, via the modules that support this feature: the OC-3c Multimode and Single-Mode, STM-1 Multimode and Single-Mode TS modules. Traffic shaping ensures that the variable bit-rate (VBR) traffic exiting the OC-3c TS and STM-1 TS modules) complies with the parameters of the established service contracts. See also ATM traffic shaping, bursty.
cell delineation	An instance when an idle cell with header error correction is transmitted when there are no real cells to send. Indicator bits 14 or 15 are used to indicate Loss of Cell Delineation to a Central Office. The receiver will then drop both idle and unassigned cells.
cell encoding	Based on a user-selected encoding rate for the connection, cell encoding occurs when source-data cell payloads are divided into six blocks and fed into a Reed Solomon encoder. The encoded cells are then executed by the CPU module on the cell payload data destined for noisy interfaces.
cell extraction	The removal of a cell from a data stream.
cell header	A cell header precedes payload data (user information) in an ATM cell. The header contains various control data specific to the cell switching protocol.
cell loss margin	See CLM.
cell loss priority	See CLP.
cell payload	A cell data field, block, or stream being processed or transported. Also, sometimes a reference to the part of a cell that represents information useful to the user, as opposed to system overhead information. A cell payload includes user information and may include such additional information as user-requested network management and accounting information.
cell scrambling	A function that moves the first three bytes of the cell header (GFC, VPI, and VCI fields) into the payload and spreads them out to protect against burst errors. This action increases the burst error tolerance of the header from 5 bits to 54 bits with no cell loss.

## Glossary

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cell-aging	A capability that prevents the lowest-priority data (for example, IP data) from being buffered in the PSAX system indefinitely. The AQueMan algorithm keeps track of how long each cell stays in the buffer. The lower the priority of the traffic, the longer its cell-aging timer; that is, UBR traffic has a longer cell-aging period than VBR-RT traffic. This capability allows the PSAX system to periodically send low-priority cells through the network, which prevents retransmission of IP data traffic while increasing the time-out window for the TCP/IP sessions. The cell-aging mechanism allows for orderly decongestion of the network without resorting to traffic rerouting and other complicated protocols and procedures.
cell-bearing	Cell information moved over a communications channel.
Central Office	See CO.
Central Processing Unit	See CPU.
CEP	call establishing procedure. A procedure that defines how the bits of a PCM carrier system of the 32 channel European type T1/E1 will be used, and in what sequence. In order to correctly receive the transmitted information, the receiving end equipment must know exactly what each bit is used for.
CES	circuit emulation service. An ATM Forum interoperability specification which supports CBR (constant bit rate) over ATM networks and complies with other ATM specifications. This specification also supports the emulation of existing time division multiplexing (TDM) circuits over ATM networks.
channel	A voice-grade transmission facility with defined frequency response, gain, and bandwidth, i.e., a DSPx voice processing module hardware chip.
channel service unit	See CSU.
channel suppression	The inhibition of a portion of a line's bandwidth.
channel tunneling	A way of overcoming protocol restrictions on a network by encapsulating channels that use one protocol inside channels that use a protocol supported by the network.
channel-associated signaling	See CAS.
channelization	A process that subdivides the bandwidth of a circuit into smaller increments called channels. Typically, each channel would carry a single transmission, such as voice only or data only. Channelization requires either a frequency division multiplexer or a time division multiplexer.
channelized circuit emulation service	A virtual DS1 port that is subdivided into 24 DS0 channels that provides a connection over a virtual channel-based network, providing service to the end use that is indistinguishable from a real, point-to-point, fixed bandwidth circuit.
channelized digital signals	Subdivided digital signals.
characters per second	See cps.

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chassis	A reference to the physical hardware, frame, and motherboard into which are inserted the power supply, stratum, CPU, and I/O modules. The supporting legs and brackets are not considered to be part of the chassis.
checksum	The sum of a group of data items used for checking errors.
chip	shortened term for microchip, a very complex, yet tiny module that stores computer memory or provides logic circuitry for microprocessors. A chip is manufactured from a silicon (or, in some special cases, a sapphire) wafer, which is first cut to size and then etched with circuits and electronic devices. A chip is also sometimes called an integrated circuit (IC).
chipset	A group of microchips designed to work together and to be sold as a unit that performs one or more related functions.
CIR	committed information rate. The speed at which a frame relay network agrees to transfer information under normal conditions, averaged over a minimal increment of time. CIR is measured in bits per second.
circuit emulation	See CE.
circuit emulation service	See CES.
circuit grooming	A practice that separates used from unused DS0s in wireless backhauling. The voice circuits are separated from a T1 trunk consisting of a mixture of voice and data circuits. The voice circuits are then directed to a T1 switch specifically servicing voice circuits.
circuit mode data	Data that travels across a fixed bandwidth circuit established from point-to-point through a network, and is held for the duration of a telephone call.
circuit-switched network	A network that sets up and maintains a connection for the exclusive use of two or more communicating parties for the duration of their call. The familiar, voice telephone network is circuit-switched.
clear channel	A digital circuit where no framing or control bits are required, thus making the full bandwidth available for communications.
CLEC	competitive local exchange carrier. A type of business permitted by the Telecommunications Act of 1996. CLECs offer local exchange service, long distance, internal, Internet access and such entertainment as video on demand. These carriers include cellular/PCS providers, ISPs, IXCs, CATV providers, CAPs, LMDS operators, and power utilities. They compete with ILECs.
CLI	command line interface. The visual appearance and command input conventions that enable system administrators and system operators to configure, monitor, and manage the connected nodes in a data network.

## Glossary

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CLM	cell-loss margin. A negotiated quality of service parameter in an ATM network. This parameter indicates the margin of error of lost cells to total transmitted cells.
CLP	cell loss priority. A bit in the ATM cell header set to 0 or 1. CLP=1 cells may be discarded in congested transmission to preserve the cell loss ratio of CLP=0 cells.  Some service categories generate traffic flows with cell loss priority markings, CLP=0 (higher priority) and CLP=1 (lower priority). The network may follow models which treat this marking as transparent or significant. If the marker is significant, the network may selectively discard cells marked with low priority to protect the QoS of cells with high priority
CO	Central Office. The building that houses the switching equipment to which wireline-only circuits of business and residence telephones are connected. (See also MSC).
coding translation	A means of transmitting the same data to a variety of different end-user devices. For example, voice messages that can be relayed on a telephone, or on a PC.
colocation	Typically, equipment housed at the same site.
comfort noise	A very low-level synthesized noise deliberately added to a digital line to provide a humming or hissing sound to the connection, which assures the caller that the connection is active.
command line interface	See CLI.
committed burst size	See Bc.
committed information rate	See CIR.
common-channel signaling	See CCS.
community name	The name given to an SNMP community for identification purposes. A member has associated access rights (read-only or read/write).
compand	(Com)pression + Ex(pand)ing). A technique of compressing voice or data before transmission and extracting (expanding) it at the target device to use bandwidth as economically as possible during transmission.
competitive access providers	See CAPS.
competitive local exchange carrier	See CLEC.
composite clock	A timing reference for multiplexer output that includes all data from multiplexed channels that is based on an oscillator-generated signal.
compressed voice	Reducing a voice signal to use less bandwidth during transmission. Accomplished by sampling an analog voice signal by means of an algorithm and converting it to a digital signal.
compression	Applying an algorithm to a voice or data stream resulting in using fewer bits to reproduce it at the target end.

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configurator	A user who has read-write capabilities on PSAX devices when using the <i>AQueView</i> system, but the capabilities are subordinate to the Administrator. <i>See also</i> Administrator; Monitor.
conformance type	The type of traffic control option used for ATM cells. A traffic descriptor combination that specifies which traffic parameters are used for traffic control; determines the number and type of cells that are admitted into a congested queue; and determines whether high-priority cells are tagged as low-priority cells when traffic exceeds the traffic parameter thresholds.
congestion	The point where devices in a network operate at the highest and slowest utilization.
congestion control parameters	Techniques used in a network to prevent and react to temporary excessive demands for resources.
congestion management	The ability of a network to effectively deal with heavy traffic volumes.
Conjugated Structure- Algebraic Code Excited Linear Predictive Voice Coding	See CS-ACLEP.
connection admission control	See CAC.
connection gateway	Software that allows an external device to interconnect to the <i>PacketStar</i> Multiservice Media Gateway systems and act as an adjunct processor to handle ISDN, SS7 signaling, and other call control.
connectivity	The degree to which any given computer or application can cooperate with other network components in a shared-resource network environment.
connector	A device connecting wires or fibers in cable either to equipment or to other wires or fibers.
connector pin	The contacts protruding from a connector.
constant bit rate	See CBR.
Consultive Committee for International Telephony and Telegraphy	See CCITT.
context	In the H.248 Media Gateway protocol, a context is an association of not more than two terminations. The context ends when the contained terminations end. <i>See termination.</i>
continuity check	A test to determine whether electrical current flows continuously throughout the length of a single wire which is grouped with other individual wires in a cable.
continuity check tone	A single frequency of 2000 Hz which is transmitted by the sending exchange, and looped back by the receiving exchange. The reception of the returned signal indicates the channel is working.
control outputs	Devices that route the input control signal to the selected output.

## Glossary

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core events	Specific data received (events) on any of the core switches.
core switch	A broadband switching system (BSS), which is located in the core of the network. Conceptually equivalent to a Tandem Office in the voice world, a core switch serves to interconnect "edge switches," which provide user access to the broadband network much as Central Offices do with circuit-switched voice calls.
core switch trap	The notification of a problem within a core switch.
CPE	customer premises equipment. In Lucent's line, the PSAX 15 through the PSAX 600, versus the PSAX 1250 and 2300 which are designed for Central Office use (although customers could use them in home offices).
cps	characters per second. Note: Formerly, this abbreviation was used to indicate cycles per second, the unit of measure for frequency. However, Hertz is the proper unit of measure for frequency.
CPU	central processing unit. The computing part of a computer that manipulates data and processes instructions coming from software or a user.
CPU module system disk	The fixed disk on the PSAX CPU module. This disk provides permanent data storage for the PSAX system.
crankback	A mechanism which partially releases an ATM connection setup in progress, but has encountered a failure. The use of this mechanism allows PNNI to perform alternate routing.
CRC	cyclic redundancy check. A method of error detection using cyclic redundancy code. Based on the contents of the message transmitted, a CRC value is generated at the transmitting terminal. An identical CRC generation is performed at the receiving terminal, and any mismatch indicates the message was received incorrectly.
CRC error	A condition that occurs when the CRC in a frame does not agree with the CRC frame received from a network.
CRC-MF	cyclic redundancy check-multifrequency. A process used to check the integrity of a block of data.
crosstalk	This phenomenon occurs when you hear someone you did not call talking on your telephone line to another person you did not call. This event can be the result of faulty wire placement, shielding, or transmission techniques.
CS-ACELP	conjugated structure - algebraic code excited linear predictive voice coding, (ITU-T G.7290). A voice compression standard that uses algebraic expressions instead of numbers for each set of voice samples. This technique results in better than 2:1 compression at 8 Kbps. It is used on packet switched data networks.

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CSU	channel service unit. Along with a Data Service Unit (DSU), a CSU is a component of Data Circuit-terminating Equipment (DCE). A CSU connects a digital telephone line to a customer's network-access equipment. It can be built into the network interface of the network-access equipment, or it can be a separate device. The CSU terminates the connection at the user's end and processes digital signals. It also prevents a faulty DSU from interfering with data transmissions on the digital line.
CTR	current transfer ratio. The ratio of output collector current to the forward LED input current, times 100.
current transfer ratio	See CTR.
customer premises equipment	See CPE.
cyclic redundancy check	See CRC.
cyclic redundancy check-multifrequency	See CRC-MF.
<b>D</b>	
D Channel	In an ISDN interface, the D channel is the data channel that carries control signals and customer call data in a packet switched mode. The B Channel is used for voice.
D4 framing	A common framing format in the T-1 environment. The name stems from the way framing is performed in the D-series of channel banks from AT&T. There are 12 separate 193-bit frames in a super-frame. A D-4 framing bit is used to identify both the channel and the signaling frame. In D-4 framing, signaling for voice channels is carried in-band by every channel, along with the encoded voice.
data bits	In asynchronous transmission, the bits that contain the data being sent (also known as payload).
data communications equipment	See DCE.
data link	Any serial data communications transmission path, without any intermediate nodes, that is generally between two nodes or devices.
data link connection identifier	See DLCI.
data link control	A standard method for sending data over a single communications link.
data service unit	See DSU.
data service unit/channel service unit	See DSU/CSU.
data terminal equipment	See DTE.
datagram	A logical grouping of information which is sent as a network layer unit over a transmission medium prior to establishing a virtual circuit.

## Glossary

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DB-25	The standard 25-pin connector used for RS-232 serial data communications. This connector has 13 pins in one row, and 12 in the next.
DBCES	dynamic bandwidth circuit emulation service. This feature is used with voice PVC connections to best utilize the available network bandwidth. Based on ABCD signaling-bit information, it allows channels to be dynamically allocated as needed. The implementation of DBCES is Lucent proprietary. The firmware supports 1x56 kbps time-slot trunking with channel-associated signaling (CAS) detection used, based on ATM Forum Specification af-vtoa-0085.000. It should be noted this feature is not fully compliant with the specification and does not interoperate with other devices that are fully compliant.
DBS	Direct Broadcast Satellite. A satellite that sends relatively powerful signals to small (generally 18-inch) dishes installed at homes.
DC	Direct Current. A flow of electricity always in the same direction.
DCE	Data Communications Equipment. An interface standard between computers and printers. DCE works like data terminal equipment, except pins 2 and 3 are reversed.
debouncing	<i>Bouncing</i> is the tendency of any two metal contacts in an electronic device to generate multiple signals as the contacts close or open; <i>debouncing</i> is any kind of hardware device or software that ensures that only a single signal will be acted upon for a single opening or closing of a contact.
demodulate	To recover a signal from a modulated carrier that has essentially the same characteristics as the original modulating signal.
designated transit lists	See DTL.
destination address	The address portion of the packet that identifies the destination node.
device tree	The left pane in the main <i>AQueView</i> window, which allows a user to access configuration and provisioning menus for all open PSAX devices.
DHPVC	Dual-Homed Permanent Virtual Circuit. A virtual circuit that is connected to the network through two independent access points.
digital loop carrier	See DLC.
digital loop carrier system	A system that concentrates analog local loop lines, digitized, and multiplexed calls for transmission to the Central Office.
digital service interface	An interface that enables the implementation of digital service circuits with the network interface. It is defined at a point where the signal has not yet been reshaped into a standard digital signal.

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digital signal processor	See DSP.
digital signal, level 1	See DS1.
digital signal, level 3	See DS3.
digital signal, level zero	See DS0.
digital subscriber line access multiplexer	See DSLAM.
digital subscriber lines	See DSL.
DIP switch	Dual In-line Position switch. A small switch used to select the operating mode of a device.
direct broadcast satellite	See DBS.
direct current	See DC.
direct serial connection	A direct connection through a serial port to another computer.
DLC	Digital Loop Carrier. Network transmission equipment used to provide pair gain on a local loop, by deriving multiple channels, typically 64 Kb, from a single 4-wire distribution cable running from the Central Office to a remote site.
DLCI	Data Link Connection Identifier. A frame relay term which defines a 10-bit field within the address field that includes committed information rate, committed burst size, committed rate measurement interval, and excess burst size.
DMA interface	Direct Memory Access Interface. A fast method of moving RAM which in turn, speeds processing.
downstream node	A reference to the relative position of two nodes in a LAN topology. A node is downstream if it receives data signals after the previous node.
DS0	digital signal, level zero. The North American Digital Hierarchy signaling standard for transmission at 64,000 bits per second. DS0 is the basic building block of the DS hierarchy, equal to one voice conversation digitized over PCM. There are 24 DS0 channels in a DS1.
DS1	digital signal, level 1. The North American Digital Hierarchy signaling standard for transmission at 1.544 million bits per second. Based on an old Bell System standard, DS1 is the equivalent of T1, which supports 24 voice conversations, each encoded at 64 Kbps, or 1.544 million. Outside the US, E1 designations are used which start at 2.048 million bits per second.
DS1 circuit-emulation service	A configuration that interfaces with TDM channelized DS1 circuits by converting the channelized digital signals (usually voice data) to ATM virtual channels.

## Glossary

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DS3	digital Signal, level 3. The North American Digital Hierarchy signaling standard transmission at 44.736 Mbps that is used by a T3 carrier. DS3 supports 28 DS1s plus overhead. In a channel application, it supports 672 channels, each at 64 kbps.
DSL	Digital Subscriber Lines. A family of evolving services local telephone companies provide their local subscribers. DSL is also synonymous with a ISDN BRI channel which offers up to 8 million bits per second downstream to the customer, and somewhat slower service from the customer back to the telephone company.
DSLAM	Digital Subscriber Line Access Multiplexer. Technology installed in the telephone company's Central Office that links through the line to a box in the customer's home or office. When a PC and telephone are plugged into the box, the DSLAM provides both telephone service and high-speed Internet service.
DSP	Digital Signal Processor. A specialized digital microprocessor that performs calculations on digitized signals that were originally analog (for example, voice) and then sends the results on. DSPs are used extensively in telecommunications for tasks such as echo cancellation, call process monitoring, voice processing and for the compression of voice and video signals.
DSU	Data (or digital) Service Unit. A device designed to connect data terminal equipment to a digital phone line, thus allowing fully digital communications.
DSU/CSU	Data Service Unit/Channel Service Unit. Devices that are used to access digital data channels.
DTE	Data Terminal Equipment. Equipment to which DCE (Data Communications Equipment) is connected, such as personal computers or data terminals. As defined in the RS-232 specification, DTE refers to application equipment, such as a video-conference terminal or LAN bridge or router, while DCE refers to equipment such as network access equipment.
DTL	Designated Transit List. A list of nodes and optional link IDs that completely specify a path across a single PNNI peer group.
DTMF	dual-tone multi-frequency. Also known as "touchtone", a specification for the double audio signals generated through touch-tone telephones and auto-dial modems.
dual in-line position switch	See DIP switch.
dual-bus	A pair of parallel buses arranged so the direction of data flow in one bus is opposite to the direction of data flow in the other bus.
dual-homed permanent virtual circuit	See DHPVC.

dual-tone multi-frequency	See DTMF.
duplex	Simultaneous two-way transmission in both directions.
dynamic bandwidth circuit emulation service	See DBCES.

## E

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E1	The European equivalent of the North American 1,544 Mbps T1, except that E1 carries information at the rate of 2.048 Mbps. This rate is used by the European Conference of European Postal and Telecommunication Administrations (CEPT) carriers to transmit 3064 Kbps digital signals for voice or data calls, plus a 64 Kbps channel for signaling, and a 64 Kbps channel for framing and maintenance.
E3	A CEPT signal which carries 16 CEPT E1 circuits and overhead at an effective data rate of 34,368 Mbps or 512 simultaneous voice conversations.
E4	A signal which carries four E3 channels, or 139,264 million bits per second, or 1920 simultaneous voice conversations.
EC	European Community. Member nations are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom.
echo cancellation	A method of controlling speaker echo on long haul digital trunks. An echo cancellation system monitors the transmitted signal, digitally predicts the echo, then cancels it by subtracting the prediction from the received signal.
echo canceller	Equipment that removes the echo introduced into a voice call by telephone handsets and is further handicapped by network delay.
EDGE	enhanced data rates for global evolution. A final stage in the devolution of data communications within the existing GSM standards, supporting data transmission rates up to 384 Kbps. EDGE is also anticipated to be used with IS-136 TDMA networks in the US.
edge node	The closest node to the perimeter of the customer's network, but still inside the customer's network. After a transmission leaves this node, it is in the ATM cloud and has to make its own way through switches and nodes not under the control of the originating network.
edge switch	A Broadband Switching System located at the edge of the network; the first point of user access and the final point of exit.
EEPS	End-to-End Provisioning Server. A server that provides service-level provisioning, and allows a network management system to issue commands that will set up connections to go throughout the network without needing to set up connections on each individual switching device.

## Glossary

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egress	In matters of UPC, cell bus traffic shaping, ATM traffic shaping, virtual interface, egress describes data exiting the last module on a PSAX switch before going to another switch.
electromagnetic interference	See EMI.
electrostatic discharge	See ESD.
Element Management System	See EMS.
embedded operations channel	See EOC.
EMI	electromagnetic interference. Any electrical or electromagnetic phenomenon, synthetic or natural, that results in unintentional and undesirable responses from, or performance degradation or malfunction of electronic equipment.
EMS	Element Management System. A system that manages, or controls, a network element. EMS is in the layer below NMS. <i>See also</i> network element; network management system.
encapsulation	The process of inserting a packet, in its entirety, from one protocol into the packet header of another incompatible protocol, for transport across a network.
end point	A network element at the end of the network.
end-to-end provisioning	Service-level provisioning that allows a network management systems (NMS) to issue commands that will set up connections to go throughout the network, without setting up connections on each individual switching device.
end-to-end provisioning server	See EEPS.
enhanced data rates for global evolution	See EDGE.
enterprise provider	A business that provides network services such as colocation, high speed Internet access and network management services.
EOC	Embedded Operations Channel, a dedicated communications channel, similar to TMC, which allows remote OAM control. The EOC is frequently found in timeslot 12 of the first and second DS1 circuits (for redundancy).
error rate	The ratio between the number of bits received incorrectly and the total number of bits in the transmission.
errored	The state of having a value or condition that is inconsistent with the true, specified, or expected value or condition.
errored path	A faulty link between two nodes in a network.
error-tolerant addressing scheme	A way to protect the cell header by establishing multiple virtual circuits to the same destination. The addresses for the circuits are within the error space of the principal address used for actual transmission. Thus, the most probable error patterns occurring in the address field simply changes the address to another valid one.

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ESD	electrostatic discharge. The release of a built-up electrical charge from an electronic component such as a printed circuit board.
ESF	extended superframe format. A T1 framing standard used in wide area networks grouping 24 (rather than 12) frames together.
Ethernet	A local area network that connects computers, printers, terminals, workstations, and servers within the same building or campus. Operating over twisted wire or coaxial cable, it is capable of carrying over ten million Bps.
Ethernet address	A 48-bit number physical address. Each Ethernet address is unique to a specific network module or PC on a LAN which forms the basis of a network-addressing scheme.
Ethernet bridge	A device that controls data packets within a subnet in an attempt to cut down the amount of traffic. A bridge is usually placed between two separate groups of computers that talk within themselves, and occasionally to computers in another group.
ETSI	European Telecommunications Standards Institute. Equivalent to ANSI. ETSI is creating a single European telecommunications system as part of the single European market program.
European Telecommunications Standards Institute	See ETSI.
events browser	The events browser is a view of the received events contained in <i>AQueView's</i> \$OV_LOG/trapd.log and \$OV_LOG/trapd.log.old.
events log	The HP OpenView Events Log is a central repository for all incoming events received by the NNM ovtapd background process.
excess burst size	See Be.
extended superframe format	See ESF.

## F

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facility interface code	A numerical code designating a facility interface.
fault monitoring	In network management, the set of functions that (a) detect, isolate, and correct malfunctions in a telecommunications network, (b) compensate for environmental changes, and (c) include maintaining and examining error logs, accepting and acting on error detection notifications, tracing and identifying faults, carrying out sequences of diagnostics tests, correcting faults, reporting error conditions, and localizing and tracing faults by examining and manipulating database information.

## Glossary

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fax demodulation/remodulation	A technique for taking a Group III fax signal and converting it from, or back to, its original 9.6 Kbps. For example, when a sheet of paper is inserted into a fax machine, the fax machine scans it to digital bits -- a stream of 9600 bps. Then, for transmission over phone lines, the 9.6 Kbps is converted into an analog signal. But if you wish to transmit the fax signal over a digital line, it makes sense to convert it back to its original 9.6 Kbps. This means you can put several fax transmissions on one 56 Kbps or 64 Kbps line -- the capacity you would normally need if you transmitted one voice conversation, or one analog fax transmission.
FEC	forward error correction. A combination of functions designed to protect data transmission in a noisy communications environment, such as traffic transmitted across satellite and line-of-sight radio-frequency circuits. Most of these types of circuits transmit at the rate of 2.048 Mbps or slower. The three stages of FEC are multiple redundancy addressing, cell encoding, and cell scrambling.
fiber optic cable	Fiber made of extremely pure glass. To date, the best option for voice/data/video communications, being faster and less resistant than metal.
FIFO	First In, First Out. A buffering scheme in which the first byte of data that enters the buffer is also the first byte received by the CPU.
file transfer protocol	See FTP.
firmware	Software which is kept in semipermanent memory, and is usually stored in PROMS (programmable read-only memory) or EPROMS (electrical PROMS). Firmware is used in conjunction with hardware and software and shares the characteristics of both. It contains software which is so constantly called upon by a computer or phone system that it is written into a chip electrically, at higher-than-usual voltage, causing the bits to retain the pattern as it is "burned in."
fixed-rate connection	A connection whose QoS is determined by a consistent monthly rate.
flash	A type of nonvolatile memory. Flash memory is functionally similar to EPROM memory, but it must be erased in blocks, whereas EPROM can be erased one byte at a time. Because of its block-oriented nature, flash memory is commonly used as a supplement to, or a replacement for in, system disks in personal computers.
flash hook	The button which is depressed when you put the telephone receiver back in the cradle. Also called a switch hook, it releases the line to receive another call.
flash signaling	Signaling transitions from off-hook to on-hook, where the on-hook state lasts between 300 msec and 1000 msec.

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flash-capable trunk	A trunk capable of transmitting telephone flash hook signaling. Trunks supporting this feature will switch between one phone line and another upon receiving the signal, created by briefly depressing the flash hook.
flow control	The buffering that turns a device on and off in order to stop or reduce data loss during transmission.
foreign exchange office	See FXO.
foreign exchange service	See FX.
foreign exchange station	See FXS.
forward direction	The direction of data away from the origination end of a broadband LAN.
forward error correction	See FEC.
FR	frame relay. A form of packet switching, which uses smaller packets and less error checking than traditional forms of packet switching (such as X.25). This international standard is used for efficiently transmitting high-speed, bursty data over wide area networks (WANs).
frame relay	See FR.
Frame Relay Forum	Based in Foster City, CA, this organization of frame-relay equipment vendors, carriers, and users was formed in 1991 to speed the development and deployment of frame relay products and interfaces with other broadband technologies such as ATM.
Frame Relay Implementation Agreement	See FRF.
frame relay policing	The prevention of frame relay traffic congestion through the discard of packets that exceed specified traffic parameters.
Frame Relay/ATM Network Interworking Implementation Agreement	See FRF.5.
Frame Relay/ATM PVC Service Interworking Implementation Agreement	See FRF.8.
framing	The data-formatting conventions that allow a receiver to synchronize with the transmitting end of a circuit. For example, T-1 frames contain an 8-bit sample from each of the 24 channels on the interface (192 bits total) plus a framing bit (for a total of 193 bits). Each framing bit marks the end of a timed sample the input at the transmission end.
framing-bit	A bit used for frame synchronization purposes. A bit at a specific interval in a bit stream is used to determine the beginning or end of a frame. Framing bits are non-information-carrying bits used to make possible the separation of characters in a bit stream into lines, paragraphs, pages, channels, etc. The framing in a digital signal is usually repetitive.

## Glossary

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frequency shift keying	See FSK.
FRF.1.1	User-to-network (UNI) Implementation Agreement. The interoperability standard adopted by the ATM Forum to define connections between users or end stations and a local switch.
FRF.2.1	Network-to-network (NNI) Implementation Agreement. The interoperability standard adopted by the ATM Forum which describes the transfer of C-Plane and U-Plane information between two network nodes belonging to two different frame relay networks.
FRF.5	Frame Relay/ATM Network Interworking Implementation Agreement. The interoperability standard adopted by the ATM Forum which defines a standard way to carry out frame relay traffic across an ATM backbone. This specification is dependent on the encapsulation of frames carried by the frame relay network.
FRF.8	Frame Relay/ATM PVC Service Interworking Implementation Agreement. The interoperability standard adopted by the ATM Forum which defines a standard way for a frame relay site to communicate with an ATM site; it depends on conversion of the frames into ATM cells.
FRF.x	A reference to a voice over Frame Relay Implementation Agreement, which specifies how frames are relayed.
FSK	frequency shift keying. A modulation technique for translating 1's and 0's into something that can be carried over telephone lines, such as sounds.
FTP	file transfer protocol. A program that allows users to quickly transfer text and binary files to and from a distant or local PC, list directories, delete and rename files on the foreign host, and perform wildcard transfers between hosts.
FX	foreign exchange service. A service that provides local telephone service from a Central Office which outside (foreign to) the subscriber's exchange area.
FXO	foreign exchange office. A service provided by the local telephone company from a Central Office outside the subscriber's exchange area, that is provided by a foreign exchange (FX) trunk line.
FXS	foreign exchange station. The connection configuration between an FXO and a POTS.

## G

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gateway	A shared connection between a LAN and a larger system, or a large packet-switched network whose communication protocols differ.
Gb	gigabit, $10^9$ bits

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GB	gigabyte, a unit of physical data storage equal to 1,073,741,824 bytes.
Gbps	gigabits per second
GBR	guaranteed bit rate
GCAC	generic connection admission control. A process that determines if a link has enough resources to support a connection.
generic connection admission control	See GCAC.
generic flow control	See GFC.
GFC	generic flow control. A field in the ATM header which can be used to provide local functions (e.g., flow control). It has local significance only and the value encoded in the field is not carried end-to-end.
GFR	guaranteed frame rate. A service that provides minimum cell rate guarantees and fair access to excess bandwidth left over from higher-priority services.
GMT	Greenwich Mean Time. The former name for mean solar time at the original site of the Royal Observatory in Greenwich, England, which is located on the prime meridian. GMT is now called Coordinated Universal Time.
GR-303	The Telcordia Technologies General Requirements 303 (GR-303) standard provides for both an open interface network architecture and a digital loop carrier system that operates on T1 circuits. This standard allows a remote terminal such as a Central Office <i>PacketStar</i> PSAX Multiservice Media Gateway to interface with a Central Office voice switch, such as the Lucent Technologies 5ESS switch.
graphical user interface	See GUI.
Greenwich Mean Time	See GMT.
guaranteed bit rate	See GBR.
guaranteed frame rate	See GFR.
GUI	graphical user interface. Visual user interface that uses icons and graphics to represent files and options such as windows, icons, pull-down menus, and a pointer icon; for example, the Windows, Macintosh, and UNIX operating systems use this interface. Options are selected by pointing and clicking a mouse and/or keyboard key combinations.
GX 550	A member of the Lucent Multiservice WAN switch family that offers a wide array of core and access capabilities such as native frame relay, IP and MPLS multi-protocol label switching (MPLS).

## H

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## Glossary

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handshake	An exchange of predetermined control signals for establishing a session between a computer and a modem.
HDLC	high-level data link control. An ITU-TSS link layer protocol standard for point-to-point and multipoint communication. In HDLC, the control information is always placed in the same position, and it uses specified bit patterns dramatically different from the data, thus reducing the likelihood of confusion.
header	The initial part of a data block, packet, or frame, which provides basic information about how to handle the rest of the block, packet, or frame.
header error correction	See HEC.
heartbeat	An Ethernet-defined signal quality error (SQE) signal quality test function, as defined in IEEE 802.3. Heartbeat is created by a circuit (normally part of the transceiver) that generates a collision signal at the end of a transmission. This signal is used by the controller interface for self-testing.
HEC	header error control (or correction). A code located in the last byte of an ATM header. It is used to check the integrity of the cell header at the various cell switches.
HELLO	A routing protocol that allows trusting packet switches to discover minimal delay routes.
hertz	See Hz.
hexadecimal	A numbering system using any of the following 16 characters: 0 to 9 and A to F.
high-level data link control	See HDLC.
horizontal link	A link between two logical ATM nodes belonging to the same peer group.
hot-swappable	A feature that allows the user to install, or remove I/O and server modules in the PSAX system without interrupting its operations.
HP OpenView NNM	The Hewlett-Packard OpenView Network Node Manager is network management product that allows network administrators to monitor and control network devices using tools for accounting management, fault management, security management, configuration management, and performance management. <i>See also</i> Standalone).
hub	A wiring device that has multiple connections of network and internetworking modules. Active hubs amplify or repeat signals to extend a LAN's distance, while passive hubs split up the transmission signal, allowing the administrator to add users to a LAN.

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hybrid connection configuration	A configuration that connects the “main router” Multiservice Media Gateway system directly to the “end system” Multiservice Media Gateway systems through ATM connections. These ATM connections can be tunneled through a number of switches to reach the “end system” Multiservice Media Gateway system. The “main router” of the Multiservice Media Gateway system is connected to the NMS machine through an Ethernet connection.
Hz	Hertz. A unit of measure of frequency in cycles per second.
<b>I</b>	
I/O	input/output. The interrelated tasks computers do (in addition to processing) that provide information to the computer, perhaps by keyboard (input) and get the results of processing to the user, perhaps by a printer (output). In cell bus traffic shaping, ATM traffic shaping, and UPC, output is ATM data streams leaving a switch to go to another switch or network, (as distinguished from traffic output from one switch hardware device to another hardware device within the same switch or network data processing entity). See also output.
IBM SNA equipment	International Business Machines Systems Network Architecture. Computer network architecture equipment created by IBM.
IC	integrated circuit. A chip that contains electrical components -- such as transistors, resistors, and capacitors -- connected by wiring, to form a circuit designed to perform a specific task (or tasks).
ICMP	Internet Control Message Protocol, the IP portion of the TCP that provides the functions used for network layer management and control.
ICP - IMA communication (control) protocol	A rule or format for the transfer of cells within inverse multiplexing for ATM (IMA) groups.
IDT	Inter-machine Digital Trunk. A high-speed circuit between switches.
IEEE	Institute of Electrical and Electronic Engineers. A worldwide engineering publishing and standards-making body for the electronics industry.
IETF	Internet Engineering Task Force. The organization that coordinates the standards and specification development for Transmission Protocol/Internet Protocol (TCP/IP) networking.
IISP	Interim Inter-Switch Signaling Protocol. An ATM Forum defined protocol employing UNI-based signaling for switch-to-switch communication in private networks. Unlike PNNI, IISP relies on static routing tables and makes support for QoS an alternate routing option.
ILEC	Incumbent Local Exchange Carrier. One of the Baby Bell companies, for example.

## Glossary

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ILMI	Integrated Local (or Link) Management Interface. A specification for network-management functions for the link between a public network and a private network, or between a user and a network.
IMA	inverse multiplexing for ATM. An access specification of the ATM Forum, used to link several low-speed transmission links, allowing a high-speed data stream to pass through the system.
IMA Communication protocol	See ICP.
IME	Interface Management Entity, two entities; either an end user and a public or private network, or a public network and a private network.
in-band management	A network management application that configures and manages an interface based on simple network management protocol (SNMP).
in-band signaling	Signals made of tones that pass through the voice frequency band and are carried by the same circuit as the talk path. These include requests for service, dialing, and disconnecting information.
incumbent local exchange carrier	See ILEC.
ingress	Data entering a PSAX switch to the first module for processing, as distinguished from subsequent modules, a distinction useful for UPC, virtual interface, cell bus traffic shaping, and ATM traffic shaping.
input/output	See I/O.
Input/output (I/O) module	A circuit pack which provides the electrical/optical ports into which incoming/outgoing facilities are connected; the network interface module.
Institute of Electrical and Electronic Engineers	See IEEE.
integrated circuit	See IC.
integrated local management interface	See ILMI.
integrated services digital network	See ISDN.
Integrated services digital network with primary rate interface service interface	See PRI ISDN.  1. Hardware microprocessor (chip) on a DSPx voice processing module. Also see channel.  2. An end-to-end connection protocol that governs the transmission parameters of a configured port or channel interface. Examples: ATM UNI 4.0, PNNI, IISP.
Interface management entity	See IME.

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intergrated services digital network user part	See ISUP.
interim inter-switch protocol	See IISP.
inter-machine digital trunk	See IDT.
intermediary node	Any device connected to a network that data must pass through in order to go from one end to another.
International Standards Organization	See ISO.
International Telecommunication Union	See ITU.
Internet	Originally developed by the U.S. Defense Department, the Internet has become the world's largest computer network. It is a packet-switched network, running on the TCP/IP protocol.
internet control message protocol	See ICMP.
Internet Engineering Task Force	See IETF.
Internet Protocol	See IP.
Internet service provider	See ISP.
intervening switch	If the call has to go through multiple switches to get to a destination, each of these switches is referred to as an intervening switch.
interworking	The ability to communicate between devices supporting dissimilar protocols, (such as between frame relay and ATM), by using translation between protocols rather than encapsulation. Many carriers are planning to add the equipment and conversion algorithms so networks can transparently convert frame relay to ATM and vice versa.
interworking function	See IWF.
intranet	A private network that uses Internet software and Internet standards.
Inverse multiplexing for ATM	See IMA.
IP	internet protocol. The most significant protocol on which the Internet is based. This software operates at the network level (Layer 3) of the OSI model and keeps track of the Internet's addresses for different nodes, routes outgoing messages, and recognizes incoming messages.
IP Address	A unique numerical identifier that is assigned by a system administrator to any station or other device that uses IP. Each address is a 32-bit string expressed in four octets in decimal notation, such as 323.34.45.67, with one portion for the network number and another the host address. The administrator sets the subnet mask to identify how much of the address applies to the network and how much applies to the host.

## Glossary

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IP Mask	A range of IP addresses defined so that only machines with IP addresses within the range are allowed access to an Internet service.
IPO - internet PRI offload	The Lucent Softswitch Internet Primary Rate Interface (PRI) Offload (IPO) solution relieves traditional switch port congestion by offloading calls onto ATM networks. It serves as an intelligent bridge between network elements that speak different signaling protocols, and simplifies the interworking between circuit-switched and data networks. With seamless connectivity and migration, the Lucent Softswitch IPO provides CLECs and ISPs with a true, carrier-class, high-availability platform with the scalability and performance of traditional circuit switches.
ISDN	Integrated Services Digital Network. A network that offers either a basic rate interface (BRI) at 144,000 bits per second, or a primary rate interface (PRI) at 1,544,000 bits per second. ISDN provides standard digital service capability that features one or more circuit-switched communication channels that are capable of carrying digital voice, data, or image signals over copper loop.
ISO	International Standards Organization. A group based in Switzerland that defines and/or adopts protocols widely used in the computer and telecommunications industries.
ISP	Internet Service Provider. A vendor who gives individuals and companies access to the Internet and the World Wide Web.
ISUP	Integrated Services digital Network User Part. The call control part of the SS7 protocol. It determines the procedures for setting up, coordinating, and taking down trunk calls on the SS7 network.
ITU	International Telecommunications Union, the principal international telecommunications standards organization, a United Nations agency based in Geneva, Switzerland.
ITU-T	The Telecommunications Standardization Sector of the ITU.
IWF	Interworking function. A mechanism that mask differences in physical, link, and network technologies by converting (or mapping) states and protocols into consistent network and user services.

## K

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Kb	A kilobit, as defined as 1024 bits.
KB	A kilobyte, defined as 1024 bytes.
Kbps	Kilobits per second, the amount of data transferred in a second between two end points. For example, 1 Kbps is 1024 bits per second.
keep alive/heartbeat timer	A polling method a PSAX chassis uses to ensure connections are up; if not, it generates a system error message.

kilobit	See Kb.
kilobyte	See KB.

**L**


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LAN	local area network. A geographically localized network that includes both hardware and software and typically links personal computers, printers, file servers, and other peripherals.
LANET	Limitless ATM Network Protocol. The LANET protocol, coupled with a simple error-tolerant addressing scheme, addresses the fundamental problem of noise in adapting ATM to low-speed environments. LANET permits application-dependent payload protection, that allows selective implementation of bandwidth-costly, forward-error-correction techniques. It is designed to identify and extract ATM cells at bit error rates as high as $10^{-2}$ .
LAPD	Link Access Procedure-D. A link level protocol devised for ISDN connections.
latency	The time it takes to get information through a network.
layer 2 bridging service	A way of moving LAN traffic at near wire speed through the use of an ATM which uses MAC addresses between the LAN segments on each side.
leaf	The receiving end of a connection.
LED	light-emitting diode. A small solid-state light that shows hardware or firmware status.
LGN	logical group node. A peer group leader that represents and summarizes topology information needed to reach lower-level switches in a PNNI hierarchy.
light-emitting diode	See LED.
limitless ATM network protocol	See LANET.
line coding	The data format that lets either end of a communications channel correctly interpret messages from the other. Line coding systems specify the voltage levels and patterns that represent binary digits (1s and 0s), based on the requirements of the transmission network,
line loop	When the received signal is sent through the receiver and the line driver, and then back out to the originating point.
link	Another name for a communications channel or circuit. The ATM Forum defines a link as an entity that defines a topological relationship (including available transport capacity) between two nodes in different subnetworks. Synonymous with logical link.
link access procedure-D	See LAPD.

## Glossary

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link jitter	A type of distortion found on analog communication lines, that results in data transmission errors. Also, a variation in the time it takes for a voice packet to traverse the link between the sending and receiving end points.
link management interface	See LMI.
link out of delay synchronization	See LODS.
link state routing	In Private Network-Network Network Interface, link-state routing is a LAN routing technique where neighboring routers exchange routing table updates as they occur.
LLC-SNAP	logical link control-subnetwork access protocol.
LMI	Link Management Interface. A synchronous polling scheme used for the link management of a frame relay channel. It provides the user with dynamic notification of the addition and deletion of PVCs, and monitors each network connection through a periodic heartbeat keepalive polling process.
load balancing	The practice of splitting communication into two (or more) routes. By balancing traffic on each route, communication is faster and more reliable.
load sharing	The technique of using two computers to balance the processing normally assigned to one of them. In local area networking, load sharing is performed by token ring routers when connecting remote LANs. It allows a combination of Ethernet and Token Ring traffic over a common WAN link such as a T-1 or 56 Kbps circuit. Load sharing eliminates the need for duplicate WAN links (and bridges or routers), each serving a different type of LAN.
local area network	See LAN.
local exchange carrier	See LEC.
local loop	A telephone line that runs from the local telephone company to the end user's premises; it can be fiber, copper, or wireless media. Also known as a subscriber line.
local node	A network's local server.
LODS	Link Out of Delay Synchronization. A link event that indicates a link is not synchronized with the other links within the IMA group.
logical group node	See LGN.
logical link	See link.
logical port	A configured circuit that defines protocol interaction between a Frame Relay or ATM switch and user equipment, a switch, or a network.

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loop emulation	This service uses the ATM AAL2 network to essentially create an extension cord between voice ports on the CPE and the corresponding voice ports on the class 5 switch, that terminates on the GR-303 based voice gateway. The interface between the CPE and the first ATM-based edge switch or DSLAM may be T1 or xDSL. In either case, the use of AAL2 allows multiple voice circuits to be carried simultaneously.
loop start interface	A type of interface in which the CPE signals an off-hook condition by closing a relay at the CO.
loopback	A test pattern sent and returned to the sending device to diagnose problems.
LOS	loss of signal. A condition at the receiver or a maintenance signal which is transmitted in the physical overhead and indicates the receiving equipment has lost the received signal. LOS is used to monitor the performance of the physical layer.
loss of signal	See LOS.
<b>M</b>	
MAC	media access control. A protocol that determines how devices will share resources on a local area network
MAC address	The built-in hardware address of a device connected to shared media.
management information base	See MIB.
mask	A field comprised of letters or numbers and wildcard characters, used to filter data. For example, a mask 800xxxxxxx may be applied to the dialed digits field of a call record to identify toll-free calls.
max PD parameter	Located on the remote end peer, the Max PD parameter is the maximum number of protocol data units transmitted since the last PSAX chassis polling of the peer.
maximum burst size	See MBS.
maximum input buffer	The maximum amount of bytes that should be retrieved.
maximum transmission unit	See MTU.
Mb	A megabit, defined as 1,048,576 bits.
MB	A megabyte, defined as 1,048,576 bytes.
Mbps	Megabits per second, a unit for measuring data rates.
MBS	maximum burst size. In an ATM transmission, MBS is the maximum number of cells that can be received at the peak cell rate (PCR). If the burst is larger than anticipated, the additional cells are either tagged or dropped. MBS applies only to variable bit rate (VBR) traffic. It does not apply to constant bit rate (CBR) or unspecified bit rate (UBR) traffic.
media access control (MAC) layer	See MAC.

## Glossary

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media gateway	A device that converts media streams from one type of network to a different format for another type of network.
megabit	See Mb.
megabits per second	See Mbps
megabyte	See MB.
megaohm	A resistance of 1,000,000 ohms.
MIB	Management Information Base. A database of network performance information.
millisecond	See msec.
mixed circuit emulation	Mixed voice/data traffic on a single private access line.
MMAQ	A Multimode module which uses the AQueMan algorithm for flow control.
MMTS	A Multimode module which uses cell bus traffic shaping for flow control.
Mobile Switching Center	See MSC.
modulate	To merge information an signal containing voice, data, or images with an electrical carrier wave in order to transmit the information over a network
monitor	A user that has read-only capabilities on PSAX devices when using the <i>AQueView</i> system. <i>See also</i> Administrator; Configurator.
Moving Pictures Experts Group	See MPEG.
MPEG	Moving Pictures Experts Group. A joint committee of the International Standards Organization and the Electrotechnical Commission. A series of hardware and software standards designed to reduce the storage requirements of digital video, especially a compression scheme for full-motion video. Its compression is greater than the comparable JPEG.
MSC	Receives and transmits calls between cellular base stations and the CO.
msec	Millisecond, one-thousandth of a second.
MSP	multiplex section protection. In a European synchronous digital hierarchy (SDH) network, the 1+1 protection switching is commonly referred to as multiplex section protection. <i>See</i> APS for additional information.
MTU	maximum transmission unit. The largest number of bytes of "payload" data a frame can carry, not counting the frame's header and trailer.
Mu-Law	The companding standard for conversion between analog and digital signals in PCM systems in Japan and North America. Also see A-law.
multicast	Broadcasting messages simultaneously to a selected group of workstations on a LAN, a WAN, or on the Internet.

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multimedia	Communication through various forms of media simultaneously, such as voice (voice encoding, speech recognition, speaker verification, and text-to-speech), audio processing (music synthesis, CD-ROMs), data communications, image processing, and telecommunications.
multimode fiber	By having a much larger core than single-mode fiber, this broadband fiber allows many modes of light to propagate down the fiber-optic path.
multiple redundancy addressing	The act of establishing multiple virtual circuits to the same destination. The addresses for the circuits are within the error space of the principle one used for actual transmission. Thus, the most probable error patterns that occur in the address field cause the address to be changed to another valid one.
multiple repeaters	A series of opto-electronic devices inserted at intervals along a circuit to boost and amplify an analog signal being transmitted. Repeaters are needed because the quality and strength of a signal decays over distance.
multiplex section protection	See MSP.
multiplexer	A device that merges several lower-speed transmission channels into one high-speed channel at one end of the link. A <i>demultiplexer</i> reverses this process at the opposite end.
multiplexing	The process of transmitting several signals over a single communications channel by separating each signal into packets and interleaving the packets with packets from other signals. The packets are reassembled into a coherent data stream at the receive end.
multi-protocol encapsulation	As defined in IETF RFC 1483, multi-protocol encapsulation allows multiple higher-layer protocols, such as IP to be routed over a single ATM VCC using the MAC header.
Multiservice Media Gateway	A Lucent Technologies ATM access concentrator/switch that efficiently forwards data, handling incoming calls for a network point of presence (POP). In general, a Multiservice Media Gateway system supports dial-in modem calls, ISDN connections, nailed-up links, frame relay traffic, and multi-protocol routing. Formerly this product was named the PSAX Access Concentrator system.
Multiservice Media Gateway systems or MMG systems	Refers to the whole "box" functioning as an entity, including the chassis, modules, and CPU loaded with system software.

## N

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narrowband	In communications technology, digital communication at the rate of 64,000 bits per second or lower.
NavisCore	An application that operates in conjunction with HP OpenView to provide multiservice IP, frame relay, asynchronous transfer mode (ATM) switched multimegabit data service (SMDS) configuration, and management of Lucent core switches from a single platform.

## Glossary

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NE	Network Elements. 1. Any basic part of the network, such as a modem, a multiplexer, a switch. 2. Processor-controlled parts of the telecommunications network that primarily provides switching and transporting functions and contains network operating functions. In SONET, the five network elements are: add/drop multiplexer, broadband digital cross-connect, wideband digital cross-connect, digital loop carrier, and switch interface.
near-end echo cancellation	The isolation and filtering of unwanted signals caused by echoes from the main transmitted signal at the originating end of a trunk circuit or connecting path.
NEBS	Network Equipment Building Standard. A standard that defines a rigid, extensive set of performance, quality, environmental, and safety standards. They range from fire spreading and extinguishability tests to earthquake tests, thermal shock measures, cyclic temperature, mechanical shock, and electrostatic discharge standards.
neighbor peer	The relationship a node in the PSAX system has with a neighboring node within the same peer group.
network	A network consists of one or more management stations and network elements, which are individual nodes on the network that can communicate with one another. These nodes are individual machines on the network and can be PSAX systems, routers, computers, or other communications equipment.
network convergence	In a LAN, convergence occurs when all the interworking devices have updated each other on the routing topology. The more quickly convergence occurs, the more quickly link failures are resolved.
network elements	See NE.
network equipment building standard	See NEBS.
network interface card	See NIC.
network management system	See NMS.
network mask	A 32-bit number that distinguishes the portion of an IP address referring to the network or subnet from the portion referring to the host.
network service access point	See NSAP.
network-network interface	See NNI.
network-to-network (NNI) Implementation Agreement	See FRF2.1
nibble	Four bits. Usually described as one hexadecimal digit.
NIC	Network Interface Card. The device that connects a computer or other device to a LAN.

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NMS	Network Management System. A comprehensive set of equipment used in monitoring, controlling, and managing a data communications network. Typically, it includes testing devices, CRT displays and printers, patch panels, and circuitry for diagnosing and reconfiguring channels, generally all housed in the same central console.
NNI	network to network interface. A Frame Relay Forum/ATM Forum protocol governing how ATM switches establish connections and how ATM signals get routed.
node	An abstract representation of a peer group or a switching system as a single point.
node index	An index that identifies a logical PNNI entity in the PSAX system.
non-native ATM networking protocols	Communications protocols such as ISDN, SS7, and CAS.
non-revertive	A term used with software/hardware features where connections have been switched from primary to backup configurations after a link failure. Non-revertive means that the connection does not automatically revert back to the primary configuration location if the primary connection location link is restored. (From Telcordia Technologies standard GR-253-CORE).
nonscrambled	An undistorted or scrambled voice or data communication type.
non-switched mode	The setting fused to establish a point-to-point line.
NRTL	Nationally Recognized Testing Laboratory
NSAP	network service access point. The Open Systems Interconnection (OSI) generic standard for a network address consisting of 20 octets.
<b>O</b>	
OAM	Operations, Administration, and Maintenance. These cells typically provide network fault indications, performance information, and data diagnosis functions.
OC-12	Optical carrier 12. A SONET channel that transmits at 622 Mbps.
OC-3	Optical carrier 3. A SONET channel equal to three DS3s, which is equal to 155.52 million bits per second. (Three times OC-1.)
OC-3c	Optical carrier 3, concatenated payload.
octet	A term for eight bits that is sometimes used interchangeably with byte.

## Glossary

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off-hook, on-hook queuing	In off-hook queuing, the dialer has to hold the receiver to his ear and continually dial until he gets an open line. In off-hook queuing, he dials and on getting a busy number, the switch informs him and automatically redials, informing him when a connection is ready.
offset time	The length of time it takes in a generic filter, for the number of bytes from the start of a frame to the data, to be tested against the filter.
Ohm	The resistance that allows one ampere of current to pass at the electrical potential of one volt. Amperes are volts divided by Ohms; Volts are the product of Amperes and Ohms; Ohms are Volts divided by Amperes.
online	Available through the computer, either on the system disk (online documentation, online help) or, by using a modem, from another computer.
open systems interconnection	See OSI.
operations, administration, and maintenance	See OAM.
originating node	The first point of connection into a network.
OSI	<p>open systems interconnection. The only internationally accepted framework of standards for communicating between different systems made by different vendors, developed by the International Standards Organization.</p> <p>The OSI model organizes the communication process into seven different categories and places these categories in a layered sequence based on their relation to the user. Layers 7 through 4 deal with end to end communications between the message source and the message destination, while layers 3 through 1 deal with network access.</p>
out of frame	A T1 error condition where two or three framing bits of any consecutive frames are in error.
out-of-service	The condition, or state, of an interface that is operating but not ready to accept or place calls.
outside link	A link to an outside node.
<b>P</b>	
PABX	Private Automatic Branch Exchange, see PBX.
packet	Also referred to as a Level 3 Protocol Data Unit (L3-PDU). A packet is a group of bits that is transmitted as a unit through a network. It usually includes data and control information such as addressing, identification, and error control fields.
packet internet groper	See ping.

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Packet Pipe	A non-trademarked term for a T1 consisting of several DS0 virtual paths on which wireless voice and data, together in the same packet, are transmitted between terminations over an HDLC interface.
packet video	When a video camera feeds the signal into a coder/decoder, which then converts the native analog signal into a digital format, and segments the data into data packets. The packets are sent across a packet network as a packet stream for reassembly by a coder/decoder on the receiving end of the transmission before presentation on the monitor.
<i>PacketStar</i> <sup>®</sup> PSAX family of products	The Lucent Technologies <i>PacketStar</i> PSAX Multiservice Media Gateways are a product line of scalable, flexible multiservice ATM access devices offered to service providers' Central Offices, and small to large enterprises.
pass-through	Gaining access to one network through another element.
payload	The portion of a frame that contains the actual data.
payload length	The length of a data field, block or stream being processed or transported. The payload includes user information and may include such additional information such as user-requested network management and accounting information.
payload loop	When a received signal is sent through the framing chip on the module, but not the SAR circuitry, and then back out to the originating point.
payload protection	A process that identifies and extracts ATM cells at bit error rates as high as $10^{-2}$ .
payload scrambling	The removal of long strings of 1s and 0s that could be mistaken as error conditions.
payload type indicator	See PTI.
PBX	private branch exchange. Originally a switch inside a private business, part of a manual device that requires an operator to complete the call. Now those calls are automatic (at one time there was the need to differentiate the manual private automatic branch exchange [PABX] from the automatic PBX).
PCM	pulse code modulation. The most common method of encoding an analog voice signal into a digital bit stream. The most common PCM method samples a voice conversation at 8,000 times a second, twice the highest frequency in a voice line, 4,000 Hz.
PCM coding translation	There are two different PCM coding schemes in G.711, A-law and $\mu$ -law. In the US and Canada, $\mu$ -law is used. In many other parts of the world, A-law is used. When calls are placed between countries that use different coding laws, a code translation is performed in the network.
PCR	peak cell rate. An ATM term for cell-rate-per-second limit the transmitting source can never exceed.

## Glossary

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PDU	protocol data unit. A packet created at any one of the OSI layers. It contains control information and a payload, and passes through the interfaces between one protocol layer and another.
peak cell rate	See PCR.
peer	In data networking, a router that operates on the same protocol layer as another router.
peer group	A set of logical nodes, grouped to create a routing hierarchy. All members of the group exchange PNNI topology state elements (PTSEs).
peer group identifier	A string of bits that unambiguously identifies a peer group.
peer group leader	See PGL.
permanent virtual circuit	See PVC.
PGL	peer group leader. In networks that use a PNNI hierarchy, the switches at each level elect one switch that concurrently belongs to its own level, and the next highest level. This switch is referred to as the peer group leader.
physical layer convergence control	See PLCP.
physical media access layer	This handles functions specific to each physical interface, and connects each user port to other users, or network elements.
pin configuration	The physical arrangement of prongs on a connector.
PING	packet internet groper. A utility program, originally used in the Internet, to test whether a destination can be reached by sending it an Internet Control Message Protocol (ICMP) echo request and waiting for a reply; it also tests for delay.
PING server	A utility serving PINGs; a signal also called the Internet Control Message Protocol (ICMP) Special Request Packet, to a specific address to test the connection. If the PING does not return a response, the address is either down or unreachable. If only a portion of the PING returns, it indicates trouble with the connection and warns that communications may be slow or unreliable.
pinout	A description or diagram of the pins of a chip or connector.
plain old telephone service	See POTS.
PLAR	private line, automatic ringdown. A leased voice circuit connecting two telephones. When either handset is lifted, the other telephone rings automatically.
PLCP	Physical Layer Convergence Protocol. Part of the physical layer that adapts the transmission facility to handle Distributed Queue Dual Bus (DQDB) functions, used for DC-3 transmission of ATM. ATM cells are encapsulated in a 125-microsecond frame defined by the PLCP, which is defined within the DS3 M-frame.

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PNNI	Private network-to-network interface. A routing information protocol that enables extremely scalable, full function, dynamic multivendor ATM switches to be integrated in the same network.
PNNI topology state packets	See PTSP.
point-to-multipoint	A circuit by which a single signal goes from one origination point to many destination points.
point-to-point protocol	A protocol that connects two nodes (for example, router-to-router and host-to-network) over both synchronous and asynchronous circuits. PPP replaces Serial Line Interface Protocol (SLIP), an older protocol.
polling	An access control method in which one master device, such as a NMS, queries other network devices, and requests they transmit one at a time.
POTS	Plain Old Telephone Service. The basic service supplying standard, single-line telephones (with no features like call waiting or call forwarding).
PRI	Primary Rate Interface. The ISDN equivalent of a T1 circuit. Delivered to the customer's premises, it delivers 23 B+D at 1.544 Mbps. PRI enables IP connectivity to the PSTN.
PRI ISDN	Integrated Services Digital Network with Primary Rate Interface service. A network with 24 B (bearer) channels, each of which is a full 64,000 bits per second. One of these channels is typically used to carry signaling information for other 23 channels. In Europe, PRI ISDN is 30 bearer channels of 64 Kbps and two signaling channels, each of 64 Kbps.
primary rate interface	See PRI.
private automatic branch exchange	See PBX.
private branch exchange	See PBX.
private line automatic ring-down service	See PLAR.
private network-to-network interface	See PNNI.
programable read-only memory	See PROM.
PROM	Programable Read-Only Memory. A programmable semiconductor device whose contents are not intended to be altered during normal operations. An autoboot PROM on a LAN network board can allow network servers to boot up workstations, which works particularly well with diskless workstations.
protocol	A set of rules governing communication between two entities or systems to provide interoperability between services and vendors.
protocol data unit	See PDU.

## Glossary

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protocol stack	A collection of software modules that combine to produce the software that enables the protocol to work, i.e., allowing communications between dissimilar computer devices. It is called a stack because the software modules are piled on top of each other. The process of communicating typically starts at the bottom of the pile and works its way up. Each software module typically (not always) needs the one below it. A protocol stack is also called a protocol family or protocol suite.
provisioning	In National Security and Emergency Preparedness (NS/EP) telecommunication services, provisioning is synonymous with initiation, and also includes altering the state of an existing priority service or capability. Lucent has two additions used specifically in the <i>AQueView</i> EMS. <i>End-to-end provisioning</i> means controlling the entire building's telecommunications by software at a central location. <i>Flow-through provisioning</i> is a step up from that, that allows a central location to control a network across several locations, such as a college campus.
PTI	payload type indicator. This field value distinguishes the various management cells and user cells. Example: Resource Management cells has PTI=110, end-to-end OAM F5 Flow cell has PTI=101.
PTSP	PNNI Topology State Packet. The PNNI routing packet used to exchange reachability and resource information between ATM switches. It is also designed to ensure that a connection request is routed on a path with high probability of meeting quality of service standards. Typical, PTSP includes bidirectional information about the transit behavior of particular nodes (based on entry and exit ports) and current internal states.
pulse code modulation	See PCM.
PVC	Permanent Virtual Circuit. A virtual circuit that provides the equivalent of a dedicated private line service over a packet switching network between two DTEs. Virtual circuits and SDNs are other types of virtual networks.

## Q

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QoS	quality of service. An ATM Forum Protocol that is defined in terms of an end-to-end ATM connection under ITU-T Recommendation 1.350. QoS measures cell error ratio, severely errored cell block ratio, cell loss ratio and cell misinsertion rate, cell transfer delay, mean cell transfer delay, and cell delay variability.
Quadserial	A Lucent module, superseding multiseriial and high-speed modules.
quality of service	See QoS.

queuing	Stacking or holding calls to be handled by a trunk, or trunk group, when there are insufficient trunks to handle the amount of traffic.
<b>R</b>	
R1	ITU name for a particular North American digital trunk protocol that uses multi-frequency (MF) pulsing.
R2	A series of ITU-T specs for European analog and digital trunk signaling, which uses compelled handshaking on every MF (multi-frequency) signaling digit.
radio frequency	A group of electromagnetic energy whose wavelengths are between the audio and the light range. The electromagnetic waves transmitted usually are between 500 KHz and 300 GHz.
RAI	remote alarm indication. This alarm indicates that a device on the T1 line, DS3 line, or DS2 stream is detecting framing-error conditions in the signal it receives. An RAI is also called a yellow alarm signal.
RAS	remote access service. A network unit that enables branch offices, telecommuters, and traveling computer users to gain access to the corporate LAN backbone over dedicated or dialed, digital, or analog lines.
RDI	remote defect indication. An alert to a failure at the far end of an ATM network. Unlike FERF (far-end remote failure), the RDI alarm doesn't indicate the specific circuit with failure.
ready to receive	See RR.
ready to send	See RTS.
recommended standard	See RS.
redundancy	The duplication of hardware or software within a network to endure fault-tolerant or back-up operation.
Reed Solomon (RS) coding	An algorithm that performs forward error correction (FEC) in order to compensate for error bursts in data transmission.
remote access service	See RAS.
remote alarm indication	See RAI.
remote defect indication	See RDI.
remote dial-access server	See RAS.
remote input status	A reference to how a user defines the external alarm condition (input) at their site, such as a temperature sensor, that results in an action (output) such as a fan. When the STATUS/CONTROL connectors on the Alarm module are connected to an external device that is triggered remotely, a signal is sent, indicating a fault condition, which is displayed by either <b>Closed</b> or <b>Open</b> on the <b>Remote Input Status</b> field.

## Glossary

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repeater	A device that receives data on one communication link and transmits it, bit by bit, on another link as fast as it is received without buffering.
RFC	request for comment. Draft RFCs on particular topics are circulated through the Internet community to gain feedback from engineers and programmers on proposed TCP/IP standards about the Internet. The Internet Engineering Task Force meets three times a year and either adopts what becomes a standard RFC, or discards it.
right mouse button	The right button on a computer mouse. Clicking the right mouse button on many computer screens brings up a menu different from the drop-down options, or is more comfortable for some users.
RIP	routing information protocol. A set of rules based on distance-vector algorithms that measure the shortest path between points on a network. Each router maintains a routing table or database with this information and periodically broadcasts it to neighboring routers.
RJ-11, RJ-45	registered jacks. An RJ-11 is a six-conductor modular jack typically wired for four conductors, the most common telephone jack in the world. The male connects a telephone, modem, or fax machine to a female RJ-11 jack in the wall or floor. The RJ-45 is an eight-pin connector used for transmitting data from a data PBX, a modem, a printer, or a print buffer over telephone wire.
robbed-bit signaling	A popular signaling mechanism used in T1 connections. Robbed-bit signaling typically uses bits known as A and B bits. These bits are sent by each side of a T1 termination and are buried in the voice data of each voice channel in the T1 circuit, hence the term "robbed bit" as the bits are stolen from the voice data.
rounding error	A cumulative calculation error caused by omission of pre-selected values. The omitted values can be the ones, tens, and/or hundreds decimal places. A typical rounding algorithm increases the value to the left by one if the value to the right is over 5. The value to the right is then dropped. The more aggressive the algorithm used, the greater the rounding error.
router	A physical device, connected to two or more networks, that receives Internet Protocol (IP) packets through one network interface and forwards them out another interface, based on network layer information.
routing	The process of directing data from a source node to the correct interface.
routing entry	The NSAP address on a routing table.
routing information protocol	See RIP.

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routing protocol	Rules that determine a path between two nodes, that often occurs in an environment in which two nodes in different networks interwork with routers and bridges.
routing table	A database that contains entries, each of which includes a destination address and a pointer to the destination.
RR	ready to receive
RS	recommended standard. Standards often set by the EIA (Electronic Industries Association), the TIA (Telecommunications Industry Association), or both (EIA/TIA).
RS-232	RS-232 is a set of standards specifying three sets of interfaces (electrical, functional, and mechanical) for communicating between computers, terminals, and modems. Once only available on a 25-pin connector, they now come in a variety of configurations that aren't always compatible to other devices without add-ons.  The RS-449 is essentially a faster version of RS-232, and typically has 37 pins. Each RS-449 pin has its own signal return instead the common ground available on the RS-449 pin.  RS-530 supersedes RS-449 and complements RS-232. Based on a 25-pin connection, it works in conjunction with either electrical interface RS-422 (balanced electrical circuits) or RS-423 (unbalanced electrical circuits).
RS-449	
RS-530	
RTS	request to send
<b>S</b>	
SAM	Service Access Multiplexer. A device that determines how to map ATM cells into SONET rings.
SAP	Service Access Point. The point at which the services of an OSI layer are made available to the next highest layer. A SAP is used for the following purposes: <ol style="list-style-type: none"> <li>1. When the application initiates an outgoing call to a remote ATM device, a destination_SAP specifies the ATM address of the remote device, and also specifies further addressing that identifies the target software entity within the remote device.</li> <li>2. When the application prepares to respond to incoming calls from remote ATM devices, a local_SAP specifies the ATM address of the device housing the application, and also specifies further addressing that identifies the application within the local device.</li> </ol>
Sapphire	Another term for Connection Gateway API..
SAR	segmentation and reassembly. A process of segmenting relatively large data packets into smaller packets compatible with SAR. It often works in conjunction with ATM, SMDS, and X.25 networks.

## Glossary

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scope number	Similar to an IP subnet mask, the scope number specifies how much of the 13-byte network part is common to the switch addresses at a particular level in the hierarchy.
SCR	sustained cell rate. A parameter defined by the ATM forum for ATM traffic management. The SCR is an upper bound on the conforming average rate of an ATM connection over time scales which are long enough relative to those for which the peak cell rate (PCR) is defined. The enforcement of this boundary by the UPC can allow the network to allocate sufficient resources, but less than those based on the PCR, while at the same time, ensuring that the network's performance objectives can still be achieved.
SCSI	Small Computer System Interface. A standard high-speed parallel interface defined by ANSI. A SCSI interface is used to connect CPUs to SCSI peripheral devices.
SDH	Synchronous Digital Hierarchy, a set of fiber-optics-based standards planned for use with SONET and ATM in Europe, standardized by the ITU-T. Some of the SDH and SONET standards are identical.
SDRAM	Synchronized Dynamic Random Access Memory. An emerging replacement for DRAM because SDRAM's memory access cycles are synchronized with the CPU clock, thus eliminating the wait time associated with memory fetches between RAM and the CPU.
segment	A single ATM link, or group of interconnected links, of an ATM connection.
segmentation and reassembly	See SAR.
SEL	selector. A subfield in the SETUP message part of an ATM endpoint address domain specific part (DSP), defined by ISO 10589. This is not used for ATM network routing, but by ATM end systems only.
semipermanent virtual circuit	See SPVC.
serial	A transmission method that sends each data bit sequentially on a single channel.
server	Any system that maintains and administers files that are used by independent, client applications. In a client/server architecture, the server functions as the high-end computer, which processes data and applications that are shared by all users of the network. The client is the user's personal computer that is used to access the network and run other applications.
service access multiplexer	See SAM.
service access point	See SAP.
service level interworking	See FRF.8

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service protocol translation	A process that performs segmentation and reassembly (SAR) to adapt non-native ATM services to ATM-based services and back again. It ensures that the data stream is mapped to standard ATM Adaption Layer (AAL) protocols.
service provider	A company that offers voice, video, or data access to a network or to another service; for example, to the Internet.
service types	A category of data transmission provided by a public data network in which the data signaling rate, the terminal operating mode, and the code structure, are standardized. Note: Class of service (service types) are defined in CCITT Recommendation X.1.
service-specific connection-oriented protocol	See SSCOP.
service-specific convergence sub-layer	See SSCS.
SF	superframe. A DS1 framing format in which 24 DSO timeslots plus a coded framing bit are organized into a frame. This frame is then repeated 12 times to form the superframe.
SG	signaling gateway. A device that initiates and manages call setup and release, and then executes call routing in a Signaling System 7 (SS7) configuration. A signaling gateway uses an Access SS7 Gateway Control Protocol-Q.931+ (ASGCP-Q.931+) license, and Internet Protocol Device Control (IPDC) license, or a Q.931+ license. It uses a TCP/IP protocol to carry control messages back and forth between a Multiservice Media Gateway.
signaling gateway	See SG.
Signaling System 7	See SS7.
signaling	The control of information a network uses to set up and maintain connections. On-hook and off-hook are, for instance, the familiar voice-telephone signals that tell the Central Office that you have picked up the telephone handset or hung up at the end of a call.  <i>In-channel signaling</i> reserves part of the available data-communication bandwidth for control information. <i>Out-of-channel signaling</i> schemes use a separate channel for signals, so data transmissions can use all available bandwidth.
silence detection	The identification of unwanted periods of silence caused by corrupt sound data or certain system failures.
silence suppression	The removal of pauses in speech before transporting voice traffic over a network.
SIMM	Single In-line Memory Module. A form of chip packaging found in PCs and Macs where the pins are arranged in a single row protruding from the chip. It can be inserted into a slot like an expansion adapter.

## Glossary

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simple mail transfer protocol	See SMTP.
simple network management protocol	See SNMP.
simplex	The operation of a channel in only one direction with no ability to operate in the other direction.
single in-line memory module	See SIMM.
single-mode	See SM.
single-mode fiber	A fiber that allows only a single mode of light to propagate.
SM	single mode. A reference to the single mode fiber which is used in Lucent's optical modules.
small computer system interface	See SCSI.
SMDS	Switched Multimegabit Data Service. A connectionless, high-speed data transmission service intended for applications in a metropolitan area network (MAN) environment, primarily for LAN-to-LAN connections. SMDS converts data into cells before presenting it to the network. Frame relay and ATM overshadow this service.
SMTP	Simple Mail Transfer Protocol. An application-level protocol which runs over TCP/IP, supporting text-oriented email between devices supporting Message Handling Service.
SMTS	A single-mode module which uses cell bus traffic shaping for flow control.
SNA	Systems Network Architecture. A successful computer network architecture from IBM. A mainframe host computer controls the network, with boundaries including the host computer, front-end processors, cluster controllers, and terminals (the network's domain) establishes logical paths between network nodes, and uses routing information contained in a protocol which uses 7 layers.
SNMP	Simple Network Management Protocol. A standard way for computers to share networking information. In SNMP, two types of communicating devices exist: agents and managers. An agent provides networking information to a manager application running on another computer. The agents and managers share a database of information, called the Management Information Base (MIB). An agent can use a message called a traps-PDU to send unsolicited information to the manager.

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SNMP agent	The interface that enables a device to communicate with other SNMP devices. The agent for a PSAX system can be configured to send SNMP messages to a management station without a specific request. These messages are called traps. To retrieve and modify MIB information through an agent, the software loaded on the CPU of the PSAX system itself must be directly accessed, either through the console user interface or an SNMP-based manager, such as the <i>AQueView Element Management System</i> .
soft permanent virtual circuit	See SPVC.
software release distribution	See SRD.
SONET	Synchronous Optical Network. An optical multiplexing interface for wideband, high-speed transmission (up to 13.22 Gbps), used mainly in carrier and telecommunications networks.
source routing	See SR.
SPVC	SemiPermanent Virtual Circuit. A PVC-type connection in which SVCs are used for call setup and (automatic) rerouting. Once either a PVC connection or a permanent virtual path connection has been configured, an SPVC can be established between the two network interfaces serving the PVC connection through the use of signaling procedures. Consequently, this type of connection has attributes of both a switched virtual connection and a permanent virtual connection.
SR	source routing. A bridging method whereby the source at a data exchange determines the route subsequent frames use.
SRAM	Static Random Access Memory. A form of RAM that retains its data without constantly refreshing, as DRAM must. SRAM is commonly used to cache data traveling between the CPU and a RAM subsystem populated with DRAM.
SRD	software release distribution. The way by which a user upgrades the PSAX Multiservice Media Gateway system software.
SS7	Signaling System 7. A signaling method, separate from voice or data channel, that allows intelligent network elements exchange information among themselves.
SSCOP	Service-Specific Connection-Oriented Protocol. This protocol provides mechanisms for establishing, releasing, and monitoring signaling information exchanged between peer signaling entities.
SSCS	Service Specific Convergence Sublayer. The portion of the convergence sublayer that is dependent upon the type of traffic that is being converted.
standalone	A monolithic application for <i>AQueView</i> that binds the client and the server into a single process, without HP OpenView or NNM. <i>See also</i> HP OpenView NNM.

## Glossary

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static random access memory	See SRAM.
static route	A route that is manually entered into a routing table. Static routes take precedence over routes chosen by all dynamic routing protocols.
STM-1	synchronous transport. A SDH standard for transmitting over an OC-3 optical fiber at 155.52 Mbps. An STM-1 module is equivalent to a SONET STS-3c module.
STM-4c	synchronous transport. A SDH standard for transmitting over an OC-3 optical fiber at 622.08 Mbps. The “c” stands for concatenated, which means the whole STM-4 is seen as one link.
Stratum3–4 timing, Stratum 3–4 module	These terms refer to the stratum level, the clock that lets a digital network transmission know where it begins and ends. These levels were established by ANSI/TI.101.1987, “Synchronization Interface Standards for Digital Networks.” Level one is best, and is usually based on atomic clock or reference oscillator. Stratum 2 tracks on input and in an emergency, holds to the last, best estimate of that input reference frequency. Level 3 also tracks an input but over a wider range. Stratum 4 also tracks an input, but has a wider adjustment and drift range. It has no holdover capability, and runs freely within the adjustment range limits if the external reference fails. Therefore, it is typically written as either Stratum 3, or Stratum 4, not 3–4. However, the Stratum in the <i>PacketStar</i> line qualifies for both Stratum 3 and Stratum 4, so 3–4 is appropriate.
structured	A type of bandwidth that offers framing which indicates where a channel begins and ends, while an unstructured bandwidth has no framing. While unstructured bandwidth can only be unchannelized (because it does not have framing), structured bandwidth can either be channelized or unchannelized.
structured circuit emulation service	See channelized circuit emulation service.
subchannel connection	The associations between IP network interfaces and their traffic-bearing connections.
subnet	A portion of a network, possibly a physically independent network, which shares a network address with other portions of the network and is distinguished by a subnet number. A subnet is to a network what a network is to the Internet.

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subnet mask	A bit pattern that lets a network administrator define a “subnet” by using the host-machine portion of the IP address. A subnet mask has binary ones in positions which correspond to the network and subnet parts of the address, and zeros in the remaining, host-address positions. During IP address resolution, zero fields in the mask hide corresponding host-address field in the address, causing the router to ignore them. The router resolves only the networking part of the address, leaving the host part for the local subnet to resolve. This increases speed and makes multicasting more efficient. Subnet masks are usually written in the decimal notation used for IP address, <b>255</b> represents a binary one and <b>0</b> represents a zero.
subtree	Any node within a tree, along with any selection of connected, descendant nodes.
superframe	See SF.
sustained cell rate	See SCR.
SVC	Switched Virtual Circuit. A network connection that is created only as needed, and lasts only the duration of the message transfer. Used extensively in X.25 and frame relay networks, SVCs are far more complex than permanent virtual circuits, as they automatically consider the level of network congestion, including at both end points, and dynamically balance the network, by transmitting on a route specifically designed for the least possible delay in transmitting data.
SVCC	Switched Virtual Channel Connection, a switched connection is one that is established and taken down dynamically through control signaling. A virtual channel connection is an ATM connection where switching is performed on the VPI/VCI fields of each cell.
switch	A computer that maintains circuits by matching an input port to an output port for each connection. The switch contains switching tables to track this information.
switched multimegabit data service	See SMDS.
switched virtual channel connection	See SVCC.
switched virtual circuit	See SVC.
symmetric operation	A connection with the same bandwidth in both directions.
synchronization	The timing of separate elements or events to occur simultaneously. Hardware and software must be synchronized so file transfers can occur.
synchronized dynamic random access memory	See SDRAM.
synchronous digital hierarchy	See SDH.
synchronous optical network	See SONET.
systems network architecture	See SNA.

## Glossary

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### T

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T1	A digital transmission link with a capacity of 1.544 Mbit/s, used in North America. Typically channelized into 24 DS0s, each link is capable of carrying a single voice conversation or data stream. T1 links use two pairs of twisted pair wires.
T3	A digital transmission link with a capacity of 45 Mbps, or 28 T1 lines.
tails	An echo cancellation term. The tail, measured in milliseconds, is the amount of your conversation which returns to you in echo, as measured in milliseconds.
TCP/IP	Transmission Control Protocol/Internet Protocol. A networking protocol allowing communication over interconnected networks between computers with diverse hardware architectures and various operating systems.
TDM	time-division multiplex. A method of transmitting a number of separate voice, data, and/or video signals simultaneously over one communications medium by interleaving a piece of each signal, one after another.
TDMA	time-division multiplex access. One of several technologies used to separate multiple conversation transmissions over a finite allocation of bandwidth. TDMA allocates a set amount of frequency bandwidth and a specific timeslot to each user. Cellular telephones send bursts of information during those timeslots. The receiving equipment then reassembles the packets of information into the original voice components. This allows multiple simultaneous conversations over the same equipment.
telco	The local telephone company. (The industry derives the word "telco" from the word "telecommunications.")
telco frame, telco rack	A metal framework on which equipment is mounted.
Telcordia Technologies	See Bellcore.
telecommunications management network	See TMN.
telnet	Terminal/remote host protocol developed for ARPAnet to allow a computer user to log onto a computer in a remote location and communicate between the two. Mostly superseded by GUI browsers such as Netscape and Internet Explorer.
terminating node	The last point of connection from a network.
termination	In the H.248 Media Gateway protocol, a termination is an origination or destination of a media stream. Terminations can be persistent (permanent) or ephemeral (set up and torn down). See also context.
throughput	The measure of the rate at which data flows through a device.

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time-division multiplex access	See TDMA.
time-division multiplexing	See TDM.
timeslot management channel	See TMC.
TMC	Timeslot Management Channel. A dedicated channel for sending control messages to set up and tear down calls in a T1 frame. In a GR-303 interface group, the primary TMC is usually in channel 24 of the first DS1, while the redundant TMC if used, is in a different DS1.
TMN	Telecommunications Management Network. A framework for describing and managing network resources. TMN specifies a set of standard functions with standard interfaces, and makes use of a management network which is separate and distinct from the information transmission network.
toll quality	A description of the standard, TDM, 56kbps telephone quality usually available in the U.S. A MOS (Mean Opinion Score) test is conducted by asking people their opinion on the quality of voice calls on specific equipment. The standard, high-quality TDM voice equates to 4.0 on the grading scale. Lucent achieves a MOS score of 3.9 with our 8:1 compression.
toll routing	The intra-switching of long distance telephone calls.
tone detection	A signal provided by a network or modem. When a CO detects this signal, it is sent through the network to an active call center.
topology	The configuration of a communication network. The physical topology is the way the network looks. LAN physical topologies includes the bus, ring and star. WAN physical topology may be meshed, with each network node directly connected to every other network node, or partially meshed. Logical topology describes the way the network works.
ToS	Type of Service. A feature that enables an Internet device to select the Quality of Service (QoS) for an application. The ToS is specified by precedence, delay, throughput, reliability, and cost. You can configure a Multiservice Media Gateway chassis to set priority bits and TOS classes of service on behalf of customer applications. The Multiservice Media Gateway chassis does not implement priority queuing, but it does set information that can be used by upstream routers to prioritize and select links for particular data streams.
ToS mask	A field made up of letters of numbers and wildcard characters, that is used to filter data based on a subscriber's type of service.
ToS Value	An indicator that denotes a better quality of service on a user's line. For example, voice data would be set with a ToS value for minimum delay.
traffic descriptor	Generic traffic parameters that capture the intrinsic traffic characteristics of a requested ATM connection.

## Glossary

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traffic management	An ATM term for network actions taken to prevent system congestion of layer traffic
Transmission control protocol/Internet protocol	See TCP/IP.
trap	A Simple Network Management Protocol (SNMP) mechanism for transferring data in an unsolicited manner to the network management system. Traps indicate when a significant event, such as a threshold, has been reached.
tree	A data structure containing zero or more nodes that are linked together in a hierarchical fashion. If there are any nodes, one node is the root; each node except the root is the child or one and only one other node; and each node has zero or more nodes as children.
tree structure	Any structure that has the essential organizational properties of a tree. See tree.
trunk alarming	A type of fault detection on ATM trunks. Trunk alarms fall into two categories. <i>Logical trunk alarms</i> provide statistical alarming on dropped cells and are separately maintained for the virtual trunks on the same port. <i>Physical alarm trunks</i> are used when a virtual trunk also has trunk port alarms that are shared with all other virtual trunks on the port. These alarms are cleared and set together for all the virtual trunks sharing the same port.
trunk group	A collection of trunks that all terminate at the same public switch, PBX, or server.
trunk line	1. A direct line between two telephone switchboards. 2. The main line of a communications system.
trunking	The establishment of a communications line between two switching systems.
Type 102, 105, 108 milliwatt termination tests	For the 102, 105 108 milliwatt termination tests, calls are defined for a responder, a director, and a remote office test line (ROTL). The PSAX behaves as the ROTL, as it makes more logical sense for the 5E or PBX to be the responder (initiator of the test). The initiator of the tests sends an inband MF tone to stimulate the PSAX to generate the tone.
Type of Service	See ToS.

## U

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UBR	undefined (or unspecified) bit rate. An ATM service class that handles bursty LAN traffic and data that is tolerant of delays and cell loss. UBR is a best-effort service that does not specify bit-rate or traffic values, and offers no QoS guarantees.
undefined (or unspecified) bit rate	See UBR.

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UNI	User Network Interface. The physical, electrical, and functional demarcation between the user and the network service provider. A UNI sets the specifications for procedures and protocols between the user's equipment and an ATM or frame relay network.
unidirectional	The transmission of information in one direction only.
universal time coordinate	See UTC.
unshielded twisted pair	See UTP.
unspecified bit rate	See UBR.
UPC	usage parameter control. Network actions used to monitor and control traffic at the end system. UPS detects negotiated parameters violations, and it can take appropriate action to protect against malicious or unintentional misbehavior. Its actions include cell tagging and cell discarding.
uplink	The connectivity between an ATM border node and an upnode.
upnode	In ATM, the border node's outside neighbor in the common peer group. The upnode must be a neighboring peer of one of the border node's ancestors.
usage parameter control	See UPC.
user network interface	See UNI.
user-to-network (UNI) Implementation Agreement	See FRF.1
UTC	Universal Time Coordinate. The new term for Greenwich Mean Time. See GMT.
UTP	unshielded twisted pair. A pair of wires that is twisted so as to minimize the crosstalk with other pairs of wires in the same cable (which are twisted at a slightly different rate) but not shielded.

## V

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V ac	volt, alternating current
V dc	volt, direct current
V.35	A standard module used for communication between a network access device and a packet network. It provides clocking 19.2 Kbps to 4.0966 Mbps.
validation	The checking of data for correctness or for compliance with applicable standards, rules, and conventions.
variable bit rate	See VBR.
variable bit rate - real time	See VBR-RT
variable bit rate- non-real time	See VBR-NRT.

## Glossary

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VBR	variable bit rate. A voice service over an ATM switch which provides only as much bandwidth as voice conversations need at any moment (making bandwidth “elastic”). The remaining bandwidth is dynamically allocated to other services. VBR be divided into VBRnrt (variable bit rate, nonreal time) and VBRrt (variable bit rate, real time). See also VBR-NRT, and VBR-RT.
VBR-NRT	variable bit rate-non-real time. A voice service that operates on both a connection and connectionless basis and allows delay variance between the delivery of cell. VBR-NRT is used for data applications that have potentially bursty traffic characteristics, including LAN interconnect, CAD/CAM, and multimedia. This class can be used to support SMDS (switched multimegabit data service).
VBR-RT	variable bit rate - real time. A voice service that operates on a connection basis and offers very low delay variance but requires access to a variable amount of network bandwidth. It is used for such applications as packet video and voice.
VC	virtual channel. A logical circuit set up to ensure reliable communication between two network devices.  virtual circuit. The pre-arranged route through the ATM network that all cells in an ATM transmission follow.
VCC	virtual channel connection,. An ATM term describing unidirectional virtual channel links that extends beyond where the ATM service users access the ATM layer. The VCC end is where the cell load is passed to, or received from, the users of the ATM layer.
VCI	virtual channel identifier. An ATM term for the 16-bit field in the ATM cell header that indicates which virtual channel the ATM should use in routing the stream of cells.
verification	The act of determining whether an operation has been accomplished correctly.
VI	Virtual Interface. Connections made to a module’s physical ports that allow virtual channels (VCs) to be assigned to virtual trunks, each with its own priority queue. By using VIs instead of physical connections, it is possible to achieve advanced bandwidth management capability that allows for fully flexible service provisioning. Working in conjunction with AQueMan software and Usage Parameter Control (UPC), VIs give service providers a way to maximize revenue by oversubscribing their bandwidth without violating their QoS agreements.
virtual access line	A communications link that appears to the end user to be dedicated point-to-point circuit. For IMA, the virtual access line would be the link between IMA groups.
virtual channel	See VC.

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virtual channel identifier	See VCI.
virtual circuit	See VC.
virtual circuit connection	See VCC.
virtual interface	See VI.
virtual network navigator	See VNN.
virtual path	See VP.
virtual path identifier	See VPI.
virtual private network	See VPN.
virtual router	A virtual router is a grouping of IP interfaces. Each virtual router with IP interfaces has its own associated IP routing table, IP ARP table, IP route cache, and IP address pools, and maintains it's own routing and packet statistics.
VLAN	virtual local area network. A logical grouping of two or more nodes, which are not on the same physical network segment but which have priority access privileges across the same LAN backbone. The priority-level access of these nodes across the transmission backbone enables them to appear as if they were on the same physical LAN.
VNN	Virtual Network Navigator™. Lucent's, open shortest path first network routing technology embedded as firmware in switches such as the Lucent GX 550™. multiservice WAN switch. VNN builds seamless networks where data and OAM functions flow seamlessly across service and technology (ATM, frame relay and IP) boundaries to build end-to-end multiservice networks.
voice compression	The process of reducing a voice signal to use less bandwidth during transmission to obtain a channel of 32 Kbps or fewer, currently to under 10 Kbps.
voice Telephony over ATM	See VTOA.
VP	virtual path. A group of VCs carried between two points that provide a way to bundle traffic headed in the same direction.
VPC	virtual path connections. Unidirectional virtual path links between virtual path terminators.
VPI	Virtual Path Identifier. An ATM term for the 8-bit field in the ATM cell header that indicates which virtual path the ATM should use in routing the cell.
VPN	Virtual Private Network, a restricted network that uses public wires to connect nodes. A VPN provides a way to encapsulate, or "tunnel," private data cheaply, reliably, and securely through a public network, usually the Internet.

## Glossary

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VTOA voice telephony over ATM. A broadband packet technology, based on open standards by the ATM Forum and ITU-T, that enables equipment vendors to build open architectures for delivering toll-quality voice services with guaranteed QoS (quality of service) levels.

## W

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WAN wide area network. A computer and voice network geographically larger than a metropolitan area network (MAN). Telephone companies treat WANs different from MANs because of speed of light-timing considerations, and because regional Bell operating companies are prohibited from carrying traffic across Local Access Transport Areas (LATAS).

wide area network See WAN.

wideband Originally, any line allowing more than voice transmission. It has come to be interpreted as any facility allowing more than narrowband transmission (T1 at 1.544 megabits per second).

workstation A powerful, stand-alone computer.

## X

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xDSL A generic term standing for a variety of digital subscriber line services (the lowercase x standing for generic): ADSL, HDSL, IDSL, SDSL, and VDSL. This family of services provides extremely high bandwidth over the telephone company unshielded twisted-pair lines. Telephone companies are offering these services to compete with the cable TV industry's high speed access via modem as a way to provide high speed Internet services to consumers.

## Z

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ZBTSI Zero Byte Timeslot Interchange. A technique used with the T carrier extended superframe (ESF) in which an area in the ESF frame carries information about the location of all-zero bytes (eight consecutive "0"s) within the data stream.

ZCS zero code suppression. This type of line coding substitutes a 1 for the second least-significant bit of every all-zero byte in AMI-encoded data. ZCS encoding has no effect on voice communications, but corrupts digital data.

Zero Bit Timeslot Interchange See ZBTSI.

zero code suppression See ZCS.



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