

# Using Technician Interface Scripts

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**Bay Networks**

*Where Information Flows.™*



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# Contents

## Preface

Before You Begin .....	xiii
Text Conventions .....	xiv
Acronyms .....	xvi
Bay Networks Technical Publications .....	xix
How to Get Help .....	xx

## Chapter 1

### Introducing Technician Interface Scripts

What Are Technician Interface Scripts? .....	1-2
Script Types .....	1-2
Script Command Categories .....	1-3
Installing .bat and .mnu Files .....	1-5
Setting Up Scripts .....	1-6
Using Script Commands .....	1-8
Using the show Command .....	1-8
Using the enable and disable Commands .....	1-15
Using the Menu Utility .....	1-17
Displaying Menus .....	1-17
Configuring Menus .....	1-20
Adding a Command .....	1-21
Deleting a Command .....	1-21
Clearing All Commands .....	1-21
Editing a Command .....	1-22
Editing a Menu Title .....	1-22
Loading a New Menu .....	1-22
Toggling Menu Titles and Commands .....	1-23
Saving Changes Made to Menus .....	1-27

## Chapter 2

### Using the show Command

show ahb .....	2-2
show appn .....	2-6
show at .....	2-50
show atm .....	2-66
show atmarp .....	2-76
show atmdxi .....	2-84
show atmsig .....	2-94
show atm line .....	2-99
show aarp .....	2-111
show autoneg .....	2-120
show bgp .....	2-127
show bisync .....	2-136
show bootp .....	2-146
show bot .....	2-151
show bridge .....	2-158
show circuits .....	2-164
show console .....	2-175
show csmacd .....	2-182
show dcm .....	2-195
show decnet .....	2-200
show dls .....	2-214
show ds1e1 .....	2-226
show dsx3 .....	2-251
show dvmrp .....	2-266
show e1 .....	2-275
show egp .....	2-281
show fddi .....	2-284
show fr .....	2-300
show ftp .....	2-318
show fwall .....	2-319
show hardware .....	2-321
show hifn .....	2-328
show hssi .....	2-331

show igmp .....	2-339
show ip .....	2-343
show ip6 .....	2-370
show ipx .....	2-377
show iredund .....	2-411
show isdn .....	2-413
show isdn bri .....	2-424
show l2tp .....	2-432
show lane .....	2-435
show lapb .....	2-445
show lnm .....	2-451
show mospf .....	2-462
show mpoa .....	2-466
show nbip .....	2-469
show nhrp .....	2-471
show nml .....	2-478
show ntp .....	2-482
show osi .....	2-486
show ospf .....	2-495
show packet .....	2-504
show ping .....	2-513
show ppp .....	2-517
show process .....	2-547
show protopri .....	2-552
show radius .....	2-555
show rarp .....	2-562
show rip6 .....	2-565
show rptr .....	2-567
show rredund .....	2-576
show rsc .....	2-584
show rsvp .....	2-588
show sdlc .....	2-590
show smds .....	2-594
show snmp .....	2-599
show span .....	2-607

show sr .....	2-615
show srspan .....	2-628
show sta .....	2-635
show stac .....	2-638
show state .....	2-640
show sws .....	2-643
show sync .....	2-662
show system .....	2-680
show t1 .....	2-685
show tcp .....	2-693
show telnet .....	2-696
show tftp .....	2-698
show token .....	2-699
show vines .....	2-711
show wcp .....	2-723
show wep .....	2-731
show x25 .....	2-737
show xb .....	2-748
show xns .....	2-758

### Chapter 3 Using enable/disable Commands

enable/disable appn .....	3-2
enable/disable at .....	3-5
enable/disable atm .....	3-6
enable/disable atmdxi .....	3-8
enable/disable aarp .....	3-9
enable/disable autoneg .....	3-10
enable/disable bootp .....	3-11
enable/disable bridge .....	3-12
enable/disable circuits .....	3-13
enable/disable csmacd .....	3-14
enable/disable dcm .....	3-15
enable/disable deernet .....	3-17
enable/disable dls .....	3-18
enable/disable ds1e1 .....	3-19



enable/disable dvmrp .....	3-20
enable/disable e1 .....	3-21
enable/disable fddi .....	3-22
enable/disable fr .....	3-23
enable/disable ftp .....	3-24
enable/disable hssi .....	3-25
enable/disable igmp .....	3-26
enable/disable ip .....	3-27
enable/disable ipx .....	3-28
enable/disable iredund .....	3-29
enable/disable isdn .....	3-30
enable/disable isdn bri .....	3-32
enable/disable lapb .....	3-33
enable/disable lnm .....	3-34
enable/disable nbip .....	3-35
enable/disable nml .....	3-36
enable/disable osi .....	3-37
enable/disable ospf .....	3-38
enable/disable packet .....	3-39
enable/disable ppp .....	3-40
enable/disable rarp .....	3-41
enable/disable rptr .....	3-42
enable/disable rredund .....	3-43
enable/disable sdhc .....	3-44
disable/enable snmp .....	3-45
enable/disable span .....	3-46
enable/disable sr .....	3-47
enable/disable srsn .....	3-48
enable/disable sta .....	3-49
enable/disable sws .....	3-50
enable/disable sync .....	3-51
enable/disable t1 .....	3-52
enable/disable tcp .....	3-53
enable/disable telnet .....	3-54
enable/disable tftp .....	3-55

enable/disable token .....	3-56
enable/disable vines .....	3-57
enable/disable wcp .....	3-58
enable/disable x25 .....	3-59
enable/disable xb .....	3-60
enable/disable xns .....	3-61

## Index

# Tables

Table 1-1.	Displaying Service Information .....	1-9
Table 1-2.	Enabling and Disabling Services .....	1-15



This guide describes how to use Technician Interface scripts to display statistical and configuration information about Bay Networks® routers and BayStream™ platforms.

## Before You Begin

Before using this guide to run Technician Interface commands on a router or BayStream platform, you must:

- Install the router or BayStream platform.
- Use one of the following methods to establish a connection to the router or BayStream platform:
  - Connect the serial port of an ASCII terminal device (for example, a DEC VT100) directly to the console port of the router or BayStream platform.
  - Connect the serial port of a workstation or PC directly to the console port of the router or BayStream platform. (Run ASCII terminal emulation software on the workstation or PC.)
  - Dial in to the console port of the router or BayStream platform from a workstation or PC running ASCII terminal emulation software. (This alternative requires one modem locally attached to your workstation or PC, and another modem locally attached to the console port of the router or BayStream platform you want to access.)
  - Establish a Telnet (in-band) connection to the router or BayStream platform.



**Note:** Before you can access the Technician Interface using Telnet, the router or BayStream platform must have at least one assigned IP address. Although there is no limit to the number of Telnet connections that you can make to the Technician Interface, we recommend that you establish no more than one Telnet session per router or BayStream platform.

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## Text Conventions

This guide uses the following text conventions:

angle brackets (< >)      Indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command.  
Example: If the command syntax is:

**ping** <ip\_address>, you enter:  
**ping 192.32.10.12**

**bold text**                      Indicates text that you need to enter and command names and options.  
Example: Enter **show ip {alerts | routes}**

Example: Use the **dinfo** command.

braces ({} )                      Indicate required elements in syntax descriptions where there is more than one option. You must choose only one of the options. Do not type the braces when entering the command.  
Example: If the command syntax is:

**show ip {alerts | routes}**, you must enter either:  
**show ip alerts** or **show ip routes**.

brackets ([ ] )                      Indicate optional elements in syntax descriptions. Do not type the brackets when entering the command.  
Example: If the command syntax is:

**show ip interfaces [-alerts]**, you can enter either:  
**show ip interfaces** or **show ip interfaces -alerts**.

---

ellipsis points (. . .)	<p>Indicate that you repeat the last element of the command as needed.</p> <p>Example: If the command syntax is:</p> <p><b>ethernet/2/1</b> [<i>&lt;parameter&gt;</i> <i>&lt;value&gt;</i>] . . ., you enter <b>ethernet/2/1</b> and as many parameter-value pairs as needed.</p>
<i>italic text</i>	<p>Indicates file and directory names, new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore.</p> <p>Example: If the command syntax is:</p> <p><b>show at</b> <i>&lt;valid_route&gt;</i> <i>valid_route</i> is one variable and you substitute one value for it.</p>
screen text	<p>Indicates system output, for example, prompts and system messages.</p> <p>Example: Set Bay Networks Trap Monitor Filters</p>
separator (>)	<p>Shows menu paths.</p> <p>Example: Protocols &gt; IP identifies the IP option on the Protocols menu.</p>
vertical line ( )	<p>Separates choices for command keywords and arguments. Enter only one of the choices. Do not type the vertical line when entering the command.</p> <p>Example: If the command syntax is:</p> <p><b>show ip {alerts   routes}</b>, you enter either: <b>show ip alerts</b> or <b>show ip routes</b>, but not both.</p>

## Acronyms

ACE	Advanced Communications Engine
AFN	Access Feeder Node
ALN	Access Link Node
AN	Access Node
ANH	Access Node Hub
APING	APPN Ping
APPN	Advanced Peer-to-Peer Routing
ARP	Address Resolution Protocol
ASCII	American Standard Code for Information Interchange
ASN	Access Stack Node
ASN.1	Abstract Syntax Notation
AT	AppleTalk Protocol
ATM	Asynchronous Transfer Mode
AURP	Appletalk Update-based Routing Protocol
BCN	Backbone Concentrator Node
BGP	Border Gateway Protocol
BLN	Backbone Link Node
BLN-2	Backbone Link Node (2 power supplies)
BOOTP	Bootstrap Protocol
CLNP	Connectionless Network Protocol
CN	Concentrator Node
CPU	Central Processing Unit
CRC	Cyclic Redundancy Check
CSMA/CD	Carrier Sense Multiple Access with Collision Detection
DCM	Data Collection Module
DLCMI	Data Link Control Management Interface
DLSw	Data Link Switch



DOS	Disk Operating System
DRAM	Dynamic RAM
DSAP	Destination Service Access Point
DVMRP	Distance Vector Multicast Routing Protocol
EOF	End of File
EGP	Exterior Gateway Protocol
FAT	File Allocation Table
FDDI	Fiber Distributed Data Interface
FIFO	First In First Out
FRSW	Frame Relay Switch
FTP	File Transfer Protocol
FN	Feeder Node
FR	Frame Relay
FRE	Fast Routing Engine
GAME	Gate Access Management Entity
GMT	Greenwich Mean Time
HDLC	High-level Data Link Control
HSSI	High Speed Serial Interface
ICMP	Internet Control Message Protocol
IGMP	Internet Group Membership Protocol
IN	Integrated Node
IP	Internet Protocol
IP6	Internet Protocol version 6
IPX	Internet Packet Exchange
ISDN	Integrated Services Digital Network
LAN	Local Area Network
LAPB	Link Access Procedure Balanced
LED	Light Emitting Diode
LLC	Logical Link Control

LMI	Local Management Interface
LN	Link Node
LNМ	LAN Network Manager
LSP	Link State Packet
MAC	Media Access Control
MCT1	Multichannel T1
MIB	Management Information Base
MOSY	Managed Object Syntax
NML	Native Mode LAN
NSAP	Network Service Access Point
NVFS	Non-Volatile File System
OSI	Open Systems Interconnection
OSPF	Open Shortest Path First
PCMCIA	Personal Computer Memory Card International Association
PPP	Point-to-Point Protocol
PPX	Parallel Packet Express
PROM	Programmable Read-Only Memory
QENET	Quad Ethernet
RAM	Random Access Memory
RARP	Reverse Address Resolution Protocol
RIP	Routing Information Protocol
RIP6	Routing Information Protocol version 6
RIF	Routing Information Field
RFC	Request for Comment
SAP	Service Access Point
SDLC	Synchronous Data Link Control
SIMM	Single In-line Memory Module
SMDS	Switched Multimegabit Data Services

SNAP	SubNetwork Access Protocol
SNMP	Simple Network Management Protocol
SR	Source Routing
SRM-L	System Resources Link Module
STA	Statistics, Thresholds, and Alarms
SYSCON	System Controller board
SWS	Switched Services
TCP	Transport Control Protocol
TFTP	Trivial File Transfer Protocol
TIP	Terminal Interface Program
TP	Transaction Program
VC	Virtual Circuit
VINES	Virtual Networking System
WAN	Wide Area Network
XB	Translation Bridge
XNS	Xerox Networking Systems

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# Chapter 1

## Introducing Technician Interface Scripts

This chapter provides an overview of the Technician Interface scripts and explains how to run them. It also describes how to:

- Load scripts.
- Set up scripts.
- Use script commands.
- Use the menu utility.

This guide assumes that you have a working knowledge of the Bay Networks Technician Interface. For complete information about this router management tool, see *Using Technician Interface Software*. For information on how to write your own Technician Interface scripts, see *Writing Technician Interface Scripts*.

## What Are Technician Interface Scripts?

The Technician Interface **show/monitor** and **enable/disable** scripts are programs that enable you to view and use information stored in the Bay Networks Management Information Base (MIB). You use scripts to display statistical and configuration information about various router services, and to enable or disable those services.

### Script Types

Most Technician Interface scripts run from a *<protocol\_name>.bat* (batch) file. The system loads a specific *.bat* file into active memory when you enter a scripts command such as **show appn directory statistics**. The system software supports one *.bat* file for each router protocol or service. Each *.bat* file contains the routines for all script subcommand options for a protocol or service. The routine called by each subcommand generates and prints (to the router console) statistics that reveal a particular view of that protocol or service.

As an alternative to entering **show/enable/disable** commands at the Technician Interface prompt, you can also access protocol-specific menus from the scripts *main menu*. You enter (choose by number) a protocol/service *submenu* from the scripts main menu. From a submenu, you can access all scripts options for a protocol or service without entering commands. All scripts menus exist as *\*.mnu* files you install during initial configuration of each router. To save file space, install only the *.bat* and *.mnu* files that pertain to the protocols or services you want to support on each router.

Other Technician Interface scripts are programs embedded within the router software image. The router software currently includes *embedded scripts* for the following services:

- CSMACD
- FR
- FTP
- IP
- MOSPF
- RIP
- SNMP
- SYNC
- TCP
- TELNET
- TFTP

These scripts run more efficiently than their batch file counterparts. You enter at the Technician Interface prompt the command for any script, regardless of type (batch or embedded) in the same way, as follows:

```
{show|enable|disable} {<protocol_name>} {<subcommand_option>}
```

## Script Command Categories

The system software supports scripts in the following command categories:

<b>show</b>	Displays configuration, state, and statistical information about a router service. This command helps you isolate problems such as circuits that are not working, packets that are not being forwarded, and so on. It uses the <i>show.bat</i> file.
<b>monitor</b>	Displays the same information as the <b>show</b> command but refreshes the display periodically so you can observe trends and changes. Since you can use <b>monitor</b> in place of <b>show</b> , this manual does not describe syntax for the <b>monitor</b> command. This command uses the <i>monitor.bat</i> file.
<b>enable/disable</b>	Enables or disables system features, protocols, drivers, or individual circuits. These commands use the <i>enable.bat</i> and <i>disable.bat</i> files.
<b>menu</b>	Provides a menu interface to the scripts. Also provides a menu-building feature that enables you to create custom menus. This command uses <i>menu.bat</i> and various <i>.mnu</i> files.

Each **show** command supports a subset of commands that display statistical and configuration information about a particular service or driver running on the router.

Some **show** commands present a broad or collective view of router status and resources. For example,

<b>show circuits</b>	Displays information about all drivers running on the router. You can use this command to display information about all circuits without needing to know the driver that runs on each circuit.
<b>show drivers</b>	Displays information about the configuration of all link modules in the router.
<b>show hardware</b>	Displays backplane, configuration file, image, memory, PROM, and slot information about the router's hardware.
<b>show protocols</b>	Displays information about the protocols configured on every slot in the router.
<b>show state</b>	Displays information about the current state of services running on the router.
<b>show system</b>	Displays information about router memory, buffers, drivers, and configured protocols.



**Note:** You can abbreviate command names, using the first three characters of the command name, as long as the abbreviation uniquely identifies the command.

---

To establish the search path used to find the script files, use the **run setpath** command. It defines the aliases that integrate scripts into the Technician Interface command set. The section “Setting Up Scripts” explains the **run setpath** command, which uses the *setpath.bat* script.



---

## Installing .bat and .mnu Files

You can use the Bay Networks implementation of File Transfer Protocol (FTP) to install *.bat* version scripts and *.mnu* script menu files on a memory card in the router. FTP enables you to install more than one script at a time.

Before installing any scripts on a router:

- Log in to the router. (Refer to Chapter 1 of *Using Technician Interface Software* if you need more information on login procedures.)
- Enable the FTP service on the router.
- Run the **dir** command to verify that you have sufficient contiguous freespace on the NVFS volume reserved for scripts and their associated menu files. (Refer to Chapter 4 of *Using Technician Interface Software* if you need more information on how to run the **dir** command.)
- Run the **compact** command on the NVFS volume reserved for scripts and their associated menu files. (Refer to Chapter 8 of *Using Technician Interface Software* if you need more information on how to run the **compact** command.)

To install all the *.bat* scripts and *.mnu* menu files located in a directory on a UNIX workstation, change to that directory using the **cd** command. Then enter the following commands at the UNIX command line prompt:

```
$: ftp <router IP address>
```

```
Name: Manager
```

```
Password: <Technician_Interface_password>
```

```
ftp> cd <router volume>:
```

```
ftp> bin
```

```
ftp> prompt
```

```
ftp> mput *.bat
```

```
ftp> mput *.mnu
```

The **prompt** command disables the prompt that asks whether you want to transfer each file.



**Note:** You must have Manager access to write to an NVFS volume using the Bay Networks implementation of FTP.

---

This procedure installs all of the *.bat* and *.mnu* files on a file system volume in the router. To conserve space on a router's local file system, load only scripts for the protocols and drivers you need to run on that router.

If you want to use the Trivial File Transfer Protocol (TFTP) to install *.bat* and *.mnu* files one at a time, refer to Chapters 4 and 5 of *Using Technician Interface Software*.

## Setting Up Scripts

Once you log in to a Technician Interface session on a router, you can enter any *embedded* script commands at the command line prompt without any additional preparations. However, before you run any *.bat* version scripts, designate a default file system volume, as shown in the following example:

**dir 2:**

Next, define the search path and alias definitions for your *.bat* and *.mnu* version script files by using the **run setpath** command. The search path is a list of volume IDs you want the system to search for any script file. There are two ways to specify a search path, as shown in the following examples.

**Example 1 -- Entering the volume IDs on the command line**

```
run setpath "2;3;4:"
```

**Example 2 -- Letting the setpath command prompt you for input****run setpath**

NVFS File System:

VOL	STATE	TOTAL SIZE	FREE SPACE	CONTIG FREE SPACE
3:	FORMATTED	2097152	1218683	1017067
2:	FORMATTED	2097152	431128	431128

Please enter the volume ID that contains the script files.  
More than one volume may be entered; each separated by a semi-colon.

Format: <vol>:[;<vol>: ...]

Example: 2:;3:;4:

Enter volume(s)[2:]: **3:**

You can also use the Manager or User autoscript features to automatically run the *setpath.bat* script (the **run setpath** command). Specify a file system search path, Manager or User script file, and logout mechanism using following wfSerialPortEntry (router serial port) attributes:

- Login Script Search Path
- Manager's Login Script
- User's Login Script
- Force User Logout

You can set up separate Manager and User autoscript files for login. The User autoscript contains a switch that enables you to lock the user into the script. With the switch enabled, the autoscript automatically logs out a user that tries to break out of the script. For more information on the autoscript feature, see Chapter 2 of *Using Technician Interface Software*.

## Using Script Commands

This section provides an overview of the **show/monitor** and **enable/disable** commands.

### Using the show Command

After you set up scripts with the **run setpath** command, you can use the **show** *<subcommand>* *<option>* command to obtain a snapshot view of various data stored in the router. For continuously updated (polled) views of system statistical and configuration data, use the **monitor** command in place of the **show** command. For all protocols, you can view circuit alerts, the base record, disabled or enabled circuits, and statistics.

[Table 1-1](#) lists the **show/monitor** subcommands for a specific service or software entity. Alternatively, obtain an active list of **show/monitor** subcommands directly from the router by entering at the Technician Interface prompt

```
show <entity_name> ?
```

or:

```
show <entity_name> help
```

For example, to list the AppleTalk subcommands, enter **show at** or **show at ?**. For a detailed description of all **show** commands and samples of the information they generate, refer to Chapter 2.

**Table 1-1. Displaying Service Information**

To Display Information about This Service	Use This Command	Command Type (runs from a batch or embedded file)	
		<i>batch</i>	<i>embedded</i>
Asynchronous Transfer Mode Half-Bridge (AHB) service (base, circuits, hosts, routes, statistics)	<b>show ahb</b> <option>	✓	
Advanced Peer-to-Peer Networking service (adjacencies, class of service, directories, DLC, DLUR, endpoints, ISR, memory, mode, ports, topology, tunnels, VRN)	<b>show appn</b> <option>	✓	
AppleTalk service (AARP, circuits, configuration, routes, statistics, zones, zone filters)	<b>show at</b> <option>	✓	
Asynchronous Transfer Mode service (interfaces, lines, PVCs, statistics)	<b>show atm</b> <option>	✓	
ATM Address Resolution Protocol service (ATMARP client/server mode identification, ATM addresses, interface statistics)	<b>show atmarp</b> <option>	✓	
Asynchronous Transfer Mode DXI service (lines, PVCs, statistics)	<b>show atmdxi</b> <option>	✓	
ATM line signaling service (ATM ILMI and SAAL statistics)	<b>show atmsig</b> <option>	✓	
Asynchronous Transfer Mode (ATM) Adaption Layer Controller (ALC) link module service (circuits, phy, transmit and receive errors, transmit and receive statistics)	<b>show atm line</b> <option>	✓	
AppleTalk Update-based Routing Protocol service (connection, statistics, zone filters)	<b>show aurp</b> <option>	✓	
Automatic line speed negotiation on 100Base-T Ethernet interfaces (alerts, circuits enabled/disabled)	<b>show autoneg</b> <option>	✓	
Border Gateway Protocol service (errors, peers, routes, timers, statistics, summary, weights, version)	<b>show bgp</b> <option>	✓	
Binary Synchronous service (errors, sample periods, circuit statistics)	<b>show bisync</b> <option>	✓	
Bootstrap Protocol service (clients, relay agents, statistics)	<b>show bootp</b> <option>	✓	

(continued)

**Table 1-1. Displaying Service Information** *(continued)*

To Display Information about This Service	Use This Command	Command Type (runs from a batch or embedded file)	
		<i>batch</i>	<i>embedded</i>
Binary Synchronous Communication (BSC) over TCP service (circuit, port, peer, and control unit connection statistics)	<b>show bot</b> <i>&lt;option&gt;</i>	✓	
Bridge service (circuits, forwarding tables, statistics)	<b>show bridge</b> <i>&lt;option&gt;</i>	✓	
Circuits for all drivers (configuration; hardware filters; receive, transmit, and system errors; statistics)	<b>show circuits</b> <i>&lt;option&gt;</i>	✓	
Console (configuration, statistics)	<b>show console</b> <i>&lt;option&gt;</i>	✓	
CSMA/CD service (hardware filters; receive, transmit and system errors; statistics; sample data)	<b>show csmacd</b> <i>&lt;option&gt;</i>		✓
N11 Data Collection Module (DCM) information for the 8-Port Access Node Hub (ANH)	<b>show dcm</b> <i>&lt;option&gt;</i>	✓	
DECnet service (adjacency, circuits, designated router, routes, statistics, traffic filters)	<b>show decnet</b> <i>&lt;option&gt;</i>	✓	
Data Link Switching service (circuits, configuration, connections, MAC, NETBIOS, peer, SAPs, slot numbers)	<b>show dls</b> <i>&lt;option&gt;</i>	✓	
DS1/E1 lines (clock, E1 framer and E1 port, FDL; receive, transmit, and system errors; sample data; statistics; T1 framer and T1 port; timeslots)	<b>show ds1e1</b> <i>&lt;option&gt;</i>	✓	
DS3/E3 lines (circuit stats for ATM interfaces)	<b>show dsx3</b> <i>&lt;option&gt;</i>	✓	
Distance Vector Multicast Routing Protocol service (circuits, neighbors, routes, statistics, tunnels)	<b>show dvmrp</b> <i>&lt;option&gt;</i>	✓	
E1 lines (frame and line errors)	<b>show e1</b> <i>&lt;option&gt;</i>	✓	
Exterior Gateway Protocol service (neighbors, statistics)	<b>show egp</b> <i>&lt;option&gt;</i>	✓	
Fiber Distributed Data Interface service (hardware filters; MAC, port, and SMT parameters; receive, transmit, and system errors; sample data; statistics)	<b>show fddi</b> <i>&lt;option&gt;</i>	✓	
Frame Relay service (LAPF, lines, passthrough, PVCs, signalling, statistics, SVCs, virtual connections)	<b>show fr</b> <i>&lt;option&gt;</i>		✓
File Transfer Protocol service (login, error, and transfer rate statistics)	<b>show ftp</b> <i>&lt;option&gt;</i>		✓

*(continued)*

**Table 1-1. Displaying Service Information** *(continued)*

To Display Information about This Service	Use This Command	Command Type (runs from a batch or embedded file)	
		<i>batch</i>	<i>embedded</i>
BaySecure Firewall-1 service (interface, summary)	<b>show fwall</b> <i>&lt;option&gt;</i>		✓
Hi/fn LZS compression (errors, statistics)	<b>show hifn</b> <i>&lt;option&gt;</i>	✓	
Hardware options (backplane, configuration and router software image files, memory, PROMs, slots)	<b>show hardware</b> <i>&lt;option&gt;</i>	✓	
High Speed Serial Interface service (receive, transmit, and system errors; sample data; statistics)	<b>show hssi</b> <i>&lt;option&gt;</i>	✓	
Internet Gateway Management Protocol service (circuits, groups, statistics)	<b>show igmp</b> <i>&lt;option&gt;</i>	✓	
Internet Protocol service (ARP table, circuits, forwarding table, route filters, RIP interfaces, routes, traffic filters)	<b>show ip</b> <i>&lt;option&gt;</i>		✓
Internet Protocol Version 6 service (adjacent hosts, statistics, interface, circuits)	<b>show ip6</b> <i>&lt;option&gt;</i>		✓
Internet Packet Exchange service (adjacent hosts, circuits, ping, RIP, routes, service filters, server filters, services, statistics, traffic filters)	<b>show ipx</b> <i>&lt;option&gt;</i>	✓	
Circuit and state information for all interface redundancy ports (enabled and disabled circuits configured with interface redundancy)	<b>show iredund</b> <i>&lt;option&gt;</i>	✓	
Integrated Services Digital Network service (B Channel, BRI, calls, inphone, messages, switch)	<b>show isdn</b> <i>&lt;option&gt;</i>	✓	
Integrated Services Digital Network BRI service (receive, transmit, and system errors; sample data; statistics)	<b>show isdn bri</b> <i>&lt;option&gt;</i>	✓	
Layer 2 Tunneling Protocol (L2TP) (configuration, sessions, statistics, tunnels, users)	<b>show l2tp</b> <i>&lt;option&gt;</i>	✓	
LAN Emulation (ATM) service (clients, servers, config, learp, mac addresses, statistics)	<b>show lane</b> <i>&lt;option&gt;</i>	✓	
Link Access Procedure-Balanced service (lines, statistics)	<b>show lapb</b> <i>&lt;option&gt;</i>	✓	
LAN Network Manager server agent information (for all servers, or for servers on specific circuits)	<b>show lnm</b> <i>&lt;option&gt;</i>	✓	
OSPF multicast extensions (MOSPF) (base, interfaces, neighbors, forwarding database)	<b>show mospf</b> <i>&lt;option&gt;</i>		✓

*(continued)*

**Table 1-1. Displaying Service Information** *(continued)*

To Display Information about This Service	Use This Command	Command Type (runs from a batch or embedded file)	
		<i>batch</i>	<i>embedded</i>
Multiple Protocol Over ATM (MPOA) (cache, clients, servers, version)	<b>show mpoa</b> <i>&lt;option&gt;</i>		✓
NetBIOS over IP service (interfaces, names)	<b>show nbip</b> <i>&lt;option&gt;</i>	✓	
Next Hop Routing Protocol (NHRP) (cache, circuits, clients, servers, statistics)	<b>show nhrp</b> <i>&lt;option&gt;</i>	✓	
Native Mode LAN service (circuits, security lists, bridge statistics)	<b>show nml</b> <i>&lt;option&gt;</i>	✓	
Open Systems Interconnection service (adjacency, circuits, routes, and TARP packets, loop detection buffer entries, and data cache)	<b>show osi</b> <i>&lt;option&gt;</i>	✓	
Open Shortest Path First Protocol service (area, AS base, external routes, interfaces, LSDB, neighbors, statistics)	<b>show ospf</b> <i>&lt;option&gt;</i>	✓	
Packet Capture service (captured packets, configuration, line numbers, loaded slots, status)	<b>show packet</b> <i>&lt;option&gt;</i>	✓	
Ping MIB service (configuration, history, source and trace routes)	<b>show ping</b> <i>&lt;option&gt;</i>	✓	
Point-to-Point Protocol service (AppleTalk, bad packets, Bridge, CCP, CHAP, circuits, DECnet, IP, IPX, line, LQR, OSI, PAP, protocol, VINES, XNS)	<b>show ppp</b> <i>&lt;option&gt;</i>	✓	
Process statistics (buffers, cpu cycles, and memory resources allocated to router processes)	<b>show process</b> <i>&lt;option&gt;</i>	✓	
DLSw protocol prioritization queues (cc_stats, filters, qstats)	<b>show protopri</b> <i>&lt;option&gt;</i>	✓	
RADIUS (alerts, server, configuration, statistics)	<b>show radius</b> <i>&lt;option&gt;</i>	✓	
Reverse Address Resolution Protocol service (circuits)	<b>show rarp</b> <i>&lt;option&gt;</i>	✓	
RIP Version 6 service (configuration, statistics)	<b>show rip6</b> <i>&lt;option&gt;</i>		✓
Repeater service (last address, sample data, port status, statistics)	<b>show rprr</b> <i>&lt;option&gt;</i>	✓	
Router redundancy (circuits, groups, resources, remote routers in a redundancy group, member IDs)	<b>show redund</b> <i>&lt;option&gt;</i>	✓	

*(continued)*



**Table 1-1. Displaying Service Information** (continued)

To Display Information about This Service	Use This Command	Command Type (runs from a batch or embedded file)	
		batch	embedded
Resources (bandwidth) reserved for lines configured with the ST2 protocol	<b>show rsc</b> <option>	✓	
Resource Reservation Protocol (RSVP) multicasting and multimedia service (base, interfaces)	<b>show rsvp</b> <option>	✓	
Synchronous Data Link Control service (circuits, statistics)	<b>show sdlc</b> <option>	✓	
Switched Multi-Megabit Data Service service (addresses, circuits, statistics)	<b>show smds</b> <option>	✓	
Simple Network Management Protocol service (communities, events, traps)	<b>show snmp</b> <option>		✓
Spanning Tree service (configuration, circuits)	<b>show span</b> <option>	✓	
Source Routing service (bridges, circuits, configuration, IP information, statistics, traffic filters)	<b>show sr</b> <option>	✓	
Source Route Spanning Tree service (configuration, statistics)	<b>show srspan</b> <option>	✓	
Statistical Thresholds and Alarms service (configuration, statistics)	<b>show sta</b> <option>	✓	
STAC (circuit and statistical information about Hi/fn LZS data compression service)	<b>show stac</b> <option>		✓
State (overview of all protocols or one circuit)	<b>show state</b> <option>	✓	
Switch service (back-up dialing, on-demand-dialing)	<b>show sws</b> <option>	✓	
Synchronous Interface service (receive, transmit, and system errors; FT1/T1 DSU/CSU configuration and statistics; sample data; statistics)	<b>show sync</b> <option>		✓
System (buffers, drivers, memory, protocols, system information, tasks)	<b>show system</b> <option>	✓	
T1 lines (frame and line errors)	<b>show t1</b> <option>	✓	
Transport Control Protocol service (configuration, connections, statistics)	<b>show tcp</b> <option>		✓
TELNET service (configuration, sessions, statistics)	<b>show telnet</b> <option>		✓

(continued)

**Table 1-1. Displaying Service Information** *(continued)*

To Display Information about This Service	Use This Command	Command Type (runs from a batch or embedded file)	
		<i>batch</i>	<i>embedded</i>
Trivial File Transfer Protocol service (status)	<b>show tftp</b> <i>&lt;option&gt;</i>		✓
Token Ring lines (receive, transmit, and system errors; sample data; statistics)	<b>show token</b> <i>&lt;option&gt;</i>	✓	
VINES service (circuits, configuration, neighbors, routes, statistics, traffic filters)	<b>show vines</b> <i>&lt;option&gt;</i>	✓	
Bay Networks Compression Protocol service (circuits, devices, lines, statistics, virtual circuits)	<b>show wcp</b> <i>&lt;option&gt;</i>	✓	
Bay Networks WAN Encryption Protocol service (circuits, lines, virtual circuits, statistics)	<b>show wep</b> <i>&lt;option&gt;</i>	✓	
X.25 service (configuration, connections, lines, services, statistics, virtual circuits)	<b>show x25</b> <i>&lt;option&gt;</i>	✓	
Translation Bridge service (configuration, RIFs, SAPs, Source Routing interfaces and statistics, stations, Transparent Bridge interfaces and statistics)	<b>show xb</b> <i>&lt;option&gt;</i>	✓	
Xerox Networking Systems Protocol service (adjacent hosts, configuration, RIP, routes, statistics, traffic filters, virtual circuits)	<b>show xns</b> <i>&lt;option&gt;</i>	✓	

## Using the enable and disable Commands

After you set up scripts with the **run setpath** command, you can enable or disable specific protocols or services with the **enable** and **disable** script commands.

[Table 1-2](#) lists the protocols or services you can enable or disable in this way. For a detailed description of **enable/disable** command options, refer to Chapter 3.

**Table 1-2. Enabling and Disabling Services**

To Enable or Disable This Service	Use This Command
Advanced Peer-to-Peer Networking Protocol (directory, DLC, LS, port, tunnel, VRN)	<b>enable/disable appn</b> <i>&lt;option&gt;</i>
AppleTalk (base, circuit)	<b>enable/disable at</b> <i>&lt;option&gt;</i>
Asynchronous Transfer Mode (line)	<b>enable/disable atm</b> <i>&lt;option&gt;</i>
Asynchronous Transfer Mode DXI (line)	<b>enable/disable atmdxi</b> <i>&lt;option&gt;</i>
AppleTalk Update-based Routing Protocol (connection)	<b>enable/disable aurp</b> <i>&lt;option&gt;</i>
Automatic line speed negotiation on 100Base-T Ethernet interfaces	<b>enable/disable autoneg</b> <i>&lt;option&gt;</i>
Bootstrap protocol	<b>enable/disable bootp</b> <i>&lt;option&gt;</i>
Bridge (base, circuit)	<b>enable/disable bridge</b> <i>&lt;option&gt;</i>
Circuits for all drivers	<b>enable/disable circuits</b> <i>&lt;option&gt;</i>
CSMA/CD (circuit, connector)	<b>enable/disable csmacd</b> <i>&lt;option&gt;</i>
Data Collection Module (DCM) for BayStack routers	<b>enable/disable dcm</b> <i>&lt;option&gt;</i>
DECnet (base, circuit)	<b>enable/disable decnet</b> <i>&lt;option&gt;</i>
Data Link (base, circuit)	<b>enable/disable dls</b> <i>&lt;option&gt;</i>
DS1E1 lines	<b>enable/disable ds1e1</b> <i>&lt;option&gt;</i>
Distance Vector Multicast Routing Protocol (base, circuit)	<b>enable/disable dvmrp</b> <i>&lt;option&gt;</i>
E1 line (circuit, connector)	<b>enable/disable e1</b> <i>&lt;option&gt;</i>
FDDI (circuit, connector)	<b>enable/disable fddi</b> <i>&lt;option&gt;</i>
Frame Relay (line)	<b>enable/disable fr</b> <i>&lt;option&gt;</i>
File Transfer Protocol (base)	<b>enable/disable ftp</b> <i>&lt;option&gt;</i>
HSSI (circuit, connector)	<b>enable/disable hssi</b> <i>&lt;option&gt;</i>
Internet Gateway Management Protocol (base, circuit)	<b>enable/disable igmp</b> <i>&lt;option&gt;</i>
Internet Protocol (base, circuit, RIP)	<b>enable/disable ip</b> <i>&lt;option&gt;</i>
Internet Packet Exchange Protocol (base, circuit)	<b>enable/disable ipx</b> <i>&lt;option&gt;</i>

*(continued)*

**Table 1-2. Enabling and Disabling Services** *(continued)*

<b>To Enable or Disable This Service</b>	<b>Use This Command</b>
Interface redundancy ports	<b>enable/disable iredund</b> <i>&lt;option&gt;</i>
Integrated Services Digital Network (B Channel, Bri, Filter)	<b>enable/disable isdn</b> <i>&lt;option&gt;</i>
Integrated Services Digital Network BRI (circuit, connector)	<b>enable/disable isdn bri</b> <i>&lt;option&gt;</i>
Link Access Procedure-Balanced (line.lindex)	<b>enable/disable lapb</b> <i>&lt;option&gt;</i>
LAN Network Manager (base, circuit)	<b>enable/disable lnm</b> <i>&lt;option&gt;</i>
NetBIOS over IP (base, interface)	<b>enable/disable nbip</b> <i>&lt;option&gt;</i>
Native Mode LAN (circuit, security list)	<b>enable/disable nml</b> <i>&lt;option&gt;</i>
Open Systems Interconnect (base)	<b>enable/disable osi</b> <i>&lt;option&gt;</i>
OSPF (area, base, interface)	<b>enable/disable ospf</b> <i>&lt;option&gt;</i>
Packet Capture (capture, line)	<b>enable/disable packet</b> <i>&lt;option&gt;</i>
Point-to-Point Protocol (line)	<b>enable/disable ppp</b> <i>&lt;option&gt;</i>
Reverse Address Resolution Protocol (base)	<b>enable/disable rarp</b> <i>&lt;option&gt;</i>
Repeater (port, reset, test)	<b>enable/disable rptr</b> <i>&lt;option&gt;</i>
Router redundancy	<b>enable/disable rredund</b> <i>&lt;option&gt;</i>
Synchronous Data Link Control (base, circuit)	<b>enable/disable sdlc</b> <i>&lt;option&gt;</i>
Simple Network Management Protocol (communities, events, traps)	<b>disable/enable snmp</b> <i>&lt;option&gt;</i>
Spanning Tree (base, circuit)	<b>enable/disable span</b> <i>&lt;option&gt;</i>
Source Routing (base, circuit)	<b>enable/disable sr</b> <i>&lt;option&gt;</i>
Source Route Spanning Tree (base, circuit)	<b>enable/disable srspan</b> <i>&lt;option&gt;</i>
Statistical Thresholds and Alarm (base, object)	<b>enable/disable sta</b> <i>&lt;option&gt;</i>
Switched Service	<b>enable/disable sws</b> <i>&lt;option&gt;</i>
Synchronous line (circuit, connector)	<b>enable/disable sync</b> <i>&lt;option&gt;</i>
T1 line (circuit, connector)	<b>enable/disable t1</b> <i>&lt;option&gt;</i>
Transport Control Protocol (base)	<b>enable/disable tcp</b> <i>&lt;option&gt;</i>
TELNET (base)	<b>enable/disable telnet</b> <i>&lt;option&gt;</i>
Trivial File Transfer Protocol (base)	<b>enable/disable tftp</b> <i>&lt;option&gt;</i>
Token Ring line (circuit, connector)	<b>enable/disable token</b> <i>&lt;option&gt;</i>
VINES (base, circuit)	<b>enable/disable vines</b> <i>&lt;option&gt;</i>
Bay Networks Compression Protocol (circuit, line)	<b>enable/disable wcp</b> <i>&lt;option&gt;</i>

*(continued)*

**Table 1-2. Enabling and Disabling Services** *(continued)*

To Enable or Disable This Service	Use This Command
X.25 (base, line, service)	<b>enable/disable x25</b> <i>&lt;option&gt;</i>
Translation Bridge (base, circuit)	<b>enable/disable xb</b> <i>&lt;option&gt;</i>
Xerox Networking Systems Protocol (base, circuit)	<b>enable/disable xns</b> <i>&lt;option&gt;</i>

## Using the Menu Utility

You can run scripts from Technician Interface menus as an alternative to entering commands at the Technician Interface prompt. You can also create or customize scripts menus. Use scripts menus to access the full set of Technician Interface scripts, including those embedded within the router software.

## Displaying Menus

After you configure the **run setpath** command, you can display the scripts main menu by entering the **menu** command at the Technician Interface prompt. The main menu contains a numbered list of system protocols and services, as shown in the following example.

```

                                Main Menu
1. APPN                        24. Frame Relay Switch      47. SDLC
2. AT                          25. FTP                          48. SMDS
3. ATM                         26. Hardware                     49. SNMP
.                               .                               .
.                               .                               .
.                               .                               .
22. FDDI                       45. Router Redundancy           68. X25
23. Frame Relay                46. Reservable Resources

```

To display a scripts submenu for a particular protocol, enter its sequence number from the main menu. For example, to display the IP scripts submenu, enter **28** at the prompt under the main menu.

Enter menu number or TI command: **28**

The IP menu appears:

```

                                     IP Menu
1. Adjacent Hosts                    13. IP Cache Hits Stats
2. Alerts                             14. IP Datagram Stats
3. ARP Table                          15. IP Fragmentation Stats
4. Base Information                   16. IP RIP Filters
5. Circuits                           17. IP Stats
6. Disable Circuits                   18. IP .bat version
7. Enabled Circuits                   19. RIP
8. ICMP Client Stats                  20. Routing Table
9. ICMP In Stats                       21. Security In Stats
10. ICMP Miscellaneous Stats          22. Security In Stats
11. ICMP Out Stats                    23. Static Routes Table
12. ICMP Server Stats                 24. Traffic Filters

D. Disable MORE. M. Menu control on. Q. Quit or Return
```

Enter menu number or TI command:

All of the choices shown in the second-level menu display information.

Next, enter the number that corresponds to the table you want to display. For example, to display IP statistics, enter **17**. This action runs the script that displays the IP Statistics table shown in the following example.

Enter menu number or TI command: **17**

IP Statistics

-----

Circuit	IP Address	In Receives	Out Requests	Forwards	In Discards	Out Discards
-----	-----	-----	-----	-----	-----	-----
E33	6.6.6.6	0	15642	0	0	0
E34	75.1.1.2	14976	15642	0	0	0
E31	192.168.130.165	46218	18459	0	0	0

3 Entries

Press Enter to continue.

When you press Enter, the menu utility returns to the submenu. In this example, pressing Enter displays the IP menu again. Then you can perform any of the following actions:

- Enter another option
- Return to the main menu
- Enter **q** for Quit
- Press RETURN

You can also display a submenu by entering the name of the protocol on the command line as an option to the menu command. For example, to display the IP submenu directly, enter the following command at the Technician Interface prompt:

**\$ menu ip**

## Configuring Menus

You can change any menu that the menu utility displays. You can keep your changes for the current session only, or you can save them permanently. Using the menu control feature, you can

- Change the contents of a menu (add, delete, and edit commands; edit the menu title; show commands instead of command titles).
- Load a new menu into the menu structure.
- Enter a Technician Interface command while using the menu utility.

To use the menu control feature, enter **m** at the `Enter menu number or TI command:` prompt. The menu utility displays a list of options below the main menu, as shown in the following example:

```

                                     Main Menu
1. APPN                               24. Frame Relay Switch    47. SDLC
2. AT                                  25. FTP                      48. SMDS
3. ATM                                26. Hardware                 49. SNMP
.                                       .                             .
.                                       .                             .
.                                       .                             .
22. FDDI                               45. Router Redundancy       68. X25
23. Frame Relay                       46. Reservable Resources

A. Add a command                      H. Change menu title        Q. Quit
C. Clear all commands                 L. Load new menu            S. Save menu commands
D. Delete command                    M. Menu control off         T. Toggle cmd. display
E. Edit command

Enter menu number or TI command:
```

To turn menu control off, just enter **m** again at the prompt. You can add and delete commands, edit a command, change a menu's title, and switch the display between menu titles and commands.



## Adding a Command

With menu control on, add a command by entering **a** at the Enter menu number or TI command: prompt. Then enter the command number, name, and title, as shown in the example:

```
Enter menu number or TI command: a
Command: 69
```

```
Enter new command: date
Enter new title: Date and Time
Setting command 69 to date
Setting title 69 to Date and Time
```

The main menu automatically refreshes and displays the new option (69. Date and Time).

## Deleting a Command

With menu control on, delete a command by entering **d** at the Enter menu number or TI command: prompt. Then enter the number of the command to be deleted, as shown in the example:

```
Enter menu number or TI command: d
Enter command number (r to Return): 69
```

The main menu automatically refreshes and displays a new list of options, without command number **69**.

## Clearing All Commands

With menu control on, clear all commands by entering **c** at the Enter menu number or TI command: prompt. The menu utility responds by showing only the menu title and control options, as follows:

```

                                Main Menu
A. Add a command           H. Change menu title  Q. Quit
C. Clear all commands     L. Load new menu      S. Save menu commands
D. Delete command        M. Menu control off  T. Toggle cmd display
E. Edit Command
```

```
Enter menu number or TI command:
```

## Editing a Command

With menu control on, edit a command by entering **e** at the `Enter menu number or TI command:` prompt. Then enter the command number, name, and title, as shown in the following example:

```
Enter menu number or TI command: e
Enter Command number (r to Return): 2
2 menu at.mnu
    AT
```

```
Type <return> to leave unchanged.
Enter new command: show at base
Enter new title: AT Base
Setting command 2 to show at base
Setting title   AT to AT Base
```

The main menu automatically refreshes and displays the new title for the **show at base** command.

## Editing a Menu Title

With menu control on, edit the title for an entire menu by entering **h** at the `Enter menu number or TI command:` prompt. The following example changes the name of the main menu to Protocol Statistics:

```
Enter menu number or TI command: h
Enter new menu title: Protocol Statistics
```

The main menu automatically refreshes and displays the new menu title:

## Loading a New Menu

With menu control on, load a new menu by entering **l** at the `Enter menu number or TI command:` prompt. Then enter the name of the new menu:

```
Enter menu number or TI command: l

Please enter menu setup file.
Type <Enter> to use default menu

[vol:filename]> newmain.mnu
```

If you do not enter a volume number or letter, the system saves the file (in this case, *newmain.mnu*) to the default volume.

## Toggle Menu Titles and Commands

With menu control on, toggle between displaying menu titles and displaying commands by entering **t** at the Enter menu number or TI command: prompt, as shown in the example:

Enter menu number or TI command: **t**

At the main menu, the screen displays the menu commands (you do not need to enter **.mnu** when executing a **menu** command):

```

                                Main Menu
1. menu appn.mnu           24. menu frsw.mnu           47. menu sdlc.mnu
2. menu at.mnu             25. menu ftp.mnu            48. menu smds.mnu
3. menu atm.mnu           26. menu hardware.mnu      49. menu snmp.mnu
.                           .                           .
.                           .                           .
.                           .                           .
21. menu egp.mnu          44. menu rprr.mnu           67. menu xns.mnu
22. menu fddi.mnu         45. menu rredund.mnu       68. menu x25.mnu
23. menu fr.mnu           46. menu rsc.mnu

A. Add a command          H. Change menu title       Q. Quit
C. Clear all commands     L. Load new menu           S. Save menu commands
D. Delete command         M. Menu control off        T. Toggle title display
E. Edit command
  
```

Enter menu number or TI command:

With menu control on at the submenu level, entering **t** at the prompt invokes the list of Technician Interface commands equivalent to the subcommand menu entries.

The following example sequence of three screens shows what happens when you enable menu control from a submenu, then toggle the submenu to display Technician Interface commands instead of menu titles.

**PPP subcommand menu with menu control OFF/disabled:**

PPP Menu

- |                      |                           |
|----------------------|---------------------------|
| 1. Alerts            | 16. Line Conf             |
| 2. AppleTalk Conf.   | 17. Line Parameters       |
| 3. AppleTalk Neg.    | 18. LQR Conf.             |
| 4. Bad Packets       | 19. LQR Stats             |
| 5. Bridge Conf.      | 20. OSI                   |
| 6. Bridge Neg.       | 21. PAP Local             |
| 7. Circuits          | 22. PAP Remote            |
| 8. DECnet            | 23. CHAP Local            |
| 9. Disabled Circuits | 24. CHAP Remote           |
| 10. Enabled Circuits | 25. PPP .bat version      |
| 11. IP               | 26. Vines                 |
| 12. IPX Config.      | 27. XNS                   |
| 13. IPX Neg.         | 28. Multilink Circuits    |
| 14. IPX Name Local   | 29. Multilink Information |
| 15. IPX Name Remote  | 30. WCP                   |

D. Disable MORE      M. Menu control on. Q. Quit or Return

Enter menu number or TI command: **m**

**PPP subcommand menu with menu control ON/enabled:**

PPP Menu

- |                      |                           |
|----------------------|---------------------------|
| 1. Alerts            | 16. Line Conf             |
| 2. AppleTalk Conf.   | 17. Line Parameters       |
| 3. AppleTalk Neg.    | 18. LQR Conf.             |
| 4. Bad Packets       | 19. LQR Stats             |
| 5. Bridge Conf.      | 20. OSI                   |
| 6. Bridge Neg.       | 21. PAP Local             |
| 7. Circuits          | 22. PAP Remote            |
| 8. DECnet            | 23. CHAP Local            |
| 9. Disabled Circuits | 24. CHAP Remote           |
| 10. Enabled Circuits | 25. PPP .bat version      |
| 11. IP               | 26. Vines                 |
| 12. IPX Config.      | 27. XNS                   |
| 13. IPX Neg.         | 28. Multilink Circuits    |
| 14. IPX Name Local   | 29. Multilink Information |
| 15. IPX Name Remote  | 30. WCP                   |
- 
- |                       |                      |                       |
|-----------------------|----------------------|-----------------------|
| A. Add a command      | H. Change menu title | Q. Quit               |
| C. Clear all commands | L. Load new menu     | S. Save menu commands |
| D. Delete command     | M. Menu control off  | T. Toggle cmd display |
| E. Edit command       |                      |                       |

Enter menu number or TI command: **t**

**PPP subcommand menu toggled to display only show commands:**

PPP Menu

- |                                  |                                    |
|----------------------------------|------------------------------------|
| 1. show ppp alerts               | 16. show ppp line configuration    |
| 2. show ppp appletalk configured | 17. show ppp line parameters       |
| 3. show ppp appletalk negotiated | 18. show ppp lqr configured        |
| 4. show ppp bad packets          | 19. show ppp lqr stats             |
| 5. show ppp bridge configured    | 20. show ppp osi                   |
| 6. show ppp bridge negotiated    | 21. show ppp pap local             |
| 7. show ppp circuit              | 22. show ppp pap remote            |
| 8. show ppp decnet               | 23. show ppp chap local            |
| 9. show ppp disabled             | 24. show ppp chap remote           |
| 10. show ppp enabled             | 25. show ppp version               |
| 11. show ppp ip                  | 26. show ppp vines                 |
| 12. show ppp ipx configured      | 27. show ppp xns                   |
| 13. show ppp ipx negotiated      | 28. show ppp multilink circuits    |
| 14. show ppp ipx name local      | 29. show ppp multilink information |
| 15. show ppp ipx name remote     | 30. show ppp wcp                   |

- |                       |                      |                       |
|-----------------------|----------------------|-----------------------|
| A. Add a command      | H. Change menu title | Q. Quit               |
| C. Clear all commands | L. Load new menu     | S. Save menu commands |
| D. Delete Command     | M. Menu control off  | T. Toggle title       |
| E. Edit command       |                      |                       |

Enter menu number or TI command:

## Saving Changes Made to Menus

With menu control on, save your changes for future sessions by entering **s** at the Enter menu number or TI command: prompt, add a filename, then press the Return key. Refer to the following example:

```
Enter menu number or TI command: s  
Enter file name [main.mnu]: testing.mnu  
Saving commands to testing.mnu.
```

The Technician Interface saves the file to the default volume. The current menu session now uses the file you specified. If you do not specify a filename at the Enter file name [main.mnu]: prompt, the Technician Interface overwrites the *main.mnu* file stored on the router's file system once you press the Return key. If you mistakenly type **s**, type **q** and press the Return key to quit.

Chapter 2 provides a complete reference for all **show** (and **monitor**) scripts in the system. Refer to it for more information, sample displays, and references to other manuals that describe each protocol in detail.





---

## Chapter 2

# Using the show Command

Use the **show** command to display routing, configuration, interface, and statistical data from the Management Information Base (MIB). The type and amount of data displayed depends on the specific protocol or network service you want to view.

In the command syntax, items in square brackets ([ ]) indicate optional information. Items in curly braces ({ }) indicate choices that complete a command, and you must enter one of the choices offered. Text in angle brackets (<>) indicates the type of information to enter as an optional part of the command syntax; for example *<circuit name>*. Use lowercase for all commands; they are case sensitive.



**Note:** For online Help -- After loading the scripts you need on a given router, you can display a list of available script subcommands by entering **show <option>** without additional options or with a question mark as an option. For example, after you load *at.bat* and associated baseline script files on a router, entering **show at** or **show at ?** at the Technician Interface prompt invokes the list of all **show at** subcommand options.

---

In command syntax, *<pattern>* means that you can use wildcard searching with the \* and ? characters. Use \* to find a string of any characters and any length. Use ? to designate any character in a specific position of the search string. For example, to locate all networks whose addresses begin with 29, enter the search string **29\***. This pattern will locate the addresses 2901456 and 2967. Or if you have a set of names that begin and end with the same characters but have different characters in the middle, such as xxx1.yy, xxx2.yy and so on, you can enter the search pattern **xxx?.yy** to locate them.

## show ahb

The **show ahb** *<option>* commands display configuration, state, and statistical information about the ATM Half-Bridge (AHB) protocol. For detailed information about the Bay Networks implementation of AHB, see *Configuring ATM Half-Bridge Services*.

The **show ahb** command supports the following subcommand options:

<a href="#">base</a>
circuits
hosts [<slot>   <cctnum>   <vpi>   <vci>   <addr>]
<a href="#">routes</a>
<a href="#">stats</a>

### base

Displays the base record information for the AHB protocol. The base record controls the AHB for the entire system.

Protocol	Name of protocol, in this case AHB.
Forwarding Mode	Indicates the state of AHB packet forwarding (enabled or disabled).
Inbound Filtering	Indicates that inbound packet filtering is enabled on the AHB router.
Learn Method	Method by which AHB automatically learns new bridge entries on the AHB router. You can configure AHB in one of the following learning methods: <ul style="list-style-type: none"><li>• Secure</li><li>• Unsecure</li><li>• Both</li><li>• None</li></ul>
Debug Level	Indicates the level of debug messaging you want the AHB router to display in its log file.

---

## **circuits**

Displays circuit and state information for all AHB circuits.

Circuit	Name of the circuit on which you configured AHB.
Num	Number of the circuit on which you configured AHB.
Status	Current state of the AHB protocol: Not Present (enabled but not yet started), or Up.
Proxy Arp	Indicates whether proxy ARP is enabled or disabled on the AHB router. If enabled, the AHB router responds to ARP requests sent from ATM-attached hosts with its own hardware address as the target MAC address. If disabled, the AHB router ignores ARP requests sent from ATM-attached hosts.
Def Subnet Mask	IP subnet mask for host entries learned unsecurely.

## **hosts** [*<slot>* | *<cctnum>* | *<vpi>* | *<vci>* | *<addr>*]

Displays the host record information for AHB.

<i>&lt;slot&gt;</i>	Shows only hosts on the specified slot.
<i>&lt;cctnum&gt;</i>	Shows only hosts on the specified circuit.
<i>&lt;vpi&gt;</i>	Shows only hosts on the specified VPI.
<i>&lt;vci&gt;</i>	Shows only hosts on the specified VCI.
<i>&lt;addr&gt;</i>	Shows only hosts with the specified IP address.

The table provides the following information:

Slt	Indicates the slot on which the AHB router learned the CPE host address.
Host Addr	IP address of the CPE host that sends packets to the AHB router.
Subnet	Subnet mask of the CPE host.
Cct	Circuit number on which AHB is configured on the router.

VPI	Indicates the virtual path of the PVC configured on the ATM interface. The VPI is part of the cell header, which can contain a maximum of 8 VPI bits.
VCI	Identifies the virtual channel of the PVC configured on the ATM interface. The VCI is part of the cell header, which can contain a maximum of 16 VCI bits.
F1	Indicates “Flags” field: 0x2= host learned dynamically 0x10=disabling forwarding to/from host 0x20= host learned in unsecure mode
TxPkts	Number of packets the router transmits to the CPE host at the remote site.
RxPkts	Number of packets the router receives from the CPE host at the remote site.

### routes

Displays information from the AHB routing table.

The fields displayed have the following meanings:

Destination	Destination IP address for this route. 0.0.0.0 indicates a default route.
Mask	Subnet mask to be combined with the destination address and then compared with the value in Destination. If the value of Destination is 0.0.0.0 (a default route), then the value of Mask is also 0.0.0.0.
Proto	Routing method through which the router learned this route: Other, Local, Netmgmt, ICMP, EGP, GGP, Hello, RIP, IS-IS, OSPF, or BGP.
Age	Number of seconds since this route was last updated or verified to be correct. The meaning of “too old” depends on the routing protocol specified under Proto.
Cost	Number of hops to reach the destination.
NextHop Addr/AS	IP address of the next hop and next Autonomous System of this route. If the next hop is an unnumbered interface, the command displays 0.0.0. <i>n</i> , where <i>n</i> is the number of the circuit on which the interface has been configured.

---

## stats

Displays all AHB statistics for each circuit.

The fields displayed have the following meanings:

Tot Nets	The total number of networks in the AHB configuration.
Tot Hosts	The total number of hosts configured on the network.
State	The current state of the AHB protocol: Disabled (manually disabled), Down, Init (Initializing), Not Present (enabled but not yet started), or Up.
Incoming Pkts	The total number of packets that the AHB router receives from the IP routed network.
Outgoing Pkts	The total number of outgoing packets that the AHB router transmits to the IP routed network.
CCT	The total number of circuits configured for AHB.
TxPkts	The total number of packets transmitted by the AHB router.
TxDrop	The total number of packets dropped by the AHB router.
RxPkts	The total number of packets that the AHB router receives from CPE hosts.
RxDrop	The total number of packets that the router drops because they are not contained in the bridge table.

## show appn

The **show appn** *<option>* commands display configuration, state, and statistical information about the Advanced Peer-to-Peer Networking (APPN) service. For detailed information about the Bay Networks implementation of APPN, refer to *Configuring APPN Services*.

The **show appn** command supports the following subcommand options:

<a href="#">adjacencies [&lt;node name&gt;]</a>	<a href="#">ls definition [&lt;LS name&gt;]</a>
<a href="#">base</a>	<a href="#">ls hpr</a>
<a href="#">cos node [&lt;COS name&gt;]</a>	<a href="#">ls status [&lt;LS name&gt;]</a>
<a href="#">cos priority [&lt;COS name&gt;]</a>	<a href="#">memory</a>
<a href="#">cos tg [&lt;COS name&gt;]</a>	<a href="#">mode [&lt;mode name&gt;]</a>
<a href="#">directory entry [&lt;LU name&gt;]</a>	<a href="#">port definition [&lt;port name&gt;]</a>
<a href="#">directory statistics</a>	<a href="#">port hpr</a>
<a href="#">dlc [&lt;DLC name&gt;]</a>	<a href="#">port status [&lt;port name&gt;]</a>
<a href="#">dlur lu [&lt;LU name&gt;]</a>	<a href="#">rtp connection</a>
<a href="#">dlur pu [&lt;LU name&gt;]</a>	<a href="#">rtp route</a>
<a href="#">dlus [&lt;DLUS name&gt;]</a>	<a href="#">rtp statistics</a>
<a href="#">endpoint address [&lt;PLU name&gt;]</a>	<a href="#">switch &lt;rtp connection name&gt;</a>
<a href="#">endpoint route [&lt;PLU name&gt;]</a>	<a href="#">topology node [&lt;CP name&gt;]</a>
<a href="#">endpoint statistics [&lt;PLU name&gt;]</a>	<a href="#">topology statistics</a>
<a href="#">isr address [&lt;FOCP name&gt;]</a>	<a href="#">topology tg definition [&lt;owner name&gt;]</a>

<a href="#">isr parameters</a>	<a href="#">topology tg status [&lt;owner name&gt;]</a>
<a href="#">isr route [&lt;FOCP name&gt;]</a>	<a href="#">tunnel [&lt;circuit&gt;]</a>
<a href="#">isr statistics [&lt;FOCP name&gt;]</a>	<a href="#">version</a>
<a href="#">ls anr</a>	<a href="#">vrn [&lt;VRN name&gt;]</a>

## adjacencies [<node name>]

Displays the following information for all APPN nodes or for a specific APPN node:

Node	Administratively assigned name for a specific node in the format <network_ID>.<CP_name>.
CP-CP Status	Status of the Control Point to Control Point session between this node and an adjacent node. Inactive indicates that no CP-CP sessions exist between the network node and adjacent node. Active indicates that CP-CP sessions are active.
Out-of-Seq TDUs	Number of out-of-sequence Topology Database Updates. In a quiesced state, this value is zero. In normal operation, the value varies depending on the network environment.
Last FRSN Sent	Last Flow Reduction Sequence Number sent in a topology update to an adjacent network node.
Last FRSN Received	Last Flow Reduction Sequence Number received in a topology update from an adjacent network node.

### Sample Display - show appn adjacencies

APPN Adjacent Nodes

```

-----
Node                CP-CP      Out-of-Seq  Last FRSN   Last FRSN
                   Status      TDUs        Sent        Received
-----
USWFLT01.AFN        ACTIVE     0           3561        207
USWFLT01.SNEEZY     INACTIVE  0           3554        853
USWFLT01.WF3174A   ACTIVE     0           3561        687
    
```

3 Entries.

### base

Displays base record information for APPN. The table displays the following information:

Capabilities:

Negotiated LS Support	Indicates that the APPN node supports negotiable link stations.
Segment Reassembly	Indicates that the APPN node supports segment reassembly.
BIND Reassembly	Indicates that the APPN node supports BIND reassembly.
Parallel TG Support	Indicates that the APPN node supports the ability to establish multiple transmission groups.
Dynamic LS Support	Indicates that the APPN node supports the ability to accept connections (that have not been predefined) from adjacent nodes.
Adaptive BIND Pacing	Indicates whether the APPN node supports the ability to control the flow of BINDs.
Receive Registered Chars	Indicates whether the APPN node supports resource registration.
Border Node Support	Indicates whether the APPN node supports border nodes.
Central Directory Support	Indicates whether the APPN node is a central directory server.
Route Tree Caching	Indicates that the APPN node supports route tree caching.
Incremental Tree Updates	Indicates that the APPN node supports incremental updates to the route-selection tree cache.
Mode-to-COS Mapping	Indicates that the APPN node supports mapping of mode name and COS and transmission priority.



---

Multi-Domain Support	Indicates whether the APPN node supports multi-domain traffic flows.
Endpoint RSCV Storage	Indicates whether the APPN node supports Route Selection Control Vectors (RSCVs) storage during ISR sessions.

Capacity:

Alert Queue Size	Maximum number of alerts that are held while waiting for the establishment of a link to a reporting point.
COS Cache Size	Size of the COS database weight cache.
Directory Cache Size	Maximum number of entries that can be stored in the directory database at the network node.
Max Directory Entries	Maximum number of cached directory entries that can be stored in the local directory database at any one time.
Route Tree Cache Size	Size of the topology and routing services tree database.
Route Tree Use Limit	Maximum number of Route Selection Trees (RSTs) cached.
Max Nodes in Topology	Maximum number of times an RST will be used before Route Selection Services (RSS) calculates a new route tree for that route.
Max TGs in Topology	Maximum number of transmission groups in the local topology database.

### Sample Display - show appn base

APPN Base Information

-----

Node Name: USWFLT01.DURHAM

State: Active

#### Capabilities:

Negotiated LS Support:	Yes
Segment Reassembly:	Yes
BIND Reassembly:	Yes
Parallel TG Support:	Yes
Dynamic LS Support:	Yes
Adaptive BIND Pacing:	Yes
Receive Registered Chars:	Yes
Border Node Support:	No
Central Directory Support:	No
Route Tree Caching:	Yes
Incremental Tree Updates:	Yes
Mode-to-COS Mapping:	Yes
Multi-Domain Support:	Yes
Endpoint RSCV Storage:	Yes

#### Capacity:

Alert Queue Size:	10
COS Cache Size:	8
Directory Cache Size:	100
Max Directory Entries:	Unlimited
Route Tree Cache Size:	8
Route Tree Use Limit:	8
Max Nodes in Topology:	Unlimited
Max TGs in Topology:	Unlimited

---

**cos node** [*<COS name>*]

Displays resistance and congestion information for all COS types or for a specific COS type.

COS	COS Name: #BATCH, #INTER, #INTERSC, #BATCHSC, CPSVCMG or SNASVCMG. #BATCH refers to jobs which are batch-like in nature (i.e., where there is a lot of data is involved and response time is not very important). #INTER refers to interactive jobs (i.e., where there is not much data involved and response time is very important). #INTERSC and #BATCHSC are secure versions of #INTER and #BATCH. CPSVCMG and SNASVCMG are used for APPN control data.
Weight	Size of the COS database weight cache assigned to a particular node given its resistance and congestion characteristics.
Resist Min	Minimum route addition resistance allowed. Route addition resistance indicates the relative desirability of using this node for intermediate session traffic. The value, which can be an integer from 0 to 255, is used in route computation. The lower the value, the more desirable the node is for intermediate routing.
Resist Max	Maximum route addition resistance allowed.
Congest Min	Minimum congestion allowed.
Congest Max	Maximum congestion allowed.

**Sample Display - show appn cos node**

APPN COS Nodes

-----

COS	Weight	Resist		Congest	
		Min	Max	Min	Max
#BATCH	5	0	31	0	0
#BATCH	10	0	63	0	0
#BATCH	20	0	95	0	0
#BATCH	40	0	127	0	0
#BATCH	60	0	159	0	0
#BATCH	80	0	191	0	0
#BATCH	120	0	223	0	1
#BATCH	160	0	255	0	1
#INTER	5	0	31	0	0
#INTER	10	0	63	0	0
#INTER	20	0	95	0	0
#INTER	40	0	127	0	0
#INTER	60	0	159	0	0
#INTER	80	0	191	0	0
#INTER	120	0	223	0	1
#INTER	160	0	255	0	1
CPSVCMG	5	0	31	0	0

17 Entries.

---

## cos priority [*<COS name>*]

Displays the transmission priority for all COS types or for a specific COS type. For more information about COS types, see the **cos node** command. The priority can be Low, Medium, High, or Network.

### Sample Display - show appn cos priority

```
APPN COS Priorities
```

```
-----  
      COS      Priority  
-----  
#BATCH      Low  
#INTER      High  
CPSVCMG     Network  
#BATCHSC    Low  
#CONNECT    Medium  
#INTERSC    High  
SNASVCMG    Network
```

```
7 Entries.
```

## cos tg [*<COS name>*]

Displays Transmission Group (TG) information for all COS types or for a specific COS type.

Eff-Cap Min	Minimum effective capacity. Effective capacity is the bit-transmission rate of the transmission group. It is derived from the link bandwidth and maximum load factor with the range of 0 through 255.
Eff-Cap Max	Maximum effective capacity.
Connect Min	Minimum cost per connection time. This value represents the relative cost per unit of time to use the transmission group. Range is from 0, which means no cost, to 255, which indicates maximum cost.
Connect Max	Maximum cost per connection time.
Byte Cst Min	Minimum cost of transmitting a byte over this connection. Range is from 0 (lowest cost) to 255.

Byte Cst Max	Maximum cost of transmitting a byte over this connection. Range is from 0 (lowest cost) to 255.
Security Min	Minimum security, with security represented as an integer with a range of 1 through 255: 1 (nonsecure), 32 (public switched), 64 (underground), 128 (conduit), 160 (encrypted), 192 (guarded radiation), 255 (maximum).
Security Max	Maximum security, with security represented as an integer with a range of 1 through 255: 1 (nonsecure), 32 (public switched), 64 (underground), 128 (conduit), 160 (encrypted), 192 (guarded radiation), 255 (maximum).
Delay Min	Minimum amount of time that it takes for a signal to travel the length of the logical link, with a range of from 0 to 255: 76 (negligible), 113 (terrestrial), 145 (packet), 153 (long), 255 (maximum).
Delay Max	Maximum amount of time that it takes for a signal to travel the length of the logical link, with a range of from 0 to 255: 76 (negligible), 113 (terrestrial), 145 (packet), 153 (long), 255 (maximum).
User-1 Min	First minimum user-defined transmission group characteristic for this transmission group with a range of from 0 to 255.
User-1 Max	First maximum user-defined transmission group characteristic for this transmission group with a range of from 0 to 255.
User-2 Min	Second minimum user-defined transmission group characteristic for this transmission group with a range of from 0 to 255.
User-2 Max	Second maximum user-defined transmission group characteristic for this transmission group with a range of from 0 to 255.
User-3 Min	Third minimum user-defined transmission group characteristic for this transmission group with a range of from 0 to 255.
User-3 Max	Third maximum user-defined transmission group characteristic for this transmission group with a range of from 0 to 255.

For more information about COS types and weight, see the **cos node** command.

---

**Sample Display - show appn cos tg**

APPN COS TGs

-----

COS	Wgt	Eff-Cap		Connect		ByteCst		Securty		Delay		User-1		User-2		User-3	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
#BATCH	30	68	255	0	0	0	0	1	255	0	255	0	255	0	255	0	255
#BATCH	60	56	255	0	0	0	0	1	255	0	255	0	255	0	255	0	255
#BATCH	90	56	255	0	128	0	128	1	255	0	255	0	255	0	255	0	255
#BATCH	120	48	255	0	0	0	0	1	255	0	255	0	255	0	255	0	255
#BATCH	150	48	255	0	128	0	128	1	255	0	255	0	255	0	255	0	255
#BATCH	180	48	255	0	196	0	196	1	255	0	255	0	255	0	255	0	255
#BATCH	210	40	255	0	196	0	196	1	255	0	255	0	255	0	255	0	255
#BATCH	240	0	255	0	255	0	255	1	255	0	255	0	255	0	255	0	255
#INTER	30	118	255	0	0	0	0	1	255	0	76	0	255	0	255	0	255
#INTER	60	68	255	0	0	0	0	1	255	0	113	0	255	0	255	0	255
#INTER	90	68	255	0	128	0	128	1	255	0	113	0	255	0	255	0	255
#INTER	120	56	255	0	0	0	0	1	255	0	113	0	255	0	255	0	255
#INTER	150	56	255	0	128	0	128	1	255	0	145	0	255	0	255	0	255
#INTER	180	48	255	0	0	0	0	1	255	0	145	0	255	0	255	0	255
#INTER	210	48	255	0	196	0	196	1	255	0	255	0	255	0	255	0	255
#INTER	240	0	255	0	255	0	255	1	255	0	255	0	255	0	255	0	255
CPSVCMG	30	118	255	0	0	0	0	1	255	0	76	0	255	0	255	0	255

17 Entries.

**directory entry** [*<LU name>*]

Displays directory information for all Logical Units (LUs) or for a specific LU.

LU	Logical Unit name.
NN Server	Network Node server name.
LU Owner	Logical Unit owner name.
Location	Location of the Logical Unit: Local, Domain, or XDomain (cross-domain).
Type	Directory type: Home, Cache, or Registered. Home means that the LU is in the domain of the local network node and that the LU information has been configured at the local node. Cache means that the LU has previously been located by a broadcast search and that the location information has been saved. Register means that the LU is at an end node that is in the domain of the local network node. Registered entries are registered by the served end node.
Wildcard	Type of wildcard: Explicit, Partial, or Full. Explicit means the full LU name has been specified. Partial means the entry is a partial wildcard. Full means the entry is a full wildcard, and all searches for unknown LUs will be directed to this node.

**Sample Display - show appn directory entry**

APPN Directory Entries

```

-----
LU              NN Server      LU Owner      Location Type  Wildcard
-----
USWFLT01.TESTEN  USWFLT01.RALEIGH  USWFLT01.TESTEN  Domain  Registr  Explicit
USWFLT01.RALEIGH  USWFLT01.RALEIGH  USWFLT01.RALEIGH  Local   Home     Explicit
USWFLT01.TESTENLU  USWFLT01.RALEIGH  USWFLT01.TESTEN  Domain  Registr  Explicit

```

3 Entries.



---

## directory statistics

Displays information concerning the performance of the directory services function.

Maximum Cached Entries	Maximum number of cache entries allowed.
Current Cached Entries	Current number of cache entries.
Current Home Entries	Current number of home entries.
Current Registered Entries	Current number of registered entries.
Directed Locates Received	Number of directed locates received.
Broadcast Locates Received	Number of broadcast locates received.
Directed Locates Sent	Number of directed locates sent.
Broadcast Locates Sent	Number of broadcast locates sent.
Directed Locates Not Found	Number of directed locates returned with a “not found.”
Broadcast Locates Not Found	Number of broadcast locates returned with a “not found.”
Outstanding Locates	Current number of outstanding locates, both directed and broadcast. This value varies. A value of zero indicates that no locates are unanswered.

### Sample Display - show appn stats directory

```
APPN Directory Statistics
-----
Maximum Cached Entries:      100
Current Cached Entries:      0
Current Home Entries:        2
Current Registered Entries:   3
Directed Locates Received:    0
Broadcast Locates Received:   0
Directed Locates Sent:        0
Broadcast Locates Sent:       0
Directed Locates Not Found:   0
Broadcast Locates Not Found:  0
Outstanding Locates:         0
```

**dlc** [*<DLC name>*]

Displays information for all Data Link Controls (DLCs) or for a specific DLC.

DLC	Eight-character name given to this DLC.
Circuit Name	Name of the circuit used by this DLC.
State	Current state of this DLC: Inactive, Pending Active, Active, or Pending Inactive.
CCT	Circuit number.
DLC Type	Type of DLC: SDLC, LLC SRB, LLC TB, or DLS.
Negotiated LS Support	Indicates whether Link Station roles can be negotiated on this DLC.

**Sample Display - show appn dlc**

APPN DLCs

-----

DLC	Circuit Name	State	CCT	DLC Type	Negotiated LS Support
-----					
DLC00001	S51	Active	1	SDLC	Yes
DLC00002	S52	Active	2	SDLC	Yes
DLC00003	S53	Active	3	SDLC	Yes
DLC00004	S54	Active	4	SDLC	Yes
DLC00006	E23.llc2	Active	6	LLC-TB	Yes
DLC00008	E24.llc2	Active	8	LLC-TB	Yes
DLC00010	O31.llc2	Active	10	LLC-SRB	Yes

7 Entries.

---

## dlur lu [<LU name>]

Displays the status of all the DLUR LUs or a specific DLUR LU.

LU	Logical Unit name.
PU	Physical Unit name with up to 8 characters.
DLUS	Fully qualified Dependent LU Server name containing 3 to 17 characters.
NAU Address	Network Addressable Unit address.
PLU	Primary LU name.

### Sample Display - show appn dlur lu

APPN DLUR LUs

-----

LU	PU	DLUS	NAU Address	PLU
L0000C22	PU188004	USWFLT01.S156CDRM	2	
L0000C23	PU188004	USWFLT01.S156CDRM	3	

2 Entries.

## dlur pu [<LU name>]

Displays the status of all the DLUR PUs or a specific DLUR PU.

PU	Physical Unit name with up to 8 characters.
Active DLUS	Displays the fully qualified name of the active DLUS. The name can contain from 3 to 17 characters.
Primary DLUS	Displays the fully qualified primary Dependent Logical Unit Server name. The name can contain from 3 to 17 characters.
Backup DLUS	Displays the fully qualified backup Dependent Logical Unit Server name. The name can contain from 3 to 17 characters.

### Sample Display - show appn dlur pu

```

APPN DLUR PUs
-----

      PU           Active DLUS           Primary DLUS           Backup DLUS
-----
PU188004 USWFLT01.S156CDRM USWFLT01.S156CDRM USWFLT01.S157CDRM

1 Entry.
    
```

### dlus [<DLUS name>]

Displays the status of all the DLUSs or a specific DLUS.

DLUS	Displays the fully qualified name of the active DLUS. The name can contain from 3 to 17 characters.
Pipe State	State of the CP-SVR pipe between the DLUR and DLUS: Active, Inactive, PendingActive, PendingInact.
Active PUs	Number of active PUs to the DLUS.
SSCP-PU MU Rcvd	Number of Message Units Received on the SSCP-PU session.
SSCP-PU MU Sent	Number of Message Units Sent on the SSCP-PU session.
SSCP-LU MU Rcvd	Number of Message Units Received on the SSCP-LU session.
SSCP-LU MU Sent	Number of Message Units Sent on the SSCP-LU session.

### Sample Display - show appn dlus

```

APPN DLUS Nodes
-----

      DLUS           Pipe State           Active PUs           SSCP-PU MU Sent           SSCP-PU MU Rcvd           SSCP-LU MU Sent           SSCP-LU MU Rcvd
-----
USWFLT01.S156CDRM Active                1                0                0                5                4

1 Entry.
    
```

---

## endpoint address [*<PLU name>*]

Displays address information for all endpoint sessions or for sessions to a specific LU.

Partner LU	Name of the Partner Logical Unit being used by this session.
PCID	Procedure Correlation Identifier of this session.
Priority	Transmission priority being used by this session: Low, Medium, High, or Network level priority.
COS	Class-of-Service being used by this session.
LS	Adjacent Link Station used by this session.
SIDH	Session Identifier High value used by this session.
SIDL	Session Identifier Low value used by this session.
ODAI	OAF-DAF Assignor Indicator value used by this session.

### Sample Display - show appn endpoint address

APPN Endpoint Session Addressing Info

```
-----
```

Partner LU	PCID	Priority	COS	LS	SIDH	SIDL	ODAI
-----	-----	-----	-----	-----	-----	-----	-----
USWFLT01.WF3174A	dbf36f442150b151	Network	CPSVCMG	@I000004	2	0	1
USWFLT01.WF3174A	fbbf52e94a9b96c9	Network	CPSVCMG	@I000004	2	0	0
USWFLT01.AFN	ccebbc6be89f3909	Network	CPSVCMG	@I000003	2	0	0
USWFLT01.AFN	fbbf52e94a9b96c8	Network	CPSVCMG	@I000003	2	0	1
USWFLT01.TESTEN	fbbf52e94a9b96c7	Network	CPSVCMG	@I000002	2	0	0
USWFLT01.TESTEN	eebbbec4474cd92	Network	CPSVCMG	@I000002	2	1	1

6 Entries.

**endpoint route [<PLU name>]**

Displays routing information for all endpoint sessions or for sessions to a specific LU. The Route column indicates the route used by the endpoint sessions. CP sessions (between adjacent nodes) do not show routes. For more information about column definitions, see the **endpoint address** command.



**Note:** Routing information is only available if the endpoint session RSCV storage option is enabled.

**Sample Display - show appn endpoint route**

APPN Endpoint Session Routing Info

-----

Partner LU	PCID	Route
USWFLT01.WFAS400	fbbf52e94a9b96cc	USWFLT01.RALEIGH->TG:1-> USWFLT01.AFN>TG:21->USWFLT01.WFAS400
USWFLT01.WFAS400	fbbf52e94a9b96cb	USWFLT01.RALEIGH->TG:1->USWFLT01.AFN-> TG:21->USWFLT01.WFAS400
USWFLT01.WF3174A	dbf36f442150b151	
USWFLT01.WF3174A	fbbf52e94a9b96c9	
USWFLT01.AFN	ccebbc6be89f3909	
USWFLT01.AFN	fbbf52e94a9b96c8	
USWFLT01.TESTEN	fbbf52e94a9b96c7	
USWFLT01.TESTEN	eebbebec4474cd92	

8 Entries.

---

## endpoint statistics [*<PLU name>*]

Displays statistics for all endpoint sessions or for sessions to a specific LU.

Dir	Indicates the direction: Rx (receive) or Tx (transmit).
BTU Size	Maximum send Basic Transmission Unit size on each hop of this session.
Pacing Max	Maximum send pacing on each hop of this session.
Pacing Cur	Current send pacing on each hop of this session.
Frames	Number of normal-flow frames sent on each hop of this session.
Bytes	Number of bytes sent on each hop of this session.

### Sample Display - show appn stats endpoint

APPN Endpoint Session Statistics

```
-----
```

Partner LU	PCID	Dir	BTU Size	Pacing Max	Pacing Cur	Frames	Bytes
USWFLT01.WFAS400	fbbf52e94a9b96cc	Rx	2048	3	3	1	40
		Tx	2048	1	1	1	62
USWFLT01.WFAS400	fbbf52e94a9b96cb	Rx	2048	3	3	1	28
		Tx	2048	1	1	1	76
USWFLT01.WF3174A	dbf36f442150b151	Rx	2048	11	7	11	4K
		Tx	2048	1	1	1	15
USWFLT01.WF3174A	fbbf52e94a9b96c9	Rx	2048	1	1	1	15
		Tx	2048	4	3	14	351K
USWFLT01.AFN	ccebbc6be89f3909	Rx	2048	11	7	11	4K
		Tx	2048	1	1	1	15
USWFLT01.AFN	fbbf52e94a9b96c8	Rx	2048	1	1	1	15
		Tx	2048	13	13	19	136K
USWFLT01.TESTEN	fbbf52e94a9b96c7	Rx	1929	1	1	1	15
		Tx	1929	1	1	194	23K
USWFLT01.TESTEN	eebbebc4474cd92	Rx	1929	1	1	195	53K
		Tx	1929	1	1	1	15

8 Entries.

**isr address** [*<FQCP name>*]

Displays address information for all Intermediate Session Routing (ISR) sessions or for sessions from a particular node.

FQ CP Name	Fully Qualified Control Point name of the node assigning the PCID for this session.
PCID	Procedure Correlation Identifier of this session.
Priority	Transmission priority used by this session: Low, Medium, High, or Network.
COS	Class-of-Service being used by this session.
Hop	Indicates whether the local LU was the BIND sender (Primary) or the BIND receiver (Secondary).
LS	Adjacent Link Station used by this session.
SIDH	Session Identifier High value used by this session.
SIDL	Session Identifier Low value used by this session.
ODAI	OAF-DAF Assignor Indicator value used by this session.

**Sample Display - show appn isr address**

APPN ISR Session Addressing Info

```
-----
      FQ CP Name           PCID           Priority    COS      Hop      LS      SIDH  SIDL  ODAI
-----
USWFLT01.TESTEN  eebbbebc4774cd92  Network  SNASVCMG  Pri @I000002    2    2    1
                                     Sec @I000003    2    1    1
```

1 Entry.



---

## isr parameters

Displays parameter information about the Intermediate Session Routing (ISR) function.

ISR State	Indicates whether ISR is enabled. The default is enabled.
Maximum RU Size	Maximum Request Unit size for intermediate sessions.
Receive Pacing Window	Maximum number of messages that the network node can receive in one pacing window during an ISR session.
Maximum ISR Sessions	Maximum number of ISR sessions that the local network node will process concurrently.
Congestion Upper Threshold	Maximum number of ISR sessions that can take place before new sessions are directed away from the network node.
Congestion Lower Threshold	Number of active ISR sessions that the local network node must drop to before it is no longer considered congested.
ISR RSCV Storage	Indicates whether Route Selection Control Vectors are stored during ISR sessions (see <b>isr route</b> command).

### Sample Display - show appn isr parameters

```
APPN ISR Parameters  
-----
```

```
                ISR State: Enabled  
            Maximum RU Size: 1024  
    Receive Pacing Window: 7  
        Maximum ISR Sessions: 1000  
Congestion Upper Threshold: 900  
Congestion Lower Threshold: 800  
        ISR RSCV Storage: Yes
```

**isr route** [*<FQCP name>*]

Displays routing information for all ISR sessions or for ISR sessions from a specific node. For more information about column definitions, see the **isr address** command.



**Note:** ISR RSCV storage must be enabled in order to display the route.

**Sample Display - show appn isr route**

APPN ISR Session Routing Info

```
-----
      FQ CP Name          PCID          Route
-----
USWFLT01.TESTEN  eebbbebc4774cd92  USWFLT01.TESTEN->TG:21-
>USWFLT01.RALEIGH->TG:1->USWFLT01.AFN->TG:21->USWFLT01.WFAS400
```

1 Entry.

**isr statistics** [*<FQCP name>*]

Displays session statistics for all ISR sessions or for ISR sessions from a specific node. For more information about column definitions, see the **endpoint statistics** and **isr address** commands.

**Sample Display - show appn stats isr**

APPN ISR Session Statistics

```
-----
      FQ CP Name          PCID          Hop    BTU   Pacing
      Size  Max Cur  Frames Bytes
-----
USWFLT01.TESTEN  eebbbebc4774cd92  P-Rx  1929   1   1    388   29K
                P-Tx  1929   3   3    388   10K
                S-Rx  2048   5   3    388   10K
                S-Tx  2048   5   3    388   29K
```

1 Entry.

---

## ls anr

Displays automatic network routing labels for a single link station or multiple link stations.

LS	Administratively assigned name for the link station. The name can be from one to eight characters.
CP Name	Fully qualified name of the adjacent node for this link station. The name can be from three to 17 characters. Format is <i>&lt;network_ID&gt;.&lt;CP_name&gt;</i> .
State	The current state of the link station, active or inactive.
ANR Label	The Automatic Network Routing label assigned during RTP route setup.

### Sample Display - show appn ls anr

```
APPN Link Station ANR Info
```

```
-----
```

LS	CP Name	State	ANR Label
RALEIGH	USBNET01.RALEIGH	Active	91
VEGAS	USBNET01.VEGAS	Active	90

```
2 Entries.
```

## Is definition [*<LS name>*]

Displays Link Station (LS) information for all defined link stations or for a specific link station.

LS	Administratively assigned name for the link station. The name can be from one to eight characters.
CP Name	Fully qualified name of the adjacent node for this link station. The name can be from three to 17 characters. Format is <i>&lt;network_ID&gt;.&lt;CP_name&gt;</i> .
Port	Administratively assigned name for the port. The name can be from one to eight characters.
TG Num	Number associated with the transmission group for this link station.
CP-CP Sessn	Indicates whether CP-CP sessions are supported by this link station.
Max BTU	Numeric value between 256 and 4105 inclusive, indicating the maximum number of bytes in a Basic Transmission Unit (BTU) that can be sent on this transmission group. This is an administratively assigned value.
Link Address	Link address using MAC address and SAP, or SDLC address.

### Sample Display - show appn Is definition

APPN Link Station Definition

-----

LS	CP Name	Port	TG Num	CP-CP Sessn	Max BTU	Link Address
DURHAM	USWFLT01.DURHAM	PORT22	0	Yes	1417	00004500e476:04
WFAS400	USWFLT01.WFAS400	PORT22	0	Yes	1476	40000104877a:04

2 Entries.

---

## ls hpr

Displays High Performance Routing capabilities for a single link station or multiple link stations.

LS	Administratively assigned name for the link station. The name can be from one to eight characters.
CP Name	Fully qualified name of the adjacent node for this link station. The name can be from three to 17 characters. Format is <i>&lt;network_ID&gt;.&lt;CP_name&gt;</i> .
HPR Enabled	Specifies whether HPR support has been enabled for this link station.
Link Level Error Recovery	Specifies whether link level error recovery support has been selected for this link station.

### Sample Display - show appn ls hpr

```
APPN Link Station HPR info
```

```
-----  
      LS           CP Name           HPR      Link Level  
      LS           CP Name           Enabled  Error Recovery  
-----  
RALEIGH  USWFLT01.RALEIGH  Yes      No  
VEGAS    USWFLT01.VEGAS      Yes      Yes
```

```
2 Entries.
```

## ls status [<LS name>]

Displays the status of all link stations or a specific link station.

LS	Administratively assigned name for the link station. The name can be from one to eight characters. Names that begin with an “@” symbol indicate dynamic link stations.
CP Name	Fully qualified name of the adjacent node for this link station. The name can be from three to 17 characters. Format is <network_ID>.<CP_name>.
State	State of this link station: Inactive, Pending Active, Active, PendingInactive.
TG Num	Number of the transmission group for this link station.
Cur Sessn	Number of active sessions on this link.
Frames Rcvd	Number of message frames received.
Bytes Rcvd	Number of message bytes received.
Frames Sent	Number of message frames sent.
Bytes Sent	Number of message bytes sent.

### Sample Display - show appn ls status

APPN Link Station Status

-----

LS	CP Name	State	TG Num	Cur Sessn	Frames Rcvd	Bytes Rcvd	Frames Sent	Bytes Sent
-----	-----	-----	-----	-----	-----	-----	-----	-----
PLUTO	USWFLT01.PLUTO	Active	21	4	56	10K	57	9K
ANAHEIM	USWFLT01.ANAHEIM	Pend Active	3	0	0	0	0	0
WF3174A	USWFLT01.WF3174A	Active	21	2	51	10K	41	5K
ANAHEIM2	USWFLT01.ANAHEIM	Active	2	6	81	4K	68	3K

4 Entries.

---

## memory

Displays information about CP memory usage.

Available Memory	Total memory available to the APPN service (0 means unlimited).
Memory in Use	Memory in use by the APPN service.
Warning Threshold	Warning memory threshold (0 means no threshold).
Critical Threshold	Critical memory threshold (0 means no threshold).

### Sample Display - show appn memory

```
APPN Memory Utilization
-----

  Available Memory: 0
    Memory in Use: 147915
  Warning Threshold: 0
  Critical Threshold: 0
```

**mode** [*<mode name>*]

Displays mode-to-COS mappings for all modes or for a specific mode. For information on the columns, see the **cos node** and **cos priority** commands.

**Sample Display - show appn mode**

```
APPN Mode to COS Mappings
```

```
-----
```

Mode	COS
#BATCH	#BATCH
#INTER	#INTER
CPSVCMG	CPSVCMG
#BATCHSC	#BATCHSC
#INTERSC	#INTERSC
SNASVCMG	SNASVCMG

```
6 Entries.
```

**port definition** [*<port name>*]

Displays port definition information for all ports or for a specific port.

Port	Administratively assigned name for this APPN port. The name can be from one to eight characters.
Number	Port number associated with the port name.
DLC	Indicates the name of the DLC supporting this port.
Receive BTU Size	Maximum Basic Transmission Unit (BTU) size that a link station on this port can receive.
Send BTU Size	Maximum BTU size that a link station on this port can send.
Max Window	Maximum number of I-frames that can be received by the Exchange Identification (XID) sender before an acknowledgement is received.
Port Type	Identifies the type of line used by this port: Leased, Switched, or Shared Access Transport Facility (SATF).
Link Address	Link address using MAC address and SAP.



---

## Sample Display - show appn port definition

APPN Port Definitions

```
-----
```

Port	Number	DLC	Receive BTU Size	Send BTU Size	Max Window	Port Type	Link Address
PORT0001		0 DLC00001	2048	2048	7	Leased	:01
PORT0002		0 DLC00002	2048	2048	7	Leased	:03
PORT0003		0 DLC00003	2048	2048	7	Leased	:05
PORT0004		0 DLC00004	2048	2048	7	Leased	:07
PORT0008		0 DLC00008	2057	2057	7	SATF	000045222224:04
PORT0010		0 DLC00010	2057	2057	7	SATF	000045C0E4B6:04

6 Entries.

## port hpr

Displays High Performance Routing capabilities for a single port or multiple ports.

Port	Administratively assigned name for this APPN port. The name can be from one to eight characters.
Implicit HPR Enabled	Specifies whether HPR support has been enabled for dynamic link stations on this port.
Implicit Link Level Error Recovery	Specifies whether link level error recovery support has been selected for dynamic link stations on this port.
Implicit Link Deactivation Time	Specifies the link deactivation time (in seconds) for dynamic link stations on this port.
HPR SAP	Defines the chosen SAP for HPR traffic on this port.

**Sample Display - show appn port hpr**

```
APPN Port Defined HPR info
```

```
-----
                Implicit Implicit      Implicit
                HPR      Link Level    Link Deact HPR
                Enabled  Error Recovery Time      sap
-----
PORT0003 Yes      No      120 C8
PORT0005 No      No      5 none
```

```
2 Entries.
```

**port status [*<port name>*]**

Displays port status information regarding the Exchange Identification (XID) and link role for all ports or for a specific port.

Port	Administratively assigned name for this APPN port. The name can be from one to eight characters.
Number	Port number associated with the port name.
State	State of this port: Inactive, Pending Active, Active, PendingInactive.
Link Role	Initial role for the link stations activated through this port: Primary, Secondary, Negotiable, or ABM (Asynchronous Balance Mode).
Good XIDs	Number of successful XID sequences that have occurred on all defined link stations on this port since the last time this port was started.
Bad XIDs	Number of unsuccessful XID sequences that have occurred on all defined link stations on this port since the last time this port was started.

---

## Sample Display - show appn port status

APPN Port Status

-----

Port	Number	State	Link Role	Good XIDs	Bad XIDs
PORT0001	0	Active	Negotiable	1	0
PORT0002	0	Active	Negotiable	0	0
PORT0003	0	Active	Primary	1	0
PORT0004	0	Active	Primary	1	0

4 Entries.

## rtp connection

Displays information about all RTP connections or a specific RTP connection.

RTP Conn Name	Name of the RTP connection.
Destination CP Name	Fully qualified name of the destination network node. The name can be from three to 17 characters. Format is <i>&lt;network_ID&gt;.&lt;CP_name&gt;</i> .
1st Hop Ls Name	Name of the link station which supports the RTP connection.
COS	Class of service for the RTP connection.
Local TCID	Local Transport Connection Identifier of the RTP connection.
Remote TCID	Remote Transport Connection Identifier of the RTP connection.

**Sample Display - show appn rtp connection**

APPN RTP Connections

-----

RTP Conn Name	Destination CP Name	1st Hop Ls Name	COS	Local TCID	Remote TCID
@R000001	USWFLT01.DURHAM	RALEIGH	SNASVCMG	0000000001000000	0000000005000000
@R000002	USWFLT01.DURHAM	RALEIGH	#CONNECT	0000000002000000	0000000006000000
@R000003	USWFLT01.DURHAM	RALEIGH	#INTER	0000000003000000	0000000007000000
@R000004	USWFLT01.DURHAM	RALEIGH	#BATCH	0000000004000000	0000000008000000
@R000005	USWFLT01.VEGAS	BOSTON	SNASVCMG	0000000005000000	0000000009000000
@R000006	USWFLT01.VEGAS	BOSTON	#CONNECT	0000000006000000	000000000A000000

6 Entries.

    rtp route

Displays the RTP route selection control vector for all RTP connections or a specific RTP connection.

RTP Conn Name

Name of the RTP connection.

Route

Route selection control vector (RSCV) of the RTP connection.

---

## Sample Display - show appn rtp route

APPN RTP Connection Routing Info

-----

RTP	Conn	Name	Route
-----	-----	-----	-----
@R000001	USWFLT01.VEGAS->TG:21->USWFLT01.RALEIGH		
@R000002	USWFLT01.VEGAS->TG:21->USWFLT01.RALEIGH		
@R000003	USWFLT01.VEGAS->TG:21->USWFLT01.RALEIGH		
@R000004	USWFLT01.VEGAS->TG:21->USWFLT01.RALEIGH		

4 Entries.

**rtp statistics**

Displays statistics for all RTP connections or a specific RTP connection.

RTP Connection Name	Name of the RTP connection.
Cur Session	Number of currently active sessions on this RTP connection.
Dir	Direction (Rx/Tx) of the specified statistic.
Bytes	Number of bytes received/transmitted on the RTP connection.
Pkts	Number of packets received/transmitted on the RTP connection.
SessCtl Frames	Number of session control frames sent on the RTP connection.
Rate	Current receive/transmit rate (in Kbits/sec) of the RTP connection.
Discarded Bytes	Total number of bytes sent by the remote node that were discarded as duplicates.
Discarded Pkts	Total number of packets sent by the remote node that were discarded as duplicates.
Resent Bytes	Total number of bytes resent by the local node that were lost in transit.
Resent Pkts	Total number of packets resent by the local node that were lost in transit.

**Sample Display - show appn rtp statistics**

APPN RTP Connection Statistics

```

-----
RTP
Conn      Cur      SessCtl      Discarded      Resent
Name      Sessn  Dir  Bytes  Pkts  Frames  Rate  Bytes  Pkts  Bytes  Pkts
-----
@R000001  1    Rx   196    7      1    1K    0    0    -    -
           Tx   285    7      1    1K    -    -    0    0
@R000002  1    Rx   344   14      1    1K    0    0    -    -
           Tx   354   15      1    1K    -    -    0    0
@R000003  1    Rx   352  218      1    1K    0    0    -    -
           Tx   420  215      1    1K    -    -    0    0
@R000004  1    Rx   352  195      1    1K    0    0    -    -
           Tx   420  199      1    1K    -    -    0    0

```

4 Entries.

---

## **switch** <rtplib connection name>

Requests the APPN node to perform a path switch with a currently active RTP connection. If a better path is not found, the connection remains unchanged. The <rtplib\_connection\_name> is the name of the RTP connection that displays with the **show appn rtp connection** command.

### **Sample Display - show appn switch**

```
path switching RTP connection @R000001
```

## **topology node** [<CP name>]

Displays node information on the topology database for all control points or for a specific control point.

Node	Administratively assigned name for a specific node in the format <network_ID>.<CP_name>.
Type	Type of APPN node: NN (network node) or VRN (virtual node).
FRSN	Flow Reduction Sequence Numbers are associated with Topology Database Updates (TDUs) and are unique only within each APPN network node. A TDU can be associated with multiple APPN resources. This FRSN indicates the last time this resource was updated at this node.
RSN	Resource Sequence Number that is assigned and controlled by the network node that owns this resource. This is always an even 32-bit number unless an error has occurred.
RAR	Route Addition Resistance indicates the relative desirability of using this node for intermediate session traffic. The value, which can be any integer from 0 to 255, is used in route computation. The lower the value, the more desirable the node is for intermediate routing.
Congested	Indicates whether this node is congested. This is set or reset by a node based upon one or both of the following congestion measures: cycle utilization of the hardware and total buffer utilization. When this congestion exists this node is not included in route selection by other nodes.

- Depleted            Indicates whether Intermediate Session Routing resources are depleted. This node is not included in intermediate route selection by other nodes when resources are depleted.
- Quiescing         Indicates whether the node is quiescing. This node is not included in route selection by other nodes when the node is quiescing.
- GW                 Indicates whether the node provide gateway functions.
- CDS                Indicates whether the node provides Central Directory Support.

**Sample Display - show appn topology node**

APPN Topology Nodes

```

-----
      Node           Type  FRSN  RSN  RAR  Congested  Depleted  Quiescing  GW  CDS
-----
USWFLT01.AN        NN   3547   2  128   No        No        No        No  No
USWFLT01.AFN       NN   3547   4  128   No        No        No        No  No
USWFLT01.ASN       NN   3547   2  128   No        No        No        No  No
USWFLT01.BCN       NN   3547   2  128   No        No        No        No  No
USWFLT01.BUD       NN   3547   2  128   No        No        No        No  No
USWFLT01.CN1       VRN     0    0  128   No        No        No        No  No
USWFLT01.PCX       NN   3547   2  128   No        No        No        No  No
USWFLT01.PLUTO     NN   3547   6  128   No        No        No        No  No
USWFLT01.VEGAS     NN   3548   2  128   No        No        No        No  No
USWFLT01.DURHAM    NN   3548   2  128   No        No        No        No  No
USWFLT01.SNEEZY    NN   3548   2  128   No        No        No        No  No
USWFLT01.ANAHEIM   NN   3548   2  128   No        No        No        No  No
USWFLT01.MERCURY   NN   3549  14    0   No        No        No        No  No
USWFLT01.RALEIGH   NN   3549   2  128   No        No        No        No  No
USWFLT01.WF3174A   NN   3551  64  128   No        No        No        No  No
USWFLT01.WFAS400   NN   3550  88  128   No        No        No        No  No
USWFLT01.BROOKLYN NN   3550   2  128   No        No        No        No  No
17 Entries.
  
```



---

## topology statistics

Displays APPN topology statistics.

### Node Record Statistics:

Max Nodes	Maximum number of nodes allowed in the APPN topology database. This administratively assigned value must be equal to or greater than the maximum total number of end nodes and network nodes. If the number of nodes exceeds this value, APPN will issue an alert and the node can no longer participate as a network node.
Current Nodes	Current number of nodes in this node's topology database. If this value exceeds the maximum number of nodes allowed, an APPN alert is issued.
Received TDUs	Number of TDUs received from all adjacent network nodes since last initialization.
Sent TDUs	Number of TDUs built by this node to be sent to all adjacent network nodes since last initialization.
Received Low RSNs	Number of topology node updates received by this node with a RSN less than the current RSN. Both even and odd RSNs are included in this count.
Received Equal RSNs	Number of topology node updates received by this node with a RSN equal to the current RSN. Both even and odd RSNs are included in this count.
Received High RSNs	Number of topology node updates received by this node with an RSN greater than the current RSN.
Received Bad RSNs	Number of topology node updates received by this node with an odd RSN greater than the current RSN.
State Updates	Number of topology node records built as a result of internally detected node state changes that affect APPN topology and routing.
Errors	Number of topology node record inconsistencies detected by this node.
Timer Updates	Number of topology node records built for this node's resource due to timer updates.
Records Purged	Number of topology node records purged from this node's topology database.

### TG Record Statistics:

Received Low RSNs	Number of topology transmission group updates received by this node with an RSN less than the current RSN. Both even and odd RSNs are included in this count.
Received Equal RSNs	Number of topology transmission group updates received by this node with an RSN equal to the current RSN. Both even and odd RSNs are included in this count.
Received High RSNs	Number of topology transmission group updates received by this node with an RSN greater than the current RSN.
Received Bad RSNs	Number of topology transmission group updates received by this node with an odd RSN greater than the current RSN.
State Updates	Number of topology transmission group records built as a result of internally detected node state changes that affect APPN topology and routing.
Errors	Number of topology transmission group records inconsistencies detected by this node.
Timer Updates	Number of topology transmission group records built for this node's resource due to timer updates.
Records Purged	Number of topology transmission group records purged from this node's topology database.
Routes Calculated	Number of routes calculated for all class of services since the last initialization.

---

## Sample Display - show appn topology statistics

### APPN Topology Statistics

-----  
Node Record Statistics

-----  
Max Nodes: 0  
Current Nodes: 38  
Received TDUs: 45  
Sent TDUs: 50  
Received Low RSNs: 3  
Received Equal RSNs: 39  
Received High RSNs: 19  
Received Bad RSNs: 10  
State Updates: 0  
Errors: 0  
Timer Updates: 0  
Records Purged: 0

### TG record Statistics

-----  
Received Low RSNs: 18  
Received Equal RSNs: 210  
Received High RSNs: 125  
Received Bad RSNs: 43  
State Updates: 5  
Errors: 1  
Timer Updates: 0  
Records Purged: 0  
Routes Calculated: 0

**topology tg definition** [*<owner name>*]

Displays transmission group information for all transmission group owners or for a specific transmission group owner.

TG Owner	Fully qualified name for the originating node for this transmission group. The format is <i>&lt;network_ID&gt;.&lt;CP_name&gt;</i> .
TG Destination	Fully qualified network name for the destination node for this transmission group.
TG Num	Number associated with this transmission group. Range is 0 to 255.
Eff Cap	Indicates the effective capacity of this transmission group. It is derived from the link bandwidth and maximum load factor with the range of 0 through 255. This is an administratively assigned value for this transmission group.
Conn Cost	Cost per connection time. This value represents the relative cost per unit of time to use the transmission group. Range is from 0, which means no cost, to 255, which indicates maximum cost. This is an administratively assigned value associated with this transmission group.
Byte Cost	Relative cost of transmitting a byte over this link. Range is from 0 (lowest cost) to 255. This is an administratively assigned value associated with this transmission group.
Security	Security is represented as an integer with a range of 1 to 255. This is an administratively assigned value associated with this transmission group. The most common values are 1 (nonsecure), 32 (public-switched), 64 (underground), 128 (conduit), 160 (encrypted), 192 (guarded radiation), and 255 (maximum).
Delay	Relative amount of time that it takes for a signal to travel the length of the logical link, with a range of 0 through 255. This is an administratively assigned value associated with this transmission group. The most common values are 76 (negligible), 113 (terrestrial), 145 (packet), 153 (long), and 255 (maximum).
User 1	First user-defined transmission group characteristic for this transmission group, with a range of 0 to 255. This is an administratively assigned value associated with this transmission group.
User 2	Second user-defined transmission group characteristic for this transmission group, with a range of 0 to 255. This is an administratively assigned value associated with this transmission group.
User 3	Third user-defined transmission group characteristic for this transmission group, with a range of 0 to 255. This is an administratively assigned value associated with this transmission group.

---

## Sample Display - show appn tg definition

APPN Topology TG Definition

-----

TG Owner	TG Destination	TG Num	Err Cap	Conn Cost	Byte Cost	Secu rity	De- lay	User 1	User 2	User 3
-----	-----	---	---	---	---	---	---	---	---	---
USWFLT01.PLUTO	USWFLT01.DURHAM	21	48	0	0	1	113	128	128	128
USWFLT01.DURHAM	USWFLT01.PLUTO	21	133	128	128	1	0	128	128	128
USWFLT01.DURHAM	USWFLT01.ANAHEIM	1	133	128	128	1	0	128	128	128
USWFLT01.DURHAM	USWFLT01.ANAHEIM	2	133	128	128	1	0	128	128	128
USWFLT01.DURHAM	USWFLT01.ANAHEIM	3	0	0	0	1	0	0	0	0
USWFLT01.DURHAM	USWFLT01.ANAHEIM	4	0	0	0	1	0	0	0	0
USWFLT01.DURHAM	USWFLT01.WF3174A	21	133	128	128	1	0	128	128	128
USWFLT01.ANAHEIM	USWFLT01.DURHAM	1	133	128	128	1	0	128	128	128
USWFLT01.ANAHEIM	USWFLT01.DURHAM	2	133	128	128	1	0	128	128	128
USWFLT01.ANAHEIM	USWFLT01.DURHAM	3	0	0	0	1	0	0	0	0
USWFLT01.ANAHEIM	USWFLT01.WFAS400	21	0	0	0	1	0	0	0	0
USWFLT01.WF3174A	USWFLT01.DURHAM	21	68	0	0	32	113	0	0	0

12 Entries.

## **topology tg status [<owner name>]**

Displays transmission group topology information for all transmission group owners or for a specific transmission group owner.

TG Owner	Fully qualified name for the originating node for this transmission group. The format is <network_ID>.<CP_name>.
TG Destination	Fully qualified network name for the destination node for this transmission group.
TG Num	Number associated with this transmission group. Range is 0 to 255.
FRSN	Flow Reduction Sequence Numbers are associated with Topology Database Updates (TDUs) and are unique only within each APPN network node. This FRSN indicates the last time this resource was updated at this node.
RSN	Current owning node's Resource Sequence Number for this resource.
Up?	Indicates whether the transmission group is operational.
Quiescing	Indicates whether the transmission group is quiescing.
CP-CP Sessn	Indicates whether CP-CP sessions are supported on this transmission group.

---

## Sample Display - show appn tg status

APPN Topology TG Status

-----

TG Owner	TG Destination	TG Num	FRSN	RSN	Up?	Quie- scing	CP-CP Sessn
USWFLT01.PLUTO	USWFLT01.DURHAM	21	2512	522	Yes	No	Yes
USWFLT01.DURHAM	USWFLT01.PLUTO	21	2538	272	Yes	No	Yes
USWFLT01.DURHAM	USWFLT01.ANAHEIM	1	2551	264	No	No	Yes
USWFLT01.DURHAM	USWFLT01.ANAHEIM	2	2546	170	Yes	No	Yes
USWFLT01.DURHAM	USWFLT01.ANAHEIM	3	2504	142	No	No	Yes
USWFLT01.DURHAM	USWFLT01.ANAHEIM	4	2504	22	No	No	Yes
USWFLT01.DURHAM	USWFLT01.WF3174A	21	2538	166	Yes	No	Yes
USWFLT01.ANAHEIM	USWFLT01.DURHAM	1	2553	86	No	No	Yes
USWFLT01.ANAHEIM	USWFLT01.DURHAM	2	2532	82	Yes	No	Yes
USWFLT01.ANAHEIM	USWFLT01.DURHAM	3	2532	60	No	No	Yes
USWFLT01.ANAHEIM	USWFLT01.WFAS400	21	2532	38	No	No	Yes
USWFLT01.WF3174A	USWFLT01.DURHAM	21	2537	168	Yes	No	Yes

12 Entries.

**tunnel** [*<circuit>*]

Displays APPN tunnel information for all circuits or for a specific circuit.

CCT	Circuit number of the circuit running over this APPN tunnel.
Partner Node	Partner LU for this APPN tunnel.
State	Current state of the tunnel: Up, Down, Init (initializing), or Not Present.
Frames Rcvd	Number of frames received over this APPN tunnel.
Frames Sent	Number of frames transmitted over this APPN tunnel.
Frames Dropped	Number of frames dropped by this APPN tunnel due to congestion.

**Sample Display - show appn tunnel**

APPN Tunnels

-----

CCT	Partner Node	State	Frames Rcvd	Frames Sent	Frames Dropped
-----			-----	-----	-----
100	USWFLT01.ANAHEIM	Active	26	7	0

1 Entry.



---

## version

Displays the current version and modification date of the *appn.bat* script.

### Sample Display - show appn version

```
APPN.bat Version: #.## Date: mm/dd/yy.
```

## vrn [<VRN name>]

Displays state information for all Virtual Routing Nodes (VRNs) or for a specific VRN.

VRN	Fully qualified network name that is locally defined at each network node in the format <i>&lt;network_ID&gt;.&lt;CP_name&gt;</i> .
State	Current state of this VRN: Inactive, Pending Active, Active, Pending Inactive.
Port	Administratively assigned name for this APPN port. The name can be from one to eight characters.
Port State	Current state of this port: Inactive, Pending Active, Active, Pending Inactive.

### Sample Display - show appn vrn

```
APPN Virtual Routing Nodes
```

```
-----
```

VRN	State	Port	Port State
USWFLT01.CN1	Pending Active	PORT31	Inactive

```
-----
```

## show at

The **show at** *<option>* commands display information about the AppleTalk protocol and services. For detailed information on the Bay Networks implementation of AppleTalk services, refer to *Configuring AppleTalk Services*.

The **show at** command supports the following subcommand options:

<a href="#">aarp [<u>&lt;net&gt;</u>,<u>&lt;node&gt;</u>   <u>find &lt;net&gt;</u>]</a>	<a href="#">filters zone [<u>circuit &lt;circuit name&gt;</u>]</a>
<a href="#">alerts</a>	<a href="#">routes   nets [<u>find &lt;netlow&gt;</u>-<u>&lt;nethigh&gt;</u>] [<u>zones</u>]</a>
<a href="#">base</a>	<a href="#">stats [<u>aarp   ddp   rtmp   zipquery   zipgni   zipes   nbp   echo</u>] [<u>&lt;circuit name&gt;</u>]</a>
<a href="#">circuit [<u>&lt;circuit name&gt;</u>]</a>	<a href="#">total [<u>routes   nets   zones   aarp</u>]</a>
<a href="#">configuration [<u>circuit &lt;circuit name&gt;</u>]</a>	<a href="#">version</a>
<a href="#">disabled</a>	<a href="#">zones   zip [<u>find &lt;pattern&gt;</u>]</a>
<a href="#">enabled</a>	

---

**aarp** [*<net>.<node>* | **find** *<net>*]

Displays all entries in the AppleTalk Address Resolution Protocol (AARP) table, only the AARP entry for a specific node, or all entries that have a network address that matches a specified pattern.

*<net>.<node>* Displays the AARP entry for the specified network node in the format *<network\_ID>.<node\_ID>*.

**find** *<network\_pattern>* Displays the AARP entries that have a network address that matches the given pattern.

The table includes the following information:

Address	AppleTalk network address of the node.
Physical Address	Hardware address of the node (for example, the Ethernet address).
Circuit	Name of the circuit on which the address resolution is in effect.

**Sample Display - show at aarp**

AppleTalk AARP Table

```
-----  
Address      Physical Address      Circuit  
-----  
60020.19    00-00-A2-01-51-AD    S32  
60060.193   00-2B                 S31  
60100.213   00-00-A2-00-F9-B0    E24  
60120.2     <null-PPP>           S34  
60130.179   00-00-89-01-A3-8A    E23  
60130.226   00-80-D3-A0-0A-62    E23
```

6 total entries.

## alerts

Displays all AppleTalk circuits that are enabled but not up. Mode is always Enabled but the state will be down. Use this display to identify the interfaces that are not working. The table includes the following information:

Circuit	Name of the circuit the port is on.
Mode	Mode will be Enabled, in this case.
Network	Network start and end numbers that constitute the range of the network numbers. These numbers are in the range of 1 through 65,279.
Address	Network address of the port, which is Dynamic, meaning that the seed router assigns it, or a manually configured network address and identifier.
Zone List	List containing all the zones configured for the network range.

### Sample Display - show at alerts

```
AppleTalk Circuit Alerts: Enabled but state is down
```

```
-----
```

Circuit	Mode	Network	Address	Zone List
S31	Enabled	60060-60060	Dynamic	'WAN'

```
1 entries found.  
1 total entries.
```

---

## base

Displays the base record information for AppleTalk. The base record controls AppleTalk for the entire system. The table includes the following information:

Protocol	Name of the protocol, which is AppleTalk.
State	State of the protocol: Disabled, Down, Init (initializing), Not Pres (enabled but not yet started), or Up.
Nets	Number of networks in this protocol's routing table.
Zones	Number of zone/network associations in the routing table.
Zone Names	Number of unique zone names in the routing table.

### Sample Display - show at base

```
AppleTalk Base Information
```

```
-----
```

Protocol	State	Nets	Zones	Zone Names
-----	-----	-----	-----	-----
AppleTalk	Up	26	24	17

**circuit** [*<circuit name>*]

Displays circuit and state information for all AppleTalk ports or for a specific port. The table includes the following information:

Circuit	Name of the circuit the port is on.
State	State of the circuit: Disabled, Down, Init (initializing), Not Pres (enabled but not yet started), or Up.
Network	Network start and end numbers that constitute the range of the network numbers. These numbers are in the range of 1 through 65,279.
Address	AppleTalk address of the port.
Zone List	List of the zones associated with the network this interface is on.



**Note:** If a circuit is down, the rest of the table is blank.

---

**Sample Display - show at circuit**

```
AppleTalk Circuit Information
-----
```

Circuit	State	Network	Address	Zone List
E23	Up	60130-60130	60130.34	'External'
E24	Up	60100-60100	60100.34	'Mac/Apple'
S31	Down			
S32	Up	60020-60020	60020.138	'WAN'
S34	Up	60120-60120	60120.1	'PPP'

```
5 total entries.
```

---

## configuration [circuit <ircuit name>]

Displays configurable parameters within the AppleTalk base record. You can display this information for all circuits or for a specific circuit. The table includes the following information:

Mode	State of the protocol: Enabled or Disabled.
NBP Registered Port	Name of the port that the Name Binding Protocol uses to advertise the router's name on the network.



**Note:** The **configuration circuit** command displays different fields from the **configuration** command. For definitions of these fields, refer to the **alerts** command.

---

### Sample Display - show at configuration

```
AppleTalk Base Configuration
-----
      Mode      NBP Registered Port
-----
Enabled      E22
```

**Sample Display - show at configuration circuit**

AppleTalk Circuit Configuration

```
-----  
Circuit      Mode      Network    Address      Zone List  
-----  
E22         Enabled   60070-60070 Dynamic      'Internal'  
E23         Enabled   60130-60130 Dynamic      'External'  
E24         Enabled   60100-60100 Dynamic      'Mac/Apple'  
                                     'Internal'  
S31         Enabled   60060-60060 Dynamic      'WAN'  
S32         Enabled   60020-60020 Dynamic      'WAN'  
S34         Enabled   60120-60120 60120.1     'PPP'
```

6 total entries.

**disabled**

Displays all disabled circuits that contain an AppleTalk port. A circuit is disabled if the disable/enable parameter is set to disable and the state is down. For definitions of the columns in the table, see the **alerts** command.

**Sample Display - show at disabled**

Disabled AppleTalk Circuits

```
-----  
Circuit      Mode      Network    Address      Zone List  
-----  
E22         Disabled  60070-60070 Dynamic      'Internal'
```

1 entries found.

1 total entries.



---

## enabled

Displays all enabled circuits that contain an AppleTalk port. A circuit is enabled if the disable/enable parameter is set to enable and the state is up. For definitions of the columns in the table, see the **circuit** command.



**Note:** If a circuit is down, the rest of the table is blank.

---

### Sample Display - show at enabled

Enabled AppleTalk Circuits

```
-----
```

Circuit	State	Network	Address	Zone List
E23	Up	60130-60130	60130.34	'External'
E24	Up	60100-60100	60100.34	'Mac/Apple'
S31	Down			
S32	Up	60020-60020	60020.138	'WAN'
S34	Up	60120-60120	60120.1	'PPP'

```
-----
```

5 entries found.

5 total entries.

### filters zone [circuit <*circuit name*>]

Displays information about the zone filters for all circuits or a specified circuit. The table includes the following information:

Circuit	Name of the circuit the port is on.
AppleTalk Port	Number of the port.
Port Filter Mode	Zone filter type: Include, Exclude, 5.X Include, or 5.X Exclude.
Filtered Zones(s)	Zones that are filtered for this port.
Total zones	Number of zones that are filtered on this port.

**Sample Display - show at filters zone**

Circuit: E31  
AppleTalk Port: #1

Port Filter Mode: Include

Filtered Zone(s) for this port

-----  
MARKETING  
SALES

Total zones for circuit E31 is 2

Circuit: E21  
AppleTalk Port: #2

Port Filter Mode: Deny

Filtered Zone(s) for this port

-----  
MARKETING  
SALES

Total zones for circuit E21 is 2

Circuit: E32  
AppleTalk Port: #3

Port Filter Mode: 5.x series Include

Filtered Zone(s) for this port

-----  
MARKETING

Total zones for circuit E32 is 1

---

## routes | nets [find <netlow>-<nethigh>] [zones]

Displays information from the AppleTalk routing table. The table receives routes through the AppleTalk Routing Table Maintenance Protocol (RTMP) or from AppleTalk interfaces.

**find <netlow>-<nethigh>** Displays information about network address ranges that fall within the specified start and end values; for example, 60401-60406.

**zones** Displays an extended format of the routing table, which adds the zone list for each network range.

The table includes the following information:

Network	Start and end numbers of the destination network range. These numbers are in the range of 1 through 65279. A range (for example, 60020-60020) indicates the network is an extended network. A single number indicates the network is nonextended.
Hop	Number of hops to the destination network range.
Next Hop	Network address of the router that is the next hop toward the destination network range.
State	State of the network: Good, Suspect, Bad 0 (going bad), or Bad 1 (completely bad).
Port	Physical port that serves as the source of the route. An <AURP> in this column means that the router learned this route through the AppleTalk Update-based Routing Protocol.
Zone List	Name of the zone associated with this network. The table includes this column when you include the zones option on the command line. If the zone name is more than 32 characters, the script displays as much of the name as possible followed by ellipses.

### Sample Display - show at routes

AppleTalk Routing Table

-----

Network	Hop	Next Hop	State	Port
60020-60020	1	205.1.10.1	Good	<AURP>
60040-60040	2	205.1.10.2	Good	<AURP>
60050-60050	2	205.1.10.1	Good	<AURP>
60400-60400	0	60400.96	Good	E21
60401	1	60040.169	Good	E32
60404	2	205.1.10.1	Good	<AURP>
60410	3	205.1.10.2	Good	<AURP>

7 total entries.

### Sample Display - show at nets find 60401-60404

AppleTalk Routing Table

-----

Network	Hop	Next Hop	State	Port
60401	1	60040.169	Good	E32
60404	2	205.1.10.1	Good	<AURP>

2 total entries.

---

## Sample Display - show at routes zones

Network	Hop	Next Hop	State	Port	Zone List
60020-60020	1	205.1.1.10.1	Good	<AURP>	'WAN'
60080-60081	1	60090.4	Suspect	F41	'Internal' 'Token'
60090-60090	0	60090.61	Good	F41	'Internal'
60100-60100	1	205.1.1.10.1	Good	<AURP>	'Internal' 'Mac/Apple'
60130-60130	1	205.1.1.10.1	Good	<AURP>	'External'
60401	3	205.1.1.10.1	Good	<AURP>	'Building 3, Floor 2, Sec...'
60403	2	205.1.1.10.1	Good	<AURP>	'LT Crisp'

7 total entries.

**stats [aarp | ddp | rtmp | zipquery | zipgni | zipes | nbp | echo] [<circuit name>]**

Displays general forwarding statistics for specified AppleTalk ports. You can limit the display to a specific circuit.

<b>aarp</b>	Displays AppleTalk Address Resolution Protocol (AARP) statistical information.
<b>ddp</b>	Displays Datagram Delivery Protocol (DDP) statistical information.
<b>rtmp</b>	Displays Routing Table Maintenance Protocol (RTMP) statistical information.
<b>zipquery</b>	Displays Zone Information Protocol (ZIP) statistical information specific to ZIP Query packets.
<b>zipgni</b>	Displays statistical information specific to ZIP GetNetInfo request packets.
<b>zipes</b>	Displays ZIP statistical information specific to Client activity.
<b>nbp</b>	Displays Name Binding Protocol (NBP) statistical information.
<b>echo</b>	Displays ECHO protocol statistical information.
<b>&lt;circuit_name&gt;</b>	Limits the display to the specified circuit.

The table includes the following information:

Circuit	Name of the circuit the AppleTalk protocol is on.
In Datagrams	Number of packets the port has received.
In Local Datagrams	Number of datagrams destined for this port.
Forwarded Datagrams	Number of packets forwarded to the destination network.
Output Requests	Number of packets that the router has sent out of this port.
Out No Routes	Number of packets missing a destination.
Hop Count Errors	Number of datagrams dropped because this router was not their final destination and their hop count would exceed 15.

**Sample Display - show at stats ddp**

AppleTalk DDP Statistics

-----

Circuit	In Datagrams	In Local Datagrams	Forwarded Datagrams	Output Requests	Out No Routes	Hop Count Errors
-----	-----	-----	-----	-----	-----	-----
E22	0	0	0	0	0	0
E23	80956	4535	61174	3166	72	0
E24	29188	3819	27215	2971	7	1
S31	15240	3887	14453	3554	2	0
S32	27354	3368	26566	3033	0	0
S34	19391	3559	18508	3143	0	0

---

## **total [routes | nets | zones | aarp]**

Displays totals for all dynamic protocol-specific information or for the specified parameter.

<b>routes</b>	Displays total number of routes.
<b>nets</b>	Displays total number of networks.
<b>zones</b>	Displays total number of zones.
<b>aarp</b>	Displays total number of AARP entries.

### **Sample Display - show at total**

```
AppleTalk Totals
-----
Routes:                26
Zones:                 28
Unique Zone Names:    18
AARP Entries:         5
```

## **version**

Displays the current version and modification date of the *at.bat* script.

### **Sample Display - show at version**

```
AT.bat Version: #.## Date: mm/dd/yy.
```

**zones | zip [find <pattern>]**

Displays information from the router's Zone Information Protocol (ZIP) table. The table receives its entries from manually configured zone lists for AppleTalk ports and from ZIP packets from other nodes on the network.

**find <pattern>** Limits the display to zones that match the specified pattern. You can use the wildcard characters \* and ?.

The table includes the following information:

Network	Network start and end numbers that constitute the range of the network numbers where the zone resides. These numbers are in the range of 1 through 65,279.
Zone Name	Name of each zone assigned to the entire network or the specified group.

**Sample Display - show at zones**

AppleTalk Zone Table

```
-----
Network                Zone Name
-----
```

```
1-1          '37_Network'
2-2          'net_1'
3-3          'net_2'
50-50        'ring_2ACC'
50-50        'ring_2DEV'
50-50        'ring_2ENG'
50-50        'ring_2'
200-200      'net_200'
201-201      'net_201ACC'
201-201      'net_201DEV'
201-201      'net_201ENG'
201-201      'net_201'
203-203      'net_203ACC'
203-203      'net_203DEV'
203-203      'net_203ENG'
203-203      'net_203'
```

18 total entries.



---

## Sample Display - show at zones find net\*

AppleTalk Zone Table

-----

Network	Zone Name
2-2	'net_1'
3-3	'net_2'
200-200	'net_200'
201-201	'net_201ACC'
201-201	'net_201DEV'
201-201	'net_201ENG'
201-201	'net_201'
203-203	'net_203ACC'
203-203	'net_203DEV'
203-203	'net_203ENG'
203-203	'net_203'

11 entries found.

16 total entries.

## show atm

The **show atm** *<option>* commands display information about the Asynchronous Transfer Mode (ATM) Adaption Layer Controller (ALC) link module service. For detailed information about the Bay Networks implementation of the ATM link module service, refer to *Configuring ATM Services*.



**Note:** Refer to the “[show atm line](#)” section for more information on the **atm line** command.

---

The **show atm** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">vcs [&lt;line&gt;]   [&lt;line.vpi&gt;]   [&lt;line.vpi.vci&gt;]</a>
<a href="#">disabled</a>	<a href="#">services [&lt;line&gt;]   [&lt;line.circuit&gt;]</a>
<a href="#">enabled</a>	<a href="#">stats</a>
<a href="#">interfaces [&lt;line&gt;]</a>	<a href="#">stats vcs [&lt;line&gt;]   [&lt;line.VPI&gt;]   [&lt;line.VPI.VCI&gt;]</a>
<a href="#">line [&lt;line option&gt;]</a>	<a href="#">version</a>

---

## alerts

Displays abnormal conditions in the ATM interface. Use this command to identify lines configured as enabled but not currently up. The table displays the following information:

Line	Line number of the Bay Networks router.
Circuit	Circuit name on which the ATM interface runs.
State	State of the ATM line: Up, Down, Init (initializing), Disabled, or Absent.

### Sample Display - show atm alerts

```
ATM Interface Line Alert Table
-----

   Line   Circuit   State
-----
 1103101   A31       Down

Total entries: 1
```

## disabled

Displays the ATM interfaces that are configured as disabled. For more information about column definitions, see the **alerts** command.

### Sample Display - show atm disabled

```
ATM Interface Line Disabled Table
-----

   Line   Circuit   State
-----
 1103101   A31       Disabled

Total entries: 1
```

## enabled

Displays the ATM interfaces that are configured as enabled. For more information about column definitions, see the **alerts** command.

### Sample Display - show atm enabled

ATM Interface Line Enabled Table

-----

Line	Circuit	State
1404101	0	Absent
1405101	A51	Up

Total entries: 2

## interfaces [<line>]

Displays all ATM interfaces or ATM interfaces for a specified line. This table includes the following information:

VPCs	Maximum number of Virtual Path Connections supported by the ATM interface.
VCCs	Maximum number of Virtual Channel Connections supported by the ATM interface.
Address Type	Type of ATM address configured for use by the ATM interface: Private, NSAP E.164, Native E.164, Other, Null, or NotDefined.
Signaling	Whether signaling is enabled or disabled on the ATM interface.
Sig Standard	The signaling standard configured for the ATM interface: UNI3.0 or UNI3.1

For more information about column definitions, see the **alerts** command.

---

## Sample Display - show atm interfaces

ATM Interface Table

-----

Line	Circuit	State	VPCs	VCCs	Address Type	Signaling	Sig Standard
-----	-----	-----	-----	-----	-----	-----	-----
1404101	A41	Up	0	0	NotDefined	Enabled	UNI3.0

Total entries: 1

### line [*<line option>*]



**Note:** See the “[show atm line](#)” section.

---

### vcs [*<line>*] | [*<line.vpi>*] | [*<line.vpi.vci>*]

Displays all ATM virtual channel link (VCL) instances or a subset of VCL instances.

<i>&lt;line&gt;</i>	Displays all VCs for a specified line.
<i>&lt;line.vpi&gt;</i>	Displays all VCs for a specified VPI on that line.
<i>&lt;line.vpi.vci&gt;</i>	Displays a specific VC.

The table displays the following information:

Line.VIP.VCI	Line number, Virtual Path Identifier, and Virtual Channel Identifier associated with this Virtual Circuit (VC).
Type	Type of VC: SVC or PVC.
State	State of the ATM line: Up, Down, Init (initializing), Disabled, or Absent.
Hybrid/Bridged VCs	Mode of this VC (Hybrid/Bridged): Yes or No. Yes means the VC operates as a hybrid access mode VC; No means the VC works in group access mode only.
AAL	ATM Adaptation Layer Type of this VC: AAL5.
Encaps	Encapsulation type of this VC: LLC/SNAP, NULL, LANE8023, LANE8025, NLPID, Unknown, or OTHER.
Xmt PCR	Transmit Peak Cell Rate (PCR) for this VC (in cells/s).
Xmt SCR	Transmit Sustainable Cell Rate (SCR) for this VC (in cells/s).

---

## Sample Display — show atm vcs

ATM Interface VCL Table

-----

Line.VPI.VCI	Type	State	Hybrid/ Bridged VCs?	AAL	Encaps	Xmt PCR	Xmt SCR
-----	-----	-----	-----	-----	-----	-----	-----
1404101.0.5	PVC	Absent	NO	AAL5	LLC/SNAP	4716	4716
1404101.0.16	PVC	Absent	NO	AAL5	LLC/SNAP	4716	4716
1404101.0.204	PVC	Absent	NO	AAL5	LLC/SNAP	2358	2358
1405101.0.5	CTRL Up	NO	AAL5	OTHER	4716	4716	
1405101.0.16	CTRL Up	NO	AAL5	OTHER	4716	4716	
1405101.0.32	SVC	Up	NO	AAL5	NULL	353207	0
1405101.0.33	SVC	Up	NO	AAL5	NULL	353207	0
1405101.0.34	SVC	Up	NO	AAL5	OTHER	353207	0
1405101.0.35	SVC	Up	NO	AAL5	NULL	353207	0
1405101.0.36	SVC	Up	NO	AAL5	LANE8023	353207	0
1405101.0.38	SVC	Up	NO	AAL5	LANE8023	353207	0
1405101.0.200	PVC	Up	NO	AAL5	LLC/SNAP	2358	0
1405101.0.201	PVC	Up	NO	AAL5	LLC/SNAP	150000	0
1405101.0.202	PVC	Up	NO	AAL5	LLC/SNAP	2358	0
1405101.0.203	PVC	Up	NO	AAL5	LLC/SNAP	150000	0
1405101.0.205	PVC	Up	NO	AAL5	LLC/SNAP	150000	0

Total entries: 16

**services** [*<line>*] | [*<line.circuit>*]

Displays all ATM service record instances, or a subset of service record instances, along with its AAL layer data encapsulation type, state, VC type, and ATM address (a combination of network prefix and user part).

*<line>* Displays all service record instances for a specified line.  
*<line.circuit>* Displays service record instance for a specified circuit on that line.

The table displays the following information:

Line.Circuit	Line number and circuit associated with this service record.
Encaps	Encapsulation type of this VC: LanEmulation, LLC/SNAP, NLPID, NULL.
State	State of the ATM line: Up, Down, Init (initializing), Reject, or Absent.
Type	Type of virtual circuit: PVC or SVC
ATM Address	The ATM address of this service record. This parameter applies only to SVC-type service records.

**Sample Display - show atm services**

ATM Service Record Table

```
-----
Line.Circuit   Encaps   State  Type  ATM Address
-----
1404101.13    LLC/SNAP  Reject PVC  (nil)
1405101.6     LanEmulation Up     SVC  39.10.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.A2.0D.74.B7.00
1405101.8     LLC/SNAP  Up     PVC  (nil)
1405101.9     LLC/SNAP  Up     PVC  (nil)
1405101.10    LLC/SNAP  Up     PVC  (nil)
1405101.11    LLC/SNAP  Up     PVC  (nil)
1405101.12    LLC/SNAP  Up     PVC  (nil)
1405101.19    LLC/SNAP  Up     SVC  39.10.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.A2.0D.74.B7.06
-----
```

Total entries: 8



---

## stats

Displays statistical information about all ATM VCs. The table includes the following information:

Line.VPI.VCI	Line number, Virtual Path Identifier, and Virtual Channel Identifier associated with this Permanent Virtual Circuit.
Cells Transmitted	Number of assigned ATM layer cells transmitted at the transceiver transmit interface (T-count).
Cells Received	Number of ATM layer cells received at the transceiver receive interface that have not been discarded (R-count).
Checksum Errors	Number of occurrences of cyclical redundancy check-32 (CRC-32) failures across user payload data for any given VCL.
Invalid Length Errors	Number of active Cell Sequence PDU assembly processes closed (aborted, accumulation discarded) due to detecting a length field error in a received SAR PDU.
Pkts Transmitted	Number of packets transmitted at the transceiver transmit interface.
Pkts Received	Number of packets received at the transceiver receive interface that have not been discarded.



**Note:** This command polls for ATM FRE-2 link module statistics before it looks for ARE link module statistics.

---

### Sample Display - show atm stats

ATM Interface VC Statistics (ATM FRE-2)

-----

```
Line.VPI.VCI
-----
1105101.0.33    Cells Transmitted: 0X    00.00.00.00.EB.93.0A.A6
                Cells Received   : 0X    00.00.00.00.00.00.00.00
                Checksum   Errors:                0
                Length     Errors:                0
```

Total entries: 1

ATM Interface VC Statistics (ATM Routing Engine)

-----

```
Line.VPI.VCI
-----
1405101.0.3    Cells Transmitted:                0
                Cells Received   :                0
                Pkts Transmitted :                0
                Pkts Received    :                0

1405101.0.5    Cells Transmitted:                2324
                Cells Received   :                2233
                Pkts Transmitted :                2223
                Pkts Received    :                2223

1405101.0.16   Cells Transmitted:                15
                Cells Received   :                16
                Pkts Transmitted :                8
                Pkts Received    :                8
```

Total entries: 3

---

**stats vcs** [*<line>*] | [*<line.VPI>*] | [*<line.VPI.VCI>*]

Displays all ATM VC statistics or a subset of ATM VC statistics.

*<line>* Displays all PVCs for a specified line.  
*<line.VPI>* Displays all PVCs for a specified VPI on that line.  
*<line.VPI.VCI>* Displays a specific PVC.



**Note:** This command polls for ATM FRE-2 link module statistics before it looks for ARE link module statistics.

---

For more information about column definitions, see the **stats** command.

### Sample Display - show atm stats vcs 1405101.0.5

```
ATM Interface VC Statistics (ATM FRE-2)
-----

Line.VPI.VCI
-----
ATM PVC Stats Record not found

Total entries: 0
ATM Interface VC Statistics (ATM Routing Engine)
-----

Line.VPI.VCI
-----
1405101.0.5      Cells Transmitted:      2699
                  Cells Received   :      2598
                  Pkts Transmitted :      2588
                  Pkts Received    :      2588

Total entries: 1
```

## version

Displays the current version number and modification date of the *atm.bat* script.

### Sample Display - show atm version

```
ATM.bat Version: #.## Date: mm/dd/yy.
```

## show atmarp

The **show atmarp** *<options>* command displays ATMARP information. For details about the Bay Networks implementation of ATM, refer to *Configuring ATM Services*.

The **show atmarp** command supports the following subcommand options:

<a href="#">configuration [&lt;IP address&gt;]</a>	<a href="#">table [-r   -v   -a] [-l] [&lt;IP address&gt;]</a>
<a href="#">interface [&lt;IP address&gt;]</a>	<a href="#">version</a>
<a href="#">stats [&lt;IP address&gt;]</a>	

## configuration [*<IP address>*]

Displays configuration information for all ATMARP interfaces, or a specific interface.

*<IP\_address>*                      Displays ATM ARP information for a specific interface.

The table displays the following information:

Interface	IP address of the interface.
Mode	Whether the router is confirmed as an ATM ARP client or server.
Server Address (if client)	ATM address of the server. If the router is an ATM ARP server, the server address does not appear.

---

## Sample Display - show atmarp configuration

Interface	Mode	Server Address (if client)
5.5.5.7	Client	47000580FFE1000000F2151540.0000A20E9FCC00
6.6.6.7	Server	

2 Atmarp Interfaces.

## interface [<IP address>]

Displays interface information for all ATMARP interfaces, or a specific interface.

<IP\_address> Displays ATM ARP information for a specific interface.

The table displays the following information:

Interface	IP address of the interface.
Address	ATM address this interface uses.
Server Conn. State	Indicates the state of the VC connecting the client to the server, and whether the client is currently registered with the server.

## Sample Display - show atmarp interface

Interface	Address	Server Conn. State
5.5.5.7	47000580FFE1000000F2151540.0000A20CD5C100	Open,Registered
6.6.6.7	47000580FFE1000000F2151540.0000A20CD5C101	Server

2 Atmarp Interfaces.

**stats** [*<IP address>*]

Displays statistics information for all ATMARP interfaces, or a specific interface.

*<IP\_address>* Displays ATM ARP information for a specific interface.

The table displays the following information:

Interface	IP address of the client.
Open SVCs	Number of SVCs currently open.
Calls Attempted	Number of calls attempted, both to the server and to other clients.
Calls Succeeded	Number of attempted calls that succeeded.
Failed May Retry	Number of attempted calls that did failed, but that the client may retry.
Failed No Retry	Number of attempted calls that failed, but that the client will not retry.
Calls Accepted	Number of calls that this interface accepted.

**Sample Display - show atmarp stats**

Interface	Open SVCs	Calls Attempted	Calls Succeeded	Failed May Retry	Failed No Retry	Calls Accepted
5.5.5.7	1	37	2	0	35	0
6.6.6.7	2	0	0	0	0	3

2 Atmarp Interfaces.

---

**table [-r | -v | -a] [-l] [<IP address>]**

Displays table information for all ATMARP interfaces, or a specific interface. The information that appears in the table, or the order in which information appears, depends on the subcommand you enter.

<b>-r</b>	Displays the ATM ARP resolution table (default); this information appears in order of IP address.
<b>-v</b>	Displays the ATM ARP resolution table in order of VPI/VCI pair.
<b>-a</b>	Displays the ATM address and VPI/VCI pair information in order of ATM address.
<b>-l</b>	Displays additional information for the table ( <b>-r</b> , <b>-v</b> , or <b>-a</b> ) you specify. For example, specifying <b>-l -r</b> provides additional IP information, specifying <b>-l -v</b> provides additional VC information, and specifying <b>-l -a</b> provides ATM address information. If you do not specify a table, this subcommand displays the additional information for the default resolution table (that is, <b>-r</b> ).
<b>&lt;IP_address&gt;</b>	Displays ATM ARP information for a specific IP address.

The default (**-r**) and **-v** ATM ARP resolution tables display the following information:

IP address	IP address of an ARP entry in the ATMARP cache.
Life	Age of the ARP entry (decrements from 900 s).
ATM address	ATM address to which the IP address resolves.
Vpi.vci	Virtual Path Identifier and Virtual Channel Identifier for the VCs to the IP address. If this is not present, then no VC exists to the destination.

**Sample Display - show atmarp table (also show atmarp table -r)**

ATMARP Table for interface 5.5.5.7

-----

IP address	Life	ATM address	Vpi.vci
5.5.5.5	844	47000580ffe1000000f2151540.0000a20e9fcc00	0.212

ATMARP Table for interface 6.6.6.7

-----

IP address	Life	ATM address	Vpi.vci
6.6.6.6	823	47000580ffe1000000f2151540.0000a20e9fcc01	0.211
6.6.6.8	425	47000580ffe1000000f2151540.0000a20e9fc701	0.174

**Sample Display - show atmarp table -v**

ATMARP Table for interface 5.5.5.5

-----

Vpi.vci	Atm address	IP address	Life
0.32	39000000000000000000000000000000.0000a20d74a300	5.5.5.6	993
0.55	39000000000000000000000000000000.0000a20cd5c100	5.5.5.7	627

ATMARP Table for interface 6.6.6.6

-----

Vpi.vci	Atm address	IP address	Life
0.34	39000000000000000000000000000000.0000a20d74a301		
0.60	39000000000000000000000000000000.0020ea00072b00	6.6.6.9	593

2 Atmarp Interfaces.



---

The -a ATM ARP resolution table displays only ATM address to VPI/VCI resolution.

**Sample Display - show atmarp table -a**

```
ATM address                                Vpi.vci
-----                                -
390000000000000000000000000000000000.0000a20d74a300  0.37
390000000000000000000000000000000000.0000a20cd5c100  0.40
```

The -l subcommand provides the following added information about the default (-r) ATM ARP resolution table:

State	The state of the interface: Needed, Resolving, Resolved, Aged, Static.
Encaps	The encapsulation type assigned to the IP interface: Default, LLC/SNAP, SNAP IP, Null, Unknown.
Lifetime	Amount of time (in seconds) left for the validity of the resolution information for this entry.
Retries	The number of attempts that were necessary to resolve this entry.

**Sample Display - show atmarp table -r -l**

```
IP Address      State      Encaps      Lifetime  Retries
-----      -
5.5.5.6         Resolved   Default     1187     0
5.5.5.7         Resolved   Default     348     0
```

The `-l` subcommand provides the following added information about the `-v` ATM ARP resolution table:

Vcid	An internal identifier for this VC.
Callref	An internal identifier for this VC.
State	The state of the VC: <ul style="list-style-type: none"> <li>• PVC I - The VC is a PVC. The 'I' indicates that this VC has transmitted an Inverse ATMARP Request and has not yet received a response.</li> <li>• PVC - The VC is a PVC.</li> <li>• SVC I - The VC is an open SVC. The 'I' indicates that the VC has transmitted an Inverse ATMARP Request and has not yet received a response.</li> <li>• Openg - The VC is an SVC that is in the process of opening.</li> <li>• SVC - The VC is a currently open SVC.</li> </ul>
Type	The type of this VC: <ul style="list-style-type: none"> <li>• MptRT - The VC is the root of a point-to-multipoint VC.</li> <li>• MptLf - The VC is a leaf of a point-to-multipoint VC.]</li> <li>• Pt2Pt - The VC is a point-to-point VC.</li> </ul>
I/O	Indicates if the interface can receive (I) or transmit (O): I/O, -/O, or I/-.
Call	Indicates if the VC originated the call (Cing), or received the call (Ced).
Encaps	The encapsulation for this VC. Refer to the default option (-r) for the resolution table.
Mtu	The MTU value (in octets) negotiated for this VC: 9188 or 4608.

### Sample Display - show atmarp table -v -l

```

Vpi.vci  Vcid    Callref  State  Type  I/O  Call  Encaps  Mtu
-----  -
0.37     25000   16  SVC   Pt2Pt I/O  Ced   LLC/SNAP  9188
0.40     28000   19  SVC   Pt2Pt I/O  Ced   LLC/SNAP  4608

```



## show atmdxi

The **show atmdxi** *<option>* commands display information about Asynchronous Transfer Mode Data Exchange Interface (ATM DXI) lines and services. For detailed information about the Bay Networks implementation of ATM DXI, refer to *Configuring ATM Services*.

The **show atmdxi** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">stats</a>
<a href="#">base</a>	<a href="#">stats lmi</a>
<a href="#">disabled</a>	<a href="#">stats mpe</a>
<a href="#">enabled</a>	<a href="#">stats pvc [<a href="#">line.llindex</a>]     <a href="#">[&lt;line.llindex.VPI&gt;]    </a> <a href="#">[&lt;line.llindex.VPI.VCI&gt;]</a></a>
<a href="#">lines [<a href="#">line.llindex</a>]</a>	<a href="#">version</a>
<a href="#">pvcs [<a href="#">line.llindex</a>]     <a href="#">[&lt;line.llindex.VPI&gt;]    </a> <a href="#">[&lt;line.llindex.VPI.VCI&gt;]</a></a>	

---

## alerts

Displays abnormal conditions in the ATM DXI line level. Use this command to identify lines configured as enabled but not currently up. The table displays the following information:

Line.LLIndex	Identifier of the line and line level.
Circuit	Name or number of the circuit that the interface runs on.
State	State of the line: Down, Init (initializing), NotPres (not present), or Up.

### Sample Display - show atmdxi alerts

ATM Data Exchange Interface (DXI) Line Alert Table

-----

Line.LLIndex	Circuit	State
-----	-----	-----
2.0	NONE	NotPres

Total entries: 2

## base

Displays the ATM DXI base record state. The base record keeps statistics on each ATM DXI line for the entire system. State is one of the following:

Healthy	All configured lines are up.
Interface Anomaly	One or more configured lines are down.
Other Anomaly	One or more configured lines are initializing or not present.

### Sample Display - show atmdxi base

ATM Data Exchange Interface (DXI) Base Record

-----

Protocol	State	Lines
-----	-----	-----
ATM	Other Anomaly	2

## disabled

Displays the ATM DXI interfaces that are configured as disabled. For more information on column definitions, see the **lines** command.

### Sample Display - show atmdxi disabled

ATM Data Exchange Interface (DXI) Line Disabled Table

-----

Line.LLIndex	Circuit	Mode	State
-----	-----	-----	-----
2.0	NONE	Disabled	NotPres

---

## enabled

Displays the ATM DXI interfaces that are configured as enabled. For more information on column definitions, see the **lines** command.

### Sample Display - show atmdxi enabled

ATM Data Exchange Interface (DXI) Line Enabled Table

```
-----  
Line.LLIndex      Circuit      Mode      State  
-----  
2.0               NONE        Enabled   NotPres
```

## lines [*<line.llindex>*]

Displays all ATM DXI interfaces or a just a specific line. The table includes the following information:

Line.LLIndex	Identifier of the line and line level.
Circuit	Name or number of the circuit that the interface runs on.
Mode	Mode for which the interface has been configured; enabled or disabled.
State	State of the line, as follows: <ul style="list-style-type: none"><li>• <i>Down</i> - Line is disabled.</li><li>• <i>Init</i> - Line is initializing.</li><li>• <i>NotPres</i> - Line is not functioning.</li><li>• <i>Up</i> - Line is functioning fully.</li></ul>
VCs	Number of virtual circuits enabled for the line.
Converg. Sublayer	Convergence sublayer configuration of the line: AAL3/4, AAL5, or None. AAL3/4 is ATM Adaption Layer 3/4. AAL5 is ATM Adaption Layer 5.
Encaps	Multiprotocol Encapsulation that the PVC uses : RFC1294, RFC1483, or None.
Drop	Number of frames dropped at the line level.

**Sample Display - show atmdxi line**

ATM Data Exchange Interface (DXI) Line Table

```
-----
```

Line.LLIndex	Circuit	Mode	State	VCs	Sublayer	Converg. Encaps	Drop
-----	-----	-----	-----	-----	-----	-----	-----
1.0	ATM	Enabled	Up	2	AAL3/4	RFC1294	0
2.0	NONE	Disabled	NotPres	0	AAL3/4	RFC1294	0

**pvcs** [*<line.llindex>*] | [*<line.llindex.VPI>*] | [*<line.llindex.VPI.VCI>*]

Displays all or a subset of ATM DXI Permanent Virtual Circuits (PVCs).

<i>&lt;line.llindex&gt;</i>	Displays all PVCs for the specified line level.
<i>&lt;line.llindex.VPI&gt;</i>	Displays all PVCs for the specified virtual path on the specified line level.
<i>&lt;line.llindex.VPI.VCI&gt;</i>	Displays the PVC for the specified virtual path and virtual channel.

The displays include the following information:

Line.LLIndex	Identifier of the PVC line and line level.
Direct Cct	PVC's Direct Circuit name or number (if there is one).
State	State of the PVC, as follows: <ul style="list-style-type: none"> <li>• <i>Down</i> - PVC is disabled.</li> <li>• <i>Init</i> - PVC is initializing.</li> <li>• <i>NotPres</i> - PVC is not functioning.</li> <li>• <i>Up</i> - PVC is functioning fully.</li> </ul>



---

PVC Mode	<p>Mode of the PVC, as follows:</p> <ul style="list-style-type: none"> <li>• <i>Direct</i> - Upper-layer protocols view this PVC as a point-to-point connection; as an individual network interface.</li> <li>• <i>Group</i> - Upper-layer protocols treat this PVC as one of a group of destinations to the switched network. The upper-layer protocols use a single network address to send all traffic destined for the switched network to the ATM DXI network interface.</li> <li>• <i>Hybrid</i> - Allows protocols to view this PVC as part of the group while the bridge views the PVC in direct mode.</li> </ul>
Sublayer	Convergence Sublayer configuration of the line: AAL3/4, AAL5, or None. AAL3/4 is ATM Adaption Layer 3/4. AAL5 is ATM Adaption Layer 5.
Encaps	Multiprotocol Encapsulation that the PVC uses: RFC 1294, RFC 1483, or None.

### Sample Display - show atmdxi pvcs

ATM Data Exchange Interface (DXI) PVC Table

```

-----
Line.LLIndex.VPI.VCI      Direct Cct  State      PVC Mode   Sublayer   Encaps
-----
1.0.1.20                  -           Up          Group      AAL3/4     RFC1294
1.0.255.32000            ATMInter   Up          Direct     AAL3/4     RFC1294
2.0.1.21                  -           NotPres    Group      AAL3/4     RFC1294

Total entries: 3

```

## stats

Displays ATM DXI statistics. The table includes the number of frames and octets transmitted and received and the number of frames dropped due to errors.

### Sample Display - show atmdxi stats

ATM Data Exchange Interface (DXI) PVC Statistics

-----

Line.LLIndex.VPI.VCI	Transmitted		Received		Drops
	Frames	Octets	Frames	Octets	
-----	-----	-----	-----	-----	-----
1.0.1.20	0	0	0	0	0
1.0.255.32000	0	0	0	0	0
2.0.1.21	0	0	0	0	0

Total entries: 3

---

## stats lmi

Displays statistics for all active ATM DXI Local Management Interfaces (LMIs). The table includes following information:

Line.LLIndex	Identifier of the line and line level.
Circuit	Name or number of the circuit the interface runs on.
State	State of the LMI, as follows: <ul style="list-style-type: none"><li>• <i>Down</i> - Line is disabled.</li><li>• <i>Init</i> - Line is initializing.</li><li>• <i>NotPres</i> - Line is not functioning.</li><li>• <i>Up</i> - Line is functioning fully.</li></ul>
Proxy Req	Number of proxy requests.
DSU Resp	Number of digital service unit (DSU) responses.
DSU Traps	Number of DSU traps.
Other	Any other information frames that the DSU has received.

### Sample Display - show atmdxi stats lmi

ATM Data Exchange Interface (DXI) LMI Statistics

```
-----  
Line.LLIndex      Circuit      State      Proxy Req.  DSU Resp.  DSU Traps  Other  
-----  
1.0               ATM         Up          0           0           0           0
```

Total entries: 1

## stats mpe

Displays statistics for all active ATM DXI multiprotocol encapsulated interfaces. The information is from the circuit level rather than the line level. The table includes the number of invalid and unsupported multiprotocol encapsulated frames received.

Circuit	Name or number of the circuit the interface runs on.
Invalid NLPID	Number of packets dropped because of an unknown or unsupported network layer protocol identifier (NLPID).
Invalid PID	Number of packets dropped because of an unknown or unsupported protocol identifier (PID).
Invalid OUI	Number of packets dropped because of an unknown or unsupported organizational unique identifier (OUI).
Misdelivered PDU	Number of packets discarded because of an inactive service access point (SAP).
Unsupported Control Field	Number of packets dropped because of an unknown or invalid control field.

### Sample Display - show atmdxi stats mpe

ATM Data Exchange Interface (DXI) MPE Circuit Statistics

```
-----
```

Circuit	Invalid NLPID	Invalid PID	Invalid OUI	Misdelivered PDU	Unsupported Control Field
-----	-----	-----	-----	-----	-----
ATM	0	0	0	0	0
ATMInter	0	0	0	0	0

Total entries: 2

---

**stats pvc** [*<line.llindex>*] | [*<line.llindex.VPI>*] | [*<line.llindex.VPI.VCI>*]

Displays ATM DXI statistics. The table includes the number of frames and octets transmitted and received and the number of frames dropped due to errors. Options let you display more specific statistics, as follows:

- <line.llindex>* Displays statistics for all PVCs for the specified line level.
- <line.llindex.VPI>* Displays statistics for all PVCs for the specified virtual path on the specified line level.
- <line.llindex.VPI.VCI>* Displays statistics for the PVC for the specified virtual path and channel on the specified line level.

### Sample Display - show atmdxi stats pvc 1.0

ATM Data Exchange Interface (DXI) PVC Statistics

```
-----
```

Line.LLIndex.VPI.VCI	Transmitted		Received		Drops
	Frames	Octets	Frames	Octets	
-----	-----	-----	-----	-----	-----
1.0.1.20	0	0	0	0	0
1.0.255.32000	0	0	0	0	0

Total entries: 2

### version

Displays the current version number and modification date of the *atmdxi.bat* script.

### Sample Display - show atmdxi version

ATMDXI.bat Version: 1.\* Date: mm/dd/yy.

## show atmsig

The **show atmsig** *<options>* command displays information about the ATM Signaling service. For details about the Bay Networks implementation of ATM, refer to *Configuring ATM Services*.

The **show atmsig** command supports the following subcommand options:

<a href="#">ilmi [&lt;line&gt;]</a>	<a href="#">sig [&lt;line&gt;]</a>
<a href="#">saal [&lt;line&gt;]</a>	<a href="#">version</a>

### ilmi [<line>]

Displays all instances in the ATM Interim Local Management Interface (ILMI) Entry Table, or a specific instance.

*<line>* Displays ATM ILMI information for a specific line.

The table displays the following information:

Line	Line number of the router.
Circuit	Circuit number of the ATM driver associated with this ILMI instance.
State	State of the entity: Up, Down, Initializing, Not Present
Low Thre	Lower threshold - when the percentage of the buffer memory drops below this value, congestion is reached.
Up Thre	Upper threshold - when the percentage of the buffer memory exceeds this value, congestion is stopped.
VPI	Virtual Path Identifier for the ILMI VC.
VCI	Virtual Channel Identifier for the ILMI VC.
Get	ILMI Get Request Timer value (in seconds).
Get Retry	Maximum number of retransmissions of the ILME GET request before the link is considered down.

---

Get Next	ILMI GetNext Request Timer value (in seconds).
GetNext Retry	Maximum number of retransmissions of the ILMI GET NEXT request before the link is considered down.
Set	ILMI Set Request Timer value (in seconds).
Set Retry	Maximum number of retransmissions of the ILMI SET request before the link is considered down.

### Sample Display - show atmsig ilmi

ATM ILMI Entry Table (UME/ILMI)

```
-----
```

Line	Circuit	State	Low Thre	Up Thre	VPI	VCI	Get Get	Get Next	GetNext Retry	Set Set	Set Retry	
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
1405101	A51	Up	2	2	0	16	3	3	3	3	6	3

```
-----
```

Total entries: 1

### saal [*<line>*]

Displays all instances in the ATM Signaling ATM Adaptation Layer (SAAL) Entry Table for the Service Specific Connection Oriented Protocol (SSCOP) service, or displays a specific instance.

*<line>* Displays ATM SAAL information for a specific line.

The table displays the following information:

Line	Line number of the router.
Circuit	Circuit number of the ATM driver associated with this instance.
State	State of the SAAL entity: Up, Down, Init, Not Present.
Arbitration	Determines if the SAAL initiates link connections or waits for connections: Active or Passive.

Poll Timer	SSCOP Poll Timer value (in tenths of a second).
Alive Timer	Keep Alive Timer value (in tenths of a second).
NoResp Timer	No Response Timer value (in tenths of a second).
CnCtrl Timer	Connection Control Timer value (in tenths of a second).
MaxCn Ctrl	Maximum Connection Control Timer value.
MaxPd	SSCOP maximum Poll Data (PD) value.
Max Stat	Maximum number of list elements allowed in a STAT PDU.
Version	Version: UNI30 or UNI31.

**Sample Display - show atmsig saal**

ATM SAAL Entry Table (SSCOP)

```

-----
Line      Circuit State  Arbi-  Poll  Alive NoResp CnCtrl MaxCn      Max  Ver-
-----  -----  -----  -----  -----  -----  -----  -----  -----  -----
1405101  A51      Up      Active  7      20     70      10      4      25     67     UNI30
-----
  
```

Total entries: 1



---

**sig** [*<line>*]

Displays all instances in the ATM Signaling Entry Table, or a specific instance.

*<line>* Displays ATM Signaling information for a specific line.

The table displays the following information:

Line	Line number of the router.
Circuit	Circuit number of the ATM driver associated with this instance.
State	State of the entity: Up, Down, Initializing, Not Present
Max # of SvcApps	Maximum number of service access points (SAPs) allowed for this circuit.
Max Pt-Pt	Maximum number of simultaneous point-to-point connections allowed for this circuit.
Max Pt-Mp	Maximum number of simultaneous point-to-multipoint connections allowed for this circuit.
Max Parties In-MultiPt	Maximum number of simultaneous parties in a point-to-multipoint connection allowed for this circuit.
Min Buf Threshold	Minimum percentage of the buffer memory that must be free to enable new calls.
VPI	Virtual Path Identifier for the Signaling VC.
VCI	Virtual Channel Identifier for the Signaling VC.
Version	Signaling Protocol Standard: Uni 3.0 (UNI_V30), Uni 3.1 (UNI_V31), or Trillium Symmetrical Uni (UNI_SYM)
# of Restart	Number of RESTART messages permitted before the link is considered down.
# of Stat Enquiries	Number of STATUS ENQUIRY messages permitted before the link is considered down.
T303	Setup Sent Timer value (in seconds).
T308	Release Sent Timer value (in seconds).
T309	SAAL Data Link Connect Timer value (in seconds).
T310	Call Proceeding Received Timer value (in seconds).
T313	Connect Sent Timer value (in seconds).

T316	Restart Request Sent on Interface Timer value (in seconds).
T316C	Restart Request Sent on Channel Timer value (in seconds).
T322	Status Enquiry Sent Timer value (in seconds).
TDisc	SAAL Data Link Disconnect Timer value (in seconds).
T398	Drop Party Sent Timer value (in seconds).
T399	Add Party Sent Timer value (in seconds).

**Sample Display - show atmsig sig**

ATM Signaling Entry Table (Q.93B)

```

-----

```

Line	Circuit	State	Max#of SvcApps	Max Pt-Pt	Max Pt-Mp	MaxParties In-MultiPt	Min Buf Threshold				
1405101	A51	Up	20	1000	40	1	2				
			# of	# of	Stat						
	VPI	VCI	Version	Restart	Enquiries	T303	T308	T309	T310	T313	T316
	0	5	UNI_V30	3	3	4	30	10	10	4	120
			T316C	T322	TDisc	T398	T399				
	120	4	4	4	14						

Total entries: 1

**version**

Displays the current version number and modification date of the *atmsig.bat* script.

**Sample Display - show atmsig version**

ATMSIG.bat Version: 1.# Date: mm/dd/yy.

---

## show atm line

The **show atm line** *<option>* commands display information about the Asynchronous Transfer Mode (ATM) Adaption Layer Controller (ALC) link module service. For detailed information about the Bay Networks implementation of the ATM link module service, refer to *Configuring ATM Services*.



**Note:** The **atm line** set of commands is a subset of the **atm** command. Refer to the “[show atm](#)” section for more information on the **atm** command.

---

The **show atm line** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">receive errors [circuit &lt;circuit name&gt;]</a>
<a href="#">base [circuit &lt;circuit name&gt;]</a>	<a href="#">receive stats [circuit &lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">sample [&lt;period in seconds&gt;] [circuit &lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">stats [circuit &lt;circuit name&gt;]</a>
<a href="#">phy [circuit &lt;circuit name&gt;]</a>	<a href="#">transmit errors [circuit &lt;circuit name&gt;]</a>
<a href="#">phy errors [circuit &lt;circuit name&gt;]</a>	<a href="#">transmit stats [circuit &lt;circuit name&gt;]</a>

**alerts**

Displays abnormal conditions in the ATM link module. The table displays the following information:

Slot	Slot number.
Conn	Physical port number.
Circuit	Circuit number for the driver.
Line Number	Line number for the physical ATM port.
Driver State	Operational state of the driver: Up, Down, Init (initializing), Download (downloading), Config (configuring), or Not Present. Note that this parameter does not represent the state of the physical interface.
First MAC Address	First MAC address reserved in the link module. The address is in canonical format.
Num MAC addr	Number of MAC addresses reserved in the link module.
DP Notify TMO	Data Path notify timeout period. This value specifies the number of seconds to wait before implementing the DP notify function. A timer is set to this value when the state of the physical interface transitions from operational to nonoperational at the time that the DP notify function is enabled.
MTU	Size of the largest packet (in octets) which the interface can send or receive. The default is 4500 octets.

**Sample Display - show atm line alerts**

ATM Modules on Alert:

```

-----
Slot Conn Circuit      Line   Driver      First      Num MAC DP Notify
Number State      MAC Address  Addrs      TMO      MTU
-----
Found      0 matches out of      2 entries in table.

```

---

**base [circuit <circuit name>]**

Displays the ATM base record state for all ATM link module circuits or for a specified circuit. For more information on column definitions, see the **alerts** command.

**Sample Display - show atm line base**

ATM Modules:

-----

Slot	Conn	Circuit	Line Number	Driver State	First MAC Address	Num MAC Addrs	DP TMO	Notify MTU
4	1	A41	1104101	Up	00-00-00-00-00-00	10	3	4500
5	1	A51	1105101	Up	00-00-00-00-00-00	10	3	4500

2 entries in table.

**Sample Display - show atm line base circuit A51**

ATM Modules:

-----

Slot	Conn	Circuit	Line Number	Driver State	First MAC Address	Num MAC Addrs	DP TMO	Notify MTU
5	1	A51	1105101	Up	00-00-00-00-00-00	10	3	4500

Found 1 match out of 2 entries in table.

## disabled

Displays the ATM link modules that are configured as disabled. For more information on column definitions, see the **alerts** command.

### Sample Display - show atm line disabled

ATM Modules Disabled:

-----

Slot	Conn	Circuit	Line Number	Driver State	First MAC Address	Num MAC Addr	DP TMO	Notify MTU
------	------	---------	----------------	-----------------	----------------------	-----------------	-----------	---------------

Found 0 matches out of 2 entries in table.

## enabled

Displays the ATM link modules that are configured as enabled. For more information on column definitions, see the **alerts** command.

### Sample Display - show atm line enabled

ATM Modules Enabled:

-----

Slot	Conn	Circuit	Line Number	Driver State	First MAC Address	Num MAC Addr	DP TMO	Notify MTU
4	1	A41	1104101	Up	00-00-00-00-00-00	10		3 4500
5	1	A51	1105101	Up	00-00-00-00-00-00	10		3 4500

Found 2 matches out of 2 entries in table.

---

## phy [circuit <circuit name>]

Displays physical circuit information about all ATM link module circuits or a specified circuit.

Speed Estimate of the interface's current bandwidth in megabits per second: 155,520,000 Mb/s, 140,000,000 Mb/s, 100,000,000 Mb/s, 44,736,000 Mb/s, 34,368,000 Mb/s.

Type Interface type: OC-3 MM (multimode), OC-3 SM (single mode), DS-3, or E-3.

Framing Mode Transceiver mode: SDH, SONET, CBIT, M23, G751, or G832.

For more information on column definitions, see the **alerts** command.

### Sample Display - show atm line phy

ATM Module Physical Interface:

```
-----  
Slot Conn Circuit      Phy      Speed      Framing  
-----  
3      1 A31      Up        155520000  OC-3 MM    SONET
```

1 entry in table.

### Sample Display - show atm line phy circuit A51

ATM Module Physical Interface:

```
-----  
Slot Conn Circuit      Phy      Speed      Framing  
-----  
5      1 A51      Up        155520000  OC-3       SONET
```

Found 1 match out of 2 entries in table.

**phy errors [circuit <ircuit name>]**

Displays loss of signal, loss of pointer, loss of frame, and out-of-cell delineation information for the specified circuit or for all circuits. For more information on column definitions, see the **alerts** command.

**Sample Display - show atm line phy errors**

ATM Module Physical Interface Errors:

```
-----
Slot Conn Circuit      Loss of      Loss of      Loss of      Out of Cell
                        Signal       Pointer      Frame        Delineation
-----
   4   1 A41              10           0             3             3
   5   1 A51              1            0             1             1
```

2 entries in table.

**Sample Display - show atm line phy errors circuit A51**

ATM Module Physical Interface Errors:

```
-----
Slot Conn Circuit      Loss of      Loss of      Loss of      Out of Cell
                        Signal       Pointer      Frame        Delineation
-----
   5   1 A51              1            0             1             1
```

Found 1 match out of 2 entries in table.



---

## receive errors [circuit <ircuit name>]

Displays receive error information for the specified circuit or for all circuits:

Dropped Cells	Number of cells received at the transceiver receive interface that have been discarded.
Address Translation Errors	Number of address translation errors received.
Rcv Q Full Errors	Number of full queue errors received.
Rcv Q Write Errors	Number of write queue errors received. Write failures occur when the SAR device tries to write to an already full queue.
Rcv Q Empty Errors	Number of empty queue errors received. Empty errors occur when the SAR device has no place to put the data it has received.

For more information on column definitions, see the **alerts** command.

### Sample Display - show atm line receive errors

ATM Module Receive Errors:

-----

Slot	Conn	Circuit	Dropped Cells	Address Translation Errors	Rcv Q Full Errors	Rcv Q Write Errors	Rcv Q Empty Errors
4	1	A41	0	0	0	0	0
5	1	A51	0	0	0	0	0

2 entries in table.

**Sample Display - show atm line receive errors circuit A51**

ATM Module Receive Errors:

-----

Slot	Conn	Circuit	Dropped Cells	Address Translation Errors	Rcv Q Full Errors	Rcv Q Write Errors	Rcv Q Empty Errors
5	1	A51	0	0	0	0	0

Found 1 match out of 2 entries in table.

**receive stats [circuit <circuit name>]**

Displays the total number of frames, octets, and cells received by all circuits or by the specified circuit.

**Sample Display - show atm line receive stats**

ATM Module Receive Statistics:

-----

Slot	Conn	Circuit	Frames	Octets	Cells
4	1	A41	0	0	0
5	1	A51	0	0	0

2 entries in table.

**Sample Display - show atm line receive stats circuit A51**

ATM Module Receive Statistics:

-----

Slot	Conn	Circuit	Frames	Octets	Cells
5	1	A51	0	0	0

Found 1 match out of 2 entries in table.

---

**sample** [*<period in seconds>*] [**circuit** *<circuit name>*]

Displays the total number of frames transmitted and received for the specified circuit over the specified period of time, or for all circuits over 10 seconds. Also displays information on the following:

Rx Lack of Resources            Number of packets dropped because no host buffers were available to hold the incoming data.

Tx Lack of Resources            Number of packets dropped during transmission.

For more information on column definitions, see the **alerts** command.

**Sample Display - show atm line sample**

ATM Sampled Data over 10 seconds

```
-----
```

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
4	1	A41	0	0	0	0
5	1	A51	0	0	0	0

2 entries in table.

**Sample Display - show atm line sample circuit A51**

ATM Sampled Data over 10 seconds

```
-----
```

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
5	1	A51	0	0	0	0

Found 1 match out of 2 entries in table.

**Sample Display - show atm line sample 5 circuit A51**

ATM Sampled Data over 5 seconds

-----

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
5	1	A51	0	0	0	0

Found 1 match out of 2 entries in table.

**stats [circuit <circuit name>]**

Displays the total number of bytes and frames received and transmitted for the specified circuit or for all circuits. In addition, displays the total number of errors. For more information on column definitions, see the **alerts** command.

**Sample Display - show atm line stats**

ATM Module I/O Statistics:

-----

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
4	1	A41	0	0	2190795656	42405432	16
5	1	A51	0	0	1793648210	86273694	3

2 entries in table.

**Sample Display - show atm line stats circuit A51**

ATM Module I/O Statistics:

-----

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
5	1	A51	0	0	1793648210	86273694	3

Found 1 match out of 2 entries in table.

---

## transmit errors [circuit <ircuit name>]

Displays the total number of full errors transmitted and the total number of Segmentation and Reassembly (SAR) errors for the specified circuit or for all circuits. For more information on column definitions, see the **alerts** command.

### Sample Display - show atm line transmit errors

ATM Module Transmit Errors:

```
-----
```

Slot	Conn	Circuit	Xmt Q Full Errors	SAR Errors
4	1	A41	0	0
5	1	A51	0	0

2 entries in table.

### Sample Display - show atm line transmit errors circuit A51

ATM Module Transmit Errors:

```
-----
```

Slot	Conn	Circuit	Xmt Q Full Errors	SAR Errors
5	1	A51	0	0

Found 1 match out of 2 entries in table.

**transmit stats [circuit <circuit name>]**

Displays the total number of frames, octets, and cells transmitted by the specified circuit or by all circuits. For more information on column definitions, see the **alerts** command.

**Sample Display - show atm line transmit stats**

ATM Module Transmit Statistics:

```
-----  
Slot Conn Circuit      Frames      Octets      Cells      Out Q  
-----  
4      1 A41      42405432  2190795656  45641568  1  
5      1 A51      86273694  1793648210  37367672  1
```

2 entries in table.

**Sample Display - show atm line transmit stats circuit A51**

ATM Module Transmit Statistics:

```
-----  
Slot Conn Circuit      Frames      Octets      Cells      Out Q  
-----  
5      1 A51      86273694  1793648210  37367672  1
```

Found 1 match out of 2 entries in table.

---

## show aurp

The **show aurp** *<option>* commands display information about the AppleTalk Update-based Routing Protocol (AURP) and services. For detailed information on the Bay Networks implementation of AURP services, refer to *Configuring AppleTalk Services*.

The **show aurp** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">filters zone</a>
<a href="#">base</a>	<a href="#">stats [traffic   peer   transport] [&lt;IP address&gt;]</a>
<a href="#">connection [&lt;IP address&gt;]</a>	<a href="#">version</a>
<a href="#">disabled</a>	

## alerts

Displays all AURP connections that are enabled but not up. State is always Down. Use this display to identify the connections that are not working. The table includes the following information:

Connection	IP address of the AURP connection.
State	Current state of the connection, which in this case is always Down.
Timeout	Number of seconds to wait for an acknowledgment before retrying the connection.
Retry	Number of attempts at a connection before determining that the peer is no longer responding.
Update Rate	Rate in seconds at which the router sends routing table updates out this connection. This value is a multiple of ten. The range is 10 to 604,800 seconds (one week). The default is 30 seconds.
LHF Timeout	Last Heard From Timeout; specifies the number of seconds to wait for a Routing Information Response (RI-Rsp), Routing Information Update (RI-Upd), or Zone Information Response (ZI-Rsp) before sending a tickle request. This value is a multiple of ten. The range is 10 through 31,536,000 seconds (one year). The default is 90 seconds.

### Sample Display - show aurp alerts

```
AURP Connection Alerts: Enabled but state is down
```

```
-----  
      Connection      State      Timeout      Retry      Update Rate LHF Timeout  
-----  
192.32.14.85      Down              3              3              30              90
```

```
1 entries found.  
3 total entries.
```



---

## base

Displays the base record information for AURP. The base record controls AURP for the entire system. The table includes the following information:

Protocol	Name of the protocol, which is AURP.
State	State of the protocol: Disabled, Down, Init (initializing), Not Pres (enabled but not yet started), or Up.
Configured IP Interface	IP address on this router that AURP uses for all of its connections.
Open Reqs Accepted	Number of Open Requests the router has accepted on this interface.
Open Reqs Rejected	Number of Open Requests the router has rejected on this interface.
In Packets No Peer	Number of packets received from UDP for which there is no valid connection.

### Sample Display - show aurp base

AURP Base Information

```
-----
```

Protocol	State	Configured IP Interface	Open Reqs Accepted	Open Reqs Rejected	In Packets No Peer
AURP	Up	192.32.14.19	1	0	0

```
-----
```

## connection [*<IP address>*]

Displays information about all AURP connections or a specific connection. State can be Disabled, Down, Init (initializing), Not Pres (enabled but not yet started), or Up. For the remaining column definitions, see the **alerts** command.

*<IP\_address>* Limits the information to the connection with the specified IP address.

**Sample Display - show aurp connection**

AURP Connections

-----

Connection	State	Timeout	Retry	Update Rate	LHF	Timeout
192.32.14.85	Down	3	3	30		90
192.32.14.86	Disabled	3	3	30		90
205.1.10.1	Up	3	3	30		90

3 total entries.

**Sample Display - show aurp connection 192.32.14.85**

AURP Connections

-----

Connection	State	Timeout	Retry	Update Rate	LHF	Timeout
192.32.14.85	Down	3	3	30		90

1 entry displayed.

**disabled**

Displays the AURP connections that a user has manually disabled. For definitions of the columns in the display, see the **alerts** command.

**Sample Display - show aurp disabled**

Disabled AURP Connections

-----

Connection	State	Timeout	Retry	Update Rate	LHF	Timeout
192.32.14.86	Disabled	3	3	30		90

1 entries found.

3 total entries.

---

## enabled

Displays the AURP connections that a user has manually enabled. State can be Disabled, Down, Init (initializing), Not Pres (enabled but not yet started), or Up. For the remaining column definitions, see the **alerts** command.

### Sample Display - show aurp enabled

Enabled AURP Connections

-----

Connection	State	Timeout	Retry	Update Rate	LHF	Timeout
192.32.14.85	Down	3	3	30		90
205.1.10.1	Up	3	3	30		90

2 entries found.

3 total entries.

## filters zone

Displays information about the zone filters for all AURP connections. The table includes the following information:

Connection	Connection with the specified IP address.
Connection Filter Mode	Zone filter type: Include, Exclude, 5.x series Include, or 5.x series Exclude.
Filtered Zones(s)	Zones that are filtered for this connection.
Total zones	Number of zones that are filtered on this connection.

**Sample Display - show aarp filters zone**

Connection: 192.32.14.2

Connection Filter Mode: Include

Filtered Zone(s) for this connection

-----  
MARKETING  
SALES

Total zones for connection 192.32.14.2 is 2

Connection: 192.32.14.1

Connection Filter Mode: Include

Filtered Zone(s) for this connection

-----  
MARKETING  
SALES

Total zones for connection 192.32.14.1 is 2

Connection: 192.32.14.3

Connection Filter Mode: 5.x series Include

Filtered Zone(s) for this connection

-----  
MARKETING

Total zones for connection 192.32.14.3 is 1

---

## stats [traffic | peer | transport] [<IP address>]

Displays statistical information about AURP connections. You can display statistics for all connections or for a specified connection. Entered without options, the **stats** command displays traffic statistics.

<IP\_address> Limits the display to the specified connection.

### Sample Display - show aurp stats

AURP Traffic Statistics

```
-----
```

Connection	In DDP Packets	Out DDP Packets	In AURP Packets	Out AURP Packets
192.32.14.85	0	0	0	8
192.32.14.86	0	0	0	4
205.1.10.1	13276	13459	102	100

**traffic** Displays incoming and outgoing data (DDP) packets and incoming and outgoing AURP packets for all connections or for a specified connection.

### Sample Display - show aurp stats traffic

AURP Traffic Statistics

```
-----
```

Connection	In DDP Packets	Out DDP Packets	In AURP Packets	Out AURP Packets
192.32.14.85	0	0	0	8
192.32.14.86	0	0	0	4
205.1.10.1	13310	13497	102	100

**Sample Display - show aurp stats traffic 205.1.10.1**

## AURP Traffic Statistics

```
-----
```

Connection	In DDP Packets	Out DDP Packets	In AURP Packets	Out AURP Packets
205.1.10.1	16293	16497	155	152

```
-----
```

**peer** Displays information about AURP peer routers.

The display includes the following information:

Connection	IP address of the peer router.
Peer Domain ID	Domain identifier for the domain this router resides in.
Rate	Rate in tens of seconds that the peer router specified in its Open Response.
Environ. Flags	Environment Flags in the peer router's Open Response. <ul style="list-style-type: none"><li>• <i>None</i> - No flags active.</li><li>• <i>HCR</i> - Hop Count Reduction is active.</li><li>• <i>Remap</i> - Network number remapping is active on the peer.</li><li>• <i>Remap, HCR</i> - Both HCR and Remap are in effect.</li></ul>
SUI Flags	Send Update Information flags in the peer router's Open Request and Routing Information Request. The possible values are: <ul style="list-style-type: none"><li>• <i>Add</i> - Network added.</li><li>• <i>Delete</i> - Network deleted.</li><li>• <i>Dist</i> - Distance changed.</li><li>• <i>Zone</i> - Zone changed.</li></ul>

---

## Sample Display - show aurp stats peer

AURP Connection Peer Information

-----

Connection	Peer Domain ID	Update Rate	Environ. Flags	SUI Flags
192.32.14.85	0.0.0.0	0	<none>	<none>
192.32.14.86	0.0.0.0	0	<none>	<none>
205.1.10.1	205.1.10.1	30	<none>	Zone,Dist,Delete,Add

### transport

Displays information about AURP transports. The table includes counts of delayed duplicates, command retries, and updates received and generated for each connection.

## Sample Display - show aurp stats transport

AURP Transport Statistics

-----

Connection	Delayed Duplicates	Command Retries	Updates Received	Updates Generated
192.32.14.85	0	7	0	0
192.32.14.86	0	3	0	0
205.1.10.1	0	4	2	1

## version

Displays the current version and modification date of the *aurp.bat* script.

### Sample Display - show aurp version

```
AURP.bat Version: #.## Date: mm/dd/yy.
```

## show autoneg

The **show autoneg** *<option>* commands display the status of automatic line speed negotiation on 100Base-T Ethernet interfaces. Some Ethernet modules can run at either 10 Mb/s or 100 Mb/s using a hardware process to detect the speed to use. For more information, refer to *Configuring Ethernet, FDDI, and Token Ring Services*.

The **show autoneg** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">disabled</a>
<a href="#">base [circuit &lt;circuit name&gt;]</a>	<a href="#">enabled</a>
<a href="#">capabilities [circuit &lt;circuit name&gt;]</a>	<a href="#">version</a>



---

## alerts

Displays Ethernet circuits that are capable of auto-negotiation but are not currently up. The table includes the following information:

Slot	Slot identifier; ranges vary according to router model.
Conn	Connector's instance identifier; ranges vary according to router model and Ethernet module. For routers other than ASN, indicates the physical connector number on the slot.
Circuit	Name of the circuit associated with this line.
State	Current state of the circuit: Disabled, Down, Init (initializing), Not Present (enabled but not yet started), or Up.
Auto-Negotiation State	Current state of automatic line speed negotiation: Disabled, Configuring, Complete.
Remote Signaling	Current state of signalling at the remote end of the link: True or False
Capability in Use	The configured line speed. Options are: 100Base-X (100Base-TX or 100Base-FX) 100Base-X FD (Full Duplex) 100Base-X FD Cong Ctrl (Full Duplex with congestion control)

### Sample Display - show autoneg alerts

Auto-Negotiation Interfaces on Alert:

```
-----
```

Slot	Conn	Circuit	State	Auto-Negotiation State	Remote Signaling	Capability In Use
2	31	E231	Down	Disabled	FALSE	100Base-X

```
-----
```

Found 1 match out of 2 entries in table.

**base** [**circuit** <*circuit name*>]

Displays the base record information for auto-negotiation.



**Note:** The **alerts**, **base**, **disabled**, and **enabled** tables all include the same information. See the description with the **show autoneg alerts** command.

**Sample Display - show base**

Auto-Negotiation Information:

```
-----  
Slot Conn Circuit      State      Auto-Negotiation      Remote  
-----  
                State      Signaling      Capability In Use  
-----  
  2    1 E21      Not Pres  **NOT SUPPORTED**  
  3    1 E31      Up        Disabled          FALSE          100Base-X FD Cong Ctrl  
  4    1 E41      Disabled  **NOT SUPPORTED**  
  5    1 E51      Up        Disabled          FALSE          100Base-X
```

4 entries in table

---

## capabilities [circuit <circuit name>]

Displays Ethernet line capabilities. You can display this information for all circuits or for a specific circuit. The table includes the following information.

Slot	Slot identifier; ranges according to router model.
Conn	Connector's instance identifier; ranges vary according to router model and Ethernet module. For routers other than ASN, indicates the physical connector number on the slot.
Circuit	Name of the circuit associated with this line.
State	State of the line driver: Disabled, Down, Init (initializing), Not Present (enabled but not yet started), or Up.
*Local Capabilities	The line capabilities of the circuit.
*Advertised Capabilities	The line capabilities the circuit is advertising on the bus.
*Remote Capabilities	The advertised capabilities of the remote station.
*Capability in Use	The agreed-upon line capability.

\*See the line capability codes in the sample display.

### Sample Display - show autoneg capabilities

Auto-Negotiation Interface Capabilities:

```
-----
```

Slot	Conn	Circuit	State	Local Capabilities	Advertised Capabilities	Remote Capabilities	Capability In Use
5	1	E51	Up	cd	cd	cd	d
5	2	E52	Up	cd		cd	d

```
-----
```

Capability Codes:

- a = 10BASE-T
- b = 10BASE-T Full Duplex
- c = 100BASE-X
- d = 100BASE-X Full Duplex
- e = 100BASE-T4

Found 2 matches out of 3 entries in table.

## disabled

Displays all Ethernet circuits that have auto-negotiation disabled.



**Note:** The **alerts**, **base**, **disabled**, and **enabled** tables all include the same information. See the description with the **show autoneg alerts** command.

---

### Sample Display - show autoneg disabled

Auto-Negotiation Interfaces Disabled:

```
-----
```

Slot	Conn	Circuit	State	Auto-Negotiation State	Remote Signaling	Capability In Use
3	1	E31	Up	Disabled	FALSE	100Base-X FD Cong Ctrl
5	1	E51	Up	Disabled	FALSE	100Base-X

```
-----
```

Found 2 matches out of 4 entries in table.

---

## enabled

Displays all Ethernet circuits that have auto-negotiation enabled.



**Note:** The **alerts**, **base**, **disabled**, and **enabled** tables all include the same information. See the description with the **show autoneg alerts** command.

---

### Sample Display - show autoneg enabled

Auto-Negotiation Interfaces Enabled:

```
-----  
Slot Conn Circuit   State   Auto-Negotiation  Remote  
-----  
5      1 E51         Up      Complete          FALSE  
-----  
Capability In Use  
-----  
100Base-X  
Found      1 match out of 4 entries in table
```

## **version**

Displays the current version and modification date of the *at.bat* script.

### **Sample Display - show autoneg version**

```
autoneg.bat Version: #.## Date: mm/dd/yy.
```

---

# show bgp

The **show bgp** *<option>* command displays state, configuration, and statistical information about the Border Gateway Protocol (BGP). For detailed information about the Bay Networks implementation of BGP, refer to *Configuring IP Services*.

The **show bgp peers** and **show bgp summary** commands display new information about BGP route servers and clients.

The **show bgp** command supports the following subcommand options:

<a href="#">errors</a>	<a href="#">summary</a>
<a href="#">peers</a>	<a href="#">timers</a>
<a href="#">routes [<i>&lt;address&gt;</i>   <i>from &lt;peer address&gt;</i>   <i>find &lt;search pattern&gt;</i>]</a>	<a href="#">version</a>
<a href="#">stats</a>	<a href="#">weights</a>

## errors

Displays the error message generated the last time a connection between a router and its BGP peer failed. This message was either received from or sent to the BGP peer. The report includes the address of the local router and the peer, as well as the last error code, subcode, and message.

### Sample Display - show bgp errors

```
BGP Last Errors
```

```
-----  
      Local          Remote      Last Error  
      Address        Address    Code Subcode      Error Message  
-----  
195.1.1.1      195.1.1.2      4        0      Hold Timer Expired  
195.1.1.1      195.1.1.3      -        -      No Error  
200.1.1.1      200.1.1.2      2        1      Unsupported Version Number  
201.1.1.1      10.1.1.6       -        -      No Error  
201.1.1.1      201.1.1.5      -        -      No Error
```

```
5 peers configured.
```

## peers

Displays information about each BGP peer and virtual peer on the router. Virtual peers are peers connected by means of a route server. The table includes the following information:

Local Addr	Router's local interface address and port.
Remote Addr	Peer's IP address and port.
Remote AS	Autonomous System in which the peer resides.
Hold Time Cfg	Configured hold time.
Hold Time Act	Negotiated hold time.
Keep Alive Time Cfg	Configured keepalive time.
Keep Alive Time Act	Negotiated keepalive time.
Connection State	State of the connection between the peers: Idle, Connect, Active, Open Sent, Open Confrmd, or Established.



---

Total Routes	Number of routes that the router received from this peer and is maintaining.
Peer Mode	Route server mode of the BGP peer: None (the peer is not a route server), Client (the peer is an RS client), Internal (the peer is a route server in the local RS cluster), external (the peer is a route server in another RS cluster).
Identifier	BGP identifier of the virtual peer.
Last update	Time elapsed since the last update.

### Sample Display - show bgp peers

#### BGP Peers

```
-----
```

Local Address/Port	Remote Address/Port	Remote Peer AS Mode	Connection State	BGP Ver	Total Routes
55.55.0.48/46105	55.55.0.47/179	1 Intern	Estab	4	0
55.56.0.48/179	55.56.0.51/20257	1 Client	Estab	4	0
55.56.0.48/179	55.56.0.52/19096	1 Client	Estab	4	0
55.56.0.48/179	55.56.0.173/26893	1 Client	Estab	4	241
55.80.0.48/32799	55.80.0.53/179	1 Client	Estab	4	0
55.90.0.48/52506	55.90.0.54/179	1 Client	Estab	4	0

#### BGP Virtual Peers

```
-----
```

Local	Remote	Identifier	Total	Last Update
55.55.0.48	55.55.0.47	192.32.13.173	240	0h 7m 10s

**routes** [*<address>* | **from** *<peer address>* | **find** *<search pattern>*]

Displays information about routes received from BGP peers. Some information relates to all peers; some is specific to the type of entry displayed. Following is a list of options you can use with the **routes** command.

<i>&lt;address&gt;</i>	Displays only routes to the specified Internet network prefix (network number). For example, <b>show bgp routes 192.32.0.0</b> shows all routes to 192.32.0.0.
<b>from</b> <i>&lt;peer_address&gt;</i>	Displays only routes received from the specified BGP peer. The peer address is the same as the Remote Address entry in the show bgp peers table. For example, <b>show bgp routes from 200.1.2.3</b> shows all routes received from peer 200.1.2.3.
<b>find</b> <i>&lt;search_pattern&gt;</i>	Displays only routes that match the specified search pattern. For example, the command <b>show bgp routes find 200.*.*</b> displays routes 200.1.5.0, 200.1.6.0, and 200.1.190.0.

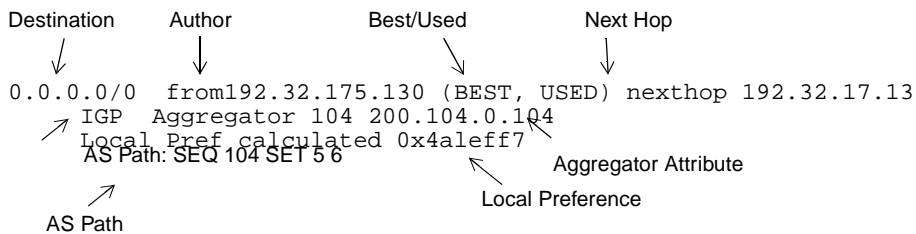
The table includes the following information for each entry:

Destination network	IP address and the length of the prefix of the destination network in the dot notation form x.x.x.x/n, where x.x.x.x is the Internet address and n is the prefix length; for example, 200.4.0.0/16.
Author of address	IP address of the peer that provided the route.
Best/Used indication	BEST means that the route is the best BGP route to the destination; USED means that the route is in the IP routing table.
Next hop	IP address of the next hop route. This is the forwarding address for the route.
Origin of route	Ultimate origin of the route as follows:
INC	Origin is undetermined.
IGP	Network is interior to the originating Autonomous System (AS).
EGP	Network is learned from EGP.
MED indicator	If available, the value in hexadecimal of the Multi Exit Discriminator (MED) for BGP-4 or the Inter-AS Metric for BGP-3 associated with the path.

---

Aggregator	If it exists, the aggregator attribute; displayed in the form Aggregator n x.x.x.x, where n is the AS number and x.x.x.x is the Internet address.
Atomic	Whether the aggregate is atomic; if it is, the word Atomic appears.
Local preference	Local preference of the route, as received from IBGP or as calculated for EBGP routes. On IBGP connections, the value is in the form Local Pref received x, where x is a hexadecimal value. If a different value was calculated for policy reasons, calculated x also appears. On EBGP links, Local Pref calculated x appears.
AS Path	AS Path of the route as a sequence of AS numbers preceded and possibly intermingled with SEQ and SET. SEQ indicates that the following AS path segment is sequence type. SET indicates set type.

The **show bgp routes** command displays the routing information in the following format:



### Sample Display - show bgp routes

BGP Routes

-----

```
0.0.0.0/0 from 192.32.28.104 (BEST, USED) nexthop 192.32.28.104
  IGP Aggregator 104 200.104.0.104
  Local Pref calculated 0x4a01fe7
  AS Path: SEQ 104 SET 5 6
200.5.0.0/24 from 192.32.28.5 (BEST, USED) nexthop 192.32.28.5
  IGP
  Local Pref calculated 0x4a01ff7
  AS Path: SEQ 5
200.5.0.0/24 from 192.32.28.6 nexthop 192.32.28.5
  IGP
  Local Pref calculated 0x80000000
  AS Path: SEQ 6 5
200.5.23.0/24 from 192.32.28.5 (BEST, USED) nexthop 192.32.28.5
  IGP
  Local Pref calculated 0x4a01ff7
  AS Path: SEQ 5
200.5.23.0/24 from 192.32.28.6 nexthop 192.32.28.5
  IGP
  Local Pref calculated 0x80000000
  AS Path: SEQ 6 5
200.5.24.0/24 from 192.32.28.5 (BEST, USED) nexthop 192.32.28.5
  IGP
  Local Pref calculated 0x4a01ff7
  AS Path: SEQ 5
200.5.24.0/24 from 192.32.28.6 nexthop 192.32.28.5
  IGP
  Local Pref calculated 0x80000000
  AS Path: SEQ 6 5
200.6.0.0/24 from 192.32.28.5 nexthop 192.32.28.6
  IGP
  Local Pref calculated 0x80000000
  AS Path: SEQ 5 6
```

8 BGP Route entries. IGP: 8 EGP: 0 Incomplete: 0.

---

## stats

Displays statistics for each peer router. The table displays the Internet address of the configured local and remote BGP peers and the total number of BGP messages and updates received and sent between them. Message totals include updates.

### Sample Display - show bgp stats

```
BGP Peer Statistics
```

```
-----
```

Local Address	Remote Address	Messages		Updates	
		Rx	Tx	Rx	Tx
192.32.174.65	192.32.174.66	4206	4193	217	181
192.32.174.97	192.32.174.99	4174	4228	64	205
192.32.175.129	192.32.175.130	4360	4189	292	162

```
3 peers configured.
```

## summary

Displays a brief summary of BGP information including the following items:

- State of BGP: Absent, Disabled, Down, Init (initializing), Invalid, or Up.
- Local BGP identifier.
- Local Autonomous System number.
- Whether Intra-AS IBGP routing is enabled or disabled.
- Number of peers configured.
- Number of routes BGP has received, used and total.
- Number of different path attributes BGP has.
- State of BGP-3 and BGP-4: Configured, Not Configured, Enabled, or Disabled.
- Whether BGP is running in Route Server mode as a server or client.

### Sample Display - show bgp summary

```
BGP Up      ID: 192.32.174.98    AS: 2    IBGP Hack Disabled
```

```
2 peers configured.
```

```
Using 244 Routes out of a total of 245.  
14 unique paths maintained.
```

```
BGP-3 Configured, Enabled.    BGP-4 Configured, Enabled.  
Route Server - Client.
```

### timers

Displays the timers associated with each peer router. The table includes the following information:

Local Address	Internet address of the local peer.
Remote Address	Internet address of the remote peer.
Hold	Number of seconds to wait for a Keep Alive or Update packet before terminating the connection.
Keep Alive	Number of seconds between sending Keep Alive packets to maintain an open connection.
Time	Amount of time in hours/minutes/seconds that the connection between the two peers has been up or down.
Last Update	Time in hours/minutes/seconds since this peer received the last update.

---

## Sample Display - show bgp timers

BGP Peer Timers

-----

Local Address	Remote Address	Hold		Keep Alive		Time Up/Down	Last Update
		Cfg	Act	Cfg	Act		
210.10.10.1	210.10.10.2	90	90	30	30	67h 56m 30s	0h 0m 20s

1 peer configured.

## version

Displays the current version number and date of the *bgp.bat* script.

## Sample Display - show bgp version

BGP.bat Version: #.## Date: mm/dd/yy.

## weights

Displays the BGP AS Weights table, which includes the Autonomous System, its state and its weight. The weight value helps determine the preferred route and aids in selecting a route. The State of the AS Weight entry is Down, Init (initializing), Invalid, Not Present (not yet functioning), or Up.

## Sample Display - show bgp weights

BGP AS Weights

-----

AS	State	Class	Class	Class	Class	Class	Class	Class	Class
		1	2	3	4	5	6	7	8
1000	Up	10	8	8	8	8	8	8	8
2000	Up	2	8	8	8	8	8	8	8
3000	Up	6	8	8	8	8	8	8	8

3 entries

## show bisync

The **show bisync** *<option>* commands display configuration, status, and statistical information about Binary Synchronous (BISYNC) lines. For detailed information about configuring BISYNC, refer to *Configuring BSC Transport Services*.

The **show bisync** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">receive errors [circuit &lt;circuit name&gt;]</a>
<a href="#">base [circuit &lt;circuit name&gt;]</a>	<a href="#">sample [&lt;period in seconds&gt;] [circuit &lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">stats [circuit &lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">transmit errors [circuit &lt;circuit name&gt;]</a>
<a href="#">interrupt errors [circuit &lt;circuit name&gt;]</a>	<a href="#">version</a>



---

## alerts

Displays all BISYNC circuits that are enabled but not up. Use this display to identify the interfaces that are not working. The table includes the following information:

Slot	Slot identifier
Conn	Connector identifier
Circuit	Name of the circuit associated with this line.
State	State of the line driver, as follows: <ul style="list-style-type: none"><li>• <i>Disabled</i> - User has manually disabled the driver.</li><li>• <i>Down</i> - Driver is not operational.</li><li>• <i>DSR Wait</i> - External equipment, such as a modem, DSU, or CSU, is not currently up and thus is not asserting a Data Set Ready signal.</li><li>• <i>Init</i> - Driver is initializing.</li><li>• <i>Not Pres</i> - Driver is enabled but not yet started. This state occurs for several reasons. For example, the Link Module may not be physically present in the chassis. The software may be booting and has not yet initialized the driver software. The slot may be running diagnostics. Or there may be a problem with the configuration.</li><li>• <i>Up</i> - Driver is functioning fully</li></ul>
Line Number	Line number for this line.
MTU	Maximum transfer unit size -- the buffer size for the BISYNC port (also the largest frame that can be transmitted or received across the BISYNC port). The value ranges from 1 to 4568 bytes.
Media Type	Media type this BISYNC module uses, as follows: <ul style="list-style-type: none"><li>• <i>default</i> - Normal connection</li><li>• <i>raiseddtr</i> - Connection to a modem that dials out when Data Terminal Ready (DTR) gets raised.</li><li>• <i>V25</i> - Connection to a V25 BIS modem.</li></ul>
Char Mode	Code set that the BSC protocol uses: EBCDIC or ASCII

**Sample Display - show bisync alerts**

BISYNC Modules on Alert:

-----

Slot	Conn	Circuit	State	Line Number	MTU	Media Type	Char Mode
1	1	S11	Init	01501101	1580	DEFAULT	EBCDIC

Found 0 matches out of 1 entry in table.

**base [circuit <circuit name>]**

Displays the base level information for all BISYNC circuits or a specific BISYNC circuit.

**Sample Display - show bisync base**

BISYNC Modules:

-----

Slot	Conn	Circuit	State	Line Number	MTU	Media Type	Char Mode
1	1	S11	Up	01501101	1580	DEFAULT	EBCDIC

1 entry in table.

For column definitions, see the [alerts](#) command.

---

## disabled

Displays BISYNC circuits that a user has manually disabled.

### Sample Display - show bisync disabled

BISYNC Modules Disabled:

```
-----  


| Slot | Conn | Circuit | State    | Line<br>Number | MTU  | Media<br>Type | Char<br>Mode |
|------|------|---------|----------|----------------|------|---------------|--------------|
| 1    | 1    | S11     | Disabled | 01591101       | 1580 | DEFAULT       | EBCDIC       |

  
Found 1 match out of 1 entry in table.
```

For column definitions, see the [alerts](#) command.

## enabled

Displays BISYNC circuits that a user has manually enabled.

### Sample Display - show bisync enabled

BISYNC Modules Enabled:

```
-----  


| Slot | Conn | Circuit | State | Line<br>Number | MTU  | Media<br>Type | Char<br>Mode |
|------|------|---------|-------|----------------|------|---------------|--------------|
| 1    | 1    | S11     | Up    | 01501101       | 1580 | DEFAULT       | EBCDIC       |

  
Found 1 match out of 1 entry in table.
```

For column definitions, see the [alerts](#) command.

**interrupt errors [circuit <ircuit name>]**

Displays interrupt errors in character reception. The BISYNC driver uses an interrupt procedure to check for control characters in the information stream.

The table includes the following information:

Slot	Slot identifier
Conn	Connector identifier
Circuit	Name of the circuit associated with this line.
BCZero	Number of error situations where no characters appear in the buffer
BCSix	Number of error situations where six or more bytes of data were received
BCInvalid	Number of error situations where the fifth byte of information is not a control character
BCErrors	Total number of errors; sum of BCZero, BCSix, and BCInvalid values

**Sample Display - show bisync interrupt**

BISYNC Module Interrupt Errors:

-----

Slot	Conn	Circuit	BCZero	BCSix	BCInvalid	BCErrors
1	1	S11	0	0	0	0

1 entry in table.

---

## receive errors [circuit <ircuit name>]

Displays receive errors for all circuits or for a specific circuit.

The table includes the following information:

Slot	Slot identifier
Conn	Connector identifier
Circuit	Name of the circuit associated with this line.
Bad Frames	Number of bad receive frames, caused by Frame Check Sequence (FCS) errors or nonoctet aligned errors.
Runt Frames	Number of incomplete frames received on this line.
Receive Errors	Number of frame reject errors received on this line.
Replen Misses	Number of times the buffer fails to clear after receiving information.
Overflow Frames	Number of overflow errors received on this line in which the device's FIFO buffer overflowed before obtaining the next DMA cycle. No buffer resources are available.
LackRescs Chars	Number of characters received and discarded due to lack of resources, such as buffers.

### Sample Display - show bisync receive

BISYNC Module Receive Errors:

```
-----
```

Slot	Conn	Circuit	Bad Frames	Runt Frames	Receive Errors	Replen Misses	Overflow Frames	LackRescs Chars
1	1	S11	0	0	0	0	0	0

```
-----
```

1 entry in table.

**sample** [*<period in seconds>*] [**circuit** *<circuit name>*]

Displays data sampled from BISYNC over a period of 10 seconds. You can change the number of seconds over which you want to sample the data, and you can display sampled data for a specific circuit only.

The table includes the following information:

Slot	Slot identifier
Conn	Connector identifier
Circuit	Name of the circuit associated with this line.
Rx Frames	Number of frames received on this line.
Tx Frames	Number of frames sent on this line.
Rx Lack of Resources	Number of packets received and discarded because of lack of resources; for example, buffers.
Tx Lack of Resources	Number of transmit packets discarded because of lack of resources; for example, buffers.

**Sample Display - show bisync sample**

BISYNC Sampled Data over 10 seconds

```
-----
```

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of RescsChar	Tx Lack of RescsFrms
----	----	-----	-----	-----	-----	-----
1	1	S11	16	4	0	0

1 entry in table.

---

**stats [circuit <circuit name>]**

Displays BISYNC input/output statistical information for all BISYNC modules or for a specific circuit.

The table includes the following information:

Slot	Slot identifier
Conn	Connector identifier
Circuit	Name of the circuit associated with this line.
Receive Bytes	Number of octets received without error.
Receive Frames	Number of frames received without error.
Transmit Bytes	Number of octets transmitted without error.
Transmit Frames	Number of frames transmitted without error.
Total Errors	Total number of errors of all types.

**Sample Display - show bisync stats**

BISYNC Module I/O Statistics:

```
-----
```

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
1	1	S11	18697	1163	1254	413	0

```
-----
```

1 entry in table.

**transmit errors [circuit <ircuit name>]**

Displays statistical information about transmission errors for all circuits or for a specific circuit. The table includes the following information:

The table includes the following information:

Slot	Slot identifier
Conn	Connector identifier
Circuit	Name of the circuit associated with this line.
Transmit Errors	Number of frame reject errors transmitted on this line.
Lack Rescs	Number of characters not transmitted due to lack of resources, such as buffers.
Underflow Frames	Number of retransmission underflow errors. These occur when the device's FIFO buffer empties before the device obtains the next DMA request.

**Sample Display - show bisync transmit errors**

BISYNC Module Transmit Errors:

```
-----
```

Slot	Conn	Circuit	Transmit Errors	Lack Rescs	Underflow Frames
-----					
1	1	S11	0	0	0

1 entry in table.



---

## version

Displays the current version and modification date for the *bisync.bat* script.

### Sample Display - show bisync version

```
bisync.bat Version: #.## Date: mm/dd/yy.
```

## show bootp

The **show bootp** *<option>* command displays configuration, state, and statistical information about Bootstrap Protocol (BOOTP) services and Dynamic Host Configuration Protocol (DHCP) services. For details on the Bay Networks implementation of BOOTP and DHCP, refer to *Configuring SNMP, RMON, BOOTP, DHCP, and RARP Services*.

The **show bootp** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">prefserv</a>
<a href="#">clients</a>	<a href="#">stats</a>
<a href="#">prefserv</a>	<a href="#">version</a>

### base

Displays information about the IP interfaces which you have configured for BOOTP or DHCP services. The table includes the following information:

Interface Address	IP address of an interface that receives BOOTREQUEST or DHCP packets from clients.
State	State of BOOTP services on the interface: Absent, Down, Init (initializing), Invalid, Not Present (enabled but not yet started), or Up.
Min Seconds	Minimum number of seconds the router waits before forwarding any BOOTREQUEST or DHCP packet to the server. If this value exceeds the value in the <i>seconds</i> field of a BOOTREQUEST or DHCP packet from the client, the router drops the packet.
Max Hops	Maximum number of hops a BOOTREQUEST or DHCP packet can take between the client and the server. If this value is less the value in the <i>hops</i> field of a BOOTREQUEST or DHCP packet from the client, the router drops the packet.
PassThruMode	Type of packets that this interface accepts: BOOTP only, DHCP only, or both BOOTP and DHCP.

---

## Sample Display - show bootp base

Bootp Base Information

-----

Interface Address	State	Min Seconds	Max Hops	PassThruMode
192.32.14.92	Up	0	4	BOOTP/DHCP

1 entries

## clients

Displays information about each BOOTP Data Link Control Interface (DLCI) client. The table includes the following information:

Client DLCI                      DLCI for the virtual circuit that this BOOTP client uses.

Client IP Address                IP address for this BOOTP client.

## Sample Display - show bootp clients

BOOTP Clients

-----

Client DLCI	Client IP Address
20	192.32.4.1
24	192.32.5.1

2 Entries

## prefserv

Displays information about each entry in the preferred servers table. The table includes the following information:

Agent Address	IP address of an interface which receives BOOTREQUEST or DHCP packets from clients.
Pref Server Address	IP address of the server to which the router forwards BOOTREQUEST or DHCP packets it receives on the above interface.
State	State of the forwarding entry: Enabled or Disabled.
Request Mode	Type of packets that the router forwards to the server: BOOTP only, DHCP only, or both BOOTP and DHCP.

### Sample Display - show bootp prefserv

```
Bootp Preferred Server
```

```
-----
```

Agent Address	Pref Server Address	State	RequestMode
192.32.14.92	206.2.2.2	Enabled	DHCP

## ragents

Displays information about each entry in the BOOTP relay agent forwarding table. The table includes the following information:

Agent Address	IP interface address of an interface that accepts BOOTPREQUEST or DHCP packets from clients.
Outbound Address	IP address of the interface through which the router forwards BOOTREQUEST or DHCP packets that it receives on the above interface.

---

State	State of the forwarding entry: Enabled or Disabled.
PassthruMode	Type of packets that the BOOTP router forwards through this outbound address: BOOTP only, DHCP only, or both BOOTP and DHCP

### Sample Display - show bootp ragents

Bootp Relay Agents

-----

Agent Address	Outbound Address	State	PassThruMode
-----	-----	-----	-----
192.32.14.92	206.1.1.1	Enabled	BOOTP

1 entries

### stats

Displays statistical information for each BOOTP relay agent. The table includes the following information:

Interface Address	IP address of the interface on the router that receives BOOTPREQUEST or DHCP packets from clients.
Dropped Packets	Number of packets the router has dropped at this interface.
Requests Received	Number of BOOTREQUEST or DHCP packets that this interface has received from clients.
Replies Received	Number of BOOTREPLY or DHCP packets that this interface has received from servers.

### Sample Display - show bootp stats

Bootp Statistics

-----

Interface Address	Dropped Packets	Requests Received	Replies Received
-----	-----	-----	-----
192.32.1.2	0	10	10

1 entries

### version

Displays the current version number and modification date of the *bootp.bat* script.

### Sample Display - show bootp version

BOOTP.bat Version: #.## Date: mm/dd/yy.

---

## show bot

The **show bot** *<option>* commands display information about the Binary Synchronous Communication (BSC) transport services. For detailed information on the Bay Networks implementation of BSC transport services, refer to *Configuring BSC Transport Services*.

The **show bot** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">enabled</a>
<a href="#">base</a>	<a href="#">peers</a>
<a href="#">circuit [<i>&lt;circuit name&gt;</i>]</a>	<a href="#">stats [<i>&lt;circuit name&gt;</i>]</a>
<a href="#">CUs</a>	<a href="#">version</a>
<a href="#">disabled</a>	

## alerts

Displays all BTS circuits that are enabled but not up. Use this command to identify interfaces that are not working.

The table includes the following information:

slot.cct	Number of the slot that contains the link or net module, followed by the number of the connector.
Circuit Name	Name of the circuit the port is on.
Enable	Status of the protocol on the interface: enabled or disabled
State	State of the protocol, as follows: <ul style="list-style-type: none"> <li>• <i>Down</i> - Protocol is not functioning.</li> <li>• <i>Init</i> - Protocol is initializing.</li> <li>• <i>Up</i> - Protocol is functioning fully.</li> </ul>
Interface Type	Type of interface, as follows: <ul style="list-style-type: none"> <li>• Point to Point indicates one TCP connection</li> <li>• Multipoint indicates many TCP connections (primary interface only)</li> </ul>
Interface Attached To	Type of BSC device this interface connects to, as follows: <ul style="list-style-type: none"> <li>• Primary indicates a host</li> <li>• Secondary indicates a control unit or other BSC device</li> </ul>
Packet Count	Number of BTS packets that this interface has received.

### Sample Display - show bot alerts

BOT Alerts

```

-----

```

slot.cct	Circuit Name	Enable	State	Interface Type	Interface Attached To	Packet Count
1.2	S11	Enabled	Down	Multi-Point	Primary	796

Total entries: 0



---

## base

Displays the base record information for BTS. The base record controls BTS for the entire system.

### Sample Display - show bot base

```
BOT Base Record Information
-----

Protocol          Enable          State
-----          -
BOT Service      Enabled         Up
```

For column definitions, see the [alerts](#) command.

## circuit [*<circuit name>*]

Displays circuit and state information for all BTS ports or for a specific port.

### Sample Display - show bot circuit

```
BOT Circuits
-----

slot.cct  Circuit          Interface          Interface          Packet
Name      Enable   State   Type   Attached To   Count
-----
1.2      S11      Enabled  Up     Multi-Point   Primary         689
```

Total entries: 1

For column definitions, see the [alerts](#) command.

## CUs

Displays all BTS connections from this router to control units. The table includes the following information:

cctname	Name of the circuit
Enable	Status of the connection to this control unit: enabled or disabled
Peer IP	IP address of the BTS interface on the peer router
Local Listen Port	Number of the TCP port that the router uses for BTS
Peer Listen Port	Number of the TCP port that the peer router uses for BTS
Control Unit Address	Address of the control unit, in hexadecimal format

### Sample Display - show bot CUs

```
BOT CU Table
-----
cctname  Enable  Peer IP  Local Listen Port  Peer Listen Port  Control Unit Address
-----
S11      Enabled  193.32.33.2  0                1027              0x40

Total entries: 1
```

---

## disabled

Displays all disabled circuits that contain an BTS port. A circuit is disabled if you set the Enable parameter to disable and the state is down.

### Sample Display - show bot disabled

BOT Disabled Circuits

```
-----
```

slot.cct	Circuit Name	Enable	State	Interface Type	Interface Attached To	Packet Count
1.2	S11	Disabled	Disabled	Multi-Point	Primary	742

```
-----
```

Total entries: 1

For column definitions, see the [alerts](#) command.

## enabled

Displays all enabled circuits that contain an BTS port. A circuit is enabled if you set the Enable parameter to enable and the state is up.

### Sample Display - show bot enabled

BOT Enabled Circuits

```
-----
```

slot.cct	Circuit Name	Enable	State	Interface Type	Interface Attached To	Packet Count
1.2	S11	Enabled	Up	Multi-Point	Primary	742

```
-----
```

Total entries: 1

For column definitions, see the [alerts](#) command.

## peers

Displays all BTS peer connections for this router.

### Sample Display - show bot peers

BOT Peer Table

```
-----  
cctname  Enable  Peer IP      Conn Origin  Local Listen  Peer Listen  Local TCP  Peer TCP  
-----  
S11      Enabled  193.32.33.2  Self     0         1027        17271      1027  
-----  
Total entries: 1
```

## stats [*<circuit name>*]

Displays general statistical information for all BTS connections or for a specific circuit. The table includes the following information:

cctname	Name of the circuit.
Enable	
Peer IP	IP address of the BTS interface on the peer router.
Conn Origin	Originator of TCP connection, as follows: <ul style="list-style-type: none"><li>• Self - this router initiates the connection</li><li>• Partner - peer router initiates the connection</li></ul>
Local Listen Port	Number of the TCP port that you specified for BTS on the local router: 0 indicates that this router originates the connection.
Peer Listen Port	Number of the TCP port that you specified for BTS on the peer router: 0 indicates that the peer router originates the connection.

---

Local TCP Port	Number of the TCP port that the router assigns for BTS on the router. If the peer router initiates the TCP connection, this value is the same as the number of the TCP port that you specified for BTS on the local router.
Remote TCP Port	Number of the TCP port that the router assigns for BTS on the router. If the local (and not the peer) router initiates the TCP connection, this value is the same as the number of the TCP port that you specified for BTS on the peer router.

### Sample Display - show bot stats

```
BOT Circuit Statistics
```

```
-----
```

Circuit			Interface	Interface	Packet	
slot.cct	Name	Enable	State	Type	Attached To	Count
-----			-----	-----	-----	-----
1.2	S11	Enabled	Up	Multi-Point	Primary	796

```
Total entries: 1
```

### version

Displays the current version and modification date for the *BOT.bat* script.

### Sample Display - show bot version

```
BOT.bat Version: #.## Date: mm/dd/yy.
```

## show bridge

The **show bridge** <option> commands display configuration, state, and statistical information about Bridging services. For more information on Bridging services, refer to *Configuring Bridging Services*.

The **show bridge** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">enabled</a>
<a href="#">base</a>	<a href="#">forwarding tables [<u>&lt;MAC address&gt;</u>   <u>&lt;pattern&gt;</u>]</a>
<a href="#">circuits [<u>&lt;circuit name&gt;</u>]</a>	<a href="#">stats</a>
<a href="#">disabled</a>	<a href="#">version</a>

### alerts

Displays all circuits that are enabled but not up. Use this display to identify the interfaces that are not working. The table includes the following information:

Circuit	Name of the circuit this interface runs on.
Port	Port number.
State	State of the interface. In this case, State is Down.
Frame Length	Maximum size of the INFO (non-MAC) field that this port will receive or transmit.
802.9 Translations	State of the translation bridging parameter: Enabled or Disabled. The default is Disabled.

---

## Sample Display - show bridge alerts

Bridge Circuit Table

-----

Circuit	Port	State	Frame Length	802.9 Translations
---------	------	-------	--------------	--------------------

-----

0 Entries found.

## base

Displays the Bridge global parameters. The base record controls Bridging services for the entire system. The table includes the following information:

Protocol	Name of the protocol, in this case Bridge.
State	Current state of the protocol: Disabled (manually disabled), Down, Init (initializing), Not Present (enabled but not yet started), or Up.
FDB Entries	Current number of forward table entries.
FDB Size	Maximum available entries in the forwarding table.

## Sample Display - show bridge base

Bridge Base Record Information

-----

Protocol	State	FDB Entries	FDB Size
Bridge	Up	0	1024

**circuits** [*<circuit name>*]

Displays Bridge circuit parameters for all circuits or for a specific circuit. State is Down, Init (initializing), Not Present (enabled but not yet started), or Up. For the remaining column definitions, see the **alerts** command.

**Sample Display - show bridge circuits**Bridge Circuit Table  
-----

Circuit	Port	State	Frame Length	802.9 Translations
S21	1	Up	0	Disabled
0	0	Down	0	Disabled
0	0	Down	0	Disabled
0	0	Down	0	Disabled

4 Entries.

**disabled**

Displays circuits that a user has manually disabled. State is Down; for remaining column definitions, see the **alerts** command.

**Sample Display - show bridge disabled**Bridge Circuit Table  
-----

Circuit	Port	State	Frame Length	802.9 Translations
---------	------	-------	--------------	--------------------

0 Entries found.



---

## enabled

Displays circuits that are currently enabled. State is Down, Init (initializing), Not Present (enabled but not yet started) or Up. For the remaining column definitions, see the **alerts** command.

### Sample Display - show bridge enabled

Bridge Circuit Table

-----

Circuit	Port	State	Frame Length	802.9 Translations
S21	1	Up	0	Disabled
0	0	Down	0	Disabled
0	0	Down	0	Disabled
0	0	Down	0	Disabled

4 Entries found.

## forwarding tables [*<MAC address>* | *<pattern>*]

Displays the bridge forwarding tables for all ports, for a specified port, or for ports that match a specified address pattern.

*<MAC\_address>*

Limits the display to the specified Media Access Control address.

*<pattern>*

Limits the display to ports that match the specified address pattern. You can also use the \* wildcard in your pattern definition.

This display includes the following information:

MAC Address

Media Access Control address of the port.

Port

Port number.

Circuit Name

Name of the circuit the port is on.

### Sample Display - show bridge forwarding tables

```
Bridge Forwarding Tables
-----
      MAC Address      Port      Circuit Name
-----
No Entries.
```

### stats

Displays bridge traffic statistics for each port. The table includes the following information:

Circuit	Name of the circuit the interface runs on.
Port	Number of the port.
Rx frames	Number of frames that this interface has received from its circuit.
Tx frames	Number of frames that this interface has transmitted to its circuit.
Discards	Number of valid frames that this interface received but then discarded.

### Sample Display - show bridge stats

```
Bridge Statistics
-----
Circuit      Port      Rx Frames Tx Frames Discards
-----
S21          1          0          0          0
0            0          0          0          0
0            0          0          0          0
```

---

## version

Displays the current version and modification date of the *bridge.bat* script.

### Sample Display - show bridge version

```
BRIDGE.bat Version: #.## Date: mm/dd/yy.
```

## show circuits

The **show circuits** *<option>* commands display specific configuration, state, and statistical information for all drivers on the router: CSMA/CD, DS1E1, E1, FDDI, HSSI, SYNC, T1, and/or Token Ring modules. For example, you can display the receive error statistics for all drivers by entering only one command: **show circuits receive errors**.

You can also display selected information for a specific circuit without knowing the circuit's type. The **show circuits** command looks up the circuit in the MIB and invokes the correct driver to display the information you have requested.

Refer to the sections on the specific driver commands for more sample displays and for the definitions of display columns generated by the **show circuits** *<option>* commands.

The **show circuits** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">receive errors [&lt;circuit name&gt;]</a>
<a href="#">base [&lt;circuit name&gt;]</a>	<a href="#">stats [&lt;circuit name&gt;]</a>
<a href="#">configuration [&lt;circuit name&gt;]</a>	<a href="#">system errors [&lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">transmit errors [&lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">version</a>
<a href="#">hwfilters</a>	

---

## alerts

Displays all enabled circuits whose state is not Up.

### Sample Display - show circuits alerts

CSMACD Modules on Alert:

```
-----  
Slot Conn Circuit   State      MAC Address      BOFL  
-----  
          3    2 E32      Down      00-00-A2-03-00-6F  TMO MTU  HW  
-----  
          5 1518 Disabled
```

Found 1 match out of 4 entries in table.

HSSI Modules on Alert:

```
-----  
Slot Conn Circuit   State      MAC Address      BOFL  
-----  
          0    0      Not Pres (nil)      TMO MTU  WAN  
-----  
          1 4608 FRAME RELAY      Line  
          0    0      Not Pres (nil)      1 4608 FRAME RELAY      Number  
-----
```

Found 2 matches out of 2 entries in table.

TOKEN RING Modules on Alert:

```
-----  
Slot Conn Circuit   State      MAC Address      MTU      Ring  Early Token  
-----  
          2    1 O21      CableFlt 00-00-A2-01-4B-4E 4568 16 Mbps Enabled
```

Found 1 match out of 1 entry in table.

**base** [*<circuit name>*]

Displays the circuit base record information for all circuits or for a specific circuit.

**Sample Display - show circuits base**

CSMACD Modules:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	HW Filter
3	1	E31	Up	00-00-A2-03-00-6E	5	1518	Disabled
3	2	E32	Down	00-00-A2-03-00-6F	5	1518	Disabled
3	3	E33	Up	00-00-A2-03-00-70	5	1518	Disabled
3	4	E34	Up	00-00-A2-03-00-71	5	1518	Disabled

4 entries in table.

HSSI Modules:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	WAN Protocol	Line Number
0	0		Not Pres	(nil)	Off	4608	FRAME RELAY	0
0	0		Not Pres	(nil)	1	4608	FRAME RELAY	0

2 entries in table.

TOKEN RING Modules:

-----

Slot	Conn	Circuit	State	MAC Address	MTU	Ring Speed	Early Token Release
2	1	O21	CableFlt	00-00-A2-01-4B-4E	4568	16 Mbps	Enabled

1 entry in table.

---

## configuration [*<circuit name>*]

Displays the circuits used on the router. The table includes the circuit type, circuit number, interface type and the protocols configured to run on each circuit in the display. You can also display this information for a specific circuit.

### Sample Display - show circuits configuration

#### Circuit Configuration List

-----

```
Name: E21
Number: 1
Type: Normal
IF Type: CSMACD
Protocols:  1. IP          3. TCP          5. TELNET Client
           2. IP RIP     4. TELNET      6. ARP
```

```
Name: E22
Number: 2
Type: Normal
IF Type: CSMACD
Protocols:  1. IPX          2. IPX RIP/SAP
```

```
Name: O31
Number: 3
Type: Normal
IF Type: Token Ring
Protocols:  1. IP          3. IPX          5. ARP
           2. IP RIP     4. IPX RIP/SAP
```

## disabled

Displays all circuits that a user has manually disabled.

### Sample Display - show circuits disabled

CSMACD Modules Disabled:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	HW Filter
------	------	---------	-------	-------------	-------------	-----	--------------

Found 0 matches out of 4 entries in table.

HSSI Modules Disabled:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	WAN Protocol	Line Number
------	------	---------	-------	-------------	-------------	-----	-----------------	----------------

Found 0 matches out of 2 entries in table.

TOKEN RING Modules Disabled:

-----

Slot	Conn	Circuit	State	MAC Address	MTU	Ring Speed	Early Token Release
------	------	---------	-------	-------------	-----	---------------	------------------------

Found 0 matches out of 1 entry in table.



---

## enabled

Displays all currently enabled circuits.

### Sample Display - show circuits enabled

CSMACD Modules Enabled:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	HW Filter
3	1	E31	Up	00-00-A2-03-00-6E	5	1518	Disabled
3	2	E32	Down	00-00-A2-03-00-6F	5	1518	Disabled
3	3	E33	Up	00-00-A2-03-00-70	5	1518	Disabled
3	4	E34	Up	00-00-A2-03-00-71	5	1518	Disabled

Found 4 matches out of 4 entries in table.

HSSI Modules Enabled:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	WAN Protocol	Line Number
0	0		Not Pres	(nil)	Off	4608	FRAME RELAY	0
0	0		Not Pres	(nil)	1	4608	FRAME RELAY	0

Found 2 matches out of 2 entries in table.

TOKEN RING Modules Enabled:

-----

Slot	Conn	Circuit	State	MAC Address	MTU	Ring Speed	Early Token Release
2	1	O21	CableFlt	00-00-A2-01-4B-4E	4568	16 Mbps	Enabled

Found 1 match out of 1 entry in table.

**hwfilters**

Displays all hardware filter configurations on the router.

**Sample Display - show circuits hwfilters**

Hardware Filters Modules:

```

-----
Slot Conn Circuit   State      Line  Maximum Current  Used   Dropped
Type  Tbl Siz  Tbl Siz Entries   Frames
-----

```

0 entries in table.

**receive errors [*<circuit name>*]**

Displays the receive error statistics for all circuits or for a specific circuit.

**Sample Display - show circuits receive errors**

CSMACD Module Receive Errors:

```

-----
Slot Conn Circuit   Checksum  Alignment  Overflow  Frames
Errors      Errors      Errors      Too Long
-----
   3   1 E31           7           7           0           0
   3   2 E32           0           0           0           0
   3   3 E33           0           0           0           0
   3   4 E34           0           0           0           0

```

4 entries in table.

HSSI Module Receive Errors:

```

-----
Slot Conn Circuit   CRC Errors  Overruns   Aborts     Frames
                                Too Long
-----
   0   0              0           0           0           0
   0   0              0           0           0           0

```

2 entries in table.

TOKEN RING Receive Errors:

```

-----
Slot Conn Circuit   Line      Burst
Errors      Errors
-----
   2   1 O21           0           0

```

1 entry in table.

---

**stats** [*<circuit name>*]

Displays the Input/Output statistics for all circuits or for a specific circuit.

**Sample Display - show circuits stats**

CSMACD Module I/O Statistics:

-----

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Transmit Deferred	Total Errors
3	1	E31	383755961	1689896	76728438	242760	592	15
3	2	E32	0	0	0	0	0	77438
3	3	E33	0	0	72749532	208962	0	1
3	4	E34	69919188	199953	72770404	208060	20	1

4 entries in table.

HSSI Module I/O Statistics:

-----

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
0	0		0	0	0	0	0
0	0		0	0	0	0	0

2 entries in table.

TOKEN RING I/O Statistics:

-----

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	MAC Rx Frames	Total Errors
2	1	O21	0	0	0	0	0	0

1 entry in table.

**system errors** [*<circuit name>*]

Displays the system error statistics for all circuits or for a specific circuit.

**Sample Display - show circuits system errors**

CSMACD Module System Errors:

-----

Slot	Conn	Circuit	Memory Errors	Collision Errors	Internal Buffer	Loss of Carrier
3	1	E31	0	1	0	0
3	2	E32	0	1	0	77458
3	3	E33	0	1	0	0
3	4	E34	0	1	0	0

4 entries in table.

HSSI Module System Errors:

-----

Slot	Conn	Circuit	Rx Ring Errors	Tx Ring Errors	Internal Op Errors	Host Errors	Port Errors
0	0		0	0	0	0	0
0	0		0	0	0	0	0

2 entries in table.

TOKEN RING System Errors:

-----

Slot	Conn	Circuit	Adapter Checks	DMA Bus Errors	DMA Parity Errors	Command Timeouts	Host Iface Errors
2	1	O21	0	0	0	0	0

1 entry in table.

---

**transmit errors** [*<circuit name>*]

Displays the transmit error statistics for all circuits or for a specific circuit.

**Sample Display - show circuits transmit errors**

CSMACD Module Transmit Errors:

-----

Slot	Conn	Circuit	Late Collision	Excessive Collision	Frames Too Long	Underflow Errors
3	1	E31		0	0	0
3	2	E32		0	0	0
3	3	E33		0	0	0
3	4	E34		0	0	0

4 entries in table.

HSSI Module Transmit Errors:

-----

Slot	Conn	Circuit	Aborts	Underruns
0	0		0	0
0	0		0	0

2 entries in table.

TOKEN RING Transmit Errors:

-----

Slot	Conn	Circuit	Lost Frame Errs
2	1	O21	0

1 entry in table.

## **version**

Displays the current version number and modification date of the *circuits.bat* script.

### **Sample Display - show circuits version**

```
CIRCUITS.bat Version: #.## Date: mm/dd/yy.
```

---

## show console

The **show console** *<option>* commands display console port configuration, state, and statistics information. For more information, refer to *Using Technician Interface Software*.

The **show console** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">enabled</a>
<a href="#">configuration [&lt;port number&gt;]</a>	<a href="#">stats [&lt;port number&gt;]</a>
<a href="#">disabled</a>	<a href="#">version</a>

### alerts

Displays the port number, port name, and state of any serial port that is enabled but not currently up. Use this command to detect potential problems with the serial ports configured on your system. The listing of a serial port in the display doesn't necessarily mean that a problem exists with the port; it means only that a problem could exist. For example, all the ports could be initializing, which would be normal as long as the ports go into the Up state within a reasonable period of time.

The table also includes the number of serial port alerts and the total number of ports configured on the system. For more information on port states, see the **configuration** command.

**Sample Display - show console alerts**

Console Serial Port Alert Information

-----

Port Number	Port Name	Port State
2	MODEM1	Init
3	MODEM2	Init
4	PRINTER	Init

3 serial port alerts. 4 serial ports configured.

**configuration** [*<port number>*]

Displays serial port configuration and Technician Interface environment information for the serial ports configured on your system or for a specific port. Entered without an option, this subset of commands displays the total number of ports configured on the system.

*<port\_number>* Limits the display to a specified port number, currently 1 through 4.

The table includes the following information:

Port Number	Port number for the information being displayed. Valid ports are 1, 2, 3, and 4. Not all systems have four physical ports. A configured port that doesn't exist is in the Absent state.
Port State	Port's current state, as follows: <ul style="list-style-type: none"><li>• <i>Absent</i> - Not physically present</li><li>• <i>Disabled</i> - Unavailable</li><li>• <i>Down</i> - Unavailable</li><li>• <i>Init</i> - Initializing</li><li>• <i>Up</i> - Available</li></ul>



---

Port Name	<p>Name that the system has given to the port. Users may not specify a name. You can use the name to correlate a port number to a physical port. The name of the port should be printed next to the physical port connection, as follows:</p> <ul style="list-style-type: none"> <li>• <i>Port 1</i> - CONSOLE</li> <li>• <i>Port 2</i> - MODEM1 (VME platform only)</li> <li>• <i>Port 3</i> - MODEM2 (VME platform only)</li> <li>• <i>Port 4</i> - PRINTER (VME platform only)</li> </ul> <p>The names do not specify the port's use. All ports are serial ports used for Technician Interface sessions only. For example, port MODEM1 may be a modem connection or a dummy terminal connection depending on its configuration. While port 4 is called PRINTER, it is exactly like ports 1, 2, and 3. Port 4 doesn't support a printer. It has that name because that's what is printed near the port connector on the link module.</p>
Slot Number	Slot on which the login session for the serial port is running.
Baud Rate	Current baud rate setting for the serial port.
Data Bits	Number of data bits in the serial port's configuration.
Parity	Serial port's current parity setting.
Stop Bits	Number of stop bits in the serial port's configuration.
Modem Control	<p>Configuration of modem control, as follows:</p> <ul style="list-style-type: none"> <li>• <i>Disabled</i> - Port is directly connected to a device, such as a dummy terminal or a terminal server.</li> <li>• <i>Enabled</i> - Port is attached to a modem and modem leads are enabled.</li> </ul>
Screen Size	Number of lines the serial port displays before displaying the more prompt.
More	Setting of the Technician Interface <b>more</b> feature: Enabled or Disabled (according to the MIB record). The Technician Interface <b>more</b> command affects only the current login session, doesn't change the MIB, and therefore doesn't affect the setting of this field.
Port Prompt	Technician Interface prompt.
Max. Login Retries	Maximum number of login retries; relevant only if modem control is enabled. This value determines the maximum number of failed login attempts a system allows on the serial port. If the maximum occurs, the system hangs up on the line, causing a modem connection to lose carrier detect.

Login Time Out	Number of minutes allowed between when the system displays the login banner and a user enters a login ID; relevant only if modem control is enabled. If this timeout occurs, the system hangs up on the line.
Password Time Out	Number of minutes allowed for a user to enter a password. If this timeout period occurs, the system hangs up on the line.
Command Time Out	Command line timeout value; relevant only if modem control is enabled. If someone doesn't enter a command in this number of minutes, the system hangs up on the serial port.
User Abort Logout	Switch to execute control (^C) to break out of the user autoscript. When a user autoscript is in effect and this parameter is enabled, you can break out of the script when logged in as User, not Manager. Also, if this parameter is enabled and the script terminates due to an error, the system automatically logs you out.
Initial Search Path	List of file system volumes to be searched when you run a script without a volume specifier or if an autoscript does not contain a volume specifier. The environment variable PATH is set to this string. The string format is as follows: <vol>[:<vol>: ...] Example: 2::3::4::5:
Manager's AutoScript	Name of the script to run when the Manager account logs in to the router. If the script name does not contain a volume specifier, the system searches the volumes listed in "Initial Search Path."
User's AutoScript	Name of the script to run when the User account logs in to the router. If the script name does not contain a volume specifier, the system searches the volumes listed in "Initial Search Path."

---

## Sample Display - show console configuration

### Console Serial Port Configuration Information

-----

```
Port Number: 1
  Port State: Up
  Port Name: CONSOLE
Slot Number: 2
  Baud rate: 9600
  Data bits: 8
  Parity: None
  Stop Bits: 1
Modem Control: Disabled
  Screen Size: 24
  More: Enabled
  Port prompt: "[%slot%:1]$ "
Max. Login Retries: 3
  Login Time Out: 1 minutes.
  Password Time Out: 1 minutes.
  Command Time Out: 15 minutes.
  User Abort Logout: Enabled
Initial Search Path: "1;;2;;3;;4:".
Manager's AutoScript "automgr.bat".
  User's AutoScript "autouser.bat".
```

1 serial port configured.

## disabled

Displays the port number, port name, and state for all disabled serial ports. Also displays the number of disabled serial ports and the total number of serial ports configured.

## Sample Display - show console disabled

### Console Serial Port Disabled Information

-----

Port Number	Port Name	Port State
2	MODEM1	Disabled
4	PRINTER	Disabled

2 serial ports disabled. 4 serial ports configured.

## enabled

Displays the port number, port name, and state of all enabled serial ports. Also displays the number of enabled serial ports and the total number of serial ports configured on the system.

### Sample Display - show console enabled

```
Console Serial Port Enabled Information
```

```
-----
```

Port Number	Port Name	Port State
1	CONSOLE	Up
3	MODEM2	Up

```
2 serial ports enabled. 4 serial ports configured.
```

## stats [*<port number>*]

Displays login information and serial port error statistics for all serial ports configured on your system or for a specific port.

*<port\_number>* Limits the display to a specified port number, currently 1 through 4.

The table includes the following information:

Port Number	Port number for the information displayed.
Port Name	Corresponding port name.
Port State	Port's current state : Absent, Disabled, Down, Init, or Up.
Total Logins	Number of logins (failed and successful) on the serial port.
User Login Errors	Number of failed login attempts the User login account has made on the serial port.

---

Manager Login Errors	Number of failed login attempts the Manager login account has made on the serial port.
Other Login Errors	Number of failed login attempts made by login accounts other than User and Manager on the serial port.
TTY I/O Errors	Number of data errors on the serial port; the sum of all frame, parity, overrun, and FIFO errors that the serial port DUART chip has detected. A high number of errors over a short period of time indicates a possible problem with the line.

### Sample Display - show console stats

Console Serial Port Statistical Information

```
-----
```

Port Number	Port Name	Port State	Total Logins	User Login Errors	Manager Login Errors	Other Login Errors	TTY I/O Errors
1	CONSOLE	Up	1	0	0	0	0
2	MODEM1	Disabled	0	0	0	0	0
3	MODEM2	Up	0	0	0	0	0
4	PRINTER	Disabled	5	0	0	5	0

4 serial ports configured.

### version

Displays the current version number and modification date of the *console.bat* script.

### Sample Display - show console version

```
CONSOLE.bat Version: #.## Date: mm/dd/yy.
```

## show csmacd

The **show csmacd** *<option>* commands display configuration, status, and statistical information about the Carrier Sense Multiple Access with Collision Detection protocol (CSMA/CD). Ethernet uses this protocol to control access to the medium. End stations use CSMA/CD to monitor the medium and wait until it is idle before transmitting data. For more information, refer to *Configuring Ethernet, FDDI, and Token Ring Services*.

The **show csmacd** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">hwfilters</a>
<a href="#">autoneg [circuit &lt;circuit name&gt;]</a>	<a href="#">receive errors [circuit &lt;circuit name&gt;]</a>
<a href="#">base [circuit &lt;circuit name&gt;]</a>	<a href="#">sample [&lt;period in seconds&gt;] [circuit &lt;circuit name&gt;]</a>
<a href="#">collisions [circuit &lt;circuit name&gt;]</a>	<a href="#">stats [circuit &lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">system errors [circuit &lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">transmit errors [circuit &lt;circuit name&gt;]</a>

### alerts

Displays all circuits that are enabled but not up. Use this display to identify interfaces that are not working. The table includes the following information:

Slot	Slot identifier; ranges vary according to router model. For routers other than the ASN, indicates the physical slot number.
Conn	Connector's instance identifier. For an Ethernet Link Module, the range is 1 or 2. For a Net Module, the value is 11 to 44.
Circuit	Name of the circuit associated with this line.
State	State of the line driver: Disabled, Down, Init (initializing), Not Present (enabled but not yet started), or Up.

---

The Not Present state occurs for several reasons. For example, the Link Module may not be physically present in the chassis. The software may be booting and has not yet initialized the driver software. The slot may be running diagnostics. Or there may be a problem with the configuration.

MAC Address	Line's physical address. The driver assigns this address.
BOFL TMO	Time in seconds between transmissions of Breath of Life messages from this interface. A timeout occurs if five periods elapse without a successful frame transmission. When timeout occurs, the interface is disabled and then enabled again automatically.
MTU	Maximum transfer unit size for frames on this line.
HW Filter	Status of hardware filtering: Enabled or Disabled. When enabled, the Link Module filtering hardware prevents the copying of local frames into system memory. Filtering hardware drops local frames at the interface. Bridging software performance is improved because it no longer uses resources to receive and reject local frames.
Line Speed	Circuit's configured line speed: 10 Mb/s or 100 Mb/s.



**Note:** The **alerts**, **base**, **disabled**, and **enabled** tables all include the same information.

---

### Sample Display - show csmacd alerts

```
CSMACD Modules on Alert:
```

```
-----  
Slot Conn Circuit State MAC Address BOFL HW Line  
TMO MTU Filter Speed  
-----  
0 0 Not Pres (nil) 5 1518 Disabled 10Mbps  
2 31 Down 00-00-A2-0B-67-0C 5 1518 Disabled 100Mbps  
  
Found 2 matches out of 2 entries in table.
```

**autoneg [circuit <ircuit name>]**

Displays the line speed characteristics of Ethernet circuits that are configured with automatic line negotiation. Some Ethernet modules can run at either 10 Mb/s or 100 Mb/s using a hardware process to detect the speed to use. Use this command to identify the status of auto-negotiation. The table includes the following information:

Slot	The Ethernet module's slot identifier. For routers other than the ASN, indicates the Link Module's physical slot on the router backplane; ranges vary from 1 - 14, according to router model.  For an ASN, indicates the Net Module's configured slot ID; ranges from 1 - 4.
Conn	Specifies this line's connector on the Ethernet module. For a Link Module in a router other than the ASN, the range is 1 - 4. For an ASN, the value is a two-digit decimal number, 11 to 44. The first digit is the Net Module number and the second digit is the connector number.
Circuit	Name of the circuit associated with this line.
State	State of the line driver: Disabled, Down, Init (initializing), Not Present (enabled but not yet started), or Up.
Auto-Negotiation State	Disabled, Configuring, Complete.
Remote Signaling	True or False
Capability in Use	100Base-X (100Base-TX or 100Base-FX) 100Base-X FD (Full Duplex) 100Base-T FD Cong (with congestion control)



---

## Sample Display - show csmacd autoneg

Auto-Negotiation Information:

-----

Slot	Conn	Circuit	State	Auto-Negotiation State	Remote Signaling	Capability In Use
2	1	E21	Up	**NOT SUPPORTED**		
5	1	E51	Up	Complete	TRUE	100Base-X FD
5	2	E52	Up	Complete	TRUE	100Base-X FD

3 entries in table.

## base [circuit <ircuit name>]

Displays base level information about CSMACD. You can also display base information for a specific circuit. For definitions of the columns in the table, refer to the **alerts** command.

## Sample Display - show csmacd base

CSMACD Modules:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	HW Filter	Line Speed
2	1	E21	Up	00-00-A2-00-DC-A9	5	1518	Disabled	10Mbps
5	1	E51	Up	00-00-A2-0B-66-AF	8	1518	Disabled	100Mbps
5	2	E52	Up	00-00-A2-0B-66-B0	8	1518	Disabled	100Mbps

3 entries in table.

**collisions [circuit <ircuit name>]**

Displays status on bus collisions. You can display collision information for a specific circuit or all circuits. The table includes the following information:

Slot	Slot identifier; ranges vary according to router model.
Conn	Connector's instance identifier; ranges vary according to router model and Ethernet module. For routers other than ASN, indicates the physical connector number on the slot.
Circuit	Name of the circuit associated with this line.
Single Collision Frames	Number of frames that encountered a single collision before it was successfully transmitted. This is normal CSMA/CD activity.
Multiple Collision Frames	Number of frames that encountered 2 to 16 collisions before they were transmitted successfully. This could indicate a network problem, or that the network is simply heavily loaded.
Excessive Collisions	Number of frames that encountered more than 16 collisions and were therefore not transmitted. The transmission is aborted and the packet is dropped. This could indicate a network problem or be the result of an overloaded network.
Late Collision Transmit	Number of transmits that occur after an out-of-window collision. These collisions usually indicate wiring or other hardware problems.
Late Collision Receive	Number of transmitter out-of-window collisions while receiving the next packet. Usually indicates wiring or other hardware problems.

**Sample Display - show csmacd collisions**

CSMACD Module Collision Information:

```
-----
```

Slot	Conn	Circuit	Single Collision Frames	Multiple Collision Frames	Excessive Collisions	Late Collision Transmit	Late Collision Receive
2	1	E21	0	0	0	0	0
5	1	E51	0	0	0	0	0
5	2	E52	0	0	0	0	0

3 entries in table.

---

## disabled

Displays the circuits that a user has manually disabled. In this case, State is Disabled. For definitions of the columns in the table, refer to the **alerts** command.

### Sample Display - show csmacd disabled

CSMACD Modules Disabled:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	HW Filter	Line Speed
1	11	E111	Disabled	00-00-A2-0D-73-37	5	1518	Disabled	100 Mbps

Found 1 match out of 3 entries in table.

## enabled

Displays circuits that a user has enabled. In this case, State is Down, Init, Not Present, or Up. For definitions of the columns in the table, refer to the **alerts** command.

### Sample Display - show csmacd enabled

CSMACD Modules Enabled:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	HW Filter	Line Speed
2	1	E21	Up	00-00-A2-00-DC-A9	5	1518	Disabled	10Mbps
5	1	E51	Up	00-00-A2-0B-66-AF	8	1518	Disabled	100Mbps
5	2	E52	Up	00-00-A2-0B-66-B0	8	1518	Disabled	100Mbps

Found 3 matches out of 3 entries in table.

## hwfilters

Displays status and statistical information about the hardware filters in use, if any. The table includes the following information:

Slot	Slot identifier; ranges vary according to router model.
Conn	Connector's instance identifier; ranges vary according to router model and Ethernet module. For routers other than ASN, indicates the physical connector number on the slot.
Circuit	Name of the circuit associated with this line.
State	Status of the filtering hardware on the line: Down, Full or Up.
Line Type	CSMACD.
Maximum Tbl Siz	Maximum number of table entries that a line can use, based on the hardware filter devices present and available.
Current Tbl Siz	Current capacity of the hardware filter table. The protocol dynamically allocates hardware filter table resources as needed in increments of 256 up to the available table size.
Used Entries	Number of hardware filter table entries used.
Dropped Frames	Number of frames dropped because they matched the hardware filter.

### Sample Display - show csmacd hwfilters

```
Hardware Filters Modules:
```

```
-----
```

Slot	Conn	Circuit	State	Line Type	Maximum Tbl Siz	Current Tbl Siz	Used Entries	Dropped Frames
2	1	E21	Down	CSMACD	1024	0	0	0

```
-----
```

1 entry in table.

---

## receive errors [circuit <ircuit name>]

Displays receive errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges vary according to router model.
Conn	Connector's instance identifier; ranges vary according to router model and Ethernet module. For routers other than ASN, indicates the physical connector number on the slot.
Circuit	Name of the circuit associated with this line.
Checksum Errors	Number of frames received with a CRC error.
Alignment Errors	Number of frames received that did not contain an integral number of octets. Normally a frame alignment error also causes a checksum error on the frame.
Overflow Errors	Number of overflow errors received on this line in which the device FIFO buffer overflowed before obtaining the next DMA cycle.
Frames Too Long	Number of frames received that exceed 1518 octets.
Receive Symbol Errors	Number of errors in hardware MLT3 encoding. Indicates a problem. Only relevant on 100 Mb/s lines.
Internal MAC Receive Errors	Number of frames containing less than 64 octets ( <i> runt packets</i> ).

### Sample Display - show csmacd receive

CSMACD Module Receive Errors:

-----

Slot	Conn	Circuit	Checksum Errors	Alignment Errors	Overflow Errors	Frames Too Long	Receive Symbol Errors	Internal MAC Receive Errors
2	1	E21	0	0	0	0	0	0
5	1	E51	0	0	0	0	0	0
5	2	E52	0	0	0	0	0	0

3 entries in table.

**sample** [*<period in seconds>*] [**circuit** *<circuit name>*]

Displays data sampled over a period of 10 seconds from CSMACD. You can change the number of seconds over which you want to sample the data, and you can display sampled data for a specific circuit only. The table includes the following information:

Slot	Slot identifier; ranges vary according to router model.
Conn	Connector's instance identifier; ranges vary according to router model and Ethernet module. For routers other than ASN, indicates the physical connector number on the slot.
Circuit	Name of the circuit associated with this line.
Rx Frames	Number of frames received.
Tx Frames	Number of frames transmitted.
Rx Lack of Resources	Number of packets received and discarded because of lack of system resources; for example, buffers.
Tx Lack of Resources	Number of transmit packets discarded because of lack of system resources; for example, buffers.

**Sample Display - show csmacd sample**

CSMACD Sampled Data over 10 seconds

```
-----
```

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
-----						
2	1	E21	401	3	0	0
5	1	E51	2	2	0	0
5	2	E52	2	2	0	0

3 entries in table.

---

## Sample Display - show csmacd sample 5 circuit E51

CSMACD Sampled Data over 5 seconds

```
-----  
Slot Conn Circuit      Rx      Tx      Rx Lack of Tx Lack of  
      Frames      Frames Resources Resources  
-----  
   5   1 E51              1        1          0          0
```

Found 1 match out of 3 entries in table.

### stats [circuit <circuit name>]

Displays transmission and receive statistical information for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges vary according to router model.
Conn	Connector's instance identifier; ranges vary according to router model and Ethernet module. For routers other than ASN, indicates the physical connector number on the slot.
Circuit	Name of the circuit associated with this line.
Receive Bytes	Number of octets received without error.
Receive Frames	Number of frames received without error.
Transmit Bytes	Number of octets transmitted without error.
Transmit Frames	Number of frames transmitted without error.
Transmit Deferred	Number of transmissions delayed for a short time because the network was busy.
Total Errors	Total number of errors of all types.

**Sample Display - show csmacd stats**

CSMACD Module I/O Statistics:

-----

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Transmit Deferred	Total Errors
2	1	E21	208227053	404889	755536	2393	284	1
5	1	E51	30336	474	688894	1747	0	0
5	2	E52	688958	1748	30400	475	0	0

3 entries in table.

**system errors [circuit <ircuit name>]**

Displays statistical information about system errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges vary according to router model.
Conn	Connector's instance identifier; ranges vary according to router model and Ethernet module. For routers other than ASN, indicates the physical connector number on the slot.
Circuit	Name of the circuit associated with this line.
Memory Errors	Number of internal memory errors. If this error persists, replace the Ethernet interface hardware.
Collision Errors	Number of times the driver detects that the external transceiver has not performed the SQE test after frame transmissions. When the SQE test is enabled on the transceiver, the transceiver asserts collision to the Ethernet interface after every transmission to provide an ongoing confidence test of the collision detection circuitry. An increase in this statistic may mean only that you need to enable the SQE test on the transceiver.
Internal Buffer	Number of internal buffer errors. If this error persists, replace the Ethernet interface hardware.
Loss of Carrier	Number of loss of carrier errors, in which the transceiver fails to sense the carrier signal on the interface.



---

## Sample Display - show csmacd system

CSMACD Module System Errors:

```
-----
```

Slot	Conn	Circuit	Memory Errors	Collision Errors	Internal Buffer	Loss of Carrier
2	1	E21	0	1	0	0
5	1	E51	0	0	0	0
5	2	E52	0	0	0	0

3 entries in table.

### transmit errors [circuit <ircuit name>]

Displays statistical information about transmission errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges vary according to router model.
Conn	Connector's instance identifier; ranges vary according to router model and Ethernet module. For routers other than ASN, indicates the physical connector number on the slot.
Circuit	Name of the circuit associated with this line.
Late Collision	Number of collisions that occur after the timeslot of the channel has elapsed.
Excessive Collision	Number of times the transmitter failed in 16 attempts to successfully transmit a message due to repeated collisions on the interface.
Frames Too Long	Number of frames transmitted larger than 1518 octets.
Underflow Errors	Number of frames in which the transmitter was unable to obtain an entire packet from memory fast enough to keep up with the interface.
Internal MAC Transmit Errors	Number of excessive deferrals. An excessive deferral indicates that during the previous transmission the deferral time was greater than 2.46 ms and the transmission was aborted.

### Sample Display - show csmacd transmit

CSMACD Module Transmit Errors:

-----

Slot	Conn	Circuit	Late Collision	Excessive Collision	Frames Too Long	Underflow Errors	Internal MAC Transmit Errors
2	1	E21	0	0	0	0	0
5	1	E51	0	0	0	0	0
5	2	E52	0	0	0	0	0

3 entries in table.

---

## show dcm

The **show dcm** *<option>* commands display information about an installed Ethernet Data Collection Module (DCM) option on BayStack™ routers.

The DCM contains flash memory for its own boot image and configuration file. To communicate with software on the DCM, the BayStack router uses a special software subsystem, DCM middleware (*DCMMW*). For information on configuring and managing the DCM and DCMMW with Site Manager, refer to *Configuring BayStack Remote Access*.

For information on the Bay Networks implementation of RMON services in the AN®, ANH™, or ARN™ router, refer to *Configuring SNMP, RMON, BootP, DHCP, and RARP Services*. For detailed information on RMON topics, refer to the Remote Network Monitoring MIB, RMON RFC 1757.

Use the **show dcm** *<option>* command to display information about

- A DCM board (*probe*) installed on a BayStack AN, ANH, or ARN Ethernet base module
- A DCM board installed on an ARN Ethernet expansion module
- The DCM software subsystem (DCM middleware, *DCMMW*) on an AN, ANH, or ARN router

The **show dcm** command supports the following subcommand options:

<a href="#">base module</a>	<a href="#">expansion module</a>
middleware	

## base module

Displays configuration information about a DCM board installed on an Ethernet base module.

### Sample Display - show dcm base

```
Base Module DCM Information
-----
DCM State: Enabled
Operational Status: Up

Module Type: Ethernet
Memory Size: 2097152
Hardware Revision: BB
Firmware Revision: B
Agent Image Version: V1.4.1

Boot Option: Down Load
Image Name: 1:in11_141.exe
Image Save Mode: Save
Config Source: Local
Config Save Mode: Save

Maximum # Hosts per Entry: 500
Configured # Hosts per Entry: 500
Create Host Control Table: Disabled
Create Matrix Control Table: Disabled
```

The commands **show dcm base module** and **show dcm expansion module** display the following information:

State	State of the DCM Entry table for each DCM in the <i>DCMMW.mib</i> .
Operational Status	Current state of the DCM (up or down).
Module Type	Type of DCM (Ethernet).
Memory Size	Size, in bytes, of the DCM board's memory.
Hardware Revision	Revision of the DCM hardware.
Firmware Revision	Revision of the DCM firmware.
Agent Image Version	Version of the Agent Image running on the DCM.

---

Boot Option	Whether DCM boots from the boot image in its Flash memory (LOCAL), or downloads an image in the DCM board's shared DRAM (DOWNLOAD).
Image Name	Name of the active DCM image.
Image Save Mode	Whether DCM saves the boot image in shared memory to the DCM board Flash memory (SAVE), or leaves it in RAM to be lost at the next boot (NO_SAVE).
Config Source	Whether DCM uses the configuration information in its Flash memory (LOCAL), or a configuration file in the DCM board's shared DRAM (SHARED).
Config Save Mode	Whether DCM saves configuration information currently in RAM to the DCM board Flash memory (WRITE), or leaves it in RAM to be lost at the next boot (NO_WRITE).
Maximum # Hosts per Entry	Maximum number of host address entries in the RMON Host Control table. This limit changes according to the amount of memory available to DCM. If the table reaches the maximum value, DCM deletes entries based on an LRU (least recently used) algorithm.
Configured # Hosts per Entry	Current number of host address entries configured in the RMON Host Control table.
Create Host Control Table	Whether DCM sets up the RMON Default Host table at every boot (ENABLED), or lets an RMON application set up the table (DISABLED). Some RMON network management applications expect the DCM to set up a host configuration. Others enable and disable their own configurations during normal operations. Note that the DCM allows only one host table.
Create Matrix Control Table	Whether DCM sets up the RMON Matrix Control table at every boot (ENABLED), or lets an RMON application set up the table (DISABLED). Some RMON network management applications expect the DCM to set up a matrix configuration. Others enable and disable their own configurations during normal operations. Note that the DCM allows only one matrix table.



**Note:** With current revisions of DCM software, the RMON Host and Matrix tables are created by default; you cannot delete or disable these tables.

---

## expansion module

Displays configuration information about a DCM board installed on an Ethernet expansion module.

### Sample Display - show dcm expansion

```
Expansion Module DCM Information
```

```
-----
```

```
DCM State: Enabled  
Operational Status: Up
```

```
Module Type: Ethernet  
Memory Size: 16777216  
Hardware Revision: C  
Firmware Revision: B  
Agent Image Version: V1.4.1
```

```
Boot Option: Down Load  
Image Name: 1:in11_141.exe  
Image Save Mode: Save  
Config Source: Local  
Config Save Mode: Save
```

```
Maximum # Hosts per Entry: 500  
Configured # Hosts per Entry: 500  
Create Host Control Table: Disabled  
Create Matrix Control Table: Disabledmiddleware
```

Displays configuration information about the router's DCM software subsystem (DCM middleware, *DCMMW*). The *DCMMW* driver runs on the router base module; it controls the DCM and provides access to collected RMON statistics.

---

## Sample Display - show dcm middleware

DCM Middleware Information

-----

Application: DCMMW

State: Enabled

Number of DCMs: 1

The command **show dcm middleware** displays the following information:

Application	Name of the middleware driver software (DCMMW)
Operational Status	Current state of the application (enabled or disabled)
Number of DCMs	Number of installed DCM boards in the router

## show decnet

The **show decnet** *<option>* commands display configuration, state, and statistical information about DECnet Phase IV services. For detailed information on the Bay Networks implementation of DECnet, refer to *Configuring DECnet Services*.

The **show decnet** command supports the following subcommand options:

<a href="#">adjacency</a>	<a href="#">enabled</a>
<a href="#">alerts</a>	<a href="#">node routes [find &lt;area.node&gt;]</a>
<a href="#">area routes [find &lt;area&gt;]</a>	<a href="#">static adjacency</a>
<a href="#">base</a>	<a href="#">stats [hello   update   error]</a>
<a href="#">circuits [&lt;circuit name&gt;]</a>	<a href="#">traffic filters [&lt;circuit name&gt;]</a>
<a href="#">designated router</a>	<a href="#">version</a>
<a href="#">disabled</a>	



---

## adjacency

Displays attributes of the adjacency table. An adjacency is a directly connected circuit-neighbor pair toward which the router forwards packets. The table includes the following information:

Circuit	Name of the circuit the adjacency is on.
Adjacency Address	Destination address; a valid DECnet address.
State	State of the adjacency: UP or INIT (initializing).
Adjacency Type	Adjacency type as follows: <ul style="list-style-type: none"><li>• <i>AREA</i> - Adjacency is a level 2 router.</li><li>• <i>ROUTING IV</i> - Adjacency is a level 1 router.</li><li>• <i>NONROUTING IV</i> - Adjacency is an end node.</li></ul>
Class	Adjacency's class: <i>DYNAMIC</i> or <i>STATIC</i> .

### Sample Display - show decnet adjacency

DECnet Adjacency Information

```
-----  
Circuit      Adjacency      Adjacency  
Address      State      Type      Class  
-----  
E21          3.2      UP      AREA      DYNAMIC  
E41          2.2      UP      AREA      DYNAMIC
```

Total of 2 Adjacency(s)

## alerts

Displays all circuits configured as enabled but not currently up. Use this command to display information about the physical circuits. State in this case is Down.

### Sample Display - show decnet alerts

```
DECnet Circuits
-----

Circuit   State   DECnet Address
-----
E21      Down   3.1

1 Entries found.
```

## area routes [find <area>]

Displays attributes of the level 2 routing table. You can use the following option to display area routes for a specific area.

**find <area>**

where <area> is the number of a specific area. Use this option to search through the routing table and display information about the specified area number or display an empty table if the area number does not exist.

The table includes the following information:

Area	Route's area number.
Circuit	Circuit that the route uses. If the node or area is directly connected within a router, this column shows two dashes (--).
State	State of the route, as follows: <ul style="list-style-type: none"><li>• <i>Reachable</i> - Destination area is reachable.</li><li>• <i>Unreachable</i> - The destination area is unreachable, in which case you should display the adjacency that corresponds to the next hop.</li></ul>
Cost	Cost of the route to the destination area.

---

Hops                                      Number of hops to the destination area.  
Next Node                                Next address for getting to the area.  
Type                                      Adjacency's class: DYNAMIC or STATIC.

### Sample Display - show decnet area routes

DECnet Area (Level II Routing) Information

```
-----
```

Area	Circuit	State	Cost	Hops	Next Node	Type
12	--	Reachable	0	0	0.0	DYNAMIC
13	S41	Reachable	10	1	13.12	DYNAMIC

2 Level II Route(s) in table.

### Sample Display - show decnet area routes

DECnet Node (Level I Routing) Information

```
-----
```

Area	Node ID	Circuit	Address	Cost	Hops	Next Node	Type
12	12	--	12.12	0	0	0.0	DYNAMIC

1 Level I Route(s) in table.

## base

Displays state information in the DECnet base record. The base record controls DECnet for the router. State is Down, Init (initializing), Not Present (enabled but not yet started), or Up.

**Sample Display - show decnet base**

DECnet Base Record Information

-----

Protocol	State
-----	-----
DECNET	Up

**circuits** [*<circuit name>*]

Displays the attributes of all DECnet circuits or a specified DECnet circuit configured on the router. The table includes the following information:

Circuit	Name of the circuit.
State	State of the circuit as follows: <ul style="list-style-type: none"><li>• <i>Up</i> - Interface is operating.</li><li>• <i>Disable</i> - User has manually disabled the interface.</li><li>• <i>Down</i> - Interface is malfunctioning.</li><li>• <i>INIT</i> - Interface is initializing.</li><li>• <i>Not Present</i> - Interface is not operating because another subsystem is malfunctioning. You should check the state of the physical circuit.</li></ul>
Area	DECnet Phase IV Area ID for this circuit; the first six bits of a DECnet Phase IV node address.
Node ID	DECnet Phase IV Node ID for this circuit; the last ten bits of a DECnet Phase IV node address.
Type	Media type of this circuit; for example, Ethernet.

---

## Sample Display - show decnet circuit

DECnet Circuit Information

-----

Circuit	State	Area	Node ID	Type
E21	Up	3	1	Ethernet
E41	Up	1	1	Ethernet

## Sample Display - show decnet circuit e21

DECnet Circuit Information

-----

Circuit	State	Area	Node ID	Type
E21	Up	3	1	Ethernet

## designated router

Displays information about the designated router for each circuit. The table includes the following information:

Circuit	Name of the circuit this router is on.
Designated Router	Address of the designated router on this circuit.
Priority	Place of this router for becoming the designated router on this circuit. The value ranges from 1 through 127. The default value is 64.
Exec Cost	Relative cost of routing over the circuit. The value ranges from 1 through 63. The default value is 10.
Circuit Address	DECnet address of the circuit.

### Sample Display - show decnet designated router

DECnet Designated Router Information

```
-----
```

Circuit	Designated Router	Priority	Exec Cost	Circuit Address
E21	3.2	64	10	3.1
E41	1.1	64	10	1.1

```
-----
```

### disabled

Displays all the circuits whose state is disabled. The table includes the name of the circuit and its DECnet address.

### Sample Display - show decnet disabled

DECnet Circuits

```
-----
```

Circuit	State	DECnet Address
E21	Disabled	3.1

1 Entries found.

---

## enabled

Displays all the circuits whose state is enabled. State is Down, INIT (initializing), Not Present (not yet started), or Up.

### Sample Display - show decnet enabled

```
DECnet Circuits
-----

Circuit   State   DECnet Address
-----
E21       UP      3.1

1 Entries found.
```

## node routes [find <area.node>]

Displays attributes of level 1 routing tables or a specific address.

**find** <area.node> where <area.node> is an optional DECnet address. Using this option limits the display to a specified destination address.

The displays include the following information:

Area	DECnet Phase IV Area ID for this circuit; the first six bits of a DECnet Phase IV node address.
Node ID	DECnet Phase IV Node ID for this circuit; the last ten bits of a DECnet Phase IV node address.
Circuit	Circuit name of the node.
Address	DECnet address of the node about which routing information is contained in this level 1 routing table.
Cost	Total cost of the path to the destination node.
Hops	Total number of hops in the path to the destination node.
Next Node	Next hop address that the route uses to get to the destination node.

**Sample Display - show decnet node routes**

DECnet Node (Level I Routing) Information

```
-----
```

Area	Node ID	Circuit	Address	Cost	Hops	Next Node
1	1	#3	1.1	0	0	0.0
3	1	#3	3.1	0	0	0.0
3	2	E21	3.2	10	1	3.2

3 Level I Route(s) in table.

**Sample Display - show decnet node routes find 3.2**

DECnet Node (Level I Routing) Information

```
-----
```

Area	Node ID	Circuit	Address	Cost	Hops	Next Node
3	2	E21	3.2	10	1	3.2

1 Entries found.

**static adjacency**

Displays all the static adjacencies configured. The table includes the following information:

Circuit	Circuit name where static adjacency is configured.
Area	Area part of this static adjacency's DECnet address.
Node ID	Node ID part of this static adjacency's DECnet address.
Mode	Adjacency's operating state as follows: <ul style="list-style-type: none"> <li>• <i>Disabled</i> - User has manually disabled the static adjacency.</li> <li>• <i>Enabled</i> - Static adjacency is enabled.</li> </ul>



---

Adjacent Addr	DECnet Phase IV address of the adjacent node.
Destination MAC	Specifies the destination MAC address of the static adjacency if the circuit type is ATM, frame relay, or SMDS.

### Sample Display - show decnet static adjacency

DECnet Static Adjacency Information

```

-----
Circuit  Area  Node ID  Mode  Adjacent Addr  Destination MAC
-----  -
E21      2        1  Enabled          2.1             (nil)

```

### stats [hello | update | error]

Displays statistics tables for each circuit. The information displayed is specific to the **stats** subcommand entered. The **stats** command displays the following items for each circuit:

Packets Received	Number of transit packets received.
Packets Sent	Number of transit packets sent.
Packets Dropped	Number of dropped packets.
Hello Router Received	Number of hellos received.
Hello Router Sent	Number of hellos sent.
Hello End Node Received	Number of end node hellos received.
Hello End Node Sent	Number of end node hellos sent.

**Sample Display - show decnet stats**

```
DECnet Statistics
-----
```

Circuit	Packets Received	Packets Sent	Packets Dropped	Hello Router Received	Hello Router Sent	Hello End Node Received	Hello End Node Sent
E21	0	0	0	431	429	0	0
E41	0	0	0	433	435	0	433

**stats hello**

Displays the number of hellos sent and received on each circuit.

The table includes the following items for each circuit:

- Sent Router                      Number of router hellos sent.
- Received Router                Number of router hellos received.
- Send Endnode                    Number of end node hellos sent.
- Received Endnode                Number of end node hellos received.

**Sample Display - show decnet stats hello**

```
DECnet Hello Statistics
-----
```

Circuit	Sent Router	Received Router	Sent Endnode	Received Endnode
E21	430	432	0	0
E41	436	434	434	0

---

**stats update**

Displays the counters for update packets sent and received on each circuit as follows:

Sent Level 1	Number of level 1 updates sent.
Received Level 1	Number of level 1 updates received.
Sent Level 2	Number of level 2 updates sent.
Received Level 2	Number of level 2 updates received.

**Sample Display - show decnet stats update**

DECnet Routing Update Statistics

```
-----  
Circuit      Sent      Received      Sent      Received  
              Level 1    Level 1    Level 2    Level 2  
-----  
E21           82         80          84         40  
E41           80         78          88         40
```

**stats errors**

Displays the error counters for each circuit as follows:

Aged Out	Number of aged packets lost.
Node Unreachable	Number of node unreachable packets lost.
Node Out of Range	Number of node out-of-range packets lost.
Oversized Packets	Number of oversized packets lost.
Format error	Number of packet format errors.
Total Dropped	Number of dropped packets.

**Sample Display - show decnet stats error**

DECnet Error Statistics

-----

Circuit	Aged Out	Node Unreachable	Node Out of Range	Oversized Packets	Format Error	Total Dropped
E21	0	0	0	0	0	0
E41	0	0	0	0	0	0

**traffic filters [<ircuit name>]**

Displays attributes of filters configured on each circuit or a specified circuit. The table includes the following information:

Circuit	Name of the circuit containing the traffic filter.
Status	Status of the circuit as follows: <ul style="list-style-type: none"> <li>• <i>Active</i> - Filtering rule is in use.</li> <li>• <i>Inactive</i> - Filtering rule is not in use.</li> <li>• <i>Error</i> - Application detected an error in the filtering rule.</li> </ul>
Matches	Number of packets received that match this rule.
Rule	Rule identifier.

**Sample Display - show decnet traffic filters**

DECnet Traffic Filter Information

-----

Circuit	Status	Matches	Rule
E41	Active	0	1

---

### Sample Display - show decnet traffic filters e41

DECnet Traffic Filter Information

```
-----  
Circuit      Status  Matches  Rule  
-----  
E41          Active      0        1
```

### version

Displays the current version and modification date of the *decnet.bat* script.

### Sample Display - show decnet version

```
DECNET.bat Version: #.## Date: mm/dd/yy.
```

## show dls

The **show dls** *<option>* commands display configuration, state, and statistical information about Data Link Switching (DLSw) services. For detailed information on the items displayed, refer to *Configuring DLSw Services*.

The **show dls** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">local</a>
<a href="#">base</a>	<a href="#">mac</a>
<a href="#">circuits [&lt;circuit name&gt;]</a>	<a href="#">netbios</a>
<a href="#">configuration</a>	<a href="#">peers</a>
<a href="#">connections</a>	<a href="#">saps</a>
<a href="#">disabled</a>	<a href="#">slots</a>
<a href="#">enabled</a>	stats
<a href="#">filters</a>	<a href="#">version</a>

---

## alerts

Displays all enabled DLSw circuits whose state is not up. The table does not show configured DLSw circuits that have been disabled.

Circuit	The name of the circuit on which DLSw is running.
State	State of the circuit, which is Down.
Bridge ID	Identification number of the Source Routing Bridge.
LAN ID	Identification number of the Internal LAN.
DLC Type	The type of circuit on which DLSw is running.

### Sample Display - show dls alerts

```
DLS Circuits
-----
Circuit      State      Bridge ID  LAN ID  DLC Type
-----
011.11c2 UP                0xF    0x278   LLC SRB
```

## base

Displays information on the DLSw base record state. The base record controls DLSw for the entire system.

State is any of the following.

Disabled	User has manually disabled DLSw.
Down	DLSw is malfunctioning.
Init	DLSw is initializing on the system.
Not Present	DLSw is configured but has not started.
Up	DLSw is operating on the system.

TCP Window	Maximum amount of DLSw data that local or remote TCP entities can send before requiring an acknowledgment or receive before acknowledging. This number is in octets.
Uncfg Peer	Specifies the current accept or reject unconfigured peers setting.
Int Ring	Specifies the bridge's internal LAN ID.
Bridge	Identification number of the Bridge.
Virt Ring	Virtual ring identifier for the network.
Virt MTU	Specifies a Maximum Transmission Unit (MTU) size for frames sent from local, LAN-attached systems to systems on remote LANs. The smallest MTU size supported among all remote LANs in your configuration determines the maximum value of the Virtual Ring MTU parameter for the local router.
ProtoPriority	Enabled or disabled protocol prioritization for configured DLSw peers setting.
PPriUnCfgPeer	Enabled or disabled protocol prioritization for unconfigured DLSw peers setting.
PkgMaxSize	Specifies the maximum package size (in bytes) when sending multiple DLSw frames in a single TCP frame for transmission over a wide area network.
MAC Age	Specifies the maximum number of seconds that inactive MAC addresses can exist in the MAC-to-DLSw Peer (mapping) cache.
NB Age	Specifies the maximum number of seconds that inactive NetBIOS names can exist in the NetBIOS-to-DLSw Peer (mapping) cache.
WanKeepAlive	Specifies the time interval after which the router sends a DLSw keepalive message to inactive, established TCP connections to verify that the connection is still available.
PkgTimeOut	Specifies the time interval (in milliseconds) to delay a package before sending it to TCP.



---

## Sample Display - show dls base

DLS Base Information

-----

State	TCP Window	Uncfg Peer	Int Ring	Bridge	Virt Ring	Virt	MTU
Up	8000	Accept	0x154	0xF	0x64		1532

ProtoPriority	PPriUnCfgPeer	PkgMaxSize
Enabled	Enabled	1532

Timers (Sec):	MAC Age	NB Age	WanKeepAlive	PkgTimeOut
	300	300	60	1

## **circuits** [*<circuit name>*]

Displays the state of DLSw on all circuits or a specific circuit. State is either Up or Down; these are the only possible states for DLSw on the circuit. For definitions of the remaining columns, see the **alerts** command.

## Sample Display - show dls circuit

DLS Circuits

-----

Circuit	State	Bridge ID	LAN ID	DLC Type
011.llc2	Down	0xF	0x278	LLC SRB
S12	Up	0xF	0x0	SDLC

## configuration

Displays the configuration information for the DLSw base record, circuits, slots, peers, SAPs, MACs, NetBIOS names, filters, and SDLC local devices, Refer to the appropriate **show dls** command for definitions.

## connections

Displays connections currently established between two stations using DLSw.

Circuit	Name of the circuit for the DLSw connection.
Status	Status of the connection. In this case the status is always Connected.
Destination MAC/Source MAC	MAC destination address on the top line and the source MAC address on the bottom line.
Remote IP/local IP	Remote internet (IP) address on the top line and the local IP address on the bottom line.
Tx/Rx - IFrames	The number of IFrames sent and received on this circuit.
Tx/Rx - RNRs	The number of Receiver Not Ready frames sent and received on this circuit.

### Sample Display - show dls connections

DLSw Connections

```
-----
```

Circuit	Status	Destination MAC/ Source MAC	Remote IP/ local IP	Tx-IFrames/ Rx-IFrames	Tx-RNRs/ Rx-RNRs
S12	Established	40-00-00-03-17-22 40-00-00-00-00-D1	154.154.154.154 78.78.78.78	0 0	0 0

```
-----
```

---

## disabled

Displays all DLSw circuits that the user has manually disabled. In this case, State is Disabled. For information on the remaining column definitions in the display, see the **alerts** command.

### Sample Display - show dls disabled

DLS Circuits

-----

Circuit	State	Bridge ID	LAN ID	DLC Type
011.11c2	Disabled	0xF	0x278	LLC SRB

## enabled

Displays all DLSw circuits currently with their current state enabled. State is Down, INIT (initializing), Not Present (not yet started), or Up. For information on the remaining column definitions in the display, see the **alerts** command.

### Sample Display - show dls enabled

DLS Circuits

-----

Circuit	State	Bridge ID	LAN ID	DLC Type
011.11c2	Down	0xF	0x278	LLC SRB
S12	Up	0xF	0x0	SDLC

## filters

Displays the currently configured DLSw traffic filters.

Filter Name	Name of the configured traffic filter.
Status	Status of the connection, either up or down.
Filter Hits	The number of successful criteria matches on this filter.
Rule	The current filter sequence number.
Circuit	The configured circuit number on which the filter is active.

### Sample Display - show dls filters

```
DLSw Traffic Filters
```

```
-----
```

Filter Name	Status	Filter Hits	Rule	Circuit
-----	-----	-----	----	-----
Drop_NB_storm	UP	1230	1	3
Accept_10Macs	UP	440	2	3

## local

Displays the currently configured DLSw local devices.

Circuit	Indicates the circuit name for the DLSw connection.
Address	Indicates the address of this link station.
State	Specifies the current state of the local device: up, down, disabled, not present, or init.
Destination MAC Source MAC	Specifies the MAC destination address on the top line and the source MAC address on the bottom line. The Destination MAC identifies the Token Ring or Ethernet host the local device will reach via SDLC services. The Source MAC specifies the source MAC address of an emulated Token Ring endstation for this device.
DSAP	Identifies the destination service access point (SAP) Token Ring or Ethernet host the local device will reach via SDLC services.

---

SSAP	Identifies the source SAP of an emulated Token Ring or Ethernet endstation for this device.
PU Type	Specifies the type of the XID-sending node. This parameter is used with the IDBLOCK, IDNUM, and XID Format parameters to determine the station exchange identification (XID) value.
IDBLOCK	Specifies the block number, which must match the host's IDBLOCK parameter value that identifies incoming connection requests. This parameter is used with the PU Type, IDNUM, and XID Format parameters to determine the station exchange identification (XID) value.
IDNUM	Specifies the ID number, which must match the host's IDNUM parameter value that identifies incoming connection requests. This parameter is used with the PU Type, IDBLOCK, and XID Format parameters to determine the station exchange identification (XID) value.

### Sample Display - show dls local

DLsw Local SDLC Devices

```

-----
Circuit  Addr    State      Destination MAC/      DSAP/
          Source MAC          SSAP    PU Type  IDBLOCK IDNUM
-----
S12      0xD1  UP         40-00-00-03-17-22    4 Type 2.0      017 A004A
          40-00-00-00-00-D1    4

```

### mac

Displays the MAC address of a destination link station, its IP address, and the current number of CANUREACH queries.

Destination MAC	The Destination MAC identifies the Token Ring or Ethernet host the local device will reach via SDLC services.
Remote IP Address	The IP address of the destination link station.
CANUREACH MAC Queries	Specifies the current number of canureach messages sent to a remote DLsw peer.

### Sample Display - show dls mac

DLSw MAC Entries

-----

Destination MAC Address	Remote IP Address	CANUREACH Mac Queries
40-00-00-03-17-22	154.154.154.154	167

### netbios

Displays the names and IP addresses of remote NetBIOS peers, and the current number of queries to each remote NetBIOS peer.

Remote Station Name	The name of the NetBIOS peer.
Remote IP Address	The IP address of the NetBIOS peer.
NETBIOS_NQ Queries	The current number of NetBIOS queries sent to the remote NetBIOS peer.

### Sample Display - show dls netbios

DLSw Netbios Name Entries

-----

Remote Station Name	Remote IP Address	NETBIOS_NQ Queries
CHEERS	154.154.154.154	1

---

## peers

Displays the IP addresses of all configured DLSw peers and the state of each. State is Down, Init (initializing), Not Present (not started), or Up.

### Sample Display - show dls peers

```
DLS Peers
-----
      Peer      Peer
      State     IP Address
-----
Up           200.200.201.100
```

## saps

Displays all session access points (SAPs) registered with the LLC SAP services and the credit of each. SAP Credit is the number of LLC2 frames that DLSw and the local LLC2 circuit can exchange.

### Sample Display - show dls saps

```
DLS Saps
-----
      SAP
      Credit
-----
      4      10
      8      10
     12      10
    240      10
```

## slots

Displays the slot number, IP address, and memory information that corresponds on the slot to DLSw.

Slot	Specifies the slot number you want to associate with the IP interface address you reserved for that slot.
Slot IP Address	Specifies an IP address associated with a specific DLSw peer (slot) in the router. TCP uses this IP address for connections associated with that slot.
Current Memory	The current memory consumption on the router.
Max Mem Allowed	The maximum memory allocated on the slot.
HiWater	The maximum memory on the router.

### Sample Display - show dls slots

```
DLSw Slots
-----
Slot Slot IP Address  Current Memory  Max Mem Allowed  HiWater
-----
  1 78.78.78.78      0                All of it        0
```



---

## stats

Displays the source and destination service access point (SSAP and DSAP) fields.

### Sample Display - show dls stats

DLSw statistics

-----

Circuit	Status	Destination MAC/ Source MAC	Remote IP/ local IP	DSAP/Tx-IFrames/ SSAP/Rx-IFrames	Tx-RNRs Rx-RNRs
S12	Established	40-00-00-03-17-22	154.154.154.15	0x040	0
		40-00-00-00-00-D1	78.78.78.78	0x040	0

## version

Displays the current version of the *dls.bat* script.

### Sample Display - show dls version

DLS.bat Version: #.## Date: mm/dd/yy.

## show ds1e1

The **show ds1e1** *<option>* commands display configuration, status, and statistical information about the MCT1 and MCE1 drivers. For detailed information about DS1E1 parameters, refer to the section on configuring MCT1 and MCE1 circuits in *Configuring WAN Line Services*.

The **show ds1e1** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">sample</a> [ <a href="#">&lt;period in seconds&gt;</a> ] [ <a href="#">circuit &lt;circuit name&gt;</a> ]
<a href="#">base</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]	<a href="#">stats</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]
<a href="#">clock</a>	<a href="#">system errors</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]
<a href="#">disabled</a>	<a href="#">t1framer</a> [ <a href="#">current</a> ] [ <a href="#">total</a> ] [ <a href="#">interval</a> [ <a href="#">&lt;interval number&gt;</a> ]]
<a href="#">e1framer</a> [ <a href="#">current</a> ] [ <a href="#">total</a> ] [ <a href="#">interval</a> [ <a href="#">&lt;interval number&gt;</a> ]]	<a href="#">t1port</a>
<a href="#">e1port</a>	<a href="#">timeslots</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]
<a href="#">enabled</a>	<a href="#">transmit errors</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]
<a href="#">fdl</a> [ <a href="#">ansi1</a>   <a href="#">ansi2</a>   <a href="#">att1</a>   <a href="#">att2</a> ]	<a href="#">version</a>
<a href="#">receive errors</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]	

---

## alerts

Displays all DS1E1 logical lines that are enabled but not up. Use this display to identify the logical lines that are not working. The table includes the following information:

Slot	Slot identifier.
Conn	Connector identifier.
Log Line	Logical line number for this line.
Line Type	Type of line in use: Unframed T1, ESF, SF, E1, E1CRC, E1MF, E1CRCMF, or Unframed E1.
Circuit	Name of the circuit associated with this line.
State	State of the logical line as follows: Up, Down, Init (initializing), LMI Wait, Loopback, Dying, Dead, or Not Pres (not present).
Line Number	Line number for this line; assigned during configuration. This line number uniquely identifies this interface and is not equal to any of the line numbers assigned to logical lines configured through this port.
WAN Protocol	WAN protocol enabled on this interface: ATM, FRM RLAY (frame relay), LAPB, PASSTHRU, PPP, SMDS, WF STND (Wellfleet Standard), or X.25. Wellfleet Standard is a proprietary protocol used between two Bay Networks routers. Based on the CCITT HDLC (High-level Data Link Control) protocol, Wellfleet Standard provides LLC1 (connectionless, datagram) service.
Rate Adapt	Rate adaption -- the number of bits and their positions within the timeslot, as follows: <ul style="list-style-type: none"><li>• <i>64K</i> - Uses all 8 bits in the timeslot.</li><li>• <i>56K MSB</i> - Uses 7 of the 8 bits in the timeslot; does not use the most significant bit.</li><li>• <i>56K LSB</i> - Uses 7 of the 8 bits in the timeslot; does not use the least significant bit.</li></ul>
Loc Adr	This parameter is used only when the logical line HDLC service is LLC1. It is a value in the range 1 through 7 in the address field of the HDLC packet. 1 indicates DCE. 3 indicates DTE. All other numbers indicate Explicit. Explicit indicates that the user has selected the address.
Rem Adr	This parameter is used only when the logical line HDLC service is LLC1. It is a value in the range 1 through 7 in the address field of the HDLC packet. 1 indicates DCE. 3 indicates DTE. All other numbers indicate Explicit. Explicit indicates that the user has selected the address.

**Sample Display - show ds1e1 alerts**

DS1E1 Logical Lines on Alert:

-----

Slot	Conn	Log Line	Line Type	Circuit	State	Line Number	WAN Protocol	Rate Adapt	Loc Adr	Rem Adr
------	------	----------	-----------	---------	-------	-------------	--------------	------------	---------	---------

Found 0 matches out of 3 entries in table.

**base [circuit <circuit name>]**

Displays the base level information for all DS1E1 circuits or a specific circuit. For definitions of the columns in the table, see the **alerts** command. In addition to the states listed under the **alerts** command, State can also be Up.

**Sample Display - show ds1e1 base**

DS1E1 Logical Lines:

-----

Slot	Conn	Log Line	Line Type	Circuit	State	Line Number	WAN Protocol	Rate Adapt	Loc Adr	Rem Adr
2	1	1	T1	Boston	Up	10902101	WF STND	56K-LSB	7	7
2	1	2	T1	Chicago	Up	20902101	WF STND	56K-LSB	7	7
2	2	1	T1	Seattle	Up	10902102	WF STND	56K-LSB	7	7

3 entries in table.

---

## Sample Display - show ds1e1 base circuit Boston

DS1E1 Logical Lines:

-----

Slot	Conn	Log Line	Line Type	Circuit	State	Line Number	WAN Protocol	Rate Adapt	Loc Adr	Rem Adr
2	1	1	T1	Boston	Up	10902101	WF STND	56K-LSB	7	7

Found 1 match out of 3 entries in table.

## clock

Displays the DS1E1 clock status. The table includes the following information:

Slot	Router slot identifier.
Mod	Module number, indicating the location of the module.
Port	Unique identifier for each port on the module.
Current clock	Clock source currently in use.
Primary clock	Primary source for transmit timing.
Secondary clock	Secondary source for transmit timing.
External clock	Indicates whether an external clock is present.
Loop1 clock	Indicates whether the timing source from the first port is present.
Loop2 clock	Indicates whether the timing source from the second port on multi-port modules is present.
Loop3 clock	Indicates whether the timing source from the third port on multi-port modules is present.
Loop4 clock	Indicates whether the timing source from the fourth port on multi-port modules is present.

**Sample Display - show ds1e1 clock**

DS1E1 Clock Status:  
-----

DS1E1 ModuleEntry MIB:  
-----

Slot	Mod	Current clock	Primary clock	Secondary clock
5	1	Loop1	Loop1	Internal

\*\*\*\*\*  
 \*\*\* ClockEntry MIB pre-empts ModuleEntry MIB settings \*\*\*  
 \*\*\*\*\*

DS1E1 ClockEntry MIB:  
-----

Slot	Mod	Port	Current clock	Primary clock	Secondary clock
5	1	905101	Internal	Internal	Internal
5	1	905102	Loop4	Loop4	Internal
5	1	905103	Loop4	Loop4	Internal
5	1	905104	Loop4	Loop4	Internal

DS1E1 Clock Status:  
-----

Slot	Mod	Loop1 clock	Loop2 clock	Loop3 clock	Loop4 clock	External clock
5	1	Present	Present	Present	Present	Not Present

1 entry in table.

---

## disabled

Displays DS1E1 circuits that a user has manually disabled. For definitions of the columns in the table, see the **alerts** command. In this case, State is Disabled.

### Sample Display - show ds1e1 disabled

DS1E1 Logical Lines Disabled:

-----

Slot	Conn	Log Line	Line Type	Circuit	State	Line Number	WAN Protocol	Rate Adapt	Loc Adr	Rem Adr
------	------	----------	-----------	---------	-------	-------------	--------------	------------	---------	---------

Found 0 matches out of 3 entries in table.

## e1framer [current] [total] [interval [*<interval number>*] ]

Displays error information about the E1 framer.

### Sample Display - show ds1e1 e1framer current

E1 Current Framer Statistics

-----

Slot	Conn	Bipolar Violation Counts	CRC-4 Error Counts	Far End Block Errors	Loss of Frame Failures	Loss of Signal Failures	Alarm Indicat Failures	Remote Alarm Failures
3	1	0	0	0	0	0	0	0
3	2	0	0	0	0	0	0	0

2 entries in table.

**Sample Display - show ds1e1 e1framer total**

E1 Total Framers Statistics

-----

Slot	Conn	Num Vld Intv	Bipolar Violation Counts	CRC-4 Error Counts	Far End Block Errors	Loss of Frame Failures	Loss of Signal Failures	Alarm Indicat Failures	Remote Alarm Failures
3	1	96	0	0	0	0	0	0	0
3	2	96	65580	15656	0	0	0	0	0

2 entries in table.

**Sample Display - show ds1e1 e1framer interval**

Slot	Conn	Intv	Bipolar Violation Counts	CRC-4 Error Counts	Far End Block Errors	Loss of Frame Failures	Loss of Signal Failures	Alarm Indicat Failures	Remote Alarm Failures
3	1	1	0	0	0	0	0	0	0
3	1	2	0	0	0	0	0	0	0
3	1	3	0	0	0	0	0	0	0
3	1	4	0	0	0	0	0	0	0
3	1	5	0	0	0	0	0	0	0
3	1	6	0	0	0	0	0	0	0
3	1	7	0	0	0	0	0	0	0
3	1	8	0	0	0	0	0	0	0
3	1	9	0	0	0	0	0	0	0
3	1	10	0	0	0	0	0	0	0
3	1	11	0	0	0	0	0	0	0
3	1	12	0	0	0	0	0	0	0
3	1	13	0	0	0	0	0	0	0
3	1	14	0	0	0	0	0	0	0
3	1	15	0	0	0	0	0	0	0
3	1	16	0	0	0	0	0	0	0
3	1	17	0	0	0	0	0	0	0
3	1	18	0	0	0	0	0	0	0

18 entries in table.



---

## e1port

Displays E1 port information.

### Sample Display - show ds1e1 e1port

E1 Port Status:

```
-----  
Slot Conn  State      MTU  BERT  Line  Line  
-----  Mode  Type  Coding  I-Bit  
-----  
   3    1 Up          1600 Off  E1-CRC-MF HDB3  DISABLED
```

1 entry in table.

## enabled

Displays DS1E1 modules that a user has manually enabled. For definitions of the columns in the table, see the **alerts** command. State can also be Up.

### Sample Display - show ds1e1 enabled

DS1E1 Logical Lines Enabled:

```
-----  
Slot Conn  Log Line  Line  WAN  Rate  Loc Rem  
-----  Type  Circuit  State  Number  Protocol  Adapt  Adr Adr  
-----  
   2    1    1  T1  Boston  Up      10902101 WF STND  56K-LSB  7  7
```

Found 1 match out of 3 entries in table.

**fdl [ansi1 | ansi2 | att1 | att2 ]**

Displays the Facility Data Link (FDL) error statistics in both ANSI-403 and AT&T-54016 modes.

- |              |  |
|--------------|--|
| <b>ansi1</b> | Displays only the first half of ANSI-403 mode FDL errors.    |
| <b>ansi2</b> | Displays only the second half of ANSI-403 mode FDL errors.   |
| <b>att1</b>  | Displays only the first half of AT&T-54016 mode FDL errors.  |
| <b>att2</b>  | Displays only the second half of AT&T-54016 mode FDL errors. |

The tables display the following information:

DS1E1 FDL Errors -- ANSI-403 mode (first half):

Slot	Slot identifier.
Conn	Connector identifier.
CRC Counts	Number of CRC-6 errors. The FDL calculates CRC-6 on the incoming data. Each time the calculation does not match the CRC-6 code word in the incoming enhanced super frame (ESF) data stream, this count increments.
BPV Counts	Number of bipolar (line code) violations. The FDL counts bipolar violations whether its synchronizer is in sync or not. If the FDL is set to receive B8ZS code words, it does not count these code words as bipolar violations.
OOE Counts	Number of out-of-frame errors. An out-of-frame error occurs whenever two or more framing bits out of six in the Framing Pattern Sequence (FPS) are incorrect. This event causes the FDL to resynchronize to the incoming data stream.
FE Counts	Number of individual bit errors in the FPS.
ES Counts	Number of Errored Seconds (ES). An ES is any one-second time interval with either a frame bit error or a CRC-6 error.

---

## Sample Display - show ds1e1 fdl ansi1

DS1E1 Facility Data Link (FDL) Errors (first half) - ANSI-403 mode:

```
-----
```

Slot	Conn	CRC Counts	BPV Counts	OOV Counts	FE Counts	ES Counts
2	1	56581	196653	3581	22504	32965

```
-----
```

DS1E1 FDL Errors -- ANSI-403 mode (second half):

Slot	Slot identifier.
Conn	Connector identifier.
SES Counts	Number of Severely Errored Seconds (SES). An SES is any 1-second time interval with an OOF error or more than 320 CRC-errors.
UAS Counts	Number of Unavailable Seconds (UAS). A UAS is the number of seconds between ten consecutive SES events (inclusive) and ten consecutive non-SES events (exclusive). For more information, refer to the 1989 ANSI T1.403 specification (Carrier-to-Customer installation DS1 Metallic Interface).
PRMES Counts	Number of Errored Seconds reported in the Performance Report Messages (PRMs).
PRMSES Counts	Number of Severely Errored Seconds reported in the PRMs.
PRME Counts	Number of PRMs received in error. "In error" means that the calculated CRC does not match the incoming CRC word.

## Sample Display - show ds1e1 fdl ansi2

DS1E1 Facility Data Link (FDL) Errors (second half) - ANSI-403 mode:

```
-----
```

Slot	Conn	SES Counts	UAS Counts	PRMES Counts	PRMSES Counts	PRME Counts
2	1	2561	2154	24	23	129

```
-----
```

Found 1 match out of 2 entries in table.

DS1E1 FDL Errors -- AT&T-54016 mode (first half):

Slot	Slot identifier.
Conn	Connector identifier.
Valid Intervals	Number of previous time intervals for which valid data was collected. The value is 96 unless the interface was brought on line within the last 24 hours. In this case, the value is the number of complete 15-minute intervals since the interface has been on line.
Total ESs	Number of Errored Seconds that a DS1 interface encountered in the previous 24-hour interval.
Total SESs	Number of Severely Errored Seconds that a DS1 interface encountered in the previous 24-hour interval.
Total SEFs	Number of Severely Errored Framing Seconds that a DS1 interface encountered in the previous 24-hour interval.
Total UASs	Number of Unavailable Seconds that a DS1 interface encountered in the previous 24-hour interval.
Total CSSs	Number of Controlled Slip Seconds that a DS1 interface encountered in the previous 24-hour interval.

**Sample Display - show ds1e1 fdl att1**

DS1E1 Facility Data Link (FDL) Errors (first half) - AT&T-54016 mode:

```
-----
```

Slot	Conn	Valid Intervals	Total ESs	Total SESs	Total SEFs	Total UASs	Total CSSs
2	2	1	1	0	0	368	256

```
-----
```

---

DS1E1 FDL Errors -- AT&T-54016 mode (second half):

Slot	Slot identifier.
Conn	Connector identifier.
Valid Intervals	Number of previous time intervals for which valid data was collected. The value is 96 unless the interface was brought on line within the last 24 hours. In this case, the value is the number of complete 15-minute intervals since the interface has been on line.
Totals PCVs	Number of Path Code Violations that a DS1 interface encountered in the previous 24-hour interval.
Totals LESs	Number of Line Errored Seconds that a DS1 interface encountered in the previous 24-hour interval.
Total BESs	Number of Burst Errored Seconds that a DS1 interface encountered in the previous 24-hour interval.
Totals DMs	Number of Degraded Minutes that a DS1 interface encountered in the previous 24-hour interval.
Total LCVs	Number of Line Code Violations that a DS1 interface encountered in the previous 24-hour interval.

**Sample Display - show ds1e1 fdl att2**

DS1E1 Facility Data Link (FDL) Errors (second half) - AT&T-54016 mode:

```
-----
```

Slot	Conn	Valid Intervals	Total PCVs	Total LESs	Total BESs	Total DMs	Total LCVs
2	2	1	0	0	1	0	0

```
-----
```

Found 1 match out of 2 entries in table.

**receive errors [circuit <circuit name>]**

Displays receive errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier.
Conn	Connector identifier.
Log Line	Logical line number for this line.
Circuit	Name of the circuit associated with this line.
Null Frames	Number of frames containing no data bytes received.
Short Frames	Number of frames received with only one or two data bytes.
CRC Errors	Number of frames received with CRC errors.
Long Frames	Number of frames received that exceeded the MTU size.
Abort Frames	Number of frames received with abort errors.

**Sample Display - show ds1e1 receive**

DS1E1 Logical Line Receive Errors:

```
-----
```

Slot	Conn	Log Line	Circuit	Null Frames	Short Frames	CRC Errors	Long Frames	Abort Frames
2	1	1	Boston	0	1256	0	0	0
2	1	2	Chicago	0	0	0	0	0
2	1	1	Seattle	0	40	0	0	0

3 entries in table.

---

## Sample Display - show ds1e1 receive errors circuit Boston

DS1E1 Logical Line Receive Errors:

```
-----
```

Slot	Conn	Log Line	Circuit	Null Frames	Short Frames	CRC Errors	Long Frames	Abort Frames
2	1	1	Boston	0	1256	0	0	0

```
-----
```

Found 1 match out of 3 entries in table.

### **sample** [*<period in seconds>*] [**circuit** *<circuit name>*]

Displays data sampled from DS1E1 over a period of 10 seconds. You can change the number of seconds over which you want to sample the data, and you can display sampled data for a specific circuit only. The table includes the following information:

Slot	Slot identifier.
Conn	Connector identifier.
Log Line	Logical line number for this line.
Circuit	Name of the circuit associated with this line.
Rx Frames	Number of frames received on this line.
Tx Frames	Number of frames sent on this line.
Rx Lack of Resources	Number of packets received and discarded because of lack of resources; for example, CPU is overworked.
Tx Lack of Resources	Number of transmit packets discarded because of lack of resources; for example, transmit queue length is too small.

**Sample Display - show ds1e1 sample**

Taking first sample...    Waiting 10 seconds...  
Taking second sample...  
DS1E1 Sampled Data over 10 seconds

```
-----
```

Slot	Conn	Log Line	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
2	1	1 Boston		2	2	0	0
2	1	2 Chicago		3	3	0	0
2	2	1 Seattle		2	9	0	0

3 entries in table.

**Sample Display - show ds1e1 sample 5**

Taking first sample...    Waiting 5 seconds...  
Taking second sample...  
DS1E1 Sampled Data over 5 seconds

```
-----
```

Slot	Conn	Log Line	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
2	1	1 Boston		1	8	0	0
2	1	2 Chicago		2	8	0	0
2	2	1 Seattle		1	1	0	0

3 entries in table.



---

## stats [circuit <circuit name>]

Displays DS1E1 input/output statistical information for all DS1E1 circuits or for a specific circuit. The table contains the following information:

Slot	Slot identifier.
Conn	Connector number.
Log Line	Logical line number for this line.
Circuit	Name of the circuit associated with this line.
Receive Bytes	Number of octets received without error.
Receive Frames	Number of frames received without error.
Transmit Bytes	Number of octets transmitted without error.
Transmit Frames	Number of frames transmitted without error.
Total Errors	Total number of errors received. A single frame may receive more than one error.

By examining the wfLogicalLineEntry MIB (ds1e1.mib), you can view errors by type.



**Note:** The attribute wfLogicalLineEntry.wfLogicalLineRxErrors counts the total number of frames that contain at least one error. Since one errored frame may contain multiple errors, the Total Errors column in **show ds1e1 stats** output indicates the total number of errors, not the number of errored frames.

---

### Sample Display - show ds1e1 stats

DS1E1 Logical Line I/O Statistics:

```
-----
```

Slot	Conn	Log Line	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
2	1	1	Boston	7124	274	190596	700	1257
2	1	2	Chicago	7124	274	190636	700	0
2	2	1	Seattle	153838	557	179276	644	43

3 entries in table.

**Sample Display - show ds1e1 stats circuit Boston**

DS1E1 Logical Line I/O Statistics:

-----

Slot	Conn	Log Line	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
2	1	1	Boston	7150	275	190622	701	1257

Found 1 match out of 3 entries in table.

**system errors [circuit <ircuit name>]**

Displays statistical information about system errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier.
Conn	Connector identifier.
Log Line	Logical line number for this line.
Circuit	Name of the circuit associated with this line.
Unaligned Frames	Number of frames containing a bit count not divisible by eight.
Internal Overflows	Number of frames received with internal overflow errors.
Overflow Frames	Number of overflow errors received on this line in which the device's FIFO buffer overflowed before obtaining the next DMA cycle. No buffer resources are available.
Losses of Sync	Number of instances of sync losses detected on this line. This error statistic is equivalent to the "red alarm received" statistic on T1.

---

## Sample Display - show ds1e1 system errors

DS1E1 Logical Line System Errors:

-----

Slot	Conn	Log Line	Circuit	Unaligned Frames	Internal Overflows	Overflow Frames	Losses of Sync
2	1	1	Boston	0	0	0	0
2	1	2	Chicago	0	0	0	0
2	2	1	Seattle	0	0	0	0

3 entries in table.

## Sample Display - show ds1e1 system errors circuit Boston

DS1E1 Logical Line System Errors:

-----

Slot	Conn	Log Line	Circuit	Unaligned Frames	Internal Overflows	Overflow Frames	Losses of Sync
2	1	1	Boston	0	0	0	0

Found 1 match out of 3 entries in table.

**t1framer [current] [total] [interval [*<interval number>*] ]**

Displays T1 framer error information.

**Sample Display - show ds1e1 t1framer current**

T1 Current Framer Statistics

-----

Slot	Conn	Bipolar Violation Counts	Out of Frame Counts	Frame Error Counts	Loss of Frame Failures	Loss of Signal Failures	Alarm Indicat Failures	Remote Alarm Failures
2	1	0	0	0	0	0	0	0
2	2	0	0	0	0	0	0	0

2 entries in table.

**Sample Display - show ds1e1 t1framer total**

T1 Total Framer Statistics

-----

Slot	Conn	Num Vld Intv	Bipolar Violation Counts	Out of Frame Counts	Frame Error Counts	Loss of Frame Failures	Loss of Signal Failures	Alarm Indicat Failures	Remote Alarm Failures
2	1	96	5	0	0	0	0	0	0
2	2	96	7	0	0	0	0	0	0

2 entries in table.

---

## Sample Display - show ds1e1 t1framer interval

T1 Interval Framer Statistics

```
-----
```

Slot	Conn	Intv	Bipolar Violation Counts	Out of Frame Counts	Frame Error Counts	Loss of Frame Failures	Loss of Signal Failures	Alarm Indicat Failures	Remote Alarm Failures
2	1	1	0	0	0	0	0	0	0
2	1	2	0	0	0	0	0	0	0
2	1	3	0	0	0	0	0	0	0
2	1	4	0	0	0	0	0	0	0
2	1	5	0	0	0	0	0	0	0
2	1	6	0	0	0	0	0	0	0
2	1	7	0	0	0	0	0	0	0
2	1	8	0	0	0	0	0	0	0
2	1	9	0	0	0	0	0	0	0
2	1	10	0	0	0	0	0	0	0
2	1	11	0	0	0	0	0	0	0
2	1	12	0	0	0	0	0	0	0
2	1	13	0	0	0	0	0	0	0
2	1	14	0	0	0	0	0	0	0
2	1	15	0	0	0	0	0	0	0
2	1	16	0	0	0	0	0	0	0
2	1	17	0	0	0	0	0	0	0
2	1	18	0	0	0	0	0	0	0

18 entries in table.

## t1port

Displays T1 port information.

### Sample Display - show ds1e1 t1port

T1 Port Status:

```
-----  
Slot Conn  State      MTU  Loopback  Accept  BERT  Line  Line  FDL  FDL  
-----  
                State  Loopback  Mode  Type  Coding Type Addr  
-----  
2      1 Red Alarm 1600 No Loop   Enabled Off  ESF      B8ZS  ANSI BY  
  
1 entry in table.
```

## timeslots [**circuit** <ircuit name>]

Displays timeslot assignments for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier.
Conn	Connector identifier.
Log Line	Logical line number for this line.
Circuit	Name of the circuit associated with this line.
Timeslots	Circuit's timeslot assignment. An X under the timeslot indicates that the logical line is using the timeslot. T1 lines have 24 slots and E1 lines have 31. The following examples are for T1 lines.

---

## Sample Display - show ds1e1 timeslots

DS1E1 Timeslot Assignment:

```

-----
                |-----Timeslots-----|
                1111111111222222222233
Slot  Conn Line  Circuit 1234567890123456789012345678901
-----
    4    1    1 Boston  XXXXXXXX_____
    4    1    2          _____
    4    1    3          _____
    4    1    4          _____
    4    1    5          _____
    4    1    6          _____
    4    1    7          _____
    4    1    8 Chicago  _____XXXXXXX
    4    1    9          _____
    4    1   10          _____
    4    1   11          _____
    4    1   12          _____
    4    1   13          _____
    4    1   14          _____
    4    1   15          _____X_____
    4    1   16          _____X_____
    4    1   17          _____X_____
    4    1   18          _____X_____
    4    1   19          _____X_____
    4    1   20          _____X_____
    4    1   21          _____X_____
    4    1   22          _____X_____
    4    1   23          _____X_____
    4    1   24          _____X_____

```

24 entries in table.

**Sample Display - show ds1e1 timeslots circuit Boston**

```

DS1E1 Timeslot Assignment:
-----
                |-----Timeslots-----|
                1111111111222222222233
Slot Conn Line  Circuit 1234567890123456789012345678901
-----
    2   1   1 Boston  X_X_____X___
    4   1   1 Boston  XXXXXXXX_____

Found      1 match out of 24 entries in table.
    
```

**transmit errors [circuit <ircuit name>]**

Displays statistical information about transmission errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier.
Conn	Connector identifier.
Log Line	Logical line number for this line.
Circuit	Name of the circuit associated with this line.
Underflow Frames	Number of retransmission underflow errors. These occur when the FIFO buffer empties before the device obtains the next DMA request.
Descriptor Errors	Internal device error.



---

### Sample Display - show ds1e1 transmit errors

DS1E1 Logical Line Transmit Errors:

-----

Slot	Conn	Log Line	Circuit	Underflow Frames	Descriptor Errors
2	1	1	Boston	1	0
2	1	2	Chicago	0	0
2	2	1	Seattle	1	0

-----

3 entries in table.

### Sample Display - show ds1e1 transmit errors circuit Boston

DS1E1 Logical Line Transmit Errors:

-----

Slot	Conn	Log Line	Circuit	Underflow Frames	Descriptor Errors
2	1	1	Boston	1	0

-----

Found 1 match out of 3 entries in table.

## **version**

Displays the current version and modification date for the *ds1e1.bat* script.

### **Sample Display - show ds1e1 version**

```
ds1e1.bat Version: #.## Date: mm/dd/yy.
```

---

## show dsx3

The **show dsx3** *<option>* command displays DS-3 and E-3 information for Asynchronous Transfer Mode (ATM) interfaces. For more information about any of the column descriptions, refer to RFC 1407, “Definitions of Managed Objects for the DS3/E3 Interface Type.”

The **show dsx3** command supports the following subcommand options:

ccts	history [<circuit_name>]
current [circuit_name]	version

### ccts

Displays information about all dsx3 circuits. The table displays the following information:

Circuit Name	The name of the circuit associated with this line.
Index	Line and line level identifier.
Sec into Interval	The number of seconds into the current 15-minute interval.
# of Intervals	The number of complete 15-minute intervals. The value is 96 unless the interface was brought on line within the last 24 hours. In that case, the value is the number of complete 15-minute intervals since the interface has been on line.
Line Coding	The line coding on this circuit. The line coding options are <ul style="list-style-type: none"><li>• <i>B3ZS</i></li><li>• <i>HDB3</i></li></ul> The line coding specifies patterns of normal bits and bipolar violations used to replace sequences of zero bits of a certain length.

- Line Type**                      The line type of this circuit. The line type indicates the variety of DS-3 C-bit or E-3 applications implemented on the interface. The type of interface affects the interpretation of the usage and error statistics. The options are
- *DS3\_M23* (ANSI T1.107-1988)
  - *DS3\_Cbit* (ANSI T1.107a-1989)
  - *E3\_framed* (CCITT G.751)
  - *E3\_plcp* (ETSI T/NA[91]18)
- Status**                              The line status of the interface. The possible status variables are
- *NoAlarm* - no alarm present
  - *RRAI* - receiving yellow remote alarm indication
  - *TRAI* - transmitting yellow remote alarm indication
  - *RAIS* - receiving Alarm Indications Signal (AIS) failure state
  - *TAIS* - transmitting AIS failure state
  - *LOF* - receiving Loss of Frame (LOF) failure state
  - *LOS* - receiving Loss of Signal (LOS) failure state
  - *Loopback* - looping the received signal
  - *TestCode* - receiving a test pattern
  - *LowSignal* - low signal

**Sample Display - show dsx3 ccts**

DSX3 entries:

```

-----
Circuit Name   Index   Sec into   # of   Line
                Interval Intervals Coding  Line Type   Status
-----
A41            1404101 704        68    HDB3    E3_other    NoAlarm
A61            1405101 705        68    B3ZS    DS3_M23     NoAlarm
    
```

---

## current [<ircuit name>]

Displays the general circuit information in addition to current DS-3/E-3 information for the specified circuit or for all circuits. For more information on column definitions, see the **ccts** command.

The table displays the following information:

### General Circuit Information

Circuit Name	Name of the circuit associated with this line.
Index	Line and line level identifier.
Sec into Interval	The number of seconds into the current 15-minute interval.
# of Intervals	The number of complete 15-minute intervals.
Line Coding	The line coding on this circuit. The line coding options are <ul style="list-style-type: none"><li>• <i>B3ZS</i></li><li>• <i>HDB3</i></li></ul>
Line Type	The line type of this circuit. The options are <ul style="list-style-type: none"><li>• <i>DS3_M23</i> (ANSI T1.107-1988)</li><li>• <i>DS3_Cbit</i> (ANSI T1.107a-1989)</li><li>• <i>E3_framed</i> (CCITT G.751)</li><li>• <i>E3_plcp</i> (ETSI T/NA[91]18)</li></ul>
Status	The line status of the interface. The possible status variables are <ul style="list-style-type: none"><li>• <i>NoAlarm</i> - no alarm present</li><li>• <i>RRAI</i> - receiving yellow remote alarm indication</li><li>• <i>TRAI</i> -- transmitting yellow remote alarm indication</li><li>• <i>RAIS</i> - receiving Alarm Indications Signal (AIS) failure state</li><li>• <i>TAIS</i> - transmitting AIS failure state</li><li>• <i>LOF</i> - receiving Loss of Frame (LOF) failure state</li><li>• <i>LOS</i> - receiving Loss of Signal (LOS) failure state</li><li>• <i>Loopback</i> - looping the received signal</li><li>• <i>TestCode</i> - receiving a test pattern</li><li>• <i>LowSignal</i> - low signal</li></ul>

### **Line Stats**

Circuit Name	Name of the circuit associated with this line.
Interval	The current interval.
LESs	The number of line errored seconds (LESs) in the current interval. An LES is a second in which one or more coding violations occurred or one or more LOS defects were detected.
SEFSs	The number of severely errored framing seconds (SEFSs) in the current interval. An SEFS is a second with one or more OOF errors or an AIS defect.
UASs	The number of unavailable seconds (UASs) in the current interval.
LCVs	The number of line coding violations (LCVs) in the current interval. A line coding violation is a count of both bipolar violations (BPVs) and excessive zero (EXZ) error events.

### **Pbit Status**

Circuit Name	Name of the circuit associated with this line.
Interval	The current interval.
PESs	The number of P-bit errored seconds (PESs) in the current interval. A PES is a second with one or more P-bit coding violations, one or more OOF defects, or a detected incoming AIS. The PES does not increment when counting UASs.
PSESs	The number of P-bit severely errored seconds (PSESs) in the current interval. A PSES is a second with 44 or more PCVs, one or more OOF defects, or a detected incoming AIS. The PSES value does not increment when counting UASs.
UASs	The number of unavailable seconds (UASs) in the current interval.
PCVs	The number of P-bit coding violations (PCVs) in the current interval. For all DS3/E3 applications, a coding violation error event is a P-bit Parity Error event. A P-bit Parity Error event occurs when the DS-3/E-3 M-frame receives a P-bit code that is not identical to the corresponding locally calculated code.

---

### **Cbit Stats**

Circuit Name	Name of the circuit associated with this line.
Interval	The current interval.
CESs	The number of C-bit errored seconds (CESs) in the current interval. An CES is a second with one or more CCVs, one or more OOF defects, or a detected incoming AIS. This count is only for the C-bit Parity DS3 applications. The CES value does not increment when counting UASs.
CSEs	The number of C-bit severely errored seconds (CSEs) in the current interval. A CSE is a second with 44 or more CCVs, one or more OOF defects, or a detected incoming AIS. This count applies only to C-bit Parity DS3 applications. The CSE value does not increment when counting UASs.
UASs	The number of unavailable seconds (UASs) in the current interval.
CCVs	The number of C-bit coding violations (CCVs) in the current interval. For C-bit Parity and SYNTRAN DS3 applications, this is the count of coding violations reported via the C-bits. For C-bit Parity, it is a count of CP-bit parity errors occurring in the accumulation interval.

### **FarEnd Cbit Stats**

Circuit Name	Name of the circuit associated with this line.
Interval	The current interval.
CESs	The number of C-bit errored seconds (CESs) in the current interval. An CES is a second with one or more CCVs, one or more OOF defects, or a detected incoming AIS. This count is only for C-bit Parity DS3 applications. The CES value does not increment when counting UASs.
CSEs	The number of C-bit severely errored seconds (CSEs) in the current interval. A CSE is a second with 44 or more CCVs, one or more OOF defects, or a detected incoming AIS. This count applies only to C-bit Parity DS3 applications. The CSE value does not increment when counting UASs.

UASs	The number of unavailable seconds (UASs) in the current interval.
CCVs	The number of C-bit coding violations (CCVs) in the current interval. For C-bit Parity DS3 applications, this is the count of coding violations reported via the C-bits. For C-bit Parity, it is a count of CP-bit parity errors occurring in the accumulation interval.

### **DS3 Plcp Stats**

Circuit Name	Name of the circuit associated with this line.
Interval	The current interval.
SEFSs	The number of severely errored framing seconds (SEFSs) in the current interval. An SEFS is a second with one or more OOF errors or an AIS defect.
UASs	The number of unavailable seconds (UASs) in the current interval.
Status	Indicates the line status of the interface. The possible status variables are <ul style="list-style-type: none"><li>• <i>NoAlarm</i> - no alarm present</li><li>• <i>RRAI</i> - receiving yellow remote alarm indication</li><li>• <i>TRAI</i> -- transmitting yellow remote alarm indication</li><li>• <i>RAIS</i> - receiving Alarm Indications Signal (AIS) failure state</li><li>• <i>TAIS</i> - transmitting AIS failure state</li><li>• <i>LOF</i> - receiving Loss of Frame (LOF) failure state</li><li>• <i>LOS</i> - receiving Loss of Signal (LOS) failure state</li><li>• <i>Loopback</i> - looping the received signal</li><li>• <i>TestCode</i> - receiving a test pattern</li><li>• <i>LowSignal</i> - low signal</li></ul>



---

**Sample Display - show dsx3 current**

Circuit Name	Index	Sec into Interval	# of Intervals	Line Coding	Line Type	Status
A41	1404101	747	68	HDB3	E3_other	NoAlarm

Line stats:

Circuit Name	Interval	LESSs	SEFSs	UASs	LCVs
A41	current	0	0	0	0

Pbit status:

Circuit Name	Interval	PESs	PSESs	UASs	PCVs
A41	current	0	0	0	0

Cbit stats:

Circuit Name	Interval	CESs	CSESs	UASs	CCVs
A41	current	0	0	0	0

FarEnd Cbit stats:

Circuit Name	Interval	CESs	CSESs	UASs	CCVs
A41	current	0	0	0	0

Circuit Name	Index	Sec into Interval	# of Intervals	Line Coding	Line Type	Status
A61	1405101	749	68	B3ZS	DS3_M23	NoAlarm

Line stats:

Circuit Name	Interval	LESSs	SEFSs	UASs	LCVs
A61	current	0	0	0	0

(continued)

Pbit status:

```
-----
Circuit Name      Interval PESs  PSEs  UASs   PCVs
-----
A61               current    0     0     0      0
```

Cbit stats:

```
-----
Circuit Name      Interval CESs  CSEs  UASs   CCVs
-----
A61               current    0     0     0      0
```

FarEnd Cbit stats:

```
-----
Circuit Name      Interval CESs  CSEs  UASs   CCVs
-----
A61               current    0     0     0      0
```

DS3 Plcp stats:

```
-----
Circuit Name      Interval SEFSs UASs   Status
-----
A61               total    0     0 LOF
```

## history [*<circuit name>*]

Displays the general circuit information in addition to historical DS-3/E-3 information for the specified circuit or for all circuits. For more information on any of the following column definitions, see the **cct** and **current** commands.

The table displays the following information:

### General Circuit Information

Circuit Name	Name of the circuit associated with this line.
Index	Line and line level identifier.
Sec into Interval	The number of seconds into the current interval.
# of Intervals	The number of complete intervals.
Line Coding	The line coding on this circuit. The line coding options are <ul style="list-style-type: none"> <li>• <i>B3ZS</i></li> <li>• <i>HDB3</i></li> </ul>

---

Line Type	The line type of this circuit. The options are <ul style="list-style-type: none"> <li>• <i>DS3_M23</i> (ANSI T1.107-1988)</li> <li>• <i>DS3_Cbit</i> (ANSI T1.107a-1989)</li> <li>• <i>E3_framed</i> (CCITT G.751)</li> <li>• <i>E3_plcp</i> (ETSI T/NA[91]18)</li> </ul>
Status	The line status of the interface. The possible status variables are <ul style="list-style-type: none"> <li>• <i>NoAlarm</i> - no alarm present</li> <li>• <i>RRAI</i> - receiving yellow remote alarm indication</li> <li>• <i>TRAI</i> -- transmitting yellow remote alarm indication</li> <li>• <i>RAIS</i> - receiving Alarm Indications Signal (AIS) failure state</li> <li>• <i>TAIS</i> - transmitting AIS failure state</li> <li>• <i>LOF</i> - receiving Loss of Frame (LOF) failure state</li> <li>• <i>LOS</i> - receiving Loss of Signal (LOS) failure state</li> <li>• <i>Loopback</i> - looping the received signal</li> <li>• <i>TestCode</i> - receiving a test pattern</li> <li>• <i>LowSignal</i> - low signal</li> </ul>

### **Line Stats**

Circuit Name	Name of the circuit associated with this line.
Interval	A historical breakdown of intervals, including <ul style="list-style-type: none"> <li>• The current interval (incomplete)</li> <li>• All but the last two intervals (that is, all of the intervals except the current interval and the previous interval)</li> <li>• The previous interval (that is, the last complete interval)</li> <li>• All of the intervals (total)</li> </ul>
LESs	The number of line errored seconds (LESs) for each interval category.
SEFSs	The number of severely errored framing seconds (SEFSs) for each interval category.
UASs	The number of unavailable seconds (UASs) for each interval category.
LCVs	The number of line coding violations (LCVs) for each interval category.

### **Pbit Status**

Circuit Name	Name of the circuit associated with this line.
Interval	A historical breakdown of intervals, including <ul style="list-style-type: none"><li>• The current interval (incomplete)</li><li>• All but the last two intervals (that is, all of the intervals except the current interval and the previous interval)</li><li>• The previous interval (that is, the last complete interval)</li><li>• All of the intervals (total)</li></ul>
PESs	The number of P-bit errored seconds (PESs) for each interval category.
PSEs	The number of P-bit severely errored seconds (PSEs) for each interval category.
UASs	The number of unavailable seconds (UASs) for each interval category.
PCVs	The number of P-bit coding violations (PCVs) for each interval category.

### **Cbit Stats**

Circuit Name	Name of the circuit associated with this line.
Interval	A historical breakdown of intervals, including <ul style="list-style-type: none"><li>• The current interval (incomplete)</li><li>• All but the last two intervals (that is, all of the intervals except the current interval and the previous interval)</li><li>• The previous interval (that is, the last complete interval)</li><li>• All of the intervals (total)</li></ul>
CESs	The number of C-bit errored seconds (CESs) for each interval category.
CSESs	The number of C-bit severely errored seconds (CSESs) for each interval category.
UASs	The number of unavailable seconds (UASs) for each interval category.
CCVs	The number of C-bit coding violations (CCVs) for each interval category.

---

## FarEnd Cbit Stats

Circuit Name	Name of the circuit associated with this line.
Interval	A historical breakdown of intervals, including <ul style="list-style-type: none"><li>• The current interval (incomplete)</li><li>• All but the last two intervals (that is, all of the intervals except the current interval and the previous interval)</li><li>• The previous interval (that is, the last complete interval)</li><li>• All of the intervals (total)</li></ul>
CESs	The number of C-bit errored seconds (CESs) for each interval category.
CSEs	The number of C-bit severely errored seconds (CSEs) for each interval category.
UASs	The number of unavailable seconds (UASs) for each interval category.
CCVs	The number of C-bit coding violations (CCVs) for each interval category.

### **DS3 Plcp Stats**

Circuit Name	Name of the circuit associated with this line.
Interval	A historical breakdown of intervals, including <ul style="list-style-type: none"><li>• The current interval (incomplete)</li><li>• All but the last two intervals (that is, all of the intervals except the current interval and the previous interval)</li><li>• The previous interval (that is, the last complete interval)</li><li>• All of the intervals (total)</li></ul>
SEFSs	The number of severely errored framing seconds (SEFSs) for each interval category.
UASs	The number of unavailable seconds (UASs) for each interval category.
Status	Indicates the line status of the interface. The possible status variables are <ul style="list-style-type: none"><li>• <i>NoAlarm</i> - no alarm present</li><li>• <i>RRAI</i> - receiving yellow remote alarm indication</li><li>• <i>TRAI</i> -- transmitting yellow remote alarm indication</li><li>• <i>RAIS</i> - receiving Alarm Indications Signal (AIS) failure state</li><li>• <i>TAIS</i> - transmitting AIS failure state</li><li>• <i>LOF</i> - receiving Loss of Frame (LOF) failure state</li><li>• <i>LOS</i> - receiving Loss of Signal (LOS) failure state</li><li>• <i>Loopback</i> - looping the received signal</li><li>• <i>TestCode</i> - receiving a test pattern</li><li>• <i>LowSignal</i> - low signal</li></ul>

---

## Sample Display - show dsx3 history

DSX3 entries:

```
-----  
Circuit Name      Index      Sec into   # of      Line  
                  Interval Intervals Coding   Line Type   Status  
-----  
A41                1404101    830        68   HDB3     E3_other    NoAlarm
```

Line stats:

```
-----  
Circuit Name      Interval LESSs  SEFSs UASs      LCVs  
-----  
A41                current      0      0      0          0  
A41                1-67        0      0      0          0  
A41                68          3      3      0         13  
A41                totals      3      3      0         13
```

Pbit status:

```
-----  
Circuit Name      Interval PESs   PSESs UASs      PCVs  
-----  
A41                current      0      0      0          0  
A41                1-67        0      0      0          0  
A41                68          3      3      0         15  
A41                totals      3      3      0         15
```

Cbit stats:

```
-----  
Circuit Name      Interval CESs   CSESs UASs      CCVs  
-----  
A41                current      0      0      0          0  
A41                1-67        0      0      0          0  
A41                68          3      3      0          0  
A41                totals      3      3      0          0
```

FarEnd Cbit stats:

```
-----  
Circuit Name      Interval CESs   CSESs UASs      CCVs  
-----  
A41                current      0      0      0          0  
A41                1-67        0      0      0          0  
A41                68          4      0      0         15  
A41                totals      4      0      0         15
```

(continued)

## Using Technician Interface Scripts

---

DS3 Plcp stats:

```
-----  
Circuit Name      Interval SEFSs UASs      Status  
-----  
A41                total      0      0 LOF
```

```
-----  
Circuit Name      Index      Sec into  # of      Line  
-----  
Circuit Name      Index      Interval Intervals Coding  Line Type  Status  
-----  
A61                1405101    848      68 HDB3     E3_other   NoAlarm
```

Line stats:

```
-----  
Circuit Name      Interval LESSs SEFSs UASs      LCVs  
-----  
A61                current    0      0      0          0  
A61                1-67      0      0      0          0  
A61                68        4      3      0 131088  
A61                totals    4      3      0 131088
```

Pbit status:

```
-----  
Circuit Name      Interval PESs PSESs UASs      PCVs  
-----  
A61                current    0      0      0          0  
A61                1-67      0      0      0          0  
A61                68        4      3      0 6850  
A61                totals    4      3      0 6850
```

Cbit stats:

```
-----  
Circuit Name      Interval CESs CSESs UASs      CCVs  
-----  
A61                current    0      0      0          0  
A61                1-67      0      0      0          0  
A61                68        3      3      0          0  
A61                totals    3      3      0          0
```

FarEnd Cbit stats:

```
-----  
Circuit Name      Interval CESs CSESs UASs      CCVs  
-----  
A61                current    0      0      0          0  
A61                1-67      0      0      0          0  
A61                68        2      1      0 481  
A61                totals    2      1      0 481
```

(continued)



---

DS3 Plcp stats:

-----

Circuit Name	Interval	SEFSs	UASs	Status
A61	total	0	0	LOF

-----

## version

Displays the dsx3 version.

### Sample Display - show dsx3 version

dsx3.bat Version: #.## Date: mm/dd/yy.

## show dvmrp

The **show dvmrp** *<option>* commands display configuration, state, and statistical information about the Distance Vector Multicast Routing Protocol (DVMRP). For detailed information about the Bay Networks implementation of DVMRP, refer to *Configuring IP Utilities*.

The **show dvmrp** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">stats circuits [&lt;circuit name&gt;]</a>
<a href="#">circuits [&lt;circuit name&gt;   enabled   disabled]</a>	<a href="#">stats tunnels [&lt;circuit name&gt;]</a>
<a href="#">neighbors [&lt;circuit name&gt;]</a>	<a href="#">tunnels [&lt;circuit name&gt;   enabled   disabled]</a>
<a href="#">routes main [&lt;IP address&gt;   &lt;search pattern&gt;]</a>	<a href="#">version</a>
<a href="#">routes vifs [&lt;IP address&gt;   &lt;search pattern&gt;]</a>	

### base

Displays the base level information for DVMRP. The table provides the following information:

Protocol	Name of the protocol, which in this case is DVMRP.
State:	State of DVMRP on the router: Up, Down, Init (initializing), or Not Present.
Full Update Interval	Specifies, in seconds, how often route updates containing complete routing tables are sent.
Triggered Update Interval	Specifies, in seconds, how often triggered route updates, generated in response to routing changes, are sent.
Leaf Timeout	Specifies, in seconds, the virtual interface hold down timer.

---

Neighbor Timeout	Specifies, in seconds, how long a router neighbor is considered “up” without the receipt of a subsequent DVMRP packet from that neighbor.
Route Switch Timeout	How long to wait, without receiving a subsequent route update from the original best-hop neighbor, before switching to a different neighbor.
Route Expiration Timeout	Specifies, in seconds, how long a route is considered valid for forwarding purposes without the receipt of a subsequent route update specifying that the route is reachable.
Garbage Timeout	Specifies, in seconds, how long a route exists in the routing table without the receipt of a subsequent route update specifying that the route is reachable.
Estimated Routes	Estimated number of routes.
Actual Routes	Number of entries currently in the route table.

### Sample Display - show dvmrp base

```

DVMRP Base Information
-----

Protocol State
-----
DVMRP      Up

Full Update Interval      = 60
Triggered Update Interval = 5
Leaf Timeout              = 200
Neighbor Timeout          = 140
Neighbor Probe Interval   = 190
Route Switch Timeout       = 140
Route Expiration Timeout  = 200
Garbage Timeout           = 340
Estimated Routes          = 25
Actual Routes              = 2833

```

**circuits** [*<circuit name>* | **enabled** | **disabled**]

Displays the DVMRP circuit information for all circuits, a specified circuit, enabled circuits, or disabled circuits. The table contains the following information:

Circuit	Circuit name of this virtual interface.
State	Current state of the virtual interface: Up, Down, Init (initializing), Invalid, or Not Pres (not present).
Metric	Cost of using this hop.
Threshold	Threshold for forwarding datagrams out of this circuit. If the time to live (TTL) is less than the threshold, the datagram is dropped.
Route Enabled	Indicates whether this route is enabled. If enabled, this circuit will be used to propagate routing information, information about the locally attached network to this circuit will be incorporated into routing updates, and multicast datagrams will be forwarded “in native mode” via this circuit. If disabled, this circuit exists only to support unicast tunnels; in this case, all other parameters are ignored.

**Sample Display - show dvmrp circuits**

DVMRP Circuits

```

-----

```

Circuit	State	Metric	Threshold	Route Enabled
-----	-----	-----	-----	-----
E22	Up	1	1	Yes
E31	Up	1	1	Yes
E32	Up	1	1	Yes
E33	Up	1	1	Yes
E34	Up	1	1	Yes

5 Total entries.

---

## neighbors [*<circuit name>*]

Displays all DVMRP neighbor information or neighbor information for a specified circuit. The table displays the following information:

Circuit	Circuit name of this virtual interface.
Local Tunnel IP	Local tunnel ID of the virtual interface. This value is Physical for non-tunneled interfaces. Otherwise, it contains the IP address of the local tunnel endpoint.
Neighbor IP	IP address of the neighboring router.
Neigh Timer	Current value of the neighbor timer.

### Sample Display - show dvmrp neighbors

```
DVMRP Neighbors
```

```
-----
```

Circuit	Local Tunnel IP	Neighbor IP	Neigh Timer
-----	-----	-----	-----
E21	Physical	192.32.28.221	135
E21	192.32.28.33	192.32.1.2	140

```
2 Total entries.
```

## routes main [*<IP address>* | *<search pattern>*]

Displays the main DVMRP routing table. You can specify routes that match an IP address or routes with a source network number matching a portion of an IP address (for example, **192.34.\***). The table includes the following information:

Source Network	Source network of multicast datagrams.
Mask	Mask for the specified source network.
Next Hop Addr	Next-hop multicast router to the specified source network.
Next Hop CCT	Circuit name of the next-hop virtual interface. In the case of tunneled interfaces, the remote tunnel endpoint is the value in the Next Hop Address field.

Age	Current value of the route timer
Cost	Current route metric.
State	Set of flags indicating the state of the entry:
T	Timed route -- route timer is running.
L	Local route -- specified network is local to this router.
G	Garbage timer -- route is unreachable; garbage timer is running.

### Sample Display - show dvmrp routes main

DVMRP Main Routes

-----

State: L = Local interface  
      T = Timed route  
      G = Garbage route

Source Network	Mask	Next Hop Addr	Next Hop CCT	Age	Cost	State
192.32.28.0	255.255.255.0	192.32.28.33	E21	0	1	L
192.32.29.0	255.255.255.0	192.32.1.2	E23	20	2	T

2 Entries found.

### **routes vifs** [*<IP address>* | *<search pattern>*]

Displays all DVMRP Virtual Interface (VIF) routes, or just VIF routes for a specified IP address or source network number matching a portion of an IP address (for example, **192.34.\***). The table displays the following information:

---

Source	Source network for multicast datagrams.
State	State of the interface for this route, as follows: <ul style="list-style-type: none"> <li>• <i>L (Leaf)</i> - No neighboring routers consider this local network or tunnel to be on the shortest path to the specified source network.</li> <li>• <i>C (Child)</i> - The router is responsible for forwarding datagrams saved by the specified network associated with this interface. If the leaf flag is also set, datagrams will only be forwarded when there are any local hosts belonging to the particular multicast group specified by the destination address.</li> <li>• <i>H</i> - Hold-down timer is running.</li> </ul>
Circuit	Circuit name of this virtual interface.
Remote Tunnel	Remote tunnel ID of this virtual interface. This value is Physical for non-tunneled interfaces. Otherwise, it contains the unicast IP address of the remote tunnel endpoint.
Dom Router	Address of the dominant router for this virtual interface. The specified router will forward packets onto the local network or tunnel that are sourced by the specified source network.
Sub Router	Address of a subordinate router for this virtual interface. This indicates that at least one neighboring router considers this local network or tunnel to be on the shortest path to the specified source network.

### Sample Display - show dvmrp routes vifs

#### DVMRP Virtual Interface Routes

-----

State: C = Child  
L = Leaf  
H = Hold-down

Source	State	Circuit	Remote Tunnel	Dom Router	Sub Router
-----	-----	-----	-----	-----	-----
10.0.0.0	C	E21	Physical	None	192.32.28.22
10.0.0.0		E21	192.32.1.2	None	None
13.0.32.0	C	E21	Physical	None	192.32.28.22
13.0.32.0		E21	192.32.1.2	None	None

**stats circuits** [*<circuit name>*]

Displays statistics for all DVMRP circuits or a specified DVMRP circuit. The table displays the following information:

Circuit	Circuit name of this virtual interface.
In Pkts	Number of datagrams received on this interface.
Out Pkts	Number of datagrams sent on this interface.
Updates rec	Number of DVMRP route update messages received.
Updates sent	Number of DVMRP route update messages sent.
In Drops	Number of inbound datagrams discarded because the source route was not found.
Out Drops	Number of outbound datagrams discarded because the source route was not found.

**Sample Display - show dvmrp stats circuits**

DVMRP Circuit Statistics

-----

Circuit	In Pkts	Out Pkts	Updates rec	Updates sent	In Drops	Out Drops
-----	-----	-----	-----	-----	-----	-----
E21	134235	1079169	6795	8022	0	0

1 Total entries.

**stats tunnels** [*<circuit name>*]

Displays all DVMRP tunnel statistic for all circuits or for a specified circuit. The table displays the following information:

Circuit	Circuit name of this virtual interface.
Remote IP Address	Unicast IP address of remote tunnel endpoint of this virtual interface.
Packets In	Number of datagrams received on this interface.



---

Packets Out	Number of datagrams sent on this interface.
Updates Rec'd	Number of DVMRP route update messages received.
Updates Sent	Number of DVMRP route update messages sent.
Drop In	Number of inbound datagrams discarded because the source route was not found, or because of an invalid inner address (that is, the destination address of the encapsulated datagram was not a multicast address).
Drop Out	Number of outbound datagrams discarded because the source route was not found.

### Sample Display - show dvmrp stats tunnels

#### DVMRP Tunnel Statistics

-----

Circuit	Remote IP Address	Packets In	Packets Out	Updates Rec'd	Updates Sent	Drop In	Drop Out
E21	192.32.1.2	1090940	37273	8875	37267	1117	0

1 Total entries.

**tunnels** [*<circuit name>* | **enabled** | **disabled**]

Displays the DVMRP tunnel configuration information for all circuits, a specified circuit, enabled circuits, or disabled circuits. The table displays the following information:

Circuit	Circuit name of this virtual interface.
Local IP	Unicast IP address of the local network endpoint of this virtual interface.
Remote IP	Unicast IP address of remote network endpoint of this virtual interface.
State	Current state of the virtual interface: Up, Down, Init (initializing), Invalid, or Not Pres (not present).
Encaps	Indicates if these tunneled datagrams will be encapsulated within an IP datagram, or will they be loosely encapsulated using the LSSR option (for the latter, refer to RFC 1075; this is needed for backward compatibility).
Metric	Cost of using this tunnel.
Threshold	Threshold for forwarding datagrams through this tunnel. If the time to live (TTL) is less than the threshold, the datagram is dropped.

**Sample Display - show dvmrp tunnels**

DVMRP Tunnels

-----

Circuit	Local IP	Remote IP	State	Encaps	Metric	Threshold
-----	-----	-----	-----	-----	-----	-----
E21	192.32.28.33	192.32.1.2	Up	IPinIP	1	1

1 Total entries.

---

## version

Displays the current version and modification date for the *dvmrp.bat* script.

### Sample Display - show dvmrp version

```
dvmrp.bat Version: #.## Date: mm/dd/yy.
```

## show e1

The **show e1** *<option>* commands display configuration, status, and statistical information about the E1 lines. For more information about E1, refer to *Configuring and Managing Routers with Site Manager*.

The **show e1** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">frame errors [circuit &lt;circuit name&gt;]</a>
<a href="#">base [circuit &lt;circuit name&gt;]</a>	<a href="#">line errors [circuit &lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">version</a>
<a href="#">enabled</a>	

## alerts

Displays all circuits that are enabled but not up. Use this display to identify the interfaces that are not working. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.
HDB3 Support	Status of High Density Bipolar Coding: Enabled or Disabled. HDB3 maintains sufficient “ones” density within the E1 data stream without disturbing data integrity.
Clock Mode	Source of the E1 transmit clock as follows: <ul style="list-style-type: none"><li>• <i>Internal</i> - Clock is generated internally.</li><li>• <i>Slave</i> - Clock is derived from the incoming data stream.</li><li>• <i>Manual</i> - Jumpers on the E1 link module determine the clock source (internal or slave.)</li></ul>
MiniDacs Configuration	Function assigned to each of 31 E1 channels (timeslots). The table shows these functions in a string of 31 characters, one character per timeslot. The characters and their meaning are as follows: <ul style="list-style-type: none"><li>• <i>1</i> - Assigns the timeslot to the first HDLC controller (Circuit 1).</li><li>• <i>2</i> - Assigns the timeslot to the second HDLC controller (Circuit 2).</li><li>• <i>D</i> - Assigns the timeslot to data passthrough (HDLC controller to HCLC controller).</li><li>• <i>I</i> - Assigns the timeslot to idle.</li><li>• <i>V</i> - Assigns the timeslot to voice passthrough (HDLC controller to HCLC controller).</li></ul>

For example, the sample display for the **base** command shows the MiniDacs Configuration as:

```
11111111IIIIIIII11111111IIIIIIII.
```

This string shows that timeslots 1 - 8 and 17 - 24 are assigned to the first HDLC controller (1) and timeslots 9 - 16 and 25 - 31 are idle (I).

---

## Sample Display - e1 alerts

E1 Modules on Alert:

-----

Slot	Conn	Circuit	HDB3 Support	Clock Mode	MiniDacs Configuration
------	------	---------	--------------	------------	------------------------

Found 0 matches out of 2 entries in table.

## base [circuit <circuit name>]

Displays the base level information for all E1 circuits or a specific circuit. For definitions of the columns in the table, see the **alerts** command.

## Sample Display - show e1 base

E1 Modules:

-----

Slot	Conn	Circuit	HDB3 Support	Clock Mode	MiniDacs Configuration
2	1	E1-21	Disabled	Internal	11111111IIIIIIII11111111IIIIIIII
2	2	E1-22	Disabled	Slave	22222222IIIIIIII22222222IIIIIIII

2 entries in table.

## Sample Display - show e1 base circuit e1-21

E1 Modules:

-----

Slot	Conn	Circuit	HDB3 Support	Clock Mode	MiniDacs Configuration
2	1	E1-21	Disabled	Internal	11111111IIIIIIII11111111IIIIIIII

Found 1 match out of 2 entries in table.

## disabled

Displays E1 circuits that a user has manually disabled. For definitions of the columns in the table, see the **alerts** command.

### Sample Display - show e1 disabled

```
E1 Modules Disabled:
-----

Slot Conn Circuit      HDB3   Clock
              Support  Mode   MiniDacs Configuration
-----
Found          0 matches out of      2 entries in table.
```

## enabled

Displays E1 circuits that a user has manually enabled. For definitions of the columns in the table, see the **alerts** command.

### Sample Display - show e1 enabled

```
E1 Modules Enabled:
-----

Slot Conn Circuit      HDB3   Clock
              Support  Mode   MiniDacs Configuration
-----
   2   1 E1-21  Disabled Internal 11111111IIIIIIII11111111IIIIIII
   2   2 E1-22  Disabled  Slave  22222222IIIIIIII22222222IIIIIII

Found          2 matches out of      2 entries in table.
```

---

## frame errors [circuit <ircuit name>]

Displays E1 frame errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.
Frame Errors	Number of frame errors on this line. This counter indicates errors in the frame alignment signal.
Signalling All 1's Received	Number of occurrences of receive signaling all 1's. This error occurs when timeslot 16 has been all 1's for two consecutive frames. This statistic is relevant only for Channel Associated Signalling (CAS) mode.
Unframed All 1's Received	Number of occurrences of receive unframed all 1's. This occurs when less than three bit positions of the last aligned and nonaligned frames have been 0.

### Sample Display - show e1 frame

E1 Module Frame Errors:

-----

Slot	Conn	Circuit	Frame Errors	Signalling All 1's Received	Unframed All 1's Received
2	1	E1-21	0	0	0
2	2	E1-22	0	0	0

2 entries in table.

**line errors [circuit <ircuit name>]**

Displays several categories of line errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.
BiPolar Violtns	Number of bipolar violations on this line. On an E1 line, ones are transmitted as alternating negative and positive pulses, and zeros are simply the absence of pulses. Thus a bipolar violation occurs if there are two or more consecutive pulses of the same polarity. This error count indicates the quality of the E1 line.
Remote Alarms Received	Number of remote alarms received on this line. This error is equivalent to a “yellow alarm” in T1. It means that we have not lost sync but that the remote side of the connection has detected a problem with the line.
Multiframe Alarms Received	Number of multiframe alarms received on this line. This error statistic is relevant only in CAS mode and occurs when bit 6 of timeslot 16 in frame 0 is set for two consecutive multiframe.
Multiframe Errors	Number of multiframe errors on this line. This error occurs whenever two consecutive CAS multiframe alignment words are received with an error.
Sync Losses	Number of instances of sync losses detected on this line. This error statistic is equivalent to the “red alarm received” statistic on T1.

**Sample Display - show e1 line errors**

E1 Module Line Errors:

-----

Slot	Conn	Circuit	BiPolar Violtns	Remote Alarms Received	Multiframe Alarms Received	Multiframe Errors	Sync Losses
2	1	E1-21	0	0	0	1	0
2	2	E1-22	0	0	0	1	0

2 entries in table.



---

## version

Displays the current version number and modification date for the *e1.bat* script.

### Sample Display - show e1 version

```
e1.bat Version: #.## Date: mm/dd/yy.
```

## show egp

The **show egp** *<option>* commands display information about the Exterior Gateway Protocol (EGP). For detailed information about the Bay Networks implementation of EGP, refer to *Configuring IP Services*.

The **show egp** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">stats</a>
<a href="#">neighbors</a>	<a href="#">version</a>

## base

Displays the base record for EGP. The table includes the following information:

Protocol	Name of the protocol, in this case EGP.
State	State of the protocol on the router: Enabled or Disabled.
Local AS	Local Autonomous System (the AS to which this router belongs). NIC assigns this decimal number.

**Sample Display - show egp base**

```
EGP Base Information
-----
Protocol  State  Local AS
-----
EGP      Enabled  1001
```

**neighbors**

Displays information about each of the neighbors configured for this router. The table includes the following information:

Local Address	Local IP interface address for this neighbor.
Neighbor Address	Neighbor's IP address.
State	State of the interface: Absent (not yet started), Disabled (manually), Down, Init (initializing), Up.
Local Acquisition Mode	Whether or not the router initiates EGP connections: Active or Passive. Active means the router is the initiator.
Local Poll Mode	Type of neighbor reachability algorithm this local neighbor executes as follows: <ul style="list-style-type: none"><li>• <i>Active</i> - Router sends Hello and Poll commands to request reachability status from its neighbor.</li><li>• <i>Passive</i> - Router responds to Hello and Poll commands with I-H-U and Update messages.</li><li>• <i>Both</i> - Router sends and responds to Hello and Poll commands.</li></ul>

---

## Sample Display - show egp neighbors

EGP Configured Neighbors

-----

Local Address	Neighbor Address	State	Local Acquisition Mode	Local Poll Mode
192.32.28.1	192.32.28.65	Up	Active	Active

1 Entries.

## stats

Displays statistical information for EGP. The table includes the following information:

EGP In Good	Number of error-free incoming messages.
EGP In Error	Number of incoming messages with errors.
EGP Out Good	Number of error-free messages transmitted.
EGP Out Error	Number of messages transmitted with errors.
Total EGP Messages	Total number of messages sent and received (sum of first four columns).

## Sample Display - show egp stats

EGP Statistics

-----

EGP In Good	EGP In Error	EGP Out Good	EGP Out Error	Total EGP Messages
24	1	24	0	49

## version

Displays the version number and modification date of the *egp.bat* script.

### Sample Display - show egp version

```
EGP.bat Version: #.## Date: mm/dd/yy.
```

## show fddi

The **show fddi** *<option>* commands display information about Fiber Distributed Data Interface (FDDI) line services. For detailed information about the Bay Networks implementation of FDDI, refer to *Configuring Ethernet, FDDI, and Token Ring Services*.

The **show fddi** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">receive errors [circuit &lt;circuit name&gt;]</a>
<a href="#">base [circuit &lt;circuit name&gt;]</a>	<a href="#">sample [&lt;period in seconds&gt;] [circuit &lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">smt [circuit &lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">stats [circuit &lt;circuit name&gt;]</a>
<a href="#">hwfilters</a>	<a href="#">system errors [circuit &lt;circuit name&gt;]</a>
<a href="#">mac [circuit &lt;circuit name&gt;]</a>	<a href="#">transmit errors [circuit &lt;circuit name&gt;]</a>
<a href="#">port</a>	<a href="#">version</a>

---

## alerts

Displays all FDDI modules that are enabled but not up. Use this display to identify the interfaces that are not working. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.
State	State of the line driver: Disabled, Down, Init (initializing), LLC off, or Not Pres (not present).  The Not Pres state occurs for several reasons. For example, the Link Module may not be physically present in the chassis. The software may be booting and has not yet initialized the driver software. The slot may be running diagnostics. Or there may be a problem with the configuration.
MAC Address	Physical address of the line.
BOFL TMO	Number of seconds the driver waits before notifying protocol level software of a service loss, if service is lost for some reason. If service is restored before this number expires, the driver does not notify the protocol level software.
MTU	Maximum transfer unit size -- the maximum frame length allowed on the wire, excluding frame delimiters, such as preamble and the ending delimiter. The MTU of a FDDI frame is 4495 octets.
HW Filter	State of hardware filtering: Enabled or Disabled. When enabled, the Link Module filtering hardware prevents the software from copying local frames into system memory. Filtering hardware drops local frames at the interface. Bridging software performance is improved because it no longer uses resources to receive and reject local frames.

**Sample Display - show fddi alerts**

FDDI Modules on Alert:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	HW Filter
3	1	F31	Init	00-00-A2-03-01-79	3	4495	Enabled

Found 1 matches out of 1 entry in table.

**base [circuit <ircuit name>]**

Displays the base level information for all FDDI circuits or a specific FDDI circuit. For definitions of the columns in the table, see the **alerts** command. State can also be Up.

**Sample Display - show fddi base**

FDDI Modules:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	HW Filter
3	1	F31	Init	00-00-A2-03-01-79	3	4495	Enabled

1 entry in table.

---

## disabled

Displays FDDI circuits that a user has manually disabled. For definitions of the columns in the table, see the **alerts** command. In this case, State is Down.

### Sample Display - show fddi disabled

```
FDDI Modules Disabled
-----
Slot Conn Circuit State          MAC Address          BOFL   HW
-----
TMO  MTU  Filter
-----

Found      0 matches out of      3 entries in table.
```

## enabled

Displays FDDI circuits that a user has manually enabled. For definitions of the columns in the table, see the **alerts** command. State can also be Up.

### Sample Display - show fddi enabled

```
FDDI Modules Enabled
-----
Slot Conn Circuit State          MAC Address          BOFL   HW
-----
TMO  MTU  Filter
-----

      2      1 F21      Up      00-00-A2-02-9F-D6      3 4495 Disabled

Found      1 match out of      1 entry in table.
```

**hwfilters**

Displays status and statistical information about the hardware filters in use, if any. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
State	State of the filtering hardware on the line: Down, Full or Up.
Line Type	FDDI.
Maximum Tbl Siz	Maximum number of table entries that a line can use, based on the hardware filter devices present and available.
Current Tbl Siz	Current capacity of the hardware filter table. The protocol dynamically allocates hardware filter table resources as needed in increments of 256 up to the available table size.
Used Entries	Number of hardware filter table entries used.
Dropped Frames	Number of frames dropped because they matched the hardware filter.

**Sample Display - show fddi hwfilters**

```
Hardware Filters Modules:
```

```
-----
Slot Conn Circuit State Line Maximum Current Used Dropped
Type Tbl Siz Tbl Siz Entries Frames
-----
Found      0 matches out of      4 entries in table.
```



---

## mac [circuit <circuit name>]

Displays the Media Access Control (MAC) parameters for all circuits or for a specific circuit. This display includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Upstream Neighbor	MAC address of the upstream neighbor. The Neighbor Information protocol within SMT determines this address. The value 00 00 F8 00 00 00 indicates that the address is unknown. The table represents the address in canonical form.
Downstream Neighbor	MAC address of the downstream neighbor. The Neighbor Notification protocol within SMT determines this address. The value 00 00 00 00 00 00 indicates that the address is unknown. The table represents the address in canonical form.
TNeg (ms)	Target token rotation time (TTRT) carried in claim frames that the FDDI station transmits. This value is in milliseconds.
Ring Mgmt State	State of the Ring Management (RMT) within SMT. RMT reports the status of the MAC, including stuck beacon conditions. It initializes the trace function, and detects duplicate address conditions that prevent the ring from operating. RMT passes through a variety of states as follows: <ul style="list-style-type: none"><li>• <i>Isolated</i> - Initial state of RMT.</li><li>• <i>NonOp</i> - MAC being managed is participating in ring recovery and the ring is not operational.</li><li>• <i>RingOp</i> - MAC being managed is part of an operational FDDI ring.</li><li>• <i>Detect</i> - Ring has not been operational for a certain period of time. In this state, RMT detects duplicate addresses, a condition that prevents ring operation.</li><li>• <i>NonOpDup</i> - TMAC under control is a duplicate of another MAC on the ring. The ring is not operational in this state.</li><li>• <i>RingOpDup</i> - MAC under control is a duplicate of another MAC on the ring. The ring is operational in this state.</li><li>• <i>Directed</i> - RMT has instructed the MAC it is controlling to send beacon frames notifying the ring of a stuck condition. Beacon frames indicate that the interface doesn't see the token and that this condition should be transient. If this state persists, contact your customer service representative.</li><li>• <i>Trace</i> - RMT has initiated the trace function.</li></ul>
Ring Op Count	Number of times the ring has entered the "Ring Operational" state from the "Ring Not Operational" state. This count is updated when there is a change in the state, but does not have to be exact.

### Sample Display - show fddi mac

FDDI Modules MAC Parameters:

```

-----
Slot Conn Circuit      Upstream      Downstream    TNeg Ring Mgmt  Ring Op
                        Neighbor      Neighbor      (ms)   State         Count
-----

```

0 entries in table.

### port

Displays FDDI port attributes. The table includes the following information:

Slot	Slot identifier associated with the port.
Conn	Connector identifier associated with a port.
Local Port	Physical connector type of the local port, as follows: <ul style="list-style-type: none"> <li>• <i>A</i> - Port is a dual attachment station or concentrator that attaches to the primary IN and the secondary OUT when attaching to the dual FDDI ring.</li> <li>• <i>B</i> - Port is a dual attachment station or concentrator that attaches to the secondary IN and the primary OUT when attaching to the dual FDDI ring.</li> <li>• <i>M</i> - Port is in a concentrator that serves as a Master to a connected station or concentrator.</li> <li>• <i>S</i> - Port is in a single attachment station.</li> <li>• <i>Unknown</i> - Type of the port is unknown.</li> </ul>
Neighbor Port Type	Physical connector type of the remote port: A, B, M, S, Unknown.

---

Physical State	<p>State of Physical Connection Management (PCM) for each port within SMT. PCM initializes the connection of neighboring ports and manages signaling between ports. PCM provides the necessary signaling to initialize a connection, withhold a marginal connection, and support maintenance features. PCM passes through a variety of states, as follows:</p> <ul style="list-style-type: none"> <li>• <i>Off</i> - Initial state of PCM.</li> <li>• <i>Break</i> - Starting a PCM connection.</li> <li>• <i>Trace</i> - Localizing a stuck beacon condition, which indicates that the interface doesn't see the token. This state should be a transient condition. If it persists, contact your customer service representative.</li> <li>• <i>Connect</i> - Synchronizing the ends of the connection for the signaling sequence.</li> <li>• <i>Next</i> - Separating the signaling performed in the SIGNAL state.</li> <li>• <i>Signal</i> - Communicating individual bits of information across the connection.</li> <li>• <i>Join</i> - Assuring that both ends of the connection enter the ACTIVE state together when signaling has completed.</li> <li>• <i>Verify</i> - Leading to an active connection.</li> <li>• <i>Active</i> - Incorporating the port into the token path.</li> <li>• <i>Maint</i> - Detecting maintenance state.</li> </ul>
Link Error Monitor Count	Number of times a link has been rejected.
Elasticity Buffer Errors	Number of elasticity buffer errors for a specific Physical Layer Protocol (PHY). The elasticity buffer tracks clock tolerances between stations.
Link Confidence Count	Number of consecutive times the link confidence test has failed during Connection Management.

**Sample Display - show fddi port**

FDDI Modules Port Parameters:

-----

Slot	Conn	Local Port	Neighbor Port	Port Type	Physical State	Link Error Monitor Count	Elasticity Buffer Errors	Link Confidence Count
2	1	A	Unknown		Connect	0	0	0
2	1	B	A		Active	0	0	0

2 entries in table.

**receive errors [circuit <circuit name>]**

Displays receive errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
CRC Errors	Number of frames received with CRC errors.
Overrun Errors	Number of frames received with internal overrun errors.
Invalid Frames	Number of badly formed frames received from the FDDI ring; frames that do not contain a valid Frame Status field of at least three control indicator symbols (that is, E, A, C, flags).
Frames Too Long	Number of frames received that exceed the MTU size.

---

## Sample Display - show fddi receive

FDDI Module Receive Errors:

-----

Slot	Conn	Circuit	CRC Errors	Overrun Errors	Invalid Frames	Frames Too Long
2	1	F21	0	0	0	0

1 entry in table.

### **sample** [*<period in seconds>*] [**circuit** *<circuit name>*]

Displays data sampled from FDDI over a period of 10 seconds. You can change the number of seconds over which you want to sample the data, and you can display sampled data for a specific circuit only. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Rx Frames	Number of frames received.
Tx Frames	Number of frames sent.
Rx Lack of Resources	Number of packets received and discarded because of lack of resources; for example, buffers.
Tx Lack of Resources	Number of transmit packets discarded because of lack of resources; for example, buffers.

**Sample Display - show fddi sample**

FDDI Sampled Data over 10 seconds

```
-----
```

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
2	1	F21	2	3	0	0

1 entry in table.

**Sample Display - show fddi sample 5 circuit F21**

FDDI Sampled Data over 5 seconds

```
-----
```

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
2	1	F21	4	5	0	0

Found 1 match out of 1 entry in table.

**smt [circuit <ircuit name>]**

Displays Station Management (SMT) parameters for all FDDI circuits or for a specific circuit. The table contains the following information:

- Slot Slot identifier associated with the FDDI circuit.
- Conn Identifier of the connector associated with the FDDI circuit.
- Circuit Name of the circuit associated with the FDDI circuit.

---

Connection Policy

Table that represents the requested connection possibilities for this node. Each column identifies whether a connection should be accepted or rejected for a specific pair of port types. The top header row shows the port types that are local to this node. The next header row represents the port types of the neighbor port. The table also displays the requested connection policy (. = accept or R= reject) for this node, for each port pair.

ECM State

State of Entity Coordination Management (ECM) within SMT. ECM controls the optional optical bypass switch and signals other entities within SMT when the medium is available. ECM passes through a variety of states as follows:

- *By\_Check* - Confirms that both the primary and secondary optical bypass switches have switched.
- *Bypassed* - Initial state of ECM after path test. If an optical bypass switch is present, it is in a bypassed state.
- *Deinsert* - State allows time for the optical bypass switch to deinsert.
- *In* - Normal state for a completed connection.
- *Insert* - State that allows for the switching time of the optical bypass switch. The ECM remains in this state until the optical bypass switch has completed switching.
- *Leave* - Transition to allow enough time to break any existing connections.
- *Pathtest* - Node performs a test of its entities as data paths. ECM enters this state after completing the trace function.
- *Trace* - State used to identify a stuck beacon condition, which indicates that the interface doesn't see the token. This state should be a transient condition. If it persists, contact your customer service representative.





---

**stats [circuit <circuit name>]**

Displays FDDI input/output statistical information for all FDDI modules or for a specific circuit. The table contains the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Receive Bytes	Number of octets received without error.
Receive Frames	Number of frames received without error.
Transmit Bytes	Number of octets transmitted without error.
Transmit Frames	Number of frames transmitted without error.
Total Errors	Total number of errors of all types.

**Sample Display - show fddi stats**

FDDI Module I/O Statistics:

-----

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
2	1	F21	76578	995	841559713	13963966	0

1 entry in table.

**system errors [circuit <ircuit name>]**

Displays statistical information about system errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Parity Errors	Number of parity errors. Parity errors may indicate faulty hardware. If this count exceeds five, call your customer service representative.
Ring Errors	Number of ring errors.
Port Operation Errors	Number of DMA controller port operation errors. Port operation errors may indicate faulty hardware. If this count exceeds five, call your customer service representative.
Internal Operation Errors	Number of internal operation errors.
Host Errors	Number of parity errors occurring when the host driver accesses a register on the DMA controller. Host errors may indicate faulty hardware. If this count exceeds five, call your customer service representative.

**Sample Display - show fddi system errors**

FDDI Module System Errors:

```
-----
```

Slot	Conn	Circuit	Parity Errors	Ring Errors	Port Operation Errors	Internal Operation Errors	Host Errors
2	1	F21	0	0	0	0	0
3	1	F31	0	0	0	0	0

2 entries in table.

---

## transmit errors [circuit <ircuit name>]

Displays statistical information about transmission errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Aborted Frames	Number of transmit frames with internal abort errors on this circuit.
Underrun Errors	Number of transmit frames aborted with underrun errors on this circuit.

### Sample Display - show fddi transmit

```
FDDI Module Transmit Errors:
```

```
-----
```

Slot	Conn	Circuit	Aborted Frames	Underrun Errors
-----				
2	1	F21	0	0
3	1	F31	0	0

```
2 entries in table.
```

## version

Displays the current version number and modification date of the *fddi.bat* script.

### Sample Display - show fddi version

```
fddi.bat Version: #.## Date: mm/dd/yy.
```

## show fr

The **show fr** *<option>* commands display configuration, state, and statistical information about frame relay services. For details on the Bay Networks implementation of frame relay, see *Configuring Frame Relay Services*.

The **show fr** command supports the following subcommand options:

<a href="#">alerts</a>	shaping [ <code>line&lt;line&gt;</code>   <code>&lt;line.llindex&gt;</code>   <code>line.llindex.cct&gt;</code> ]
<a href="#">disabled</a>	<a href="#">stats pvc [<code>&lt;line&gt;</code>   <code>&lt;line.llindex&gt;</code>   <code>&lt;line.llindex.DLCI&gt;</code>]</a>
<a href="#">enabled</a>	<a href="#">stats circuit [<code>&lt;circuit name&gt;</code>]</a>
<a href="#">backup [<code>&lt;line&gt;</code>   <code>&lt;line.llindex&gt;</code>]</a>	stats lapf <code>&lt;options&gt;</code>
demand [ <code>&lt;line&gt;</code>   <code>&lt;lin.llindex&gt;</code> ]	stats shaping [ <code>l&lt;line&gt;</code>   <code>&lt;line.llindex&gt;</code>   <code>line.llindex.cct&gt;</code> ]
congestion [ <code>line&lt;line&gt;</code>   <code>&lt;line.llindex&gt;</code>   <code>line.llindex.cct&gt;</code> ]	stats signalling <code>&lt;options&gt;</code>
<a href="#">lines [<code>&lt;line&gt;</code>   <code>&lt;line.llindex&gt;</code>]</a>	svcs <code>&lt;options&gt;</code>
pt <code>&lt;options&gt;</code>	vcs [ <code>&lt;line&gt;</code>   <code>&lt;line.llindex&gt;</code>   <code>line.llindex.DLCI&gt;</code> ]
<a href="#">service   circuit [<code>&lt;line&gt;</code>   <code>&lt;line.llindex&gt;</code>   <code>&lt;line.llindex.cct&gt;</code>]</a>	

---

## alerts

Displays information about interfaces that are enabled but not running. The table includes the following information:

Line.LLIndex	Instance identifier or interface specification for the frame relay interface.
Circuit	Name of the main frame relay circuit this interface is associated with.
Mgt Type	Type of Data Link Control Management Interface (DLCMI) configured for the interface, as follows: <ul style="list-style-type: none"><li>• <i>Annex A</i> - Management services as specified by CCITT Annex A.</li><li>• <i>Annex D</i> - Management services as specified in Annex D to ANSI standard TI.617.</li><li>• <i>Annex A Sw</i> - Management services for the DCE side of the connection (Annex A).</li><li>• <i>Annex D Sw</i> - Management services for the DCE side of the connection (Annex D to TI.617).</li><li>• <i>LMI</i> - Management services as specified by revision 1 of the Local Management Interface standard.</li><li>• <i>LMI Sw</i> - Management services for the DCE side of LMI.</li><li>• <i>None</i> - No management interface between the router and the frame relay network.</li></ul>
Intf Type	Interface type: Normal (leased service with no backup service), Primary/Shared (the backup circuit uses the primary configuration), Primary/Secondary (the backup circuit uses its own configuration).
Status	State of the interface as follows: <ul style="list-style-type: none"><li>• <i>Fault</i> - Interface is not operating.</li><li>• <i>Init</i> - Interface is initializing (has not yet started).</li><li>• <i>NotPres</i> - Interface is not yet present.</li><li>• <i>Running</i> - Interface is operating properly.</li></ul>
Faults	Number of times the interface has been in fault mode.
Discard	Number of outbound frames discarded because of errors.
Drop	Number of inbound frames dropped because of errors.

### Sample Display - show fr alerts

```
$show fr alerts
  Line.LLIndex  Circuit  Mgt Type  Intf Type  Status  Faults Discard  Drop
-----
201301.0       S131    AnnexD   Primary   Fault   1         0         0
1 entry(s) found
```

### disabled

Displays the interfaces that are currently disabled. For column definitions, see the **alerts** command.

### Sample Display - show fr disabled

```
$show fr disabled
  Line.LLIndex  Circuit  Mgt Type  Intf Type  Status  Faults Discard  Drop
-----
201301.0       S131    AnnexD   Primary   Disabled  1         0         0
1 entry(s) found
```

### enabled

Displays the interfaces that are currently enabled. For column definitions, see the **alerts** command.

### Sample Display - show fr enabled

```
$show fr enabled
  Line.LLIndex  Circuit  Mgt Type  Intf Type  Status  Faults Discard  Drop
-----
201302.0       S132    AnnexD   Normal    Running  0         0         0
1 entry(s) found
```

---

## backup [<line> | <line.llindex>]

Displays the interfaces that currently support dial backup.

<line>	Limits the display to the specified line identifier.
<line.llindex>	Limits the display to the specified instance identifier.

The table includes the following information:

Primary Line.LLIndex	Instance identifier or interface specification for the frame relay primary interface.
Circuit	Name of the main frame relay primary circuit this interface is associated with.
Status	State of the primary interface as follows: <ul style="list-style-type: none"><li>• <i>Fault</i> - Interface is not operating.</li><li>• <i>Init</i> - Interface is initializing (has not yet started).</li><li>• <i>NotPres</i> - Interface is not yet present.</li><li>• <i>Running</i> - Interface is operating properly.</li></ul>
Backup Line.LLIndex	Instance identifier or interface specification for the frame relay backup interface.
Type	Interface Type for the backup circuit: Shared (the backup interface uses the primary configuration), Secondary (the backup interface uses it own configuration).
Circuit	Name of the main frame relay primary circuit this interface is associated with.
Status	State of the backup interface as follows: <ul style="list-style-type: none"><li>• <i>Fault</i> - Interface is not operating.</li><li>• <i>Init</i> - Interface is initializing (has not yet started).</li><li>• <i>NotPres</i> - Interface is not yet present.</li><li>• <i>Running</i> - Interface is operating properly.</li></ul>

**Sample Display - \$show fr backup**

Primary Line.LLIndex	Circuit	Status	Backup Line.LLIndex	Type	Circuit	Status
201301.0	S131	Fault	1000201301.0	Shared	S131	Running

1 entry(s) found

**demand [<line> | <line.llindex>]**

Displays information about all or some of the frame relay demand lines configured on the router. For column definitions, see the **alerts** command.

**Sample Display - show fr demand**

Line.LLIndex	Circuit	Mgt Type	Intf Type	Status	Faults	Discard	Drop
1010000002.0	FR Dema-	AnnexD	Demand	Init	0	0	0

nd 2  
1 entry found



---

## **congestion** [*<line>* | *<line.llindex>* | *<line.llindex.DLCI>*]

Displays information about congestion control on frame relay interfaces. You can use the following options with the **congestion** command.

<i>&lt;line&gt;</i>	Limits the display to the specified line.
<i>&lt;line.llindex&gt;</i>	Limits the display to the specified interface.
<i>&lt;line.llindex.DLCI&gt;</i>	Limits the display to the specified PVC. <i>&lt;line.llindex&gt;</i> specifies the interface. <i>&lt;dcli&gt;</i> specifies the individual PVC.

The table includes the following information.

Line.LLIndex	Line or instance identifier for the interface.
Circuit	Name of the main circuit this interface is associated with.
Enable	Status of congestion control: Disabled, Enabled, or Inherit. Inherit indicates that the VC should use the parameters from the DLCMI record.
State	Status of traffic; options are <ul style="list-style-type: none"><li>• forwarding - sending traffic at up to the maximum rate allowed on the PVC.</li><li>• congested - the PVC is not transmitting.</li><li>• throttling - the PVC is throttling back to the CIR rate.</li></ul>
Method	Identifies the congestion method: <ul style="list-style-type: none"><li>• Shutdown - the VC terminates when congestion occurs.</li><li>• Throttle - the VC queues traffic when congestion occurs; traffic resumes when the congestion alleviates.</li><li>• Throttle then shutdown - first queues traffic when congestion occurs, and then terminates the VC if throttling does not alleviate congestion.</li><li>• Inherit -the VC uses the parameter from the DLCMI record</li></ul>
Timer	Length of time in seconds during which the router counts congestion notifications.
Counter	Maximum number of congestion notifications that the router can receive during the Timer period before it stops transmitting.
RX FECN	Number of outbound forward explicit congestion notifications.
RX BECN	Number of outbound backward explicit congestion notifications.

**Sample Display – show fr congestion**

```

1:1]$ show fr congestion
  Line.LLIndex.DLCI  Enable      State      Method  Timer Counter  Rx FECN  Rx BECN
-----
201102.0.0          Inherit Forwarding Inherit   1.0      20         0        0
201102.0.400        Inherit Forwarding Inherit   1.0      20         0        0
2 entries found

```

**lines** [*<line>* | *<line.llindex>*]

Displays information about all or some of the frame relay lines configured on the router.

*<line>* Limits the display to the specified line identifier.

*<line.llindex>* Limits the display to the specified instance identifier.

The table includes the following information:

Line.LLIndex	Line or instance identifier for the interface.
Circuit	Name of the main circuit this interface is associated with.
Mgt Type	See <b>alerts</b> command.
Intf Type	Interface type: Normal (leased service with no backup service), Primary/Shared (the backup circuit uses the primary configuration), Primary/Secondary (the backup circuit uses its own configuration).
Status	See <b>alerts</b> command. In addition to those listed, Status is Disabled (by a user).
Faults	Number of times the interface has been in fault status.
Discard	Number of outbound frames discarded because of errors.
Drop	Number of inbound frames dropped because of errors.

---

## Sample Display - show fr lines

```
$show fr lines
  Line.LLIndex   Circuit  Mgt Type  Intf Type  Status  Faults Discard  Drop
-----
201301.0        S131     AnnexD    Primary    Running    0       0       0
1000201301.0    Unknown AnnexD     Backup/Sh NotPres    0       0       0
2 entry(s) found
```

The table includes the following information:

Line.LLIndex.DLCI	Line or instance identifier for the interface plus the PVC identifier (DLCI).
State	State of the virtual circuit as follows: <ul style="list-style-type: none"><li>• <i>Invalid</i> - Circuit is configured but the switch has not confirmed it.</li><li>• <i>Active</i> - Circuit is usable.</li><li>• <i>Inactive</i> - Circuit is configured but not active.</li></ul>
Type	Way the virtual circuit was created: <ul style="list-style-type: none"><li>• <i>Static</i> - User manually configured the PVC.</li><li>• <i>Dynamic</i> - PVC was created during operations.</li></ul>
Mode	Operational mode of the PVC, as follows: <ul style="list-style-type: none"><li>• <i>Direct</i> - Upper-layer protocols view this PVC as a point-to-point connection; as an individual network interface.</li><li>• <i>Group</i> - Upper-layer protocols treat this PVC as one of a group of destinations to the switched network. The upper-layer protocols use a single network address to send all traffic destined for the switched network to the frame relay network interface.</li><li>• <i>Hybrid</i> - Allows protocols to view this PVC as part of the group while the bridge views the PVC in direct mode.</li></ul>
Congestion	Status of the congestion control mechanisms: Disabled, Enabled, or Inherit. Inherit indicates that the VC uses the parameters from the DLCMI record.
Serv	Circuit number of the PVC, unless this is a hybrid circuit. If this is a hybrid circuit, Serv is the Circuit number of the group.
Circuit	Name of the frame relay circuit for the PVC unless the circuit is hybrid. If this is a hybrid circuit, Circuit is the name of the hybrid circuit.

**Sample Display - show fr pvcs**

```
$show fr pvcs
Line.LLIndex.DLCI   State      Type      Mode      Congestion Serv      Circuit
-----
201302.0.0          Control   Dynamic   Group     Inherit   -      S132
201302.0.100        Active    Dynamic   Group     Inherit   2      S132
201302.0.101        Active    Dynamic   Group     Inherit   2      S132
201302.0.102        Inactive  Dynamic   Group     Inherit   2      S132
201302.0.103        Inactive  Dynamic   Group     Inherit   2      S132
201302.0.104        Inactive  Dynamic   Group     Inherit   2      S132
6 entry(s) found
```

**pt <options>**

Displays PVC pass through statistics for all PVCs or for a specified PVC.

The **show fr pt** command includes the following subcommand options:

- stat
- map

The table includes the following information, depending on the subcommand option:

Circuit name	Identifies the circuit.
DLCI	Identifies the DLCI.
Rx Frames	Number of frames received.
Tx Frames	Number of frames transmitted.
Discards	Number of frames discarded.
Drops	Number of frames dropped.
State	State of the connection.
Circuit name (A) Cct (A) DLCI (A)	Identifies the first circuit in a pass through mapping.
Cct Name (B) Cct (B) DLCI (B)	Identifies the second circuit in a pass through mapping.

---

**service | circuit** [*<line>* | *<line.llindex>* | *<line.llindex.cct>*]

Displays information about all or selected frame relay service records or circuits.

<i>&lt;line&gt;</i>	Limits the display to the specified line.
<i>&lt;line.llindex&gt;</i>	Limits the display to the specified interface.
<i>&lt;line.llindex.cct&gt;</i>	Limits the display to the specified line. <i>&lt;line.llindex&gt;</i> specifies the interface. <i>&lt;cct&gt;</i> specifies the service record.

The table includes the following information:

Line.LLIndex.Cct	Line or instance identifier for the service record.
Circuit	Name of the main circuit this interface is associated with.
Status	See <b>alerts</b> command.
Num VCs	Number of VCs in this service record.
Default	Specifies whether this is the default service record.
Multiline	Specifies whether the service record is multilined.
Name	The circuit name. This is the same as the line or instance identifier, except for multiline circuits.

**Sample Display - \$show fr service**

or

**Sample Display - \$show fr circuits**

```

Line.LLIndex.Cct Circuit    Status  Num VCs  Default  Multiline  Name
-----
1010000002.0.2  FR Dema- Active   1        Yes      No        1010000002.0.2
nd 2
1010000002.0.3  1010000- Active   1        No       No        1010000002.0.3
002.0.3
2 entries found

```

**shaping** [*<line>* | *<line.llindex>* | *<line.llindex.DLCI>*]

Displays information about the shaping configuration on frame relay interfaces. You can use the following options with the **shaping** command.

<i>&lt;line&gt;</i>	Limits the display to the specified line.
<i>&lt;line.llindex&gt;</i>	Limits the display to the specified interface.
<i>&lt;line.llindex.DLCI&gt;</i>	Limits the display to the specified PVC. <i>&lt;line.llindex&gt;</i> specifies the interface. <i>&lt;dcli&gt;</i> specifies the individual PVC.

The table includes the following information:

Line.LLIndex	Line or instance identifier for the service record.
DLCI	Name of the virtual circuit this interface is associated with.
CIR	Committed information rate.
Committed Burst	The number of bits that the router can transmit over a specified time interval ( $B_c$ ).
Excess Burst	The number of extra bits the router attempts to send when there is no congestion ( $B_e$ ).
Config State	Whether the circuit is configured to use traffic shaping.

---

## Sample Display – show fr shaping

```
1:1l$ show fr shaping
```

Line.LLIndex.DLCI	CIR	-----Burst-----		Config State
		Committed	Excess	
201102.0.0	0	0	0	
201102.0.400	64000	16000	0	Shaping

2 entries found

## stats circuit [<circuit name>]

Displays statistics associated with all frame relay circuits or a specified circuit. Because of multiline, a frame relay circuit can have several frame relay interfaces associated with it. Circuit statistics count the number of frames dropped or discarded at the circuit level. This includes both the main-level circuit and the circuits associated with hybrid and direct PVCs.

## Sample Display - show fr stats circuit

Circuit	Discards	Drops
S132	0	0

1 entry(s) found

## stats lapf <options>

Displays LAPF statistics for all VCs or for a specified VC. These messages conform to ITU-T Recommendation Q.921, *Digital Subscriber Signalling System No. 1 (DSS1) - ISDN User-Network Interface, Data Link Layer Specification*, March 1993.

The **show fr stats lapf** command includes the following subcommand options:

- errors
- receive
- traffic
- transmit

The table includes the following information, depending on the subcommand option:

Line.LLIndex.DLCI	Line or instance identifier for the service record.
Window	Number of unacknowledged frames that LAPF can send before receiving an acknowledgment.
SABME	Number of SABME (Set Asynchronous Balanced Mode Extended) commands sent. SABME frames start multiple frame operation.
UA	Unnumbered Acknowledgment messages sent. If a station that receives a SABME or DISC command is able to execute the command, it responds with a UA.
DISC	Disconnect command; releases multiple frame operation.
DM	Disconnected Mode, which indicates collision of commands and responses, with the consequence that multiple frame operation cannot execute.
FRMR	Frame reject errors that cannot be recovered by retransmitting an information frame.
REJ	Reject messages, which request retransmission of information frames.
RNR	Receive Not Ready messages, indicating information frames received when the receiving station was temporarily busy.
RR	Receive Ready frames. These are sent if the station is ready to receive information frames, to acknowledge previously received information frames, and to clear a previous busy condition.
XID	Exchange ID messages, which convey station identification information.
Retransmit Timer Expiry Status (T200)	Number of times the T200 timer has expired.
Idle Time Expiry (T203)	Number of times the T203 timer has expired.
Retransmit Limit Exceeded (N200)	Number of times the N200 retransmit limit has been exceeded.
Frame Size Exceeded (N201)	Number of times the N201 frame size limit has been exceeded.
Unnumbered Info Frames Sent	Count of unnumbered information frames sent.
Numbered Info Frames Sent	Count of numbered information frames sent.



---

Unnumbered Info Frames Received	Count of unnumbered information frames received.
Numbered Info Frames Received	Count of numbered information frames received.

## stats shaping

[<line> | <line.llindex> | <line.llindex.DLCI>]

Displays information about congestion control on frame relay interfaces. You can use the following options with the **stats shaping** command.

<line>	Limits the display to the specified line.
<line.llindex>	Limits the display to the specified interface.
<line.llindex.DLCI>	Limits the display to the specified PVC. <line.llindex> specifies the interface. <dcli> specifies the individual PVC.

The table includes the following information about outbound frames:

Line.LLIndex.DLCI	Line or instance identifier for the service record.
H/N/L Frames	Number of high-,normal-, and low-priority shaped frames.
H/N/L Clipped Frames	Number of high-,normal-, and low-priority clipped frames.
H/N/L Octets	Number of high-,normal-, and low-priority shaped bytes.
H/N/L Hi Water	Number of high-,normal-, and low-priority buffers held in the queue at one time.
Dropped Frames	Number of dropped frames.
Large Frames	Number of large frames.

**Sample Display – show fr stats shaping**

```
[1:1]$ show fr stats shaping
```

Line.LLIndex.DLCI	H/N/L Frames	H/N/L Clipped Fr	H/N/L Octets	H/N/L Hi Water	Dropped	Fr Large	Fr
201102.0.0	0	0	0	0	0	0	0
	0	0	0	0			
	0	0	0	0			
201102.0.400	0	0	0	0	0	0	0
	2348	0	84550	1			
	0	0	0	0			

2 entries found

**stats [pvc [<line> | <line.llindex> | <line.llindex.DLCI>]]**

Displays statistics for all PVCs or for a specified PVC. The table includes a count of frames and octets sent and received. Discard and Drops count frames that the router recognized as belonging to this virtual circuit but threw away because of errors.

To show statistics for all PVCs enter the **stats** command with no options or with only the **pvc** option. You can also use the following options:

<line>	Limits the display to all PVCs on the specified line.
<line.llindex>	Limits the display to all PVCs on the specified interface.
<line.llindex.DLCI>	Limits the display to the specified PVC.

**Sample Display - show fr stats**

Line.LLIndex.DLCI	Sent		Received		Discard	Drops
	Frames	Octets	Frames	Octets		
201302.0.0	132	1848	136	2458	0	0
201302.0.100	106	56705	109	3929	2	0
201302.0.101	59	29539	58	2105	0	0
201302.0.102	3	90	4	120	1	0
201302.0.103	0	0	0	0	0	0
201302.0.104	0	0	0	0	0	0

6 circuit(s) found

---

## stats signalling <options>

Displays signalling statistics for all VCs or for a specified VC. These messages conform to ITU-T Recommendation Q.931, *Digital Subscriber Signalling System No. 1 (DSS1) - ISDN User-Network Interface, Layer 3 Specification for Basic Call Control*, March 1993.

The **show fr stats signalling** command includes the following subcommand options:

- receive
- transmit

The table includes the following information, depending on the subcommand option:

Line.LLIndex.DLCI	Line or instance identifier for the service record.
Call setup	Number of call setups between the calling user and the network to initiate a call.
Call proceed	Number of calls between the calling user and the network to indicate requested call establishment has begun.
Connect	Number of calls between the calling user and the network to indicate call acceptance by the called user.
Disconnect	Number of calls by the calling user to request the network to clear an end-to-end connection, or by the network to indicate that the connection is cleared.
Release	Number of messages between the calling user and the network to indicate that the sender has disconnected the call.
Release Complete	Number of messages between the calling user and the network to indicate that the sender has released the call reference.
Status	Number of messages between the calling user and the network to report error conditions.
Status Enquiry	Number of messages between the calling user and the network to solicit a Status message.

**svcs** <options>

Displays statistics for all SVCs or for a specified SVC.

The **show fr svc** command includes the following subcommand options:

- calls
- numbers
- priority
- shaping

The table includes the following information, depending on the subcommand option:

Line.LLIndex.DLCI	Line or instance identifier for the service record.
Call direction	States whether the call is inbound or outbound.
Circuit	Identifies the circuit.
Duration in HH:MM:SS	Duration of the call in hours, minutes, and seconds.
Number	The outbound/inbound calling number.
Subaddress	The subaddress of the calling number.
Plan	The addressing plan: X.121 or E.164.
Type	The type of number: International or Unknown.
Data priority current	The current priority for this circuit.
Data priority lowest	The lowest acceptable priority for this circuit.
Gain priority current	The current gain priority for this circuit.
Gain priority lowest	The lowest acceptable gain priority for this circuit.
Keep priority current	The current keep priority for this circuit.
Keep priority lowest	The lowest acceptable keep priority for this circuit.
Inbound CIR	The CIR for inbound traffic.
Inbound Committed Burst	The committed burst value for inbound traffic.
Inbound Excess Burst	The excess burst value for inbound traffic.
Outbound CIR	The CIR for outbound traffic.
Outbound Committed Burst	The committed burst value for outbound traffic.
Outbound Excess Burst	The excess burst value for outbound traffic.

---

## **vcs** [<line> | <line.llindex> | <line.llindex.DLCI>]

Displays information about all or selected frame relay virtual connections. You can use the following options with the **vcs** command:

<line>	Limits the display to the specified frame relay line.
<line.llindex>	Limits the display to the specified frame relay interface.
<line.llindex.DLCI>	Limits the display to the specified PVC. <line.llindex> specifies the frame relay interface; <dcli> specifies the individual PVC.

The table includes the following information:

Line.LLIndex.DLCI	Line or instance identifier for the frame relay interface plus the PVC identifier (DLCI).
State	State of the virtual circuit as follows: <ul style="list-style-type: none"><li>• <i>Invalid</i> - Circuit is configured but the switch has not confirmed it.</li><li>• <i>Active</i> - Circuit is usable.</li><li>• <i>Inactive</i> - Circuit is configured but not active.</li></ul>
Type	Way the virtual circuit was created: <ul style="list-style-type: none"><li>• <i>Static</i> - User manually configured the VC.</li><li>• <i>Dynamic</i> - VC was created during operations.</li><li>• <i>SVC</i> - A switched virtual circuit</li></ul>
Mode	Operational mode of the VC, as follows: <ul style="list-style-type: none"><li>• <i>Direct</i> - Upper-layer protocols view this VC as a point-to-point connection that is, an individual network interface.</li><li>• <i>Group</i> - Upper-layer protocols treat this VC as one of a group of destinations to the switched network. The upper-layer protocols use a single network address to send all traffic destined for the switched network to the frame relay network interface.</li><li>• <i>Hybrid</i> - Allows protocols to view this VC as part of the group while the bridge views the VC in direct mode.</li></ul>
Congestion	Status of the congestion control mechanisms: Disabled, Enabled, or Inherit. Inherit indicates that the VC should use the parameters from the DLCMI record.
Serv	Circuit number of the VC, unless this is a hybrid circuit. If this is a hybrid circuit, Serv is the circuit number of the group.
Circuit	Name of the frame relay circuit for the VC unless the circuit is hybrid. If this is a hybrid circuit, Circuit is the name of the hybrid circuit.

## show ftp

The **show ftp** command displays configuration and statistical information about the Bay Networks File Transfer Protocol (FTP) service. For more information on the Bay Networks implementation of FTP, see *Configuring IP Utilities*.

### Sample Display - show ftp

```
Ftp enabled.
  Default Volume:      2
  Idle Timeout:       900 minutes
  Max. Sessions:      3
  Max. Login Retries: 3
  Transfer Type:      Binary
  Control Type:       Low Delay
  Data Type:          Hi Thru Put
  TCP Window Size:   60000
  Logins:             0
  Logins Failed:     0
  Files Received:    0
  Avg In Rate Kb/s:  0
  In Errors:         0
  Files Sent:        0
  Avg Out Rate Kb/s: 0
  Out Errors:        0
```

The fields displayed have the following meanings:

Default Volume	File system volume to which transferred files are written and from which they are retrieved. The volume number corresponds to the slot number on which the volume resides.
Idle Timeout	Timeout (in seconds) to close the FTP control connection if the connection remains idle. The default is 900 seconds (15 minutes).
Max Sessions	Maximum number of FTP sessions allowed at one time. The default is 3 sessions.
Max Login Retries	Maximum number of FTP login retries allowed after a login failure. The default is 3 retries.
Transfer Type	File transfer type: ASCII or Binary.

---

Control Type	Type of Service (TOS) value set for control connection in the IP datagram that specifies to the Transport Layer how the datagram should be handled. The options are Normal and Low Delay, with Low Delay being the default.
Data Type	Type of Service (TOS) value set for data transfer in the IP datagram that specifies to the Transport Layer how the datagram should be handled. The options are Normal and High Throughput, with High Throughput being the default.
TCP Window Size	Size in bytes of the windows used for FTP TCP connections. The default is 16,000 bytes.
Logins	Number of successful FTP logins.
Logins Failed	Number of FTP logins that failed.
Files Received	Number of files successfully received.
Average In Kb/s	Average transfer rate in kilobytes per second for receiving data.
In Errors	Number of errors logged during in-bound transfer.
Files Sent	Number of files successfully sent.
Avg Out Kb/s	Average transfer rate in kilobytes per second for sending data.
Out Errors	Number of errors logged during out-bound transfer.

## show firewall

The **show firewall** *<option>* commands display information about the BaySecure FireWall-1 configuration.

The **show firewall** command supports the following subcommand options:

<a href="#">summary</a>	<a href="#">interface</a>
-------------------------	---------------------------

## summary

Displays the configuration of BaySecure FireWall-1.

The columns displayed have the following meanings:

Configured state	Indicates whether the firewall is enabled or disabled on the router.
Current state	Indicates whether the firewall is active or inactive.
Primary Management Station	Displays the IP address of the primary management station.
Secondary Management Station 1	Displays the IP address of the first backup management station.
Secondary Management Station 2	Displays the IP address of the second backup management station.
Local Host IP	Displays the IP address of the router where the firewall software is installed.
Version	Displays the version of firewall software.

## interface

Displays the current state of BaySecure FireWall-1 on an interface.

The columns displayed have the following meanings:

Slot/Port	Slot and port numbers, separated by a slash.
Config State	State of the firewall on the slot/port pair.
Port Type	Type of port.
Name	Name assigned to the port.



---

## show hardware

The **show hardware** *<option>* commands display information about a router's hardware.

The **show hardware** command supports the following subcommand options:

<a href="#">backplane</a>	<a href="#">proms [&lt;slot number&gt;]</a>
<a href="#">config_file</a>	<a href="#">slots [&lt;slot number&gt;]</a>
<a href="#">image</a>	<a href="#">version</a>
<a href="#">memory [&lt;slot number&gt;]</a>	

### backplane

Displays information about the state of the backplane hardware. The table includes the backplane type, revision, and serial number. The revision and serial numbers are in decimal format. The extended display, shown only for a BCN or BLN system, includes the status of the power supply, fan, and temperature.

### Sample Display - show hardware backplane

Hardware Backplane Information  
-----

Backplane Type: BCN  
Backplane Revision: 1  
Backplane Serial Number: 2181

Power Supply 1: OK  
Power Supply 2: OK  
Power Supply 3: OK  
Power Supply 4: OK

Fan Status: OK  
Temperature Status: OK

### Sample Display - show hardware backplane

Hardware Backplane Information  
-----

Backplane Type: BLN  
Backplane Revision: 2  
Backplane Serial Number: 341

### Sample Display - show hardware backplane

Hardware Backplane Information  
-----

Backplane Type: ASN  
Backplane Revision: 0  
Backplane Serial Number: 0

---

## config\_file

Displays the configuration file used to boot the router or reset a slot. The table shows the name and volume that was the source of the configuration as well as the slot that delivered the configuration file to the reset slot. All slots should be running the same configuration file originating from the same volume or backup volume.

### Sample Display - show hardware config\_file

Boot Time Configuration File Information

```
-----  
Slot                File Name                Source                Load Date and Time  
-----  
 2 5:pvc0.cfg        3 01/30/1995 14:09:42 [GMT+12:00]  
 3 5:pvc0.cfg        5 01/25/1995 08:26:15 [GMT+12:00]  
 4 5:pvc0.cfg        3 01/25/1995 08:26:19 [GMT+12:00]  
 5 5:pvc0.cfg        3 01/25/1995 15:30:46 [GMT+12:00]
```



**Note:** If the pathname of the configuration file is too long to fit into the tabular format, the script displays the information in a vertical table.

---

## image

Displays the router's software image for each slot, including the integration that is the source of the image, the date and time of the image's creation, and the filename that contains the image. If the filename is too long to fit in a horizontal table, the script displays the information in a vertical table, similar to the one shown for the **config\_file** command.

**Sample Display - show hardware image**

## Active Image Information

```
-----
```

Slot	File Name	Source	Date and Time
2	5:bn.exe	int/8.10/46	Fri Jan 20 09:18:52 EST 1995
3	5:bn.exe	int/8.10/46	Fri Jan 20 09:18:52 EST 1995
4	5:bn.exe	int/8.10/46	Fri Jan 20 09:18:52 EST 1995
5	5:bn.exe	int/8.10/46	Fri Jan 20 09:18:52 EST 1995

**memory [*<slot number>*]**

Displays memory configuration and capacity information about all slots or a specific slot. The table includes the following information:

Slot	Slot number.
Local Memory	Total memory capacity in megabytes of the processor on the slot.
Global Memory	Current memory configuration in megabytes of the processor on the slot.
Total Memory	Total in megabytes of local and global memory.

**Sample Display - show hardware memory**

## Hardware Memory Information (Megabytes)

```
-----
```

Slot	Local Memory	Global Memory	Total Memory
1	6.00 M	2.00 M	8.00 M
2	6.00 M	2.00 M	8.00 M
3	6.00 M	2.00 M	8.00 M
4	6.00 M	2.00 M	8.00 M
5	6.00 M	2.00 M	8.00 M

---

## **proms** [*<slot number>*]

Displays PROM information for all slots or for a specific slot. The table includes the revision and build date of the Bootstrap PROM and the Diagnostics PROM.

### **Sample Display - show hardware proms**

Hardware PROM Information

```
-----
```

Slot	Boot PROM Revision	Boot PROM Date		Diag PROM Revision	Diag PROM Date	
-----	-----	-----	-----	-----	-----	-----
1	Absent			Absent		
2	v8.10	18:47:12	Dec 30 1994	v3.10	11:20:26	Jul 15 1994
3	v8.10	18:47:12	Dec 30 1994	v3.10	11:20:26	Jul 15 1994
4	v8.10	18:47:12	Dec 30 1994	v3.10	11:20:26	Jul 15 1994
5	v8.10	10:40:55	Jan 06 1995	v3.10	11:20:26	Jul 15 1994

## **slots** [*<slot number>*]

Displays hardware information about all slots or a specific slot in the system. The table includes information about the processor module and link module in the specified slot, as well as the module type, revision, and serial number. The revision and serial numbers are in decimal format.

For the AN, the table indicates that the AN has an 802.3 repeater (HUB) by indicating that the link module is an ANSEDSH.

For the ASN, the table displays the number and type of the network module instead of the link module and the network module type, revision, and serial number instead of the link module type, revision, and serial number.

### Sample Display - show hardware slots

Hardware Information per Slot

-----

Slot	Processor Module	Processor Revision	Processor Serial No.	Link Module	Link Revision	Link Serial No.
1	SRMF	1	278	SRML	17	2121
2	FRE2	234	53	DST-4/16	11	3543
3	FRE2	16	13569	QE/NF	6	958
4	FRE	16	1943	MCT1-2	2	488
5	FRE2	18	94240	QSYNC	8	8431

### Sample Display - show hardware slots 2

Hardware Information per Slot

-----

Slot	Processor Module	Processor Revision	Processor Serial No.	Link Module	Link Revision	Link Serial No.
2	FRE2	234	53	DST-4/16	11	3543

### Sample Display - show hardware slots

Hardware Information per Slot

-----

Slot	Processor Module	Processor Revision	Processor Serial No.	# Net Module	Net Mod Revision	Net Mod Serial No.	
1	ASN	1	33	1	DENM	1	5
				2	SFNM	1	3
				3	DENM	1	9
				4	DENM	1	8

---

### Sample Display - show hardware slots

Hardware Information per Slot

```
-----
```

Slot	Processor Module	Processor Revision	Processor Serial No.	# Net Module	Net Mod Revision	Net Mod Serial No.
-----	-----	-----	-----	-----	-----	-----
1	ASN	4	8	1 Absent	N/A	N/A
				2 SFNM	1	13
				3 Absent	N/A	N/A
				4 SPEX	1	1002
3	ASN	4	17	1 Absent	N/A	N/A
				2 Absent	N/A	N/A
				3 Absent	N/A	N/A
				4 SPEX	1	5
4	ASN	4	21	1 Absent	N/A	N/A
				2 Absent	N/A	N/A
				3 Absent	N/A	N/A
				4 PPX	1	1001

### Sample Display - show hardware slot

Hardware Information per Slot

```
-----
```

Slot	Processor Module	Processor Revision	Processor Serial No.	Link Module	Link Revision	Link Serial No.
-----	-----	-----	-----	-----	-----	-----
1	Access Node	1	4246	ANSEDSH	1	4246

### version

Displays the current version and modification date of the *hardware.bat* script.

### Sample Display - show hardware version

Hardware.bat Version: #.## Date: mm/dd/yy.

## show hifn

The **show hifn** *<option>* command displays information and statistics about the device running Hi/fn LZS compression.

The **show hifn** command supports the following subcommand option:

hwcomp [stats   error]
------------------------



---

## hwcomp

The **show hifn hwcomp** command displays information that identifies the location of the device running Hi/fn LZS compression, whether it is currently active, the module type, the number of active CPC contexts, and the number of unused CPC contexts.

The display includes the following information:

Slot	Slot number location of the module.
Module	Modules per slot (always 1).
State	Whether Hi/fn LZS compression is active or inactive.
Hardware Compression Module Type	The type of hardware compression module (contexts based on 8 KB history size).
Active 2K CPC Contexts	Number of active 2 KB CPC contexts.
Unused 2K CPC Contexts	Number of unused 2 KB CPC contexts.

## hwcomp stats

The **show hifn hwcomp stats** command displays information that identifies the location of the device running Hi/fn LZS compression and statistics for compressed, decompressed, expanded, and uncompressed packets.

The display includes the following information:

Slot	Slot number location of the module.
Module	Modules per slot (always 1).
Total Compressed Packets	Total number of compressed packets.
Total Decompressed Packets	Total number of decompressed packets.
Total Tx Expanded Packets	Total number of expanded packets transmitted.
Total Rx NonCompressed Packets	Total number of uncompressed packets received.

## hwcomp error

The **show hifn hwcomp error** command displays information that identifies the location of the device running Hi/fn LZS compression, statistics about compression and decompression errors, uncompressed packets, and dropped packets.

The display includes the following information:

Slot	Slot number location of the module.
Module	Modules per slot (always 1).
Total Mod Compress Errors	Total number of compression errors that occurred.
Total Mod Decompress Errors	Total number of decompression errors that occurred.
Total Tx NonCompress Packets	Total number of uncompressed packets transmitted.
Total Rx Dropped Packets	Total number of received packets that were dropped.

---

## show hssi

The **show hssi** *<option>* commands display configuration, status, and statistical information about the High-Speed Serial Interface (HSSI) lines. For detailed information about configuring HSSI, refer to *Configuring and Managing Routers with Site Manager*.

The **show hssi** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">sample</a> [ <a href="#">&lt;period in seconds&gt;</a> ] [ <a href="#">circuit &lt;circuit name&gt;</a> ]
<a href="#">base</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]	<a href="#">stats</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]
<a href="#">disabled</a>	<a href="#">system errors</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]
<a href="#">enabled</a>	<a href="#">transmit errors</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]
<a href="#">receive errors</a> [ <a href="#">circuit &lt;circuit name&gt;</a> ]	<a href="#">version</a>

## alerts

Displays all HSSI modules that are enabled but not up. Use this display to identify the interfaces that are not working. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.

State	<p>State of the line driver, as follows:</p> <ul style="list-style-type: none"><li>• <i>BOFLwait</i> - Driver is waiting for its own Breath-of-Life frames to be successfully transmitted or for a BOFL frame from the Bay Networks router at the other end of the WAN connection. This applies only to the Wellfleet Standard protocol.</li><li>• <i>CAwait</i> - External equipment, such as a modem, DSU, or CSU, is not currently up.</li><li>• <i>Disabled</i> - Module is not operational.</li><li>• <i>Init</i> - Module is initializing.</li><li>• <i>LMIwait</i> - Driver is waiting for any of four WAN protocols to indicate that a link layer connection has been established to another entity. This applies to the frame relay, SMDS, ATM, and PPP protocols.</li><li>• <i>Not Pres</i> - Module is enabled but not yet started. This state occurs for several reasons. For example, the Link Module may not be physically present in the chassis. The software may be booting and has not yet initialized the driver software. The slot may be running diagnostics. Or there may be a problem with the configuration.</li></ul>
MAC Address	Physical address of the line. The line driver fills this address in from the 48-bit address stored in the serial number PROM for this connector.
BOFL TMO	Time in seconds between transmissions of Breath of Life messages from this interface. A timeout occurs if five periods elapse without a successful frame transmission. When timeout occurs, the interface is disabled and then enabled again automatically.
MTU	Maximum transfer unit size -- the buffer size for the HSSI port (also the largest frame that can be transmitted or received across the HSSI port). The value ranges from 3 to 4608 bytes.
WAN Protocol	<p>WAN protocol enabled on this interface, as follows:</p> <ul style="list-style-type: none"><li>• <i>ATM</i> - Asynchronous Transfer Mode</li><li>• <i>FRAME RELAY</i> - frame relay</li><li>• <i>PPP</i> - Point-to-Point</li><li>• <i>SMDS</i> - Switched Multi-Megabit Data Service</li><li>• <i>WF STANDARD</i> - Wellfleet Standard, a proprietary protocol used between two Bay Networks routers. Based on the CCITT HDLC (High-level Data Link Control) protocol, Wellfleet Standard provides LLC1 (connectionless, datagram) service.</li></ul>
Line Number	The line number for this line. Use this value to correlate driver-level information with information displayed using scripts for PPP, frame relay, SMDS, or ATM.

---

## Sample Display - show hssi alerts

HSSI Modules on Alert:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	WAN Protocol	Line Number
4	1		CAwait	00-00-A2-03-60-C2	1	4495	WF STANDARD	0

Found 1 match out of 1 entry in table.

## base [circuit <circuit name>]

Displays the base level information for all HSSI circuits or a specific circuit. For definitions of the columns in the table, see the **alerts** command. In addition to the states listed under the **alerts** command, State can also be Up.

## Sample Display - show hssi base

HSSI Modules:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	WAN Protocol	Line Number
3	1	H31	Up	00-00-A2-03-C1-C3	1	4495	WF STANDARD	703101

1 entry in table.

## disabled

Displays HSSI circuits that a user has manually disabled. For definitions of the columns in the table, see the **alerts** command. In this case, State is Disabled.

**Sample Display - show hssi disabled**

HSSI Modules Disabled:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	WAN Protocol	Line Number
-----	-----	-----	-----	-----	-----	-----	-----	-----

Found 0 matches out of 1 entry in table.

**enabled**

Displays HSSI modules that a user has manually enabled. For definitions of the columns in the table, see the **alerts** command. State can also be Up.

**Sample Display - show hssi enabled**

HSSI Modules Enabled:

-----

Slot	Conn	Circuit	State	MAC Address	BOFL TMO	MTU	WAN Protocol	Line Number
-----	-----	-----	-----	-----	-----	-----	-----	-----
3	1	H31	Up	00-00-A2-03-C1-C3	1	4495	WF STANDARD	703101

Found 1 match out of 1 entry in table.

**receive errors [circuit <circuit name>]**

Displays receive errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
CRC Errors	Number of frames received with CRC errors.

---

Overrun Errors	Number of frames received that were aborted due to the memory bandwidth of the FIFO buffer overrunning during DMA.
Aborts	Number of frames received with abort errors.
Frames Too Long	Number of frames received that exceeded the MTU size.

### Sample Display - show hssi receive errors

HSSI Module Receive Errors:

```
-----
```

Slot	Conn	Circuit	CRC Errors	Overruns	Aborts	Frames Too Long
-----						
3	1	H31	0	0	0	0

1 entry in table.

### sample [*<period in seconds>*] [**circuit** *<circuit name>*]

Displays data sampled from HSSI over a period of 10 seconds. You can change the number of seconds over which you want to sample the data, and you can display sampled data for a specific circuit only. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Rx Frames	Number of frames received on this line.
Tx Frames	Number of frames sent on this line.
Rx Lack of Resources	Number of packets received and discarded because of lack of resources; for example, buffers.
Tx Lack of Resources	Number of transmit packets discarded because of lack of resources; for example, buffers.

**Sample Display - show hssi sample**

HSSI Sampled Data over 10 seconds

```
-----
Slot Conn Circuit      Rx      Tx      Rx Lack of Tx Lack of
      Conn Circuit      Frames   Frames Resources Resources
-----
   3   1 H31              11      12          0          0
```

1 entry in table.

**Sample Display - show hssi sample circuit H31**

HSSI Sampled Data over 5 seconds

```
-----
Slot Conn Circuit      Rx      Tx      Rx Lack of Tx Lack of
      Conn Circuit      Frames   Frames Resources Resources
-----
   3   1 H31              5       6          0          0
```

Found 1 matches out of 1 entry in table.

**stats [circuit <ircuit name>]**

Displays HSSI input/output statistical information for all HSSI circuits or for a specific circuit. The table contains the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Receive Bytes	Number of octets received without error.
Receive Frames	Number of frames received without error.
Transmit Bytes	Number of octets transmitted without error.
Transmit Frames	Number of frames transmitted without error.
Total Errors	Total number of errors of all types.



---

## Sample Display - show hssi stats

HSSI Module I/O Statistics:

```
-----
```

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
3	1	H31	600808237	10617073	3692023	141294	0

```
-----
```

1 entry in table.

## system errors [circuit <ircuit name>]

Displays statistical information about system errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Rx Ring Errors	Number of errors that the DMA controller has detected while processing the receive ring.
Tx Ring Errors	Number of errors that the DMA controller has detected while processing the transmit ring.
Internal Op Errors	Number of internal operation errors.
Host Errors	Number of parity errors occurring while the host driver accesses a register on the DMA controller. Host errors may indicate faulty hardware. If this count exceeds five, call your customer service representative.
Port Errors	Number of DMA controller port-operation errors. Port errors may indicate faulty hardware. If this count exceeds five, call your customer service representative.

### Sample Display - show hssi system errors

HSSI Module System Errors:

```
-----
```

Slot	Conn	Circuit	Rx Ring Errors	Tx Ring Errors	Internal Op Errors	Host Errors	Port Errors
3	1	H31	0	0	0	0	0

1 entry in table.

### transmit errors [circuit <circuit name>]

Displays statistical information about transmission errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Aborts	Number of transmit frames with abort errors on this circuit.
Underruns	Number of transmit frames aborted with underrun errors on this circuit.

### Sample Display - show hssi transmit errors

HSSI Module Transmit Errors:

```
-----
```

Slot	Conn	Circuit	Aborts	Underruns
4	1	H31	0	0

1 entry in table.

---

## version

Displays the current version number and modification date of the *hssi.bat* script.

### Sample Display - show hssi version

```
hssi.bat Version: #.## Date: mm/dd/yy.
```

## show igmp

The **show igmp** *<option>* commands display configuration, state, and statistical information about the Internet Gateway Management Protocol (IGMP). For detailed information about the Bay Networks implementation of IGMP, refer to *Configuring IP Multicasting Services*.

The **show igmp** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">stats [&lt;circuit name&gt;]</a>
<a href="#">circuits [&lt;circuit name&gt;   enabled   disabled]</a>	<a href="#">version</a>
<a href="#">stats [&lt;circuit name&gt;]</a>	

**base**

Displays the base level information for IGMP. The table provides the following information:

Protocol	Name of the protocol, which in this case is IGMP.
State:	State of IGMP on the router: Up, Down, Init (initializing), or Not Present.
Estimated Number of Groups	Estimated number of IGMP groups that will be used through this router.

**Sample Display - show igmp base**

```
IGMP Base Information
-----

Protocol State
-----
  IGMP      Init

Estimated Number of Groups = 20
```

**circuits [*<circuit name>* | **enabled** | **disabled**]**

Displays the DVMRP circuit information for all circuits, a specified circuit, enabled circuits, or disabled circuits. The table contains the following information:

Circuit	Circuit name of this interface.
State	Current state of the IGMP interface: Up, Down, Init (initializing), Invalid, or Not Pres (not present).
Query Rate	Specifies, in seconds, how often a local group membership is queried. If set to 0, no queries are sent out of this interface.
DR Timeout	Designated Router Timeout. Specifies, in seconds, the amount of time since the last host query message.
Membership Timeout	Specifies, in seconds, the amount of time a local group membership is valid without confirmation.

---

## Sample Display - show igmp circuits

IGMP Circuits

-----

Circuit	State	Query Rate	DR Timeout	MembershipTimeout
-----	-----	-----	-----	-----
E31	Up	120	140	260
E34	Up	120	140	260
E22	Up	120	140	260
E32	Up	120	140	260
E33	Up	120	140	260

5 Total entries.

## groups [*<circuit name>*]

Displays group information for all IGMP circuits or a specified IGMP circuit. The table displays the following information:

Circuit	Circuit name of this interface.
Group Address	Associated group address.
Timer Value	Specifies how much time, in seconds, will pass before this group times out.

## Sample Display - show igmp groups

IGMP Groups

-----

Circuit	Group Address	Timer Value
-----	-----	-----
E31	238.1.1.1	100
E34	238.1.1.1	100
E22	238.1.1.1	100
E32	238.1.1.1	100
E33	238.1.1.1	100

5 Total entries.

**stats** [*<circuit name>*]

Displays statistics for all IGMP circuits or a specified IGMP circuit. The table displays the following information:

Circuit	Circuit name of this interface.
Designated Rtr	Current IGMP designated router, or the IGMP router sending the IGMP host queries if there are multiple routers on a multi-access network.
Local IP	IP address currently in use on this circuit. This is the IP address used to generate multicast traffic.
In Pkts	Number of input datagrams received from the IGMP interfaces.
In Query	Number of host membership query messages that have been received on this IGMP interface.
Out Query	Number of host membership query messages sent out of this IGMP interface.
Discards	Number of IGMP messages received on this interface that were discarded due to bad checksums, illegal message types, bad values in fields, etc.

**Sample Display - show igmp stats**

IGMP Circuit Statistics

-----

Circuit	Designated Rtr	Local IP	In Pkts	In Query	Out Query	Discards
-----	-----	-----	-----	-----	-----	-----
E31	1.1.1.1	1.1.1.1	0	0	475	0
E34	4.4.4.4	4.4.4.4	0	0	475	0
E22	200.200.200.1	200.200.200.1	0	0	475	0
E32	200.200.100.1	200.200.100.1	0	0	475	0
E33	200.200.1.1	200.200.1.1	0	0	475	0

5 Total entries.

---

## version

Displays the current version number and modification date of the *igmp.bat* script.

### Sample Display - show igmp version

```
igmp.bat Version: #.## Date: mm/dd/yy.
```

## show ip

The **show ip** *<option>* commands display configuration, state, and statistical information about the Internet Protocol (IP). For detailed information about the Bay Networks implementation of IP, refer to *Configuring IP Services*.

The **show ip** command supports the following subcommand options:

<a href="#">adjacent hosts</a>	<a href="#">static</a>
<a href="#">alerts</a>	<a href="#">stats [circuit &lt;circuit name&gt;]</a>
<a href="#">arp [&lt;IP address&gt;]</a>	<a href="#">stats cache [&lt;circuit name&gt;]</a>
<a href="#">base</a>	<a href="#">stats datagrams [&lt;circuit name&gt;]</a>
<a href="#">circuits [&lt;circuit name&gt;]</a>	<a href="#">stats fragments [&lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">stats icmp client [&lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">stats icmp in [&lt;circuit name&gt;]</a>
<a href="#">rfilters [export   import] [&lt;protocol&gt;]</a>	<a href="#">stats icmp misc [&lt;circuit name&gt;]</a>

<a href="#">rip</a>	<a href="#">stats icmp out [&lt;circuit name&gt;]</a>
<a href="#">rip alerts</a>	<a href="#">stats icmp server [&lt;circuit name&gt;]</a>
<a href="#">rip disabled</a>	<a href="#">stats security in [&lt;circuit name&gt;]</a>
<a href="#">rip enabled</a>	<a href="#">stats security out [&lt;circuit name&gt;]</a>
<a href="#">routes [-A] [type {local bgp egp ospf rip}]   [ [&lt;IP address&gt;   find &lt;search pattern&gt;]</a>	<a href="#">traffic filters</a>

## adjacent hosts

Displays a table of configured adjacent hosts. The table includes the following information:

Host IP Address	IP address of the host.
Interface IP	Address of the IP interface through which packets reach the host.
Interface Mask	Subnet mask of the IP address specified for the interface.
Mac Address	MAC address of the host.
Encaps	Encapsulation method used: ENET (Ethernet), SNAP, PDN, or DDN.
Valid	Validity of the configuration. If this field displays No, you should check the adjacent host's configuration.



---

## Sample Display - show ip adjacent hosts

IP Adjacent Hosts

-----

Host IP Addr	Interface IP	Interface Mask	Mac Address	Encaps	Valid
5.0.0.2	5.0.0.1	255.0.0.0	00.00.A2.00.12.34	ENET	YES

1 Entries.

## alerts

Displays the circuit name and IP address of interfaces whose state does not match their configuration; for example, an interface configured as enabled but whose state is not up.

## Sample Display - show ip alerts

IP Circuits

-----

Circuit	State	IP Address
S34	Down	151.11.4.1
F51	Down	151.11.30.1

2 Entries found.

**arp** [*<IP\_address>*]

Displays the IP Address Resolution Protocol (ARP) table. This table shows the mapping between the host's IP address and its MAC address. If you optionally specify an IP address, the command displays the associated MAC address.

The table includes the following information about each host listed:

IP Address	IP address of the host.
Physical address	MAC address of the host.
Type	How the IP address was resolved to the MAC address: Dynamic means that ARP resolved it. Static means that it was configured through an adjacent host entry.

**Sample Display - show ip arp**

```
IP ARP Table
-----

IP Address      Type      Physical Address
-----
151.11.1.2     Dynamic  00-00-A2-06-B9-AA
151.11.2.2     Dynamic  00-00-A2-06-7A-FA
192.32.37.161  Dynamic  00-00-A2-01-DF-B7
192.32.37.162  Dynamic  08-00-20-1F-25-8B

4 ARP Entries
```

---

## base

Displays the state of IP, whether or not it is up and in forwarding mode or in host mode only. The base record controls IP for the entire system. The table includes the following information:

Protocol	Name of the protocol; in this case IP.
State	State of the protocol: Down, Init (initializing), Not Pres (enabled but not yet started), or Up.
Forwarding Mode	Status of forwarding. Forwarding indicates that the IP host is an IP gateway and is forwarding datagrams received but not addressed to it. Not Forwarding indicates that this IP host is not a gateway.
Zero/All Ones Subnetting	Setting that determines whether zero or all-ones subnets are allowed -- Enabled or Disabled. If Enabled, interfaces configured with a zero subnet are allowed; if Disabled, they are not.
Default TTL	Default value that IP inserts in the Time-To-Live field of the IP header in datagrams that this router originates when the transport layer protocol does not supply the value. The maximum value is 255; the default is 30.
RIP Diameter	The value, or hop count, the Routing Information Protocol (RIP) uses to denote infinity.
Route Cache Size	The number of routing entries maintained in the forwarding table before entries are flushed.
MIB Tables Maintained	The tables maintained by IP: Route (the IP routing table), Fwd (the forwarding table), or Both. The default is Route.
Classless	Setting that determines whether a default route is allowed for subnets in a subnetted network -- Enabled or Disabled. If Enabled, a default route is allowed. The default is Disabled.
Route Filters	Setting that determines whether route filters are supported -- Enabled or Disabled. If Enabled, route filters are supported.

The **base** command also displays the number of networks and hosts that IP knows about and the number of policy rules defined.

**Sample Display - show ip base**

```
IP Base Information
-----

Protocol:                IP
State:                   Up
Forwarding Mode:         Enabled
Zero/All Ones Subnetting: Disabled
Default TTL:             30

RIP Diameter:           15
Route Cache Size:       60
MIB Tables Maintained:  Route
Classless:              Disabled
Route Filters:          Enabled

Route pools contain 1 [est. 0] networks/subnets and 0 [ext. 0]
hosts.
Maximum policy rules per type per protocol: 32
```

**circuits [*<circuit name>*]**

Displays IP circuit information, including which circuits have IP configured on them, the IP address for each, and the state of IP on the circuit (Up or Down). IP address 0.0.0.0 indicates that an unnumbered interface is configured on the circuit. You can also display this information for a specific circuit only.

**Sample Display - show ip circuits**

```
IP Circuits
-----

Circuit   Circuit #   State   IP Address
-----
E31       2          Up      0.0.0.0
E23       3          Up      128.1.1.1
E21       1          Up      192.32.29.130

3 Total entries.
```

---

## disabled

Displays the circuit name, circuit number, and IP address of interfaces that a user has manually disabled. IP address 0.0.0.0 indicates that an unnumbered IP interface is configured on the circuit.

### Sample Display - show ip disabled

```
IP Circuits
-----

Circuit   Circuit #   State      IP Address
-----
  E31      2          Disabled   0.0.0.0
  E23      3          Disabled   128.1.1.1

2 Entries found.
```

## enabled

Displays the circuit name, circuit number, state, and IP address of interfaces that a user has manually enabled. IP address 0.0.0.0 indicates that the circuit is associated with an unnumbered interface. State is one of the following:

Init	Interface is coming up and initializing.
Invalid	Something about the interface's configuration is not correct. Look at the configuration.
Not Pres	IP software has not been installed on the slot that hosts the physical interface.
Up	Interface is functioning properly.

**Sample Display - show ip enabled**

IP Circuits

-----

Circuit	Circuit #	State	IP Address
E31	2	Up	0.0.0.0
E23	3	Up	128.1.1.1
E21	1	Up	192.32.29.130

3 Entries found.

**rfilters [export | import] [<protocol>]**

Displays all configured route filters, or specific route filters. For example, you can display all export filters or export filters for a specific protocol only. You can use the following options with the **rfilters** command:

**export**

Displays only export route filters.

**import**

Displays only import route filters.

## &lt;protocol&gt;

Limits the display to the specified protocol, which is one of the following:

- *all* - Displays route filters for all protocols.
- *RIP* - Displays only RIP route filters.
- *OSPF* - Displays only OSPF route filters.
- *EGP* - Displays only EGP route filters.
- *BGP3* - Displays only BGP-3 route filters.

The table includes the following information:

Address	IP network address of the network to which this filter applies. If 0.0.0.0, the filter applies to all networks.
Mask	Range of addresses upon which this filter acts; depends on the address class of the network address.
From Protocol	Source of the routing information -- any, direct, static, RIP, OSPF, EGP, or BGP-3.

---

Action	<p>Flow of routing information.</p> <p>For export filters, Action is one of the following:</p> <ul style="list-style-type: none"> <li>• <i>Propagate</i> - Advertise the route.</li> <li>• <i>Ignore</i> - Suppress advertising of the route.</li> <li>• <i>Aggregate</i> - Do not explicitly advertise the route; advertise the default route (0.0.0.0) instead.</li> </ul> <p>For import filters, Action specifies whether the route is transferred to the routing tables and is one of the following:</p> <ul style="list-style-type: none"> <li>• <i>Accept</i> - Send the routing information to the routing tables.</li> <li>• <i>Ignore</i> - Drop the routing information.</li> </ul>
Peer Address	IP address of the peer router.
Peer AS	Autonomous System number of the peer router.

### Sample Display - show ip rfilters export BGP3

IP BGP3 Export Filters:

```
-----
```

Address	Mask	From Protocol	Action	Peer Address	Peer AS
0.0.0.0	0.0.0.0	ANY	Propagate	192.32.174.66	2
192.32.174.0	255.255.255.0	ANY	Propagate	192.32.175.130	1

2 BGP3 export filters in the table

## rip

Displays the IP interfaces that have RIP configured. The displays contain the following information:

IP Interface	Internet address of the interface.
State	State of the interface: Down, Init (initializing), Not Pres (enabled but not yet started) or Up.
Supply	Whether the interface is sending out RIP updates: Enabled or Disabled. If Enabled, the interface is supplying updates.
Listen	Whether the interface is processing the RIP updates that it receives: Enabled or Disabled. If Enabled, the interface is processing RIP updates.

### Sample Display - show ip rip

```
IP RIP Information
```

```
-----
```

IP Interface	State	Supply	Listen
-----	-----	-----	-----
192.32.174.129	Up	Enabled	Disabled

```
1 Entries.
```



---

## rip alerts

Displays the IP interfaces that have RIP configured but the state of RIP is down. For more information on column definitions, see the **rip** command.

### Sample Display - show ip rip alerts

```
IP RIP Interface Table Alerts
-----
   IP Interface      State      Supply   Listen
-----
192.32.175.34      Down      Enabled  Enabled

1 Entries found
```

## rip disabled

Displays the IP interfaces that have RIP configured but disabled. For more information on column definitions, see the **rip** command.

### Sample Display - show ip rip disabled

```
IP RIP: Table of Disabled Interfaces
-----
   IP Interface      State      Supply   Listen
-----
192.32.174.129      Disabled   Enabled  Disabled

1 Entries found.
```

## rip enabled

Displays the IP interfaces that have RIP enabled on them. For more information on column definitions, see the **rip** command.

### Sample Display - show ip rip enabled

```
IP RIP: Table of Enabled Interfaces
-----
   IP Interface      State      Supply   Listen
-----
192.32.174.129     Up          Enabled  Disabled

1 Entries found.
```

**routes [-A] [type {local|bgp|egp|ospf|rip}] [*<IP address>* | find *<search pattern>*]**



**Note:** To display Equal Cost Multipath (ECMP) routes, you must use the **ip routes** command. See *Using Technician Interface Software* for more information about the **ip routes** command.

---

Displays IP routes. You can use the following options to display specific information:

- |  |  |
|--|--|
| <b>-A</b>                                    | Shows entire routing table, including routes that are not used as well as best routes.   |
| <b>type {local   bgp   egp   ospf   rip}</b> | Limits the display to one specified protocol.  |
| <i>&lt;IP_address&gt;</i>                    | Limits the display to the routes that match the specified IP address.                    |
| <b>find &lt;search_pattern&gt;</b>           | Limits the display to the routes that match the specified subnet part of the IP address. |

---

The table includes the following information:

Network	Destination IP address for this route. 0.0.0.0 indicates a default route.
Mask	Subnet mask to be combined with the destination address and then compared with the value in Destination. If the value of Destination is 0.0.0.0 (a default route), then the value of Mask is also 0.0.0.0.
Proto	Routing method through which the router learned this route: Other, Local, Netmgmt, ICMP, EGP, GGP, Hello, RIP, IS-IS, OSPF, or BGP.
Age	Number of seconds since this route was last updated or verified to be correct. The meaning of “too old” depends on the routing protocol specified under Proto.
Slot	Number of the slot on which the network address/mask is configured.
Cost	Number of hops to reach the destination.
NextHopAddr / AS	IP address of the next hop and next Autonomous System of this route. If the next hop is an unnumbered interface, the command displays 0.0.0. <i>n</i> , where <i>n</i> is the number of the circuit on which the interface has been configured. In the following sample display, the next hop field for destinations 10.0.0.0, 55.0.0.0, and 99.0.0.0 indicates that the next hop is an unnumbered interface configured on circuit 2.
Weight	Weight value assigned to the route (displayed only if you specify all routes [-A]).
* (asterisk)	Indicates a route that is used by IP (applies only if you specify all routes [-A]).

**Sample Display - show ip routes**

IP Routes

-----

Network/Mask	Proto	Age	Slot	Cost	NextHop Address /	AS
-----	-----	-----	-----	-----	-----	-----
0.0.0.0/0	RIP	5	2	2	192.32.174.33	
6.0.0.0/8	Direct	370	2	0	6.6.6.6	
128.128.0.0/16	RIP	5	2	2	192.32.174.33	
129.128.0.0/16	RIP	5	2	2	192.32.174.33	
130.128.0.0/16	RIP	5	2	2	192.32.174.33	
131.119.0.0/16	RIP	5	2	2	192.32.174.33	
134.177.0.0/16	RIP	5	2	2	192.32.174.33	
141.251.0.0/16	RIP	5	2	2	192.32.174.33	
146.240.0.0/16	RIP	5	2	2	192.32.174.33	
170.41.0.0/16	RIP	5	2	2	192.32.174.33	
172.14.0.0/16	RIP	5	2	2	192.32.174.33	
172.15.0.0/16	RIP	5	2	2	192.32.174.33	
192.1.1.0/24	RIP	5	2	2	192.32.174.33	
192.1.2.0/24	RIP	5	2	2	192.32.174.33	
192.32.1.0/24	RIP	5	2	2	192.32.174.33	
192.32.2.0/24	RIP	5	2	2	192.32.174.33	
192.32.4.0/24	RIP	5	2	2	192.32.174.33	
192.32.5.0/24	RIP	5	2	2	192.32.174.33	
192.32.6.0/24	RIP	5	2	2	192.32.174.33	
192.32.8.0/24	RIP	5	2	2	192.32.174.33	

Total Networks on Slot 2 = 268

---

ip routes -A

```
-----
```

Network/Mask	Proto	Age	Sl	Cost	NextHop Address /	AS	Weight
-----	-----	-----	-----	-----	-----	-----	-----
*0.0.0.0/0	RIP	20	2	2	192.32.174.33		7b9e0002
0.0.0.0/0	Direct	385	0	131071	Unreachable		ffffffff
0.0.0.0/32	Host	N/A	0	0	un# IP cct 0		00000000
*6.0.0.0/8	Direct	385	2	0	6.6.6.6		00000000
6.0.0.0/32	Host	N/A	2	0	Broadcast		00000000
6.6.6.6/32	Host	N/A	2	0	This Router		00000000
6.255.255.255/32	Host	N/A	2	0	Broadcast		00000000
*128.128.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*129.128.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*130.128.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*131.119.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*134.177.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*141.251.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*146.240.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*170.41.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*172.14.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*172.15.0.0/16	RIP	20	2	2	192.32.174.33		7b9e0002
*192.1.1.0/24	RIP	20	2	2	192.32.174.33		7b9e0002
*192.1.2.0/24	RIP	20	2	2	192.32.174.33		7b9e0002
*192.32.1.0/24	RIP	20	2	2	192.32.174.33		7b9e0002

Total Networks on Slot 2 = 268

**static**

Displays all statically configured routes on the router. The table includes the following information:

IP Destination	Internet address of this static route.
Network Mask	Subnetwork mask for this static route.
Cost	Number of hops to reach the destination.
Nexthop	IP address of the next hop on the route. If the next hop is an unnumbered interface, the Next Hop field displays the circuit number associated with the unnumbered interface.
Valid	Value that indicates whether or not the configuration is valid.
Enabled	Indicates whether this static route is enabled. The default is Yes.

**Sample Display - show ip static**

```
IP Static Routes
-----
  IP Destination      Network Mask      Cost      Nexthop      Valid Enabled
-----
55.0.0.1             255.0.0.0         1 Unn Cct 2    Yes   Yes
99.1.1.0             255.0.0.0         1 Unn Cct 2    Yes   Yes

2 Entries.
```

---

## stats [circuit <ircuit name>]

Displays packet statistics that the router collects for all circuits or a specified circuit. The table includes the following information:

Circuit	Name of the circuit that the interface runs on.
IP Address	Internet address of the interface.
In Receives	Number of packets received on the interface, including errors.
Out Requests	Number of packets that local clients, including ICMP, supplied to IP for transmitting.
Forwards	Number of packets forwarded through this interface; included in the In Receives count.
In Discards	Number of packets that IP received and discarded because of lack of resources; for example, buffers.
Out Discards	Number of packets given to IP to transmit but discarded because of lack of resources; for example, insufficient buffers.

### Sample Display - show ip stats

IP Statistics

-----

Circuit	IP Address	In Receives	Out Requests	Forwards	In Discards	Out Discards
S31	192.32.174.65	2150309	211845	34771	0	0
E23	192.32.174.97	1305158	76700	30495	0	0
E21	192.32.174.129	3191531	163026	3238130	0	0
E22	192.32.175.129	51219	59655	3070948	0	0

**stats cache** [*<circuit name>*]

Displays statistics about the cached forwarding tables that IP uses for forwarding traffic for all circuits or a specified circuit. The table includes the following information:

Circuit	Name of the circuit that the interface runs on.
IP Address	Internet address of the interface.
Cache Networks	Number of entries in the forwarding table.
Cache Misses	Number of times the forwarding table did not contain information about a destination and IP had to look up the route.
Cache Removes	Number of entries removed from the forwarding table because they timed out.

**Sample Display - show ip stats cache**

IP Cache Statistics

-----

Circuit	IP Address	Cache Networks	Cache Misses	Cache Removes
S31	192.32.174.65	128	4	78
E23	192.32.174.97	238	1768	1797

**stats datagrams** [*<circuit name>*]

Displays error statistics about IP datagrams that IP has processed for all interfaces or for a specific interface. The table includes the following information:

Circuit	Name of the circuit this interface is on.
IP Address	Internet address of the interface.
Header Errors	Number of IP packets received with header errors.
Address Errors	Number of IP packets received with address errors.
Unknown Protocol	Number of IP packets received locally that IP discarded because the router did not implement the protocol.



---

In Discards	Number of packets that IP received but discarded because of lack of resources; for example, insufficient buffers.
Out Discards	Number of packets given to IP to transmit but discarded because of lack of resources; for example, insufficient buffers.
No Routes	Number of packets with unknown destination addresses that an upper-layer protocol gave to IP to transmit.

### Sample Display - show ip stats datagrams

#### IP Datagram Statistics

-----

Circuit	IP Address	Header Errors	Address Errors	Unknown Protocol	In Discards	Out Discards	No Routes
S31	192.32.174.65	0	0	4	0	0	0
E23	192.32.174.97	0	0	39286	0	0	0
E21	192.32.174.129	0	0	0	0	0	0
E22	192.32.175.129	0	0	0	0	0	0

**stats fragments** [*<circuit name>*]

Displays all information about fragmented IP packets or information for all interfaces or for a specific interface. The table includes the following information:

Circuit	Name of the circuit this interface is on.
IP Address	Internet address of the interface.
Fragmnts Received	Number of IP fragments received that this router had to reassemble.
Sucssful Reassem	Number of datagrams that this router successfully reassembled.
Failed Reassem	Number of datagrams that this router failed to reassemble; not necessarily a count of discarded IP fragments.
Fragmnt Sent	Number of IP datagrams that this router fragmented.
Fragmnt Failed	Number of IP datagrams that this router discarded because it could not fragment them properly; for example, could not set the Don't Fragment bit.
Total Fragmnts	Number of fragments that this router sent in which this router performed the fragmenting.

**Sample Display - show ip stats fragments**

IP Fragments Statistics

-----

Circuit	IP Address	Fragmnts Received	Sucssful Reassem	Failed Reassem	Fragmnt Sent	Fragmnt Failed	Total Fragmnts
S31	192.32.174.65	0	0	0	0	0	0
E23	192.32.174.97	0	0	0	0	0	0

---

## stats icmp client [*<circuit name>*]

Displays echo, timestamp, and address mask statistics about Internet Control Message Protocol (ICMP) packets for all interfaces or for a specified interface. The table includes the following information:

Circuit	Name of the circuit this interface is on.
IP Address	Internet address of the interface.
Echo Requests	Number of ICMP Echo Request messages received.
Echo Replies	Number of ICMP Echo Reply messages received.
Timestamp Requests	Number of ICMP Timestamp Request messages received.
Timestamp Replies	Number of ICMP Timestamp Reply messages received.
AddrMask Requests	Number of ICMP Address Mask Request messages received.
AddrMask Replies	Number of ICMP Address Mask Reply messages received.

### Sample Display - show ip stats icmp client

IP ICMP Client Statistics

-----

Circuit	IP Address	Echo Requests	Echo Replies	Timestamp Requests	Timestamp Replies	AddrMask Requests	AddrMask Replies
S31	192.32.174.65	0	0	0	0	0	0
E22	192.32.175.129	0	2	0	0	0	0

**stats icmp in [*<circuit name>*]**

Displays statistics about ICMP packets received for all interfaces or for a specified interface. The table includes the following information:

Circuit	Name of the circuit this interface is on.
IP Address	Internet address of the interface.
ICMP Received	Total number of ICMP messages received, including errors.
ICMP In Errors	Number of ICMP messages received that had errors (bad ICMP checksums).
Destintn Unreach.	Number of ICMP Destination Unreachable messages received.
Rcv. Time Exceeded	Number of ICMP Time Exceeded messages received.
Rcv. Parm Problem	Number of ICMP Parameter Problem messages received.

**Sample Display - show ip stats icmp in**

IP ICMP In Statistics

-----

Circuit	IP Address	ICMP Received	ICMP In Errors	Destintn Unreach.	Rcv.Time Exceeded	Rcv.Parm Problem
S31	192.32.174.65	4	0	4	0	0
E23	192.32.174.97	0	0	0	0	0
E21	192.32.174.129	0	0	0	0	0
E22	192.32.175.129	25	0	11	12	0

---

## stats icmp misc [*<circuit name>*]

Displays statistics about ICMP Source Quench and Redirect messages for all interfaces or for a specified interface. The table includes the following information:

Circuit	Name of the circuit this interface is on.
IP Address	Internet address of the interface.
SrcQuench Messages In/Out	Number of ICMP Source Quench messages received and sent.
Redirect Messages In/Out	Number of ICMP Redirect messages received and sent.

### Sample Display - show ip stats icmp misc

ICMP Miscellaneous Statistics

```
-----
```

Circuit	IP Address	SrcQuench Messages		Redirect Messages	
		In	Out	In	Out
S31	192.32.174.65	0	0	0	0

```
-----
```

## stats icmp out [*<circuit name>*]

Displays statistics about ICMP packets that the router generates for all interfaces or for a specified interface. The table includes the following information:

Circuit	Name of the circuit this interface is on.
IP Address	Internet address of the interface.
ICMP Sent	Total number of ICMP messages that this router has generated.
ICMP Out Errors	Number of ICMP messages that this router did not send because of internal problems such as lack of buffers.
Destintn Unreach.	Number of ICMP Destination Unreachable messages sent.
Snd. Time Exceeded	Number of ICMP Time Exceeded messages sent.
Snd. Parm Problem	Number of ICMP Parameter Problem messages sent.

**Sample Display - show ip stats icmp out**

ICMP Out Statistics

-----

Circuit	IP Address	ICMP Sent	ICMP Out Errors	Destintn Unreach.	Snd.Time Exceeded	Snd.Parm Problem
S31	192.32.174.65	0	0	0	0	0
E23	192.32.174.97	2	0	1	1	0
E21	192.32.174.129	5	0	5	0	0

**stats icmp server [<circuit name>]**

Displays statistics about ICMP messages that the router generates. For column definitions in the display, see the **stats icmp client** command.

**Sample Display - show ip stats icmp server**

IP ICMP Server Statistics

-----

Circuit	IP Address	Echo Requests	Echo Replies	Timestmp Requests	Timestmp Replies	AddrMask Requests	AddrMask Replies
O41	151.10.100.2	0	0	0	0	0	0
S31	151.11.1.1	0	0	0	0	0	0
S32	151.11.2.1	0	0	0	0	0	0
S33	151.11.3.1	0	1	0	0	0	0
S34	151.11.4.1	0	0	0	0	0	0
F51	151.11.30.1	0	0	0	0	0	0
E21	192.32.37.169	0	0	0	0	0	0

---

## stats security in [*<circuit name>*]

Displays statistics associated with IP in security on each of the IP interfaces or on a specified interface. The table includes the following information:

Circuit	Name of the circuit this interface is on.
IP Address	Internet address of the interface.
Drop Rx Authority	Number of received packets dropped because the authority flag was not sufficient.
Drop Rx Formats	Number of received packets dropped because the security option format was invalid.
Drop Rx Levels	Number of received packets dropped because the classification level was out of range.
Drop Rx No IPSOS	Number of received packets dropped because they were without an IP security label.
In Admin Prohibit	Number of ICMP destination unreachable or communication administratively prohibited messages received.

### Sample Display - show ip stats security in

IP Security In Statistics

-----

Circuit	IP Address	Drop Rx Authority	Drop Rx Formats	Drop Rx Levels	Drop Rx No IPSOS	In Admin Prohibit
S31	192.32.174.65	0	0	0	0	0
E23	192.32.174.97	0	0	0	0	0

**stats security out** [*<circuit name>*]

Displays statistics associated with IP out security on each of the IP interfaces or on a specified interface. The table includes the following information:

Circuit	Name of the circuit this interface is on.
IP Address	Internet address of the interface.
Drop Tx Authority	Number of transmitted packets dropped because the authority flag was not sufficient.
Drop Tx Levels	Number of transmitted packets dropped because the classification level was out of range.
Drop Tx No IPSOS	Number of transmitted packets dropped because they were without an IP security label.
No IpSos ROOMS	Number of packets not transmitted because the IP header lacked the space to insert an IP security option.
OutAdmin Prohibit	Number of ICMP destination unreachable or communication administratively prohibited messages sent.

**Sample Display - show ip stats security out**

IP Security Out Statistics

-----

Circuit	IP Address	Drop Tx Authority	Drop Tx Levels	Drop Tx No IPSOS	No IpSos ROOMS	OutAdmin Prohibit
S31	192.32.174.65	0	0	0	0	0
E23	192.32.174.97	0	0	0	0	0



---

## traffic filters

Displays the configured IP traffic filters. The table includes the following information:

Circuit	Name of the circuit this interface is on.
IP Address	Internet address of the interface.
Mode	State of traffic filter use -- Enabled or Disabled.
Status	Status of the traffic filter, as follows: <ul style="list-style-type: none"><li>• <i>Active</i> - Traffic filter rule is in effect.</li><li>• <i>Inactive</i> - Traffic filter rule is not in effect.</li><li>• <i>Error</i> - Application has detected an error in the rule definition.</li></ul>
Rx Matches	Number of packets received that match this rule.
Rule Number	Rule identifier.
Fragment Number	Fragment identifier, for large rules.

### Sample Display - show ip traffic filters

```
IP Traffic Filters
```

```
-----
```

Circuit	IP Address	Mode	Status	Rx Matches	Rule Number	Fragment Number
None	0.0.0.0	Enabled	Inactive	0	0	0
E21	0.0.0.0	Enabled	Inactive	0	0	0

## show ip6

The **show ip6** *<option>* command displays information about IP version 6. For detailed information about the Bay Networks implementation of IPv6, refer to *Configuring IPv6 Services*.

The **show ip6** command supports the following subcommand options:

<a href="#">adjacent hosts</a>	<a href="#">interface [&lt;interface_index&gt;]</a>
<a href="#">stats icmp [&lt;interface_index&gt;]</a>	<a href="#">circuits</a>
<a href="#">stats traffic [&lt;interface_index&gt;]</a>	

---

## base

Displays configuration and statistical information about the IPv6 base record. Configuration information consists of the current settings for IPv6 global parameters. IPv6 global parameters are described in *Configuring IPv6 Services*.

### Sample Display - show ip6 base

#### IPv6 Base Record Configuration Information

-----

Protocol:	IPv6
State:	Up
Forwarding:	Enabled
Path MTU Discovery:	Enabled
Discovered MTU Timeout:	10 minutes
Default Hop Limit:	64
Minimum Link MTU:	576 octets
Maximum Traffic Filters:	31 octets
Load Mask (MSB is slot 1):	0x78000000

#### IPv6 Base Record Statistical Information

-----

Total IPv6 Interfaces:	8
Total Known Networks:	38
Total Known Nodes:	42

**stats icmp [<interface\_index>]**

Displays the following information about ICMP messages sent and received on the interface you specify.

Interface	The index number identifying an IPv6 interface
Received	ICMP messages received on this interface
Sent	ICMP messages sent on this interface

**Sample Display - show ip6 stats icmp**

```
IPv6 ICMP Statistics
```

```
-----
```

```
Interface 2
```

	Received	Sent
	-----	-----
Total messages:	0	187
Router Advertisement:	0	185
Neighbor Solicit:	0	2

```
There was no other ICMP messages received or sent
```

---

## stats traffic [<interface\_index>]

Displays information about IPv6 packets sent and received on the interface you specify.

### Sample Display - show ip6 stats traffic

```
IPv6 Traffic Statistics
```

```
-----
```

```
Interface 3
```

```
Received packets:                2487
Successfully delivered to local user-protocols: 2487
Locally sources packets:         2532
Number prefixes in forwarding cache: 2
Cache misses:                    2
```

```
All other counters are zero
```

## **interface [<interface\_index>]**

Displays configuration information about the IPv6 interface you specify. Configuration information consists of the current settings for IPv6 interface parameters. IPv6 interface parameters are described in *Configuring IPv6 Services*.

### **Sample Display - show ip6 interface**

IPv6 Interface Configuration Information

-----

```
Interface:                3
State:                    Up since 09/05/97 18:35:50
Description:              PPP/SYNC to Garfield
Circuit:                  7 (S51)
Neighbor Discovery:       Disabled
Router Advertisements:    Disabled
Configured Address Token: Autoconfigured
Actual Address Token:     00-00-00-00-00-4C-3F-6A/64
Configured MAC Address:   (nil)
Actual MAC Address:       (nil)
Effective Link MTU:       1590
Max Datagram Size :      4664
Cache Size:               128
ICMP Redirect:            Enabled
ICMP Rate Limit:         100 messages per second
```

---

## **circuits**

Displays the following information about IPv6 circuits configured on the router:

Circuit number	The number of each IPv6 circuit configured on the router
Name	The name of each IPv6 circuit configured on the router
Media	The physical medium associated with each circuit
Slot	The number of the slot on which each circuit is configured

**Sample Display - show ip6 circuits**

Circuit #	Name	Media	Slot
1	E21	Ethernet	2
2	E24	Ethernet	2
3	F31	FDDI	3
4	S41	SYNC	4
5	E51	Ethernet	5
6	E52	Ethernet	5
7	S51	SYNC	5
8	S52	SYNC	5
9	E22	Ethernet	2
10	E23	Ethernet	2



---

## show ipx

The **show ipx** <option> commands display information about Novell Internet Packet Exchange (IPX) services on a Bay Networks router. For detailed information about the Bay Networks implementation of IPX, refer to *Configuring IPX Services*.

The **show ipx** command supports the following subcommand options:

<a href="#">adjacent hosts</a>	<a href="#">sap alerts</a>
<a href="#">alerts</a>	<a href="#">sap disabled</a>
<a href="#">base</a>	<a href="#">sap enabled</a>
<a href="#">base stats</a>	<a href="#">sap</a>
<a href="#">circuits [&lt;circuit name&gt;]</a>	<a href="#">server net level filters</a>
<a href="#">disabled</a>	<a href="#">service addresses</a>
<a href="#">dor</a>	<a href="#">services [&lt;name search pattern&gt;   type &lt;hex search pattern&gt;   Net &lt;name search pattern&gt;]</a>
<a href="#">enabled</a>	<a href="#">static netbios routes</a>
<a href="#">forward</a>	<a href="#">static routes</a>
<a href="#">hosts</a>	<a href="#">ping &lt;service name&gt;</a>

<a href="#">rip</a>	<a href="#">static services additional</a>
<a href="#">rip alerts</a>	<a href="#">stats</a>
<a href="#">routes [type {direct   nosp   rip   static}   &lt;IP address&gt;   find &lt;search pattern&gt;   net &lt;search pattern&gt;   host &lt;search pattern&gt;]</a>	<a href="#">stats datagrams</a>
<a href="#">rip enabled</a>	<a href="#">traffic filters</a>
<a href="#">route filters</a>	<a href="#">version</a>
<a href="#">routes [type {direct   nosp   rip   static}   &lt;IP address&gt;   find &lt;search pattern&gt;   net &lt;search pattern&gt;   host &lt;search pattern&gt;]</a>	
<a href="#">sap</a>	
<a href="#">static services</a>	

## adjacent hosts

Displays the configurable parameters for all statically configured adjacent hosts. The IPX Adjacent Host Table includes the following information:

Mode	Mode is Enabled or Disabled.
Circuit Index	Unique number for each IPX interface on the router.
Host ID Address	Host address of the static host.
IPX Interface	Network address of the next-hop interface.
Host WAN Address	Host address of the next-hop interface.

---

## Sample Display - show ipx adjacent hosts

IPX Adjacent Host Table Information

```
-----
```

Mode	Circuit Index	IPX Interface	Host ID Address	Host WAN Address
Enabled	1	None	0x0000FFAAFFAA	0x0400

```
-----
```

## alerts

Displays potential problem areas for the IPX protocol. The table shows any IPX interfaces that are enabled but whose state is not up. The table includes the following information:

Circuit	Name of the circuit this interface runs on.
State	State of the interface, which in this case is Down, Init (initializing), or Not Pres (not present).
Ckt Idx	Circuit index -- unique number for each IPX interface on the router.
Net Addr	Network address of the interface.
Host Address	Host identifier of the interface.
Encaps Method	Encapsulation method that the interface uses: Ethernet, Novell, LSAP, or SNAP.

**Sample Display - show ipx alerts**

IPX Circuit Configuration Information (Alerts)

```

-----
Circuit      State      Ckt Idx Net Addr      Host Address      Encaps Method
-----
F51          Down       1        None          None              Ethernet
E22          Down       2        None          None              Ethernet
203101.0    Down       3        None          None              Ethernet
S32-iwup    Down       4        None          None              Ethernet
S33-iwpp    Down       5        None          None              Ethernet
E24          Down       8        None          None              Ethernet

```

8 Circuits in table.

**base**

Displays the base record information for the IPX protocol. The base record controls IPX for the entire system. The table includes the following information:

Protocol	Name of the protocol service. In this case, it is IPX.
State	State is Down, Init (initializing), Not Pres (not yet started), or Up.
Router Name	Name of the router used for IPX WAN connections.
Primary NN	Network number used for IPX WAN connections.
Route Method	Method of routing that the protocol uses -- metric/hops based or tick based.
Mult Host Mode	Status of support for multiple hosts -- Enabled or Disabled. When this parameter is enabled, the router's host ID is unique for each interface and it has a different ID for each packet; it derives its host ID from the underlying communications device. When this parameter is disabled, one host ID identifies the router; the host ID remains constant for all interfaces.
Maximum Path	Maximum number of equal cost paths allowed for a given destination network.

---

Log Filter Setting                      Setting that determines what kind of messages appear in the log file. The default setting filters out debug, information, and trace messages.

PreConfigured Net Table Size    Amount of space set aside for the forwarding and network tables.

There is also a base record statistical table displayed that includes total routes, services, and hosts for the protocol.

### Sample Display - show ipx base

IPX Base Record Configuration Information

```
-----  
  
  Protocol  State      Router Name  
-----  
IPX         Up         1  
  
  Primary NN                Router Name  
-----  
None                None  
  
Route Method Mult Host Mode  Maximum Path  
-----  
Tick Based   Enabled                1  
  
  Log Filter Setting      PreConfigured Net Table Size  
-----  
Filter Debug, Info, and Trace                0
```

**base stats**

Displays base record statistics for the IPX protocol. The statistics provide information on the total number of routes, services, and hosts.

**Sample Display - show ipx base stats**

```
IPX Base Record Statistical Information
```

```
-----
```

Protocol	State	Total Routes	Total Services	Total Hosts
IPX	Up	1	0	3

```
-----
```

**circuits [*<circuit name>*]**

Displays information associated with all IPX interfaces or a specific interface. The table includes the following information:

Circuit	Name of the circuit the interface runs on.
State	State of the circuit: <i>Down</i> , <i>Init</i> (initializing), <i>Not Pres</i> (not yet started), or <i>Up</i> .
Ckt Idx	Circuit index -- unique number for each IPX interface on the router.
Net Address	Network part of the IPX address of the interface.
Host Address	Host part of the IPX address of the interface.
Encaps Method	Encapsulation method the router uses: Ethernet, Novell/802.3, LSAP, or SNAP.

---

## Sample Display - show ipx circuits

IPX Circuit Configuration Information (ALL)

```
-----  
circuit   State   Ckt Idx Net Addr      Host Address  Encaps Method  
-----  
F51       Down    1       None          None          Ethernet  
E22       Down    2       None          None          Ethernet  
203101.0  Down    3       None          None          Ethernet  
S32-iwup  Down    4       None          None          Ethernet  
S33-iwpp Down    5       None          None          Ethernet  
O42       Up      6       0x2E025290  0x0000A20320C2 LSAP  
S34-smds Up      7       0x2E025360  0xC15084368061 SNAP  
E24       Down    8       None          None          Ethernet
```

8 Circuits in table.

## disabled

Displays all disabled IPX circuits. A circuit is disabled if the Disable/Enable parameter is set to Disable and the state is Down. The table contains the following information:

Circuit	Name of the circuit the interface runs on.
State	State of the interface; in this case, Disabled.
Ckt Idx	Circuit index -- unique number for each IPX interface on the router.
Net Address	IPX network address of the interface.
Host Address	Host part of the interface's address.
Encaps Method	Encapsulation method: Ethernet, Novell/802.3, LSAP, SNAP.

**Sample Display - show ipx disabled**

```
IPX Circuit Configuration Information (Disabled)
```

```
-----
```

Circuit	State	Ckt Idx	Net Addr	Host Address	Encaps Method
F51	Disabled	1	None	None	Ethernet

```
8 Circuits in table.
```

**dor**

Displays a list of all dial optimized routing (DOR) circuits.

**Sample Display - show ipx dor**

```
IPX Dial Opportunity Routing (DOR) Circuit Information
```

```
-----
```

Circuit	Circuit Index	IPX Interface	RIP update Interval	SAP update Interval	Stabilize Timer	Watchdog Spoof Cnt	SPX Spoof Cnt
Demand 7	6	0x2E025550	3600	3600	120	0	0

```
1 DOR Circuits in table.
```

**enabled**

Displays all enabled IPX circuits. A circuit is enabled if the Disable/Enable parameter is set to Enable and the state is Up. For column definitions, see the **disabled** command.



---

## Sample Display - show ipx enabled

IPX Circuit Configuration Information (Enabled)

-----

Circuit	State	Ckt Idx	Net Addr	Host Address	Encaps Method
E22	Down	2	None	None	Ethernet
203101.0	Down	3	None	None	Ethernet
S32-iwup	Down	4	None	None	Ethernet
S33-iwpp	Down	5	None	None	Ethernet
O42	Up	6	0x2E025290	0x0000A20320C2	LSAP
S34-smds	Up	7	0x2E025360	0xC15084368061	SNAP
E24	Down	8	None	None	Ethernet

8 Circuits in table.

## forward

Displays the entries in the IPX forwarding table, which includes the following information.

Network	Address of the network to which this entry is forwarding packets.
Ckt Idx	Circuit index associated with the network; a unique number that identifies each IPX interface on a router.
Types	Type of forwarding table entry -- <i>Local</i> , <i>Remote</i> or <i>Other</i> .
Method	Source through which IPX discovered the route -- <i>Local</i> , <i>NLSP</i> , <i>RIP</i> , <i>SAP</i> , <i>Static</i> , or <i>Other</i> .
Eql Cost Paths	Number of equal-cost paths to this network.

### Sample Display - show ipx forward

```
IPX Forwarding Table Information
-----
Network      Ckt Idx  Type   Method  Eql Cost Paths
-----
0x0000DD00  1        Local  Local   1
0x0000FF00  1        Local  Local   1
0x0000DD00  3        Local  Local   1

3 Forwarding entries total.
```

## hosts

Displays the entries in the IPX host table, which includes the following information.

Host Addr	Address of the host.
Ckt Idx	Next hop circuit index for the host -- unique number for each IPX interface on a router.
Network	Address of the network associated with the host.

---

Method	Source through which IPX discovered the host -- <i>Local, NLSP, RIP, SAP, Static, or Other.</i>
Wan Address	Host's WAN address, if the host is associated with a WAN interface.

### Sample Display - show ipx hosts

IPX Host Table Information

-----

Host Addr	Ckt Idx	Network	Method	Wan Address
0x0000A2084694	1	0x0000FF00	Local	0x0000000000000000
0xFFFFFFFFFFFF	1	0x0000FF00	Local	0x0000000000000000
0x00000000000001	3	0x0000DD00	RIP	0x0000000000000000
0x0000A20186E8	3	0x0000DD00	Local	0x0000000000000000
0x4000AABBAA11	3	0x0000DD00	RIP	0x0000000000000000
0xFFFFFFFFFFFF	3	0x0000DD00	Local	0x0000000000000000

6 Hosts total.

### ping <service name>

The **ping** command sends a packet to the specified server (service name) and waits for a response. When you execute the **ping** command, the router searches for the server in the server database. When it locates the server, it retrieves the network and host ID address and then sends an IPX diagnostic packet to the specified server.

### Sample Display - show ipx ping ADMIN\_SERVER

```
IPX Ping command, by name
-----

Searching for ADMIN_SERVER in server database.

Server ADMIN_SERVER found, sending ping...

pinging ADMIN_SERVER at 0x0000AAA1.0x000000000001

IPX ping: 0x0000AAA1.0x000000000001 is alive
```



**Note:** To conform with the Novell specification, a Bay Networks router running IPX responds to pings from NetWare servers but does not initiate pings to those servers.

---

## rip

Displays the state of IPX Routing Information Protocol (RIP) interfaces and includes the following information:

Circuit Index	Unique number for each IPX interface on the router.
RIP Interface	Network address of the RIP interface.
State	Condition of the interface, which can be <i>Down</i> , <i>Init</i> (initializing), <i>NotPres</i> (not present), or <i>Up</i> .
Mode	Operating mode for this circuit, as follows: <ul style="list-style-type: none"><li>• <i>Listen/Supply</i> - Interface both listens for and supplies RIP updates.</li><li>• <i>Listen</i> - Interface listens to RIP Periodic and Triggered updates from neighboring networks and conveys received routing information to its internal routing table.</li><li>• <i>Supply</i> - Interface transmits all RIP Periodic and Triggered updates to routers in neighboring networks.</li></ul>
In Packets	Number of RIP packets received on this interface.
Out Packets	Number of RIP packets sent out this interface.
Bad Packets	Number of bad RIP packets received on this interface.

---

## Sample Display - show ipx rip

IPX RIP Interface Record Configuration Information (All)

```
-----
```

Circuit Index	RIP Interface	State	Mode	In Packets	Out Packets	Bad Packets
1	None	Absent	Lstn/Sply	0	0	0
2	None	Absent	Lstn/Sply	0	0	0
3	None	Absent	Lstn/Sply	0	0	0
4	None	Absent	Lstn/Sply	0	0	0
5	None	Absent	Lstn/Sply	0	0	0
6	0x2E025290	Up	Lstn/Sply	0	1600	0
7	0x2E025360	Up	Lstn/Sply	1534	384	0
8	None	Absent	Lstn/Sply	0	0	0

8 RIP Interfaces configured.

## rip alerts

Displays IPX RIP interfaces whose Disable/Enable parameter conflicts with their state. For column definitions, see the **rip** command.

## Sample Display - show ipx rip alerts

IPX RIP Interface Record Configuration Information (Alerts)

```
-----
```

Circuit Index	RIP Interface	State	Mode	In Packets	Out Packets	Bad Packets
1	None	Absent	Lstn/Sply	0	0	0
2	None	Absent	Lstn/Sply	0	0	0
3	None	Absent	Lstn/Sply	0	0	0
4	None	Absent	Lstn/Sply	0	0	0
5	None	Absent	Lstn/Sply	0	0	0
8	None	Absent	Lstn/Sply	0	0	0

8 RIP Interfaces configured.

## rip disabled

Displays IPX RIP interfaces that are disabled. For column definitions, see the **rip** command.

### Sample Display - show ip rip disabled

IPX RIP Interface Record Configuration Information (Disabled)

```
-----  
Circuit   RIP  
Index   Interface   State      Mode      In      Out      Bad  
-----  
1        None        Disabled  Lstn/Sply 0        0        0
```

8 RIP Interfaces configured.

## rip enabled

Displays IPX RIP interfaces that are enabled. For column definitions, see the **rip** command.

### Sample Display - show ipx rip enabled

IPX RIP Interface Record Configuration Information (Enabled)

```
-----  
Circuit   RIP  
Index   Interface   State      Mode      In      Out      Bad  
-----  
2        None        Absent     Lstn/Sply 0        0        0  
3        None        Absent     Lstn/Sply 0        0        0  
4        None        Absent     Lstn/Sply 0        0        0  
5        None        Absent     Lstn/Sply 0        0        0  
6        0x2E025290 Up          Lstn/Sply 0        1612    0  
7        0x2E025360 Up          Lstn/Sply 1542    386     0  
8        None        Absent     Lstn/Sply 0        0        0
```

8 RIP Interfaces configured.

---

## route filters

Displays the IPX Route Filter Information table, which contains the following information:

Prio	Network priority of this filter compared to other filters of the same type. The highest priority is 1.
Target Net	Address of the target network to monitor.
Network Mask	Network mask.
State	State of the filter -- <i>Enabled</i> or <i>Disabled</i> .
Circuit Index	Unique number for each IPX interface on the router.
IPX Interface	Identifier of the circuit, unique to the IPX instance.
Proto	The protocol upon which to apply this filter when sending RIP updates. This can be <i>Any</i> , <i>Local</i> , <i>RIP</i> , <i>NLSP</i> , or <i>Static</i> .
Action	Action for the filter to take: advertise/accept ( <i>Adv/Acpt</i> ) or suppress ( <i>Sprs</i> ). Mode means whether the action applies to inbound or outbound filters. The modes are <i>-In</i> , <i>-Out</i> , or <i>-In/Out</i> . The action and mode are combined under the Action/Mode field in the display; for example, <i>Sprs/-In</i> would mean to suppress inbound filters. The default action and mode is <i>Adv/Acpt-Out</i> .

### Sample Display - show ipx route filters

```
IPX Route Filter Information
```

```
-----
```

Prio	Target Net	Network Mask	state	Circuit Index	IPX Interface	Proto	Action/ Mode
1	0x00000001	0x00000001	Enabled	3	0x0000DD00	Any	Adv/Acpt-Out

```
1 Route Filters configured.
```

---

```
routes [type {direct | nlsp | rip | static} | <IP address> | find <search pattern> | net <search pattern> | host <search pattern>]
```

Displays information from the IPX routing table. The table receives routes through IPX RIP, from configured IPX interfaces or statically configured routes. You can use the following options with the **routes** command:

<b>type</b>	Limits the display to the routing method that was the source of this route. The routing method is <i>direct</i> , <i>NLSP</i> , <i>RIP</i> , or <i>static</i> .
< <i>IP_address</i> >	Limits the display to the network with the specified Internet address (in hexadecimal format).
<b>find</b> < <i>search_pattern</i> >	Limits the display to the networks that match the given destination network address pattern (hexadecimal).
<b>net</b> < <i>search_pattern</i> >	Limits the display to the networks that match the given next-hop network address pattern (hexadecimal).
<b>host</b> < <i>search_pattern</i> >	Limits the display to the next-hop hosts that match the given network address pattern (hexadecimal).



**Note:** A search pattern is case sensitive, so make sure that you enter the exact uppercase or lowercase characters for the addresses you want to retrieve.

---

The table includes the following information:

Dest Net	Identification of the route's destination network.
Ckt Idx	Circuit index -- unique number for each IPX interface on the router.
NextHop Net	Network address of the next-hop host for this network.
NextHop Host	Host identifier of the next-hop host for this network.
Method	Routing mechanism through which the router learned this route, as follows: <ul style="list-style-type: none"> <li>• <i>Direct</i> - From the local router.</li> <li>• <i>Static</i> - Through a network management application.</li> <li>• <i>RIP</i> or <i>NLSP</i> - Through the Routing Information Protocol or the NetWare Link Services Protocol.</li> </ul>



---

Age	Number of seconds since the router updated this route or determined it to be valid. The significance of this value depends on the routing protocol in use.
Ticks	Cost of the static route in numbers of ticks.
Hops	Cost of this route in numbers of hops.

### Sample Display - show ipx routes

#### IPX Routing Table Information

-----

Dest Net	Ckt Idx	NxtHop Net	NextHop Host	Method	Age	Ticks	Hops
-----	-----	-----	-----	-----	-----	-----	-----
0x00000002	7	0x2E025360	0xC15084368062	RIP	10	23	13
0x00000003	7	0x2E025360	0xC15084368062	RIP	10	25	14
0x00000022	7	0x2E025360	0xC15084368062	RIP	10	17	6
0x00000042	7	0x2E025360	0xC15084368062	RIP	10	20	9
0x00000043	7	0x2E025360	0xC15084368062	RIP	10	19	8
0x00000044	7	0x2E025360	0xC15084368062	RIP	10	20	9
0x00000100	7	0x2E025360	0xC15084368062	RIP	10	21	10
0x00000123	7	0x2E025360	0xC15084368062	RIP	10	20	9
0x00000192	7	0x2E025360	0xC15084368062	RIP	20	22	9
0x00000730	7	0x2E025360	0xC15084368062	RIP	20	20	9
0x00000986	7	0x2E025360	0xC15084368062	RIP	20	4	3
0x00002FCA	7	0x2E025360	0xC15084368062	RIP	20	18	7
0x00005555	7	0x2E025360	0xC15084368062	RIP	20	18	7
0x0000AAA1	7	0x2E025360	0xC15084368062	RIP	20	20	9
0x0000F2AB	7	0x2E025360	0xC15084368062	RIP	20	19	8
0x0000F2B8	7	0x2E025360	0xC15084368062	RIP	20	20	9

16 Routes in table.

### Sample Display - show ipx routes type local

IPX Routing Table Information

-----

Dest Net	Ckt Idx	NxtHop Net	NextHop Host	Method	Age	Ticks	Hops
0x2E025290	6	0x2E025290	0x000045C00443	Local	0	1	0
0x2E025360	7	0x2E025360	0xC15084368061	Local	0	1	0

2 Entries found.

### Sample Display - show ipx routes 0x2E025360

IPX Routing Table Information

-----

Dest Net	Ckt Idx	NxtHop Net	NextHop Host	Method	Age	Ticks	Hops
0x2E025360	7	0x2E025360	0xC15084368061	Local	0	1	0

1 Entries found.

### Sample Display - show ipx routes find \*5555

IPX Routing Table Information

-----

Dest Net	Ckt Idx	NxtHop Net	NextHop Host	Method	Age	Ticks	Hops
0x00005555	7	0x2E025360	0xC15084368062	RIP	60	18	7

1 Entries found.

---

### Sample Display - show ipx route net 0x2E0252\*

IPX Routing Table Information

-----

Dest Net	Ckt Idx	NxtHop Net	NextHop Host	Method	Age	Ticks	Hops
0x2E025290	6	0x2E025290	0x000045C00443	Local	0	1	0

1 Entries found.

### Sample Display - show ipx route host 0x000045C00443

IPX Routing Table Information

-----

Dest Net	Ckt Idx	NxtHop Net	NextHop Host	Method	Age	Ticks	Hops
0x2E025290	6	0x2E025290	0x000045C00443	Local	0	1	0

1 Entries found.

## sap

Displays the state of IPX Service Advertising Protocol (SAP) interfaces and includes the following information:

Circuit Index	Unique number for each IPX interface on the router.
SAP Interface	Network address of the SAP interface.
State	Condition of the interface, which can be Down, Init (initializing), NotPres (not present), or Up.
Mode	Operating mode for this circuit, as follows: <ul style="list-style-type: none"><li>• <i>Listen/Supply</i> - Interface both listens for and supplies SAP updates.</li><li>• <i>Listen</i> - Interface listens to SAP Periodic and Triggered updates from neighboring networks and conveys received routing information to its internal routing table.</li><li>• <i>Supply</i> - Interface transmits all SAP Periodic and Triggered updates to routers in neighboring networks.</li></ul>

In Packets                      Number of SAP packets received on this interface.  
Out Packets                     Number of SAP packets sent out this interface.  
Bad Packets                     Number of bad SAP packets received on this interface.

**Sample Display - show ipx sap**

IPX SAP Interface Record Configuration Information (All)

```
-----
```

Circuit Index	SAP Interface	State	Mode	In Packets	Out Packets	Bad Packets
1	None	Absent	Lstn/Sply	0	0	0
2	None	Absent	Lstn/Sply	0	0	0
3	None	Absent	Lstn/Sply	0	0	0
4	None	Absent	Lstn/Sply	0	0	0
5	None	Absent	Lstn/Sply	0	0	0
6	0x2E025290	Up	Lstn/Sply	0	13587	0
7	0x2E025360	Up	Lstn/Sply	13313	1	0
8	None	Absent	Lstn/Sply	0	0	0

```
-----
```

8 SAP Interfaces configured.

---

## sap alerts

Displays IPX SAP interfaces whose Disable/Enable parameter conflicts with their state. For column definitions, see the **sap** command.

### Sample Display - show ipx sap alerts

IPX SAP Interface Record Configuration Information (Alerts)

```
-----
```

Circuit Index	SAP Interface	State	Mode	In Packets	Out Packets	Bad Packets
1	None	Disabled	Lstn/Sply	0	0	0
2	None	Absent	Lstn/Sply	0	0	0
3	None	Absent	Lstn/Sply	0	0	0
4	None	Absent	Lstn/Sply	0	0	0
5	None	Absent	Lstn/Sply	0	0	0
8	None	Absent	Lstn/Sply	0	0	0

8 SAP Interfaces configured.

## sap disabled

Displays IPX SAP interfaces that are disabled. For column definitions, see the **sap** command.

### Sample Display - show ip sap disabled

IPX SAP Interface Record Configuration Information (Disabled)

```
-----
```

Circuit Index	SAP Interface	State	Mode	In Packets	Out Packets	Bad Packets
1	None	Disabled	Lstn/Sply	0	0	0

8 SAP Interfaces configured.

## sap enabled

Displays IPX SAP interfaces that are enabled. For column definitions, see the **sap** command.

### Sample Display - show ipx sap enabled

IPX SAP Interface Record Configuration Information (Enabled)

```
-----
Circuit   SAP
Index  Interface  State      Mode      In      Out      Bad
      Packets  Packets  Packets
-----
2         None      Absent     Lstn/Sply 0         0         0
3         None      Absent     Lstn/Sply 0         0         0
4         None      Absent     Lstn/Sply 0         0         0
5         None      Absent     Lstn/Sply 0         0         0
6         0x2E025290 Up         Lstn/Sply 0        13621     0
7         0x2E025360 Up         Lstn/Sply 13383     1         0
8         None      Absent     Lstn/Sply 0         0         0
-----
```

8 SAP Interfaces configured.

## server name level filters

Displays all name-level service filters on the router. Name-level filters filter individual services based on the name of the server and the type of service. The display includes the following information:

Prio	Priority of this filter compared to other filters of the same type. The highest priority is 1.
Server	Name of the server.
State	State of the filter -- <i>Enabled</i> or <i>Disabled</i> .
Circuit Index	Unique number for each IPX interface on the router.
IPX Interface	Network address of the server.

---

Type	Type of service to monitor; for example, printer, file server, and so on.
Action	Action for the filter to take: advertise/accept ( <i>Adv/Acpt</i> ) or suppress ( <i>Sprs</i> ). Mode means whether the action applies to inbound or outbound filters. The modes are <i>-In,-Out</i> , or <i>-In/Out</i> . The action and mode are combined under the Action/Mode field in the display; for example, <i>Sprs/-In</i> means to suppress inbound filters. The default action and mode is <i>Adv/Acpt-Out</i> .

### Sample Display - show ipx server name level filters

IPX Server Name Level Filter Information

```
-----
```

Prio	Server	State	Circuit Index	IPX Interface	Type	Action/Mode
1	PRINT_SERV	Enabled	3	0x0000DD00	0x0004	Adv/Acpt-Out

1 Server Name Level Filters configured

### server net level filters

Displays all network-level service filters on the router. Network-level filters filter individual services based on the internal network of the server and the type of service specified. The display includes the following information:

Target Net	Address of the target network to monitor.
------------	---

For more information on column definitions, see the **server name level filters** command.

### Sample Display - show ipx server net level filters

IPX Server Net Level Filter Information

-----

Priority	Target Net	State	Circuit Index	IPX Interface	Type	Action/ Mode
1	0x00000001	Enabled	3	0x0000DD00	0x0001	Adv/Acpt-Out

-----

1 Server Net Level Filters configured.

### service addresses

Displays the internal network address and host address of each service.

### Sample Display - show ipx service addresses

IPX Service Address Information

-----

Server	Internal Net	Host Address
FENDER	0xF006014	0x000000000001
HIWATT	0xFA72401	0x000000000001

-----

2 Services in table.



---

**services** [*<name search pattern>* | **type** *<hex search pattern>* | **Net** *<name search pattern>*]

Displays the service type, age, and hop count within the router's SAP table.

- <name\_search\_pattern>** Limits the display to servers with names that match the character-based search pattern, which is case sensitive.
- type <hex\_search\_pattern>** Limits the display to server types that match the hexadecimal search pattern, which is case sensitive.
- net <name\_search\_pattern>** Limits the display to networks that match the given next-hop network address pattern (in character format), which is case sensitive.

The table includes the following information:

Server	Name of the server.
Type	Type of server allowed to pass SAP broadcasts to the locally attached network segment; a 4-digit number in hexadecimal format.
Network	The network address of the server.
Age	Number of seconds since the router updated this service or determined it to be valid.
Hops	Number of hops this service is from the router.

### Sample Display - show ipx services

IPX Service Table Information

```
-----
```

Server	Type	Network	Age	Hops
HOMER	0x0004	0x00202020	50	9
CALERN	0x0004	0xEC101070	50	9
CD_ROM	0x0004	0x2E86F3D1	50	10
WFNYC1	0x0004	0x17171717	50	9
PAYROLL	0x0004	0x00000100	50	10
TORONTO	0x0004	0xFC111139	50	9
HRISTEST	0x0004	0x2F5F920C	50	9
HR_SERVER	0x0004	0x0000AAA1	50	9
RSMT_NW_1	0x0004	0x43582782	50	9
SYNOPTICS	0x0004	0x00000003	50	14

10 Services in table.

### Sample Display - show ipx service HO\*

IPX Service Table Information

```
-----
```

Server	Type	Network	Age	Hops
HOMER	0x0004	0x00202020	50	9
HOUSTON_NW_SVR	0x0004	0x0000F2B8	50	9
HOUSTON_NW_SVR	0x0107	0x0000F2B8	50	10
HOUSTON_NW_SVR	0x023F	0x0000F2B8	60	10

4 Entries found.

---

## Sample Display - show ipx service type \*4

### IPX Service Table Information

-----

Server	Type	Network	Age	Hops
HOMER	0x0004	0x00202020	50	9
CALERN	0x0004	0xEC101070	20	9
CD_ROM	0x0004	0x2E86F3D1	50	10
WFNYC1	0x0004	0x17171717	50	9
PAYROLL	0x0004	0x00000100	50	10
TORONTO	0x0004	0xFC111139	50	9
HRISTEST	0x0004	0x2F5F920C	30	9
HR_SERVER	0x0004	0x0000AAA1	50	9
RSMT_NW_1	0x0004	0x43582782	30	9
SYNOPTICS	0x0004	0x00000003	50	14
HR_SERVER2	0x0004	0x000AAA12	50	10
BOCA_NW_SVR	0x0004	0x00087364	50	9
HR_VALBONNE	0x0004	0x00000123	50	9
NW312_LOTUS	0x0004	0x00000986	50	3
ADMIN_SERVER	0x0004	0x0000F2AB	50	8
MARLOW_SALES	0x0004	0x44628F02	30	10
MCA_ST_LOUIS	0x0004	0x00000730	50	9
REGISTRATION	0x0004	0x0BADF00D	50	8
ATLANTA_NW_SVR	0x0004	0x2E5965F3	50	9
HOUSTON_NW_SVR	0x0004	0x0000F2B8	50	9

20 Entries found.

### Sample Display - show ipx service net \*00010?

IPX Service Table Information

-----

Server	Type	Network	Age	Hops
PAYROLL	0x0004	0x00000100	30	10
PAYROLL	0x0047	0x00000100	40	11
PAYROLL	0x0107	0x00000100	40	11
0800092C489983C2NPI2C4899	0x030C	0xFC000108	50	9
08000945B1310380SYSTEM_ENGINEERS	0x030C	0xFC000105	50	9
Synoptics 810M Agent	0x0433	0xFC000108	60	9
QMS_1725_PRINT_SYSTEM_0800861004E0	0x045A	0xFC000105	60	9
APPLE_LW046fe3	0x0618	0xFC000106	60	9

8 Entries found.

### static netbios routes

Displays all configured NetBIOS Static Routes. Statically configured IPX records do not dynamically change within the configuration because information has been received through routing protocols. The table includes the following information:

Name	Name of the target server.
Target Net	IPX address of this static route.
Mode	State of the network: Enabled or Disabled.

### Sample Display - show ipx static netbios routes

IPX Netbios Static Route Table Information

-----

Name	Target Net	Mode
DANIEL	0x0000FC00	Enabled

1 Netbios Static Routes configured

---

## static routes

Displays all configured Static Routes. The table includes the following information:

Static Net	Address of the statically configured network.
Mode	State of the network: Enabled or Disabled.
Nexthop Ckt Idx	Circuit index of IPX interface, a unique number for each IPX interface on the router.
Nexthop Net	IPX address of the next-hop network.
Nexthop Host	Host address of the next-hop network.
Ticks	Cost of the static route in numbers of ticks.
Hops	Cost of this route in numbers of hops.

### Sample Display - show ipx static routes

IPX Static Route Table Information

```
-----
```

Static Net	Mode	Nexthop Ckt Idx	Nexthop Net	Nexthop Host	Ticks	Hops
0x00000001	Enabled	1	None	0x00000000000001	0	0

```
-----
```

1 Static Routes configured.

## static services

Displays all configured Static Services: Name, Internal Network, Host address, and Hops only. The table includes the following information:

Server	Name of the target server.
Internal Net	Internal network address for this service.
Host Address	Host address for this service.
Hops	Cost of this route in numbers of hops.

**Sample Display - show ipx static services**

IPX Static Service Table Information

```

-----
                Server                               Internal
                Server                               Network   Host Address   Hops
-----
oneputt                0x23AAFF00 0x000000002345      1

```

1 Static Services configured.

**static services additional**

Displays an alternative format that includes next hop, type, socket, and server name information. The table includes the following information:

Server	Server name.
Nexthop Ckt Idx	Circuit index of IPX interface, a unique number for each IPX interface on the router.
Nexthop Net	IPX address of the next-hop network.
Type	Type of service. Multiple routes to a single destination can appear in the table, but access to such multiple entries is dependent on the table-access mechanisms defined by the network management protocol in use.
Sock	Socket for this service.

**Sample Display - show ipx static services additional**

IPX Static Service Table additional Information

```

-----
                Server                               Nexthop
                Server                               Ckt Idx Nexthop Net   Type   Sock
-----
oneputt                1           None           0x0002 0x0023

```

1 Static Services configured.

---

## stats

Displays general forwarding statistics for IPX interfaces. The table includes the following information:

Circuit	Name of the circuit the interface runs on.
Circuit Index	Unique number for each IPX interface on the router.
IPX Network	Network address of the interface.
In Receive	Number of input datagrams received from interfaces including those received in error.
In Deliver	Number of input datagrams successfully delivered to IPX user-protocols.
Out Request	Number of IPX datagrams that local IPX user-protocols supplied in transmission requests; doesn't include datagrams counted in "Forwards."
Forward	Number of input datagrams for which this router was not the final IPX destination. When this is the case, the router tries to find a route for forwarding the datagram to the appropriate final destination. If the router isn't an IPX gateway, this counter includes only the packets that were source-routed through the router successfully.
In Discard	Number of input IPX datagrams discarded because of an environmental problem, such as insufficient buffer space; doesn't include those discarded while awaiting reassembly.
Out Discard	Number of output IPX datagrams discarded because of an environmental problem, such as insufficient buffer space; includes datagrams counted under "Forwards" if they match this criterion.

**Sample Display - show ipx stats**

## IPX Statistical Information

-----

Circuit	Circuit Index	IPX Network	In Receive	In Deliver	Out Request	Forward	In Discard	Out Discard
F51	1	None	0	0	0	0	0	0
E22	2	None	0	0	0	0	0	0
203101.0	3	None	0	0	0	0	0	0
S32- <i>iwup</i>	4	None	0	0	0	0	0	0
S33- <i>iwpp</i>	5	None	0	0	0	0	0	0
O42	6	0x2E025290	0	0	16714	16714	0	0
S34- <i>smds</i>	7	0x2E025360	16376	16376	427	427	0	0
E24	8	None	0	0	0	0	0	0

8 Entries in table.

**stats datagrams**

Displays error statistics for IPX circuits. The display includes the following information:

Circuit	Name of the circuit the interface runs on.
Circuit Index	Unique number for each IPX interface on the router.
IPX Network	Network address of the interface.
Header Errors	Number of IPX packets discarded because of errors in their headers, including any IPX packet less than 30 bytes.
In Discards	Number of input IPX datagrams discarded because of an environmental problem, such as insufficient buffer space; doesn't include those discarded while awaiting reassembly.
Out Discards	Number of output IPX datagrams discarded because of an environmental problem, such as insufficient buffer space; includes datagrams counted under "Forwards" if they match this criterion.
No Routes	Number of times the router could not find a route to the destination.



---

## Sample Display - show ipx stats datagrams

### IPX Statistical Datagram Information

```
-----
```

Circuit	Circuit Index	IPX Network	Header Errors	In Discards	Out Discards	No Routes
F51	1	None	0	0	0	0
E22	2	None	0	0	0	0
203101.0	3	None	0	0	0	0
S32-iwup	4	None	0	0	0	0
S33-iwpp	5	None	0	0	0	0
O42	6	0x2E025290	0	0	0	0
S34-smds	7	0x2E025360	0	0	0	0
E24	8	None	0	0	0	0

8 Entries in table.

## traffic filters

Displays IPX traffic filter information for all circuits or for a specific circuit. The table includes the following information:

Circuit	Name of the circuit the filter applies to.
Circuit Index	Unique number for each IPX interface on the router.
IPX Network	Network address of the interface.
Mode	Status of the interface: Enabled or Disabled.
Status	Current status of the traffic filter, as follows: <ul style="list-style-type: none"><li>• <i>Inactive</i> - Filter is not in use.</li><li>• <i>Active</i> - Filter is currently in use.</li><li>• <i>Error</i> - Application has detected an error in the rule.</li></ul>
Rx Matches	Number of received packets that have matched this rule.
Rule Number	Identifier for the rule.
Fragment Number	Number of the rule fragment (or section), used for large rules.

### Sample Display - show ipx traffic filter

IPX Traffic Filter Information

-----

Circuit	Circuit Index	IPX Address	Status	Rx Matches	Rule Number	Fragment Number
F51	1	None	Inactive	0	0	0

1 Traffic Filters configured.

### version

Displays the current version and modification date of the *ipx.bat* script.

### Sample Display - show ipx version

IPX.bat Version: #.## Date: mm/dd/yy.

---

## show iredund

The **show iredund** *<option>* commands display information about the Interface Redundancy protocol and services. For detailed information on the Bay Networks implementation of Interface Redundancy services, refer to *Configuring Interface and Router Redundancy*.

The **show iredund** command supports the following subcommand options:

<a href="#">circuit [&lt;circuit&gt;]</a>	<a href="#">enabled</a>
<a href="#">disabled</a>	

### circuit [<circuit>]

Displays circuit and state information for all interface redundancy ports or for a specific port. The table includes the following information:

Circuit	Name of the circuit.
Slot	Slot number the port is on.
Port	Port number.
State	State of the protocol: Enabled, Disabled, Down, Init (initializing), Not Pres (enabled but not yet started), or Up.
Role	Role of the interface: primary or backup.
Active	State of the Circuit: Active, Standby, Unavailable

### Sample Display - \$show iredund circuit

Interface Redundancy Circuit Table

```
-----
```

Circuit	Slot	Port	State	Role	Active
E43	4	3	Enabled	primary	standby
E43	4	4	Enabled	backup	active

2 Entries found.

### disabled

Displays all disabled circuits that contain an interface redundancy port. A circuit is disabled if the disable/enable parameter is set to disable and the state is down. For definitions of the columns in the table, see the **circuit** command.

### Sample Display - \$show iredund disable

Interface Redundancy Circuit Table

```
-----
```

Circuit	Slot	Port	State	Role	Active
---------	------	------	-------	------	--------

0 Entries found.

---

## enabled

Displays all enabled circuits that contain an interface redundancy port. A circuit is enabled if the disable/enable parameter is set to enable and the state is up. For definitions of the columns in the table, see the **circuit** command.

### Sample Display - \$show iredund enable

Interface Redundancy Circuit Table

```
-----
```

Circuit	Slot	Port	State	Role	Active
E43	4	3	Enabled	primary	standby
E43	4	4	Enabled	backup	active

2 Entries found.

## show isdn

The **show isdn** <option> commands display information about the Integrated Services Digital Network (ISDN) service. For information about ISDN, refer to *Configuring Dial Services*.



**Note:** Refer to the “[show isdn bri](#)” section for more information on the **isdn bri** command.

---

The **show isdn** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">local</a>
<a href="#">bri</a>	<a href="#">messages received</a>

<a href="#">calls circuit</a>	<a href="#">messages sent</a>
<a href="#">calls general</a>	<a href="#">pools</a>
<a href="#">calls time</a>	<a href="#">switch</a>
<a href="#">inphone</a>	<a href="#">version</a>

## alerts

Displays all enabled circuits that are not active. Use this display to identify the ports that are not working.

### Sample Display - show isdn alerts

```
ISDN Alerts  
-----
```

```
Slot 1 does not have Line Manager loaded  
Slot 2 does not have ISDN loaded
```

```
Total of 2 slot(s) on alert
```

---

## bri



**Note:** See “[show isdn bri.](#)”

---

## calls circuit

Displays the circuit information for an active ISDN call. The display includes the following information:

Cct	Circuit number of the ISDN interface.
Circuit	Type of dial-up circuit.
Mode	Whether this is the Monitor or Nonmonitor router (for bandwidth-on-demand circuits only).
Slot Conn.	Slot and connector where this circuit resides.
Call ID	Caller's ID.
B Chan	B channel that this call resides on.
Called Party Number	Phone number of the called party.
Calling Party Number	Phone number of the calling party.

### Sample Display - show isdn calls circuit

ISDN Active Call and Circuit Information

```
-----  
Cct  Circuit          Mode  Slot.  Call  B    Called          Calling  
-----  -----  -----  -----  -----  -----  -----  
3     PPP Demand 3     NonMon  1.12   11    1           6630803      6630371
```

Total of 1 call is active.

## calls general

Displays the active call information for all ISDN lines. The table displays the following information:

Slot	Slot that has the ISDN interface.
DSL ID	Digital Subscriber Loop ID.
Call ID	Entry in the ISDN Call Information Table.
B Chan	B channel that this call resides on.
Called Party Number	Phone number of the called party.
Called Sub-Addr	Subaddress of the called party.
Calling Party Number	Phone number of the calling party.
Calling Sub-Addr	Subaddress of the calling party.

### Sample Display - show isdn calls general

ISDN Active Call Information

```
-----
```

Slot	DSL ID	Call ID	B Chan	Called Party Number	Called Sub-Addr	Calling Party Number	Calling Sub-Addr
1	0	32769	1	384020	Not used	None	None

```
-----
```

Total of 1 call is active.



---

## calls time

Displays the duration of an active call. The table displays the following information:

Slot	Slot that has the ISDN interface.
DSL ID	Digital Subscriber Loop ID.
Call ID	Entry in the ISDN Call Information Table.
Duration (Minutes)	Duration of the call.
Connect Time (Hour:Min:Sec)	Time of day that the router establishes the call.

### Sample Display - show isdn calls time

```
      DSL  DurationConnect Time
Slot ID  Call ID(Minutes) (Hour:Min:Sec)
-----
1      0      32769                      0      16:46:33

Total of    1 call is active.
```

**inphone**

Displays the configuration set up for incoming phone numbers. The table displays the following information:

Index	Index number for this line instance.
Incoming Phone Number	Telephone number of the remote router.
Sub-Addr	Subaddress for a main telephone number.
Phone # Type	Whether the phone number type is Dial or ISDN.
Type of Phone	ISDN numbering type: Unknown, International, National, Specific, Subscriber, or Abbreviated.
Plan Type	ISDN numbering plan: Unknown, Telephony, X.121, Telex, Standard, or Private.

**Sample Display - show isdn inphone**

ISDN Incoming Phone Number Configuration

```
-----
```

Index	Incoming Phone Number	Sub-Addr	Phone # Type	Type of Phone	Plan Type
1	5084367001	None	DIAL	N/A	N/A
2	5084367002	None	DIAL	N/A	N/A
3	5084368005	None	DIAL	N/A	N/A
4	5084368006	None	DIAL	N/A	N/A
5	5084366005	None	DIAL	N/A	N/A
6	5084366006	None	DIAL	N/A	N/A

Total of 6 Incoming Phone Entries found.

---

## local

Lists the local phone number entry for each line in the line pool. The display includes the following information:

Line Number	Line number.
Directory Number	Local phone number.
Subaddress	Subaddress number for the main phone number if one exists.
SPID	Service profile identifier (SPID) assigned by your ISDN provider.
SPID Status	Whether the SPID was accepted or rejected by the called router.

### Sample Display - show isdn local

```
[2:1]$ show isdn local
```

```
ISDN Local Numbers
```

```
-----
```

Line Number	Directory Number	Subaddress	SPID	SPID Status
1301302	5084361011	Not used	1011	Accepted
1301302	5084361012	Not used	1012	Accepted

```
Total of 2 ISDN Local Number(s) found
```

## messages received

Displays the number of messages the router received on each ISDN line. The table displays the following information:

Slot	Slot that has the ISDN interface.
DSL ID	Digital Subscriber Loop ID.
Setup Ind.	Setup indication received from the network.
Connect Ind.	Connect indication received from the network.
Disconn. Ind.	Disconnect indication received from the network.
Clear Ind.	Release indication received from the network.
Activ. Ind.	Activation indication received from the ISDN driver.
Deactiv. Ind.	Deactivation indication received from the ISDN driver.

### Sample Display - show isdn messages received

```
ISDN Messages Received
-----
      Slot   DSL ID   Setup   Connect   Disconn.   Clear   Activ.   Deactiv.
      ----   -
      1       0       1       1         8         0       1       0
-----
Total of      1 Message Entries found.
```

---

## messages sent

Displays the messages the router sent on each ISDN line. The table displays the following information:

Slot	Slot that has the ISDN interface.
DSL ID	Digital Subscriber Loop ID.
Setup Req.	Setup request sent to the network.
Connect Req.	Connect request sent to the network.
Disconn. Req.	Disconnect request sent to the network.
Clear Req.	Clear request sent to the network.
Activ. Req.	Activate request sent to the driver.
Dactiv. Req.	Deactivate request sent to the driver.

### Sample Display - show isdn messages sent

ISDN Messages Sent

```
-----
```

Slot	DSL ID	Setup Req.	Connect Req.	Disconn. Req.	Clear Req.	Activ. Req.	Deactiv. Req.
----	-----	-----	-----	-----	-----	-----	-----
1	0	9	1	1	8	0	0

Total of 1 Message Entries found.

**pools**

Displays the line pool configuration. The table displays the following information:

Pool Type	Type of line pool: demand, backup, or bandwidth-on-demand.
Line Number	Lines in the pool.
Pool ID	Number of the pool.
Channel Count	Number of B channels in the pool.
Priority	The order of preference for each line pool.
Channels In Use	How many B channels the router is currently using.

**Sample Display - show isdn pools**

Pool Type	Line Number	Pool ID	Channel Count	Priority	Channels In Use
Demand	1301102	1	2	1	0
Backup	1301102	1	2	1	0
-----					
Total of	1 ISDN	Demand pool(s) found			
Total of	1 ISDN	Backup pool(s) found			
Total of	0 ISDN	Bandwidth pool(s) found			

---

## switch

Displays the ISDN switch type the router communicates with and the state of the incoming filter. The table displays the following information:

Slot	Slot that has the ISDN interface.
Switch Type	Switch type, as follows: BRI Options <ul style="list-style-type: none"><li>• BRI NET3 - Austria, Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, Sweden, United Kingdom</li><li>• BRI SWISSNET3 - Switzerland</li><li>• BRI 5ESS - United States</li><li>• BRI NI1 and BRI DMS100 - United States, Canada</li><li>• BRI KDD and BRI NTT - Japan</li><li>• BRI TS013 - Australia</li></ul> PRI Options <ul style="list-style-type: none"><li>• PRI Net 5 - Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom</li><li>• PRI 4ESS - United States</li><li>• PRI 5ESS - United States</li><li>• PRI DMS100 - United States, Canada</li><li>• PRI KDD and PRI NTT - Japan</li><li>• PRI TS014 - Australia</li></ul>
Incoming Filter	Security feature that can be set to On or Off. On enables call screening.

### Sample Display - show isdn switch

```
ISDN Switch Configuration
-----
      Slot      Switch Type      Incoming
      -----      -----      Filter
      1      BRI5ESS      Off

Total of      1 Switch Entries found.
```

## version

Displays the current version and modification date of the *isdn.bat* script.

### Sample Display - show isdn version

```
ISDN.BAT Version: #.## Date: mm/dd/yy.
```

## show isdn bri

The **show isdn bri** *<option>* commands display information about the ISDN Basic Rate Interface (ISDN BRI) service. For information about ISDN BRI, refer to *Configuring Dial Services*.



**Note:** The **isdn bri** set of commands is a subset of the **isdn** command. Refer to “[show isdn](#)” preceding this section for more information on the **isdn** command.

---

The **show isdn bri** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">sample</a> [ <a href="#">&lt;period in seconds&gt;</a> ] [ <a href="#">circuit</a> <a href="#">&lt;circuit name&gt;</a> ]
<a href="#">base</a>	<a href="#">stats</a>
<a href="#">disabled</a>	<a href="#">system errors</a>
<a href="#">enabled</a>	<a href="#">transmit errors</a>
<a href="#">receive errors</a>	<a href="#">version</a>



---

## alerts

Displays all enabled circuits that are not active. Use this display to identify the ports that are not working. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector's instance identifier; ranges from 1 to 4.
State	State of the line driver: Disabled, Down, Init (initializing), Not Present (enabled but not yet started), or Up.
DSL ID	ID of this Digital Subscriber Loop interface.
Line Number	Line number for this line instance.
MTU	Acceptable Link Access Protocol D-channel (LAPD) Maximum Transfer Units.
TE State	Terminal Endpoint state of the S/T interface: Inactive (1), Sensing (2), Deactivated (3), Await Signal (4), Identify Input (5), Synchronized (6), Activated (7), Lost Framing (8).
B Channel Loopback	Whether B Channel Loopback is enabled. Used for conformance testing.
Timer 3	Maximum amount of time (in seconds) the router has to activate the S/T interface.
Timer 4	Amount of time in milliseconds the router waits for the line to recover from a deactivated state.

### Sample Display - show isdnbri alerts

ISDN BRI Modules on Alert:

```
-----  
Slot      Conn    State    DSL   Line      MTU      TE State  BChannel  Tmr    Tmr  
-----  
1         12  Init      0 1301102 400      Deactivated  Disabled  10     750  
1         32  Init      1 1301302 400      Activated    Disabled  10     750
```

## base

Displays base record information for all ISDN BRI circuits or for a specified circuit. For definitions of the columns in the table, refer to the **alerts** command.

### Sample Display - show isdnbri base

ISDN BRI Modules:

-----

Slot	Conn	State	DSL ID	Line Number	MTU	TE State	BChannel Loopback	Tmr 3	Tmr 4
1	12	Init	0	1301102	400	Deactivated	Disabled	10	750
1	32	Init	1	1301302	400	Activated	Disabled	10	750

## disabled

Displays the circuits that a user has manually disabled. In this case, State is Disabled. For definitions of the columns in the table, refer to the **alerts** command.

### Sample Display - show isdnbri disabled

ISDN BRI Modules Disabled:

-----

Slot	Conn	State	DSL ID	Line Number	MTU	TE State	BChannel Loopback	Tmr 3	Tmr 4
1	12	Disabled	0	1301102	400	Deactivated	Disabled	10	750

---

## enabled

Displays the circuits that a user has enabled. In this case, State is Down, Init, Not Present, or Up. For definitions of the columns in the table, refer to the **alerts** command.

### Sample Display - show isdnbri enabled

ISDN BRI Modules Enabled:

```
-----
```

Slot	Conn	State	DSL ID	Line Number	MTU	TE State	BChannel Loopback	Tmr 3	Tmr 4	
-----	-----	-----	-----	-----	---	-----	-----	---	---	
	1	12	Init	0	1301102	400	Deactivated	Disabled	10	750
	1	32	Init	1	1301302	400	Activated	Disabled	10	750

## receive errors

Displays receive error information for all circuits or for a specified circuit.

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector's instance identifier; ranges from 1 to 4.
Over Flows	Number of data overflows (anomalies) received by the circuit.
Bad CRC	Number of bad cyclic redundancy checks received.
Aborts	Number of abort messages received.
Frames Too Long	Number of frames received that were too long for processing. (They exceeded the standard ISDN frame length.)

### Sample Display - show isdnbri receive errors

ISDN BRI Module Receive Errors:

```
-----
```

Slot	Conn	Over Flows	Bad CRC	Aborts	Frames Too Long	
-----	-----	-----	-----	-----	-----	
	1	12	0	0	0	0
	1	32	0	0	0	0

**sample** [*<period in seconds>*] [**circuit** *<circuit name>*]

Displays the ISDN BRI statistics generated during a prescribed period (default 10 seconds). This command can be used for all circuits (default) or for a selected circuit.

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector's instance identifier; ranges from 1 to 4.
Tx Frames	Number of frames the router transmits.
Rx Frames	Number of frames the router receives.
Rx Lack of Resources	Number of times there is a lack of resources for received frames. Due to a heavy traffic load, the D channel device driver could not find a buffer in which to receive a D channel frame.
Tx Lack of Resources	Number of times there is a lack of resources for transmitted frames. The driver received more than seven frames at once for transmission.

**Sample Display - show isdnbri sample**

ISDN BRI Sampled Data over 10 seconds

```
-----
```

Slot	Conn	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
1	12	0	0	0	0
1	32	0	0	0	0

```
-----
```

---

## stats

Displays I/O statistics for all ISDN BRI circuits or for a specific circuit.

Slot	Slot identifier; ranges from 1 to 14.
Chan	ISDN B or D channel used for transmission.
Conn	Connector's instance identifier; ranges from 1 to 4.
DSL ID	Digital subscriber loop identifier.
Receive Bytes	Number of bytes the router receives over the circuit.
Receive Frames	Number of frames the router receives over the circuit.
Transmit Bytes	Number of bytes the router transmits over the circuit.
Transmit Frames	Number of frames the router transmits.
Total Errors	Number of total errors for the circuit.

### Sample Display - show isdnbri stats

ISDN BRI Module I/O Statistics:

-----

Slot	Chan	Conn	Dsl Id	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
1	D	2	0	4683	976	4760	975	0
1	B	1		1359818	2095	550674	3854	4
1	B	3		521828	1074	456067	1034	0

3 entries in table.

## system errors

Displays statistical information about general interface errors for all circuits or for a specific circuit.

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector's instance identifier; ranges from 1 to 4.
Timer 3 Timeouts	Number of Timer 3 timeouts that occurred for the circuit.
Timer 4 Timeouts	Number of Timer 4 timeouts that occurred for the circuit.

### Sample Display - show isdnbri system errors

```
ISDN BRI Module System Errors:
```

```
-----
```

Slot	Conn	Timer 3 Timeouts	Timer 4 Timeouts
1	12	11	11
1	32	0	0

```
-----
```

---

## transmit errors

Displays statistical information about transmission errors for all circuits or for a specific circuit.

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector's instance identifier; ranges from 1 to 4.
Underflow Frames	Number of underflow frames (anomalies) for the circuit.
D Channel Collisions	Number of collisions on the D channel.

### Sample Display - show isdnbri transmit errors

```
ISDN BRI Module Transmit Errors:
```

```
-----
```

Slot	Conn	Underflow Frames	D Channel Collisions
1	12	0	0
1	32	0	0

```
-----
```

## version

Displays the current version number and date of the *isdnbri.bat* script.

### Sample Display - show isdnbri version

```
isdnbri.bat Version: #.## Date: mm/dd/yy.
```

## show l2tp

The **show l2tp** *<option>* commands display information about the Layer 2 Tunneling Protocol (L2TP). For information about L2TP, see *Configuring L2TP Services*.

The **show l2tp** command supports the following subcommand options:

auth_info	stats
auth_statistics	tunnels
configuration	users
sessions	

### auth\_info

Displays information about tunnel authentication for a specific L2TP interface. The display includes the following information:

Slot	The slot number of the L2TP interface.
Auth State	The state of tunnel authentication, that is, whether tunnel authentication is enabled or disabled for the interface.
Secret	The authentication password.

### auth\_statistics

Displays tunnel authentication and session statistics for a specific circuit. The display includes the following information:

Slot Number	Slot number used for L2TP.
Success	Number of successful tunnel authentication attempts and sessions.
Fail	Number of failed tunnel authentication attempts.
Count	Number of active tunnels and sessions.



---

## configuration

Displays the L2TP configuration for the router. The display includes the following information:

IP State	The LNS IP state, that is, whether or not it is active.
LNS Address	The IP address of the router serving as the LNS.
LNS Host Name	The router's host name.
Tunnel Auth.	Indicates whether tunnel authentication is enabled or disabled.

## sessions

Displays L2TP session information. The display includes the following information:

LNS Tun ID	LNS tunnel ID for the L2TP session.
LNS Call ID	LNS call ID for the L2TP session.
LAC Tun ID	LAC tunnel ID for the L2TP session.
LAC Call ID	LAC call ID for the L2TP session.
Calling Number	Phone number of the remote user.
Called Number	Phone number of the router.
Conn. Speed	Speed of the connection in bits/second.
Frame Type	Framing type used in the ICCN message.
Bear Type	Bearer type used in the ICRQ message.
Chan. ID	Physical channel ID used in the ICCN message.

## stats

Displays the L2TP statistics for establishing an L2TP tunnel. The display includes the following information:

Slot	Slot number of the L2TP interface.
SCCRQ Valid/Invalid	Number of valid and invalid SCCRQ requests.
SCCCN Valid/Invalid	Number of valid and invalid SCCCN messages.
ICRQ Valid/Invalid	Number of valid and invalid ICRQ messages.
ICCN Valid/Invalid	Number of valid and invalid ICCN messages.

## tunnels

Displays the L2TP tunnel information. The display includes the following information:

Slot Num	Number of the slot for the L2TP interface.
LNS Tun. ID	Router's tunnel ID.
LNS Address	Router's IP address.
LAC Tun. ID	LAC's tunnel ID.
LAC Address	LAC's IP address.
LAC Host Name	LAC's host name.
# of Active Sessions	Number of active L2TP sessions.

## users

Displays information about L2TP users.

This display provides the following information:

Dial Username	Dial-in user name.
Connect Time	Time the call connected.
LNS TunID	Tunnel ID for the LNS.
LNS CallID	Call ID for the LNS.
LAC TunID	Tunnel ID for the LAC.
LAC CallID	Call ID for the LAC.
Tx Packets	Number of packets transmitted by the LNS for the session.
Rx Packets	Number of packets received by the LNS for the session.

---

## show lane

The **show lane** *<options>* command displays information about ATM LAN Emulation. For details about the Bay Networks implementation of ATM, refer to *Configuring ATM Services*.

The **show lane** command supports the following subcommand options:

<a href="#">clients [&lt;circuit_name&gt;]</a>	<a href="#">les [&lt;circuit_name&gt;]</a>
<a href="#">config [&lt;circuit_name&gt;]</a>	<a href="#">mac [&lt;circuit_name&gt;]</a>
<a href="#">data_vcs [&lt;circuit_name&gt;]</a>	<a href="#">servers [&lt;circuit_name&gt;]</a>
<a href="#">learp [&lt;circuit_name&gt;]</a>	<a href="#">stats [&lt;circuit_name&gt;]</a>

### clients [<circuit\_name>]

Displays ATM LAN Emulation Client running information for all circuits, or for a specific circuit.

The table displays the following information:

Cct#	Circuit number of the LEC.
Circuit Name	Circuit name assigned by Site Manager.
LecID	LEC ID that the LE Server (LES) assigns during the Join state.
State	State for the LEC: INITIAL, LECSCONNECT, CONFIGURE, JOIN, INITIAL_REG, BUSCONNECT, OPERATIONAL.
Fail Code	Status code from the last failed Configure or Join response.
Cfg Src	Indicates whether this LEC used the LAN Emulation Configuration Server (LECS), and if so, what method is used to establish the Configuration Direct VCC: VIAILMI, KNOWNADR, CFGPVC, or NO LECS.
LAN type	Data frame format this client is now using: Unspecified, IEEE 802.3, or IEEE 802.5.

Max Data Frm Size	Maximum data frame size this client is now using: Unspecified, 1516, 4544, 9234, or 18190.
ELAN Name	The name of the emulated LAN (ELAN) that this client last joined.
Proxy	Indicates whether the LEC acts as a proxy when it joins an ATM emulated LAN: 1 (True) or 2 (False).
Primary addr	ATM address of the LEC.
Cfg Server addr	ATM address of the LAN Emulation Configuration Server.
LE Server addr	ATM address of the LES.

**Sample Display - show lane clients**

ATM LAN Emulation Client Running Config Info

```

-----
Cct#      Circuit Name      LecID      State      Fail Code  Cfg Src
-----
  4      ATMSR_1405101.4      29      OPERATIONAL  NONE      KNOWNADR

      LAN type      Max Data Frm Size  ELAN Name      Proxy
      -----
IEEE8023      1516                      01              1

Primary      addr
39.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.C0.A8.8D.A0.00
Cfg Server addr
47.00.79.00.00.00.00.00.00.00.00.00.00.00.00.00.A0.3E.00.00.01.00
LE Server  addr
39.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.08.00.20.1A.42.C4.01
-----

```

Total entries: 1

---

**config** [*<circuit\_name>*]

Displays the ATM LAN Emulation Client record for each circuit, or for a specific circuit.

The table displays the following information:

Cct#	Circuit number of the LEC.
Circuit Name	Circuit name assigned by Site Manager.
LAN Name	Emulated LAN name this client will use the next time it returns to the Initial state.
LAN Type	Data frame format that this client will use the next time it returns to the Initial state: Unspecified, IEEE 802.3, or IEEE 802.5.
State	State for the LEC: INITIAL, LECSCONNECT, CONFIGURE, JOIN, INITIAL_REG, BUSCONNECT, OPERATIONAL.
LES ATM addr	Configured ATM address of the LAN Emulation Server
LECS ATM addr	Configured ATM address of the LAN Emulation Configuration Server

**Sample Display - show lane config**

ATM LAN Emulation Client Table

-----

Cct#	Circuit Name	LAN Name	LAN Type	State
5	ATMSR_1405101.5	-	UNSPECIFIED	LECSCONNECT

LES ATM addr  
12.34.56.78.90.12.34.56.78.90.12.34.56.78.90.12.34.56.78.9A

LECS ATM addr  
12.34.56.78.90.12.34.56.78.90.12.34.56.78.90.12.34.56.78.9A

-----

Total entries: 1

**data\_vcs** [*<circuit\_name>*]

Displays ATM LAN Emulation control and data VCC information for all circuits, or for a specific circuit.

The table displays the following information:

Cct#	Circuit number of the LEC.
Config Direct	The VPI/VCI pair that identifies the Configuration Direct VCC (if it exists) at the point where it connects to this LEC. If the value is 0/0, no Configuration Direct VCC exists.
Control Direct	The VPI/VCI pair that identifies the Control Direct VCC (if it exists) at the point where it connects to this LEC. If the value is 0/0, no Control Direct VCC exists.
Control Distrib	The VPI/VCI pair that identifies the Control Distributed VCC (if it exists) at the point where it connects to this LEC. If the value is 0/0, no Control Distributed VCC exists.
Multi Send	The VPI/VCI pair that identifies the Multicast Send VCC (if it exists) at the point where it connects to this LEC. If the value is 0/0, no Multicast Send VCC exists.
Multi Forward	The VPI/VCI pair that identifies the Multicast Forward VCC (if it exists) at the point where it connects to this LEC. If the value is 0/0, no Multicast Forward VCC exists.
Data Direct	The VPI/VCI pair that identifies the Data Direct VCCs (if they exist) at the point where they connect to this LEC. If the value is 0/0, no Data Direct VCCs exist.

---

## Sample Display - show lane data\_vcs

```
[3:1$] show lane data_vcs
```

```
LAN Emulation control VCS and data VCS
-----
```

Line#.	Config	Control	Control	Multi	Multi	Data
Cct	Direct	Direct	Distrib	Send	Forward	Direct
1405101.3	0/514	0/515	0/516	0/517	0/518	0/610 0/623

Line#.	Config	Control	Control	Multi	Multi	Data
Cct	Direct	Direct	Distrib	Send	Forward	Direct
1405101.4	0/521	0/522	0/523	0/524	0/525	0/644

### **learp** [*<circuit\_name>*]

Displays ATM LAN Emulation Client MAC-to-ATM address resolution protocol (ARP) Cache information for all circuits, or for a specific circuit.

The table displays the following information:

Cct#	Circuit number of the LEC.
Circuit Name	Circuit name that Site Manager assigned.
IsRemote	Indicates whether the MAC address belongs to a remote client.
Entry Type	Indicates how this table entry was created: LEARNED, LEARNED CTRL, LEARNED DATA, STATIC VOL, STATIC NONVOL, OTHER. In the router's case, the LEC will always learn this entry via the Control VCC; the entry type will never be STATIC.
Status	Row status: ENABLE or DISABLE. In the router's case, the status will always be ENABLE.

## Using Technician Interface Scripts

---

VPI	Virtual Path Interface (VPI) that will be used for this MAC address.
VCI	Virtual Channel Interface (VCI) that will be used for this MAC address.
MAC Address	Remote MAC address.
ATM Address	ATM address representing the MAC address.

### Sample Display - show lane learp

ATM mulation Client MAC-to-ATM ARP Cache

```
-----  
Cct#      Circuit Name      IsRemote  EntryType   Status  VPI  VCI  
-----  
3         ATMSR_1405101.3         TRUE      LEARNED_CTRL  ENABLE  0    38  
  
MAC Address  ATM Address  
-----  
FF.FF.FF.FF.FF.FF 39.00.00.00.00.00.00.00.00.00.00.00.00.00.08.00.20.1A.42.C4.88  
-----
```

```
-----  
Cct#      Circuit Name      IsRemote  EntryType   Status  VPI  VCI  
-----  
4         ATMSR_1405101.4         TRUE      LEARNED_CTRL  ENABLE  0    45  
  
MAC Address  ATM Address  
-----  
00.00.A2.0E.9F.C0 39.00.00.00.00.00.00.00.00.00.00.00.00.00.00.00.17.00.00.70.00  
-----
```

```
-----  
Cct#      Circuit Name      IsRemote  EntryType   Status  VPI  VCI  
-----  
4         ATMSR_1405101.4         TRUE      LEARNED_CTRL  ENABLE  0    39  
  
MAC Address  ATM Address  
-----  
FF.FF.FF.FF.FF.FF 39.00.00.00.00.00.00.00.00.00.00.00.00.00.08.00.20.1A.42.C4.87  
-----
```

Total entries: 3



---

**les** [*<circuit\_name>*]

Displays ATM LAN Emulation Server (LES) state and address information for all circuits, or for a specific circuit.

The display includes the following information:

Cct#	Circuit number of the LEC.
Circuit Name	Circuit name of the LEC.
Inst	The instance (that is, circuit number and order of preference) for each configured LES.
State	The state of the LES (enable or disable).
LES Address	The configured ATM address of the LES that the LAN emulation client uses.

**mac** [*<circuit\_name>*]

Displays ATM LAN Emulation Client MAC address information for all circuits, or for a specific circuit.

The table displays the following information:

Cct#	Circuit number of the LEC.
Circuit Name	Circuit name that Site Manager assigned.
MAC address	The local MAC address on this ATM interface that the LEC uses.
ATM address registered for MAC address	The ATM address configured for this service record and that this LEC uses.

### Sample Display - show lane mac

ATM LAN Emulation Client MAC address table

```
-----
Cct#      Circuit Name
-----
 9        ATMSR_1405101.9

      MAC address      ATM address registered for MAC address
-----
00.00.A2.0E.9F.CA 39.00.00.00.00.00.00.00.00.00.00.00.00.00.00.08.00.00.71.00
-----
```

Total entries: 1

### **servers** [*<circuit\_name>*]

Displays ATM LAN Emulation Client Server VCC information for all circuits, or for a specific circuit.

The table displays the following information:

Cct#	Circuit number of the LEC.
Circuit Name	Circuit name that Site Manager assigned.
Config Direct Line#	Interface associated with the Configuration Direct VCC. If the value is 0, no Configuration Direct VCC exists.
Config Direct VPI	The Virtual Path Identifier (VPI) that identifies the Configuration Direct VCC (if it exists) at the point where it connects to this LEC.
Config Direct VCI	The Virtual Channel Identifier (VCI) that identifies the Configuration Direct VCC (if it exists) at the point where it connects to this LEC.
Control Direct Line#	Interface associated with the Control Direct VCC. If the value is 0, no Control Direct VCC exists.
Control Direct VPI	The VPI that identifies the Control Direct VCC (if it exists) at the point where it connects to this LEC.

Control Direct VCI	The VCI that identifies the Control Direct VCC (if it exists) at the point where it connects to this LEC.
Control Distributed Line#	Interface associated with the Control Distributed VCC. If the value is 0, no Control Distributed VCC exists.
Control Distributed VPI	The VPI that identifies the Control Distributed VCC (if it exists) at the point where it connects to this LEC.
Control Distributed VCI	The VCI that identifies the Control Distributed VCC (if it exists) at the point where it connects to this LEC.
Multicast Send Line#	Interface associated with the Multicast Send VCC. If the value is 0, no Multicast Send VCC exists.
Multicast Send VPI	The VPI that identifies the Multicast Send VCC (if it exists) at the point where it connects to this LEC.
Multicast Send VCI	The VCI that identifies the Multicast Send VCC (if it exists) at the point where it connects to this LEC.
Multicast Forward Line#	Interface associated with the Multicast Forward VCC. If the value is 0, no Multicast Forward VCC exists.
Multicast Forward VPI	The VPI that identifies the Multicast Forward VCC (if it exists) at the point where it connects to this LEC.
Multicast Forward VCI	The VCI that identifies the Multicast Forward VCC (if it exists) at the point where it connects to this LEC.

### Sample Display - show lane servers

ATM LAN Emulation Client Server VCC Table

```

-----
Cct#      Circuit Name      Config Direct      Control Direct
Line#    VPI  VCI    Line#    VPI  VCI
-----
4         ATMSR_1405101.4      1103101  0   32    1103101  0   33

Control Distributed      Multicast Send      Multicast Forward
Line#    VPI  VCI    Line#    VPI  VCI    Line#    VPI  VCI
-----
1103101  0   34      1103101  0   35      1103101  0   36
-----

```

Total entries: 1

**stats** [*<circuit\_name>*]

Displays ATM LAN Emulation Client Statistics information for all circuits, or for a specific circuit.

The table displays the following information:

Cct#	Circuit number of the LEC.
Circuit Name	Circuit name assigned by Site Manager.
Req Out	Number of MAC-to-ATM address resolution protocol (ARP) requests this LEC made over the logical User-to-Network Interface (LUNI) associated with this emulated packet interface.
Req In	Number of MAC-to-ATM ARP requests this LEC received over the LUNI associated with this emulated packet interface.
ReplyOut	Number of MAC-to-ATM ARP replies this LEC sent over the LUNI associated with this emulated packet interface.
ReplyIn	Number of MAC-to-ATM ARP replies this LEC received over the LUNI associated with this emulated packet interface.
FrameOut	Total number of control packets this LEC sent over the LUNI associated with this emulated packet interface.
FrameIn	Total number of control packets this LEC received over the LUNI associated with this emulated packet interface.
SVCFAILS	Number of SVCs this LEC tried to open but could not.

---

## Sample Display - show lane stats

ATM LAN Emulation Client Statistics

```
-----  
Cct#  Circuit Name           Req Out  Req In   ReplyOut ReplyIn  
-----  
4     ATMSR_1405101.4          126      0        0         126  
  
      FrameOut FrameIn  SVCFails  
      -----  
      128      128      0  
  
-----
```

Total entries: 1

## show lapb

The **show lapb** *<option>* commands display information about the Link Access Procedure-Balanced (LAPB) layer. For information about LAPB, refer to *Configuring and Managing Routers with Site Manager*.

The **show lapb** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">lines [&lt;line&gt;   &lt;line.lindex&gt;]</a>
<a href="#">disabled</a>	<a href="#">stats [&lt;line&gt;   &lt;line.lindex&gt;]</a>
<a href="#">enabled</a>	<a href="#">version</a>

## alerts

Displays information about LAPB lines that are configured but not currently operating. The table includes the following information:

Line.LLIndex	Line identifier and the lower layer index identifier.
FRMR RX/TX	Number of Frame Rejects received and transmitted.
Resets	Number of Link Connection Resets.
Rejects RX/TX	Number of reject frames received and transmitted.
RNR RX/TX	Number of Receiver Not Ready frames received and transmitted.
Setups Refused	Number of unsuccessful link connections.
Abnormal Disconnects	Number of abnormal link disconnections.
Retransmit Occurrence	Number of retransmissions that have occurred.

### Sample Display - show lapb alerts

LAPB ALERT Table

-----

Line.LLIndex	FRMR RX/TX	Resets	Rejects RX/TX	RNR RX/TX	Setups Refused	Abnormal Disconnects	Retransmit Occurrence
201101.0	4	13	0	0	0	0	0

Total entries: 1

---

## disabled

Displays LAPB lines that are configured but disabled. The table includes the following information:

Line.LLIndex	Line identifier and the lower layer index identifier.
Circuit	Circuit number for this LAPB subsystem, associated with the driver or application running underneath it.
Station Type	Station type for this interface: DTE, DCE, or DXE (unassigned role). DXE indicates the instance is enabled but negotiation has not yet occurred.
Network Type	Network type: GOSIP or NET2.

### Sample Display - show lapb disabled

LAPB Disabled Table

-----

Line.LLIndex	Circuit	Station Type	Network Type
--------------	---------	--------------	--------------

-----

Total entries: 0

## enabled

Displays LAPB lines that are configured and enabled. For definitions of column headings, see the **disabled** command.

### Sample Display - show lapb enabled

LAPB Enabled Table

-----

Line.LLIndex	Circuit	Station Type	Network Type
201101.0	S11	DCE	NET2

Total entries: 1

## lines [*<line>* | *<line.llindex>*]

Displays information about LAPB lines for all configured lines or for a specified line.

*<line>* | *<line.llindex>*      Limits the display to the specified line or line and line index.

The table includes the following information:

Line.LLIndex	Line identifier and the lower-layer index identifier.
Circuit	Circuit number for this LAPB subsystem, associated with the driver or application running underneath it.
Station Type	Station type for this interface: DTE, DCE, or DXE (unassigned role). DXE indicates that the instance is enabled but that negotiation has not yet occurred.
Window Size	Default transmit and receive window size for this line. This parameter identifies the maximum number of unacknowledged sequence frames allowed for this DXE at one time. Window size ranges from 1 through 127; the default is 7.



- 
- N1                   Maximum N1 frame size in bytes for a frame that the DXE transmits, excluding flags and 0 bits inserted for transparency. N1 frame size ranges from 3 to 4500 bytes; the default is 1600 bytes.
  - N2                   N2 retry count, which is the maximum number of retries after the T1 timer expires before determining that the line is down. N2 ranges from 1 to 64; the default is 10.
  - T1                   T1 timer, which specifies the maximum number of seconds to wait for an acknowledgment of a frame. T1 timer ranges from 1 through 9999 seconds; the default is 3 seconds.
  - T3                   T3 timer, which specifies the number of seconds to wait before considering the link disconnected. A value of 1 means to consider the link disconnected when the frame has been exchanged. T3 timer ranges from 1 through 9999 seconds; the default is 60 seconds.

**Sample Display - show lapb line 201101**

LAPB Line Information Table  
-----

Line.LLIndex	Circuit	Station Type	Window Size	N1	N2	T1	T3
201101.0	S11	DCE	7	135	10	3	60

Total entries: 1

**stats** [*<line>* | *<line.llindex>*]

Displays statistics for all LAPB lines or for a specified line.

*<line>* | *<line.llindex>* Limits the display to the specified line or line and line index.

The table includes the following information:

Line.LLIndex	Line identifier and the lower-layer index identifier.
Frames Sent	Number of frames transmitted without error.
Octets Sent	Number of octets transmitted without error.
Frames Received	Number of frames received without error.
Octets Received	Number of octets received without error.
ReXmits	Number of frames that have been retransmitted.
State	State of the instance running LAPB: Enabled or Disabled.

**Sample Display - show lapb stats 201101**

LAPB Line Statistics

```

-----
Line.LLIndex      Sent              Received          ReXmits   State
-----
                  Frames    Octets    Frames    Octets
-----
201101.0          64552    3161980    64500     193557         0 Enabled
-----

```

Total entries: 1

---

## version

Displays the version number and modification date of the *lapb.bat* script.

### Sample Display - show lapb version

```
LAPB Version 1.1 Date: 6/3/94.
```

## show Inm

The **show Inm** *<option>* commands display information about services that LNM Servers provide. For detailed information about LNM Servers, refer to *Configuring LNM Services*.

The **show Inm** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">disabled</a>
<a href="#">base</a>	<a href="#">enabled</a>
<a href="#">cannotlink [circuit [&lt;circuit name&gt;] ]</a>	<a href="#">links [&lt;circuit name&gt;]</a>
<a href="#">circuit [&lt;circuit name&gt;]</a>	<a href="#">passwords [&lt;circuit name&gt;]</a>
<a href="#">configuration [circuit [&lt;circuit name&gt;] ]</a>	<a href="#">version</a>

## alerts

Displays all enabled LNM Servers circuits whose state is not up. The table does not include disabled circuits or enabled circuits that are up. It shows only circuits that are not up for some reason. The table includes the following information:

Circuit	Name of the circuit the server is on.
LNM	Status of LNM Servers as an entity. This is always blank for alerts.
LNM LRM	State of the LAN Reporting Mechanism (LRM). If the state is Up, the entry is blank. Otherwise, the state is Down, Init (initializing) or Not Pres (not present).
LNM LBS	State of the LAN Bridge Server (LBS). If the state is Up, the entry is blank. Otherwise, the state is Down, Init (initializing) or Not Pres (not present).
LNM REM	State of Ring Error Monitor (REM). If the state is Up, the entry is blank. Otherwise, the state is Down, Init (initializing) or Not Pres (not present).
LNM RPS	State of Ring Parameter Server (RPS). If the state is Up, the entry is blank. Otherwise, the state is Down, Init (initializing) or Not Pres (not present).
LNM CRS	State of Configuration Report Server (CRS). If the state is Up, the entry is blank. Otherwise, the state is Down, Init (initializing) or Not Pres (not present).

### Sample Display - show lnm alerts

```

LNM Servers Circuit Alerts
-----
Circuit      LNM      LNM LRM   LNM LBS   LNM REM   LNM RPS   LNM CRS
-----
041          Not Pres  Not Pres  Not Pres  Not Pres  Not Pres
1 Entries found.
```

---

## base

Displays the LNM Servers base record state. The base record controls LNM Servers as a whole for the entire system. State is one of the following:

Disabled	User has manually disabled LNM Servers as an entity.
Down	LNM Servers is not functioning.
Init	LNM Servers is initializing on the system.
Not Present	LNM Servers has been configured but not started.
Up	LNM Servers is currently operating on the system.

### Sample Display - show lnm base

```
LNM Servers Base Information
-----

Protocol      State
-----
LNM Servers  Up
```

## cannotlink [circuit [<ircuit name>] ]

Displays problem information for the LNM Servers base record, all LNM Servers circuits, or a specific circuit. You can use the information to diagnose why IBM LAN Network Manager cannot link with the Bay Networks LNM Servers. You can use the following options with the **cannotlink** command. The base record table includes the following information:

Protocol	Routing protocol for the base record; this is LNM, LLC, and SR.
State	State of the protocol, which is one of the following: <ul style="list-style-type: none"><li>• <i>Disabled</i> - User has manually disabled the protocol.</li><li>• <i>Down</i> - Protocol is not functioning on the system.</li><li>• <i>Init</i> - Protocol is initializing on the system.</li><li>• <i>Not Present</i> - Protocol has been configured but not started.</li><li>• <i>Up</i> - Protocol is functioning on the system.</li></ul>

Internal LAN ID	For the IBM LAN Network Manager to be able to link to LNM Servers, the Internal LAN ID must be equal to the Source Route Internal LAN ID.
Bridge ID	For the IBM LAN Network Manager to be able to link to LNM Servers, the Bridge ID must be equal to the Source Route Bridge ID.

The circuit table includes the following information:

Circuit	Name of the circuit the protocol runs on.
Protocol	Routing protocol on that specific circuit. Examine the state of these protocols. They must all be enabled and up for IBM LAN Network Manager to be able to link. The state of the LNM Servers circuit is enabled or disabled only.
State	State of the protocol, which is one of the following: <ul style="list-style-type: none"><li>• <i>Disabled</i> - User has manually disabled the protocol on that circuit.</li><li>• <i>Down</i> - Protocol or server is not functioning. When LNM is disabled on the circuit, the individual LNM Servers (LRM, LBS, REM, RPS, REM, or CRS) go into a Down state.</li><li>• <i>Enabled</i> - LNM Servers as an entity has been enabled on the circuit.</li><li>• <i>Init</i> - Protocol or server is initializing on the circuit.</li><li>• <i>Not Present</i> - Circuit is down; the server has not yet started.</li><li>• <i>Up</i> - Protocol or server is functioning on the circuit.</li></ul>
External Ring ID	Source Route External Ring ID. If the ID differs from the Segment number that IBM LAN Network Manager has for the Bay Networks bridge, you may need to delete and redefine the Bay Networks bridge in IBM LAN Network Manager.
Internal MAC Address	LNM Internal MAC address, which should be the same as the one configured in IBM LAN Network Manager. If the field contains dashes, the address is in canonical format and you must convert it to TR format before entering it or comparing it with the addresses entered in IBM LAN Network Manager.
External MAC Address	TR External Mac address, which should be the same as the one configured in IBM LAN Network Manager. If the field contains dashes, the address is in canonical format and you must convert it to TR format before entering it or comparing it with the addresses entered in IBM LAN Network Manager.

---

## Sample Display - show Inm cannotlink

LNM Servers Cannot Link

```
-----
```

Protocol	State	Internal LAN ID	Bridge ID
LNM Base	Up	B0	5
LLC Base	Up		
SR Base	Up	B0	5

## Sample Display - show Inm cannotlink circuit

LNM Servers Cannot Link Circuit

```
-----
```

Circuit	Protocol	State	External Ring ID	Internal MAC Address	External MAC Address
031	LNM Cct	Enabled		00-00-45-00-00-09	
	LLC Cct	Up			
	SR Cct	Up	10		
	TR Cct	Up			00-00-a2-00-c9-a4
	LNM LRM	Up			
	LNM LBS	Up			
	LNM REM	Disable			
	LNM RPS	Up			
	LNM CRS	Disabled			

**circuit** [*<circuit name>*]

Displays the LNM Servers states on all circuits or on only a specified circuit. The LNM column shows whether LNM Servers is Enabled or Disabled on the circuit. The servers (LNM, LRM, LNM, LBS, and so on) can have the following states:

Down	State of individual servers goes to Down when LNM Servers becomes disabled on the circuit.
Init	Server is initializing.
Not Pres	Circuit is down; the server has not yet started.
Up	Server is functioning on the circuit.

**Sample Display - show lnm circuit**

LNM Servers Circuit Information

-----

Circuit	LNM	LNM LRM	LNM LBS	LNM REM	LNM RPS	LNM CRS
-----	-----	-----	-----	-----	-----	-----
031	Enabled	Up	Up	Disabled	Up	Disabled
032	Enabled	Up	Up	Up	Up	Up
041	Enabled	Not Pres	Not Pres	Not Pres	Not Pres	Not Pres
042	Enabled	Up	Up	Up	Up	Up

4 Entries found.



---

## configuration [circuit [<ircuit name>] ]

Displays configuration information about LNM Servers as a whole. You can show information about the base record. Or you can display information about LNM circuits. You can also limit the display to one circuit. The base record displays the following information:

Protocol	Name of the protocol.
State	State of the protocol, as follows: <ul style="list-style-type: none"><li>• <i>Disabled</i> - User has manually disabled the protocol.</li><li>• <i>Up</i> - LNM Servers is functioning on the system.</li><li>• <i>Down</i> - LNM Servers is not functioning on the system.</li><li>• <i>Init</i> - LNM Servers is initializing on the system.</li><li>• <i>Not Present</i> - LNM Servers has been configured but not started.</li></ul>
IBM LNM Set Privilege	Setting is Enabled or Disabled. The Enabled setting lets the IBM LAN Network Manager change LNM Servers configuration parameters with Set LAN Network Manager frames.
Internal LAN ID	Identifier that Source Routing uses to route frames to other circuits on the Bay Networks router. This value must match the value defined in the SR base record.
Bridge Number	Bridge number defined in the SR base record. IBM LAN Network Manager uses this number with the Internal LAN ID, External LAN ID, Internal MAC Address, and External MAC Address to identify the Bay Networks bridge on the circuit.

The circuit record configuration display includes the following information:

Circuit	Name of the circuit the protocol runs on.
MAC Cct	MAC circuit on which LNM Servers as an entity is defined.
LLC Cct	LLC circuit with which LNM Servers as an entity is associated.
Internal MAC Address	MAC address defined to the Internal LAN. This is a virtual association used only to define LNM Servers on this circuit within IBM LAN Network Manager.
Weight Threshold	Maximum error count that LNM REM Server uses to send alerts to IBM LAN Network Manager.

**Sample Display - show Inm configuration**

LNM Servers Base Configuration

-----

Protocol	State	IBM LNM Set Privilege	Internal LAN ID	Bridge Number
LNM Servers	Up	Enabled	B0	5

**Sample Display - show Inm configuration circuit**

LNM Servers Circuit Configuration

-----

Circuit	MAC Cct	LLC Cct	Internal MAC Address	Weight Threshold
O31	2	3	00-00-45-00-00-09	128
O32	4	5	00-00-45-00-00-02	128
O41	6	7	00-00-45-00-00-05	128
O42	8	9	00-00-45-00-00-06	128

**disabled**

Displays the LNM Servers circuits and servers that a user has manually disabled. The table includes the name of each server, and the circuit the server is on. If the server is disabled, Disabled appears under the name of the server. If the server is enabled, the value in the table is blank.

---

## Sample Display - show lnm disabled

LNM Servers Circuits Disabled

-----

Circuit	LNM	LNM LRM	LNM LBS	LNM REM	LNM RPS	LNM CRS
031				Disabled		Disabled

1 Entries found.

## enabled

Displays the current state of all LNM Servers circuits that are currently enabled. The state of LNM will display as Enabled. The state of specific servers (for example, LNM LRM) is one of the following:

Init	Protocol or server is initializing on the circuit.
Not Pres	Circuit is down; the server has not yet started.
Up	Protocol or server is functioning on the circuit.

If the server is disabled, the value under its name is blank.

## Sample Display - show lnm enabled

LNM Servers Circuits Enabled

-----

Circuit	LNM	LNM LRM	LNM LBS	LNM REM	LNM RPS	LNM CRS
031	Enabled	Up	Up		Up	
032	Enabled	Up	Up	Up	Up	Up
041	Enabled	Not Pres	Not Pres	Not Pres	Not Pres	Not Pres
042	Enabled	Up	Up	Up	Up	Up

4 Entries found.

**links** [*<circuit name>*]

Displays the LNM links currently existing between LNM Servers as an entity and IBM LAN Network Manager and their addresses. When no link exists for a specific address, the display shows Not Linked instead of the address. You can display all circuits or only a specific circuit.

**Sample Display - show Inm links**

LNM Servers Circuit Links

```
-----
```

Circuit	Controlling Manager Address	Observing 1 Manager Address	Observing 2 Manager Address	Observing 3 Manager Address
031	08-00-5a-97-7a-1d	Not Linked	Not Linked	Not Linked
032	08-00-5a-97-7a-1d	Not Linked	Not Linked	Not Linked

```
-----
```

---

## passwords [*<circuit name>*]

Displays the passwords currently configured for all LNM Servers circuits or for a specific circuit. If a password doesn't exist, the default password is 00000000.

### Sample Display - show lnm passwords

```
LNM Servers Circuit Passwords
-----
Circuit      Cntrlng   Observng  Observng  Observng
              Manager   Managr 1  Managr 2  Managr 3
              Password Password Password Password
-----
031          00000000 00000000 00000000 00000000
032          00000000 00000000 00000000 00000000
041          00000000 00000000 00000000 00000000
042          00000000 00000000 00000000 00000000
```

## version

Displays the current version and date of the *lnm.bat* script.

### Sample Display - show lnm version

```
LNM.bat Version: #.## Date: mm/dd/yy.
```

## show mospf

The **show mospf** *<option>* command displays information about OSPF multicast extensions (MOSPF). For detailed information about the Bay Networks implementation of MOSPF, refer to *Configuring IP Multicasting and Multimedia Services*.

The **show mospf** command supports the following subcommand options:

<a href="#">base</a>	interfaces
fwd	neighbor

### base

Displays the following information:

Router ID	The ID of the router on which MOSP is running
Inter-Area Multicast Forwarder	Whether MOSFP is running on an internal area router or a border router
Inter-AS Mutlicast Forwarder	Whether MOSPF is running on a boundary router

### Sample Display - show mospf base

```
MOSPF Base Information
-----
Router ID          Inter-Area Inter-AS
                   Multicast
                   Forwarder
-----
201.1.1.1.1       Yes         No
```

---

## fwd

Displays the following information from the MOSPF forwarding database:

Group	Multicasting group.
Source	Multicasting source.
Upstream Interface	IP address of the upstream interface.
Downstream Interface	IP address of the downstream interface.

In addition, you can add a group address argument to the **fwd** subcommand to limit table entries to those matching the argument. The argument can contain the wildcard character (\*), for example:

<b>show mospf fwd</b>	Shows forwarding entries for all group addresses
<b>show mospf fwd 224.2.*</b>	Shows forwarding entries for all group addresses starting with 224.2
<b>show mospf fwd 225.3.12.1</b>	Shows the forwarding entry for the group address 225.3.12.1

### Sample Display - show mospf fwd

MOSPF Forwarding Database

```
-----
```

Group	Source	Upstream Interface
-----	-----	-----
224.128.128.10	201.1.1.0	201.1.1.1
downstream:	201.0.2.1 (3)	
224.128.128.10	201.2.1.0	201.0.2.1
downstream:	201.1.1.1 (1)	
224.128.128.11	201.1.1.0	201.1.1.1
downstream:	201.0.2.1 (3)	
224.128.128.11	201.2.1.0	201.0.2.1
downstream:	201.1.1.1 (1)	
224.128.128.12	201.1.1.0	201.1.1.1
downstream:	201.0.2.1 (3)	
224.128.128.12	201.2.1.0	201.0.2.1
downstream:	201.1.1.1 (1)	

## interfaces

Displays the following information:

IP Address	IP address of the MOSPF interfaces
Area ID	The ID of the area to which the interface is connected
Multicast Forwarding	Whether the router supports multicast forwarding on this interface
State	The state of the link to which the interface is connected

### Sample Display - show mospf interfaces

MOSPF Interfaces

-----

IP Address	Area ID	Multicast Forwarding	State
-----	-----	-----	-----
201.0.2.1	0.0.0.0	multicast	P to P
201.1.1.1	1.1.1.1	multicast	DR
201.1.2.1	1.1.1.1	multicast	DR

3 Entries



---

## neighbors

Displays the following information:

IP interface	The local IP interface on which this neighbor relationship has been established
Router ID	The ID of the router on which MOSPF is running
Neighbor IP Address	The remote IP interface on which this neighbor relationship has been established
State	The state of the neighbor connection
Type	Dynamic or configured -- specifies whether this is a dynamically or statically configured neighbor
OSPF Virtual Neighbors	The area ID, router ID, and state of each virtual OSPF neighbor

**Sample Display - show ospf neighbors**

```

OSPF Neighbors
-----

  IP Interface      Router ID      Neighbor
  -----
  201.0.2.1        201.2.1.2     201.0.2.2     Full     Dynamic

1 Entries

1 dynamic neighbors
0 configured neighbors

OSPF Virtual Neighbors
-----

  Area Address      Router ID      State
  -----

0 virtual neighbors

```

**show mpoa**

The **show mpoa** <option> commands display information about the Multiple Protocol Over ATM (MPOA) feature. The **show mpoa** command supports the following subcommand options:

egress_cache	<a href="#">servers</a>
ingress_cache	version
lane_clients	

---

## egress\_cache

Displays information about the current cache entries for the egress router. This display includes the following information:

index	The index number associated with this cache entry.
MPC Id	The ID number of the MPOA client.
State	The state of the cache entry.
Cache Id	The egress cache ID.
Hold Time	The amount of time the cache information is valid.
Elan Id	The ID number associated with the emulated LAN of which the LEC is a member.
MPS Slot	The number of the chassis slot containing the MPS.
Next-Hop Prot	The next-hop protocol (for example, IP) address.
Source ATM Address	The source ATM address.
DLL Header	The data link layer supplied to the egress MPC.

## ingress\_cache

Displays information about the current cache entries for the ingress router.

This display includes the following information:

index	The index number associated with this cache entry.
MPC Id	The ID number of the MPOA client.
State	The state of the cache entry.
Hold Time	The amount of time the cache information is valid.
MPS Slot	The number of the chassis slot containing the MPS.
Src Prot Addr	The source protocol (for example, IP) address.
Source ATM Address	The source ATM address.
Dst Prot Addr	The destination protocol (for example, IP) address.
Dest ATM Address	The destination ATM address.

## **lane\_clients**

Displays information about the mapping between LECs and MPOA servers.

This display includes the following information:

LANE Client Cct	The circuit number assigned to the LEC.
LANE Client Elan_Name	The name of the emulated LAN of which the LEC is a member.
MPOA Server ID	The ID number of the MPS.
MPOA Server Slot	The slot number in which the MPS resides.

## **servers**

Displays information about configured MPOA servers.

This display includes the following information:

Slot	The number of the chassis slot containing the MPS.
Id	The server ID number for that slot.
State	The state of the server.
Control ATM Address	The server ATM address.

## **version**

Displays the current MPOA software version.

---

## show nbip

The **show nbip** <*option*> commands display configuration and statistical information about NetBIOS over IP services. For detailed information about NetBIOS, refer to *Configuring IP Services*.

The **show nbip** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">names</a>
<a href="#">interfaces</a>	<a href="#">version</a>

### base

Displays the base record for NetBIOS over IP. The table includes the following information:

Protocol	Name of the protocol, which in this case is NBIP.
State	State of the protocol on the router: Up, Down (manually disabled), Init (initializing), or Not Present (not yet initialized).

### Sample Display - show nbip base

```
NBIP Base Information
-----

Protocol   State
-----
NBIP      Up
```

## interfaces

Displays information about each interface:

IP Address	IP address of this interface.
State	State of the protocol on the interface: Up, Down, Init, or Not Present.
Input Bcasts	Indicates whether the input of NetBIOS broadcasts is enabled.
Output Bcasts	Indicates whether the output of NetBIOS broadcasts is enabled.
Name Caching	Indicates whether NetBIOS name caching is enabled.
Input Packets	Number of frames that have been received by this interface.
Input Errors	Number of invalid frames that have been received by this interface.
Output Packets	Number of frames that have been transmitted by this interface.

### Sample Display - show nbip interfaces

NBIP Interfaces

-----

IP Address	State	Input Bcasts	Output Bcasts	Name Caching	Input Packets	Input Errors	Output Packets
130.1.1.1	Up	Yes	Yes	Yes	10	0	65
131.1.1.1	Up	Yes	Yes	Yes	68	0	7
192.32.14.92	Down	Yes	No	No	0	0	0

3 Entries.

---

## names

Displays name cache information:

NetBIOS Name	NetBIOS name of the station.
IP Address	IP address of the NetBIOS station.
Learned?	Indicates whether this NetBIOS entry is learned. If not, it is a static entry.
Cache Hits	Number of times the NetBIOS name cache has been used.
Scope ID	NetBIOS Scope ID of this station.

### Sample Display - show nbip names

```
NBIP Name Cache
```

```
-----
```

NetBIOS Name	IP Address	Learned ?	Cache Hits	Scope ID
MIATA	128.1.1.3	Yes	0	<09>wellfleet<03>com
WINDSURF	130.1.1.3	Yes	8	<09>wellfleet<03>com

```
2 Entries.
```

## version

Displays the current version and the modification date of the *nbip.bat* script.

### Sample Display - show nbip version

```
NBIP.bat Version: #.## Date: mm/dd/yy.
```

## show nhrp

The **show nhrp** *<option>* commands display information about the Next Hop Routing Protocol (NHRP). For information about NHRP, see *Configuring ATM Services*.

The **show nhrp** command supports the following subcommand options:

<a href="#">circuits</a>	<a href="#">nhcache</a>
client nets	server nets
<a href="#">client stats</a>	<a href="#">server stats</a>
<a href="#">defnhs</a>	version

## **circuits**

Displays circuit information about the NHRP circuits. The display includes the following information:

Circuit Number	Service record number.
L2	Data link protocol.
VC	Protocol for the virtual circuit.
Type	Indicates whether this is a PVC or an SVC.
Pkts Xmit	Number of packets transmitted across the circuit.
Enable	Indicates whether the circuit is active.



---

## client nets

Displays the NHRP client configuration. The display includes the following information:

Protocol	Designates that this is the NHRP client.
Layer2/Layer3	Data link and network layer protocols.
Enable	Indicates whether or not the client is enabled.
Request Timeout	Amount of time, in seconds, that the client waits for a reply from the server in response to a request.
Request Retries	Number of times that the client resends a request to the server before it sends an error back to the requesting application.
Max Pending Reqs	Maximum number of requests from applications that the client can accept.
Register Interval	Amount of time between client registrations sent to the NHRP server. The client registers the networks it supports.
Register HoldTime	Amount of time, in seconds, that the registration information remains valid.
Debug Level	Specifies whether debug messages are displayed in the router's event log.

## client stats

Displays the NHRP client statistics. The display includes the following information:

Protocol	Designates that this is the NHRP client.
Layer2/Layer3	Data link and network layer protocols.
NHR Request	Number of next-hop resolution requests that the client sends (Tx) to the server.
Register Request	Number of registration requests that the client sends (Tx) to the server. The client registers the networks it supports.
Purge Request	Number of purge requests that the client sends (Tx) to the server.
Unsolicited Purge	Number of unsolicited purge requests that the client receives from the server. The server instructs the client to delete information it sent.
Error Indications	Number of NHRP error indication messages that both the client and server send (Tx) and receive (Rx).
Local Errors	Number of error messages that the client sends locally to the application that it serves.
Local Retries	Number of times that the client resends a previous request (resolution or purge) to the server because the server did not reply.

---

## defnhs

Displays the NHRP server configuration. The display includes the following information:

Index	Server's priority ranking.
L2	Data link protocol used by the server.
Cct	Circuit number for the interface.
VCID1	ID number of a virtual circuit.
VCID2	ID number of a virtual circuit.
NHS Protocol Addr	IP address of the server.
Serving Network	Network address for which the NHRP server can provide next-hop resolution information in response to client requests.
Serving Netmask	Network mask for which the NHRP server can provide next-hop resolution information in response to client requests. Together with the serving network, it provides a range of addresses served by the NHRP server.
Status	Indicates whether the NHRP server can be used.

## nhcache

Displays information about the server's next-hop cache memory. The display includes the following information:

S1	Circuit name.
L2	Data link protocol used by the server.
Destination_Range	Range of destination networks supported by the server. This number represents the network address and mask.
NextHopProtoAddr	IP address of the next-hop destination.
NextHopNbmaAddr	NBMA address of the next-hop destination.
HldTme	Time that a network address entry in the server's cache is valid.

Fl	6-bit flag value instructing the server about the network entry. The value can be as follows: 1=Entry is valid 2=Entry is result of authoritative source 4=NBMA address is valid 8=Protocol address is valid 16=Reply was a valid hold timer 32 = Entry is no longer valid and is being removed
PfV	Preference value of the network address entry. This value prioritizes the next-hop entries.
Mtu	Maximum transmission unit, which indicates the size of the data that can be sent across the network.

### server nets

Displays the NHRP server configuration. The display includes the following information:

Protocol	Designates that this is the NHRP server.
Layer2/Layer3	Data link and network layer protocols.
Enable	Indicates whether the NHRP server is enabled or disabled.
Forwarding Enable	Indicates whether forwarding is enabled or disabled. Server requests are forwarded to another server if the original server cannot respond.
Max CIE's/Reply	Maximum number of client information entries and replies. These are the next-hop address entries that the server sends to the client.
Max Pending Reqs	Maximum number of requests (from 1 to 100) that the server accepts from the NHRP client.
Next Hop Load Bal	Indicates whether next-hop load balancing is enabled or disabled. Load balancing prioritizes the next-hop entries if there are more than one.
Max NH Cache Size	Maximum number of IP address entries in the next-hop cache.
Max QoS Cache Size	Maximum number of quality of service entries in the QoS cache.
Max Addr Cache Size	Maximum number of NBMA address entries in the address cache.
Use local BGPRS	Specifies whether the NHRP server is using the BGP route server to get next-hop IP addresses.
Use DNS Server	Specifies whether the NHRP server is using the DNS server to get next-hop NBMA addresses.

---

DNS Proxy Port	DNS proxy port for queries issued by the NHRP server.
Use Negative Caching	Indicates whether caching of negative DNS records is enabled (1) or disabled (2).
Negativ Caching TTL	Time to Live (TTL), that is, the amount of time, in seconds, that the value of negative caching (enable or disable) is valid.
Debug Level	Specifies whether debug messages are included in the event log; enabled = 1, disabled = 0.

## server stats

Displays the NHRP server statistics. The display includes the following information:

Protocol	Designates that this is the NHRP server.
Layer2/Layer3	Indicates the data link and network layer protocols.
NHR Req	Number of next-hop resolution requests that the server receives (Rx) from the client.  Number of acknowledgments (Ack) and negative acknowledgments (Nak) that the server sends to the client in response to a next-hop resolution request.  Number of next-hop resolution requests one server forwards (Fwd) to another server.
Register Req	Number of registration requests the server receives (Rx) from the client.  Number of acknowledgments (Ack) and negative acknowledgments (Nak) that the server sends in response to a client registration request.  Number of registration requests that the server forwards (Fwd) to another server.
Purge Req	Number of purge requests that the server receives (Rx) from the client.  Number of acknowledgments (Ack) and negative acknowledgments (Nak) that the server sends to the client in response to the client's purge request.  Number of purge requests that the server forwards (Fwd) to another server.
Error Indications	Number of NHRP error indication messages that both the client and server send (Tx), receive (Rx), and forward (Fwd).
Dropped Pkts	Number of NHRP packets that the server drops.

Next Hop Cache	Maximum and current number of IP address entries in the server's next-hop cache.
QoS Cache	Maximum and current number of quality of service entries in the server's QoS cache.
Addr Cache	Maximum and current number of NBMA address entries in the server's address cache.

## show nml

The **show nml** *<option>* commands display configuration and statistical information about Native Mode LAN (NML) services. For detailed information about NML, refer to *Configuring Bridging Services*.

The **show nml** command supports the following subcommand options:

<a href="#">circuits [&lt;circuit name&gt;]</a>	<a href="#">seclists [&lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">stats</a>
<a href="#">enabled</a>	<a href="#">version</a>

### circuits [<circuit name>]

Displays information about all NML circuits or a specified NML circuit configured on the router. The table includes the following information:

Circuit	Name of the circuit configured for NML.
Port	Circuit number of the port that supports a LAN belonging to the closed user group. Each LAN in a closed user group is connected to a bridge through an NML port.
CUG Value	Closed user group ID (CUGID) assigned to the circuit.

---

Security Type	Type of security configured -- Add, an access circuit; Check, a trunk circuit; or Drop, a transient internal state.
SAID Value	Circuit's security access ID.
Security Action	How to handle a packet if it matches a CUGID in the circuit's security list: Drop or Forward. If the action is Drop, the list is an exclusive list and the port drops all frames labelled with the CUGID. If the action is Forward, the port forwards frames labelled with the CUGID to the attached LAN.

### Sample Display - show nml circuits

NML Circuit Table

```

-----
Circuit      Port      CUG      Security      SAID      Security
-----
Value        Type        Value        Value        Action
-----
F31          1          0          Check         0          Forward
E21          2          22         Add           0          Drop

```

2 Entries.

### disabled

Displays only NML circuits that are disabled. The display contains the same information the **circuits** command produces.

### enabled

Displays only NML circuits that are enabled. The display contains the same information the **circuits** command produces.

**seclists** [*<circuit name>*]

Displays information about each NML circuit's security list or a specified NML circuit's security list. The table includes the following information:

Circuit	Name of the circuit configured for NML.
Port	Circuit number of the port on which NML resides.
Status	State of the security list: Enabled or Disabled.
Action	Action taken on a packet if it matches one of the ranges of CUGIDs: Drop or Forward.
From	Low end of a range of CUGIDs in the security list. A circuit can have more than one set of ranges.
To	High end of a range of CUGIDs in the security list. A circuit can have more than one set of ranges.

**Sample Display - show nml seclists**

NML Security Lists

-----

Circuit	Port	Status	Action	From	To
-----	-----	-----	-----	-----	-----
F31	1	Enabled	Drop	224	238
E21	2	Enabled	Forward	22	22
			Forward	224	238

2 Entries.

Note that circuit E21 in the sample display has two ranges.



---

## stats

Displays the number of packets dropped because of security violations for each circuit on the router. The table shows the following information:

Circuit	Name of the circuit configured for NML.
Port	Circuit number of the port on which NML resides.
Discards	Number of packets dropped because of security violations.

### Sample Display - show nml stats

```
Bridge Statistics
-----
Circuit      Port      Discards
-----
F31          1          0
E21          2          0
```

## version

Displays the current version and date of creation of the *nml.bat* script.

### Sample Display - show nml version

```
NML.bat Version: #.## Date: mm/dd/yy.
```

## show ntp

The **show ntp** *<option>* command displays information about the NTP protocol and services. For detailed information on the Bay Networks implementation of NTP services, refer to *Configuring IP Utilities*.

The **show ntp** command supports the following subcommand options:

<a href="#">access</a>	<a href="#">peers</a>
<a href="#">base</a>	<a href="#">stats</a>

### access

Displays information about NTP servers preferred (accepted) or restricted (rejected) by the local NTP client.

The table shows the following information:

IP Address	The IP address of this remote NTP server.
Mask	The IP subnetwork mask for this remote NTP server.
Filter Type	<ul style="list-style-type: none"> <li>• <i>Restrict</i> -- The local NTP client drops packets received from this remote NTP server.</li> <li>• <i>Prefer</i> -- The local NTP client accepts packets received from this remote NTP server.</li> </ul>

### Sample Display - show ntp access

IP Address	Mask	Filter Type
-----	-----	-----
2.1.1.1	255.255.255.255	Restrict
3.3.1.1	255.255.0.0	Prefer

---

## base

Displays the base record information for the Network Time Protocol (NTP) running on the router. The base record controls NTP on the router.

The table shows the following information:

Application	NTP
State	The user-configured state of the local NTP client: <ul style="list-style-type: none"><li>• <i>Enabled</i> -- NTP has a configured state of enabled.</li><li>• <i>Disabled</i> -- NTP has a configured state of disabled.</li></ul>
NTP State	The actual (dynamic) state of the local NTP client: <ul style="list-style-type: none"><li>• <i>Disabled</i> - User has manually disabled NTP.</li><li>• <i>Up</i> - NTP is operating on the router.</li><li>• <i>Down</i> - NTP is not functioning on the router.</li><li>• <i>Init</i> - NTP is initializing on the router.</li><li>• <i>Not Present</i> - NTP has been configured but not started on the router.</li></ul>
NTP Version	The current version of NTP software on the router.
Reference ID	The IP address of the remote NTP peer (that is, the <i>system peer</i> ) to which the local NTP client is synchronized.
Stratum	The number of NTP peers that exist between the local NTP client and the NTP stratum 1 server for this network. (The stratum number includes the local NTP client.)

### Sample Display - show ntp base

```
Application      State
-----
NTP              Enabled

NTP State      NTP Version  Reference ID  Stratum
-----
UP             VERSION 3    1.1.1.1      16
```

## peers

Displays configuration and status information about NTP servers known to the NTP client on the router.

The table shows the following information:

IP Address	The IP address of this remote NTP peer.
Config Peer Mode	The mode in which this remote NTP peer operates on the network: <i>Server</i> (Since NTP operates locally in client mode only, all remote peers known to the router are servers.)
State	State of the remote NTP server: <ul style="list-style-type: none"><li>• 1= Up</li><li>• 2= Down.</li></ul>
Reference ID	The IP address of the system peer to which this remote NTP peer is synchronized. (See also " <a href="#">Reference ID</a> " for <b>show ntp base</b> .)
Preference	<ul style="list-style-type: none"><li>• <i>Preferred</i> -- The local NTP client prefers (accepts) packets from this remote NTP server.</li><li>• <i>Not Preferred</i> -- The local NTP client does not prefer (rejects) packets from this remote NTP server.</li></ul>

### Sample Display - show ntp peer

IP Address	Config Peer Mode	State	Reference Id	Preference
192.32.72.6	1	1	198.72.72.10	Not Preferred
168.107.41.1	1	1	1.1.1.1	Preferred

---

## stats

Displays information about

- The number of polls (requests for information) sent by the local NTP client to the designated remote NTP server
- The number of packets received by the local NTP client from the designated remote NTP server

The table shows the following information:

IP Address	The IP address of this remote NTP server.
Polls sent	The number of polls (requests for information) sent from the local NTP client to this NTP server.
Packets received	The number of NTP packets received (and accepted) from this remote NTP server.

### Sample Display - show ntp stats

IP Address	Polls Sent	Packets received
-----	-----	-----
2.1.1.1	10	10

## show osi

The **show osi** *<option>* commands display configuration, state, and statistical information about Open Systems Interconnection (OSI) services. For more information about the Bay Networks implementation of the OSI protocol, refer to *Configuring OSI Services*.

The **show osi** command supports the following subcommand options:

<a href="#">adjacency</a>	<a href="#">stats</a>
<a href="#">alerts</a>	<a href="#">stats clnp</a>
<a href="#">base</a>	<a href="#">stats errors</a>
<a href="#">circuits [ &lt;circuit name&gt; ]</a>	tarp ldb
<a href="#">disabled</a>	tarp pkt
<a href="#">enabled</a>	tarp tdc
<a href="#">level1 routes [find &lt;destination sys ID&gt;]</a>	<a href="#">version</a>
<a href="#">level2 routes [find &lt;destination sys ID&gt;]</a>	

---

## adjacency

Displays information about the adjacencies that exist on each OSI circuit. The table includes the following information:

Circuit	Name of the circuit the adjacency is on.
Adjacent ID	Index of the adjacency in the adjacency table.
State	State of the adjacency: DOWN (initialization failed), INIT (initializing), or UP.
Neighbor Addr (NSAP)	Network Service Access Point (NSAP) address of the adjacency.

### Sample Display - show osi adjacency

OSI Dynamic Adjacency Information

```
-----
```

Circuit	Adjacent ID	State	Neighbor Addr (NSAP)
E31	24578	INIT	0x490040CCCCCCCCCCCC00
E32	90115	INIT	0x490044CCCCCCCCCCCC00

## alerts

Displays all OSI circuits that are enabled but whose state is not UP. Forwarding is either Enabled or Disabled.

### Sample Display - show osi alerts

OSI Circuit Information

```
-----
```

Circuit	State	Forwarding
E21	DOWN	ENABLED

**base**

Displays general information about, including the state of, the OSI protocol running on the router. The base record controls OSI for the entire system. The table includes the following information:

Protocol	Name of the protocol, which in this case is OSI.
State	State of the protocol on the router: Disabled (manually disabled), Down, Init (initializing), Not Present (not yet initialized), or Up.
Area Address	Address of the local area in the routing domain where this router resides.
Node Address	Address of this node (router) in the local area.

**Sample Display - show osi base**

```
OSI Base Record Information
```

```
-----
```

Protocol	State	Area Address	Node Address
-----	-----	-----	-----
OSI	Up	0x490040	0xAAAAAAAAAAAA

**circuits** [*<circuit name>*]

Displays the state of all OSI circuits or a specific circuit. The table includes the following information:

Circuit	Name of the circuit that OSI runs on.
State	State of OSI on the circuit: Disabled (manually disabled), Down, Init (initializing), Not Present (not present on the circuit), or Up.
Forwarding	Status of forwarding over the circuit: Enabled or Disabled.



---

## Sample Display - show osi circuits

OSI Circuit Information

```
-----  
Circuit      State      Forwarding  
-----  
E31         Up        Enabled  
E32         Up        Disabled
```

## Sample Display - show osi circuits e31

OSI Circuit Information

```
-----  
Circuit      State      Forwarding  
-----  
E31         Up        Enabled
```

## disabled

Displays OSI circuits that a user has manually disabled on the router. In this case, State is Disabled. Forwarding is either Enabled or Disabled.

## Sample Display - show osi disabled

OSI Circuit Information

```
-----  
Circuit      State      Forwarding  
-----  
E31         Disabled   Enabled
```

## enabled

Displays circuits that have OSI enabled on this router. For information on the columns in the table, see the **circuits** command.

### Sample Display - show osi enabled

```
OSI Circuit Information
-----

Circuit      State      Forwarding
-----
E31          Up         Enabled
E32          Up         Enabled
```

## level1 routes [find <destination sys ID>]

Displays information from the level 1 routing table for all entries or for a specific destination address. The table includes the following information:

Destination SysID	NSAP address of the destination system.
Route Type	Route type, which is one of the following: <ul style="list-style-type: none"><li>• <i>Level 1</i> - Level 1 routing (within the local area) only.</li><li>• <i>Level 2</i> - Level 2 routing (between routing domains) only.</li><li>• <i>Level 1&amp;2</i> - Level 1 and Level 2 (routing within the local area and to systems located in a different area).</li></ul>
Next Hop	NSAP address of the intermediate system that is the next hop on the path to the destination end system.
Cost	Number of hops it takes to reach the destination.

---

## Sample Display - show osi level1 routes

OSI Level I Routing Information

-----

Destination SysId	Route Type	Next Hop	Cost
0x490040CCCCCCCCCCCC00	Level 1&2	0x490040AAAAAAAAAAAA00	10

## level2 routes [find <destination sys ID>]

Displays information from the Level 2 routing table for all entries or for a specific destination address. The table includes the following information:

Destination SysID	NSAP address of the destination system.
Next Hop	NSAP address of the intermediate system that is the next hop on the path to the destination end system.
Cost	Number of hops it takes to reach the destination.

## Sample Display - show osi level2 routes

OSI Level II Routing Information

-----

Destination SysId	Next Hop	Cost
0x490044	0x490040CCCCCCCCCCCC00	20
0x490044	0x490044CCCCCCCCCCCC00	20

2 Total entries.

**Sample Display - show osi level2 routes find 490044**

OSI Level II Routing Information

-----

Destination SysId	Next Hop	Cost
0x490044	0x490044CCCCCCCCCCCC00	20
0x490044	0x490044CCCCCCCCCCCC00	20

2 Entries found.

**stats**

Displays statistics of each OSI circuit. The table includes the number of Protocol Data Units received, sent, and dropped on each circuit.

**Sample Display - show osi stats**

OSI Circuit Statistics

-----

Circuit	Received Packets	Send Packets	Dropped Packets
E31	464	891	181
E32	211	402	69

**stats clnp**

Displays statistics for the ConnectionLess Network Protocol (CLNP) packets on each OSI circuit. The table includes the number of CLNP packets received and forwarded, the number of Echo Replies received (Rx) and sent (Tx) and the number of Echo Requests received (Rx) and sent (Tx).

---

## Sample Display - show osi stats clnp

OSI Circuit CLNP Statistics

-----

Circuit	CLNP Received	CLNP Forwarded	Rx Echo Rep	Rx Echo Req	Tx Echo Rep	Tx Echo Req
E31	0	0	0	0	0	0
E32	0	0	0	0	0	0
O41	0	0	0	0	0	0

## stats errors

Displays error statistics for each OSI circuit. The table includes the following information:

Init Failures	Number of times this circuit failed to initialize.
Rejected Adjs	Number of adjacencies rejected on this circuit.
Bad LSPs	Number of bad link state packets (LSPs) received on this circuit.
Bad Snps	Number of bad Sequence Number PDUs received on this circuit.
Bad Eshs	Number of bad End System hellos received on this circuit.
Bad L1Iihs	Number of bad Level 1 IS - IS hellos received on this circuit.
Bad L2Iihs	Number of bad Level 2 IS - IS hellos received on this circuit.

## Sample Display - show osi stats errors

OSI Error Statistics

-----

Circuit	Init Failures	Rejected Adjs	Bad LSPs	Bad Snps	Bad Eshs	Bad L1Iihs	Bad L2Iihs
E31	3	0	0	0	0	0	0
E32	1	0	0	0	0	0	0

## **tarp ldb**

Displays the loop detection buffer entries.

## **tarp pkt**

Requests that the router originate a TARP packet. The command accepts the following arguments:

<b>-t</b> <type>	Specifies the type of TARP packet to send (1, 2, 4, or 5).
<b>-i</b> <TID>	TID to include in the request. Valid only for Type 1, Type 2, and Type 4 packets. The request is for the NSAP that maps to this TID.
<b>-n</b> <NSAP>	NSAP to include in the request. Valid only for Type 4 or Type 5 packets. The request is for the TID that maps to this NSAP.
<b>-f</b>	Enables you to find an NSAP by going through a timer sequence.

## **tarp tdc**

Displays the TARP data cache.

## **version**

Displays the current version number and modification date of the *osi.bat* script.

### **Sample Display - show osi version**

```
OSI.bat Version: #.## Date: mm/dd/yy.
```

---

## show ospf

The **show ospf** *<option>* commands display state, configuration, and statistical information about the Open Shortest Path First (OSPF) protocol. For details on the Bay Networks implementation of OSPF, refer to *Configuring IP Services*.

The **show ospf** command supports the following subcommand options:

<a href="#">area</a>	<a href="#">lsdb [&lt;area-number&gt;]</a>
<a href="#">ase [&lt;LSID&gt;]</a>	<a href="#">neighbors</a>
<a href="#">base</a>	<a href="#">version</a>
<a href="#">interface</a>	

## area

Displays a list of configured OSPF areas on the router. For each area, the table shows the following information:

Area Id	Area identifier.
State	State of the area: Up or Down.
Stub Area	Whether or not the area is a stub area: Yes or No.
Authentication	Authentication type for the area: None or Simple Password.

**Sample Display - show ospf area**

```
OSPF Area Information
```

```
-----
```

Area Id	State	Stub Area	Authentication
0.0.0.0	Up	No	None

**ase [<LSID>]**

Displays information about Autonomous System External advertisements. You can display information about all Link State IDs in your system or for a specified Link State ID. The table includes the following information:

Link State Id	Network number that this Autonomous System (AS) External advertisement represents.
Originating Router	Router that generated the advertisement.
Age	Age in seconds of the advertisement.
Metric	Metric of the advertisement; the cost of the external route.
Forwarding Address	Address used to get to this network. If the address is 0, the traffic is forwarded to the originating router.
Type	ASE's type: 1 or 2.
Tag	Field that contains information that the network administrator has placed in the advertisement.



---

## Sample Display - show ospf ase

OSPF AS External Routes

-----

Link State ID	Originating Router	Age	Metric	Forwarding Address	Type	Tag
0.0.0.0	192.32.174.65	621	4104	0.0.0.0	2	e0000000
0.0.0.0	192.32.174.66	697	4104	0.0.0.0	2	e0000000
7.0.0.0	192.32.174.65	622	4104	0.0.0.0	2	e0000000
15.0.0.0	192.32.174.65	617	4104	0.0.0.0	2	e0000000
21.0.0.0	192.32.174.65	618	4104	0.0.0.0	2	e0000000
52.0.0.0	192.32.174.65	618	4104	0.0.0.0	2	e0000000
53.0.0.0	192.32.174.65	619	4104	0.0.0.0	2	e0000000

## base

Displays global information for the OSPF router. The base record controls OSPF for the entire system. The display includes the following information:

Router Id	Router identifier, which is unique among all OSPF routers.
State	State of the protocol: Disabled, Down, Init (initializing), Not Pres (enabled but not yet started), or Up.
Area Border Router	Whether or not the router is an area border router: Yes or No.
AS Boundary Router	Whether or not the router is an Autonomous System boundary router: Yes or No.
Slot Running Primary	The slot on which the OSPF soloist is running and where the link state database exists. (If the primary soloist goes down, the router attempts to use the backup soloist.)
Slot Running Backup	The slot on which the backup OSPF soloist is running.
ASE Metric Support	Whether or not ASE metric support is enabled or disabled. (This metric is not compatible with OSPF ASE metrics used prior to Version 8.0 of router software.)
ASE Default Tags	How tags are generated for ASEs unaltered by an export route filter or an announce route policy: <ul style="list-style-type: none"><li>• <i>Default (1)</i> - Use a value of zero.</li><li>• <i>Automatic (2)</i> - Generate an automatic tag, per RFC 1403.</li><li>• <i>Proprietary (3)</i> - Use the next hop for IGP routes and the neighbor AS for EGP routes (Bay Networks proprietary scheme).</li></ul>

Hold Down Time	Holddown timer for calculating the Shortest Path First (SPF, Dijkstra) algorithm. Determines how often the algorithm runs. A value of 0 means no holddown.
Slot Mask	Identifies slots on which OSPF can run. The MSB represents slot 1; the next significant bit represents slot 2; and so on.

### Sample Display - show ospf base

```
OSPF Base Information
-----
```

Router Id	Area Border Router	AS Boundary Router
----- 192.32.174.65	----- No	----- Yes

## interface

Displays a table of OSPF interfaces. The display includes the following information:

IP Address	IP address of the OSPF interface.
Area Id	Identifier of the area where the interface belongs.
Type	Type of interface link, as follows: <ul style="list-style-type: none"><li>• <i>PtoP</i> - Point-to-point interface.</li><li>• <i>BCAST</i> - Broadcast network.</li><li>• <i>NBMA</i> - Nonbroadcast Multiaccess network.</li><li>• <i>PASS</i> - Passive interface (accepts no Hello packets; issues no advertisements or Hello packets; forms no neighbor relationships).</li><li>• <i>DFLT</i> - Not configured appropriately. Point-to-multipoint is needed.</li></ul>

---

State	<p>State of the interface, as follows:</p> <ul style="list-style-type: none"> <li>• <i>Down</i> - Interface is not operational.</li> <li>• <i>Waiting</i> - Interface is waiting.</li> <li>• <i>P to P</i> - Interface is in point-to-point state; occurs when the type is Point-to-Point.</li> <li>• <i>DR</i> - Router is the designated router on this network.</li> <li>• <i>BackupDR</i> - Router is the backup designated router on this network.</li> <li>• <i>DR Other</i> - Router is neither the DR nor the BDR on this network.</li> </ul>
Metric	Cost of using this interface.
Priority	Router's priority on this interface, used in multiaccess networks (broadcast or NBMA) for electing the designated router. If the value is 0, this router is not eligible to become the designated router on this network.
Designated DR/Backup DR	Two IP addresses for each interface. The first address is the IP address of the designated router on the network. The second address is the IP address of the backup designated router on this network. Point-to-point links do not contain a designated router or backup designated router.

### Sample Display - show ospf interface

OSPF Interfaces  
-----

IP Address	Area Id	Type	State	Metric	Priority	Designated DR/ Backup DR
-----	-----	-----	-----	-----	-----	-----
192.32.174.65	0.0.0.0	PtoP	P to P	10	1	0.0.0.0 0.0.0.0
192.32.174.97	0.0.0.0	BCAST	BackupDR	1	1	192.32.174.98 192.32.174.97

**lsdb** [*<area-number>*]

Displays the router's Link State Database for all areas or for a specific area. The table includes the following information:

OSPF Area	Identifier of the area the advertisement is associated with.
LS Type	Type of advertisement that the area advances. AS External advertisements apply to all areas. However, if the router is attached to more than one area, the table displays the AS External advertisement only once -- under the backbone area (area id 0.0.0.0). The types are as follows: <ul style="list-style-type: none"><li>• <i>STUB</i> - Stub Link Advertisement</li><li>• <i>ROUTER</i> - Router Links Advertisement</li><li>• <i>NETWORK</i> - Network Links Advertisement</li><li>• <i>SUMMARY</i> - Summary Links Advertisement</li><li>• <i>AS_SUM</i> - Autonomous System Border Summary Links Advertisement</li><li>• <i>AS_EXT</i> - Autonomous System External Advertisement</li></ul>
Link State Id	Link state identifier of the advertisement.
Adv Router	IP address of the advertising router.
E	External type, for an Autonomous System External advertisement only. There are two types -- Type 1 and Type 2.
Metric	Metric value, for an Autonomous System External advertisement only.
ASE Fwd Addr	Forwarding address, for an Autonomous System External advertisement only.
Age	Age in seconds of the advertisement.
Seq Nbr	Sequence number of the advertisement. The sequence number is a 32-bit signed integer used to identify old and duplicate link state advertisements. The larger the sequence number, the more recent the advertisement.

---

## Sample Display - show ospf lsdb

OSPF LSDB

-----

OSPF Area: 0.0.0.0

LS Type	Link State ID	Adv Router	E Metric	ASE Fwd Addr	Age	Seq Nbr
-----	-----	-----	-----	-----	-----	-----
ROUTER	192.32.28.18	192.32.28.18			609	80000002
AS_EXT	14.0.0.0	192.32.28.19	2	3 192.32.28.36	1289	80000014
AS_EXT	15.0.0.0	192.32.28.19	2	2 192.32.28.36	1289	80000012
AS_EXT	16.0.0.0	192.32.28.19	2	2 192.32.28.36	1290	80000012
AS_EXT	131.1.0.0	192.32.28.19	2	5 192.32.28.1	1290	80000012
AS_EXT	141.1.0.0	192.32.28.19	2	5 192.32.28.1	1290	80000012
AS_EXT	192.30.133.0	192.32.28.19	2	4 192.32.28.1	1291	80000012
AS_EXT	192.31.133.0	192.32.28.19	2	4 192.32.28.1	1291	80000012

## neighbors

Displays a table of all OSPF's neighbors. The table includes the following information:

Interface	IP address of the interface.
Router Id	IP address of the router.
Neighbor IP Addr	IP address of the neighbor.
State	State of the neighbor, which is the following: <ul style="list-style-type: none"><li>• <i>Down</i> - Neighbor is not operational. This state can occur only if the neighbor is configured for Non-Broadcast Multi-Access networks.</li><li>• <i>Attempt</i> - Router is trying to establish communication with the neighbor; can occur only if the neighbor is configured for Non-Broadcast Multi-Access networks.</li><li>• <i>Init</i> - Router has seen the neighbor's hello packet but the packet does not include this router in its list.</li><li>• <i>Two Way</i> - Router and neighbor see each other's hello packets.</li><li>• <i>Exch Start</i> - Router and the neighbor are negotiating a master/slave relationship for the Database Exchange process.</li><li>• <i>Exchange</i> - Router and the neighbor are exchanging their Link State Databases.</li><li>• <i>Loading</i> - Router and the neighbor are synchronizing their Link State Databases.</li><li>• <i>Full</i> - Router and the neighbor have fully synchronized databases.</li></ul>
Type	Type of neighbor: <ul style="list-style-type: none"><li>• <i>Dynamic</i> - The router and neighbor learn about each other on Broadcast and Point-to-Point networks.</li><li>• <i>Cfg.</i> - Static configuration of neighbors, which occurs on Non-Broadcast Multi-Access networks.</li></ul>

---

## Sample Display - show ospf neighbors

OSPF Neighbors

-----

Interface	Router Id	Neighbor IP Addr	State	Type
-----	-----	-----	-----	-----
192.32.174.65	192.32.174.66	192.32.174.66	Full	Dynamic
192.32.174.97	192.32.174.66	192.32.174.98	Full	Dynamic

## version

Displays the current version number and modification date of the *ospf.bat* script.

## Sample Display - show ospf version

OSPF.bat Version: #.## Date: mm/dd/yy.

## show packet

The **show packet** *<option>* commands display configuration and status information about Packet Capture instances on routers. The Packet Capture utility is a network analyzer that captures packets into a capture buffer for examination. You can filter packets to determine what packets to save and when to start and stop capturing. For detailed information about the Packet Capture utility, refer to *Using Technician Interface Software*.

The **show packet** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">linenumbers</a>
<a href="#">capture &lt;line number&gt; [-s&lt;start&gt;] [-c&lt;count&gt;]</a>	<a href="#">loaded</a>
<a href="#">configuration &lt;line number&gt;</a>	<a href="#">status [&lt;line number&gt;]</a>
<a href="#">disabled</a>	<a href="#">version</a>
<a href="#">enabled</a>	

### alerts

Displays Packet Capture instances that are enabled but not Up. State is either Down (the physical interface has not connected to Packet Capture) or Absent (Packet Capture is not loaded on the slot connected to this line number).



---

## Sample Display - show packet alerts

```
Packet Capture Line Information (Alerts)
-----
Line Number   State
-----
102103        Down
103101        Absent
```

### **capture** <line number> [-s<start>] [-c<count>]

Displays packets captured on a specific line. In the table, the header line is followed by one or more lines of hexadecimal data.

<line_number>	Displays the physical interface the capture is connected to. This is a unique 10-digit decimal number. Leading zeros are eliminated. The number identifies the physical media type, slot, module, and connector.
-s<start>	Displays the first packet to display from the capture buffer.
-c<count>	Displays the number of packets to display from the capture buffer.

The header line has the following six parts:

- Number of the packet within the capture buffer.
- Date the packet was captured.
- Time the packet was captured.
- Media type the packet was captured on.
- Original size of the packet in bytes.
- Direction the packet was captured from: transmitting (Tx) or receiving (Rx).

**Sample Display - show packet capture 102101**

```
Pkt#          1 06/24/94 06:59:03.018  CSMACD      52 Tx
00000000: 01 80 c2 00 00 00 00 00 a3 00 00 0c 00 26 42 42
00000010: 03 00 00 00 00 00 80 00 00 00 a3 00 00 0c 00 00
00000020: 00 00 80 00 00 00 a3 00 00 0c 80 01 00 00 14 00
00000030: 02 00 0f 00 20 20 20 6c 65 74 20 20 72 65 6d 20
```

**configuration** <line number>

Displays the configuration of a specific Packet Capture line instance.

<line\_number>                      Physical interface to which the capture is connected. See the **capture** command.

The configuration table displays the following fields, which are explained in more detail in *Using Technician Interface Software*.

Delete	State of existence of the MIB instance: Created or Deleted.
Disable	State of the Packet Capture instance: Enabled or Disabled.
State	State of the Packet Capture subsystem, as follows: <ul style="list-style-type: none"><li>• <i>Up</i> - Registered and enabled.</li><li>• <i>Down</i> - Registered but disabled.</li><li>• <i>Init</i> - Loaded but no interface registered for the instance.</li><li>• <i>Not Present</i> - Not loaded on the slot connected to the instance.</li></ul>
FileName	Filename to use to retrieve the capture buffer.
Control	Operation in effect: Start or Stop.
Capture	State of the operation: Started or Stopped.
LineNumber	Line number of the physical interface connected to the instance.
BufSize	Size of the capture buffer in 1024-byte increments.
PktSize	Number of bytes saved from a packet in 32-byte increments.
Direction	Direction of capture: Receive, Transmit, or both.
Count	Number of packets captured.

---

RxTrigger	Trigger type for receive when the capture buffer is full or a match on a trigger filter occurs: Buffer full, Match filter1, Match filter2, Not Used.
TxTrigger	Trigger type for transmit when the capture buffer is full or a match on a trigger filter occurs: Buffer full, Match filter1, Match filter2, or Not Used.
RxFltr1Type	Filter type, as follows: <ul style="list-style-type: none"> <li>• <i>Capture</i> - Limits the types of packets saved.</li> <li>• <i>Trigger</i> - Stops a capture when a match occurs.</li> <li>• Not Used</li> </ul>
RxFltr1Offset	Offset in bytes from the reference point into the packet; the first byte to be checked for a match.
RxFltr1Ref	Reference point in the packet for the offset, as follows: <ul style="list-style-type: none"> <li>• <i>MAC</i> - First byte of the packet.</li> <li>• <i>Data Link</i> - Value that varies with the medium.</li> <li>• <i>Multicast</i> - Filter that verifies that the rightmost bit of a byte is 1.</li> </ul>
RxFltr1Size	Number of bytes in the match field.
RxFltr1Match	Hexadecimal or character string used to match with the packet.
TxFltr1Type	Filter type, as follows: <ul style="list-style-type: none"> <li>• <i>Capture</i> - Limits the types of packets saved.</li> <li>• <i>Trigger</i> - Stops a capture when a match occurs.</li> <li>• Not Used</li> </ul>
TxFltr1Offset	Offset in bytes from the reference point into the packet; the first byte to be checked for a match.
TxFltr1Ref	Reference point in the packet for the offset, as follows: <ul style="list-style-type: none"> <li>• <i>MAC</i> - First byte of the packet.</li> <li>• <i>Data Link</i> - Value that varies with the medium.</li> <li>• <i>Multicast</i> - Special filter that verifies that the rightmost bit of a byte is 1.</li> </ul>
TxFltr1Size	Number of bytes in the match field.
TxFltr1Match	Hexadecimal or character string used to match with the packet.
RxFltr2Type	Filter type, as follows: <ul style="list-style-type: none"> <li>• <i>Capture</i> - Limits the types of packets saved.</li> <li>• <i>Trigger</i> - Stops a capture when a match occurs.</li> <li>• Not Used</li> </ul>
RxFltr2Offset	Offset in bytes from the reference point into the packet; the first byte to be checked for a match.

RxFltr2Ref	Reference point in the packet for the offset, as follows: <ul style="list-style-type: none"><li>• <i>MAC</i> - First byte of the packet.</li><li>• <i>Data Link</i> - Value that varies with the medium.</li><li>• <i>Multicast</i> - Special filter that verifies that the rightmost bit of a byte is 1.</li></ul>
RxFltr2Match	Hexadecimal or character string used to match with the packet.
RxFltr2Group	Capture filter type grouping, as follows: <ul style="list-style-type: none"><li>• <i>Or</i> - ORs the results of RxFltr1 and RxFltr2.</li><li>• <i>And</i> - ANDs the results of RxFltr1 and RxFltr2.</li></ul>
TxFltr2Type	Filter type, as follows: <ul style="list-style-type: none"><li>• <i>Capture</i> - Limits the types of packets saved.</li><li>• <i>Trigger</i> - Stops a capture when a match occurs.</li><li>• Not Used</li></ul>
TxFltr2Offset	Offset in bytes from the reference point into the packet; the first byte to be checked for a match.
TxFltr2Ref	Reference point in the packet for the offset, as follows: <ul style="list-style-type: none"><li>• <i>MAC</i> - First byte of the packet.</li><li>• <i>Data Link</i> - Value the varies with the medium.</li><li>• <i>Multicast</i> - Special filter that verifies that the rightmost bit of a byte is 1.</li></ul>
TxFltr2Size	Number of bytes in the match field.
TxFltr2Match	Hexadecimal or character string used to match with the packet.
TxFltr2Group	Capture filter type grouping, as follows: <ul style="list-style-type: none"><li>• <i>Or</i> - ORs the results of TxFltr1 and TxFltr2.</li><li>• <i>And</i> - ANDs the results of TxFltr1 and TxFltr2.</li></ul>

---

## Sample Display - show packet configuration 102101

Packet Capture Configuration for Line 102101

-----

Delete	Created
Disable	Enabled
State	Up
Fname	PCAP0200
Control	Start
Capture	Started
LineNumber	102101
BufSize	1 Kbyte Increment(s)
PktSize	2 32 Byte Increment(s)
Direction	Receive & Transmit
Count	11
RxTrigger	Not Used
TxTrigger	Not Used
RxFltr1Type	Not Used
RxFltr1Offset	0
RxFltr1Ref	Mac
RxFltr1Size	0
RxFltr1Match	0x(nil)
TxFltr1Type	Not Used
TxFltr1Offset	0
TxFltr1Ref	Mac
TxFltr1Size	0
TxFltr1Match	0x(nil)
RxFltr2Type	Not Used
RxFltr2Offset	0
RxFltr2Ref	Mac
RxFltr2Size	0
RxFltr2Match	0x(nil)
RxFltr2Group	Or
TxFltr2Type	Not Used
TxFltr2Offset	0
TxFltr2Ref	Mac
TxFltr2Size	0
TxFltr2Match	0x(nil)
TxFltr2Group	Or

## disabled

Displays packet capture lines that a user has manually disabled. State is one of the following:

Up	Physical interface has connected to the packet capture.
Down	Physical interface has not connected to the packet capture.
Absent	Packet capture program is not on the slot connected with this line.

### Sample Display - show packet disabled

```
Packet Capture Line Information (Disabled)
-----
Line Number   State
-----
102104        Down
```

## enabled

Displays packet capture lines that are enabled. For state definitions, see the **disabled** command.

### Sample Display - show packet enabled

```
Packet Capture Line Information (Enabled)
-----
Line Number   State
-----
102101        Up
102102        Up
102103        Down
103101        Absent
```

---

## linenumbers

Displays the line numbers configured for packet capture. The table shows the following information:

Line Number	Number of the line connected with the packet capture.
Logical Line	Logical line number that the multichannel board uses.
Media Type	Type of the physical interface (for example, Ethernet).
Slot	Slot location of the line.
Module	Module number of the line's location.
Connector	Physical connector of the line's location.

### Sample Display - show packet linenumbers

```
Packet Capture Configured Line Number(s)
```

```
-----
```

Line Number	Logical Line	Media Type	Slot	Module	Connector
-----	-----	-----	---	-----	-----
102101	0	Ethernet	2	1	1
102102	0	Ethernet	2	1	2
105101	0	Ethernet	5	1	1

## loaded

Displays the list of slots that have Packet Capture loaded.

### Sample Display - show packet loaded

```
Packet Capture is loaded on slot(s)
```

```
2 5
```

**status** [*<line number>*]

Displays the status of the lines configured for packet capture. You can display all lines or limit the display to a specific line. The table displays the following information:

Line Number	Number of the line connected with the packet capture.
State	Line state; for definitions, refer to the <b>disable</b> command.
Capture	State of the capture: Started or Stopped.
Count	Number of packets in the capture buffer.

**Sample Display - show packet status**

```
Packet Capture Line Status
-----
Line Number      State      Capture Count
-----
102101           Up         Started    11
102102           Up         Stopped    0
102103           Down       Stopped    0
102104           Down       Stopped    0
103101           Absent     Stopped    0
```

**version**

Displays the version number and the modification date of the *packet.bat* file.

**Sample Display - show packet version**

```
PACKET.bat Version: #.## Date: mm/dd/yy.
```



---

# show ping

The **show ping** *<option>* commands display information about the Bay Networks Ping MIB service, which provides a means for tracking the network availability and response time of IP networks. For information about how to configure the Bay Networks Ping MIB service through Site Manager, see *Managing Routers and BNX Platforms*.

The **show ping** command supports the following subcommand options:

<a href="#">config</a>	<a href="#">sourceroutes</a>
<a href="#">history</a>	<a href="#">version</a>
<a href="#">sourceroutes</a>	

## config

Displays configuration information about the Ping MIB service:

IP Address	IP addresses that the router is configured to ping.
Size	Number of bytes of data that the router is configured to send each time it pings an IP address.
Retry	Number of successive times that the router is configured to repeat a ping of an IP address.
Timeout	Length of time (in seconds) after which the router is configured to time out an unsuccessful ping of an IP address.
Status	Status of the ping attempt (for example, initializing, done, busy, or one of a number of error messages).

**Sample Display - show ping config**

IP Address	Size	Retry	Timeout	Status
192.32.243.83	16	10	5	DONE
192.32.243.82	16	20	5	DONE
192.32.6.95	16	5	5	DONE
192.32.92.2	16	10	5	DONE
192.32.243.81	16	1	5	INIT

**history**

Displays the following information about each attempt to ping an IP address:

Received	Number of times the router received an acknowledgment from the IP address.
Dropped	Number of times the router did not receive an acknowledgment from the IP address.
Round Trip Time	Length of time (in milliseconds) it took the router to ping the IP address and receive an acknowledgment during the last retry.
Minimum Round Trip Time	Taken from all the retries, this is the minimum length of time (in milliseconds) it takes the router to ping the IP address and receive an acknowledgment.
Maximum Round Trip Time	Taken from all the retries, this is the maximum length of time (in milliseconds) it takes the router to ping the IP address and receive an acknowledgment.
Average Round Trip Time	Taken from all the retries, this is the average length of time (in milliseconds) it takes the router to ping the IP address and receive an acknowledgment.

---

## Sample Display - show ping history

IP Address	Received	Dropped	Round Trip Time	Min Round Trip Time	Max Round Trip Time	Avg Round Trip Time
192.32.243.83	10	0	7	1	19	6
	10	0	15	1	15	4
	10	0	15	1	15	6
	10	0	7	1	7	3
	10	0	7	1	7	4
	10	0	1	1	7	3
	10	0	3	1	7	3
	10	0	1	1	42	9
	10	0	3	1	11	3
	10	0	1	1	7	4
192.32.243.82	10	0	3	1	7	3
	20	0	7	1	23	7
	20	0	7	1	7	4
	20	0	1	1	11	4
	20	0	7	1	15	5
	20	0	1	1	11	3
192.32.6.95	20	0	3	1	11	4
	5	0	1	1	3	1
	5	0	3	1	11	4
	5	0	3	1	7	4
	5	0	7	1	7	4
192.32.92.2	5	0	1	1	7	4
	10	0	19	1	19	9
	10	0	7	1	23	11
	10	0	11	1	11	6
192.32.243.81	10	0	27	1	62	15
	1	0	1	1	1	1

## tracert

Displays the hops between the source address and the specified destination address.

### Sample Display - show ping tracert

IP Address	Trace Address
-----	-----
192.32.243.83	192.32.6.1 192.168.2.65 192.168.7.2 192.32.243.83
192.32.243.82	192.32.6.1 192.168.2.65 192.168.7.2 192.32.243.82
192.32.6.95	192.32.6.95
192.32.92.2	192.32.6.1 192.168.2.65 192.32.83.1 192.32.85.2 192.32.92.2

## source

Displays the source route addresses that dictate the path to be taken by the echo packet.

### Sample Display - show ping source

IP Address	Source Address
-----	-----
192.32.243.81	192.32.6.1 192.32.243.81

---

## version

Displays the current version number and date of the *ping.bat* script.

### Sample Display - show ping version

```
PING.bat Version: #.## Date: mm/dd/yy.
```

## show ppp

The **show ppp** *<option>* commands display Point-to-Point Protocol (PPP) line and state information, and configured and negotiated Network Control Protocols (NCPs). For detailed information on PPP, refer to *Configuring PPP Services*.

The **show ppp** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">ipx { {configured   negotiated}   name {local   remote} }</a>
<a href="#">appletalk {configured   negotiated}</a>	<a href="#">line {configuration   parameters}</a>
<a href="#">bacp</a>	<a href="#">lqr {configuration   stats}</a>
<a href="#">bad packets</a>	<a href="#">multilink {information   circuits}</a>
<a href="#">bridge {configured   negotiated}</a>	<a href="#">osi</a>
<a href="#">bridge {configured   negotiated}</a>	<a href="#">pap {local   remote}</a>

<a href="#"><u>ccp {configured   negotiated}</u></a>	<a href="#"><u>state [&lt;circuit name&gt;]</u></a>
<a href="#"><u>circuits [&lt;circuit name&gt;]</u></a>	<a href="#"><u>version</u></a>
<a href="#"><u>decnet</u></a>	<a href="#"><u>vines</u></a>
<a href="#"><u>disabled</u></a>	<a href="#"><u>wcp</u></a>
<a href="#"><u>enabled</u></a>	<a href="#"><u>xns</u></a>
<a href="#"><u>ip</u></a>	

---

## alerts

Displays all protocols that are enabled but whose state is not opened. The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
Protocol	Protocols used on the line.
State	State of the protocol, as follows: <ul style="list-style-type: none"><li>• <i>Ackrcvd</i> - Acknowledgment received -- the router received an acknowledgment to its request for configuring the connection. It has yet to acknowledge the receipt of the request from the other side of the connection.</li><li>• <i>Acksent</i> - Acknowledgment sent -- the router has sent a request for configuring the connection. It has also acknowledged a similar request from the other side of the connection, but has yet to receive an acknowledgment of its request from the other side.</li><li>• <i>Closed</i> - Link is available but has not yet received an “Open” request.</li><li>• <i>Closing</i> - Router has sent a request to close the connection and is expecting an acknowledgment. When it receives the acknowledgment, the connection will enter the Closed state.</li><li>• <i>Initial</i> - Initial state; the lower layer is unavailable.</li><li>• <i>Opened</i> - Router has sent a configuration request and the other side has acknowledged its request. Also, the router has received a configuration request from the other side and has acknowledged this request. This layer is now up.</li><li>• <i>Reqsent</i> - Request sent. The router has sent a request to configure the connection.</li><li>• <i>Starting</i> - Lower level is still unavailable but the router has initiated an “Open” request.</li><li>• <i>Stopped</i> - Link is available and an “Open” event has occurred. Upon receiving a request to configure the connection, the router sends either an appropriate response or acknowledges the termination request.</li><li>• <i>Stopping</i> - Router has sent a termination request to close the open connection. When the router receives an acknowledgment, the state changes to Stopped.</li></ul>

### Sample Display - show ppp alerts

```
PPP: ALERTS
-----
```

Circuit	Protocol	State
S32	OSI	Starting
	DECnet	Starting
	IPX	Starting
	BRIDGE	Starting
	VINES	Starting

### appletalk {configured | negotiated}

**configured**                      Displays all configurable parameters for NCP negotiations.

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
State	State of the Network Control Protocol (NCP): Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
Network No.	Configured network number. The peer must use the same number.
Local Node No.	Configured node number for the local router.
Remote Node No.	Configured node number for the peer to use.
Routing Protocol	Routing protocol desired for the link (RTMP).



---

## Sample Display - show ppp appletalk config

PPP: APPLETALK NCP Configured Information

```
-----  
Circuit   State   Network No.   Local Node No.   Remote Node No.   Routing Protocol  
-----  
S31      Disabled   0             0             0             RTMP  
S32      Disabled   0             0             0             RTMP
```

**negotiated**                      Displays all configurable parameters after negotiation.

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
State	State of the Network Control Protocol (NCP), either Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
Network No.	Negotiated network number to be used.
Local Node No.	Negotiated node number that the local router will use.
Remote Node No.	Negotiated node number the peer will use.
Routing Protocol	Routing protocol selected for the link.

## Sample Display - show ppp appletalk negotiated

PPP: APPLETALK NCP Negotiated Information

```
-----  
Circuit   State   Network No.   Local Node No.   Remote Node No.   Routing Protocol  
-----  
S31      Disabled   0             0             0             RTMP  
S32      Disabled   0             0             0             RTMP
```

2 Entries found.

## bacp

Displays information about BAP. The display includes the following information:

Circuit Number	Number of the circuit
Circuit Name	Name of the circuit
State	State of the circuit
No Phone Num Option	Whether the circuit is using the No Phone Number Option
Stats Record	Whether a statistics record is available

### Sample Display - show ppp bacp

```
[2:1]$ show ppp bacp
PPP: BACP Information
-----
Cct#  Circuit          State   No PhoneNum Option  Stats Record
-----
   2  Neptune_BAP      Starting Disabled             None
   3  Bart_BAP         Starting Disabled             Available
   4  Homer_MP         Disabled  Disabled             None
   5  Moe_BAP          Disabled  Disabled             None
   7  Homer_Sync       Disabled  Disabled             None
   8  Homer_T1         Opened   Disabled             Available
```

## bad packets

Displays the number of bad packets received over each circuit and the first 16 bytes of the last bad packet. If the number of bad packets is above zero, then the PPP circuit is receiving misformed packets or packets meant for other protocols. The hexadecimal display of the last bad packet will show the kind of packet being received. The display includes the following information:

Circuit	Name of the circuit receiving the bad packets.
Number of Bad Packets	Number of bad packets received at this point.
Last Bad Packet	First 16 bytes of the last bad packet.

---

## Sample Display - show ppp bad

PPP Circuit: Bad Packet Information

```
-----  
Circuit      # of Bad  
             Packets      Last Bad Packet  
-----  
S31          0 None  
S32          0 None  
2 Entries found.
```

## bridge {configured | negotiated}

**configured** Displays the state of the Bridge NCP and the kind of bridged frames that are enabled.

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
State	State of the Bridge NCP -- either Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
Bridge Enet	Whether this interface accepts and forwards bridged traffic that is Ethernet encapsulated: Enabled or Disabled.
Bridge Fddi	Whether this interface accepts and forwards bridged traffic that is FDDI encapsulated: Enabled or Disabled.
Bridge Token Ring	Whether this interface accepts and forwards traffic that is Token Ring encapsulated: Enabled or Disabled.

### Sample Display - show ppp bridge config

PPP: BRIDGE NCP Configured Information

```
-----
```

Circuit	State	Bridge Enet	Bridge Fddi	Bridge Token Ring
S31	Disabled	Enabled	Enabled	Enabled
S32	Starting	Enabled	Enabled	Enabled

2 Entries found.

### negotiated

Displays the result of bridge MAC type negotiation on configured parameters. The display includes the same columns as **bridge config**.

### Sample Display - show ppp bridge negot

PPP: BRIDGE NCP Negotiated Information

```
-----
```

Circuit	State	Bridge Enet	Bridge Fddi	Bridge Token Ring
S31	Disabled	Enabled	Enabled	Enabled
S32	Starting	Enabled	Enabled	Enabled

2 Entries found.

---

## ccp {configured | negotiated}

The **show ppp ccp configured** command shows the compression algorithm that is configured on the local router. The **show ppp ccp negotiated** command shows the algorithm that is actually negotiated with the peer router. The display for both commands includes the following information:

Circuit	The name of the active circuit.
State	Indicates whether the Compression Control Protocol (CCP) is initialized.
Type	The CCP type: CCP (listed as Normal in the display) or ILCCP.
Option	The compression protocol: Any, WCP, or Stac LZS.

## chap {local | remote}

The displays for the local and remote include the following information:

Circuit	Circuit name.
Line LLIndex	Logical Line Index. Identifies the line number associated with the circuit.
LCP State	Indicates the state of the link control protocol, which helps establish the link.
Local/Remote CHAP Name	Displays the CHAP name for the circuit.
Local Remote CHAP Secret	Displays the CHAP secret for the circuit.

<b>local</b>	Displays the configured Challenge Handshake Authentication Protocol (CHAP) name and secret of the local router.
--------------	---

**Sample Display - show ppp chap local**

PPP Line: Local CHAP Configuration

-----

Circuit	Line. LLIndex	LCP State	Local CHAP NAME	Local CHAP Secret
Special	202102.0	Initial	None	None
S31	203101.0	Opened	None	None
S32	203102.0	Opened	None	None
Demand 5	10904101.0	Initial	None	None
Demand 6	10905101.0	Initial	None	None
Special	20904101.0	Initial	None	None

6 Entries found.

**remote**

Displays the configured Challenge Handshake Authentication Protocol (CHAP) name and secret of the remote router.

**Sample Display - show ppp chap remote**

PPP Line: Remote CHAP Configuration

-----

Circuit	Line. LLIndex	LCP State	Remote CHAP NAME	Remote Expected CHAP Secret
Special	202102.0	Initial	None	None
S31	203101.0	Opened	None	None
S32	203102.0	Opened	None	None
Demand 5	10904101.0	Initial	None	None
Demand 6	10905101.0	Initial	None	None
Special	20904101.0	Initial	None	None

6 Entries found.

---

**circuits** [*<circuit\_name>*]

Displays the state of the circuit. The displays includes the following information:

Circuit	Shows the circuit name.
Line #	Indicates the line number.
Driver State	Displays the state of the synchronous driver.
Protocol	Displays the protocols for the circuit.
State	Displays the state of the protocol.

**Sample Display - show ppp circuits**

[2:1]\$ show ppp circuits

PPP Circuit Information

-----

PPP over Sync Driver

-----

Circuit	Line #	Driver State	Protocol	State
S51	205101	Up	LCP	Opened
	IP	Opened		
	IPX	Disabled		
	OSI	Disabled		
	XNS	Disabled		
	VINES	Disabled		
	BRIDGE	Disabled		
	DECnet	Disabled		
	WCP	Disabled		
	APPLETALK	Disabled		
S52	205102	Up	LCP	Reqsent
	IP	Initial		
	IPX	Disabled		
	OSI	Disabled		
	XNS	Disabled		
	VINES	Disabled		
	BRIDGE	Disabled		
	DECnet	Disabled		
	WCP	Disabled		
	APPLETALK	Disabled		

2 Entries found.

PPP over Hssi Driver

-----

Circuit	Line #	Driver State	Protocol	State
---------	--------	--------------	----------	-------

No Entries found.

2 Total Entries found.



---

## decnet

Displays the state of DECnet NCP on all circuits on which PPP is configured. State is either Disabled, or if Enabled, any of the states listed under the **alerts** command.

### Sample Display - show ppp decnet

```
PPP: DECNET NCP Information
```

```
-----
```

```
Circuit  State
-----  -
S31      Disabled
S32      Starting
2 Entries found.
```

## disabled

Displays the state of all NCPs disabled on each circuit. State is either Disabled, or if Enabled, any of the states listed under the **alerts** command.

### Sample Display - show ppp disabled

```
PPP: Entities Disabled
```

```
-----
```

```
Circuit  Protocol  State
-----  -
S31      OSI       Closed
          DECnet  Closed
          APPLETALK Closed
          BRIDGE  Closed

S32      IP        Initial
          XNS     Initial
          APPLETALK Initial
```

## enabled

Displays the state of all NCPs enabled on each circuit. States are listed under the **alerts** command.

### Sample Display - show ppp enabled

```
PPP: Entities Enabled
```

```
-----  
  
Circuit   Protocol   State  
-----  
S31      LCP        Opened  
         IP        Opened  
         XNS       Opened  
         IPX       Opened  
         VINES     Opened  
  
S32      LCP        Stopped  
         OSI        Starting  
         DECnet     Starting  
         IPX        Starting  
         BRIDGE    Starting  
         VINES     Starting
```

## ip

Displays state, configured, and negotiated parameters for Internet NCP. The display includes the following information:

Local Cfg. IP Address	Configured IP address of the interface.
Local Neg. IP Address	Local IP address after negotiation.
Remote Cfg. IP Address	IP address desired for the peer router.
Remote Neg. IP Address	Remote IP address after negotiation.

---

## Sample Display - show ppp ip

PPP: IP NCP Information

-----

Circuit	State	Local		Remote	
		Cfg. IP Addr	Neg. IP Addr	Cfg. IP Addr	Neg. IP Addr
S31	Opened	1.1.1.2	1.1.1.2	1.1.1.1	1.1.1.1
S32	Disabled	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0

2 Entries found.

## ipx {{configured | negotiated}} | name {{local | remote}}

### configured

Displays all configurable parameters for NCP negotiations with a peer router.

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
State	State of the circuit, which is either Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
Network No.	Configured network number for the originating router and the peer router.
Remote Node Number	Node number the peer router should use if it sends a 0 to the originating router during negotiations.
Routing Protocol	The routing protocol desired for the link.

**Sample Display - show ppp ipx config**

```
PPP: IPX NCP Configured Information
-----
```

Circuit	State	Network No.	Remote Node Number	Routing Protocol
S31	Opened	0x0000000F	0x0000000F	RIP/SAP
S32	Starting	0x0000000A	0x0000000A	RIP/SAP

```
2 Entries found.
```

**negotiated**

Displays all configurable parameters after IPX NCP negotiation. The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
State	State of the circuit, which is either Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
Network No.	Number agreed upon during negotiation for the originating router to use with the peer router. Both routers will use this number.
Config Complete	Result of the IPX NCP negotiations (True or False).
Routing Protocol	Routing protocol negotiated for use on the link. None indicates that the peer routers have not completed negotiations or that the negotiations have not yet converged.

**Sample Display - show ppp ipx negot**

```
PPP: IPX NCP Negotiated Information
-----
```

Circuit	State	Network No.	Config Complete	Routing Protocol
S31	Opened	0x0000F000	True	RIP/SAP
S32	Starting	None	False	None

```
2 Entries found.
```

---

**name local**

Displays the local router name, its circuit name and its state. State is either Disabled, or if Enabled, any of the states listed under the **alerts** command.

**Sample Display - show ppp ipx name local**

```
PPP: IPX NCP Local Router Name
```

```
-----
```

Circuit	State	Local Router Name
S31	Opened	Locrouter1
S32	Starting	Locrouter2

```
2 Entries found.
```

**name remote**

Displays the remote router name resulting from negotiation, its circuit name and its state. None indicates that no router name has been configured on the peer or that negotiations have not taken place. State is either Disabled or if enabled, any of the states listed under the **alerts** command.

**Sample Display - show ppp ipx name remote**

```
PPP: IPX NCP Remote Router Name
```

```
-----
```

Circuit	State	Remote Router Name
S31	Opened	Remrouter1
S32	Starting	None

```
2 Entries found.
```

## line {configuration | parameters}

**configuration** Displays the configuration of the PPP line and the state of the Line Control Protocol (LCP).

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
Line.LLIndex	Line number associated with the circuit; always 0 for now.
LCP State	State of the Line Control Protocol -- either Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
Restart Time	Number of seconds the Restart Timer waits before retransmitting data. The maximum value is 1000.
Echo Request Frequency	Number of seconds between transmissions of Echo Request Packets.
Echo Reply Loss	Number of unacknowledged Echo-Reply packets counted before declaring the point-to-point link down.
Maximum Conf-Req	Maximum number of unacknowledged configuration requests to send without receiving a valid response from the peer router on the other end of the link.
Maximum Term-Req	Maximum number of terminate requests to send without receiving a valid response and before assuming the peer router on the other end of the link is unavailable.
Max Conf Fail	Maximum number of Configure Nak packets to send before sending a Configure Ack and before assuming that the configuration does not converge.

---

## Sample Display - show ppp line config

PPP Line Configuration

-----

Circuit	Line. LLIndex	LCP State	Restart Timer	Echo-Req Freq	Echo-Rep Loss	Maximum Conf-Req	Maximum Term-Req	Max Conf Fail
S31	203101.0	Opened	3	0	3	1000	2	10
S32	203102.0	Stopped	3	0	3	1000	2	10
Special	203102.0	Starting	3	0	3	1000	2	10
Special	203103.0	Starting	3	0	3	1000	2	10

4 Entries found.



**Note:** A circuit name of Special means that PPP created the circuit for negotiating addresses on a demand, backup, or bandwidth line. Currently no dial circuit is active on the two lines marked Special. They could be demand, backup, or bandwidth circuits. For more information, see the **show sws** command.

---

### parameters

Displays the parameters associated with the specific PPP connection.

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
Line.LLIndex	Line number associated with the circuit.
LCP State	State of the Line Control Protocol -- either Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
Magic Number	Number that the line uses.
MRU	Maximum receive unit, which specifies the MTU size to use for the line.
Local Auth. Prot.	Local authorization protocol that the peer needs to use for the originator's side of the link.
Remote Auth. Prot	Remote authorization protocol that the peer wants the originating router to use on its side of the link.

**Sample Display - show ppp line param**

PPP Line: Parameter Information

```
-----
```

Circuit	Line. LLIndex	LCP State	Magic Number	MRU	Local Auth. Prot.	Remote Auth. Prot.
S31	203101.0	Opened	0xd45cf8f9	1594	None	None
S32	203102.0	Stopped	0x5eeac969	1594	None	None

2 Entries found.

**lqr {configuration | stats}****configuration**

Displays all configurable parameters associated with line quality reporting (LQR).

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
Line.LLIndex	Line number associated with the circuit.
Line Quality Protocol	Link quality protocol configured for the line.
Remote Timer	State of the LQR timer -- Enabled or Disabled; only one side maintains the timer.
LQR Repeat Period	Time in seconds between the transmission of LQR packets.
Inbound Quality	Percentage of LQR packets that the originating router expects to receive from the peer, averaged over the last five LQR reporting periods. A value of 100% indicates that the router will tolerate no loss.
Outbound Quality	Percentage of LQR packets that the peer router expects to receive from this router, averaged over the last five LQR reporting periods.



---

## Sample Display - show ppp lqr config

PPP Line: Line Quality Reporting Configuration

```
-----
```

Circuit	Line. LLIndex	Line Qual Protocol	Remote Timer	LQR Repeat Period	Inbound Quality	Outbound Quality
S31	203101.0	LQR	Enabled	3	90%	90%
S32	203102.0	None	Enabled	3	90%	90%

**stats** Displays the number of line quality reporting packets exchanged as well as the line quality.

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
Line.LLIndex	Line number associated with the circuit.
LCP State	State of the Line Control Protocol -- either Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
LQR Repeat Period	Maximum number of seconds between the transmission of LQR packets, as agreed upon with the peer router.
Inbound Quality	Percentage of LQR packets that the originating router expects to receive from the peer, averaged over the last five LQR reporting periods. A value of 100% indicates that the router will tolerate no loss.
Outbound Quality	Percentage of LQR packets that the peer router expects to receive from this router, averaged over the last five LQR reporting periods.
In LQRs	Number of LQR packets received from the peer.
Out LQRs	Number of LQR packets transmitted.

### Sample Display - show ppp lqr stats

PPP Line: Line Quality Reporting Stats

```
-----
```

Circuit	Line. LLIndex	LCP State	LQR Repeat Period	Inbound Quality	Outbound Quality	In LQRs	Out LQRs
S31	203101.0	Opened	3	100%	100%	61044	61052
S32	203102.0	Stopped	3	0%	0%	0	0

2 Entries found.

### multilink {information | circuits}

#### information

Displays information about the multilink bundle. The display includes the following information:

- Circuit                      Displays the circuit number.
- Line Count                   Shows the number of lines in the multilink bundle.
- Bundle Speed                 Lists the current speed of each line in the multilink bundle.
- Line                           Lists the line number of each line in the multilink bundle.

### Sample Display - show ppp multilink information

PPP Multilink Information

```
-----
```

Bundle	Circuit	Line Count	Speed	Line
S132		0	0	None
Demand	3	1	64000	201303.0

2 Entries found.

---

**circuits**

Displays information about each circuit in the multilink bundle.  
The display includes the following information:

Circuit	Name of the circuit.
Configured Mode	Mode you configured for this circuit: Normal - a nonmultilink circuit ML - a multilink circuit Monitor - The circuit is a multilink circuit, and the router for which this circuit is configured is the congestion monitor. Dynamic-Monitor - The circuit is a multilink circuit using BAP. This option enables the router to function as the monitor when it initiates a call, and the non-monitor router when it receives a call.
Actual Mode	Actual mode in which this circuit is operating.
Tx Packets	Number of packets transmitted over the circuit.
Rx Packets	Number of packets received over the circuit.
Fragmented Packets	Number of packets that were fragmented.

**Sample Display - show ppp multilink circuits**

```
PPP Multilink Circuits
```

```
-----
```

Circuit	Configured Mode	Actual Mode	Num Packets		Fragmented
			Tx Packets	Rx Packets	
Nept_BAP	Dynamic-Monitor	Inactive	4432	863	0
Homer_MP	ML_Monitor	Inactive	0	0	0
Homer_T1	ML_Monitor	ML_Monitor	27481	109918	0
Bart_PPP	Normal	Normal	0	0	0

**osi**

Displays the state of the OSI NCP for all circuits on which PPP is configured. State is either Disabled, or if Enabled, any of the states listed under the **alerts** command.

The display includes the following information:

Circuit	Displays the circuit number.
State	Displays whether OSI NCP is enabled or disabled.

**Sample Display - show ppp osi**

```
PPP: OSI NCP Information
```

```
-----
```

Circuit	State
S31	Disabled
S32	Starting

```
2 Entries found.
```

---

## **pap {local | remote}**

**local** Displays the configured Password Authentication Protocol (PAP) identifier and password of the local router.

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
Line.LLIndex	Line number associated with the circuit.
LCP State	State of the Line Control Protocol -- either Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
Local PAP ID	PAP identifier assigned to this interface. During the authentication phase, all password Authenticate-Request messages that the peer sends to this interface must include this PAP ID.
Local PAP Password	PAP password assigned to this interface. During the authentication phase, all Authenticate-Request messages that the peer sends to this interface must include this password.

### **Sample Display - show ppp pap local**

PPP Line: Local PAP Configuration

```
-----
```

Circuit	Line. LLIndex	LCP State	Local PAP ID	Local PAP Password
S31	203101.0	Opened	None	None
S32	203102.0	Stopped	None	None

```
-----
```

2 Entries found.

**remote** Displays the configured Password Authentication Protocol (PAP) identifier and password of the remote router.

The display includes the following information:

Circuit	Name of the circuit the protocol runs on.
Line.LLIndex	Line number associated with the circuit.
LCP State	State of the Line Control Protocol -- either Disabled, or if Enabled, any of the states listed under the <b>alerts</b> command.
Remote PAP ID	PAP identifier assigned to the peer router. During the authentication phase, this interface must include this PAP ID in all password Authenticate-Request messages it sends to the peer router.
Remote PAP Password	PAP password assigned to the peer router. During the authentication phase, this interface must include this password in all password Authenticate-Request messages it sends to the peer router.

### Sample Display - show ppp pap remote

```
PPP Line: Remote PAP Configuration
```

```
-----
```

Circuit	Line. LLIndex	LCP State	Remote PAP ID	Remote PAP Password
S31	203101.0	Opened	None	None
S32	203102.0	Stopped	None	None

```
-----
```

```
2 Entries found.
```

### **state** [*<circuit name>*]

For all circuits or for a specified circuit, displays the state of LCP and of all the NCPs per circuit. There are two types of displays: one the Sync driver and the other for the HSSI driver. State is either Disabled, or if Enabled, any of the states listed under the **alerts** command. The table also displays the line the circuit is currently on, since with dial backup, the backup circuit can be on another line when the primary connection fails.

---

## Sample Display - show ppp state

### PPP State Information

-----

#### PPP over Sync Driver

-----

Circuit	Line #	Driver State	Protocol	State
S31	203101	Init	LCP	Opened
			IP	Starting
			IPX	Disabled
			OSI	Disabled
			XNS	Disabled
			VINES	Disabled
			BRIDGE	Disabled
			DECnet	Disabled
			APPLETALK	Disabled
Special	203102	Init	LCP	Starting
			IP	Initial
			IPX	Initial
			OSI	Disabled
			XNS	Disabled
			VINES	Disabled
			BRIDGE	Disabled
			DECnet	Disabled
			APPLETALK	Initial
Demand 3	203103	Up	LCP	Opened
			IP	Opened
			IPX	Disabled
			OSI	Disabled
			XNS	Disabled
			VINES	Disabled
			BRIDGE	Disabled
			DECnet	Disabled
			APPLETALK	Disabled



**Note:** As the sample display shows, the circuit labeled Special is only for lines configured for dial-on-demand, dial backup, and bandwidth-on-demand. A circuit name of Special means that PPP created the circuit for negotiating addresses on a demand, backup, or bandwidth line.

---

If your two circuit entries have the same name, one of them is a primary circuit and the other is a backup circuit. See “show sws” for more information.

A demand or backup circuit becomes associated to a physical line when the call is in progress. So, the PPP circuit and the line records may seem to be inconsistent. The following display shows three entries; circuit 3 is a dial-on-demand circuit.

### Sample Display - show ppp ip

```
PPP: IP NCP Information
-----
Circuit   State      Local      Local      Remote      Remote
          Cfg. IP Addr Neg. IP Addr Cfg. IP Addr Neg. IP Addr
-----
S31       Starting  12.1.1.1   12.1.1.1   12.1.1.2    12.1.1.2
Demand 3   Starting  13.1.1.1   13.1.1.1   13.1.1.2    13.1.1.2
Special   Initial   0.0.0.0    0.0.0.0    0.0.0.0     0.0.0.0

3 Entries found.
```

### version

Displays the current version and modification date of the *ppp.bat* script.

### Sample Display - show ppp version

```
PPP.bat Version: #.## Date: mm/dd/yy
```



---

## vines

Displays the state of the VINES NCP for all circuits on which PPP is configured. State is either Disabled, or if Enabled, any of the states listed under the **alerts** command.

The display includes the following information:

Circuit	Displays the circuit number.
State	Displays whether VINES NCP is enabled or disabled.

### Sample Display - show ppp vines

```
PPP: VINES NCP Information
-----

Circuit  State
-----  -
S31      Disabled
S32      Starting

2 Entries found.
```

## wcp

Displays whether data compression is enabled for all circuits configured for PPP. The state is either Disabled, or if Enabled, any of the states listed under the **alerts** command.

The display includes the following information:

Circuit	Displays the circuit number.
State	Displays whether data compression is enabled or disabled.

### Sample Display - show ppp wcp

```
[2:1]$ show ppp wcp
```

```
PPP: WCP NCP Information
```

```
-----
```

```
Circuit  State
-----  -----
S31      Disabled
S32      Disabled
Demand 4 Initial
Demand 5 Disabled
Special  Disabled
```

```
5 Entries found.
```

### xns

Displays the state of the XNS NCP for all circuits on which PPP is configured. State is either Disabled, or if Enabled, any of the states listed under the **alerts** command.

The display includes the following information:

Circuit	Displays the circuit number.
State	Displays whether XNS NCP is enabled or disabled.

### Sample Display - show ppp xns

```
PPP: XNS NCP Information
```

```
-----
```

```
Circuit  State
-----  -----
S31      Disabled
S32      Starting
```

```
2 Entries found.
```

---

# show process

The **show process** *<option>* commands display information about the use of resources (buffers, cpu, memory, lists, etc.) on the router.

The **show process** command supports the following subcommand options:

<a href="#">buffers</a>	<a href="#">list</a>
<a href="#">cpu</a>	<a href="#">version</a>
<a href="#">memory</a>	

## buffers

Displays the number and percentage of buffers used by all processes on the router. By specifying the options that appear in the following command line, you can customize the output to display buffer usage for a particular process or slot on the router.

**show process buffers** *<process>* [**sample** *<seconds>* *<repeat>*] [*<slot>*]

- process** Specifies the process for which you want to view buffer statistics. Specify **all** to display buffer statistics for all processes running on the router. Specify **total** to display only buffer statistic totals. For information on how to obtain a list of available processes, refer to the **show process list** command later in this section.
- sample <seconds> <repeat>** Periodically samples and displays buffer usage statistics. The mandatory *<seconds>* argument indicates the time interval between samples. The mandatory *<repeat>* argument indicates the number of times to sample buffer usage. If you use sampling, the values displayed represent the amount of buffer usage for the interval last sampled.
- The minimum sample interval is 30 seconds. If you specify a shorter interval, the command automatically substitutes the minimum interval of 30 seconds.
- If you choose not to use sampling, the values displayed represent the total buffer usage since slot boot time. .
- slot** Limits display to statistics for the slot you specify.

### Sample Display - show process buffers total

```
Total Buffer Use Statistics
-----
Slot  Max   Free  Used  %Used
----  ---  ----  ----  -
2     781  458   323   41
3     781  457   324   41
4     781  457   324   41
```

## cpu

Displays the use in 100ths of seconds and percentage of cpu used by all processes on the router. By specifying the options that appear in the following command line, you can customize the output to display cpu usage for a particular process or slot on the router.

**show process cpu <process> [sample <seconds> <repeat>] [<slot>]**

- 
- process** Specifies the process for which you want to view cpu statistics. Specify “all” to display cpu statistics for all processes running on the router. Specify “total” to display only cpu statistic totals. For information on how to obtain a list of available processes, refer to the **show process list** command later in this section.
- sample <seconds> <repeat>** Periodically samples and displays cpu usage statistics. The mandatory *<seconds>* argument indicates the time interval between samples. The mandatory *<repeat>* argument indicates the number of times to sample cpu usage. If you use sampling, the values displayed represent the amount of cpu usage for the interval last sampled.
- The minimum sample interval is 30 seconds. If you specify a shorter interval, the command automatically substitutes the minimum interval of 30 seconds.
- If you choose not to use sampling, the values displayed represent the total cpu usage since slot boot time.
- slot** Limits display to statistics for the slot you specify.

### Sample Display - show process cpu total

```
Total Cpu Use Statistics
-----
```

Slot	Max	Idle	Used	%Used
2	17463	17191	272	1
3	17315	17045	270	1
4	19427	16075	3352	17



**Note:** The FRE-1 processor card does not currently support the **show process cpu** command.

---

## memory

Displays the number and percentage of memory used by all processes on the router. The output can be tailored to only display memory usage for a particular process or a particular slot by using the options described below.

**show process memory** *<process>* [**sample** *<seconds>* *<repeat>*] [*<slot>*]

**process** Specifies the process for which you want to view memory statistics. Specify “all” to display memory statistics for all processes running on the router. Specify “total” to display only memory statistic totals. For information on how to obtain a list of available processes, refer to the **show process list** command later in this section.

**sample** *<seconds>* *<repeat>* Periodically samples and displays memory usage statistics. The mandatory *<seconds>* argument indicates the time interval between samples. The mandatory *<repeat>* argument indicates the number of times to sample memory usage. If you use sampling, the values displayed represent the amount of memory usage for the interval last sampled.

The minimum sample interval is 30 seconds. If you specify a shorter interval, the command automatically substitutes the minimum interval of 30 seconds.

If you choose not to use sampling, the values displayed represent the total memory usage since slot boot time.

**slot** Limits the display statistics to the specified slot.

### Sample Display - show process memory total

```
Total Memory Use Statistics
-----
Slot  Max      Free      Used      %Used
----  -
2     2839760  2111768  727992    25
3     2839760  2111608  728152    25
4     2839760  1994088  845672    29
```

---

## list

Displays a list of all the processes that are or may have run on the router since boot time. The **show process list** command supports only the *<slot>* option.

**show process list** [ *<slot>* ]

If you do not specify a slot, the command returns a list of processes that have run on all slots. Use the slot option to display processes only on the slot you specify.

### Sample Display - show process list

```
List of Processes
-----
Name                Slot
-----
kernel              2
kernel              3
kernel              4
qenet               2
qenet               3
qenet               4
ilacc               2
ilacc               3
ilacc               4
```

## version

Displays the current version number and modification date of the *process.bat* script.

### Sample Display - show process version

```
PROCESS.bat Version: #.## Date: mm/dd/yy.
```

## show protopri

The **show protopri** <option> commands display information about DLSw protocol prioritization queues. For detailed information on the Bay Networks implementation of protocol prioritization for DLSw traffic, refer to *Configuring Traffic Filters and Protocol Prioritization*.

The **show protopri** command supports the following subcommand options:

<a href="#">cc_stats</a>	<a href="#">qstats</a>
<a href="#">filters</a>	<a href="#">version</a>

### cc\_stats

Displays current congestion control statistics for DLSw priority queues. Generally, it is a good idea to increase bandwidth to a queue with consistently high congestion statistics. The table includes the following information:

Peer IP Address	IP address of configured DLSw peers.
Queue Number	Associated DLSw priority queue number.
Bytes	Number of bytes backed up and held in a congestion control queue before transmission.
Packets	Number of packets backed up and held in a congestion control queue before transmission.



---

## Sample Display - show protopri cc\_stats

Protocol Priority Congestion Control Statistics

```
-----  
Peer IP           Queue  
Address          Number  Bytes  Packets  
-----  
5.5.5.2          0       0      0  
5.5.5.2          1      4972   2
```

2 Entries found.

## filters

Displays current information on filters that implement DLSw priority queueing. The table includes the following information:

Filter Name	Filter name assigned using Site Manager.
Rule Number	Rule number assigned when creating filters (determines precedence).
Fragment Number	Number of octet fragments required to store the filter rule. (Used by Site Manager; you cannot modify this number.)
Rx Matches	Number of packets that meet the filter criteria.
Mode	Current state of Protocol Prioritization (Enabled or Disabled).
Status	Current state of configured priority queues (Active or Inactive).

**Sample Display - show protopri filters**

```
Protocol Priority Traffic Filters
-----
```

Filter Name	Rule Number	Fragment Number	Rx Matches	Mode	Status
SNA_High	1	1	225228	Enabled	Active
NetBIOS_Low	2	1	2183	Enabled	Active

```
2 Entries found.
```

**qstats**

Displays current queue statistics for DLSw priority queues. The table includes the following information:

Peer IP Address	IP address of configured DLSw peers.
Queue Number	Associated DLSw priority queue number.
Bandwidth Percent	Percent of bandwidth assigned to this queue.
Bytes Xmitted	Number of bytes transmitted for this queue.
Packets Xmitted	Number of packets transmitted for this queue.

**Sample Display - show protopri q\_stats**

```
Protocol Priority Queue Statistics
-----
```

Peer IP Address	Queue Number	Bandwidth Percent	Bytes Xmitted	Packets Xmitted
5.5.5.2	0	90	137055412	225245
5.5.5.2	1	10	546115	2156

```
2 Entries found.
```

---

## version

Displays the current version number and modification date of the *protopri.bat* script.

### Sample Display - show protopri version

```
protopri.bat Version: #.## Date: mm/dd/yy.
```

## show radius

The **show radius** *<option>* commands display information about RADIUS. For detailed information about the Bay Networks implementation of RADIUS, refer to *Configuring RADIUS*.

The **show radius** command supports the following subcommand options:

alerts	statistics authentication <i>&lt;slot_number&gt;</i>
server	statistics accounting <i>&lt;slot_number&gt;</i>
config	version

## alerts

Displays the server alerts. The table includes the following information:

IP Address	Server IP address
Mode	Indicates that the server is configured for authentication, accounting, or both
Type	Indicates that this server is primary or alternate
Auth State	Authentication up or down
Acct State	Accounting up or down

**Sample Display - show radius alerts**

```
RADIUS Server Alerts
```

```
-----  
IP Address      Mode      Type      Auth State  Acct State  
-----  
192.168.131.53 Both      Primary   Down        Up
```

```
Total of 1 alert on configured server.
```

**server**

Displays information about the RADIUS server. The table includes the following options:

*<authentication>* limits the display to authentication information.

*<accounting>* limits the display to accounting information.

**server authentication**

Describes the state of the authentication servers. It includes the following information:

Server IP Address	Specifies the server's IP address.
Mode	Indicates that the server is configured for authentication, accounting, or both.
Type	Indicates that this server is primary or alternate.
State	Indicates that the server is up or down.
UDP Port	Specifies the authentication UDP port.
Response Timeout	Specifies the number of seconds the RADIUS client waits before retransmitting a request to the RADIUS server.
Max Retry	Specifies the number of times the RADIUS client retransmitted a request.
Reset Timer	Specifies the number of minutes the RADIUS client waits before retrying the primary server after it fails to respond. If the primary server fails to respond, the client considers it unreachable and switches to the alternate server. After this specified time period, the client tries to reconnect to the primary server.

---

Automatic Reset    Indicates whether the server can reset automatically.  
Secret             Specifies the RADIUS password that the server and client share.

### Sample Display - show radius server auth

RADIUS Server Information for Authentication

```
-----
```

IP Address	Mode	Type	State	UDP Port
192.32.77.11	Both	Primary	Up	1645
192.168.131.34	Both	Alternate	Up	1645

Server IP Address	Mode	Response Timeout	Max. Retry	Reset Timer	Automatic Reset	Secret
192.32.77.11	Both	3	2	10	Disabled	bayeast
192.168.131.34	Both	3	2	3	Disabled	bayeast

Total of 2 Authentication servers configured.

## server accounting

Describes the state of the accounting servers. The table includes the following information:

Server IP Address	Server's IP address.
Mode	Whether the server is configured for authentication, accounting, or both.
Type	Whether the server is primary or alternate.
State	Whether the server is up or down.
UDP Port	The authentication UDP port.
Response Timeout	The number of seconds the RADIUS client waits before retransmitting a request to the RADIUS server.
Max Retry	The number of times the RADIUS client retransmitted a request.
Reset Timer	The number of minutes the RADIUS client waits before retrying the primary server after it fails to respond. If the primary server fails to respond, the client considers it unreachable and switches to the alternate server. After this specified time period, the client tries to reconnect to the primary server.
Automatic Reset	Whether the server can reset automatically.
Secret	The RADIUS password that the server and client share.

### Sample Display - show radius server account

RADIUS Server Information for Accounting

```
-----
```

IP Address	Mode	Type	State	UDP Port		
192.32.77.11	Both	Primary	Up	1646		
192.168.131.34	Both	Alternate	Up	1646		

Server IP Address	Mode	Response Timeout	Max. Retry	Reset Timer	Automatic Reset	Secret
192.32.77.11	Both	3	2	10	Disabled	bayeast
192.168.131.34	Both	3	2	3	Disabled	bayeast

Total of 2 accounting servers configured.

---

## config

Displays the RADIUS configuration. The table includes the following information:

Slot	Slot number on the router.
Client IP Address	Client IP address.
Auth Status	Whether authentication is enabled or disabled.
Acct. Status	Whether accounting is enabled or disabled.
Acct. Direction	Which calls generate an accounting session. All indicates that incoming and outgoing calls can establish an accounting session. Outgoing indicates that only outgoing calls can establish an accounting session. Incoming means that only incoming calls can establish an accounting session.
Debug Level	Level of RADIUS debug messages logged by the RADIUS client.

### Sample Display - show radius config

```
RADIUS Slot Information
-----
Slot      Client      Auth.      Acct.      Acct.      Debug
         IP Address  Status    Status    Direction  Level
-----
4        192.168.131.40  Enabled  Enabled  All        No Debug(4)
5        192.168.131.40  Enabled  Enabled  All        No Debug(4)

RADIUS configured on 2 slots
```

**stat auth**

Display the RADIUS authentication statistics. The table includes the following information:

*<slot number>* limits the display to the specified slot.

Server IP Address	IP address of the RADIUS server
Auth. Req. Count	Number of authentication session requests
Auth. Req. Outstanding	Number of authentication session requests outstanding
Auth. Resp. Accepted	Number of authentication responses accepted
Auth. Resp. Rejected	Number of authentication responses rejected
Auth. No Resp.	Number of authentication requests that received no response
Auth. Resp. Invalid	Number of invalid authentication responses
Auth. Resp. Timeouts	Number of times the client has tried to retransmit a request to the server
Alt. Server Retries	Number of times the client has tried to connect to an alternate server

**Sample Display - show radius stat auth**

RADIUS Authentication Statistics Information

```
-----
```

Server IP Address	Auth. Req. Count	Auth. Req. Outstanding	Auth. Resp Accepted	Auth. Resp Rejected
-----	-----	-----	-----	-----
192.168.131.34	2	1	0	2
192.168.131.51	0	0	0	0
192.168.131.53	1	0	0	0



---

Server IP Address	Auth. No Resp.	Auth. Resp Invalid	Auth. Resp Timeouts	Alt. Server Retries
192.168.131.34	0	0	0	0
192.168.131.51	0	0	0	0
192.168.131.53	0	0	3	1

## radius stat acc

Display the RADIUS accounting statistics. The table includes the following information.

*<slot\_number>* limits the display to the specified slot.

Server IP Address	IP address of the RADIUS server
Acct. Req. Start	Number of accounting session requests
Acct. Req. Stop	Number of accounting sessions that have ended
Acct. Resp.	Number of times the accounting server has responded to a request
Acct. Resp. Timeouts	Number of accounting response timeouts that have occurred
Acct. Resp. Failed	Number of times the accounting response has failed
Alt. Server Retries	Number of times the client has tried to connect to the alternate server

## Sample Display - show radius stat acc

Server IP Address	Acct. Req. Start	Acct. Req. Stop	Acct. Resp	Acct. Resp Timeouts	Acct. Resp Failed	Alt. Server Retries
192.168.131.34	0	0	0	0	0	0
192.168.131.51	0	0	0	0	0	0
192.168.131.53	0	0	0	0	0	0
Total	0	0	0	0	0	0

RADIUS statistics displayed for 3 servers

## version

Displays the RADIUS version.

### Sample Display - show radius version

```
RADIUS.BAT Version: 1.1 Date: 02/12/97 .
```

## show rarp

The **show rarp** *<option>* commands display information about Reverse Address Resolution Protocol (RARP) services. For detailed information on the Bay Networks implementation of RARP, refer to *Configuring SNMP, RMON, BootP, DHCP, and RARP Services*.

The **show rarp** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">enabled</a>
<a href="#">circuits [&lt;circuit name&gt;]</a>	<a href="#">version</a>
<a href="#">disabled</a>	

## base

Displays the base record for RARP services. The base record controls RARP for the entire system. The table includes the name of the protocol, its state: Enabled or Disabled, and the number of failed requests. These requests were dropped because the router could not locate the IP address in the MAC address-to-IP address mapping table.

---

## Sample Display - show rarp base

RARP Base Information

-----

Protocol	State	Failed RARP Request
-----	-----	-----
RARP	Enabled	6

## circuits [*<circuit name>*]

Displays information about all RARP circuits or for a specific circuit. The table includes the circuit name, the RARP server's IP address on this circuit, and the circuit's state: Enabled or Disabled.

## Sample Display - show rarp circuits

RARP Circuits

-----

Circuit	IP Address	State
-----	-----	-----
E21	192.32.28.65	Enabled
E22	192.32.36.1	Disabled

2 entries

## disabled

Displays all RARP circuits that a user has manually disabled. In this case, State is Disabled. The table also includes the name of the circuit and the RARP server's IP address.

### Sample Display - show rarp disabled

```
Disabled RARP Circuits
-----
Circuit      IP Address      State
-----
E22          192.32.36.1     Disabled

1 entries
```

### enabled

Displays all enabled RARP circuits. In this case, State is Enabled. The table also includes the name of the circuit and the RARP server's IP address.

### Sample Display - show rarp enabled

```
Enabled RARP Circuits
-----
Circuit      IP Address      State
-----
E21          192.32.28.65    Enabled

1 entries
```

### version

Displays the current version number and modification date of the *rarp.bat* script.

### Sample Display - show rarp version

```
RARP.bat Version: #.## Date: mm/dd/yy.
```

---

# show rip6

The **show rip6** *<option>* command displays information about RIP for IP version 6. For detailed information about the Bay Networks implementation of IPv6, refer to *Configuring IPv6 Services*.

The **show rip6** command supports the following subcommand options:

<a href="#">config [<i>&lt;interface_index&gt;</i>]</a>	<a href="#">stats [<i>&lt;interface_index&gt;</i>]</a>
---	--

## config [*<interface\_index>*]

Displays the current setting of RIPv6 parameters on the interface you specify. For detailed information RIPv6 parameters, refer to *Configuring IPv6 Services*.

### Sample Display - show rip6 config

RIPv6 Configuration Information

-----

```
Interface:                3
State:                    Up
Route Supply:             Enabled
Route Listen:             Enabled
Default Route Supply:    Enabled
Default Route Listen:    Enabled
Poisoned Reversed Method: Poisoned
Triggered Updates:       Enabled
Broadcast Timer:          30 seconds
Route Timeout:            90 seconds
Holddown Timer:           90 seconds
Network Diameter:        15
```

## **stats [<interface\_index>]**

Displays statistics for the RIPv6 interface you specify.

### **Sample Display - show ip6 stats**

```
RIPv6 Statistics
-----

Interface:                3
Total Messages Received:  2490
Total Messages Sent:      2542
Requests Received:        5
Requests Sent:            1
Responses Received:       2485
Responses Sent:           2541
Full Updates Sent:        2476
Triggered Updates Sent:   65
```

---

# show rptr

The **show rptr** *<option>* commands display configuration, status, and statistical information about Bay Networks Access Node products. For detailed information on ANs, refer to *Configuring BayStack Remote Access* and *Connecting ASN Routers to a Network*.

The **show rptr** command supports the following subcommand options:

<a href="#">info [last_addr]</a>	<a href="#">status [ports]</a>
<a href="#">sample [&lt;period in seconds&gt;] [port [&lt;port number&gt;]]</a>	<a href="#">version</a>
<a href="#">stats [all]   [totals]   [port [&lt;port number&gt;]]   [errors]</a>	

## info [last\_addr]

Displays general information about the repeater or about the last source MAC address of the packets entering the ports of the repeater.

### Sample Display - show rptr info

```
802.3 Repeater (HUB) Information:
```

```
-----
```

```
    Repeater Group Capacity: 1
      Group Port Capacity: 13
Group Wellfleet Object ID: 1.3.6.1.4.1.18
      Group Description: "Wellfleet Comm. ANmpr 12 Port 10BASE-T
                        Router/Repeater - Rev 2"
```

**Sample Display - show rptr info last\_addr**

802.3 Repeater(HUB) Port Last Source Address Information:

-----

Port Number	Last Source Address	Total Changes
1	01-02-04-08-10-20	9
2	01-02-04-08-10-20	0
3	00-00-A2-06-B9-85	4
4	01-02-04-08-10-20	624029193
5	01-02-04-08-10-20	0
6	00-00-A2-06-B9-85	3
7	00-00-A2-06-B9-85	3
8	00-00-A2-06-B9-85	545299270
9	01-02-04-08-10-20	4294967295
10	01-02-04-08-10-20	4294967295
11	01-02-04-08-10-20	4294967295
12	00-80-2D-00-98-01	130506617
13	00-00-A2-03-C1-C0	17870737

**sample** [*<period in seconds>*] [**port** [*<port number>*]]

Displays the repeater statistics generated during a prescribed period (default 10 seconds). This command can be used for all ports (default) or for selected ports.



---

## Sample Display - show rptr sample

ALL Repeater Ports Statistics Sampled Data over 10 seconds

-----

Port #	Readable Frames	Readable Octets	Total Errors	Auto Partitions	Runts	Collisions
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	3	192	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	700	97973	0	0	0	0
13	3	192	0	0	0	0

Port #	FCS Errors	Alignment Errors	Long Frames	Short Events	Late Events	Very Long Events	Data Rate Mismatch
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0

**Sample Display - show rptr sample 3 port 12**

Repeater Port Statistics Sampled Data over 3 seconds

```
-----  
Port  Readable  Readable  Total      Auto  
#     Frames    Octets    Errors     Partitions  Runts    Collisions  
-----  
12          41      8053      0          0          0          0
```

```
Port  FCS      Alignment  Long      Short      Late      Very Long  Data Rate  
#     Errors  Errors    Frames    Events     Events    Events     Mismatch  
-----  
12          0         0         0         0         0         0         0
```

**stats [all] | [totals] | [port [*<port number>*]] | [errors]**

Displays statistical information for all ports or a specified port. This command displays either a total list of statistics or error statistics only.

This command displays the actual values of the SNMP counters maintained within the repeater MIB. These counters are not initialized to 0 at system startup; therefore, only time-relative deltas of these counters are meaningful. These counter cannot be reset to 0.

---

## Sample Display - show rptr stats

802.3 Repeater (HUB) Statistics:

-----

Port #	Readable Frames	Readable Octets	Total Errors	Auto Partitions	Runts	Collisions
1	104	6719	24	14	43	456
2	0	63	4294967289	6	4294967295	150
3	931675	296890590	22	6	4294967295	5862
4	1354357247	1629798783	4294967289	4	4294967295	1620234528
5	10	4271	4294967289	9	4294967295	195
6	348	111353	4294967289	177	4294967295	951
7	297	95157	4294967289	522055204	4294967295	962400002
8	317023833	1077284480	4294967289	87	36	7187
9	4294967295	4294967295	4160749557	4	4294967295	35
10	4294967295	4294967295	4294967285	1096835530	4294967295	570
11	4294967295	4294967295	4294967289	4	4294967295	4
12	576590566	2908601712	2324114227	201334951	2569404471	101226678
13	2157788935	1628793423	1100513600	14	194	2832631700

### Sample Display - show rptr stats all

802.3 Repeater (HUB) Statistics:

-----

```

Repeater Total Frames: 111726086
Repeater Total Octets: 3246687465
Repeater Total Errors: 3290410074
Repeater Transmit Collisions: 805377464

```

Port #	Readable Frames	Readable Octets	Total Errors	Auto Partitions	Runts	Collisions
1	104	6719	24	14	43	456
2	0	63	4294967289	6	4294967295	150
3	931688	296895150	22	6	4294967295	5862
4	1354357247	1629798783	4294967289	4	4294967295	1620234528
5	10	4271	4294967289	9	4294967295	195
6	348	111353	4294967289	177	4294967295	951
7	297	95157	4294967289	522055204	4294967295	962400002
8	317023833	1077284480	4294967289	87	36	7187
9	4294967295	4294967295	4160749557	4	4294967295	35
10	4294967295	4294967295	4294967285	1096835530	4294967295	570
11	4294967295	4294967295	4294967289	4	4294967295	4
12	576591092	2908688941	2324114227	201334951	2569404472	101226678
13	2157788948	1628797983	1100513600	14	194	2832631700

Port #	FCS Errors	Alignment Errors	Long Frames	Short Events	Late Events	Very Long Events	Data Rate Mismatch
1	62	4294967295	4294967295	4294967263	4294967295	4294967295	4294967295
2	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
3	4294967295	4294967295	4294967295	4294967295	0	27	4294967295
4	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
5	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
6	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
7	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
8	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
9	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4160749563
10	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967291
11	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
12	2	4464905	39	4294967295	2182103142	137546127	13
13	4294967295	4294967295	4294967295	4294967295	2	1100513603	4294967295

---

## Sample Display - show rptr stats totals

802.3 Repeater (HUB) Statistics Totals:

-----  
Repeater Total Frames: 111728214  
Repeater Total Octets: 3247091908  
Repeater Total Errors: 3290410074  
Repeater Transmit Collisions: 805377464

## Sample Display - show rptr stats port 1

802.3 Repeater (HUB) Port Statistics:

-----

Port #	Readable Frames	Readable Octets	Total Errors	Auto Partitions	Runts	Collisions
1	104	6719	24	14	43	456

Port #	FCS Errors	Alignment Errors	Long Frames	Short Events	Late Events	Very Long Events	Data Rate Mismatch
1	62	4294967295	4294967295	4294967263	4294967295	4294967295	4294967295

**Sample Display - show rptr stats errors**

802.3 Repeater (HUB) Error Statistics:

```
-----
```

Port #	FCS Errors	Alignment Errors	Long Frames	Short Events	Late Events	Very Long Events	Data Rate Mismatch
1	62	4294967295	4294967295	4294967263	4294967295	4294967295	4294967295
2	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
3	4294967295	4294967295	4294967295	4294967295	0	27	4294967295
4	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
5	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
6	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
7	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
8	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
9	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4160749563
10	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967291
11	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295	4294967295
12	2	4464905	39	4294967295	2182103142	137546127	13
13	4294967295	4294967295	4294967295	4294967295	2	1100513603	4294967295

**status [ports]**

Displays the operational status of the repeater or of the individual ports that comprise the repeater.

**Sample Display - show rptr status**

802.3 Repeater (HUB) Status:

```
-----
```

```
Repeater Operating Status: OK
Repeater Health Text: "Repeater Health: Operational"
Total Partitioned Ports: 2
Group Operating Status: Operational
Last Group Status Change: 0 (SNMP SysUpTime of Change)
```

---

## Sample Display - show repeater status ports

802.3 Repeater (HUB) Ports Status:

```
-----
```

Port Number	Admin Status	Autopart State	Link Test
1	Enabled	Reconnected	Passed
2	Enabled	Reconnected	Failed
3	Enabled	Reconnected	Passed
4	Disabled	Reconnected	Failed
5	Enabled	Reconnected	Failed
6	Enabled	Partitioned	Passed
7	Enabled	Reconnected	Failed
8	Enabled	Reconnected	Failed
9	Disabled	Reconnected	Failed
10	Enabled	Partitioned	Passed
11	Enabled	Reconnected	Failed
12	Enabled	Reconnected	Passed
13	Enabled	Reconnected	Passed

## version

Displays the current version number and date of the *rprr.bat* script.

## Sample Display - show rprr version

```
RPTR.bat Version: #.## Date: mm/dd/yy.
```

## show rredund

The **show rredund** *<option>* commands display information about router redundancy. For detailed information on the Bay Networks implementation of router redundancy, refer to *Configuring Interface and Router Redundancy*.

The **show rredund** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">resources</a>
<a href="#">circuits [&lt;circuit name&gt;]</a>	<a href="#">role</a>
<a href="#">disabled</a>	<a href="#">sonmp</a>
<a href="#">enabled</a>	<a href="#">version</a>
<a href="#">remote</a>	



---

## base

Displays the base record information for router redundancy. The base record controls router redundancy for the entire system. The table includes the following information:

State	State of the protocol. States include the following:  Up Down Init (initializing) and bidding Not Pres (enabled but not yet started) Wait SOS Reply (waiting for a reply to an SOS PDU) Wait Pri Gdby (waiting for a Primary Good-bye PDU) Rcvd Pri Gdby (received a Primary Good-bye PDU) Wait New Pri (Waiting for a New Primary PDU) Delay Bidding
Role	Role of the router: Primary or Secondary.
Group ID	Identification number of this router redundancy group.
Member ID	Identification number of this member of the group.
Priority	This router's priority to become the primary router if the current primary router fails. A high value indicates higher priority.
Hello Timer	The configured time interval, in seconds, between sending Hello protocol data units (PDUs).
Bid Duration	The amount of time, in seconds, for the bidding period that determines which router in the group becomes the primary router.
Timeout Counter	The number of Hello timer periods when the secondary routers do not receive a Hello PDU from the primary router before they begin to choose a new primary router.
Primary cfg file	The name of the primary configuration file the router uses when it boots or reboots as the primary router.
Role Switch Delay	This parameter is not currently used.

### Sample Display - show redund base

Router Redundancy Base Record Information  
-----

Attribute	Value
-----	-----
State	Up
Role	Secondary
Group-ID	1
Member-ID	1
Priority	1
Hello Timer	2
Bid Duration	45
Timeout Counter	5
Primary cfg file	4:mpass.pri
Role Switch Delay	5

### **circuits** [*<circuit name>*]

Displays circuit and state information for all router redundancy ports or for a specific port. The table includes the following information:

Circuit	Name of the circuit the port is on.
Port	The port number.
State	Indicates whether router redundancy is Enabled or Disabled for this circuit.
Send PDU	Sending of PDUs enabled or disabled.
Primary Mac Addr	The MAC address to be used for this circuit when this router is the primary router.

---

## Sample Display - \$show redund circuits

Router Redundancy Circuit Table

-----

Circuit	Port	State	Send PDU	Primary MAC Addr
E41	1	Enabled	Enabled	00-00-A2-03-42-96
E42	2	Enabled	Enabled	00-00-A2-03-42-97

2 Entries found.

## disabled

Displays all interface circuits that have backup router redundancy and are disabled currently. A circuit is disabled if the disable/enable parameter is set to disable and the state is down. For definitions of the columns in the table, see the **circuits** command.

## Sample Display - \$show redund disable

Router Redundancy Circuit Table

-----

Circuit	Port	State	Send PDU	Primary MAC Addr
---------	------	-------	----------	------------------

0 Entries found.

## enabled

Displays all interface circuits that have backup router redundancy and are enabled currently. A circuit is enabled if the disable/enable parameter is set to enable and the state is up. For definitions of the columns in the table, see the **circuits** command.

**Sample Display - show rredund enable**

Router Redundancy Circuit Table

-----

Circuit	Port	State	Send PDU	Primary MAC Addr
E41	1	Enabled	Enabled	00-00-A2-03-42-96
E42	2	Enabled	Enabled	00-00-A2-03-42-97

2 Entries found.

**remote**

Displays information about the other routers in the router redundancy group. The table includes the following information.

Group ID	Identification number of the router redundancy group.
Member ID	Identification number of the remote member of the group.
IP Address	The IP address of the remote member.
Role	Role of the remote member: Primary or Secondary.
State	State of the remote member: States include the following:

Up

Down

Init (initializing and bidding)

Not Pres (enabled but not yet started)

Wait SOS Reply (waiting for a reply to an SOS PDU)

Wait Pri Gdby (waiting for a Primary Goodbye PDU)

Rcvd Pri Gdby (received a Primary Goodbye PDU)

Wait New Pri (Waiting for a New Primary PDU)

Delay Bidding

---

## Sample Display - \$show redund remote

Router Redundancy Remote Members

```
-----
```

Group ID	Member ID	IP Address	Role	State
1	2	0.0.0.0	Primary	Up

## resources

Displays resources the router can access, by the IP addresses of the resources. The table includes the following information.

Circuit Name	The name of the circuit (such as E54).
Circuit Number	The circuit number (representing the circuit name in the MIB).
IP Address	The IP address of the resource.
Update	Updates information about whether resources are reachable by this router. Configurable to Enable or Disable.
Status	Results of update: Reachable, Unreachable, Unknown

## Sample Display - \$show redund resources

Router Redundancy Resources

```
-----
```

Circuit Name	Circuit Number	IP Address	Update	Status
E54	4	23.23.23.23	Enable	Reachable

**role**

Displays the roles of known members of this redundancy group, from the point of view of this router. The first member displayed is the local member; others are the remote members. The table includes the following information.

Member ID	Identification number of the member of the group.
Role	Role of the router: Primary or Secondary.
Good IF	Count of usable interfaces on the member.
Good RES	Count of resources the member can reach.
Priority	The member's priority to become the primary router if the current primary router fails.

**Sample Display - \$show redund role**

Router Redundancy Role Selection Information

```
-----
```

Member-ID	Role	Good IF	Good RES	Priority
1	Secondary	2	0	1
2	Primary	2	0	1

**sonmp**

Displays the status of sonmp. The table includes the following information.

Circuit name	The name of the circuit.
Circuit number	The circuit number (representing the circuit name in the MIB).
Transmit count	The number of frames transmitted on the circuit.
Receive count	The number of frames received on the circuit.
Receive error count	The number of error frames received on the circuit.

---

## Sample Display - \$show redund sonmp

Router Redundancy SONMP Stats

```
-----
```

Circuit Name	Circuit Number	Transmit Count	Receive Count	Receive Error Count
E41	1	0	0	0
E42	2	0	0	0

```
-----
```

2 Entries found.

## version

Displays the current version and modification date of the *rredund.bat* script.

## Sample Display - show redund version

```
rredund.bat Version: #.## Date: mm/dd/yy.
```

## show rsc

The **show rsc** *<option>* commands display information about managed line resources. The Bay Networks Line Resource Manager (LRM) lets you define a certain percentage of bandwidth as *reservable* resources on lines configured with the ST2 protocol. ST2 applications that require a guaranteed quality of service can negotiate for the reservable bandwidth.

Refer to *Configuring WAN Line Services* for detailed information about LRM.

The **show rsc** command supports the following subcommand options:

<a href="#">bandwidth</a>	<a href="#">unreserved</a>
<a href="#">reserved</a>	

## bandwidth

Displays information about an ST2 line's reserved bandwidth. The table includes the following information:

Line	Internal line number.
Circuit	Site Manager circuit name.
Reservable	The remaining reservable bandwidth available for reserved flows on this line (bits per second).
Allocated	The bandwidth currently allocated to reserved flows on this line (bits per second).
Current	Bandwidth used for reserved flows during the last measurement interval.
Average	Average bandwidth used by reserved flows during the last measurement interval.
Maximum	Maximum bandwidth used by reserved flows over one measurement interval since the line came up.





**Note:** The measurement interval for the Current, Average, and Maximum statistics is, by default, 10 seconds. You can change this interval by setting the MIB object Bandwidth Interval at the Configuration Manager Edit Line Resources window.

### Sample Display - show rsc band

TX Line Resources: Reserved Bandwidth Statistics

-----

Reserved Bandwidth in bits per second						
Line	Circuit	Reservable	Allocated	Current	Average	Maximum
203102	S32	1311821	70579	21745	95426	124887
204101	S41	460800	0	0	0	0
204102	S42	1259428	122972	110880	95368	122530
204103	S43	1389600	0	0	0	0

### reserved

Displays information about reserved flows. The table includes the following information:

Line	Internal line number
Circuit	Site Manager circuit name.
Flows	Number of reserved flows being served.
Transmitted Packets	Total number of reserved flow packets transmitted since the line came up.
Transmitted Bytes	Total number of reserved flow bytes transmitted since the line came up.
Policed Packets	Total number of reserved flow packets dropped since the line came up. These packets were dropped because the data received on one or more flows exceeded their reservation.
Policed Bytes	Total number of reserved flow bytes dropped since the line came up. These packets were dropped because the data received on one or more flows exceeded their reservation.

Delay Avg	Average packet delay, in milliseconds, during the measurement interval. Measured delay includes transmission time.
Delay Max	Maximum single packet delay (ms) since the line came up.

### Sample Display - show rsc res

TX Line Resources: Reserved Flow Statistics

-----

Line	Circuit	Flows	Transmitted		Policed		Delay (ms)	
			Packets	Bytes	Packets	Bytes	Avg	Max
203102	S32	2	22122	11943504	0	0	0	24339
204101	S41	1	0	0	0	0	0	0
204102	S42	2	22172	11963112	6	3360	0	15630
204103	S43	0	0	0	0	0	0	0

If the display for your lines indicates unacceptable amounts of dropped traffic (Policed Packets and Policed Bytes), try inflating the reservations percentage (MIB object *Inflate Reservations*). If command output indicates large delays, try decreasing the reserved latency (MIB object *Reserved Latency*). You can edit both parameters at the Configuration Manager Edit Line Resources window.

### unreserved

Displays information about the portion of bandwidth left to service best-effort traffic. The table includes the following information:

Line	Internal line number.
Circuit	Site Manager circuit name.
Policed Packets	Total number of unreserved packets dropped since the line came up.
Policed Bytes	Total number of unreserved bytes dropped since the line came up.

---

## Sample Display - show rsc unres

TX Line Resources: Unreserved Traffic Statistics

-----

Line	Circuit	Policed	
		Packets	Bytes
203102	S32	0	0
204101	S41	0	0
204102	S42	0	0
204103	S43	0	0

5 total entries.



**Note:** If Priority Queueing is enabled for the line, **show rsc unreserved** will not show the policing statistics for unreserved flows.

---

## show rsvp

The **show rsvp** *<option>* command displays information about the Resource Reservation Protocol. For detailed information about RSVP, refer to *Configuring IP Multicasting and Multimedia Services*.

The **show rsvp** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">version</a>
<a href="#">interfaces</a>	

### base

Displays information about requested and active reservations on the router.

#### Sample Display - show rsvp base

```
RSVP Base Information
```

```
-----
```

Protocol	State	# of Senders	# of Requested Reservations	# of Active Reservations
-----	-----	-----	-----	-----
RSVP	Up	0	0	0

---

## interfaces

Displays information about RSVP interfaces configured on the router.

### Sample Display - show rsvp interfaces

RSVP Interfaces

```
-----
```

Circuit		State	Refresh Timer	Lifetime	Neighbors
Name	Number				
E22	2	Up	30000	3	0
E23	3	Up	30000	3	0
E24	4	Up	30000	3	0
E41	5	Up	30000	3	0
E42	6	Up	30000	3	0
E43	7	Up	30000	3	0
E44	8	Up	30000	3	0

7 RSVP Interfaces configured

## version

Displays information about the version of RSVP running on the router.

### Sample Display - show rsvp version

RSVP.bat Version: 1.1 Date: 08/20/97.

## show sdlc

The **show sdlc** *<option>* commands display information about the Synchronous Data Link Control (SDLC) protocol. For detailed information on the Bay Networks implementation of SDLC, refer to *Configuring SDLC Services*.

The **show sdlc** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">enabled</a>
<a href="#">circuits [&lt;circuit number&gt;]</a>	<a href="#">stats [&lt;circuit number&gt;]</a>
<a href="#">disabled</a>	<a href="#">version</a>

### base

Displays the base record for SDLC. The base record controls SDLC for the entire system. The table includes information on the protocol type, in this case SDLC, and state of the protocol. The state can be Active, Inactive, Pending Active, Not Present, Enabled, or Disabled.

#### Sample Display - sdhc show base

```
SDLC Base Record Information
-----
      Protocol      State
-----
SDLC                Inactive
```

---

## **circuits** [*<circuit number>*]

Displays SDLC configuration information for all circuits or for a specific circuit. The table contains the following information:

Circuit #	Circuit number of this interface.
State	Operational state of this interface: Active, Inactive, Pending Active, Not Present, Enabled, or Disabled.
Role	Link station role: Primary, Secondary, or Negotiable.
Link Type	Indicates whether the SDLC port is connected to a Leased or Switched line.
Duplex Primary	Indicates whether the primary SDLC station is full duplex or half duplex.
Duplex Secondary	Indicates whether the secondary SDLC station is full duplex or half duplex.
SDLC Address	Link station address of the secondary link station on this SDLC link.

### **Sample Display - show sdlc circuits**

SDLC Circuits

-----

Circuit #	State	Role	Link Type	Duplex Primary	Duplex Secondary	SDLC Address
1	Enabled	Negotiable	Leased	Half Duplex	Half Duplex	
2	Enabled	Secondary	Leased	Half Duplex	Half Duplex	4
4	Enabled	Secondary	Leased	Half Duplex	Half Duplex	6

3 Total entries.

## disabled

Displays all disabled SDLC interfaces. For more information on column definitions, see the **circuits** command.

### Sample Display - sdhc show disabled

SDLC Circuits

-----

Circuit #	State	Role	Link Type	Duplex Primary	Duplex Secondary	SDLC Address
-----------	-------	------	-----------	----------------	------------------	--------------

-----

No Entries.

## enabled

Displays all enabled SDLC interfaces. For more information on column definitions, see the **circuits** command.

### Sample Display - sdhc show enabled

SDLC Circuits

-----

Circuit #	State	Role	Link Type	Duplex Primary	Duplex Secondary	SDLC Address
-----------	-------	------	-----------	----------------	------------------	--------------

-----

1	Enabled	Negotiable	Leased	Half Duplex	Half Duplex	
2	Enabled	Secondary	Leased	Half Duplex	Half Duplex	4
4	Enabled	Secondary	Leased	Half Duplex	Half Duplex	6

3 Entries found.



---

**stats** [*<circuit number>*]

Displays statistical information for all circuits or for a specified circuit. The table includes the following information:

Circuit #	Circuit number of this interface.
SDLC Add.	Poll address of the secondary link station in this SDLC link. It uniquely identifies the SDLC link station within a single SDLC port.
I Frames Received	Total number of information frames received from an adjacent SDLC link station since last reset or system startup.
I Frames Sent	Total number of information frames transmitted to an adjacent SDLC link station since last reset or system startup.
Re Tx's	Total number of information frames retransmitted to an adjacent SDLC link station since last reset or system startup.
Rejects Received	Total number of reject frames received from an adjacent SDLC link station since last reset or system startup.
Rejects Sent	Total number of reject frames transmitted to an adjacent SDLC link station since last reset or system startup.

**Sample Display - show sdlc stats**

SDLC Statistics

```
-----
```

Circuit #	SDLC Add.	I Frames Received	I Frames Sent	Re Tx's	Rejects Received	Rejects Sent
1	1	0	0	0	0	0
1	193	0	0	0	0	0
2	3	0	0	0	0	0
2	4	0	0	0	0	0
4	5	0	0	0	0	0
4	6	38	22	4	1	2

```
-----
```

## version

Displays the current version number and modification date of the *sdlc.bat* script.

### Sample Display - show sdlc version

```
SDLC.bat Version: #.## Date: mm/dd/yy.
```

## show smds

The **show smds** *<option>* commands display configuration, status, and statistical information about the Switched Multi-Megabit Data Service (SMDS) protocol. For detailed information on the Bay Networks implementation of SMDS, refer to *Configuring SMDS*.

The **show smds** command supports the following subcommand options:

<a href="#">addresses [&lt;circuit_name&gt;]</a>	<a href="#">enabled</a>
<a href="#">alerts</a>	<a href="#">stats [&lt;circuit_name&gt;]</a>
<a href="#">circuits [&lt;circuit_name&gt;]</a>	<a href="#">version</a>
<a href="#">disabled</a>	

---

## addresses [*<circuit\_name>*]

Displays the individual, group, and ARP addresses of all SMDS circuits or for a specific circuit. The information displayed is useful for determining whether you have properly configured the station to receive and send data.

The table contains the following information:

Circuit	Name of the circuit this interface is on.
Individual Address	MAC-layer address, a complete SMDS E.164 address provided by the SMDS subscription agreement.
Group Address	MAC-layer multicast address, a complete SMDS E.164 address provided by the SMDS subscription agreement.
ARP Address	Address resolution multicast address, a complete SMDS E.164 address provided by the SMDS subscription agreement.

### Sample Display - show smds addresses

SMDS Circuit Address Table

-----

Circuit	Individual Address	Group Address	ARP Address
-----	-----	-----	-----
S21	0xC16175551212FFFF	0xE16175551313FFFF	0xE16165551313FFFF
S22	0xC15084363835FFFF	0xE15085551414FFFF	0xE15085551515FFFF
S23	0xC15086632222FFFF	0xE15085556677FFFF	0xE15085556677FFFF

## alerts

Displays all SMDS interfaces that are enabled but not up. The table identifies the circuit, whether or not it's configured to be enabled, and its current state. State can be Down, Init (initializing), or Not Pres (enabled but not yet started). To search for possible reasons for the problem, examine the log file.

**Sample Display - show smds alerts**

```
SMDS Circuit ALERT Table
```

```
-----
```

```
Circuit  Mode      State
-----  -
```

Circuit	Mode	State
S21	Enabled	Down

**circuits** [*<circuit\_name>*]

Displays SMDS configuration information for all interfaces or for a specific interface. Use this display to determine whether or not the interface has been properly configured for the SMDS network. The table contains the following information:

Circuit	Name of the circuit this interface is on.
State	Operational state of the interface: Down, Init (initializing), Not Present (not started), or Up.
Polling	State of heartbeat polling on the interface: Enabled or Disabled. Polling verifies the integrity of the Bay Networks router/DSU connection by regularly transmitting Keep Alive messages from the Bay Networks router to the DSU and acknowledging their receipt by DSU.
Net Mgt	State of LMI network management on the interface: Enabled or Disabled. LMI is an SNMP-like protocol that enables the Bay Networks router and the DSU to exchange management information.
Addr Ver	State of address verification function: Enabled or Disabled. Address verification enables the router to verify incoming individual and group addresses and drop improperly addressed frames, that is, those not intended for the router.
Version	Value indicating the version(s) of the SNMP Interface Protocol (SIP) that this interface supports. The value is a sum, initialized at zero. For each version, V, that this interface supports, 2 raised to (V - 1) is added to the sum. For example, a port supporting versions 1 and 2 would have a value of $(2^{(1-1)}+2^{(2-1)})=3$ . The SipL3VersionSupport parameter is effectively a bit mask with Version 1 equal to the least significant bit (LSB).

---

## Sample Display - show smds circuit

SMDS Circuit Table

-----

Circuit	State	Polling	Net Mgt	Addr Ver	Version
S112	Up	Enabled	Disabled	Disabled	1

## disabled

Displays all SMDS interfaces that a user has manually disabled. In this case, State is always Down.

## Sample Display - show smds disabled

SMDS Disabled Table

-----

Circuit	Mode	State
S22	Disabled	Down

## enabled

Displays all enabled SMDS interfaces.

## Sample Display - show smds enabled

SMDS Circuit Interface Enabled Table

-----

Circuit	State
S21	Init
S23	Up

**stats** [*<circuit\_name>*]

Displays sent and received SIP Level 3 frames for all SMDS interfaces or for a specific interface. The totals include only PDUs without errors. The table includes statistics for both individual and group addressed PDUs that are sent, received, and discarded. You can use this information with the synchronous and protocol statistics to determine where frames are going and at what level they may have been dropped.

**Sample Display - show smds stats**

```
SMDS Statistics
-----
Circuit      L3 PDUs Sent      L3 PDUs Received  Addr Verify
             Individual Group    Individual  Group           Discards
-----
S112                0      9                0      9                0
```

**version**

Displays the current version number and modification date of the *smds.bat* script.

**Sample Display - show smds version**

```
SMDS.bat Version: #.## Date: mm/dd/yy.
```

---

## show snmp

The **show snmp** *<option>* commands display status, configuration, and performance information about the Simple Network Management Protocol (SNMP) services. For detailed information on the Bay Networks implementation of SNMP, refer to *Configuring SNMP, RMON, BOOTP, DHCP, and RARP Services*.

The **show snmp** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">exceptions [entity &lt;entity number&gt;   name &lt;entity name&gt;   event &lt;event number&gt;]</a>
<a href="#">community [&lt;types   managers&gt;]</a>	<a href="#">traps [entity &lt;entity number&gt;   name &lt;entity name&gt;   slot &lt;slot number&gt;]</a>

Entering the **show snmp** command without any options invokes the **show snmp base** option by default.

### base

Displays the base record for SNMP. The base record controls SNMP for the entire system. The table includes the following information:

State	Operating state of SNMP: Enabled or Disabled.
Authentication Type	Type of authentication the agent uses, as follows: <ul style="list-style-type: none"><li>• <i>Trivial</i> - Standard SNMP network security</li><li>• <i>Party</i> - Reserved for future use</li><li>• <i>Proprietary</i> - Bay Networks network security; only for set requests. With this type, you can prohibit specific users from executing set requests.</li></ul>
Received PDUs	Number of PDUs that SNMP has received from the transport entity
Transmitted PDUs	Number of PDUs that SNMP has transmitted to the transport entity
MIB Objects Retrieved	Number of MIB objects retrieved for SNMP managers that belong to communities defined on the router or BNX platform

MIB Objects Set	Number of MIB objects set by SNMP managers that belong to communities defined on the router or BNX platform
Get Request PDUs Accepted & Processed	Number of get request PDUs accepted and processed
Get-Next Request PDUs Accepted and Processed	Number of get next request PDUs accepted and processed
Get Response PDUs Generated	Number of get response PDUs generated
Set Request PDUs Accepted & Processed	Number of set request PDUs accepted and processed
Trap PDUs Generated	Number of trap PDUs the agent has generated
Decoding ASN.1 Parsing Errors	Number of ASN.1 parsing errors generated while decoding
Received Bad Community Name	Number of PDUs that have an invalid community string
Received Unsupported Operation PDUs	Number of PDUs requesting an operation unsupported by the community
Generated PDUs with “toobig” Error	Number of PDUs delivered with ErrorStatus= “tooBig”
Generated PDUs with “noSuchName” Error	Number of PDUs delivered with ErrorStatus= “noSuchName”
Generated PDUs with “badValue” Error	Number of PDUs delivered with ErrorStatus= “badValue”
Generated PDUs with “readOnly” Error	Number of PDUs delivered with ErrorStatus= “readOnly”
Generated PDUs with “genErr” Error	Number of PDUs delivered with ErrorStatus= “genError”



---

## Sample Display - show snmp base

```
Snmp protocol is enabled.
Authentication Type: Trivial
Received PDUs: 73851
Transmitted PDUs: 78042
MIB Objects Retrieved: 112363
MIB Objects Set: 9
Get Request PDUs Accepted & Processed: 72408
Get Next Request PDUs Accepted & Processed: 1434
Get Response PDUs Generated: 73851
Set Request PDUs Accepted & Processed: 9
Trap PDUs Generated: 4191
Decoding ASN.1 Parsing Errors: 0
Received Bad Community Name PDUs: 0
Received Unsupported Operation PDUs: 0
Generated PDUs with "tobig" Error: 0
Generated PDUs with "noSuchName" Error: 0
Generated PDUs with "badValue" Error: 0
Generated PDUs with "readOnly" Error: 0
Generated PDUs with "genErr" Error: 0
```

## community [<types | managers>]

Displays information about SNMP communities configured on the router or BNX platform. An SNMP community is a logical relationship between the SNMP agent on the router or BNX platform and one or more SNMP managers. The table includes information on the managers belonging to each community known to the router. The entry for each manager includes the following information:

Community Name	Name of the community.
Community Access	Access privileges the router grants to all members of this community, as follows: <ul style="list-style-type: none"><li>• <i>Read</i> - All members of this community can only view configuration and performance information about this router.</li><li>• <i>Read/Write</i> - All members of this community can both view configuration and performance information about this router and change the router's configuration.</li></ul>
Manager Address	Internet address of this manager
Manager Name	Name of this manager

Trap Port	UDP port on which this manager is listening for traps
Trap Type	Valid trap types to be sent to the manager, as follows: <ul style="list-style-type: none"> <li>• <i>None</i> - Prohibits the agent software from transmitting traps to this manager</li> <li>• <i>Generic</i> - Lets the agent software transmit the well-defined SNMP traps (coldStart, warmStart, egpNeighborLoss, linkUp, linkDown, authenticationFailure, and enterpriseSpecific) to the manager</li> <li>• <i>Specific</i> - Lets the agent software transmit all enabled log event traps to this manager</li> <li>• <i>All</i> - Transmits both generic and specific trap types to this manager</li> </ul>

Entering the **show snmp community** command without any *<types|managers>* option invokes the forgoing data for all SNMP community types and managers known to the router.

### Sample Display - show snmp community

SNMP Community Information

```

-----
Community  Community
Name       Access
-----
public     Read/Write
    
```

SNMP Managers and their respective communities

```

-----
Manager    Manager  Trap  Trap  Community  Community
Address    Name     Port  Type  Name        Access
-----
0.0.0.0    -----  162   All   public      Read/Write
192.32.160.39  162   Generic public  Read/Write
192.32.160.40  162   All   public  Read/Write
    
```

---

## Sample Display - show snmp community types

SNMP's Valid Management Community Types:

Community Name	Community Access
public	Read/Write

## Sample Display - show snmp community managers

SNMP's Managers and their Respective Communities:

Manager Address	Manager Name	Trap Port	Trap Type	Community Name	Community Access
0.0.0.0		162	All	public	Read/Write
192.32.160.39		162	Generic	public	Read/Write
192.32.160.40		162	All	public	Read/Write

## traps [**entity** <entity number> | **name** <entity name> | **slot** <slot number>]

Displays information about traps generated on the router or BNX platform. You can limit the information to traps generated by a specific <entity\_number> or <entity\_name>, or by all entities on a specific <slot\_number>.

The display contains the following information:

Entity Name	The name of this entity on the router or BNX platform
Entity Number	The number of this entity on the router or BNX platform
Slot Number	Number of the slot where this entity is configured
State	Operating state of this entity: Enabled or Disabled

Fault Message	Attribute that controls the entity's fault messages: <ul style="list-style-type: none"><li>• <i>On</i> - The router or BNX platform generates this trap whenever a Fault event occurs for this entity and slot number.</li><li>• <i>Off</i> - The router or BNX platform does <i>not</i> generate this trap whenever a Fault event occurs for this entity and slot number.</li></ul>
Warn Message	Attribute that controls the entity's warning messages: <ul style="list-style-type: none"><li>• <i>On</i> - The router or BNX platform generates this trap whenever a Warning event occurs for this entity and slot number.</li><li>• <i>Off</i> - The router or BNX platform does <i>not</i> generate this trap whenever a Fault event occurs for this entity and slot number.</li></ul>
Info Message	Attribute that controls the entity's info messages: <ul style="list-style-type: none"><li>• <i>On</i> - The router or BNX platform generates this trap whenever an Info event occurs for this entity and slot number.</li><li>• <i>Off</i> - The router or BNX platform does <i>not</i> generate this trap whenever a Fault event occurs for this entity and slot number.</li></ul>
Trace Message	Attribute that controls the entity's trace messages: <ul style="list-style-type: none"><li>• <i>On</i> - The router or BNX platform generates this trap whenever a Trace event occurs for this entity and slot number.</li><li>• <i>Off</i> - The router or BNX platform does <i>not</i> generate this trap whenever a Fault event occurs for this entity and slot number.</li></ul>
Debug Message	Attribute that controls the entity's debug messages: <ul style="list-style-type: none"><li>• <i>On</i> - The router or BNX platform generates this trap whenever a Debug event occurs for this entity and slot number.</li><li>• <i>Off</i> - The router or BNX platform does <i>not</i> generate this trap whenever a Fault event occurs for this entity and slot number.</li></ul>

Entering the **show snmp traps** command without any *<entity\_name>*, *<entity\_number>*, or *<slot\_number>* option invokes the forgoing data for all entities configured on the router.

---

## Sample Display - show snmp traps

SNMP Trap Entity Information:

Entity Name	Entity Number	Slot Number	STATE	Fault Message	Warn Message	Info Message	Trace Message	Debug Message
IP	2	2	Enabled	Off	Off	On	Off	Off
TFTP	7	2	Enabled	Off	Off	On	Off	Off
TCP	47	2	Enabled	Off	Off	On	Off	Off
WILDCARD	255	2	Enabled	On	On	On	On	On

## Sample Display - show snmp traps entity 2

SNMP Trap Entity Information:

Entity Name	Entity Number	Slot Number	STATE	Fault Message	Warn Message	Info Message	Trace Message	Debug Message
IP	2	2	Enabled	Off	Off	On	Off	Off

## Sample Display - show snmp traps entity IP

SNMP Trap Entity Information:

Entity Name	Entity Number	Slot Number	STATE	Fault Message	Warn Message	Info Message	Trace Message	Debug Message
IP	2	2	Enabled	Off	Off	On	Off	Off

**Sample Display - show snmp traps slot 2**

Entity Name	Entity Number	Slot Number	STATE	Fault Message	Warn Message	Info Message	Trace Message	Debug Message
IP	2	2	Enabled	Off	Off	On	Off	Off
TFTP	7	2	Enabled	Off	Off	On	Off	Off
TCP	47	2	Enabled	Off	Off	On	Off	Off
WILDCARD	255	2	Enabled	On	On	On	On	On

**exceptions** [**entity** <entity\_number> | **name** <entity\_name> | **event** <event\_number>]

Displays information about exceptions to SNMP traps configured on the router or BNX platform. Using options to the **show snmp exceptions** command, you can view exceptions to traps generated by a specific <entity\_number>, <entity\_name>, or <event\_number>.

The table displays the following information:

Entity Name	Name of the entity.
Entity Number	Number of the entity.
Event Number	Number of the event.
State	Operating state of the exception: Enabled or Disabled.

Entering the **show snmp exceptions** command without any <entity\_name>, <entity\_number>, or <event\_number> option invokes exception data for all traps configured on the router or BNX platform.

---

## Sample Display - show snmp exceptions

SNMP Exception Information

```
-----
```

Entity Name	Entity Number	Event Number	STATE
IP	2	6	Enabled

```
-----
```

## show span

The **show span** *<option>* commands display information about Spanning Tree Bridge services. For detailed information about the Spanning Tree algorithm and parameters, refer to *Configuring Bridging Services*.

The **show span** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">disabled</a>
<a href="#">base</a>	<a href="#">enabled</a>
<a href="#">circuits [&lt;circuit name&gt;]</a>	<a href="#">stats</a>
<a href="#">configuration</a>	<a href="#">version</a>
<a href="#">configuration circuits [&lt;circuit name&gt;]</a>	

**alerts**

Displays all enabled circuits that are not up. Use this display to identify the ports that are not working. The table includes the following information:

Circuit	Name of the circuit this port is on.
State	Current state of the port as the Spanning Tree Protocol application defined it, which in this case is Port Disabled.
Designated Root	Unique Bridge ID recorded as the root in the Configuration BPDUs. The Designated Bridge for the segment to which this port is attached transmits this value.
Designated Port	Port Identifier on the Designated Bridge for this port's segment.

**Sample Display - show span alerts**

Spanning Tree Circuit Alert Information

```
-----
```

Circuit	State	Designated Root	Designated Port
-----	-----	-----	-----
E51	Port Disabled	00:0A:00:00:00:00:00:01	32770
S31	Port Disabled	00:0A:00:00:00:00:00:01	32771
S41	Port Disabled	00:0A:00:00:00:00:00:01	32772

3 Entries found.



---

## base

Displays Spanning Tree global parameters in the base record. The table includes the following information:

State	Current state of the Spanning Tree: Down, Init (initializing), Not Present (enabled but not yet started), or Up.
Root Bridge ID	Bridge ID of the root of the Spanning Tree. This is the lowest Bridge MAC address; or if there is no Bridge MAC address, the bridge with the lowest priority.
Time Since last top chg	Time in hundredths of a second since the bridge detected the last change in topology.
Number of Topology Changes	Total number of topology changes that this bridge has detected since it was last reset or initialized.
Bridge ID	Identifier of the bridge the script is running on. You can compare this ID to the Root Bridge ID above it.

### Sample Display - show span base

Spanning Tree Base Record Information

```
-----  
State           Root Bridge ID      Time Since          Number Of  
-----  
Up              00:0A:00:00:00:00:01 256500             1  
-----  
                Bridge ID:  
                -----  
                00:0A:00:00:00:00:01
```

### circuits [*<circuit name>*]

Displays Spanning Tree circuit information for all circuits or for a specified circuit. For definitions of the columns in the table, see the **alerts** command.

**Sample Display - show span circuits**

Spanning Tree Circuit Information

-----

Circuit	State	Designated Root	Designated Port
S21	Forwarding	00:0A:00:00:00:00:00:01	32769
E51	Port Disabled	00:0A:00:00:00:00:00:01	32770
S31	Port Disabled	00:0A:00:00:00:00:00:01	32771
S41	Port Disabled	00:0A:00:00:00:00:00:01	32772

4 Total entries.

**configuration**

Displays Spanning Tree global configuration parameters. These parameters are all user configurable. The table includes the following information:

Bridge ID	Spanning Tree Bridge ID assigned to this bridge. The Bridge ID is a combination of the Bridge Priority and the Bridge MAC address.
Bridge Max Age	Maximum time in hundredths of a second that the protocol information (BPDUs) is valid. After this time, the protocol discards the information.
Bridge Hello Time	Interval in hundredths of a second between BPDUs that the bridge transmits. BPDUs are periodic transmissions exchanged between bridges in the network to convey configuration and topology change data.
Bridge Forward Delay	Value all bridges use for Forward Delay when this bridge is acting as the root; specifies the time in hundredths of a second that a circuit spends in the Listening and Learning states.

---

## Sample Display - show span configuration

Spanning Tree Configuration Table

```
-----
```

Bridge ID	Bridge Max Age	Bridge Hello Time	Bridge Forward Delay
00:0A:00:00:00:00:00:01	2000	200	1500

```
-----
```

### configuration circuits [*<circuit name>*]

Displays configuration parameters for all Spanning Tree circuits or for a specified Spanning Tree circuit. These parameters are user configurable. The table includes the following information:

Circuit	Name of the circuit this port is on.
Mode	Mode of the port: Enabled or Disabled.
Priority	Value of the priority field contained in the first octet of the 2-octet port ID for this circuit. This value specifies the relative priority of the port. The lower the priority, the more likely this will be the root bridge.
Path Cost	Contribution of this port to the root path cost offered in all configuration BPDUs that the bridge transmits.
802.9 Translation	Status of the translation parameter: Enabled or Disabled. Enabled means that the Spanning Tree protocol is used as part of the transparent-to-source-routing, translation-bridged network for this interface.

### Sample Display - show span configuration circuits

Spanning Tree Circuit Configuration Parameters

```
-----
```

Circuit	Mode	Priority	Path Cost	802.9 Translation
S21	Enabled	128	1	Disabled
E51	Enabled	128	1	Disabled
S31	Enabled	128	1	Disabled
S41	Enabled	128	1	Disabled

### disabled

Displays Spanning Tree circuits that are disabled. For definitions of the columns in the table, see the **alerts** command.

### Sample Display - show span disabled

Spanning Tree Disabled Circuit Information

```
-----
```

Circuit	State	Designated Root	Designated Port
---------	-------	-----------------	-----------------

0 Entries found.

### enabled

Displays Spanning Tree circuits that are currently enabled. For definitions of the columns in the table, see the **alerts** command.

---

## Sample Display - show span enabled

Spanning Tree Enabled Circuit Information

-----

Circuit	State	Designated Root	Designated Port
S21	Forwarding	00:0A:00:00:00:00:00:01	32769

1 Entries found.

## stats

Displays Spanning Tree traffic statistics. The table includes the following information:

Circuit	Name of the circuit this port is on.
Rx Packets	Number of BPDU packets received on this port.
Tx Packets	Number of BPDU packets transmitted out this port.

## Sample Display - show span stats

Spanning Tree Statistics

-----

Circuit	Rx Packets	Tx Packets
S21	0	1521
E51	0	0
S31	0	0
S41	0	0

## **version**

Displays the current version number and date of the *span.bat* script.

### **Sample Display - Sample Display - show span version**

```
SPAN.bat  Version: #.## Date: mm/dd/yy.
```

---

## show sr

The **show sr** *<option>* commands display information about Source Routing interfaces. For detailed information on Source Routing, refer to *Configuring Bridging Services*.

The **show sr** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">enabled</a>
<a href="#">base</a>	<a href="#">ip</a>
<a href="#">bridges</a>	<a href="#">stats</a>
<a href="#">circuit [&lt;circuit name&gt;]</a>	<a href="#">stats circuit [&lt;circuit name&gt;]</a>
<a href="#">configuration [circuit [&lt;circuit name&gt;]]</a>	<a href="#">traffic filters</a>
<a href="#">disabled</a>	<a href="#">version</a>

### alerts

Displays Source Routing interfaces that have been enabled but are not currently up. In this case, Mode is always Enabled and State is always Down. The table helps determine which Source Routing interfaces are not forwarding traffic.

### Sample Display - show sr alerts

Source Routing (SR) Interface Information

-----

Circuit	Mode	State
031	Enabled	Down

1 entries found.

### base

Displays global Source Routing information (Base Record). The base record controls Source Routing for the entire system. The table indicates whether or not Source Routing is operating and includes the following information:

Protocol	Name of the protocol, in this case Source Routing.
Mode	Mode of SR: Enabled or Disabled.
State	State of SR: Up or Down.

### Sample Display - show sr base

Source Routing (SR) Base Record Information

-----

Protocol	Mode	State
Source Routing	Enabled	Up

### bridges

Displays all Bay Networks Source Routing Bridge IDs used in the network. A Source Routing Bridge ID ranges from 0x1 to 0xF. This display helps determine which bridges the system recognizes as Bay Networks Source Route bridges.



---

## Sample Display - show sr bridges

```
Source Routing (SR) Bridge IDs
-----
                                0xA (This Bridge)
                                0xB

2 entries found.
```

## circuit [*<circuit name>*]

Displays all Source Routing interfaces or a specific interface. Mode is Enabled or Disabled and State is Down or Up. You can use this display to identify the Source Routing interfaces in the router.

## Sample Display - show sr circuit

```
Source Routing (SR) Interface Information
-----

Circuit   Mode   State
-----  -
031      Disabled Down

1 entries found.
```

## configuration [circuit [*<circuit name>*]]

Displays Source Routing global configuration. You can use this information to determine how a Bay Networks Source Route Bridge is configured. The table includes the following information:

Mode	Mode is Enabled or Disabled.
Bridge ID	SR bridge's identification number; ranges from 0x1 to 0xF.

Internal Ring ID	Unique network-wide internal or virtual LAN identification number; ranges from 0x001 to 0xFFF.
Group Lan ID	Routing identifier that serves as a Routing Information Field (RIF) place holder and Bay Networks identifier; ranges from 0x001 to 0xFFF.

**Sample Display - show sr configuration**

Source Routing (SR) Base Record Configuration

-----

Mode	Bridge ID	Internal Ring ID	Group Lan ID
-----	-----	-----	-----
Enabled	0xA	0x101	0xFFF

**circuit** [*<circuit\_name>*] Displays the circuit configuration of all Source Routing circuit interfaces or a specific circuit interface. You can use this information to determine how a Bay Networks Source Route Bridge Interface has been configured.

The table includes the following information:

Circuit	Name of the circuit the interface runs on.
Mode	Mode of the circuit: Enabled or Disabled.
Ring ID	Unique network-wide identification number that SR assigns to the segment; ranges from 0x001 to 0xFFF.
STE In	Source Routing Spanning Tree Explorer packet. STE In is either Accept or Blocked, determining whether or not Source Routing is forwarding or filtering STE packets coming in on this interface.
STE Out	STE Out is either Accept or Blocked, determining whether or not Source Routing is forwarding or filtering STE packets going out on this interface.

---

## Sample Display - show sr configuration circuit

Source Routing (SR) Interface Record Configuration

-----

Circuit	Mode	Ring ID	STE In	STE Out
031	Enabled	0x003	Accept	Accept

1 entries found.

## disabled

Displays the Source Routing interfaces that are disabled. Mode is always Disabled and State is always Down. You can use this display to determine which Source Routing interfaces have not been enabled.

## Sample Display - show sr disabled

Source Routing (SR) Interface Information

-----

Circuit	Mode	State
031	Disabled	Down

1 entries found.

## enabled

Displays the Source Routing interfaces that are enabled. Mode is always Enabled and State will be Up or Down. You can use this display to determine which Source Routing interfaces have been enabled.

### Sample Display - show sr enabled

Source Routing (SR) Interface Information

-----

Circuit	Mode	State
-----	-----	-----
031	Enabled	Down

1 entries found.

## ip

Use with the following subcommands:

- ?
- **alerts**
- **base**
- **circuits** [*<circuit\_name>*]
- **configuration**
- **configuration circuit** [*<circuit\_name>*]
- **disabled**
- **enabled**
- **explorers**
- **routes**
- **stats**
- **stats circuit** [*<circuit\_name>*]

---

**ip ?** Displays a list of Source Routing IP subcommands and their syntax.

**ip alerts** Displays Source Routing IP interfaces that have been enabled but are not currently up. In this case, Mode is always Enabled and State is always Down. The table helps determine which Source Routing IP interfaces are not forwarding traffic.

### Sample Display - show sr ip alerts

Sample Display:

```
Source Route IP Encapsulation (SR IP) Interface Information
-----
Circuit      Mode      State
-----
031          Enabled   Down

1 entries found.
```

**ip base** Displays the state of Source Route IP Encapsulation. The SR IP Mode is Enabled or Disabled and SR State is Down or Up.

### Sample Display - show sr ip base

```
Source Route IP Encapsulation (SR IP) Base Record Information
-----
Protocol      SR IP Mode   SR State
-----
SR IP         Enabled      Up
```

**ip circuits** [*<circuit\_name>*] Displays all Source Routing IP interfaces or a specific interface. Mode is Enabled or Disabled and State is Down or Up. You can use this display to determine the Source Route IP interfaces present.

### Sample Display - show sr ip circuits

Source Route IP Encapsulation (SR IP) Circuit Information  
-----

Circuit	SR Mode	SR State
O21	Enabled	Down
S51	Enabled	Up
O43	Enabled	Down

3 entries found.

**ip configuration** Displays the Source Route IP Encapsulation global configuration. SR IP Ring ID can range from 0x011 to 0xFF. Mtu Size is any integer.

### Sample Display - show sr ip configuration

Source Route IP Encapsulation (SR IP) Base Record Configuration  
-----

SR IP Mode	SR IP Ring ID	MTU Size
Disabled	0x000	4562

---

**ip configuration circuit** Displays the Source Route IP Encapsulation interface record configuration. SR Mode is Enabled or Disabled and Forwarding Explorers is Yes or No.

### Sample Display - show sr ip configuration circuit

Source Route IP Encapsulation (SR IP) Circuit Record Configuration

-----

Circuit	SR Mode	IP Address	Fowarding Explorers
O21	Enabled	0.0.0.0	No
S51	Enabled	0.0.0.0	No
O43	Enabled	0.0.0.0	No

3 entries found.

**ip disabled** Displays Source Route IP interfaces that are disabled. Mode is always Disabled and State is always Down. You can use this display to determine which Source Route IP interfaces have not been enabled.

### Sample Display - show sr ip disabled

Source Route IP Encapsulation (SR IP) Circuit Information

-----

Circuit	SR Mode	SR State
---------	---------	----------

0 entries found.

**ip enabled**

Displays Source Route IP interfaces that are enabled. Mode is always enabled and State is either Down or Up. You can use this display to determine which Source Route IP interfaces have been enabled.

**Sample Display - show sr ip enabled**

```
Source Route IP Encapsulation (SR IP) Circuit Information
-----
```

Circuit	SR Mode	SR State
O21	Enabled	Down
S51	Enabled	Up
O43	Enabled	Down

3 entries found.

**ip explorers**

Displays the list of Source Route IP Encapsulation explorers. Source Routing sends a copy of each Source Route Broadcast packet to each IP address in the list.

**Sample Display - show sr ip explorers**

```
Source Route IP Encapsulation (SR IP) Explorers
-----
```

11.0.0.5

1 entries found.



---

**ip routes**

Displays the list of Source Route IP Encapsulation learned routes. Ring ID is the identifier that SR assigns to the network segment and can range from 0x001 to 0xFFF. Bridge ID can range from 0x1 to 0xF. You can use the display to identify the address to use for routing specific packets over an IP network.

**Sample Display - show sr ip routes**

```
Source Route IP Encapsulation (SR IP) Routes
```

```
-----
```

IP Address	Ring ID	Bridge ID
11.0.0.5	0x024	0xA

```
1 entries found.
```

**ip stats circuit**  
[<circuit\_name>]

Displays the packets (Packets Rx) that SR received from the IP network and the number of out-of-sequence packets (Sequence Errors).

**Sample Display - show sr ip stats circuit**

```
Source Route IP Encapsulation (SR IP) Circuit Statistics
```

```
-----
```

Circuit	Out Frames
O21	0
S51	0
O43	0

```
3 entries found.
```

## stats

Displays all Source Routing interface statistics or statistics for a specific circuit. The table includes the following information:

In Frames	Number of Source Routing packets that the interface received.
Out Frames	Number of Source Routing packets that the interface sent out.
Dropped Frames	Sum of packets dropped because of an invalid routing control field, invalid ring, or filtering.

### Sample Display - show sr stats

```
Source Routing (SR) Circuit Statistics
```

```
-----
```

Circuit	In Frames	Out Frames	Dropped Frames
-----	-----	-----	-----
O21	0	0	0
S51	0	0	0
O43	0	0	0

```
3 entries found.
```

### stats circuit [*<circuit name>*]

Displays the same information as the **show sr stats** command displays. However, this command enables you to specify a specific circuit.

## traffic filters

Displays any traffic filters configured on a source routing interface. The table indicates whether or not traffic filters are operating and includes the following information:

Circuit	The name you assign to the circuit.
Mode	The mode of the SR traffic filter: Enabled or Disabled.
Status	The state of the SR traffic filter: Active or Inactive.

---

Rule Number	The order in which the router applies the filters.
Fragment Number	The number assigned to each filter by the router.
Filter Name	A character string that describes the filter.

## **version**

Displays the current version and modification date of the *sr.bat* script.

### **Sample Display - show sr version**

```
SR.bat Version: #.## Date: mm/dd/yy.
```

## show srspan

The **show srspan** *<option>* commands display information about Source Route Spanning Tree Bridge services. For detailed information about the Spanning Tree algorithm and parameters, refer to *Configuring Bridging Services*.

The **show srspan** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">disabled</a>
<a href="#">base</a>	<a href="#">enabled</a>
<a href="#">circuits [&lt;circuit name&gt;]</a>	<a href="#">stats</a>
<a href="#">configuration</a>	<a href="#">version</a>
<a href="#">configuration circuits [&lt;circuit name&gt;]</a>	

### alerts

Displays all enabled circuits that are not up. Use this display to identify the ports that are not working. The table includes the following information:

Circuit	Name of the circuit this port is on.
State	Current state of the port as the Source Route Spanning Tree Protocol application defined it, which in this case is Port Disabled.
Designated Root	Unique Bridge ID recorded as the root in the Configuration BPDUs. The Designated Bridge for the segment to which this port is attached transmits this value.
Designated Port	Port Identifier on the Designated Bridge for this port's segment.

---

## Sample Display - show srspan alerts

Source Route Spanning Tree Circuit Alert Information

```
-----
```

Circuit	State	Designated Root	Designated Port
E51	Port Disabled	00:0A:00:00:00:00:00:01	32770
S31	Port Disabled	00:0A:00:00:00:00:00:01	32771
S41	Port Disabled	00:0A:00:00:00:00:00:01	32772

3 Entries found.

## base

Displays source route Spanning Tree global parameters in the base record. The table includes the following information:

State	Current state of the source route Spanning Tree: Down, Init (initializing), Not Present (enabled but not yet started), or Up.
Root Bridge ID	Bridge ID of the root of the source route Spanning Tree. This is the lowest Bridge MAC address; or if there is no Bridge MAC address, the bridge with the lowest priority.
Time Since last top chg	Time in hundredths of a second since the bridge detected the last change in topology.
Number of Topology Changes	Number of topology changes that this bridge has detected since it was last reset or initialized.
Bridge ID	Identifier of the bridge the script is running on. You can compare this ID to the Root Bridge ID above it.

**Sample Display - show srspan base**

Source Route Spanning Tree Base Record Information

```

-----

```

State	Root Bridge ID	Time Since last top chg	Number Of Topology Changes
Up	00:0A:00:00:00:00:00:01	256500	1

```

-----
                Bridge ID:
-----
                00:0A:00:00:00:00:00:01

```

**configuration**

Displays source route Spanning Tree global configuration parameters. These parameters are all user configurable. The table includes the following information:

Bridge ID	Source Route Spanning Tree Bridge ID assigned to this bridge. The Bridge ID is a combination of the Bridge Priority and the Bridge MAC address.
Bridge Max Age	Maximum time in hundredths of a second that the protocol information (BPDUs) is valid. After this time, the protocol discards the information.
Bridge Hello Time	Interval in hundredths of a second between BPDUs that the bridge transmits. BPDUs are periodic transmissions exchanged between bridges in the network to convey configuration and topology change data.
Bridge Forward Delay	Value all bridges use for Forward Delay when this bridge is acting as the root; specifies the time in hundredths of a second that a circuit spends in the Listening and Learning states.

---

## Sample Display - show srspan configuration

Source Route Spanning Tree Configuration Table

```
-----
```

Bridge ID	Bridge Max Age	Bridge Hello Time	Bridge Forward Delay
00:0A:00:00:00:00:00:01	2000	200	1500

## configuration circuits [*<circuit name>*]

Displays configuration parameters for all source route Spanning Tree circuits or for a specified circuit. These parameters are user configurable. The table includes the following information:

Circuit	Name of the circuit this port is on.
Mode	Mode of the port: Enabled or Disabled.
Path Cost	Contribution of this port to the root path cost offered in all configuration BPDUs that the bridge transmits.
802.9 Translation	Status of the translation parameter: Enabled or Disabled. This field is not currently used.

## Sample Display - show srspan configuration circuits

Source Route Spanning Tree Circuit Configuration Parameters

```
-----
```

Circuit	Mode	Path Cost	802.9 Translation
5	Disabled	1	Disabled

**circuits** [*<circuit name>*]

Displays source route Spanning Tree circuit information. For definitions of the columns in the table, see the **alerts** command.

**Sample Display - show srspan circuit**

Source Route Spanning Tree Circuit Information

```
-----
```

Circuit	State	Designated Root	Designated Port
S21	Forwarding	00:0A:00:00:00:00:00:01	32769
E51	Port Disabled	00:0A:00:00:00:00:00:01	32770
S31	Port Disabled	00:0A:00:00:00:00:00:01	32771
S41	Port Disabled	00:0A:00:00:00:00:00:01	32772

4 Total entries.

**disabled**

Displays source route Spanning Tree circuits that are disabled. For definitions of the columns in the table, see the **alerts** command.

**Sample Display - show srspan disabled**

Source Route Spanning Tree Disabled Circuit Information

```
-----
```

Circuit	State	Designated Root	Designated Port
5	Port Disabled		0

1 Entries found.



---

## enabled

Displays source route Spanning Tree circuits that are currently enabled. For definitions of the columns in the table, see the **alerts** command.

### Sample Display - show srspan enabled

Source Route Spanning Tree Enabled Circuit Information

```
-----
```

Circuit	State	Designated Root	Designated Port
S21	Forwarding	00:0A:00:00:00:00:01	32769

1 Entries found.

## stats

Displays source route Spanning Tree traffic statistics. The table includes the following information:

Circuit	Name of the circuit this port is on.
Rx Packets	Number of BPDU packets received on this port.
Tx Packets	Number of BPDU packets transmitted out this port.

### Sample Display - show srspan stats

Source Route Spanning Tree Statistics

```
-----
```

Circuit	Rx Packets	Tx Packets
S21	0	1521
E51	0	0
S31	0	0
S41	0	0

## **version**

Displays the current version number and date of the *srspan.bat* script.

### **Sample Display - show srspan version**

```
SRSPAN.bat Version: #.## Date: mm/dd/yy.
```

---

# show sta

The **show sta** *<option>* commands display configuration, statistical, and status information about statistical thresholds and alarms. For detailed information on the Bay Networks implementation of thresholds, refer to *Configuring SNMP, RMON, BootP, DHCP, and RARP Services*.

The **show sta** command supports the following subcommand options:

<a href="#">base</a>	<a href="#">stats [&lt;object ID&gt;]</a>
<a href="#">configuration [&lt;object ID&gt;]</a>	<a href="#">version</a>

## base

Displays the base record for statistical thresholds and alarms. The table includes information about the state of thresholds and alarms -- Enabled or Disabled, and the polling interval in seconds for examining objects in the threshold table for threshold exceptions.

### Sample Display - show sta base

```
Statistical Thresholds and Alarm Information
```

```
-----
```

```
State          Poll Interval
-----
Enabled                5
```

**configuration** [*<object ID>*]

Displays configuration information for all objects or for a specific object. The table includes the following information:

Object	Identifier of the MIB object to examine for threshold exceptions.
State	Operating state of the threshold: Enabled or Disabled. When State is Disabled, the router ignores the threshold during its polling.
Threshold State	Threshold state: Valid, Ignored, Held, Suspended, or Invalid.
Low	Level of low threshold for this statistic. This is the level at which the system generates a low-threshold exception event.
Medium	Level of medium threshold for this statistic. This is the level at which the system generates a medium-threshold exception event.
High	Level of high threshold for this statistic. This is the level at which the system generates a high-threshold exception event.
Current	Most recently computed threshold value for the polled object.
Action	How to evaluate the threshold with respect to the threshold values: <ul style="list-style-type: none"> <li>• <i>Greater than</i> - Generates threshold events when the value of the statistic is greater than the thresholds specified.</li> <li>• <i>Less than</i> - Generates threshold events when the value of the statistic is less than the thresholds specified.</li> </ul>

**Sample Display - show sta configuration**

Statistical Thresholds and Alarm Configuration

-----

Object = 1.3.6.1.4.1.18.3.4.1.1.24.2.1

State	Threshold State	Low	Medium	High	Current	Action
-----						
Enabled	Valid	12	20	60	0	Greater than

---

**stats** [*<object ID>*]

Displays statistical information for all objects that are keeping statistics or for a specific object. The table includes the following information:

Object	Identifier of the MIB object to examine for threshold alarms.
Number of Low Alarms	Number of low threshold alarms generated.
Number of Medium Alarms	Number of medium threshold alarms generated.
Number of High Alarms	Number of high threshold alarms generated.

**Sample Display - show sta stats**

```
Statistical Thresholds and Alarm Statistics
-----
Object = 1.3.6.1.4.1.18.3.4.1.1.24.2.1

  Number of      Number of      Number of
  Low Alarms    Medium Alarms   High Alarms
-----
                3                5                0
```

**version**

Displays the current version number and modification date of the *sta.bat* script.

**Sample Display - show sta version**

```
STA.bat Version: #.## Date: mm/dd/yy.
```

## show stac

The **show stac** *<option>* commands display information about the Hi/fn LZS data compression service. For information about Hi/fn LZS, see *Configuring Data Compression Services*.

The **show stac** command supports the following subcommand options:

<a href="#">circuits [circuit &lt;circuit name&gt;]</a>
<a href="#">stats [errors] [&lt;circuit number&gt;]</a>

### circuits [circuit <circuit name>]

Displays the state of all circuits or a specified circuit and the type of compression for each circuit. The display includes the following information:

Circuit Name	Name of the circuit.
Circuit Number	Connector's instance identifier.
Enable	State of the circuit, either enabled or disabled.
Compression Mode	Compression mode that is negotiated. These modes are defined by RFC 1974. For Hi/fn LZS, this will always be mode 3.
Cfg Engine Type	Engine type configured. The engine type can be software or hardware compression.

---

**stats [errors] [<circuit number>]**

Displays Hi/fn Stac LZS statistical information for all circuits or for a specified circuit. The display includes the following information:

Circuit	Name of the circuit.
Compression Ratio	Compression ratio, which is the size of uncompressed data compared with the size of the same data after it is compressed.
Decompression Ratio	Decompression ratio, which is the size of decompressed data compared with the size of the same data before it is decompressed.
Compressor In	Number of bytes input to the software compression library.
Compressor Out	Number of bytes output by the software compression library.
Decompressor In	Number of bytes input to the decompression software library.
Decompressor Out	Number of bytes output to the decompression software library.
CPC Packets Transmitted	Number of continuous packet compression packets transmitted by Stac LZS.
CPC Packets Received	Number of continuous packet compression packets received by Stac LZS.

Note that if you take the Compressor In number and divide it by the CPC Packets Transmitted number, you get an estimate of the compression packet size.

## show state

The **show state** command provides an overview of the router. The information displayed depends on your specific configuration. This script executes the lower-level scripts for the protocols and circuits to gather the information for its report. This script provides a good way to find out what is running on your router -- what is configured and what is not.

The **show state** command supports the following subcommand options:

<a href="#">show state {all   circuit &lt;circuit name&gt;}</a>	<a href="#">version</a>
---	-------------------------

### **show state {all | circuit <circuit name>}**

- all** Displays information on all protocols on all circuits.
- circuit <circuit\_name>** Limits the information to a specified circuit.

This sample shows part of the output that the **show state all** command can generate. In this sample, the router is configured with IPX interfaces on various circuits.



---

## Sample Display - show state all

-----  
IPX Base Record Configuration Information  
-----

Protocol State

-----  
IPX Up

Primary NN Router Name

-----  
0x10000002 tarmour

Route Method Mult Host Mode Maximum Path

-----  
Tick Based Enabled 10

Log Filter Setting PreConfigured Net Table Size

-----  
Filter Trace 0

IPX Circuit Configuration Information (ALL)  
-----

Circuit	State	Ckt Idx	Net Addr	Host Address	Encaps Method
E22	Up	1	0x11000002	0x0000A201142F	Ethernet
O31	Up	2	0x11000003	0x000045C00AED	SNAP
S21	Up	3	0x00000000	0x0000A2011430	PPP
10905102	Up	4	0x00000000	0x0000A203B454	SNAP
*.0.7					
O32	Up	5	0x11110002	0x000045C00A1D	LSAP
MCT1-52-	Up	6	0x00000000	0x0000A203B454	PPP
*2					
202102.0	Down	7	None	None	Ethernet
*.100					

7 Circuits in table.

(continued)

-----  
IPX RIP Interface Record Configuration Information (All)  
-----

Circuit Index	RIP Interface	State	Mode	In Packets	Out Packets	Bad Packets
1	0x11000002	Up	Lstn/Sply	214	215	0
2	0x11000003	Up	Lstn/Sply	0	216	0
3	0x00000000	Up	Lstn/Sply	187	218	0
4	0x00000000	Up	Lstn/Sply	186	206	0
5	0x11110002	Up	Lstn/Sply	0	214	0
6	0x00000000	Up	Lstn/Sply	187	206	0
7	None	Absent	Lstn/Sply	0	0	0

7 RIP Interfaces configured.

-----  
IPX SAP Interface Record Configuration Information (All)  
-----

Circuit Index	SAP Interface	State	Mode	In Packets	Out Packets	Bad Packets
1	0x11000002	Up	Lstn/Sply	214	1	0
2	0x11000003	Up	Lstn/Sply	0	216	0
3	0x00000000	Up	Lstn/Sply	187	216	0
4	0x00000000	Up	Lstn/Sply	186	207	0
5	0x11110002	Up	Lstn/Sply	0	215	0
6	0x00000000	Up	Lstn/Sply	186	206	0
7	None	Absent	Lstn/Sply	0	0	0

7 SAP Interfaces configured.

## version

Displays the current version number and modification date of the *state.bat* script.

### Sample Display - show state version

```
STATE.bat Version: #.## Date: mm/dd/yy.
```

---

## show sws

The **show sws** *<option>* commands display configuration and status information about Switch Services (SWS) -- Dial Backup, Dial-on-Demand, and Bandwidth-on-Demand. For detailed information about configuring SWS, refer to *Configuring Dial Services*.

The **show sws** command supports the following subcommand options:

<a href="#">backup dialing circuits</a>	<a href="#">ondemand dialing callback</a>
<a href="#">backup dialing pools [&lt;pool ID&gt; [&lt;circuit name&gt;]]</a>	<a href="#">ondemand dialing pools [&lt;pool ID&gt; [&lt;circuit name&gt;]]</a>
<a href="#">backup dialing schedules</a>	<a href="#">ondemand dialing schedules</a>
<a href="#">bandwidth circuit</a>	<a href="#">outbound filters {ip   data link}</a>
<a href="#">bandwidth pool [&lt;pool ID&gt; [&lt;circuit name&gt;]]</a>	<a href="#">version</a>
<a href="#">caller resolution table</a>	

## backup\_dialing circuits

Displays primary circuits that are configured for dial backup. The display includes the following information:

Primary Circuit	Circuit name of the primary circuit.
Backup Pool	Identifies the backup pool available for the primary circuit; ranges from 1 to 255.
Backup Mode	Operating mode of the router, as follows: <i>Master</i> - Initiates the backup call when the primary circuit fails. <i>Slave</i> - Waits for the incoming call when the primary circuit fails.
Protocol	Type of WAN protocol configured on this primary circuit, as follows: <ul style="list-style-type: none"> <li>• <i>Frame Relay</i> - Frame Relay protocol.</li> <li>• <i>PPP</i> - Point-to-Point Protocol.</li> <li>• <i>Wlft</i> - Standard protocol, a proprietary protocol used between two Bay Networks routers. Based on the CCITT HDLC (High-level Data Link Control) protocol, Standard provides LLC1 (connectionless, datagram) service.</li> <li>• <i>Unknown</i> - Protocol is unidentified.</li> </ul>
Forced Dial	Status of the Forced Dial parameter -- Enabled or Disabled. When Enabled, the router immediately activates the backup circuit.
Forced TakeDown	Status of the Forced TakeDown parameter: Enabled or Disabled. When Enabled, the router immediately terminates the backup circuit.

### Sample Display - show sws backup\_dialing circuits

```
Switched Services Dial Backup Circuit Information
```

```
-----
```

Primary Circuit	Backup Pool	Backup Mode	Protocol	Forced Dial	Forced TakeDown
S21	1	Master	Wflt	Disabled	Disabled

```
-----
```

Total of 1 Dial Backup Circuits.

---

## backup\_dialing pools [<pool ID> [<circuit name>]]

Displays detailed line information for each line in each pool. You can display information about all pools, a specific pool, and/or a specific circuit on the specified pool. The display includes the following information:

### Circuit Information:

Primary Circuit	Identifies the primary circuit.
Primary DownTime	Number of seconds the router waits before bringing up the line. This delay prevents the line from going up and down if this is a reactivated primary line and there are problems on the line.
Outgoing Phone Number	Telephone number of the remote router.
Extension	Extension line for a main telephone number.
Phone # Type	Indicates whether the phone type is Dial or ISDN.

### Synchronous Line Information:

Slot Num	Identifies the slot where this line resides.
Port Num	Identifies the port where this line connects.
Line State	State of the line, which can be one of the following: <ul style="list-style-type: none"><li>• <i>Down</i> - Line is not operational.</li><li>• <i>DSR Wait</i> - External equipment, such as a modem, DSU, or CSU, is not currently up and thus is not sending a Data Set Ready signal.</li><li>• <i>HoldDown</i> - Line is in holding mode.</li><li>• <i>Init</i> - Line is initializing.</li><li>• <i>LMI Wait</i> - Line is waiting for the WAN protocol to indicate that a link layer connection has been established to another device.</li><li>• <i>Not Pres</i> - Line is enabled but not active. This state occurs for several reasons. For example, the Link Module may not be physically present in the chassis. The software may be booting and has not yet initialized. The slot may be running diagnostics. Or there may be a problem with the configuration.</li><li>• <i>Up</i> - Line is operating normally.</li></ul>
Active Circuit	Name of the circuit using this line.

Hold Down Time	Number of seconds the router waits before bringing up the line. This delay prevents the line from going up and down if this is a reactivated primary line and there are problems on the line.
Media Type	Signaling method used for this backup line, as follows: <ul style="list-style-type: none"><li>• <i>RaiseDTR</i> - Router can initiate, monitor, and terminate dial connections using a programmed number in the attached dial-up device.</li><li>• <i>V25bis</i> - Router can initiate, monitor, and terminate dial connections using telephone numbers that the router passed to the dial-up device.</li></ul>
Cable Type	Interface type that the attached dial unit supports: RS232, RS422, V.35, or X.21.
Line Number	ID number of the line.
ISDN Line Information:	
Pool ID	ID number of the line pool.
Line Number	ID number of the line.
Channel Count	Number of B channels in the backup pool.
Priority	Specifies the router's order of preference for using each line pool.
Channels In Use	Indicates whether any of the available channels are in use.

---

## Sample Display - show sws backup\_dialing pools 1

Switched Services Dial Backup Pool Information

-----

PRIMARY CIRCUIT INFORMATION FOR POOL 1:

Primary Circuit	Primary DownTime	Outgoing Phone Number	Extension	Phone # Type
S12	5	2213527	Not Used	ISDN

Total of 1 Primary Circuits found for this Backup Pool.

LINE INFORMATION FOR POOL 1:

Sync Dial Backup Entries

-----

Slot Num	Port Num	Line State	Active Circuit	Hold Down Time	Media Type	Cable Type	Line Number
-----	-----	-----	-----	-----	-----	-----	-----

No Sync Lines configured.

ISDN Backup Pool Entries

-----

Pool ID	Line Number	Channel Count	Priority	Channels In Use
1	1301102	2	1	0

Total of 1 Dial Backup Entries Configured for this Pool.

## backup\_dialing schedules

Displays the scheduled availability of the backup circuits in a backup pool. The display includes the following information:

Circuit	Identifies the name of the circuit.
Pool	Specifies the backup pool that the circuit uses.
Day(s)	Days that the circuit is available.
Start Time	The beginning of the time interval that the circuit is available.
End Time	The end of the time interval that the circuit is available.

### Sample Display - show sws backup\_dialing schedules

Switched Services Backup Schedule Information

```
-----  
Circuit      Pool      Day(s)      Start Time  End Time  
-----  
S11          1 Not Configured  
  
S21          3 Weekday    0           2359  
            Tuesday  0           2359  
  
S31          3 Not Configured  
  
Total of    3 Backup Circuits.
```

## bandwidth circuit

Displays all circuits that are configured for bandwidth-on-demand. The display includes the following information:

Primary Circuit	Name of the primary circuit.
Bandwidth Pool	ID number of the bandwidth-on-demand pool; ranges between 1 to 255.



---

Bandwidth Mode	Operating mode of the router, as follows: <ul style="list-style-type: none"> <li>• <i>Monitor</i>-designates the router as the congestion monitor for the primary line.</li> <li>• <i>Non-monitor</i>-indicates that the router does not monitor congestion on the primary line.</li> </ul>
Protocol	Type of WAN protocol configured on this primary circuit.
Forced Dial	Status of the Forced Dial parameter -- Enabled or Disabled. When Enabled, the router immediately activates the secondary line.
Forced TakeDown	Status of the Forced TakeDown parameter: Enabled or Disabled. When Enabled, the router immediately terminates the secondary line.

### Sample Display - show sws bandwidth circuit

Switched Services Bandwidth Circuit Information

-----

Primary Circuit	Bandwidth Pool	Bandwidth Mode	Protocol	Forced Dial	Forced TakeDown
-----	-----	-----	-----	-----	-----
S51	1	Monitor	PPP	Disabled	Disabled

Total of 1 Bandwidth Circuits.

**bandwidth pool** [*<pool ID>* [*<circuit name>*]]

Displays detailed line information for each line in each pool. You can display information about all pools, a specific pool, and/or a specific circuit in the specified pool. The display includes the following information:

## Circuit Information:

Primary Circuit	Identifies the primary circuit.
Bandwidth Mode	Operating mode of the router, as follows: <ul style="list-style-type: none"><li>• <i>Monitor</i>-designates the router as the congestion monitor for the primary line.</li><li>• <i>Non-monitor</i>-indicates that the router does not monitor congestion on the primary line.</li></ul>
Inactivity Time (Sec)	Number of seconds the router waits without receiving data across the line before bringing down the connection.
Outgoing Phone Number	Telephone number of the remote router.
Extension	Extension line for a main telephone number.
Phone # Type	Indicates whether the phone type is Dial or ISDN.

## Synchronous Line Information:

Slot Num	Identifies the slot where this line resides.
Port Num	Identifies the port where the line connects.
Line State	State of the line, which can be one of the following: <ul style="list-style-type: none"><li>• <i>Down</i> - Line is not operational.</li><li>• <i>DSR Wait</i> - External equipment, such as a modem, DSU, or CSU, is not currently up and thus is not sending a Data Set Ready signal.</li><li>• <i>HoldDown</i> - Line is in holding mode.</li><li>• <i>Init</i> - Line is initializing.</li><li>• <i>LMI Wait</i> - Line is waiting for the WAN protocol to indicate that a link layer connection has been established to another device.</li><li>• <i>Not Pres</i> - Line is enabled but not active. This state occurs for several reasons. For example, the Link Module may not be physically present in the chassis. The software may be booting and has not yet initialized. The slot may be running diagnostics. Or there may be a problem with the configuration.</li><li>• <i>Up</i> - Line is operating normally.</li></ul>

---

Active Circuit	Name of the circuit using this line.
Hold Down Time	Number of seconds the router waits before bringing up the line. This delay prevents the line from going up and down if this is a reactivated primary line and there are problems on the line.
Media Type	Signaling method used for this line, as follows: <ul style="list-style-type: none"><li>• <i>RaiseDTR</i> - Router can initiate, monitor, and terminate dial connections using a programmed number in the attached dial-up device.</li><li>• <i>V25bis</i> - Router can initiate, monitor, and terminate dial connections using telephone numbers that the router passed to the dial-up device.</li></ul>
Cable Type	Interface type that the attached dial unit supports: RS232, RS422, V.35, or X.21.
Line Number	ID number of the line.

#### ISDN Line Information

Pool ID	ID number of the line pool.
Line Number	ID number of the line.
Channel Count	Number of B channels in the pool.
Priority	Specifies the router's order of preference for using each line pool.
Channels In Use	Indicates whether any of the available channels are in use.

### Sample Display - show sws bandwidth pool 1

Switched Services Bandwidth Pool Information

-----

PRIMARY CIRCUIT INFORMATION FOR POOL 1:

Primary Circuit	Bandwidth Mode	Inactivity Time (Sec)	Outgoing Phone Number	Extension	Phone # Type
S51	Monitor	60	1234567	Not Used	DIAL

Total of 1 Primary Circuits found for this Bandwidth Pool.

LINE INFORMATION FOR POOL 1:

Sync Dial Bandwidth Entries

-----

Slot Num	Port Num	Line State	Active Circuit	Hold Down Time	Media Type	Cable Type	Line Number
5	5	Up	None		NA V.25bis	RS232	205105

ISDN Bandwidth Pool Entries

-----

Pool ID	Line Number	Channel Count	Priority	Channels In Use
------------	----------------	------------------	----------	--------------------

No ISDN Bandwidth pool entries found

Total of 1 Dial Bandwidth Entries Configured for this Pool.

---

## caller resolution table

Displays the entries in the caller resolution table. The router uses the caller resolution table for identification and security purposes. The display includes the following information:

Caller Name	Lists the name of the calling party. This name needs to be a part of the incoming call from that party.
CHAP Secret	Lists the CHAP secret of the calling party.
PAP Password	Lists the PAP Password of the calling party.
Circuit Number	Displays the circuit number to which the Caller Name is associated.
Circuit Group Number	Lists the demand circuit group to which the circuit belongs.

### Sample Display - show sws caller\_resolution\_table

```
Caller Resolution Table
```

```
-----
```

Caller Name	CHAP Secret	PAP Password	Circuit Number	Circuit Group Number
Paris	France	UNSECURED	5	0
Sydney	Australia	UNSECURED	4	0

```
2 entries in the Table.
```

## ondemand\_dialing callback

Displays information about demand circuits configured for callback. The display includes the following information:

Demand Circuit	Name of the demand circuit. Note that the demand circuit uses a default name as a place holder. When the demand circuit is in use, its name changes to the actual name of the circuit that is in use.
Callback Mode	Role of the router for a callback circuit.

- Server Delay      Value of the Callback Server Delay Time parameter. This parameter specifies the time (in seconds) that the server waits to call back the client.
- Client Delay      Value of the Callback Client Delay Time parameter. This parameter specifies the time (in seconds) that the client waits for a call from the server.

**Sample Display - show sws ondemand\_dialing callback**

Switched Services Dial OnDemand Callback Circuit Information

-----

Demand Circuit	Callback Mode	Server Delay	Client Delay
-----	-----	-----	-----
Demand 4	Server-one-charge-called	15	5

Total of      1 Dial OnDemand Callback Circuits.

---

## ondemand\_dialing circuits

Displays all circuits configured for dial-on-demand. The display includes the following information:

Demand Circuit	Name of the demand circuit. Note that the demand circuit uses a default name as a place holder. When the demand circuit is in use, the name changes to the actual name of the circuit that is in use.
Demand Pool	Identifies the demand pool of lines available for the demand circuit; ranges from 1 to 255.
Forced Dial	Status of the forced dial parameter: Enabled or Disabled. When Enabled, the router immediately initiates dialing over the demand line.
Forced TakeDown	Status of the forced takedown parameter: Enabled or Disabled. When Enabled, the router immediately terminates the connection over a demand line.

### Sample Display - show sws ondemand\_dialing circuits

```
Switched Services Dial OnDemand Circuit Information
```

```
-----  
Demand   Demand   Forced   Forced  
Circuit  Pool      Dial     TakeDown  
-----  
Demand 2          1 Disabled Disabled  
Demand 3          2 Disabled Disabled  
  
Total of      2 Dial OnDemand Circuits.
```

### ondemand\_dialing pools [*<pool ID>*] [*<circuit name>*]

Displays line information for each line in a pool. You can display information about all pools, a specific pool, and/or a specific circuit on the pool. The display includes the following information:

### Circuit Information:

Circuit	Circuit name of the demand circuit.
Connection Mode	Operating mode of the router, as follows: <ul style="list-style-type: none"><li>• <i>Master</i> - Retries the call when the first connection attempt fails as a result of a collision on the network.</li><li>• <i>Slave</i> - Waits for the master router to retry the call if the first attempt fails as a result of a collision on the network.</li><li>• <i>No Dial</i> - Never initiates calls; always waits for another router to call.</li></ul>
Inact Time	Number of seconds the router waits without receiving data across the line before bringing down the connection.
MaxUp Time	Specifies the maximum duration of the call in minutes. Once the call meets the specified time, the router terminates the connection.
Outgoing Phone Number	Telephone number of the remote router.
Extension	Extension line for a main telephone number.
Phone # Type	Indicates whether the phone number type is Dial or ISDN.

### Synchronous Line Information:

Slot Num	Identifies the slot where this line resides.
Port Num	Identifies the port where this line connects.
Line State	State of the line, which can be one of the following: <ul style="list-style-type: none"><li>• <i>Down</i> - Line is not operational.</li><li>• <i>DSR Wait</i> - External equipment, such as a modem, DSU, or CSU, is not currently up and thus is not asserting a Data Set Ready signal.</li><li>• <i>HoldDown</i> - Line is in holding mode.</li><li>• <i>Init</i> - Line is initializing.</li><li>• <i>LMI Wait</i> - Line is waiting for the WAN protocol to indicate that a link layer connection has been established to another device.</li><li>• <i>Not Pres</i> - Line is enabled but not yet started. This state occurs for several reasons. For example, the Link Module may not be physically present in the chassis. The software may be booting and has not yet initialized. The slot may be running diagnostics. Or there may be a problem with the configuration.</li><li>• <i>Up</i> - Line is operating normally.</li></ul>



---

Active Circuit	Name of the circuit using this line.
Hold Down Time	Number of seconds the router waits before bringing the line up. This delay prevents the line from going up and down if this is a reactivated primary line and there are problems on the line.
Media Type	Signaling mode in use for this dial-on-demand line, as follows: <ul style="list-style-type: none"><li>• <i>RaiseDTR</i> - Router can initiate, monitor, and terminate dial connections using a programmed number in the attached dial-up device.</li><li>• <i>V25bis</i> - Router can initiate, monitor, and terminate dial connections using telephone numbers that the router passed to the dial-up device.</li></ul>
Cable Type	Interface type that the attached dial unit supports: RS232, RS422, V.35, or X.21.
Line Number	ID number of the line.
<b>ISDN Line Information</b>	
Pool ID	ID number of the line pool.
Line Number	ID number of the line.
Channel Count	Number of B channels in the pool.
Priority	Specifies the router's order of preference for using each line pool.
Channels In Use	Indicates whether any of the available channels are in use.

**Sample Display - show sws ondemand\_dialing pools 1**

Switched Services Dial OnDemand Pool Information

-----

CIRCUIT INFORMATION FOR POOL 1:

Circuit	Connection Mode	Inact Time	MaxUp Time	Outgoing Phone Number	Extension	Phone # Type
Demand 3	SLAVE	20	60	7001	Not Used	ISDN
				7002	Not Used	ISDN

Total of 1 Circuits found for this Dial On Demand Pool.

LINE INFORMATION FOR POOL 1:

Sync Dial On Demand Entries

-----

Slot Num	Port Num	Line State	Active Circuit	Hold Down Time	Media Type	Cable Type	Line Number

No Sync Lines configured.

ISDN Demand Pool Entries

-----

Pool ID	Line Number	Channel Count	Priority	Channels In Use
1	1301102	2	1	0

Total of 1 Dial On Demand Entries Configured for this Pool.

---

## ondemand\_dialing schedules

Displays the scheduled availability of each demand circuit in a demand pool.

Circuit	Identifies the name of the circuit.
Pool	Specifies the demand pool that the circuit uses.
Day(s)	Days that the circuit is available.
Start Time	The beginning of the time interval that the circuit is available.
End Time	The end of the time interval that the circuit is available.

### Sample Display - show sws ondemand\_dialing schedules

Switched Services Demand Schedule Information

```
-----
```

Circuit	Pool	Day(s)	Start Time	End Time
Demand 1	1	Not Configured		
Demand 3	1	Monday	1100	1200
		Saturday	800	900
Demand 4	1	Not Configured		
Demand 5	3	Weekday	0	2359
		Tuesday	0	2359
Demand 6	3	Not Configured		
Demand 7	3	Not Configured		
Total of	6	Demand Circuits.		

## outbound filters {ip | data\_link}

For the ip and data\_link options, the display includes the following information:

Name	Displays the name of the filter.
State	Lists the state of the filter.
Counter	Lists the number of packets filtered.

**ip** Displays information about the IP outbound filters.

### Sample Display - show sws outbound\_filters ip

```
Switched Services IP Outbound Filters Information
-----
Name      State      Counter
-----
  Boston  ENABLED      0

1 IP Filters configured.
```

---

## **data\_link**

Displays information about the data link outbound filters.

### **Sample Display - show sws outbound\_filters data\_link**

```
Switched Services Data Link Outbound Filters Information
-----
```

Name	State	Counter
Chicago	ENABLED	0
Sydney	ENABLED	0

```
2 Data Link Filters configured.
```

## **version**

Displays the current version number and modification date of the *sws.bat* script.

### **Sample Display - show sws version**

```
SWS.bat Version: #.## Date: mm/dd/yy.
```

## show sync

The **show sync** *<option>* commands display configuration, status, and statistical information about Synchronous (SYNC) lines. For detailed information about configuring SYNC, refer to *Configuring WAN Line Services*.

The **show sync** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">modem_config</a>
<a href="#">base [circuit &lt;circuit name&gt;]</a>	<a href="#">modem_state</a>
<a href="#">disabled</a>	<a href="#">receive_errors [circuit &lt;circuit name&gt;]</a>
<a href="#">dsucsu_config</a>	<a href="#">sample [&lt;period in seconds&gt;] [circuit &lt;circuit name&gt;]</a>
<a href="#">dsucsu_stats</a>	<a href="#">stats [circuit &lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">system_errors [circuit [&lt;circuit name&gt;]]</a>
<a href="#">ftl_config</a>	<a href="#">transmit_errors [circuit [&lt;circuit name&gt;]]</a>
<a href="#">ftl_state</a>	

---

## alerts

Displays all SYNC circuits that are enabled but not up. Use this display to identify the interfaces that are not working. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
State	State of the line driver, as follows: <ul style="list-style-type: none"><li>• <i>Disabled</i> - User has manually disabled the driver.</li><li>• <i>Down</i> - Driver is not operational.</li><li>• <i>DSR Wait</i> - External equipment, such as a modem, DSU, or CSU, is not currently up and thus is not asserting a Data Set Ready signal.</li><li>• <i>Init</i> - Driver is initializing.</li><li>• <i>LMI Wait</i> - Driver is waiting for any of four WAN protocols to indicate that a link layer connection has been established to another entity. This state applies to the frame relay, SMDS, ATM, and PPP protocols.</li><li>• <i>Not Pres</i> - Driver is enabled but not yet started. This state occurs for several reasons. For example, the Link Module may not be physically present in the chassis. The software may be booting and has not yet initialized the driver software. The slot may be running diagnostics. Or there may be a problem with the configuration.</li></ul>
MAC Address	Physical address of the line. The line driver fills this address in from the 48-bit address stored in the serial number PROM for this connector.
Line Number	Line number for this line.
MTU	Maximum transfer unit size -- the buffer size for the SYNC port (also the largest frame that can be transmitted or received across the SYNC port). The value ranges from 3 to 4608 bytes.

WAN Protocol	<p>WAN protocol enabled on this interface, as follows:</p> <ul style="list-style-type: none"> <li>• <i>ATM</i> - Asynchronous Transfer Mode protocol</li> <li>• <i>FRM RELAY</i> - Frame Relay protocol</li> <li>• <i>PASSTHRU</i> - Interface passes data through the network to a SYNC interface configured for Pass Thru on another Bay Networks router. IBM sites typically use this protocol to pass proprietary SYNC data through a Bay Networks network.</li> <li>• <i>PPP</i> - Point-to-Point Protocol</li> <li>• <i>SMDS</i> - Switched Multi-Megabit Data Service protocol</li> <li>• <i>WF STND</i> - Wellfleet Standard, a proprietary protocol used between two Bay Networks routers. Based on the CCITT HDLC (High-level Data Link Control) protocol, Wellfleet Standard provides LLC1 (connectionless, datagram) service. This protocol is sometimes referred to as Wellfleet Point-to-Point.</li> <li>• <i>X.25</i> - X.25 protocol</li> </ul>
Loc Adr	<p>1-byte value, used in the address field of the HDLC packet. It may be extended to two octets if the <i>&lt;circuit_name&gt;</i> Extended Address parameter is enabled. The values are DTE, DCE, and Explicit.</p>
Rem Adr	<p>1-byte value, used in the address field of the HDLC packet. It may be extended to two octets if the Extended Address parameter is enabled. The values are DTE, DCE, and Explicit.</p>
Med Typ	<p>Media type this SYNC module uses, as follows:</p> <ul style="list-style-type: none"> <li>• <i>STD</i> - Normal connection.</li> <li>• <i>T1</i> - T1 lines.</li> <li>• <i>E1</i> - E1 lines.</li> <li>• <i>DTR</i> - Connection to a modem that dials out when Data Terminal Ready (DTR) gets raised.</li> <li>• <i>V25</i> - Connection to a V25 BIS modem.</li> </ul>

### Sample Display - show sync alerts

SYNC Modules on Alert:

```
-----
```

Slot	Conn	Circuit	State	MAC Address	Line Number	MTU	WAN Protocol	Loc Adr	Rem Adr	Med Typ
-----										
2	1	T1-21	Down	00-00-A2-00-B6-1B	00302101	1600	WF STND	7	7	T1
2	2	T1-22	Down	00-00-A2-00-B6-1C	00302102	1600	WF STND	7	7	T1

Found 2 matches out of 4 entries in table.



---

## base [circuit <circuit name>]

Displays the base level information for all SYNC circuits or a specific SYNC circuit. For definitions of the columns in the table, see the **alerts** command. In addition to the states listed under the **alerts** command, State can also be Up.

### Sample Display - show sync base

SYNC Modules:

-----

Slot	Conn	Circuit	State	MAC Address	Line Number	MTU	WAN Protocol	Loc Adr	Rem Adr	Med Typ
5	1	S51	Up	00-00-A2-00-A1-73	00205101	1600	WF STND	7	7	STD
5	2	S52	Up	00-00-A2-00-A1-74	00205102	1600	WF STND	7	7	STD

2 entries in table.

## disabled

Displays SYNC circuits that a user has manually disabled. For definitions of the columns in the table, see the **alerts** command. In this case, State is Disabled.

### Sample Display - show sync disabled

SYNC Modules Disabled:

-----

Slot	Conn	Circuit	State	MAC Address	Line Number	MTU	WAN Protocol	Loc Adr	Rem Adr	Med Typ
------	------	---------	-------	-------------	-------------	-----	--------------	---------	---------	---------

Found 0 matches out of 4 entries in table.

## **dsucsu\_config**

Displays configuration information about a DSU/CSU module installed in a BayStack AN, ANH, or ARN router. The display includes the following information:

Hardware Revision	Hardware revision of the DSU/CSU module.
Software Revision	Firmware revision of the DSU/CSU module.
Opmode	Type of Telco service: 56K DDS1 or CC 64K.
Transmit Clock	Whether this DSU/CSU receives timing from the Telco source (Slave) or provides transmit timing in a private-wire configuration (Master).
Transmit Monitor (64K only)	Whether the 64K Transmit Monitor is enabled. The Transmit Monitor suppresses data to prevent unintended duplication of network control codes.

### **Sample Display - show sync dsucsu\_config**

```
Configuration of DSU/CSU in Slot 1 Connector 2:  
HW Revision 3  
SW Revision 3  
Opmode: 56K DDS1  
Transmit Clock: slave (network)  
Transmit Monitor (64K only): disabled  
  
1 entry(s) found
```

---

## dsucsu\_stats

Displays status information about a DSU/CSU module installed in a BayStack AN, ANH, or ARN router. The display includes the following information:

Slot	Base module slot that contains the DSU/CSU module. For BayStack routers, the value is always 1.
Conn	COM connector number (1, 2, or 3).
Op State	Current V.54 loopback operating state of the interface. States are <ul style="list-style-type: none"><li>• Normal (no loopback) -- The DSU/CSU is able to forward data.</li><li>• Local (analog) Loopback -- The DSU/CSU is performing a self-diagnostic local loopback. While operating the local loop test, the CSU loops back the network to avoid a carrier alarm.</li><li>• Digital Loopback -- The DSU/CSU is performing a diagnostic test of the local DSU/CSU and the facility circuit. This test typically requires a pattern generator on the remote side to transmit a test pattern, which is returned through the CSU/DSU.</li><li>• Remote Digital Loopback -- The DSU/CSU is performing a diagnostic test of the local DSU/CSU, facility circuit, and the remote DSU/CSU. This test is a coordinated test with both sides of the facility. The router DSU/CSU sends a signal to the facility to initiate a Digital Loop at the remote DSU/CSU, and then sends a test pattern through the far side of the loop and checks the returned data for errors.</li><li>• Pattern-2047 -- The DSU/CSU is performing a pattern-only test without initiating loopback. The router DSU/CSU sends a BERT 2047 test pattern to the network.</li></ul>
Service Status	Current status of the DSU/CSU module, as reported by Out of Service or Maintenance Mode codes from the Telco or network carrier. Service states are <ul style="list-style-type: none"><li>• In Service -- The DSU/CSU and carrier facility are synchronized.</li><li>• Out of Service (OOS) -- There is trouble with the carrier facility circuit. The circuit from the DSU/CSU module through local loop to the carrier is working, but the circuit is down beyond the central office.</li><li>• Out of Frame (OOF) -- There is a framing problem on the carrier circuit.</li><li>• Loss of Line (LOL) -- The local loop to the central office is no longer present. For example, the cable is not connected to the router DSU/CSU interface.</li><li>• Telco Loopback -- The carrier facility placed the DSU or CSU in a loopback test.</li></ul>
Out of Service Errors	Number of OOS control codes (bipolar violations) received from the central office.

Out of Frame Errors	On Clear Channel 64-K lines only, indicates the number of times framing has been lost between the DSU/CSU and the central office.
Loss of Line Errors	Number of errors resulting from loss of line signal from the network service.
Total Errors	Combined number of Out of Service, Out of Frame, and Loss of Line errors.

**Sample Display - show sync dsucsu\_stats**

Slot	Conn	Op State	Service Status	Out of Service Errors	Out of Frame Errors	Loss of Line Errors	Total Errors
1	2	normal	LOL	0	0	855	855

1 entry(s) found

**enabled**

Displays SYNC circuits that a user has manually enabled. For definitions of the columns in the table, see the **alerts** command. State can also be Up.

**Sample Display - show sync enabled**

SYNC Modules Enabled:

```
-----
```

Slot	Conn	Circuit	State	MAC Address	Line Number	MTU	WAN Protocol	Loc Adr	Rem Adr	Med Typ
5	1	S51	Up	00-00-A2-00-A1-73	00205101	1600	WF STND	7	7	STD
5	2	S52	Up	00-00-A2-00-A1-74	00205102	1600	WF STND	7	7	STD

Found 2 matches out of 2 entries in table.

---

## ft1\_config

Displays configuration details of the FT1/T1 DSU/CSU adapter module. Use this command to verify the information configured for FT1 operations. The display includes the following information:

Line Type	Frame format used on the T1 line, as follows: <ul style="list-style-type: none"><li>• <i>SF</i> - Superframe</li><li>• <i>ESF</i> - Extended superframe</li></ul>
Line Coding	Line coding configured for the FT1/T1 DSU/CSU adapter module, as follows: <ul style="list-style-type: none"><li>• <i>AMI</i> - Alternative Mark Inversion transmits a binary 0 as 0 volts and a binary 1 as either a positive or negative pulse with the opposite polarity of the previous pulse. With AMI coding, the adapter module remains in frame synchronization for 45 consecutive zeros.</li><li>• <i>B8ZS</i> - Bipolar 8 Zero Substitution replaces a block of eight consecutive binary zeros with an 8-bit B8ZS code containing bipolar violations in the fourth and seventh bit positions of the substituted code in a transmitted message. When a message is received, this action is reversed: the B8ZS code is replaced with eight consecutive binary zeros.</li></ul>
Loop Config	Indicates the loopback setting as follows: <ul style="list-style-type: none"><li>• <i>Line Loopback</i> - Loops received data back onto the T1 transmission path at the point where the T1 interface enters the FT1/T1 DSU/CSU adapter module.</li><li>• <i>Payload Loopback</i> - Detects and encodes an ANSI Bit-Oriented Payload Loopback message or an AT&amp;T Payload Loopback message across the T1 Facility Data Link (FDL). Upon detection of a Payload Loopback message, the FT1/T1 DSU/CSU adapter module transmits the received information in the outgoing direction.</li><li>• <i>No Loop</i> - No loopback is configured on the FT1/T1 DSU/CSU adapter module.</li></ul>
FDL Configuration	Defines the type of Facility Data Link (FDL) configured, as follows: <ul style="list-style-type: none"><li>• <i>ANSI403</i> - ANSI Publication T1.403</li><li>• <i>ATT54016</i> - AT&amp;T Publication 54016</li></ul>
Primary Tx Clock	Defines the type of primary T1 transmit timing source used, as follows: <ul style="list-style-type: none"><li>• <i>Loop</i> - Timing from the T1 port.</li><li>• <i>Local</i> - Internal timing from the FT1/T1 adapter module.</li></ul>

Secondary Tx Clock	Defines the type of secondary T1 transmit timing source to be used when a T1 primary transmit clock fails: <ul style="list-style-type: none"><li>• <i>Loop</i> - Timing from the T1 port.</li><li>• <i>Local</i> - Internal timing from the FT1/T1 adapter module.</li></ul>
Current Tx Clock	Defines the T1 transmit timing source currently configured: <ul style="list-style-type: none"><li>• <i>Loop</i> - Timing from the T1 port.</li><li>• <i>Local</i> - Internal timing from the FT1/T1 adapter module.</li></ul>
Rate	Number of bits per second at which voice, data, and video signals are transmitted over the T1 line.
DS0 Map	DS0 channels configured for the DS1 frame; ranges from 1 to 24.

---

## ft1\_state

Displays information about the operational state of the FT1/T1 DSU/CSU adapter module. The display includes the following information:

Slot	Slot identifier; always 1 for the ARN.
Conn	Connector identifier; ranges from 1 to 2.
Port State	State of the port associated with the FT1/T1 line, as follows: <ul style="list-style-type: none"><li>• <i>Red Alarm</i> - A red alarm signal, indicating the loss of T1 framing.</li><li>• <i>Yellow Alarm</i> - A yellow alarm signal from the T1 network indicating that the remote T1 interface is out-of-frame.</li><li>• <i>Loopback</i> - Port is in loopback mode.</li><li>• <i>Up</i> - Port is synchronized with the T1 network.</li><li>• <i>AIS</i> - A blue alarm signal from the T1 network indicating a total loss of signal from the remote T1 device.</li></ul>
Loopback State	Defines the loopback state of the port, as follows: <ul style="list-style-type: none"><li>• <i>Line Loopback</i> - Loops received data back onto the T1 transmission path at the point where the T1 interface enters the FT1/T1 DSU/CSU adapter module.</li><li>• <i>Payload Loopback</i> - Detects and encodes an ANSI Bit-Oriented Payload Loopback message or an AT&amp;T Payload Loopback message across the T1 Facility Data Link (FDL). Upon detection of a Payload Loopback message, the FT1/T1 DSU/CSU adapter module transmits the received information in the outgoing direction.</li><li>• <i>No Loop</i> - No loopback is configured on the FT1/T1 DSU/CSU adapter module.</li></ul>

## modem\_config

Displays configuration information about a V.34 Modem adapter module installed in a BayStack ARN router:

Configuration	Hardware revision of the V.34 modem module, listed by slot and COM connector number. For the ARN, all modules are Slot 1. Modems that do not display this information will display <i>N/A</i> (not applicable).
Software Revision	Firmware revision of the modem module.
Factory Defaults	Indicates whether exclusive use of the factory default initialization string is enabled or disabled. When enabled, only the default string is sent to the modem at restart. When disabled, the router sends a user-specified initialization string after the default string.
Initialization String	AT command string currently sent to the modem after the factory default string. Commands in this string take precedence over commands in the factory default string.
Factory Default String	AT command string sent to the modem at every restart: AT&M2&Q2&D0&S1&R0S0=0M1L2T.
Country Code	Modem country code.

### Sample Display - show sync modem\_config

```
Configuration of V34 modem in Slot 1 Connector 1:  
HW Revision 3  
Software Revision V1.440-V34_DS  
Factory Defaults: disabled  
Initialization String: AT&M1&Q1&D0&S1&R0S0=2  
Factory Default String: AT&M2&Q2&D0&S1&R0S0=0M1L2T  
Country Code: North America
```



---

## modem\_state

Displays status information about a V.34 Modem adapter module installed in a BayStack ARN router. The display includes the following information:

Init Slot	Base module slot that contains the V.34 modem module. For the BayStack routers, the value is always 1.
Conn	COM connector that contains the V.34 modem module (1 or 2).
Init State	Current state of modem initialization. States are <ul style="list-style-type: none"><li>• Startup (1)</li><li>• SCCInit (2)</li><li>• GetInfo (3)</li><li>• SetDefaults (4)</li><li>• Initialization (5)</li><li>• PhoneNumber (6)</li><li>• Loopback (7)</li><li>• InitComplete (8)</li></ul>
Line State	Current operational state of modem interface. States are <ul style="list-style-type: none"><li>• Unknown (1)</li><li>• On Hook (2)</li><li>• Off Hook (3)</li><li>• Connected (4)</li><li>• Busied Out (5)</li><li>• Reset (6)</li></ul>

### Sample Display - show sync modem\_state

```
Slot Conn Init State Line State
-----
1      1      8              unknown
```

**receive errors [circuit <circuit name>]**

Displays receive errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Bad Frames	Number of bad receive frames, caused by Frame Check Sequence (FCS) errors or nonoctet aligned errors.
Runt Frames	Number of runt frames received on this line.
Frame Rejects	Number of frame reject errors received on this line.
Frames Too Long	Number of frames received on this line that exceed the MTU.
Overflow Frames	Number of overflow errors received on this line in which the device's FIFO buffer overflowed before obtaining the next DMA cycle. No buffer resources are available.

**Sample Display - show sync receive**

SYNC Module Receive Errors:

-----

Slot	Conn	Circuit	Bad Frames	Runt Frames	Frame Rejects	Frames Too Long	Overflow Frames
-----							
5	1	S51	0	7	0	0	0
5	2	S52	1	1	0	0	0

2 entries in table.

---

**sample** [*<period in seconds>*] [**circuit** *<circuit name>*]

Displays data sampled from SYNC over a period of 10 seconds. You can change the number of seconds over which you want to sample the data, and you can display sampled data for a specific circuit only. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Rx Frames	Number of frames received on this line.
Tx Frames	Number of frames sent on this line.
Rx Lack of Resources	Number of packets received and discarded because of lack of resources; for example, buffers.
Tx Lack of Resources	Number of transmit packets discarded because of lack of resources; for example, buffers.

**Sample Display - show sync sample**

SYNC Sampled Data over 10 seconds

```
-----
```

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
-----						
3	1	S31	11	12	0	0

1 entry in table.

**Sample Display - show sync sample circuit s31**

SYNC Sampled Data over 5 seconds

```
-----
```

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
3	1	S31	5	6	0	0

Found 1 matches out of 1 entry in table.

**stats [circuit <ircuit name>]**

Displays SYNC input/output statistical information for all SYNC modules or for a specific circuit. The table contains the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Receive Bytes	Number of octets received without error.
Receive Frames	Number of frames received without error.
Transmit Bytes	Number of octets transmitted without error.
Transmit Frames	Number of frames transmitted without error.
Total Errors	Total number of errors of all types.

---

## Sample Display - show sync stats

SYNC Module I/O Statistics:

-----

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	Total Errors
5	1	S51	12547667	242153	12750286	246188	7
5	2	S52	12545913	242593	12752036	245763	2

2 entries in table.

## system errors [circuit [*<circuit name>*] ]

Displays statistical information about system errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Receive Rejects	Number of reject frames received.
Transmit Rejects	Number of reject frames transmitted.
T1 Timeouts	Number of T1 timeouts detected. The T1 timer is the link retransmission timer. Link control frames are retransmitted when the T1 expires. This timer tracks the number of timeouts.
Memory Errors	Number of memory errors detected. A memory error occurs when the DMA cycle expires without obtaining the bus within 26 ms. Memory errors may indicate faulty hardware. If this count exceeds five, call your customer service representative.

**Sample Display - show sync system**

```
SYNC Module System Errors:
```

```
-----
```

Slot	Conn	Circuit	Receive Rejects	Transmit Rejects	T1 Timeouts	Memory Errors
5	1	S51	0	0	0	0
5	2	S52	0	0	0	0

```
2 entries in table.
```

**Sample Display - show sync system errors circuit s31**

```
SYNC Module System Errors:
```

```
-----
```

Slot	Conn	Circuit	Receive Rejects	Transmit Rejects	T1 Timeouts	Memory Errors
3	1	S31	0	0	0	0

```
Found 1 match out of 4 entries in table.
```

**transmit errors [circuit [*<circuit name>*] ]**

Displays statistical information about transmission errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Underflow Frames	Number of retransmission underflow errors. These occur when the device's FIFO buffer empties before the device obtains the next DMA request.

---

### Sample Display - show sync transmit errors

SYNC Module Transmit Errors:

```
-----  
                Underflow  
Slot Conn Circuit  Frames  
-----  
   5   1 S51             0  
   5   2 S52             0
```

2 entries in table.

### Sample Display - show sync transmit errors circuit s31

SYNC Module Transmit Errors:

```
-----  
                Underflow  
Slot Conn Circuit  Frames  
-----  
   3   1 S31             0
```

Found 1 match out of 4 entries in table.

## show system

The **show system** *<option>* commands display information about the system state, which pertains to the overall system and not to any specific protocol.

The **show system** command supports the following subcommand options:

<a href="#">buffers</a>	<a href="#">protocols</a>
<a href="#">drivers</a>	<a href="#">tasks</a>
<a href="#">information</a>	<a href="#">version</a>
<a href="#">memory</a>	

### buffers

Displays the current buffer usage for all active slots in the system. Note that buffers circulate rapidly through the system. A low free percentage doesn't necessarily indicate a buffer shortage; it may be a transient condition.

#### Sample Display - show system buffers

Buffer Usage Statistics:

```
-----  
Slot   Total   Used   Free   %Free  
-----  
    2     378    124    254    67 %  
    3     378     90    288    76 %
```



---

## drivers

Displays link modules and drivers installed on all active slots in the system. If the configuration displayed differs from that expected, your configuration file may be incorrect (wrong module type specified; for example) or there may be a problem loading the software.

### Sample Display - show system drivers

```
Link Module:  Slots:
-----
QENET:       ____2_
FDDI:        _____5_
QSYNC:       _____3_
DT:          _____4_
```

### Link Drivers - System Software Configuration

```
-----
Driver:      Slots:
-----
ILACC:       ____2_
FSI:         _____5_
TMS 380:     _____4_
MK5025:      _____3_
```

## information

Displays general system information.

### Sample Display - show system information

System Information:

```
-----  
  
System Name: Bay Networks Node 1  
Contact: John Doe  
Location: Corp. HQ  
Image: rel/7.70 Created on Tue Mar 29 15:10:50 EST 1994.  
MIB Version: x7.70  
Up Time: 0 hr, 14 min, 37 sec
```

## memory

Displays the global memory usage for all active slots in the system. Memory usage is not as volatile as buffer usage and a low free percent may indicate that you need more memory.

### Sample Display - show system memory

Memory Usage Statistics (Megabytes):

```
-----  
  
Slot      Total      Used      Free      %Free  
-----  
2         5.01 M    1.66 M    3.35 M    66 %  
3         5.01 M    1.00 M    4.00 M    79 %  
4         5.01 M    0.92 M    4.09 M    81 %
```

---

## protocols

Displays which protocols are installed on all active slots in the system. If the configuration displayed differs from that expected, your configuration file may be incorrect (wrong protocol specified, for example) or there may be a problem loading the software.

### Sample Display - show system protocols

Dynamically Loadable Protocols Configuration

```
-----  
Protocol:   Slots:  
-----  
IP:         _1_2_3_4_5_  
DECNET:     ____2_3_  
AT:         ____2_3_  
IPX:        ____2_3_  
VINES:      ____2_3_  
TELNET:     _1_2_3_4_5_  
TFTP:       _1_2_3_4_5_  
SNMP:       _1_2_3_4_5_  
TCP:        _1_2_3_4_5_
```

## tasks

Displays the number of tasks scheduled to run on all active slots. This number is highly volatile and a large %In Queue does not necessarily indicate a problem.

### Sample Display - show system tasks

```
Tasks stats:  
-----  
Slot  Total  In Queue  %In Queue  
-----  
2      175      2          1 %  
3      126      1          0 %
```

## **version**

Displays the current version and modification date for the *system.bat* script.

### **Sample Display - show system version**

```
SYSTEM.bat  Version: #.## Date: mm/dd/yy.
```

---

# show t1

The **show t1** *<option>* commands display configuration, status, and statistical information about T1 lines. For detailed information about configuring T1 lines, refer to *Configuring and Managing Routers with Site Manager*.

The **show t1** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">frame errors [circuit &lt;circuit name&gt;]</a>
<a href="#">base [circuit &lt;circuit name&gt;]</a>	<a href="#">line errors [circuit &lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">version</a>
<a href="#">enabled</a>	

## alerts

Displays all T1 modules that are enabled but not up. Use this display to identify the interfaces that are not working. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.

Frame Type	<p>Framing format. The following two framing formats differ in the number of frames per superframe and in the use of the F-bit position. A frame comprises 24 timeslots of 8-bit data preceded by a bit called the F-bit.</p> <ul style="list-style-type: none"><li>• <i>D4</i> - Twelve frames make up a superframe. The F-bit provides frame and multiframe alignment information.</li><li>• <i>ESF</i> - Twenty-four frames make up a superframe (extended superframe). The F-bit provides Facility Data Link (FDL) and CRC information as well as frame and multiframe alignment information.</li></ul>
Line Bldout	<p>T1 transmit power level measured in length of cable connecting the router and associated T1 equipment; ranges from 1 to 655 feet.</p>
B8ZS Support	<p>Status of Bipolar Eight Zero Substitution -- On or Off. B8ZS maintains sufficient “ones” density requirements within the T1 data stream without disturbing data integrity.</p>
Clock Mode	<p>Source of the T1 transmit clock, as follows:</p> <ul style="list-style-type: none"><li>• <i>Internal</i> - Clock is generated internally.</li><li>• <i>Slave</i> - Clock is derived from the incoming data stream.</li><li>• <i>Manual</i> - Jumpers on the T1 Link Module determine the clock source (Internal or Slave).</li></ul>
MiniDacs Configuration	<p>Function assigned to each of 24 DS0 channels (timeslots). The table shows these functions in a string of 24 characters, one character per channel. The characters and their meaning are as follows:</p> <ul style="list-style-type: none"><li>• <i>1</i> - Assigns the timeslot to the first HDLC controller (Circuit 1).</li><li>• <i>2</i> - Assigns the timeslot to the second HDLC controller (Circuit 2).</li><li>• <i>D</i> - Assigns the timeslot to data passthrough (HDLC controller to HDLC controller).</li><li>• <i>I</i> - Assigns the timeslot to idle.</li><li>• <i>V</i> - Assigns the timeslot to voice passthrough (HDLC controller to HDLC controller).</li></ul> <p>For example, the sample display shows the Mini Dacs Configuration on circuit 21 as:</p> <pre>1111111111111111IIIIII.</pre> <p>This string shows timeslots 1 - 16 assigned to the HDLC controller (1) and timeslots 17 - 24 idle (I).</p>









**Sample Display - show t1 frame errors**

T1 Module Frame Errors:

-----

Slot	Conn	Circuit	Frame Bit Errors	Out of Frame Errs	Super Frame Errs
2	1	T1-21	0	0	0
2	2	T1-22	0	0	0

2 entries in table.

**Sample Display - show t1 frame errors circuit t1-21**

T1 Module Frame Errors:

-----

Slot	Conn	Circuit	Frame Bit Errors	Out of Frame Errs	Super Frame Errs
2	1	T1-21	0	0	0

Found 1 match out of 2 entries in table.

**line errors [circuit <circuit name>]**

Displays several categories of line errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.

---

BiPolar Violtns	Number of bipolar violations on this line. On a T1 line, 1's are transmitted as alternating negative and positive pulses, and 0's are simply the absence of pulses. Thus a bipolar violation occurs if there are two or more consecutive pulses of the same polarity. This error count indicates the quality of the T1 line.
Yellow Alarms Rcvd	Number of times the router has received a yellow alarm on this line. A yellow alarm indicates that we have not lost sync, but the remote side of the connection has detected a problem with this line.
Carrier Loss	Number of instances of carrier loss detected on this line. This typically occurs during cable removal.
Red Alarms Rcvd	Number of instances of out-of-frame errors detected for periods exceeding 2.5 seconds; typically a mismatched framing format causes this condition.

### Sample Display - show t1 line

T1 Module Line Errors:

```
-----
```

Slot	Conn	Circuit	BiPolar Violtns	Yellow Alarms Rcvd	Carrier Loss	Red Alarms Rcvd
2	1	T1-21	396177689	0	1	3
2	2	T1-22	396063622	0	4	0

2 entries in table.

**Sample Display - show t1 line errors circuit t1-21**

T1 Module Line Errors:

-----

Slot	Conn	Circuit	BiPolar Violtns	Yellow Alarms Recvd	Carrier Loss	Red Alarms Recvd
2	1	T1-21	396183809	0	1	3

Found 1 match out of 2 entries in table.

**version**

Displays the current version number and modification date for the *t1.bat* script.

**Sample Display - show t1 version**

t1.bat Version: #.## Date: mm/dd/yy.

---

# show tcp

The **show tcp** <*option*> commands display information about the Transmission Control Protocol (TCP). For detailed information about the Bay Networks implementation of TCP, refer to *Configuring IP Utilities*.

The **show tcp** command supports the following subcommand options:

<a href="#">configurations</a>	<a href="#">connections</a>
--------------------------------	-----------------------------

Entering **show tcp** without any <*option*> invokes all TCP configuration and connection information.

## configurations

Displays the TCP configuration parameters. The table includes the following information:

Timeout Minimum	Minimum value in milliseconds permitted for the retransmission timeout. When one side of a TCP connection sends a frame and the other side of the connection does not acknowledge the transmission within the timeout period, the sending station retransmits the frame.
Timeout Maximum	Maximum value in milliseconds permitted for the retransmission timeout. When one side of a TCP connection sends a frame and the other side of the connection does not acknowledge the transmission within the timeout period, the sending station retransmits the frame.
Maximum Window Size	Maximum transmit and receive window size that TCP allows for each connection.
Timeout Algorithm	Algorithm for determining when to retransmit unacknowledged packets. Currently, Bay Networks implements the Van Jacobson algorithm only.

## Sample Display - show tcp configuration

```
Tcp protocol is enabled.  
The Time Out Minimum: 250 milliseconds  
The Time Out Maximum: 240000 milliseconds  
The Maximum Window Size: 4096 in octets  
The Time Out Algorithm: Van_Jacobson  
The Number of Segments Sent: 10015  
The Number of Segments Received: 13621  
The Number of Segments Retransmitted: 453  
The Number of Bad Segments Received: 4  
The Number of Segments Sent Containing the Reset Flag: 0  
The Number of Established Connections: 1
```

## connections

Displays information about each TCP connection. The table includes the IP address, port numbers, and state associated with each connection. The states are as follows:

Closed	No connection exists.
Listen	TCP is listening for a connection request.
SYN Sent	TCP has requested a connection (SYN segment) and is waiting for the remote TCP to acknowledge and match the request.
SYN Received	TCP has sent and received a connection request and is now waiting for the remote TCP to confirm.
Established	The connection is open. Data can be received and sent. This is the normal state for data transfer.
Fin Wait 1	TCP is waiting for the remote TCP's request to terminate the connection (FIN segment), or is waiting for the remote TCP to acknowledge a previous request to terminate.
Fin Wait 2	TCP is waiting for the remote TCP's request to terminate the connection.
Close Wait	TCP is waiting for the client to request to terminate the connection.
Last Ack	TCP is waiting for the remote TCP to acknowledge the connection termination request sent previously. This request also acknowledges the remote TCP's request to terminate the connection.
Closing	TCP is waiting for the remote TCP to acknowledge its request to terminate the connection.

---

Time Wait	TCP is waiting for enough time to pass to be sure the remote TCP received the acknowledgment of its request to terminate the connection.
Delete TCP	The TCP connection is terminating in response to a network management request.

Except for Establish, Closed and Listen, all states are associated with establishing and closing a connection and are thus transitory.

### Sample Display - show tcp connections

The current TCP connections :

Local IP	Local Port	Remote IP	Remote Port	State
0.0.0.0	21	0.0.0.0	0	Listen
0.0.0.0	23	0.0.0.0	0	Listen
192.168.125.34	23	192.32.241.49	1281	Established

## show telnet

The **show telnet** *<option>* commands display information about telnet services. The **show telnet** command supports the following subcommand options:

<a href="#">client</a>	<a href="#">server</a>
------------------------	------------------------

Entering **show telnet** without any *<option>* displays all information on the telnet client and server running on the router. For more information on telnet services, refer to *Configuring IP Utilities*.

### client

Displays information about the telnet client on the router, as follows:

#### Sample Display - show telnet client

```
Telnet Client enabled.  
Telnet Command Prompt: "AlphaNode"  
Remote Telnet/Tcp Port: 23
```



---

## server

Displays information about the telnet server on the router, as follows:

### Sample Display - show telnet server

```
Telnet Server enabled.  
  TI/Telnet Prompt: "AlphaNode>"  
  Screen Size: 24  
  Max. Login Retries: 3  
  Login Time Out: 1 minutes  
  Password Time Out: 1 minutes  
  Command Time Out: 15 minutes  
  TI/Telnet Prompt: "AlphaNode>"  
  Screen Size: 24  
  Max. Login Retries: 3  
  Login Time Out: 1 minutes  
  Password Time Out: 1 minutes  
  Command Time Out: 15 minutes  
Telnet In-bound sessions:  
  192.32.241.49, 1281 --> 192.168.125.34, 23
```

## show tftp

The **show tftp** command displays information about the Trivial File Transfer Protocol (TFTP) status. For information on TFTP, refer to *Configuring and Managing Routers with Site Manager*.

### Sample Display - show tftp

```
TFTP protocol is enabled.  
The Default Volume: 2  
Retransmit Timeout Value: 5 Seconds  
Max Number of Retransmits: 5  
Number of Writes Received: 0  
Number of Reads Received: 0  
Number of Retransmits: 0
```

---

# show token

The **show token** *<option>* commands display configuration, status, and statistical information about Token Ring lines. For detailed information about configuring Token Ring lines, refer to *Configuring and Managing Routers with Site Manager*.

The **show token** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">stats [circuit &lt;circuit name&gt;]</a>
<a href="#">base [circuit &lt;circuit name&gt;]</a>	<a href="#">stats line [circuit &lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">stats ring [circuit &lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">system errors [circuit &lt;circuit name&gt;]</a>
<a href="#">receive errors [circuit &lt;circuit name&gt;]</a>	<a href="#">transmit errors [circuit &lt;circuit name&gt;]</a>
<a href="#">sample [&lt;period in seconds&gt;] [circuit &lt;circuit name&gt;]</a>	<a href="#">version</a>

## alerts

Displays all Token Ring modules that are enabled but not up. Use this display to identify the interfaces that are not working. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.

State	<p>State of the line; in this case: Beaconsing, Disabled, Down, Init (initializing), or Not Pres (enabled but not yet started).</p> <p>Beaconsing indicates that the interface doesn't see the token and should be a transient condition.</p> <p>The Not Pres state occurs for several reasons. For example, the Link Module may not be physically present in the chassis. The software may be booting and has not yet initialized the driver software. The slot may be running diagnostics. Or there may be a problem with the configuration.</p>
MAC Address	<p>Physical address of the line. This is a 48-bit address in canonical format.</p>
MTU	<p>Maximum transfer unit size for this interface; the largest frame that can be transmitted or received across the Token Ring module. The MTU is 4568 bytes.</p>
Ring Speed	<p>Speed of the Token Ring media -- 4 Mb/s or 16 Mb/s.</p>
Early Token Release	<p>Status of Early Token Release -- Enabled or Disabled. When enabled, the token can be released back onto the ring before the recipient copies all the data. This parameter is enabled only when Ring Speed is 16 Mb/s.</p>

### Sample Display - show token alerts

TOKEN RING Modules on Alert:

-----

Slot	Conn	Circuit	State	MAC Address	MTU	Ring Speed	Early Token Release
-----	-----	-----	-----	-----	-----	-----	-----

Found 0 matches out of 2 entries in table.

---

**base [circuit <circuit name>]**

Displays the base information for all Token Ring circuits or a specific Token Ring circuit. For definitions of the columns in the table, see the **alerts** command. In addition to the states listed under the **alerts** command, State can also be Up.

**Sample Display - show token base**

TOKEN RING Modules:  
-----

Slot	Conn	Circuit	State	MAC Address	MTU	Ring Speed	Early Token Release
3	1	O31	Up	00-00-A2-00-5B-46	4568	16 Mbps	Enabled
4	2	O42	Up	00-00-A2-00-C8-C1	4568	16 Mbps	Enabled

2 entries in table.

**Sample Display - show token base circuit o31**

TOKEN RING Modules:  
-----

Slot	Conn	Circuit	State	MAC Address	MTU	Ring Speed	Early Token Release
3	1	O31	Up	00-00-A2-00-5B-46	4568	16 Mbps	Enabled

Found 1 match out of 2 entries in table.

## disabled

Displays Token Ring circuits that a user has manually disabled. For definitions of the columns in the table, see the **alerts** command. In this case, State is Disabled.

### Sample Display - show token disabled

```
TOKEN RING Modules Disabled:
```

```
-----
```

Slot	Conn	Circuit	State	MAC Address	MTU	Ring Speed	Early Token Release
------	------	---------	-------	-------------	-----	------------	---------------------

```
-----
```

```
Found      0 matches out of      2 entries in table.
```

## enabled

Displays Token Ring circuits that a user has manually enabled. For definitions of the columns in the table, see the **alerts** command. State can also be Up.

### Sample Display - show token enabled

```
TOKEN RING Modules Enabled:
```

```
-----
```

Slot	Conn	Circuit	State	MAC Address	MTU	Ring Speed	Early Token Release
------	------	---------	-------	-------------	-----	------------	---------------------

```
-----
```

```
Found      0 matches out of      2 entries in table.
```

---

## receive errors [circuit <ircuit name>]

Displays receive errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.
Line Errors	Number of frames that this station copied with bad format or Frame Check Sequence (FCS) errors.
Burst Errors	Number of frames with no bit transition for 5-1/2-bit times.

### Sample Display - show token receive errors

TOKEN RING Receive Errors:

```
-----
```

Slot	Conn	Circuit	Line Errors	Burst Errors
3	1	O31	1	5
4	2	O42	0	0

```
-----
```

2 entries in table.

### Sample Display - show token receive errors circuit o31

TOKEN RING Receive Errors:

```
-----
```

Slot	Conn	Circuit	Line Errors	Burst Errors
3	1	O31	1	5

```
-----
```

Found 1 match out of 2 entries in table.

**sample** [*<period in seconds>*] [**circuit** *<circuit name>*]

Displays data sampled from Token Ring over a period of 10 seconds. You can change the number of seconds over which you want to sample the data, and you can display sampled data for a specific circuit only. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector's instance identifier; ranges from 1 to 4.
Circuit	Name of the circuit associated with this line.
Rx Frames	Number of frames received.
Tx Frames	Number of frames transmitted.
Rx Lack of Resources	Number of packets received and discarded because of lack of resources; for example, buffers.
Tx Lack of Resources	Number of transmit packets discarded because of lack of resources; for example, buffers.

**Sample Display - show token sample 5**

TOKEN RING Sampled Data over 5 seconds

```
-----
```

Slot	Conn	Circuit	Rx Frames	Tx Frames	Rx Lack of Resources	Tx Lack of Resources
-----						
4	1	O41	0	0	0	0
4	2	O42	0	0	0	0

2 entries in table.



---

**stats [circuit <circuit name>]**

Displays Token Ring input/output statistical information for all Token Ring circuits or for a specific circuit. The table contains the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.
Receive Bytes	Number of octets received without error.
Receive Frames	Number of frames received without error.
Transmit Bytes	Number of octets transmitted without error.
Transmit Frames	Number of frames transmitted without error.
MAC Rx Frames	Number of MAC frames received without error.
Total Errors	Total number of errors of all types.

**Sample Display - show token stats**

TOKEN RING I/O Statistics:

-----

Slot	Conn	Circuit	Receive Bytes	Receive Frames	Transmit Bytes	Transmit Frames	MAC Rx Frames	Total Errors
4	1	O41	418532016	5550944	632650147	8414845	2327	0
4	2	O42	597724135	7941684	453448487	6024141	2347	4

2 entries in table.

**stats line [circuit <circuit name>]**

Displays Token Ring line statistical information for all Token Ring circuits or for a specific circuit. The table contains the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.
ARI/FCI Errors	Number of times this station has received both an AMP MAC frame and an SMP MAC frame with the a & c bits clear or more than one SMP MAC frame with the a & c bits clear without an intervening AMP MAC frame. This condition indicates that the upstream neighbor is unable to set the a & c bits in a frame that it has copied.
Frame Copied Err	Number of frames addressed to this station that had their a & c bits previously set.
Token Errors	Number of token protocol errors; relevant only when this station is the active monitor.
Soft Errors	Number of soft errors; corresponds to the number of Report Error MAC frames that this station has transmitted.

**Sample Display - show token stats line**

TOKEN RING Line Statistics:

```
-----
```

Slot	Conn	Circuit	ARI/FCI Errors	Frame Copied Err	Token Errors	Soft Errors
-----						
4	1	O41	0	0	0	393
4	2	O42	3	0	0	373

2 entries in table.

---

## Sample Display - show token stats line circuit o41

TOKEN RING Line Statistics:

```
-----
```

Slot	Conn	Circuit	ARI/FCI Errors	Frame Copied Err	Token Errors	Soft Errors
4	1	O41	0	0	3	393

```
-----
```

Found 1 match out of 2 entries in table.

### stats ring [circuit <circuit name>]

Displays Token Ring ring statistical information for all Token Ring circuits or for a specific circuit. The table contains the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector's instance identifier -- 1 or 2.
Circuit	Name of the circuit associated with this line.
Beacon Events	Number of events causing the adapter to transmit Beacon Frames. Beacon frames indicate that the interface doesn't see the token. If this count goes up, contact your Bay Networks Technical Response Center.
Signal Losses	Number of ring signal losses detected.
Auto Removes	Number of times lobe wrap tests failed during beacon autoremoval.
Removes Recvd	Number of Remove Ring Station MAC frames received. Each frame causes this station to leave the ring.
Single Statns	Number of interrupts caused by a change to ring status while the adapter is the only station on the ring.
Cable Faults	Number of interrupts caused by opens or shorts (cable faults) between the adapter and the MAU.
Ring Recrvys	Number of Claim Token MAC frames (ring recoveries) observed on the ring.

**Sample Display - show token stats ring**

TOKEN RING Ring Statistics:

-----

Slot	Conn	Circuit	Beacon Events	Signal Losses	Auto Removes	Removes Recvd	Single Statns	Cable Faults	Ring Recvrys
4	1	O41	0	0	0	0	3	0	1
4	2	O42	0	0	0	0	0	0	2

2 entries in table.

**Sample Display - show token stats ring circuit o41**

TOKEN RING Ring Statistics:

-----

Slot	Conn	Circuit	Beacon Events	Signal Losses	Auto Removes	Removes Recvd	Single Statns	Cable Faults	Ring Recvrys
4	1	O41	0	0	0	0	3	0	1

Found 1 match out of 2 entries in table.

**system errors [circuit <circuit name>]**

Displays statistical information about general interface errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier: 1 or 2.
Circuit	Name of the circuit associated with this line.
Adapter Checks	Number of internal adapter errors that have caused adapter failures.
DMA Bus Errors	Number of bus errors during DMA that do not exceed threshold.
DMA Parity Errors	Number of parity errors during DMA that do not exceed threshold.
Command Timeouts	Number of times a command timeout has caused the interface to reinitialize.
Host Iface Errors	Number of times a receive-host interface error has caused the interface to reinitialize.

---

## Sample Display - show token system errors

TOKEN RING System Errors:

-----

Slot	Conn	Circuit	Adapter Checks	DMA Bus Errors	DMA Parity Errors	Command Timeouts	Host Iface Errors
4	1	O41	0	0	0	0	0
4	2	O42	0	0	0	0	0

2 entries in table.

## Sample Display - show token system errors circuit o41

TOKEN RING System Errors:

-----

Slot	Conn	Circuit	Adapter Checks	DMA Bus Errors	DMA Parity Errors	Command Timeouts	Host Iface Errors
4	1	O41	0	0	0	0	0

Found 1 match out of 2 entries in table.

## transmit errors [circuit <ircuit name>]

Displays statistical information about transmission errors for all circuits or for a specific circuit. The table includes the following information:

Slot	Slot identifier; ranges from 1 to 14.
Conn	Connector identifier -- 1 or 2.

Circuit	Name of the circuit associated with this line.
Lost Frame Errors	Number of outbound frames whose transmission failed because they were corrupted on their trip around the Token Ring. The interface detects this while stripping a frame off of the ring. In small quantities, this error indicates small disturbances on the Token Ring.

### Sample Display - show token transmit

```
TOKEN RING Transmit Errors:
-----
                Lost
Slot Conn Circuit Frame Errs
-----
   4   1 041             0
   4   2 042             0
2 entries in table.
```

### Sample Display - show token transmit errors circuit o41

```
TOKEN RING Transmit Errors:
-----
                Lost
Slot Conn Circuit Frame Errs
-----
   4   1 041             0

Found      1 match out of      2 entries in table.
```

## version

Displays the version number and modification date of the *token.bat* script.

### Sample Display - show token version

```
token.bat Version: #.## Date: mm/dd/yy.
```

---

# show vines

The **show vines** <option> commands display information about Virtual Networking System (VINES) services on a Bay Networks router. For detailed information, refer to *Configuring VINES Services*.

The **show vines** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">stats datagrams</a>
<a href="#">base</a>	<a href="#">stats echo [&lt;circuit name&gt;]</a>
<a href="#">circuit [&lt;circuit name&gt;]</a>	<a href="#">stats fragments</a>
<a href="#">configuration [circuit [&lt;circuit name&gt;] ]</a>	<a href="#">stats icp [&lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">stats rtp [&lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">total neighbors</a>
<a href="#">neighbors [&lt;VINES network address&gt;   &lt;VINES network address&gt; &lt;VINES server ID&gt;   find &lt;VINES network address pattern&gt;   &lt;VINES ID address pattern&gt;]</a>	<a href="#">total routes</a>
<a href="#">routes [&lt;VINES network address&gt;   find &lt;VINES network address pattern&gt;]</a>	<a href="#">traffic filters</a>

<a href="#">stats [circuit [&lt;circuit name&gt;]]</a>	<a href="#">version</a>
<a href="#">stats arp [&lt;circuit name&gt;]</a>	

## alerts

Displays the VINES interfaces that are enabled but not currently up. Use this command to identify interfaces that are not forwarding traffic. The table includes the following information:

Circuit	Name of the circuit the interface runs on.
State	State of the interface: Down, Init (initializing), Not Pres (not yet started), or Up.
Arp	Status of VINES ARP support on this interface: Enabled or Disabled. Enabled means the router can provide address resolution services to client nodes on this interface.
End Station	Status of source routing end station support on this interface: Enabled or Disabled.
Remote Clt Priv	Status of remote client privileges on this network segment: Enabled or Disabled. Enabled means that a client is more than one hop from a VINES server.
Split Horizon	Status of the split horizon parameter: Enabled or Disabled. Enabled means that routes received through an interface will not be included in the routing update packets sent out on that interface.
MAC Address	Media Access Control address of this interface. The router uses this address and its VINES address when transmitting and receiving packets on this interface.



---

## Sample Display - show vines alerts

VINES Circuit Table

```
-----  
Circuit      State      Arp      End      Remote   Split  
Station      Clt Priv  Horizon  MAC Address  
-----  
E32          Not Pres  Disabled Disabled Disabled Disabled (nil)
```

## base

Displays the information that the VINES base record contains. The base record controls VINES for the entire system. The table includes the following information:

State	State of the interface: Down, Init (initializing), Not Pres (not yet started), or Up.
Bcast Class	Class of broadcast packets that this node originates. The values are: All, No Charge, Low Cost, LANS, Server All, Server No Charge, Server Low Cost, Server LANS. For definitions, see <i>Configuring VINES Services</i> .
Config Netid	Network identifier that the user defines. A null value indicates that the router should assign the network ID rather than the user.
Router Netid	Network identifier that the router defines. If the user configures a network ID, the router adds the Bay Networks code for VINES to the user-configured ID.
RTP Mode	Indicates whether sequenced RTP (Routing Update Protocol) mode or nonsequenced RTP mode will be supported, or both modes will be supported: Sequenced, Non-Sequenced, or Automode (both).
Seq Num	Specifies the current router sequence number.

### Sample Display - show vines base

VINES Base Record Information

-----

Protocol	State	Bcast Class	Config Netid	Router Netid	RTP Mode	Seq Num
VINES	Up	BCAST	0	810025115	AUTO	2997171688

### circuit [*<circuit name>*]

Displays information about all VINES circuits or a specific circuit. For column definitions in the display, see the **alerts** command.

### Sample Display - show vines circuit

VINES Circuit Table

-----

Circuit	State	Arp	End Station	Remote Clt Priv	Split Horizon	MAC Address
E31	Up	Disabled	Disabled	Disabled	Disabled	00-00-A2-03-00-6E
S21	Up	Disabled	Disabled	Disabled	Disabled	00-00-A2-01-4B-4F
E32	Not Pres	Disabled	Disabled	Disabled	Disabled	(nil)

---

## configuration [circuit [<ircuit name>] ]

Displays configurable parameters from the VINES protocol base record. For column definitions in the display, see the **show vines base** command.

### Sample Display - show vines configuration

VINES Base Record Information

-----

Protocol	Bcast Class	Config Netid	Router Netid	RTP Mode	Seq Num
-----	-----	-----	-----	-----	-----
VINES	BCAST	0	810025115	AUTO	2997171688

## disabled

Displays VINES interfaces that have been configured as disabled and whose state is not active. For column definitions in the display, see the **alerts** command.

### Sample Display - show vines disabled

VINES Circuit Table

-----

Circuit	State	Arp	End Station	Remote Clt Priv	Split Horizon	MAC Address
-----	-----	-----	-----	-----	-----	-----
E21	Disabled	Disabled	Disabled	Disabled	Disabled	00-00-A2-00-8F-71
S31	Disabled	Disabled	Disabled	Disabled	Disabled	00-00-A2-02-BA-22

**enabled**

Displays VINES interfaces that have been configured as enabled and whose state is active. For column definitions in the display, see the **alerts** command.

**Sample Display - show vines enabled**

VINES Circuit Table

```

-----
Circuit      State      Arp      End      Remote   Split
            State      State   Station Clt Priv  Horizon  MAC Address
-----
E31          Up         Disabled Disabled Disabled Disabled 00-00-A2-03-00-6E
S21          Up         Disabled Disabled Disabled Disabled 00-00-A2-01-4B-4F
E32          Not Pres  Disabled Disabled Disabled Disabled (nil)

```

**neighbors** [*<VINES network address>* | *<VINES network address>* *<VINES server ID>* | **find** *<VINES network address pattern >* [*<VINES ID address pattern>*]

Displays VINES neighbor table information. Neighbor entries result from RTP packets received from clients and servers directly adjacent to the router. You can use the following options with the **neighbors** command:

- <VINES\_network\_address>* Limits the display to neighbors of a specific network.
- <VINES\_network\_address>* Limits the display to a specific neighbor.
- <VINES\_server\_ID>*
- find** *<vines\_network\_address\_pattern>* Limits the display to neighbors whose network address matches the given network pattern.
- find** *<network\_ID\_address\_pattern>* Limits the display to neighbors whose network ID matches the given ID pattern.

---

The table includes the following fields:

Network ID	Network identifier of this neighbor.
Subnet ID	Subnetwork identifier of this neighbor.
Type	Type of node, server or client (WorkStat).
Circuit	Name of the circuit connected to this neighbor.
Cost	Cost for reaching this neighbor.
Remote Hw Address	Media Access Control address of the remote system (neighbor).
Nbr State	Current state of NBR: Init (initializing), Full Request, Change Request, or Up.
Nbr Sequence Num	NBR's sequence number.

### Sample Display - show vines neighbors

VINES Neighbors

-----

Network ID	Subnet ID	Type	Circuit	Cost	Remote Hw Address	Nbr State	Nbr Sequence Num
------------	-----------	------	---------	------	-------------------	-----------	------------------

-----

**routes** [*<VINES network address>* | **find** *<VINES network address pattern>*]

Displays route information from the VINES routing table. The routing table receives routing information through RTP packets sent from servers and other routers. This information includes the known networks, their metrics, and the next-hop gateway for each. You can use the following options with the **routes** command:

- <VINES\_network\_address>* limits the display to a specific network.
- find** *<VINES\_network\_address\_pattern>* limits the display to networks that match the given network address pattern.

The table includes the following fields:

Network ID	Network identifier of the network.
Metric	Routing metric to get to this network.
Gateway Netid	Network ID of the gateway to this network.
Slot #	Number of the slot connected to this network.
Circuit	Name of the circuit connected to this network.
Gateway Hw Addr	Remote Media Access Control address of the gateway to this network.

### Sample Display - show vines routes

VINES Routes

-----

Network Id	Metric	Gateway Netid	Slot #	Circuit	Gateway Hw Addr
-----	-----	-----	-----	-----	-----
17	4	17	2	E21	00-00-A2-00-00-11
624	6	17	2	E21	00-00-A2-00-00-11
625	6	17	2	E21	00-00-A2-00-00-11
1136	8	17	2	E21	00-00-A2-00-00-11
1137	8	17	2	E21	00-00-A2-00-00-11

### stats [circuit [<ircuit name>] ]

Displays basic statistical information, or you can use the **circuit** option to display basic circuit statistics for VINES IP packets within the router.

The table varies according to the options entered. The table from the **stats** command entered without options includes the following information:

Circuit	Name of the circuit this interface runs on.
In Packets	Number of packets received on this interface.
In Errors	Number of packets received in error.
Out Packets	Number of packets transmitted on this interface.

---

Out Errors	Number of errors on packets transmitted.
Forward Drops	Number of packets dropped because of no forwarding information for the destination.
Zero-Hop Drops	Number of packets dropped because of a zero hop count.

### Sample Display - show vines stats

VINES Circuit Statistics

-----

Circuit	In Packets	In Errors	Out Packets	Out Errors	Forward Drops	Zero-Hop Drops
E21	294165	0	268486	0	0	0
S31	259688	0	274792	3	0	0
S33	6915	0	14912	1	0	0

### stats arp [*<circuit name>*]

Displays VINES Address Resolution Protocol (ARP) statistics for the whole router or for a specific circuit.

### stats datagrams

Displays basic Receive/Transmit statistics for VINES IP packets within the router.

### stats echo [*<circuit name>*]

Displays VINES ECHO Protocol statistics for the whole router or for a specific circuit.

### stats fragments

Displays the total number of packets fragmented for transmission (Sync media) and the total number of packets that the router has reassembled.

**stats icp** [*<circuit name>*]

Displays VINES Internet Control Protocol (ICP) statistics for the whole router.

**stats rtp** [*<circuit name>*]

Displays VINES Routing Update Protocol (RTP) statistics for the whole router or for a specific circuit.

**total neighbors**

Displays the total number of entries in the VINES neighbor table.

**Sample Display - show vines total neighbors**

```
Number of VINES Neighbors: 2
```

**total routes**

Displays the total number of entries in the VINES route table.



---

## traffic filters

Displays all configured VINES traffic filters for all circuits. The table includes the following information:

Circuit	Identifier of the circuit the filter applies to.
Mode	Status of filter use, which is Enabled (activated) or Disabled (not activated).
Status	Current status of the traffic filter, which is one of the following: <ul style="list-style-type: none"><li>• <i>Active</i> - Rule is being used.</li><li>• <i>Inactive</i> - Rule is not in use.</li><li>• <i>Error</i> - Application detected an error in the rule.</li></ul>
Rx Matches	Number of packets received that match the rule.
Rule Number	Identifier for the rule.
Fragment Number	Number of a rule fragment -- for large rules.

### Sample Display - show vines traffic filters

VINES Traffic Filters Table

```
-----  
Circuit      Mode      Status      Rx          Rule         Fragment  
              Matches   Number      Number      Number  
-----  
No entries
```

## **version**

Displays the current version and modification date of the *vines.bat* script.

### **Sample Display - show vines version**

```
VINES.bat Version: #.## Date: mm/dd/yy.
```

---

## show wcp

The **show wcp** *<option>* commands display information about Bay Networks data compression (WCP) service, which provides a near-reliable transfer mechanism for transporting compressed packets. For more information about WCP, refer to *Configuring Data Compression Services*.

The **show wcp** command supports the following subcommand options:

<a href="#">circuits [<i>&lt;circuit name&gt;</i>]</a>	<a href="#">stats [ errors ] [ <i>&lt;line number.llindex.circuit number.VC ID&gt;</i> ]</a>
<a href="#">hwcomp [stats   error]</a>	<a href="#">vcs [ <i>&lt;line number.llindex.circuit number.VC ID&gt;</i> ]</a>
<a href="#">lines [<i>&lt;line&gt;</i>]</a>	<a href="#">version</a>

### **circuits** [ *<circuit name>* ]

Displays information about all WCP circuits or a specific WCP circuit.

Circuit Name	Circuit name of this interface.
Circuit Number	Circuit number associated with the circuit name.
Enable	Indicates whether compression is enabled on this circuit.
Compression Mode	Compression mode for this circuit: CPC (Continuous Packet Compression), PPC (Packet by Packet Compression), or Inherit. Circuit entries have an additional value of Inherit, which means that the circuit takes on whatever value the corresponding line entry has in the Compression Mode or History Size according to case.
History Size	History size for the compression facility: 32 KB, 8 KB, or Inherit.

**Sample Display - show wcp circuits**

WCP Circuit Entries

-----

Circuit Name	Circuit Number	Enable	Compression Mode	History Size
S31	2	Enabled	Inherit	Inherit
S41	3	Enabled	Inherit	Inherit

2 WCP circuit(s) configured.

**hwcomp**

The **show wcp hwcomp** command displays information that identifies the location of the device running WCP compression, whether it is currently active, the module type, the number of active CPC contexts, and the number of unused CPC contexts.

The display includes the following information:

Slot	Slot number location of the module.
Module	Modules per slot (always 1).
State	Whether WCP compression is active or inactive.
Hardware Compression Module Type	The type of hardware compression module.
Active 2K CPC Contexts	Number of active 2 KB CPC contexts.
Unused 2K CPC Contexts	Number of unused 2 KB CPC contexts.

---

## hwcomp stats

The **show wcp hwcomp stats** command displays information that identifies the location of the device running WCP compression and statistics for compressed, decompressed, expanded, and uncompressed packets.

The display includes the following information:

Slot	Slot number location of the module.
Module	Modules per slot (always 1).
Total Compressed Packets	Total number of compressed packets.
Total Decompressed Packets	Total number of decompressed packets.
Total Tx Expanded Packets	Total number of expanded packets transmitted.
Total Rx NonCompressed Packets	Total number of uncompressed packets received.

## hwcomp error

The **show wcp hwcomp error** command displays information that identifies the location of the device running WCP compression, statistics about compression and decompression errors, uncompressed packets, and dropped packets.

The display includes the following information:

Slot	Slot number location of the module.
Module	Modules per slot (always 1).
Total Mod Compress Errors	Total number of compression errors that occurred.
Total Mod Decompress Errors	Total number of decompression errors that occurred.
Total Tx NonCompress Packets	Total number of uncompressed packets transmitted.
Total Rx Dropped Packets	Total number of received packets that were dropped.

**lines** [*<line>*]

Displays information about WCP lines for all configured lines or for a specified line.

<i>&lt;line&gt;</i>	Limits the display to the specified line.
---------------------	---

In addition to the information described under the **circuits** command, this command displays the following information:

Line Number	Line number for the physical WCP port.
LLIndex	Logical line index. Most lines have an LLIndex of 0.
Slot	Slot number.
Module	Module number.
Conn	Connector number.
Enable	Indicates whether the compression facility is enabled or disabled for this line.
Compression Mode	Compression mode for this circuit: CPC (Continuous Packet Compression) or PPC (Packet by Packet Compression).
History Size	History size for the compression facility: 32 KB or 8 KB.
Buffer Size	Buffer size allocated for the lines displayed: Very Large, Large, Normal, or None.

**Sample Display - show wcp lines**

WCP Line Entries

```
-----
```

Line Number	LLIndex	Slot	Module	Conn	Enable	Compression Mode	History Size	Buffer Size
203101	0	3	1	COM1	Disabled	CPC	32K	Normal
204101	0	4	1	COM1	Enabled	CPC	32K	Normal

2 WCP line(s) configured.

---

**vcs** [ <line number.llindex.circuit number.VC ID> ]

Displays configuration information for all existing WCP virtual circuits. This command displays the following information:

Line Number	Line number for the physical WCP port.
LLIndex	Logical line index. Most lines have an LLIndex of 0.
Cct Name	Circuit name.
Vc Id	Virtual circuit ID.
Compression State	Virtual circuit compression state: Data (operational state), Disabled, Disconnected, Init (initializing), or Rexmit_Nak (retransmit ting).
Decompression State	Virtual circuit decompression state: Data, Disabled, Disconnected, Init (initializing), Rexmit, Reset, Connecting, Disconnecting.
Compression Mode	Compression mode for this virtual circuit: CPC (Continuous Packet Compression) or PPC (Packet by Packet Compression).
History Size	History size for this virtual circuit: 32 KB or 8 KB.

**Sample Display - show wcp vcs**

WCP Virtual Circuit Entries

-----

Line Number	LLIndex	Cct Name	Vc Id	Compression State	Decompression State	Compression Mode	History Size
201301	0	Demand 2	0	Data	Data	CPC	32K

1 WCP virtual circuit(s) configured

**stats [ errors ] [ <line number.llindex.circuit number.VC ID> ]**

Compression Ratio	Compressor In divided by Compressor Out.
Decompression Ratio	Compressor Out divided by Compressor In.
Compressor In	Number of bytes inputed into the compression facility.
Compressor Out	Number of bytes outputed from the compression facility.
Decompressor In	Number of bytes inputed into the decompression facility.
Decompressor Out	Number of bytes outputed from the decompression facility.
CPC Packets Transmitted	Number of CPC packets sent to the destination.
CPC Packets Received	Number of CPC packets received from the source.
PPC Packets Transmitted	Number of PPC packets sent to the destination.
PPC Packets Received	Number of PPC packets received from the source.

### Sample Display - show wcp stats

WCP Performance And Data Statistics

```

-----

```

Line Number	LLIndex	Circuit	Vc Id	Compression Ratio	Decompression Ratio
201301	0	Demand 2	0	6.3:1	6.5:1

Compressor In	Compressor Out	Decompressor In	Decompressor Out
8732	1372	1334	8732

CPC Packets Transmitted	CPC Packets Received	PPC Packets Transmitted	PPC Packets Received
18	18	0	0

1 Entry.



---

## Sample Display - show wcp stats 201301.0.2.0

WCP Performance And Data Statistics

```
-----
```

Line Number	LLIndex	Circuit	Vc Id	Compression Ratio	Decompression Ratio
201301	0	Demand 2	0	8.3:1	8.3:1
Compressor In		Compressor Out	Decompressor In	Decompressor Out	
13098		1560	1566	13098	
CPC Packets Transmitted		CPC Packets Received	PPC Packets Transmitted	PPC Packets Received	
27		27	0	0	

1 Entry.

## Sample Display - show wcp stats errors

WCP Error Statistics

```
-----
```

Line Number	LLIndex	Circuit	Vc Id	Compression Ratio	Decompression Ratio
201301	0	Demand 2	0	6.3:1	6.5:1
AntiExp Packets Transmitted		AntiExp Packets Received	Reset Packets Transmitted	Reset Packets Received	
0		0	0	0	0
Rexmit Reqs Transmitted		RexmitReqs Received	RexmitNaks Transmitted	RexmitNaks Received	
0		0	0	0	0
DataOutOfSeq		RexmitOutOfSeq	RexmitTimeouts	ExceededKs	
0		0	0	0	0

1 Entry.

**Sample Display - show wcp stats errors 201301.0.2.0**

WCP Error Statistics

```

-----
      Line
      Number   LLIndex Circuit      Vc  Compression Decompression
              LLIndex Circuit      Id   Ratio         Ratio
-----
      201301         0 Demand 2      0    10.0:1       9.7:1

AntiExp Packets AntiExp Packets  Reset Packets  Reset Packets
Transmitted      Received      Transmitted      Received
-----
              0              0              0              0

Rexmit Reqs      RexmitReqs      RexmitNaks      RexmitNaks
Transmitted      Received      Transmitted      Received
-----
              0              0              0              0

DataOutOfSeq      RexmitOutOfSeq  RexmitTimeouts  ExceededKs
-----
              0              0              0              0
    
```

1 Entry.

**version**

Displays the current version number and date of the *wcp.bat* script.

**Sample Display - show wcp version**

WCP.bat Version: #.## Date: mm/dd/yy.

---

## show wep

The **show wep** *<option>* commands display information about the WAN Encryption Protocol and services. For detailed information about the Bay Networks implementation of encryption services, refer to *Configuring Data Encryption Services*.

The **show wep** command supports the following subcommand options:

<a href="#">circuits [<i>&lt;circuit_name&gt;</i>]</a>	<a href="#">stats [ <i>errors</i> ] [ <i>&lt;line_number.llindex.circuit_number.VC ID&gt;</i> ]</a>
<a href="#">lines [<i>&lt;line_number.llindex&gt;</i>]</a>	<a href="#">version</a>
<a href="#">vcs [<i>&lt;line_number.llindex.circuit_number.vc_id&gt;</i>]</a>	

**circuits** [*<circuit\_name>*]

Displays the state of the circuits.

*<circuit\_name>* Limits the display to the specified circuit.

The table includes the following information:

Circuit Name	Name of the circuit
Circuit Number	Number of the circuit
Enable	Encryption set to Enable or Disable
Cipher Mode	Encryption strength set to 40-bit   56-bit   Inherit from Line   Both
TEK Update Rate (bytes)	Number of data bytes between changes in the value of the Traffic Encryption Key (TEK)
TEK Update Rate (seconds)	Number of seconds between changes in the value of the TEK

**Sample Display - show wep circuits**

WEP Circuit Entries

-----

Circuit Name	Circuit Number	Enable	Cipher Mode	TEK Update Rate (bytes)	TEK Update Rate (seconds)
S21	2	Enabled	Inherit	65535	10
S22	3	Enabled	Inherit	65535	10

2 WEP circuit(s) configured.

---

**lines** [*<line\_number.llindex>*]

Displays the state of the lines.

*<line\_number.llindex>* Limits the display to the specified line.

The table includes the following information:

Line Number	Line number
LL Index	Instance identifier
Slot	Slot identifier
Module	Module identifier
Conn	Connector identifier
Cipher Mode	Encryption strength set to 40-bit   56-bit   Both
TEK Update Rate (bytes)	Number of data bytes between changes in the value of the Traffic Encryption Key (TEK)
TEK Update Rate (seconds)	Number of seconds between changes in the value of the TEK

**Sample Display - show wep lines**

WEP Line Entries

-----

Line Number	LL Index	Slot	Module	Conn	Enable	Cipher Mode	TEK Upd Rate (bytes)	TEK Upd Rate (seconds)
202101	0	2	1	COM1	Enabled	40bitDES	65535	10
202102	0	2	1	COM2	Enabled	40bitDES	65535	10

2 WEP line(s) configured.

**VCS** [*<line\_number.llindex.circuit\_number.vc\_id>*]

Displays the state of the virtual circuits configured for encryption.

*<line\_number.llindex.circuit\_number.vc\_id>* Limits the display to the specified line and circuit.

The table includes the following information:

Line Number	Line number
LL Index	Instance identifier
Circuit Name	Name of the circuit
VC ID	VC identifier
Connection State	State of the connection: Up   Down   Initializing
Actual Cipher Mode	Encryption strength the VC is using: 40-bit   56-bit
TEK Update Rate (bytes)	Number of data bytes between changes in the value of the Traffic Encryption Key (TEK)
TEK Update Rate (seconds)	Number of seconds between changes in the value of the TEK

**Sample Display - show wep vcs**

WEP Virtual Circuit Entries

-----

Line Number	LL Index	Cct	Name	Vc Id	Connection State	Actual Cipher Mode
202101	0	S21		0	Init	None
202102	0	S22		123	Up	40-bit DES

2 WEP virtual circuit(s) configured.

---

**stats [ errors ] [ <line number.llindex.circuit number.VC ID> ]**

Displays statistical information about encryption services.

**errors**

Displays error statistics.

<line\_number.llindex.circuit\_number.vc\_id>

Limits the display to a specified line and circuit.

The table includes the following information:

Line Number	Line number
LL Index	Instance identifier
Circuit	Name of the circuit
VC ID	VC identifier
Connection State	State of the connection: Up   Down   Initializing
Bytes Encrypted	Number of data bytes that have been encrypted on this circuit
Bytes Decrypted	Number of data bytes that have been decrypted on this circuit

**Sample Display - show wep stats**

WEP Performance And Data Statistics

```
-----
```

Line Number	LL Index	Circuit	Vc Id	# Bytes Encrypted	# Bytes Decrypted
202101	0	S21	0	0	0

Line Number	LL Index	Circuit	Vc Id	# Bytes Encrypted	# Bytes Decrypted
202102	0	S22	123	7339	12539

2 entries.

## **version**

Displays the current version number and modification date of the *WEP.bat* script.

### **Sample Display - show wep version**

```
WEP.bat Version: 1.1 Date: 6/6/96.
```



---

## show x25

The **show x25** <option> commands display information about X.25 services. For complete information about the Bay Networks implementation of X.25 services, refer to *Configuring X.25 Services*.

The **show x25** command supports the following subcommand options:

<a href="#">alerts</a>	qllc maps
<a href="#">base</a>	<a href="#">lines [&lt;slot.connector&gt;]</a>
<a href="#">configuration [&lt;slot.connector&gt;]</a>	<a href="#">services [&lt;slot.connector.circuit name&gt;]</a>
<a href="#">connections [&lt;slot.connector&gt;]</a>	<a href="#">stats [&lt;slot.connector&gt;]</a>
<a href="#">ipex maps</a>	<a href="#">version</a>
<a href="#">ipex sessions</a>	<a href="#">virtual circuit   vc [&lt;slot.connector.circuit name&gt;]</a>

## alerts

Displays the abnormal conditions in the packet level. Use the display to determine why the packet level is not in data transfer state or why virtual circuits (VCs) have not been established. The table contains the following information:

Line	Line number of the driver X.25 runs on.
Restarts RX/TX	Number of restart packets sent and received over this VC.
Resets RX/TX	Number of reset packets sent and received over this VC.
Rejects RX/TX	Number of reject packets sent and received over this VC.
Intrpts RX/TX	Number of interrupt packets sent and received over this VC.
Failed VC Connections	Number of unsuccessful VC connections performed since starting up.
Abnormal VC Disconnects	Number of abnormal VC disconnections.
SYNC Driver State	State of the driver: Down, Init (initializing), Not Pres (not yet started), or Up.

### Sample Display - show x25 alerts

```

          Restarts Resets Rejects Intrpts Failed VC Abnormal VC SYNC Driver
Line   RX/TX   RX/TX   RX/TX   RX/TX   Connections Disconnects   State
-----
  2.1           4       0       0       0           0           0 Up
1 Alert Entries.
```

---

## base

Displays the state of the X.25 protocol in the base record. The base record controls X.25 for the entire system. State is Disabled, Down, Init (initializing), Not Present (configured but not yet started), or Up.

### Sample Display - show x25 base

```
Protocol      State
-----
x.25         Up
```

## configuration [*<slot.connector>*]

Displays the basic configuration information for all X.25 lines, or displays only the slot and connector specified. Each line is associated with the services available on that line and the number of virtual circuits configured. The table includes the following information for the protocol:

Slot.Connector.Line.LLIndex	The identity of the line. This includes four parts as follows: slot number, connector number, number of the line that the driver X.25 runs on, lower-layer index from the layer immediately below X.25 on the protocol stack. If the lower layer is a driver, the index is 0.
SVC LCNs Configured	Number of switched logical channels configured; includes LCNs for incoming, bidirectional, and outgoing VCs.
PVC LCNs Configured	Number of permanent logical channels configured; includes LCNs for incoming, bidirectional, and outgoing VCs.
Services Available	X.25 services available; includes PDN, DDN, PtoP, IPEX, QLLC

**Sample Display - show x25 configuration 2.1**

Protocol	Slot	Connector	Line.LLIndex	SVC LCN's Configured	PVC LCN's Configured	Services Available
X.25	3.2.	10903102.0		5	0	IPEX
X.25	3.2.	20903102.0		5	0	IPEX
X.25	3.2.	30903102.0		5	0	IPEX
X.25	3.2.	40903102.0		5	0	IPEX
X.25	4.2.	204102.0		40	0	DDN
X.25	4.3.	204103.0		40	0	PDN

**connections [*<slot.connector>*]**

Displays the virtual circuit connect and disconnect counts for normal and abnormal conditions for all lines or for a specific line (slot and connector). The table includes the following information:

Line	Line slot and connector.
Total VC Connections	Total number of virtual connections performed since starting up.
Failed VC Connections	Number of unsuccessful VC connections performed since starting up.
Normal VC Disconnects	Number of normal VC disconnections.
Abnormal VC Disconnects	Number of abnormal VC disconnections.

---

## Sample Display - show x25 connections

Line	Total VC Connections	Failed VC Connections	Normal VC Disconnects	Abnormal VC Disconnects
2.1	6	0	6	0

1 Connection Entries.

## ipex maps

Displays the IPEX mappings for the router. Each entry appears in two lines, with the first line displaying information for the source connection, and the line below it displaying information for the destination. The table includes the following information:

Cct	Circuit of the IPEX connection.
Name	VC that sends the tunneled message to the destination.
Type	Source or destination connection type: PVC, SVC, or TCP.
Mapping ID	Mapping ID number for the IPEX session.
Remote IP/Remote Port	Remote IP address for an SVC source connection type and the remote port number for a TCP destination connection type.
Remote DTE	The remote DTE.
Mode	Mapping type: Local, End2END, or Gateway.

## Sample Display - show x25 ipex maps

```
----Src/Dest----
```

Cct	Name	Type	Mapping ID	Remote IP/ Remote Port	Remote DTE	Mode
> 0	N/A	TCP	15000	N/A	N/A	End2End
4	xvc131	SVC		N/A		
> 4	xvc131	PVC	20098	102.1.4.17	N/A	Gateway
0	N/A	TCP	15004			

**ipex sessions**

Displays information about the IPEX session. Each entry displays in two lines, with the first line displaying information for the source connection, and the line below it displaying information for the destination. The table includes the following information.

Index	Index number of this translation number.
LCN	Logical channel number.
State	State of the connection: X25UP, X25DOWN, CCESTAB (connection established), or NOTCON (not connected)
Src/Dest Type	Source or destination connection type: PVC, SVC or TCP
Src/Dest Circuit Name	Name of the circuit that sends the tunneled message to the destination.
Local/Remote IP Addr	Local or remote IP address.
Local/Remote TCP Port	Local or remote TCP port number.
Local/Remote DTE Address	Local or remote DTE address.

**Sample Display - show x25 ipex sessions**

Index	LCN	State	Src/ Dest Type	Src/ Dest Circuit Name	Local/ Remote IP Addr	Local/ Remote TCP Port	Local/ Remote DTE Address
1	1	CCESTAB	TCP	N/A	102.1.4.16	15000	30098
			SVC	xvc131	102.1.4.17	43536	N/A
1	100	CCESTAB	SVC	xvc131	0.0.0.0	16873	N/A
			TCP	N/A	102.1.4.17	15004	60101

---

## qllc maps

Displays the QLLC mappings for the router. Each entry consists of two lines.

Cct	Circuit of the QLLC connection
State PID	Protocol ID used in the first byte of the call user data of the X.25 call request packet
Adjacent X.121 Address	X.121 address of the device that connects to the interface running the QLLC/X.25 software
Partner X.121 Address	X.121 address of the device that connects through the DLSw network
Adjacent MAC Address	MAC address assigned to the QLLC device
Partner MAC Address	MAC address assigned to the SNA device
Adjacent SAP Address	SAP address associated with a communication subsystem on an adjacent device
Partner SAP Address	SAP address associated with a communication subsystem on a partner device
Gen XID	Whether the Gen XID parameter is enabled or disabled.
Map Name	Name of the QLLC mapping entry

### Sample Display – QLLC Address Mappings

QLLC Address Mappings

```
-----  
Option          State      Adjacent X121  Adjacent MAC  aSAP  
Circuit PID      Partner  X121  Partner  MAC  pSAP  GenXID  Map Name  
Trace  
-----  
-----  
xvc5.2.2 Active    3333344444    4000C1024264 0x04  
0x0001  
*05102.0 0xCB     1111122222    40000000DEAD 0x04 Disable terminal  
0x0FF9
```

1 QLLC Mapping Entry

**lines** [*<slot.connector>*]

Displays the packet level configuration for all lines or for a specific line (slot and connector). You can modify performance by turning Stats on or off. The table includes the following information:

Line	Line slot and connector.
State	State of the line: Disabled, Down, Init (initializing), Not Present (configured but not yet started), or Up.
Network type	Type of network, which is one of the following: <ul style="list-style-type: none"> <li>• <i>DTE</i> - Data Terminating Equipment without restart procedure.</li> <li>• <i>DCE</i> - Data Circuit Equipment.</li> <li>• <i>DTE/RES</i> - Data Terminating Equipment with restart procedure.</li> <li>• <i>DTE/DTE</i> - Unassigned roles.</li> </ul>
Def Window	Maximum window size allowed for each call if the line uses flow control negotiation. If the maximum packet length (Def Packet) is 128 or more, an extended window size is up to 127. Otherwise the maximum is 7.
Def Packet	Maximum packet length allowed for each call if the line uses flow control negotiation: 16, 32, 64, 128, 256, 512, 1024, 2068, 4096.
Standard	Network standard to be used on this line: NONE, ISO, or DOD.
Facilities	Status of this line's support for user-configurable facilities (such as flow control negotiation): ON or OFF.
Year	Year of CCITT conformance: 1980, 1984 or 1988.
Local X.121 Address	Local X.121 address of the line.
Stats	Setting of statistics gathering: ON or OFF. Turning Stats to OFF can improve performance.

**Sample Display - show x25 line**

Line	State	Network Type	Def Window	Def Packet	Standard Facilities	Year	Local X.121 Address	Stats
2.1	Up	DTE/RES	7	7	NONE / OFF	1988	8217021	ON

1 Line Entries.



---

**services** [*<slot.connector.circuit name>*]

Displays the X.25 services available on all lines or a specific line. The table includes the following information:

Type	Type of service used to connect to the remote address specified in this service record -- PDN, DDN, IPEX, QLLC, or PtoP.
Line	Line slot and connector numbers that make up parts of the line's identification.
State	State of the line, which is Disabled, Down, Init (initializing), Not Present (configured but not yet started), or Up.
Circuit	Circuit number part of the line's identification.
Facilities	Status of this service's support for facilities (such as flow control) - - ON or OFF.
WCP	Data compression ON or OFF.
Remote X.121 Address	Remote X.121 address for this service.
Remote IP Address	Remote internet (IP) address for a PDN or DDN.
Index	Lower layer index from the layer immediately below X.25 on the protocol stack. If the lower layer is a driver, the index is 0.

**Sample Display - show x25 services**

Type	Line	State	Circuit	Fac	WCP	Remote X.121 Address	Remote IP Address	Index
PTOP	4.2	Up	4	OFF	OFF	111111	0.0.0.0	1

1 Service Entries.

**stats** [*<slot.connector>*]

Displays the packet level statistics for all lines or for a specified line (slot and connector). The table includes the following information:

Line	Slot and connector numbers for the line.
Max LCN's	Maximum number of logical channels allowed on this line.
LCN's Active	Number of active logical channels on this line.
RX Packets	Number of data packets received on this line since starting up.
TX Packets	Number of data packets transmitted on this line since starting up.
Restarts RX/TX	Number of restart packets sent and received on this line.
Resets RX/TX	Number of reset packets sent and received on this line.
Rejects RX/TX	Number of reject packets sent and received on this line.
Intrpts RX/TX	Number of interrupt packets sent and received on this line.

**Sample Display - show x25 stats**

Max LCN's	RX	TX	Restarts	Resets	Rejects	Intrpts		
Line LCN's	Active	Packets	Packets	RX/TX	RX/TX	RX/TX	RX/TX	
-----	-----	-----	-----	-----	-----	-----	-----	
2.1	4	0	1	1	2	0	0	0

1 Stats Entries.

**version**

Displays the current version and the modification date of the *x25.bat* script.

**Sample Display - show x25 version**

x25.bat Version: 1.9 Date: 10/31/94.

---

**virtual circuit | vc** [*<slot.connector.circuit name>*]

Displays all X.25 virtual circuits currently in use and their statistics, or displays a specified virtual circuit. The table includes the following information:

Line	Line number for this virtual circuit.
LCN #	Logical channel number for this virtual circuit.
VC Circuit	Virtual circuit number, selected from a user-specified range of virtual circuit numbers.
RX Packets	Number of data packets received on this line since starting up.
TX Packets	Number of data packets transmitted on this line since starting up.
Dropped Packets	Number of application or redirector packets dropped.
Resets RX/TX	Number of reset packets sent and received on this line.
Rejects RX/TX	Number of reject packets sent and received on this line.
Intrpts RX/TX	Number of interrupt packets sent and received on this line.

**Sample Display - show x25 vc**

Line	LCN #	VC Circuit	RX Packets	TX Packets	Dropped Packets	Resets RX/TX	Rejects RX/TX	Intrpts RX/TX
2.1	4	2	420	420	0	0	0	0

1 VC Entries.

## show xb

The **show xb** *<option>* commands display information about the Translation Bridge (XB). For detailed information on the Bay Networks implementation of the Translation Bridge, refer to *Configuring Bridging Services*.

The **show xb** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">sr [circuit &lt;circuit name&gt;]</a>
<a href="#">base</a>	<a href="#">sr stats [circuit &lt;circuit name&gt;]</a>
<a href="#">configuration</a>	<a href="#">stations</a>
<a href="#">disabled</a>	<a href="#">tb [circuit &lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">tb stats [circuit &lt;circuit name&gt;]</a>
<a href="#">rifs</a>	<a href="#">version</a>
<a href="#">saps</a>	

### alerts

Displays Source Routing and Transparent Bridge interfaces that have been enabled but are not up. Mode is always Enabled and State is always Down. The table can help determine which Source Routing and Transparent Bridge interfaces are not forwarding traffic. The Source Routing Interfaces table includes all interfaces that have translation enabled on the corresponding Transparent Bridge interface. The Transparent Bridge Interfaces table shows only the interfaces that have Translation disabled.

---

## Sample Display - show xb alerts

Source Routing Circuits

```
-----  
Circuit   Mode     State  
-----  
031      Enabled  Down
```

1 entries found.

Transparent Bridge Circuits

```
-----  
Circuit   Mode     State  
-----  
E22      Disabled Down
```

1 entries found.

## base

Displays global Translation Bridge information. The base record controls Translation Bridge for the entire system. Mode is Enabled or Disabled. This display indicates whether or not the Translation Bridge is operational.

## Sample Display - show xb base

Translation Bridge (XB) Base Record Information

```
-----  
Protocol           Mode  
-----  
Translation Bridge Enabled
```

## configuration

Displays how a Translation Bridge has been configured globally. The table includes the following information:

Mode	Status of the XB: Enabled or Disabled.
Transparent Bridge Ring ID	Ring number for the entire translation bridge network; ranges from 0x001 to 0xFFE.
Default Mode	Default type of frame to be sent to the transparently bridged network: Ethernet or 802.3.
Broadcast Conversion	Status of broadcast conversion: Enabled or Disabled. When enabled, the translation bridge converts broadcast addresses between 802.3 and 802.5.
Aging Time	Number of seconds an address entry remains in the translation bridge's forwarding or RIF table when no data from that address has been received -- between 2 and 600 seconds.

### Sample Display - show xb configuration

Translation Bridge (XB) Base Record Configuration

```

-----
Mode           Transparent Bridge Ring ID   Default Mode   Broadcast Conversion   Aging Time
-----
Enabled        0xFFE         Ethernet       Enabled                300

```

## disabled

Displays the Source Routing and Transparent Bridge circuits that are disabled. Mode is always Disabled and State is always Down. Use this display to identify the Source Route or Transparent Bridge circuits that are not enabled. The Source Routing Circuits table includes all circuits that have translation enabled on the corresponding Transparent Bridge circuit. The Transparent Bridge Circuits table shows only the circuits that have Translation disabled.

---

## Sample Display - show xb disabled

### Source Routing Circuits

```
-----  
Circuit   Mode     State  
-----  
O31      Disabled Down
```

1 entries found.

### Transparent Bridge Circuits

```
-----  
Circuit   Mode     State  
-----  
E22      Disabled Down
```

1 entries found.

## enabled

Display the Source Routing and Transparent Bridge circuits that are enabled. Mode is always Enabled and State is either Up or Down. Use this display to identify the Source Route or Transparent Bridge circuits that are currently enabled. The Source Routing Interfaces table includes all circuits that have translation enabled on the corresponding Transparent Bridge circuit. The Transparent Bridge Circuits table shows only the circuits that have Translation disabled.

### Sample Display - show xb enabled

```
Source Routing Circuits
-----
Circuit   Mode     State
-----
031      Enabled  Up

1 entries found.

Transparent Bridge Circuits
-----
Circuit   Mode     State
-----
E22      Enabled  Up

1 entries found.
```

## rifs

Displays the Source Routing Routing Information Fields (RIFs) that the Translation Bridge has learned. Each MAC address is associated with only one RIF. The table includes the following information:

MAC Address	This address is in Ethernet format.
RIF	The first two bytes of the RIF are the routing control field and the remainder is the route indicator, which consists of ring/bridge pairs. The first three nibbles of the route indicator are the ring ID and the last nibble is the bridge ID. Use this information to identify the stations that the router has heard from.



---

### Sample Display - show xb rifs

Translation Bridge (XB) Learned RIFs

```
-----  
MAC Address                               RIF  
-----  
00-00-84-00-88-80    0x0810 0xFFEA 0x101A 0x0030
```

1 entries found.

### saps

Displays the SAPs that the Translation Bridge will convert. The SAP value can range from 0x00 to 0xFF. Use this display to determine which packets get filtered and which get converted.

### Sample Display - show xb saps

Translation Bridge (XB) SAPS

```
-----  
0x00  
0x04  
0x08  
0x0C  
0xF0  
0xFC
```

6 entries found.

### sr [circuit <circuit name>]

Displays all Source Routing interfaces that are participating in the Translation Bridge. You can also display only a specified circuit. Mode is Enabled or Disabled and State is Down or Up. Use this display to identify the Source Route interfaces that are present and part of the Translation Bridge.

**Sample Display - show xb sr circuit o31**

```
Source Routing Circuits
```

```
-----
```

Circuit	Mode	State
031	Enabled	Up

```
1 entries found.
```

**sr stats [circuit <circuit name>]**

Displays statistical information about traffic flowing through the Translation Bridge. Each count represents one packet. For frames traveling from a Source Route network to a Transparent Bridge network, the counts Source Routing In Frames, Transparent Bridge In Frames, and Translation Bridge in Frames should all increment. For frames traveling from the Transparent Bridge network to the Source Route network, the count Source Routing Out Frames should increment. The Translation Bridge Frames Not Converted count will increment for packets that the Translation Bridge cannot convert. Use this display to determine whether a Translation Bridge Source Route interface is converting.

**Sample Display - show xb sr stats circuit o31**

```
Source Routing Circuits
```

```
-----
```

Circuit	Source Routing In Frames	Source Routing Out Frames	Transparent Bridge In Frames	Translation Bridge In Frames	Translation Bridge Frames Not Converted
031	1	0	1	1	0

```
1 entries found.
```

---

## stations

Displays how the Translation Bridge will convert packets destined for Ethernet stations. MAC Address will be in default format and Station Type is either Ethernet or 802.3. Use the display to determine how packets are converted.

### Sample Display - show xb stations

```
Translation Bridge (XB) Station Types
```

```
-----  
      MAC Address          Station Type  
-----  
44-44-44-44-44-43      Ethernet  
44-44-44-44-44-44      Ethernet
```

```
2 entries found.
```

### tb [circuit <circuit name>]

Displays all Transparent Bridge circuits that have not been configured for translation. You can also display a specific circuit. Mode is Enabled or Disabled and State is Down, Up, Init (initializing), or Not Present. Use this display to identify the Transparent Bridge interfaces that are present.

**Sample Display - show xb tb**

```
Transparent Bridge Circuits
-----

Circuit      Mode      State
-----
202102.0    Enabled   Down
*.40
202102.0    Enabled   Down
*.41
202102.0    Enabled   Down
*.40
S21          Enabled   Up
E32          Enabled   Down
202102.0    Enabled   Down
*.41
6 entries found.
```

**tb stats [circuit <circuit name>]**

Displays statistical information about traffic flowing through the Translation Bridge. Each count represents one packet. For frames traveling from a Transparent Bridge network to a Source Route network, the count Transparent Bridge In Frames should increment. For frames traveling from the Source Route network to the Transparent Bridge network, the count Transparent Bridge Out Frames should increment. Use the display to determine whether a Translation Bridge-Transparent Bridge circuit is converting.

**Sample Display - show xb tb stats circuit e22**

```
Transparent Bridge Circuits
-----

          Transparent Transparent
          Bridge      Bridge
Circuit   In Frames   Out Frames
-----
E22              0           2
1 entries found.
```

---

## **version**

Displays the current version and modification date of the *xb.bat* script.

### **Sample Display - show xb version**

```
XB.bat Version: #.## Date: mm/dd/yy.
```

## show xns

The **show xns** *<option>* commands display information about the Xerox Network Systems (XNS) services on Bay Networks routers. For more details on XNS parameters, refer to *Configuring XNS Services*.

The **show xns** command supports the following subcommand options:

<a href="#">alerts</a>	<a href="#">rip [alerts   disabled enabled   &lt;XNS network&gt;]</a>
<a href="#">adjacent hosts</a>	<a href="#">routes [&lt;network address&gt;   find &lt;address pattern&gt;]</a>
<a href="#">base</a>	<a href="#">static routes</a>
<a href="#">circuit [&lt;circuit name&gt;]</a>	<a href="#">stats [circuit &lt;circuit name&gt;]</a>
<a href="#">configuration [circuit [&lt;circuit name&gt;]]</a>	<a href="#">stats errors [&lt;circuit name&gt;]</a>
<a href="#">disabled</a>	<a href="#">traffic filters [&lt;circuit name&gt;]</a>
<a href="#">enabled</a>	<a href="#">version</a>

---

## alerts

Displays the XNS interfaces that are enabled but not currently up. Use this command to identify interfaces that are not forwarding traffic. The table includes the following information:

Circuit	Name of the circuit.
State	State of the interface, which will be Down.
XNS Address	Network address of the XNS interface.
Encaps Method	Level 0 protocol, frame format, or encapsulation that the circuit uses; is Ethernet, Token Ring, FDDI, frame relay, or SMDS.

### Sample Display - show xns alerts

```
XNS Circuit Table Alerts
-----
Circuit   State      XNS Address      Encaps Method
-----
0 Entrie(s) found.
```

## adjacent hosts

Displays the configurable parameters for each statically configured adjacent host (router) from which hellos have been received. The table includes the following information:

Host Network Address	Network address of the adjacent router.
Host ID Address	Host identifier for the adjacent router.
XNS Interface	XNS address of the network device.
WAN Address	Corresponding WAN address of the adjacent XNS-level host ID.

### Sample Display - show xns adjacent hosts

XNS Static Adjacent Hosts  
 -----

Host Network Address	Host ID Address	XNS Interface	WAN Address
-----	-----	-----	-----
0x00000002	0x0000A2020202	0x00000002	0x02
0x00000003	0x0000A2030303	0x00000003	0x04

### base

Displays base record information for XNS. In this case, Protocol is always XNS. The table includes the following information:

State	State of the protocol, which is Down, Init (initializing), Not Pres (not yet started), or Up.
Route Method	Routing method that the XNS protocol uses. The protocol uses vanilla XNS or Ungermann-Bass functionality only.
Total Routes	Total number of networks in the routing table.
Total Hosts	Total number of adjacent routers.

### Sample Display - show xns base

XNS Protocol  
 -----

Protocol	State	Route Method	Total Routes	Total Hosts
-----	-----	-----	-----	-----
XNS	Up	Vanilla XNS	5	22



---

## **circuit** [*<circuit name>*]

Displays parameters for all XNS circuits or for a specific circuit. For column definitions in the display, see the **alerts** command.

### **Sample Display - show xns circuit**

XNS Circuit Table

```
-----  
Circuit   State      XNS Address      Encaps Method  
-----  
E21       Up         0x00000001      Ethernet  
E31       Up         0x00000002      Ethernet  
E22       Up         0x00000003      Ethernet  
3 Total entrie(s).
```

## **configuration** [**circuit** [*<circuit name>*]

Displays the configurable parameters within the XNS base record for all circuits or for a specific circuit. You can use the following options with the **configuration** command. The table includes the following information for the protocol:

Route Method	Routing method that the XNS protocol uses; vanilla XNS or Ungermann-Bass functionality only.
Router ID	Host ID of the router.

### **Sample Display - show xns configuration**

XNS Protocol

```
-----  
Protocol   Route Method      Router ID  
-----  
XNS       Vanilla XNS      0x0000010203
```

## disabled

Displays XNS circuits that are disabled and down. In this case, State is always Down. For column definitions in the display, see the **alerts** command.

### Sample Display - show xns disabled

XNS: Table of Disabled Circuits

```
-----
```

Circuit	State	XNS Address	Encaps Method
E21	Down	0x00000001	Ethernet
E31	Down	0x00000002	Ethernet
E22	Down	0x00000003	Ethernet

3 Entrie(s) found.

## enabled

Displays all XNS circuits that have their disable/enable parameter set to enable and their state is up. For column definitions in the display, see the **alerts** command.

### Sample Display - show xns enabled

XNS: Table of Enabled Circuits

```
-----
```

Circuit	State	XNS Address	Encaps Method
E21	Up	0x00000001	Ethernet
E31	Up	0x00000002	Ethernet
E22	Up	0x00000003	Ethernet

3 Entrie(s) found.

---

## rip [alerts | disabled enabled | <XNS network>]

Displays the status of XNS Routing Information Protocol (RIP) interfaces. Entered without options, the **rip** command displays all XNS RIP interfaces. State is Down, Init (initializing), Not Pres (not yet started), or Up. You can use the following options with the **rip** command.

<b>alerts</b>	Displays XNS RIP interfaces that are enabled but their state is not up.
<b>disabled</b>	Displays XNS RIP interfaces that are disabled.
<b>enabled</b>	Displays XNS RIP interfaces that are enabled.
<XNS_network>	Limits the display to the XNS RIP interfaces in the specified XNS network.

### Sample Display - show xns rip

XNS RIP Interface Table

```
-----  
RIP Interface      State  
-----  
0x00000001         Up  
0x00000002         Up  
0x00000003         Up
```

3 Total entrie(s).

**routes** [*<network address>*] **find** *<address pattern>*]

Displays information from the XNS routing table. The table acquires routes through the XNS Routing Information Protocol, XNS interface configurations, or from static configuration. You can use the following options with the **routes** command. The table includes the following information:

Destination	Network address of the route's destination.
Next Hop Host	Host ID of the next-hop node to which packets for the destination are forwarded.
Method	Routing mechanism through which the router obtained this routing information; is one of the following: <ul style="list-style-type: none"> <li>• <i>Local</i> - From the network that the router is attached to.</li> <li>• <i>NetMgmt</i> - Through a network management application.</li> <li>• <i>RIP</i> - Through the Routing Information Protocol.</li> </ul>
Age	Number of seconds since the router last updated or verified this route. The interpretation of "too old" depends upon the source of the routing information.
Metric	Primary routing metric for this route; depends on the routing method displayed under Method. A value of -1 means that this route is unreachable.

**Sample Display - show xns routes**

XNS Routing Table Entries

-----

Destination	Next Hop Host	Method	Age	Metric
-----	-----	-----	---	-----
0x00000001	0x0000A2010203	Local	0	1
0x00000002	0x0000A2010203	Local	0	1
0x00000003	0x0000A2010203	Local	0	1
0x00000005	0x0000A2030303	Local	0	3
0x00000006	0x0000A2020202	Local	0	1

5 Routes in table.

---

## static routes

Displays all configured XNS static routes. The table includes the following information:

XNS Address	Destination network address of this route. The value 0.0.0.0 indicates a default route.
Nexthop Interface	Configured network address of the local interface through which the router reaches the next hop.
Nexthop ID	Host identifier of the next hop.
Metric	Primary routing metric for this route; depends on the routing method displayed under Method. A value of -1 means that this metric is not used.
State	State of the next-hop interface, which is Enabled or Disabled.

### Sample Display - show xns static

```
XNS Static Routes
```

```
-----
```

XNS Address	Nexthop Interface	Nexthop ID	Metric	State
0x00000005	0x00000003	0x0000A2030303	3	Enabled
0x00000006	0x00000002	0x0000A2020202	0	Enabled

```
2 Static Routes configured.
```

### stats [circuit <ircuit name>]

Displays general forwarding statistics for all XNS circuits or for a specific circuit. The table includes the following information:

Circuit	Name of the circuit this interface runs on.
XNS Address	Network address of the interface.
In Receives	Total number of input datagrams received from interfaces, including those received in error.

Out Requests	Total number of XNS datagrams that local XNS user-protocols supplied in transmission requests. Doesn't include datagrams counted in "Forwards."
Forwards	Number of input datagrams for which this router was not their final XNS destination. When this is the case, the router tries to find a route for forwarding the datagram to the appropriate final destination. If the router isn't an XNS Gateway, this counter includes only the packets that were source-routed through the router successfully.
In Discards	Number of input XNS datagrams discarded because of an environmental problem, such as lack of buffer resources. Doesn't include those discarded while awaiting reassembly.
Out Discards	Number of output XNS datagrams discarded because of an environmental problem, such as lack of buffer space. Includes datagrams counted under Forwards if they match this criterion.

**Sample Display - show xns stats**

XNS Circuit Statistic(s) Table

```
-----
```

Circuit	XNS Address	In Receives	Out Requests	Forwards	In Discards	Out Discards
-----	-----	-----	-----	-----	-----	-----
E21	0x00000001	0	23	23	0	0
E31	0x00000002	0	23	23	0	0
E22	0x00000003	0	23	23	0	0

**stats errors [*<circuit name>*]**

Displays error information for all circuits or for a specific circuit. The table includes the following information:

Circuit	Name of the circuit this interface runs on.
XNS Address	Network address of the interface.

---

Header Errors	Number of input datagrams discarded because of errors in their XNS header, including bad checksums, version number mismatch, format errors, and so on.
Address Errors	Number of input datagrams discarded because the XNS address in their XNS header's destination field was not a valid address to be received at this router. This count includes invalid addresses (such as 0.0.0.0) and addresses of unsupported classes (such as Class E). If a router is not an XNS Gateway and does not forward datagrams, this value includes datagrams discarded because the destination address was not a local address.
Unknown Protocol	Number of locally addressed datagrams received successfully but discarded because of an unknown or unsupported protocol.
In Discards	Number of input XNS datagrams discarded because of an environmental problem, such as lack of buffer resources. Doesn't include those discarded while awaiting reassembly.
Out Discards	Number of output XNS datagrams discarded because of an environmental problem, such as lack of buffer space. Includes datagrams counted under Forwards in the "XNS Circuits Statistics" table if they match this criterion.
No Routes	Number of XNS datagrams discarded because the router could not find a route to their destination. This value includes any packets meeting this criterion under Forwards in the "XNS Circuits Statistics" table. It also includes datagrams that a host could not route because its default gateways were down.

### Sample Display - show xns stats errors

XNS Circuit Error Statistics Table

```

-----
Circuit      XNS Address      Header  Address  Unknown   In       Out       No
Errors      Errors           Protocol Discards Discards Routes
-----
No Entries.

```

**traffic filters** [*<circuit name>*]

Displays traffic filter information for all circuits or for a specific circuit. The table includes the following information:

Circuit	Name of the circuit the traffic filter applies to.
XNS Address	Network address of the interface running on the circuit.
Mode	State of filter use, which is Enabled (activated) or Disabled (not activated).
Status	Current status of the traffic filter, which is one of the following: <ul style="list-style-type: none"><li>• <i>Active</i> - Rule is being used.</li><li>• <i>Inactive</i> - Rule is not in use.</li><li>• <i>Error</i> - Application detected an error in the rule.</li></ul>
Rx Matches	Number of packets received that have matched the rule.
Rule Number	Identifier for the rule.
Fragment Number	Number of a rule fragment -- for large rules.

**Sample Display - show xns traffic**

```
XNS Traffic Filter Status Table
-----
Circuit      XNS Address      Mode      Status      Rx      Rule      Fragment
              Matches          Number    Number
-----
No Entrie(s)
```

**version**

Displays the current version number and modification date of the *xns.bat* script.

**Sample Display - show xns version**

```
XNS.bat Version: #.## Date: mm/dd/yy.
```



---

## Chapter 3

# Using enable/disable Commands

You can enable and disable network protocols, services, and interfaces from the Technician Interface command line, using the general syntax of the **enable/disable** commands as follows:

**enable** <service> or **disable** <service>

<service> is the name of the protocol or service you want to enable or disable.

To display a help message on an **enable** or **disable** command, enter the command followed by a question mark. For example, to display help for the **enable at** command, enter **enable at ?**.

The sample displays in this section show how to use the **enable** commands only. However, **disable** commands follow the same syntax.

## enable/disable appn

Use the **enable appn** *<option>* commands to enable APPN services on a Wellfleet router, and the **disable appn** *<option>* commands to disable APPN services. For more information about the Bay Networks implementation of APPN, refer to *Configuring APPN Services*.

The **enable/disable appn** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">ls &lt;LS name&gt;</a>
<a href="#">directory &lt;LU name&gt;</a>	<a href="#">port &lt;port name&gt;</a>
<a href="#">dlc &lt;DLC name&gt;</a>	<a href="#">tunnel &lt;circuit&gt;</a>
log	<a href="#">vrn &lt;VRN name&gt;</a>

### base

Enables or disables APPN on the router.

#### Sample Display - enable appn base

```
APPN base record enabled
```

---

**directory** <LU name>

Enables or disables a specific Logical Unit directory.

**Sample Display - enable appn directory**

```
Enter Fully-qualified resource name: USWFLT01.VENUS2
Directory entry for USWFLT01.VENUS2 enabled
```

**dlc** <DLC name>

Enables or disables a specific Data Link Control entry.

**Sample Display - enable appn dlc**

```
Enter DLC Name: DLC00001
DLC DLC00001 enabled
```

**log**

Enables or disables APPN problem determination logs.

**ls** <LS name>

Enables or disables a specific Link Station.

**Sample Display - enable appn ls**

```
Enter Locally-known Link Station Name: DURHAM2
Link Station DURHAM2 enabled
```

**port** <*port name*>

Enables or disables a specific APPN port.

**Sample Display - enable appn port**

```
Enter Port Name: PORT0002
Port PORT0002 enabled
```

**tunnel** <*circuit*>

Enables or disables a specific APPN tunnel.

**Sample Display - enable appn tunnel**

```
Enter the Circuit number of this Tunnel: 99
Tunnel for Circuit 99 enabled
```

**vrn** <*VRN name*>

Enables or disables a specific Virtual Routing Node.

**Sample Display - enable appn vrn**

```
Enter Fully-qualified VRN Name: USWFLT01.VENUS
VRN USWFLT01.VENUS enabled
```

---

## enable/disable at

Use the **enable at** *<option>* commands to enable AppleTalk services on a Bay Networks router, and the **disable at** *<option>* commands to disable AppleTalk services. For more information about the Bay Networks implementation of AppleTalk, refer to *Configuring AppleTalk Services*.

The **enable/disable at** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables AppleTalk on the router.

#### Sample Display - enable at base

```
AT base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - enable at circuit E23

```
AT circuit E23 enabled.
```

## enable/disable atm

Use the **enable atm** *<option>* commands to enable ATM Adaptation Layer Controller (ALC) link module services on a Bay Networks router, and the **disable atm** *<option>* commands to disable this service. For more information about the Bay Networks implementation of ATM, refer to *Configuring ATM Services*.

The **enable/disable atm** commands support the following subcommand options:

<a href="#"><u>interface &lt;line number&gt;</u></a>	<a href="#"><u>line connector &lt;slot.connector&gt;</u></a>
<a href="#"><u>line circuit &lt;circuit name&gt;</u></a>	<a href="#"><u>service &lt;circuit number&gt;</u></a>

### **interface** *<line number>*

Enables or disables a specific ATM interface.

#### **Sample Display - enable atm interface 1104101**

```
ATM Interface 1104101 enabled.
```

### **line circuit** *<circuit name>*

Enables or disables a specific ATM circuit.

#### **Sample Display - enable atm line circuit A51**

```
ATM circuit A51 enabled.
```

---

**line connector** <*slot.connector*>

Enables or disables a specific ATM connector.

**Sample Display - enable atm line connector 5.1**

ATM connector 5.1 enabled.

**service** <*circuit number*>

Enables or disables a specific circuit number.

**Sample Display - enable atm service 2**

ATM Service Record (circuit number 2) enabled.

## enable/disable atmdxi

Use the **enable atmdxi** commands to enable Asynchronous Transfer Mode Data Exchange Interface (ATM DXI) services on Bay Networks router, and the **disable atmdxi** commands to disable ATM DXI services. For more information about the Bay Networks implementation of ATM DXI, refer to *Configuring ATM Services*.

The **enable/disable atm** command supports the *<line.llindex>* subcommand option, as follows:

*<line.llindex>*

Enables or disables a specific ATM DXI line.

### Sample Display - enable atmdxi 2.0

```
ATM DXI Line 2.0 enabled.
```



---

## enable/disable aurp

Use the **enable aurp** *<option>* commands to enable AppleTalk Update-based Routing Protocol (AURP) services on a Bay Networks router, and the **disable aurp** *<option>* commands to disable AURP services. For more information about the Bay Networks implementation of AURP, refer to *Configuring AppleTalk Services*.

The **enable/disable aurp** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">connection &lt;IP address&gt;</a>
----------------------	---

### base

Enables or disables AURP on the router.

#### Sample Display - enable aurp base

```
AURP base record enabled.
```

### connection <IP address>

Enables or disables a specific circuit.

#### Sample Display - enable aurp connection 205.1.10.2

```
AURP connection 205.1.10.2 enabled.
```

## enable/disable autoneg

Use the **enable autoneg** *<option>* commands to enable automatic line speed negotiation on 100Base-T Ethernet interfaces services on a Bay Networks router, and the **disable autoneg** *<option>* commands to disable autonegotiation services. For more information about the Bay Networks implementation of autonegotiation services, refer to *Configuring Ethernet, FDDI, and Token Ring Services*.

The **enable/disable autoneg** commands support the following subcommand options:

<a href="#">circuit &lt;circuit name&gt;</a>	<a href="#">connection &lt;slot.connector&gt;</a>
--	---

### **circuit** *<circuit name>*

Enables or disables autonegotiation on a specific circuit.

#### **Sample Display - enable autoneg E21**

```
AUTONEG Circuit E21 enabled.
```

### **connection** *<slot.connector>*

Enables or disables autonegotiation on a specific connector.

#### **Sample Display - enable autoneg connection 2.1**

```
AUTONEG connector 2.1 enabled.
```

---

## enable/disable bootp

Use the **enable bootp** *<option>* command to enable BOOTP (bootstrap protocol) services on a Bay Networks router, and the **disable bootp** *<option>* command to disable bootp services. For more information about the Bay Networks implementation of BOOTP, refer to the *Configuring SNMP, RMON, BOOTP, DHCP, and RARP Services* guide.

The **enable/disable bootp** commands support only the **interface** *<IP\_address>* subcommand option.

### interface *<IP address>*

Enables or disables BOOTP services on a specific interface.

#### Sample Display - enable bootp interface 130.1.1.1

```
BOOTP interface 130.1.1.1 enabled.
```

## enable/disable bridge

Use the **enable bridge** *<option>* commands to enable Bridging services on a Bay Networks router, and the **disable bridge** *<option>* commands to disable Bridging services. For more information about the Bay Networks implementation of Bridging, refer to *Configuring Bridging Services*.

The **enable/disable bridge** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables Bridging services on the router.

#### Sample Display - enable bridge base

```
BRIDGE base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - enable bridge circuit e21

```
BRIDGE Circuit e21 enabled.
```

---

## enable/disable circuits

Use the **enable circuits** *<option>* commands to enable a driver circuit on a Bay Networks router, and the **disable circuits** *<option>* commands to disable a driver circuit. You can enable or disable CSMA/CD, DS1E1, E1, FDDI, HSSI, Synchronous, T1, and Token Ring circuits. For more information about the Bay Networks implementation of drivers, refer to *Configuring Ethernet, FDDI, and Token Ring Services* or *Configuring WAN Line Services*.

The **enable/disable circuits** command supports the *<circuit\_name>* subcommand option, as follows:

*<circuit name>*

The name of the circuit that you want to enable or disable.

### Sample Display - enable circuit e21

```
CSMACD circuit E21 enabled.
```

## enable/disable csmacd

Use the **enable csmacd** *<option>* commands to enable Carrier Sense Multiple Access with Collision Detection (CSMA/CD) services on a Bay Networks router, and the **disable csmacd** *<option>* commands to disable CSMA/CD services. For more information about the Bay Networks implementation of CSMA/CD, refer to *Configuring Ethernet, FDDI, and Token Ring Services*.

The **enable/disable csmacd** commands support the following subcommand options:

<a href="#">circuit &lt;circuit name&gt;</a>	<a href="#">connector &lt;slot.connector&gt;</a>
--	--

### **circuit** *<circuit name>*

Enables or disables a specific circuit.

#### **Sample Display - enable csmacd circuit e21**

```
CSMACD circuit E21 enabled.
```

### **connector** *<slot.connector>*

Enables or disables a specific circuit.

#### **Sample Display - enable csmacd connector 2.1**

```
CSMACD connector 2.1 enabled.
```

---

## enable/disable dcm

On a BayStack AN, ANH, or ARN routers that have an installed Data Collection Module (DCM) option, use the **enable dcm** *<option>* command to enable the DCM or software subsystem, DCM middleware, (*DCMMW*) for remote monitoring (RMON) services. Use the **disable dcm** *<option>* command to disable the DCM.

For information on configuring and managing the DCM and DCMMW with Site Manager, refer to *Configuring BayStack Remote Access*.

For information on the Bay Networks implementation of RMON services in the AN, ANH, or ARN router, refer to *Configuring SNMP, RMON, BootP, DHCP, and RARP Services*. For detailed information on RMON topics, refer to the Remote Network Monitoring MIB, RMON RFC 1757.

The **enable/disable dcm** command supports the following subcommand options:

base module	expansion module
middleware	

### base\_module

Enables or disables the DCM board (*probe*) installed on a BayStack AN, ANH, or ARN Ethernet base module.

### Sample Display - enable dcm base\_module

```
DCM on Base Module has been Enabled.
```

### **expansion\_module**

Enables or disables the DCM board installed on an ARN Ethernet expansion module.

#### **Sample Display - disable dcm expansion\_module**

```
DCM on Expansion module has been Disabled.
```

### **middleware**

Enables or disables the DCM software subsystem (DCM middleware, *DCMMW*) on an AN, ANH, or ARN router. The DCMMW driver runs on the base module; it controls the DCM and provides access to collected RMON statistics.

#### **Sample Display - enable dcm middleware**

```
DCM Middleware and all probes have been Enabled.
```



---

## enable/disable decnet

Use the **enable decnet** *<option>* commands to enable DECnet services on a Bay Networks router, and the **disable decnet** *<option>* commands to disable DECnet service. For more information about the Bay Networks implementation of DECnet, refer to *Configuring DECnet Services*.

The **enable/disable decnet** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables DECnet on the router.

#### Sample Display - enable decnet base

```
DECNET base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - enable decnet circuit e21

```
DECNET Circuit e21 enabled.
```

## enable/disable dls

Use the **enable dls** *<option>* commands to enable Data Link Switching (DLSw) services on a Bay Networks router, and the **disable dls** *<option>* commands to disable DLSw services. For more information about the Bay Networks implementation of DLSw, refer to *Configuring DLSw Services*.

The **enable/disable dls** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables DLS on the router.

#### Sample Display - enable dls base

```
DLS base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - enable dls circuit e21

```
DLS Circuit e21 enabled.
```

---

## enable/disable ds1e1

Use the **enable ds1e1** *<option>* commands to enable MCT1 and MCE1 services on a Bay Networks router, and the **disable ds1e1** *<option>* commands to disable MCT1 and MCE1 services. For more information about the Bay Networks implementation of MCT1 and MCE1, refer to *Configuring WAN Line Services*.

The **enable/disable ds1e1** commands support the following subcommand options:

<a href="#"><u>circuit &lt;circuit name&gt;</u></a>	<a href="#"><u>connector &lt;slot.connector.logical line&gt;</u></a>
---	--

### **circuit** *<circuit name>*

Enables or disables all circuits or a specific circuit.

#### **Sample Display - enable ds1e1 circuit**

```
DS1E1 circuits enabled.
```

### **connector** *<slot.connector.logical line>*

Enables or disables a specific circuit.

#### **Sample Display - enable ds1e1 connector 4.1**

```
DS1E1 connector 4.1 enabled.
```

## enable/disable dvmrp

Use the **enable dvmrp** *<option>* commands to enable DVRMP services on a Bay Networks router, and the **disable dvmrp** *<option>* commands to disable DVMRP services. For more information about the Bay Networks implementation of DVMRP, refer to *Configuring IP Services*.

The **enable/disable dvmrp** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables DVMRP on the router.

#### Sample Display - enable dvmrp base

```
Dvmrp base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - enable dvmrp circuit E21

```
DVMRP circuit E21 enabled.
```

---

## enable/disable e1

Use the **enable e1** *<option>* commands to enable E1 services on a Bay Networks router, and the **disable e1** *<option>* commands to disable E1 services. For more information about the Bay Networks implementation of E1, refer to *Configuring WAN Line Services*.

The **enable/disable e1** commands support the following subcommand options:

<a href="#"><u>circuit &lt;circuit name&gt;</u></a>	<a href="#"><u>connector &lt;slot.connector&gt;</u></a>
---	---

### **circuit** *<circuit name>*

Enables or disables all circuits or a specific circuit.

#### **Sample Display - enable e1 circuit e1-21**

```
E1 circuit E1-21 enabled.
```

### **connector** *<slot.connector>*

Enables or disables a specific circuit.

#### **Sample Display - enable e1 connector 2.2**

```
E1 connector 2.2 enabled.
```

## enable/disable fddi

Use the **enable fddi** *<option>* commands to enable Fiber Distributed Data Interface (FDDI) services on a Bay Networks router, and the **disable fddi** *<option>* commands to disable FDDI services. For more information about the Bay Networks implementation of FDDI, refer to *Configuring Ethernet, FDDI, and Token Ring Services*.

The **enable/disable fddi** commands support the following subcommand options:

<a href="#"><u>circuit &lt;circuit name&gt;</u></a>	<a href="#"><u>connector &lt;slot.connector&gt;</u></a>
---	---

### **circuit** *<circuit name>*

Enables or disables a specific circuit.

#### **Sample Display - enable fddi circuit f.51**

```
FDDI circuit F1 enabled.
```

### **connector** *<slot.connector>*

Enables or disables a specific circuit.

#### **Sample Display - enable fddi connector 3.1**

```
FDDI connector 3.1 enabled.
```

---

## enable/disable fr

Use the **enable fr** *<option>* commands to enable frame relay services on a Bay Networks router, and the **disable fr** *<option>* commands to disable frame relay services. For more information about the Bay Networks implementation of frame relay, refer to *Configuring Frame Relay Services*.

The **enable/disable fr** command supports the *<line.llindex>* subcommand option, as follows:

*<line.llindex>*

Enables or disables the line or instance identifier for the frame relay interface.

### Sample Display - enable fr 202101.0

```
Frame Relay line 202101.0 enabled.
```

## enable/disable ftp

Use the **enable ftp** *<option>* commands to enable File Transfer Protocol (FTP) services on a Bay Networks router, and the **disable ftp** *<option>* commands to disable FTP services. For more information about the Bay Networks implementation of FTP, refer to *Configuring IP Utilities*.

The **enable/disable ftp** command supports the *<base>* subcommand option, as follows:

### base

Enables or disables FTP on the router.

#### Sample Display - enable ftp base

```
FTP base record enabled.
```



---

## enable/disable hssi

Use the **enable hssi** *<option>* commands to enable High-Speed Serial Interface (HSSI) services on a Bay Networks router, and the **disable hssi** *<option>* commands to disable HSSI services. For more information about the Bay Networks implementation of HSSI, refer to *Configuring WAN Line Services*.

The **enable/disable hssi** commands support the following subcommand options:

<a href="#">circuit &lt;ircuit name&gt;</a>	<a href="#">connector &lt;slot.connector&gt;</a>
---	--

### **circuit** *<circuit name>*

Enables or disables a specific circuit.

#### **Sample Display - enable hssi circuit H41**

```
HSSI circuit H41 enabled.
```

### **connector** *<slot.connector>*

Enables or disables a specific circuit.

#### **Sample Display - enable hssi connector 4.1**

```
HSSI connector 4.1 enabled.
```

## enable/disable igmp

Use the **enable igmp** *<option>* commands to enable IGMP services on a Bay Networks router, and the **disable igmp** *<option>* commands to disable IGMP services. For more information about the Bay Networks implementation of IGMP, refer to *Configuring IP Services*.

The **enable/disable igmp** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables IGMP on the router.

#### Sample Display - enable igmp base

```
Igmp base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - enable igmp circuit E21

```
IGMP circuit E21 enabled.
```

---

## enable/disable ip

Use the **enable ip** *<option>* commands to enable Internet Protocol (IP) services on a Bay Networks router, and the **disable ip** *<option>* commands to disable IP services. For more information about the Bay Networks implementation of IP, refer to *Configuring IP Services*.

The **enable/disable ip** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">rip &lt;IP interface address&gt;</a>
<a href="#">circuit &lt;circuit name&gt;</a>	

### base

Enables or disables IP on the router.

#### Sample Display - enable ip base

```
IP base record enabled.
```

### circuit *<circuit name>*

Enables or disables IP on a specific circuit.

### rip *<IP interface address>*

Enables or disables the Routing Information Protocol (RIP) on a specific IP interface.

## enable/disable ipx

Use the **enable ipx** *<option>* commands to enable Novell's Internet Packet Exchange (IPX) services on a Bay Networks router, and the **disable ipx** *<option>* commands to disable IPX services. For more information about the Bay Networks implementation of IPX, refer to *Configuring IPX Services*.

The **enable/disable ipx** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables IPX on the router.

#### Sample Display - enable ipx base

```
IPX base record enabled.
```

### circuit *<circuit name>*

Enables or disables all circuits on a specific circuit.

---

## enable/disable iredund

Use the **enable iredund** *<option>* commands to enable interface redundancy on a Bay Networks router, and the **disable iredund** *<option>* commands to disable interface redundancy. For more information about the Bay Networks implementation of interface redundancy, refer to *Configuring Interface and Router Redundancy*.

The **enable/disable iredund** commands support the following subcommand options:

<a href="#">circuit &lt;circuit name&gt;</a>	connector <slot.connector>
--	----------------------------

### **circuit** *<circuit name>*

Enables or disables interface redundancy on a specific circuit.

#### **Sample Display - \$disable iredund circuit E43**

```
Interface Redundancy disabled on circuit E43.
```

### **connector** *<slot.connector>*

Enables or disables interface redundancy on a specific port.

#### **Sample Display - \$enable iredund connector 4.3**

```
Interface Redundancy is enabled on slot.connector 4.3.
```

## enable/disable isdn

Use the **enable isdn** *<option>* commands to enable Integrated Services Digital Network (ISDN) services on a Bay Networks router, and the **disable isdn** *<option>* commands to disable ISDN services. For more information about the Bay Networks implementation of ISDN, refer to *Configuring Dial Services*.

The **enable/disable isdn** commands support the following subcommand options:

<a href="#">bchannel &lt;line.index&gt;</a>	<a href="#">filter &lt;slot&gt;</a>
<a href="#">bri</a>	

### **bchannel** *<line.index>*

Enables or disables a specific ISDN B Channel line.

#### **Sample Display - enable isdn bch <line.index>**

```
ISDN B-Channel <line.index> enabled.
```

### **bri**



**Note:** See “[enable/disable isdn bri](#).”

---

---

**filter <slot>**

Enables or disables a specific ISDN filter.

**Sample Display - enable isdn filter <slot>**

Incoming Filter on Slot <slot> is now ON.

## enable/disable isdn bri

Use the **enable isdn bri** *<option>* commands to enable Integrated Services Digital Network Basic Rate Interface (ISDN BRI) services on a Bay Networks router, and the **disable isdn bri** *<option>* commands to disable ISDN BRI services. For more information about the Bay Networks implementation of ISDN BRI, refer to *Configuring Dial Services*.

The **enable/disable isdn bri** commands support the following subcommand options:

<a href="#">circuit &lt;circuit name&gt;</a>	<a href="#">connector &lt;slot.connector&gt;</a>
--	--

### **circuit** *<circuit name>*

Enables or disables an ISDN circuit.

#### **Sample Display - enable isdn bri circuit ISAC**

```
ISDN BRI circuit ISAC enabled.
```

### **connector** *<slot.connector>*

Enables or disables an ISDN BRI connector on a specific slot.

#### **Sample Display - enable isdn bri connector 1.2**

```
ISDN BRI connector 1.2 enabled.
```



---

## enable/disable lapb

Use the **enable lapb** *<option>* commands to enable Link Access Procedure-Balanced (LAPB) services on a Bay Networks router, and the **disable lapb** *<option>* commands to disable LAPB services. For more information about the Bay Networks implementation of LAPB, refer to *Configuring X.25 Services*.

The **enable/disable lapb** command supports the *<line.llindex>* subcommand option, as follows:

*<line.llindex>*

Enables or disables LAPB on a specific line and lower-layer index.

### Sample Display - enable lapb 201101.0

```
LAPB line 201101.0 enabled.
```

## enable/disable Inm

Use the **enable Inm** *<option>* commands to enable LNM Servers services on a Bay Networks router, and the **disable Inm** *<option>* commands to disable LNM Servers services. For more information about the Bay Networks implementation of LNM Servers, refer to *Configuring LNM Services*.

The **enable/disable Inm** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables LNM Servers on the router.

#### Sample Display - enable Inm base

```
LNM Servers base enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - enable Inm circuit o41

```
LNM Servers circuit 041 enabled.
```

---

## enable/disable nbip

Use the **enable nbip** *<option>* commands to enable NetBIOS services on a Bay Networks router, and the **disable nbip** *<option>* commands to disable NetBIOS services on a router. For more information about the Bay Networks implementation of NetBIOS, refer to *Configuring IP Services*.

The **enable/disable nbip** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">interface &lt;IP interface address&gt;</a>
----------------------	--

### base

Enables or disables NetBIOS on the router.

#### Sample Display - enable nbip base

```
NBIP base record enabled.
```

### interface <IP interface address>

Enables or disables a specific NetBIOS over IP interface.

#### Sample Display - enable nbip interface 130.1.1.1

```
NBIP interface 130.1.1.1 enabled.
```

## enable/disable nml

Use the **enable nml** *<option>* commands to enable Native Mode LAN (NML) services on a Bay Networks router, and the **disable nml** *<option>* commands to disable NML services. For more information about the Bay Networks implementation of NML, refer to *Configuring Bridging Services*.

The **enable/disable nml** commands support the following subcommand options:

<a href="#">circuit &lt;circuit name&gt;</a>	<a href="#">seclist &lt;circuit name&gt;</a>
--	--

### **circuit** *<circuit name>*

Enables or disables NML on a specific circuit.

#### **Sample Display - enable nml circuit e21**

```
NML circuit e21 enabled.
```

### **seclist** *<circuit name>*

Enables or disables all ranges in the NML security list on a specific circuit.

#### **Sample Display - enable nml seclist e21**

```
NML Security list on e21 enabled.
```

---

## enable/disable osi

Use the **enable osi** *<option>* commands to enable Open Systems Interconnection (OSI) services on a Bay Networks router, and the **disable osi** *<option>* commands to disable OSI services. For more information about the Bay Networks implementation of OSI, refer to *Configuring OSI Services*.

The **enable/disable osi** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables OSI on the router.

#### Sample Display - enable osi base

```
OSI base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - enable osi circuit e31

```
OSI Circuit e31 enabled.
```

## enable/disable ospf

Use the **enable ospf** *<option>* commands to enable Open Shortest Path First (OSPF) services on a Bay Networks router, and the **disable ospf** *<option>* commands to disable OSPF services. For more information about the Bay Networks implementation of OSPF, refer to *Configuring IP Services*.

The **enable/disable ospf** commands support the following subcommand options:

<a href="#">area &lt;area ID&gt;</a>	<a href="#">interface &lt;IP address&gt;</a>
<a href="#">base</a>	

### **area** *<area ID>*

Enables or disables OSPF for a specific IP area.

### **base**

Enables or disables OSPF on the router.

### **Sample Display - enable ospf base**

```
OSPF base record enabled.
```

### **interface** *<IP address>*

Enables or disables OSPF on a specific IP interface.

---

## enable/disable packet

Use the **enable packet** *<option>* commands to enable the Packet Capture utility on a Bay Networks router, and the **disable packet** *<option>* commands to disable the Packet Capture utility. For more information about Bay Network's Packet Capture utility, refer to *Using Technician Interface Software*.

The **enable/disable packet** commands support the following subcommand options:

<a href="#">capture &lt;line number&gt;</a>	<a href="#">line &lt;line number&gt;</a>
---	--

### **capture** *<line number>*

Starts or stops packet capture on a specific line. This is the line number of the interface connected with the desired packet capture. When you execute this command, the router does not display a response.

### **line** *<line number>*

Enables or disables packet capture on a specific line. This is the line number of the interface connected with the desired packet capture. When you execute this command, the router does not display a response.

## enable/disable ppp

Use the **enable ppp** *<option>* command to enable Point-to-Point Protocol (PPP) services on a Bay Networks router, and the **disable ppp** *<option>* command to disable PPP services. For more information about the Bay Networks implementation of PPP, refer to *Configuring PPP Services*.

The **enable/disable ppp** command supports the *<line.llindex>* subcommand option, as follows:

*<line.llindex>*

Enables or disables the line or instance identifier for the PPP interface.

### Sample Display - enable ppp s31

```
PPP line s31 enabled.
```



---

## enable/disable rarp

Use the **enable rarp** *<option>* command to enable Reverse Address Resolution Protocol (RARP) services on a Bay Networks router, and the **disable rarp** *<option>* command to disable RARP services. For more information about the Bay Networks implementation of RARP, refer to *Configuring SNMP, RMON, BOOTP, DHCP, and RARP Services*.

The **enable/disable rarp** command supports the *<base>* subcommand option, as follows:

### base

Enables or disables RARP on the router.

#### Sample Display - enable rarp base

```
RARP base record enabled.
```

## enable/disable rptr

Use the **enable rptr** *<option>* commands to enable Access Node (AN) Repeater services, and the **disable rptr** *<option>* commands to disable AN Repeater services. For more information about the Bay Networks AN Repeater, refer to *Connecting BayStack AN and ANH Systems to a Network*.

The **enable/disable rptr** commands support the following subcommand options:

<a href="#">port &lt;port number&gt;</a>	<a href="#">test</a>
<a href="#">reset</a>	

### port <port number>

Enables or disables all ports, or just a selected port.

### reset

Enables the repeater to reset and test itself.

### test

Enables the repeater to run a self-test without also resetting the AN.

### Sample Display - enable rptr test

```
802.3 Repeater (HUB) Non-Disruptive Selftest:
-----
Repeater Selftest Initiated... Completed

Repeater Post-Selftest Status:
Repeater Operating Status: OK
    Repeater Health Text: "Repeater Health: Operational "
    Total Partitioned Ports: 2
    Group Operating Status: Operational
    Last Group Status Change: 29221136 (SNMP SysUpTime of Change)
```

---

## enable/disable rredund

Use the **enable rredund** *<option>* commands to enable router redundancy (RREDUND) services on a Bay Networks router, and the **disable rredund** *<option>* commands to disable router redundancy. For more information about the Bay Networks implementation of router redundancy, refer to *Configuring Interface and Router Redundancy*.

The **enable/disable rredund** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables RREDUND on the router.

#### Sample Display - enable rredund base

```
RREDUND base record enabled.
```

### circuit *<circuit name>*

Enables or disables RREDUND on a specific circuit.

#### Sample Display - enable rredund circuit E43

```
Router Redundancy enabled on circuit E43.
```

## enable/disable sdlc

Use the **enable sdlc** *<option>* commands to enable Synchronous Data Link Control (SDLC) services on a Bay Networks router, and the **disable sdlc** *<option>* commands to disable SDLC services. For more information about the Bay Networks implementation of SDLC, refer to *Configuring SDLC Services*.

The **enable/disable sdlc** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables SDLC on the router.

#### Sample Display - sdlc disable base

```
SDLC base record disabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - sdlc enable circuit SDLC\_CIR 1234

```
Circuit SDLC_CIR 1234 enabled
```

---

## disable/enable snmp

Use the **disable snmp** command to disable for security reasons all Simple Network Management Protocol (SNMP) services on a Bay Networks router or BNX platform. Use the **enable snmp** command to re-enable SNMP services for Manager access.

### Sample Display - disable snmp

```
SNMP Protocol disabled
```

### Sample Display - enable snmp

```
SNMP Protocol enabled
```

Only a Manager login at the Technician Interface login prompt allows access to this command. For more information about the Bay Networks implementation of SNMP, refer to *Configuring SNMP, RMON, BOOTP, DHCP, and RARP Services*.

## enable/disable span

Use the **enable span** *<option>* commands to enable Spanning Tree Bridge services on a Bay Networks router, and the **disable span** *<option>* commands to disable Spanning Tree Bridge services. For more information about the Bay Networks implementation of Spanning Tree Bridging, refer to *Configuring Bridging Services*.

The **enable/disable span** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables Spanning Tree Bridging on the router.

#### Sample Display - enable span base

```
SPAN base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

---

## enable/disable sr

Use the **enable sr** *<option>* commands to enable Source Routing services on a Bay Networks router, and the **disable sr** *<option>* commands to disable Source Routing services. For more information about the Bay Networks implementation of Source Routing, refer to *Configuring Bridging Services*.

The **enable/disable sr** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables Source Routing on the router.

#### Sample Display - enable span base

```
Source Routing (SR) base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

## enable/disable srspan

Use the **enable srspan** *<option>* commands to enable Source Route Spanning Tree Bridging services on a Bay Networks router, and the **disable srspan** *<option>* commands to disable Source Route Spanning Tree Bridging services. For more information about the Bay Networks implementation of Source Route Spanning Tree Bridging, refer to *Configuring Bridging Services*.

The **enable/disable srspan** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables Source Route Spanning Tree Bridging on the router.

#### Sample Display - enable srspan base

```
Source Route Spanning Tree base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

#### Sample Display - enable srspan circuit S21

```
Source Route Spanning Tree circuit S21 enabled.
```



---

## enable/disable sta

Use the **enable sta** *<option>* commands to enable Statistical Thresholds and Alarms (STA) services on a Bay Networks router and the **disable sta** *<option>* commands to disable STA services. For more information about the Bay Networks implementation of STA, refer to *Configuring SNMP, RMON, BOOTP, DHCP, and RARP Services*.

The **enable/disable sta** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">object &lt;object ID&gt;</a>
----------------------	--

### base

Enables or disables STA on the router.

#### Sample Display - enable sta base

```
STA base record enabled.
```

### object *<object ID>*

Enables or disables STA for a specific object.

## enable/disable sws

Use the **enable sws** *<option>* commands to enable Switched Services on a Bay Networks router, and the **disable sws** *<option>* commands to disable Switched Services. For more information about the Bay Networks implementation of Switched Services, refer to *Configuring Dial Services*.

The **enable/disable sws** commands support the following subcommand options:

<a href="#"><u>dial_forced &lt;circuit name&gt;</u></a>	<a href="#"><u>takedown_forced &lt;circuit name&gt;</u></a>
---	---

### **dial\_forced** *<circuit name>*

Enables or disables forced dialing on a circuit. We support this feature only for on-demand dialing. When you enable forced dialing on a circuit, you make it possible for someone to initiate a connection across the line. When you disable forced dialing, you inhibit a connection across the line.

#### **Sample Display - enable sws dial\_forced s31**

```
Switch Services Forced Dial Enabled for Circuit: s31
```

### **takedown\_forced** *<circuit name>*

Enables or disables the ability to take down a specific circuit. When you enable this parameter, you are choosing to take the circuit down. When you disable this parameter, you are making it possible to use the line.

#### **Sample Display - enable sws takedown\_forced s31**

```
Switch Services Forced TakeDown Enabled for Circuit: s31
```

---

## enable/disable sync

Use the **enable sync** *<option>* commands to enable synchronous services on a Bay Networks router, and the **disable sync** *<option>* commands to disable synchronous services.

The **enable/disable sync** commands support the following subcommand options:

<a href="#"><u>circuit &lt;circuit name&gt;</u></a>	<a href="#"><u>connector &lt;slot.connector&gt;</u></a>
---	---

### **circuit** *<circuit name>*

Enables or disables a specific circuit.

#### **Sample Display - enable sync circuit s31**

```
SYNC circuit S31 enabled.
```

### **connector** *<slot.connector>*

Enables or disables a specific circuit.

#### **Sample Display - enable sync connector 3.2**

```
SYNC connector 3.2 enabled.
```

## enable/disable t1

Use the **enable t1** *<option>* commands to enable T1 services on a Bay Networks router, and the **disable t1** *<option>* commands to disable T1 services. For more information about the Bay Networks implementation of T1, refer to *Configuring WAN Line Services*.

The **enable/disable t1** commands support the following subcommand options:

<a href="#"><u>circuit &lt;circuit name&gt;</u></a>	<a href="#"><u>connector &lt;slot.connector&gt;</u></a>
---	---

### **circuit** *<circuit name>*

Enables or disables a specific circuit.

#### **Sample Display - enable t1 circuit t1-21**

```
T1 circuit T1-21 enabled.
```

### **connector** *<slot.connector>*

Enables or disables a specific circuit.

#### **Sample Display - enable t1 connector 2.2**

```
T1 connector 2.2 enabled.
```

---

## enable/disable tcp

Use the **enable tcp** *<option>* commands to enable Transmission Control Protocol (TCP) services on a Bay Networks router, and the **disable tcp** *<option>* commands to disable TCP services. For detailed information about the Bay Networks implementation of TCP, refer to *Configuring IP Utilities*.

The **enable/disable tcp** command supports the *<base>* subcommand option, as follows:

### base

Enables or disables TCP at the base record, thus enabling or disabling TCP services for the entire router.

#### Sample Display - enable tcp base

```
TCP base record enabled.
```

## enable/disable telnet

Use the **enable telnet** *<option>* commands to enable Telnet services on a Bay Networks router, and the **disable telnet** *<option>* commands to disable Telnet services. For more information about the Bay Networks implementation of Telnet, refer to *Configuring IP Utilities*.

The **enable/disable telnet** command supports the *<base>* subcommand option, as follows:

### base

The **enable telnet base** command enables inbound router Telnet sessions. Telnet must have been previously configured.

The **disable telnet base** command disables inbound router Telnet sessions. Telnet must have been previously configured.

### Sample Display - enable telnet base

```
TELNET base record enabled.
```

---

## enable/disable tftp

Use the **enable tftp** *<option>* commands to enable Trivial File Transfer Protocol (TFTP) services on a Bay Networks router, and the **disable tftp** *<option>* commands to disable TFTP services. For more information about the Bay Networks implementation of TFTP, refer to *Configuring IP Services*.

The **enable/disable tftp** command supports the *<base>* subcommand option, as follows:

### base

Enables or disables TFTP at the base record, thus enabling or disabling TFTP services for the entire router.

#### Sample Display - enable tftp base

```
TFTP base record enabled.
```

## enable/disable token

Use the **enable token** *<option>* commands to enable Token Ring services on a Bay Networks router, and the **disable token** *<option>* commands to disable Token Ring services. For more information about the Bay Networks implementation of Token Ring, refer to *Configuring Ethernet, FDDI, and Token Ring Services*.

The **enable/disable token** commands support the following subcommand options:

<a href="#"><u>circuit &lt;circuit name&gt;</u></a>	<a href="#"><u>connector &lt;slot.connector&gt;</u></a>
---	---

### **circuit** *<circuit name>*

Enables or disables a specific circuit.

#### **Sample Display - enable sync circuit o31**

```
TOKEN RING circuit 031 enabled.
```

### **connector** *<slot.connector>*

Enables or disables a specific connector.

#### **Sample Display - enable token connector 4.2**

```
TOKEN RING connector 4.2 enabled.
```



---

## enable/disable vines

Use the **enable vines** *<option>* commands to enable Virtual Networking System (VINES) services on a Bay Networks router, and the **disable vines** *<option>* commands to disable VINES services. For more information about the Bay Networks implementation of VINES, refer to *Configuring VINES Services*.

The **enable/disable vines** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables VINES on the router.

#### Sample Display - enable vines base

```
VINES base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

## enable/disable wcp

Use the **enable wcp** *<option>* commands to enable Wellfleet Compression Protocol (WCP) services on a Bay Networks router, and the **disable wcp** *<option>* commands to disable WCP services. For more information about the Bay Networks implementation of WCP, refer to *Configuring Data Compression Services*.

The **enable/disable wcp** commands support the following subcommand options:

<a href="#">circuit &lt;circuit name&gt;</a>	<a href="#">line &lt;line number.llindex&gt;</a>
--	--

### **circuit** *<circuit name>*

Enables or disables compression for a specific WCP circuit.

#### **Sample Display - enable wcp circuit S31**

```
WCP circuit S31 enabled.
```

### **line** *<line number.llindex>*

Enables or disables compression for a specific WCP line.

#### **Sample Display - enable wcp line 203101.0**

```
WCP line 203101.0 enabled.
```

---

## enable/disable x25

Use the **enable x25** *<option>* commands to enable X.25 services on a Bay Networks router, and the **disable x25** *<option>* commands to disable X.25 services. For more information about the Bay Networks implementation of X.25, refer to *Configuring X.25 Services*.

The **enable/disable x.25** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">service &lt;slot.connector.cct.index &gt;</a>
<a href="#">line &lt;slot.connector&gt;</a>	

### base

Enables or disables X.25 at the base record.

#### Sample Display - enable x25 base

```
x25 base record enabled.
```

### line *<slot.connector>*

Enables or disables a specific X.25 line.

#### Sample Display - enable x25 line 2.1

```
x.25 line 2.1 enabled.
```

### service *<slot.connector.cct.index >*

Enables or disables a specific X.25 service.

## enable/disable xb

Use the **enable xb** *<option>* commands to enable Translation Bridge services on a Bay Networks router, and the **disable xb** *<option>* commands to disable Translation Bridge services. For more information about the Bay Networks implementation of Translation Bridge, refer to *Configuring Bridging Services*.

The **enable/disable xb** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables XB on the router.

#### Sample Display - enable xb base

```
XB base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.

---

## enable/disable xns

Use the **enable xns** *<option>* commands to enable Xerox Network Systems (XNS) services on a Bay Networks router, and the **disable xns** *<option>* commands to disable XNS services. For more information about the Bay Networks implementation of XNS, refer to *Configuring XNS Services*.

The **enable/disable xns** commands support the following subcommand options:

<a href="#">base</a>	<a href="#">circuit &lt;circuit name&gt;</a>
----------------------	--

### base

Enables or disables XNS on the router.

#### Sample Display - enable xns base

```
XNS base record enabled.
```

### circuit *<circuit name>*

Enables or disables a specific circuit.



## Symbols

\* character, 2-1

? character, 2-1

## A

aarp

at, 2-51

acronyms, xvi

Adaption Layer Controller, 1-9, 2-99

Address Resolution Protocol

IP, 2-346

addresses

smds, 2-595

adjacency

decnet, 2-201

osi, 2-487

adjacent hosts

ip, 2-344

ipx, 2-378

xns, 2-759

agent, BootP relay, 2-148

alarms

statistical, 2-635

alerts

at, 2-52

atm, 2-67

atm line, 2-100

atmdxi, 2-85

aurp, 2-112

autoneg, 2-121

bisync, 2-137

bridge, 2-158

circuits, 2-165

console, 2-175

csma/cd, 2-182

decnet, 2-202

dls, 2-215

ds1e1, 2-227

e1, 2-276

fddi, 2-285

fr, 2-301

hssi, 2-331

ip, 2-345

ipx, 2-379

isdn, 2-414

isdn bri, 2-425, 2-473

lapb, 2-445

lnm, 2-452

osi, 2-487

packet capture, 2-504

ppp, 2-519

smds, 2-595

span, 2-608

sr, 2-615

srsync, 2-628

sync, 2-663, 2-669

t1, 2-685

token, 2-699

vines, 2-712

x25, 2-738

xb, 2-748

xns, 2-759

AppleTalk

parameters, ppp, 2-520

protocol, 2-50 to 2-65

Update-Based Routing protocol, 2-111 to 2-120

APPN, 2-6 to 2-49

enable/disable commands, 3-2

area routes, decnet, 2-202

areas, ospf, 2-495

ARP, IP, 2-346

- ase information
  - ospf, 2-496
- Asynchronous Transfer Mode, 2-66 to 2-93
  - enabling/disabling, 3-8
- AT subcommands, 2-50 to 2-65
- AURP subcommands, 2-111 to 2-120
- autoneg
  - csmacd, 2-184
  - subcommands, 2-120 to 2-126
- Autonomous System
  - BGP, 2-128 to 2-135
  - External Advertisements, 2-496

## B

- backplane, hardware, 2-321
- backup circuits, fr, 2-303
- backup\_dialing
  - circuits, sws, 2-644
  - pools, sws, 2-645
- bacp, ppp, 2-522
- bad packets, ppp, 2-522
- bandwidth, rsc, 2-584
- bandwidth-on-demand, 2-648 to 2-649
- base
  - ip6, 2-371
  - mospf, 2-462
  - rsvp, 2-588
- base record
  - appn, 2-8
  - at, 2-53, 2-577
  - atm line, 2-101
  - atmdxi, 2-86
  - aurp, 2-113
  - autoneg, 2-122
  - bootp, 2-146
  - bridge, 2-159
  - circuits, 2-166
  - csmacd, 2-185
  - decnet, 2-203
  - dls, 2-215
  - ds1e1, 2-228
  - dvmrp, 2-266
  - e1, 2-277
  - egp, 2-281
  - fddi, 2-286
  - hssi, 2-333
  - ip, 2-347
  - ip6, 2-371
  - ipx, 2-380
  - isdn bri, 2-426
  - lnm, 2-453
  - mospf, 2-462
  - nbip, 2-469
  - osi, 2-488
  - ospf, 2-497
  - rarp, 2-562
  - rsvp, 2-588
  - sdlc, 2-590
  - snmp, 2-599
  - span, 2-609
  - sr, 2-616
  - srspan, 2-629
  - sta, 2-635
  - sync, 2-138, 2-665
  - t1, 2-687
  - token, 2-701
  - vines, 2-713
  - x25, 2-739
  - xb, 2-749
  - xns, 2-760
- BGP AS Weights table, 2-135
- BGP subcommands, 2-127 to 2-135
- BISYNC, 2-136 to 2-145
  - subcommands, 2-136 to 2-145
- Bootstrap Protocol (BootP)
  - PROM, revision date, 2-325
  - relay agent, 2-148
  - subcommands, 2-146 to 2-150
- Border Gateway Protocol (BGP), 2-127 to 2-135
- bot subcommands, 2-151 to 2-157
- bridge
  - enabling/disabling, 3-12
  - NCP, PPP, 2-523
  - services, 2-158 to 2-163
  - sr, 2-616
  - subcommands, 2-158 to 2-163
- broadcast networks, OSPF neighbors, 2-502
- buffers, system, 2-680



## C

cache statistics, IP, 2-360

cannotlink, lnm, 2-453

capabilities, autoneg, 2-123

cc\_stats, protopri, 2-552

### circuits

at, 2-54, 2-411, 2-578

bridge, 2-160

decnet, 2-204

dls, 2-217

dsx3, 2-251

enabling/disabling, 3-13

fr, 2-309

igmp, 2-340

ip, 2-348

ipx, 2-382

lnm, 2-456

nml, 2-478

osi, 2-488

rarp, 2-563

sdhc, 2-591

smds, 2-596

span, 2-609

sr, 2-617

srspace, 2-632

subcommands, 2-164 to 2-174

vines, 2-714

wcp, 2-723

xns, 2-761

clients, BootP, 2-147

### commands

adding to menu, 1-21

clearing from menu, 1-21

disable

defined, 1-3

*See also* enable/disable commands

editing menu, 1-22

enable

defined, 1-3

*See also* enable/disable commands

menu, 1-3

monitor, 1-3

show

defined, 1-3

*See also* show commands

community, snmp, 2-601

### config

rip6, 2-565

### configuration

at, 2-55

circuits, 2-167

console, 2-176

dls, 2-218

file, hardware, 2-323

lnm, 2-457

Packet Capture, 2-506 to 2-509

rip, 2-565

rip6, 2-565

span, 2-610

sr, 2-617

sta, 2-636

tcp, 2-693

vines, 2-715

x25, 2-739

xb, 2-750

xns, 2-761

congestion, fr, 2-305

Connectionless Network Protocol (CLNP), statistics,  
2-492

### connections

aurp, 2-113

dls, 2-218

tcp, 2-694

x25, 2-740

console subcommands, 2-175 to 2-181

conventions, text, xiv

copying scripts, 1-5 to 1-6

CSMA/CD subcommands, 2-182 to 2-194

current circuit

dsx3, 2-253

## D

data collection module (DCM)

enabling and disabling, 3-15

status, 1-10, 1-15, 2-195

Data Link Switching

enabling/disabling, 3-18

data link switching, 2-214 to 2-225

- datagram delivery protocol (DDP)
  - statistics, 2-61
- datagram statistics
  - IP, 2-360
- DCMMW subcommands, 2-195
- DECnet
  - enabling/disabling, 3-17
  - NCP, PPP, 2-529
  - Phase IV, 2-200
  - services, 2-200 to 2-213
- demand circuits
  - fr, 2-304
- designated router
  - decnet, 2-205
  - OSPF, 2-499
- Diagnostics PROM, revision date, 2-325
- Dial Backup, 2-643 to 2-648
- dial optimized routing circuits
  - ipx, 2-384
- dialing pools
  - backup, 2-645
  - on demand, 2-655
- dial-on-demand, 2-655 to 2-659
- disable commands. *See* enable/disable commands
- disabled circuits
  - all drivers, 2-168
  - at, 2-56, 2-412, 2-579
  - atm, 2-67
  - atm line, 2-102
  - atmdxi, 2-86
  - aurp, 2-114
  - autoneg, 2-124
  - bridge, 2-160
  - csmacd, 2-187
  - decnet, 2-206
  - dls, 2-219
  - ds1e1, 2-231
  - dvmrp, 2-268
  - e1, 2-278
  - fddi, 2-287
  - fr, 2-302
  - hssi, 2-333
  - igmp, 2-340
  - ip, 2-349
  - ipx, 2-383
  - isdn bri, 2-426
  - lapb, 2-447
  - lnm, 2-458
  - osi, 2-489
  - ppp, 2-529
  - rarp, 2-563
  - sdlc, 2-592
  - smds, 2-597
  - span, 2-612
  - sr, 2-619
  - srsrpan, 2-632
  - sync, 2-139, 2-665
  - t1, 2-688
  - token, 2-702
  - vines, 2-715
  - xb, 2-750
  - xns, 2-762
- disabled lines, packet, 2-510
- disabled serial ports, console, 2-179
- DLSw
  - protocol priority queues, 2-552 to 2-555
  - subcommands, 2-214 to 2-225
- DS1E1, 2-226 to 2-250
  - enabling/disabling, 3-19
- dsu/csu
  - config, sync, 2-666
  - service status codes, 2-667
  - stats, sync, 2-667
- DVMRP, 2-266 to 2-275
  - enabling/disabling, 3-20
- Dynamic Host Configuration Protocol (DHCP), 2-146 to 2-150

## E

- E1, 2-275 to 2-281
  - enabling/disabling, 3-21
- E1 subcommands, 2-275 to 2-281
- ECHO protocol
  - statistics, 2-61
- educational services, xx
- EGP subcommands, 2-281 to 2-284
- enable command, described, 1-3

enable/disable commands, 3-1 to 3-61

- appn, 3-2
- at, 3-5
- atm, 3-6, 3-8
- aurp, 3-9, 3-10, 3-11
- bridge, 3-12
- circuits, 3-13
- csmacd, 3-14
- dcmw, 3-15
- decnet, 3-17
- dls, 3-18
- ds1e1, 3-19
- dvmrp, 3-20
- e1, 3-21
- fddi, 3-22
- fr, 3-23
- ftp, 3-24
- hssi, 3-25
- igmp, 3-26
- ip, 3-27
- ipx, 3-28
- iredund, 3-29
- isdn, 3-30
- isdn bri, 3-32
- lapb, 3-33
- lnm, 3-34
- nbip, 3-35
- nml, 3-36
- osi, 3-37
- ospf, 3-38
- packet, 3-39
- ppp, 3-40
- rarp, 3-41
- rptr, 3-42
- rredund, 3-43
- sdlc, 3-44
- snmp, 3-45
- span, 3-46
- sr, 3-47
- srsrspan, 3-48
- sta, 3-49
- sws, 3-50
- sync, 3-51
- t1, 3-52
- tcp, 3-53
- telnet, 3-54
- tftp, 3-55
- token, 3-56

- vines, 3-57
- wcp, 3-58
- x25, 3-59
- xb, 3-60
- xns, 3-61

enabled circuits

- all drivers, 2-169
- at, 2-57, 2-413, 2-579
- atm, 2-68
- atm line, 2-102
- atmdxi, 2-87
- aurp, 2-115
- autoneg, 2-125
- bisync, 2-139
- bridge, 2-161
- csmacd, 2-187
- decnet, 2-207
- dls, 2-219
- ds1e1, 2-233
- dvmrp, 2-268
- e1, 2-278
- fddi, 2-287
- fr, 2-302
- hssi, 2-334
- igmp, 2-340
- ip, 2-349
- ipx, 2-384
- isdn bri, 2-427
- lapb, 2-448
- lnm, 2-459
- osi, 2-490
- ppp, 2-530
- rarp, 2-564
- sdlc, 2-592
- smds, 2-597
- span, 2-612
- sr, 2-619
- srsrspan, 2-633
- sync, 2-668
- t1, 2-689
- token, 2-702
- vines, 2-716
- xb, 2-751
- xns, 2-762

enabled lines, packet, 2-510

enabled serial ports, console, 2-180

entity traps, snmp, 2-603

- errors, bgp, 2-128
- exceptions, snmp, 2-606
- Exterior Gateway Protocol (EGP), 2-281 to 2-284

## F

- Facility Data Link (FDL), 2-234 to 2-236
- FDDI, 2-284 to 2-299
  - enabling/disabling, 3-22
  - subcommands, 2-284 to 2-299
- fdl
  - ds1e1, 2-234
- filters
  - ipx network-level, 2-399
  - ipx route, 2-391
- forced dialing, enabling/disabling, 3-50
- forced takedown, enabling/disabling, 3-50
- forwarding tables
  - bridge, 2-161
  - cached, IP, 2-360
- FR subcommands, 2-300 to 2-317
- fragmented packets
  - statistics, IP, 2-362
- frame errors
  - e1, 2-279
  - t1, 2-689
- frame relay services, 2-300 to 2-317
  - enabling/disabling, 3-23
- FTP, 1-5 to 1-6, 2-318, 3-24

## H

- hardware filters
  - CSMACD, 2-188
  - displaying all, 2-170
  - FDDI, 2-288
- hardware information, 2-321 to 2-327
- hardware subcommands, 2-321 to 2-327
- history
  - dsx3, 2-258
- HSSI, 2-331 to 2-339
  - enabling/disabling, 3-25
- HSSI subcommands, 2-331 to 2-339

- hwfilters
  - all driver circuits, 2-170
  - csmacd, 2-188
  - fddi, 2-288

## I

- ICMP statistics
  - IP, 2-363
- IGMP, 2-339 to 2-343, 3-26
- image, software, 2-323
- information, show system command, 2-682
- interfaces
  - ospf, 2-498
  - rsvp, 2-589
- internet control message protocol (ICMP), IP, 2-363
- Internet NCP, PPP, 2-530
- Internet Packet Exchange (IPX), 2-377 to 2-410
  - enabling/disabling, 3-28
- IP, 2-343 to 2-369
  - address, DLS, 2-221
  - enabling/disabling, 3-27
  - parameters, source routing, 2-620
  - static routes, displaying, 2-358
  - subcommands, 2-343 to 2-369
- IP stats
  - cache, 2-360
  - circuit, 2-359
  - datagrams, 2-360
  - fragmented packets, 2-362
- icmp
  - client, 2-363
  - in, 2-364
  - security
    - in, 2-367
    - out, 2-368
- IPEX
  - maps, x25, 2-741
  - sessions, x25, 2-742
- IPv6 subcommands, 2-370 to 2-376

## IPX

- Adjacent Host Table, 2-378
- NCP negotiation, PPP, 2-531
- route filter information, 2-391
- routing table, 2-392
- subcommands, 2-377 to 2-410

## iredund

- enable/disable commands, 3-29

## ISDN, 2-413 to 2-431

- enabling/disabling, 3-30 to 3-32

## L

### LAPB

- subcommands, 2-445 to 2-451

### LAPB layer, 2-445 to 2-451

- enabling/disabling, 3-33

### line

- configuration
  - lapb, 2-448
  - ppp, 2-534
  - x25, 2-744
- errors
  - e1, 2-280
  - t1, 2-690
- numbers, packet, 2-511
- parameters, ppp, 2-534
- quality reporting, PPP, 2-536

### line control protocol, PPP, 2-534

### lines

- atmdxi, 2-87
- fr, 2-306
- wcp, 2-726
- x25, 2-744

### link state database, OSPF, 2-500

### links, lnm, 2-460

### LNM

- enabling/disabling, 3-34
- servers, 2-451 to 2-461
- subcommands, 2-451 to 2-461

### loading scripts, 1-5 to 1-6

### local router name, PPP, 2-533

## lqr

- configuration, ppp, 2-536
- statistics, ppp, 2-537

## lsdb, ospf, 2-500

## M

### MAC address

- DLS, 2-221
- dls, 2-221
- fddi, 2-289

### Management Information Base, 1-2

### maps

- IPEX, x25, 2-741
- QLLC, x25, 2-743

### MCT1. *See* DS1E1

### memory

- hardware, 2-324
- show system command, 2-682

### menu

- adding commands, 1-21
- clearing, 1-21
- command, 1-3
- control feature, 1-20
- controlling, 1-20
- creating, 1-20
- deleting commands, 1-21
- editing commands, 1-22
- editing contents, 1-20
- editing title, 1-22
- interface to scripts, 1-17
- loading new, 1-22
- saving changes, 1-27
- title, editing, 1-22

### MIB, 1-2

### modem\_config, sync, 2-672

### modem\_state, sync, 2-673

### monitor command, 1-3

### mospf subcommands, 2-462 to 2-463

## N

- name binding protocol (NBP), statistics, 2-61
- native mode LAN (NML), 2-478 to 2-481
  - enabling/disabling, 3-36
- neighbors
  - egp, 2-282
  - ospf, 2-502
  - vines, 2-716
- NetBIOS, 2-469 to 2-471
  - dls, 2-222
  - nbip, 3-35
- nets, at, 2-59
- network control protocols, PPP, 2-517 to 2-546
- NLPID, ATM protocol, 2-92
- NML
  - enabling/disabling, 3-36
  - subcommands, 2-478 to 2-481
- node routes, decnet, 2-207
- Non-Broadcast Multi Access network, 2-498

## O

- ondemand\_dialing circuits
  - sws, 2-653, 2-655, 2-660
- ondemand\_dialing pools
  - sws, 2-655
- Open Shortest Path First (OSPF), 2-495 to 2-503
  - enabling/disabling, 3-38
- Open Systems Interconnection (OSI), 2-486 to 2-494
  - enabling/disabling, 3-37
  - subcommands, 2-486 to 2-494
- OSI NCP
  - PPP, 2-540
- OSPF
  - areas, 2-495
  - neighbors
    - broadcast, 2-502
    - point-to-point, 2-502
  - subcommands, 2-495 to 2-503
- OUI, ATM protocol, 2-92

## P

- packet capture
  - enabling/disabling, 3-39
  - subcommands, 2-504 to 2-512
- password authentication protocol, PPP, 2-541
- passwords, Inm, 2-461
- PATH environmental variable, 1-6
- pattern searching, 2-1
- peers
  - bgp, 2-128
  - dls, 2-223
- permanent virtual circuits, atm, 2-88
- permanent virtual connections
  - frame relay, 2-317
- PID, ATM protocol, 2-92
- ping
  - ipx, 2-387
  - MIB, 2-513 to 2-517
- point-to-point network, OSPF neighbors, 2-502
- Point-to-Point Protocol (PPP), 2-517 to 2-546
  - enabling/disabling, 3-40
- port, fddi, 2-290
- product support, xx
- PROM information, hardware, 2-325
- protocols, show system command, 2-683
- protopri subcommands, 2-552 to 2-555
- publications, Bay Networks, xix
- pvcs
  - fr, 2-317
- pvcs, atm, 2-88

## Q

- QLLC maps, x25, 2-743

## R

- RARP, 2-562 to 2-564
  - enabling/disabling, 3-41
  - subcommands, 2-562 to 2-564
- receive errors
  - all driver circuits, 2-170
  - csmacd, 2-189
  - ds1e1, 2-238
  - fddi, 2-292
  - hssi, 2-334
  - sync, 2-141, 2-671, 2-674
  - token, 2-703
- relay agents, BOOTP, 2-148
- remote router name, PPP, 2-533
- repeater, 2-567 to 2-575
  - enabling/disabling, 3-42
- rfilters, ip, 2-350
- rifs, xb, 2-752
- rip
  - alerts, ip, 2-353
  - at, 2-59
  - disabled, ip, 2-353
  - enabled, ipx, 2-390
  - ip, 2-352, 2-354
  - ipx, 2-388
  - xns, 2-763
- rip6 subcommands, 2-565 to 2-566
- RMON services
  - enabling/disabling, 3-15
  - status, 2-195
- route filters, ipx, 2-391
- routes
  - at, 2-59
  - bgp, 2-130
  - ip, 2-354
  - ipx, 2-392
  - osi
    - level 1, 2-490
    - level 2, 2-491
  - static
    - IP, 2-358
    - IPX, 2-404
  - vines, 2-717
  - xns, 2-764

- Routing Table Maintenance Protocol (RTMP),
  - statistics, 2-61
- rredund
  - enable/disable commands, 3-43
- RSVP subcommands, 2-588 to 2-589

## S

- sample data
  - csmacd, 2-190
  - ds1e1, 2-239
  - fddi, 2-293
  - hssi, 2-335
  - sync, 2-142, 2-675
  - token, 2-704
- sap
  - atm, 2-92
  - dls, 2-223
  - enabled, IPX, 2-398
  - ipx, 2-395
  - table, IPX, 2-401
  - xb, 2-753
- scripts, menus, 1-17
- SDLC, 2-590 to 2-594
  - enabling/disabling, 3-44
- security
  - lists, nml, 2-480
  - statistics
    - in, 2-367
    - out, 2-368
- serial port
  - configuration, 2-176 to 2-179
  - error statistics, 2-180
- server level filters, ipx, 2-399
- servers
  - BOOTP, 2-148
  - DHCP, 2-148
- service record, fr, 2-309
- service status
  - dsu/csua, 2-667
- services
  - ipx, 2-400
  - x25, 2-745

- shaping
  - fr, 2-310
  - stats, fr, 2-313
- show command, described, 1-3
- show commands
  - ahb, 2-2 to 2-5
  - appn, 2-6 to 2-49
  - at, 2-50 to 2-65
  - atm, 2-66 to 2-76
  - atm line, 2-99 to 2-110
  - atmdxi, 2-84 to 2-93
  - aurp, 2-111 to 2-120
  - autoneg, 2-120
  - bgp, 2-127 to 2-135
  - bisync, 2-136 to 2-145
  - bootp, 2-146 to 2-150
  - bot, 2-151 to 2-157
  - bridge, 2-158 to 2-163
  - circuits, 2-164 to 2-174
  - console, 2-175 to 2-181
  - csmacd, 2-182 to 2-194
  - dcm, 2-195 to 2-199
  - decnet, 2-200 to 2-213
  - dls, 2-214 to 2-225
  - ds1e1, 2-226 to 2-250
  - dvmrp, 2-266 to 2-275
  - e1, 2-275 to 2-281
  - egp, 2-281 to 2-284
  - fddi, 2-284 to 2-299
  - fr, 2-300 to 2-317
  - ftp, 2-318
  - fwall, 2-319 to 2-320
  - hardware, 2-321 to 2-327
  - hifn, 2-328 to 2-330
  - hssi, 2-331 to 2-339
  - igmp, 2-339 to 2-343
  - ip, 2-343 to 2-369
  - ip6, 2-370 to 2-374
  - ipx, 2-377 to 2-410
  - irredund, 2-411
  - isdn, 2-413 to 2-424
  - isdn bri, 2-424 to 2-431
  - l2tp, 2-432 to 2-434
  - lapb, 2-445 to 2-451
  - list of, 1-9
  - lnm, 2-451 to 2-461
  - mpoa, 2-466 to 2-468
  - nbip, 2-469 to 2-471
  - nhrp, 2-471 to 2-478
  - nml, 2-478 to 2-481
  - osi, 2-486 to 2-494
  - ospf, 2-495 to 2-503
  - packet, 2-504 to 2-512
  - ping, 2-513 to 2-517
  - ppp, 2-517 to 2-546
  - protopri, 2-552 to 2-555
  - rarp, 2-562 to 2-564
  - rip6, 2-565
  - rptr, 2-567 to 2-575
  - rredund, 2-576
  - rsc, 2-584 to 2-587
  - rsvp, 2-588 to 2-589
  - sdlc, 2-590 to 2-594
  - smds, 2-594 to 2-598
  - snmp, 2-599 to 2-607
  - span, 2-607 to 2-614
  - sr, 2-615 to 2-627
  - srsrspan, 2-628 to 2-634
  - sta, 2-635 to 2-637
  - stac, 2-638 to 2-639
  - state, 2-640 to 2-642
  - sws, 2-643 to 2-661
  - sync, 2-662 to 2-679
  - system, 2-680 to 2-684
  - t1, 2-685 to 2-692
  - tcp, 2-693 to 2-695
  - telnet, 2-696
  - tftp, 2-698
  - token, 2-699 to 2-710
  - vines, 2-711 to 2-722
  - wcp, 2-723 to 2-730
  - x25, 2-737 to 2-747
  - xb, 2-748 to 2-757
  - xns, 2-758 to 2-768
- Simple Network Management Protocol (SNMP), 2-599 to 2-607
- slots
  - dls, 2-224
  - hardware, 2-325
- SMDS, 2-594 to 2-598
  - subcommands, 2-594 to 2-598
- smt, fddi, 2-294



- SNMP, 2-599 to 2-607
  - enabling/disabling, 3-45
  - subcommands, 2-599 to 2-607
- source routing, 2-615 to 2-627
  - alerts, 2-748
  - enabling/disabling, 3-47
  - enabling/disabling spanning tree, 3-48
  - interfaces, translation bridge, 2-753
  - ip parameters, 2-620 to 2-625
  - RIFs, 2-752
  - subcommands, 2-615 to 2-627
- span subcommands, 2-607 to 2-614
- spanning tree bridge, 2-607 to 2-614
  - enabling/disabling, 3-46
- sr interfaces
  - xb, 2-753
- ST 2 protocol
  - reserved resources, 2-584
- STA subcommands, 2-635 to 2-637
- state
  - ppp, 2-542
  - subcommands, 2-640 to 2-642
- static
  - adjacencies, decnet, 2-208
  - ip, 2-358
  - ipx, 2-404, 2-405
  - routes, xns, 2-765
- station management, FDDI, 2-294
- stations, xb, 2-755
- statistical thresholds, 2-635
- statistics, 2-162
  - all driver circuits, 2-171
  - at, 2-61
  - atm, 2-73 to 2-75
  - atm line, 2-108 to 2-110
  - atmdxi, 2-90 to 2-93
  - aurp, 2-117 to 2-119
  - bgp, 2-133
  - bisync, 2-143
  - bootp, 2-149
  - bridge, 2-162
  - bts, 2-156
  - cache, ip, 2-360
  - circuit, fr, 2-311
  - console, 2-180
  - csmacd, 2-191
  - datagrams, ip, 2-360
  - decnet, 2-209 to 2-212
  - dsle1, 2-241
  - dvmrp, 2-272 to 2-273
  - egp, 2-283
  - errors, xns, 2-766
  - fddi, 2-297
  - fr, 2-314
  - fragments, ip, 2-362
  - hssi, 2-336
  - icmp, ip, 2-363 to 2-366
  - igmp, 2-342
  - ip, 2-359
  - ipx, 2-407
  - isdn bri, 2-429
  - lapb, 2-450
  - nml, 2-481
  - osi, 2-492 to 2-493
  - receive, atm, 2-106
  - rptr, 2-570 to 2-574
  - sdlc, 2-593
  - security, ip, 2-367, 2-368
  - smds, 2-598
  - span, 2-613
  - sr, 2-626
  - srspan, 2-633
  - sta, 2-637
  - sync, 2-676
  - token, 2-705 to 2-708
  - vines, 2-718 to 2-719
  - x25, 2-746
  - xb
    - sr, 2-754
    - tb, 2-756
    - xns, 2-765
- status, packet capture lines, 2-512
- subcommands, listing, 1-8
- summary, bgp, 2-133
- support, Bay Networks, xx
- Switch Services, 2-643 to 2-661
- Switched Multi-Megabit Data Service, 2-594 to 2-598
- SYNC, 2-662 to 2-679
  - enabling/disabling, 3-51
  - subcommands, 2-662 to 2-679

- system errors
  - all driver circuits, 2-172
  - csmacd, 2-192
  - ds1e1, 2-242
  - fddi, 2-298
  - hssi, 2-337
  - sync, 2-144, 2-677
  - token, 2-708
- system information, 2-682
- SYSTEM subcommands, 2-680 to 2-684

## T

- T1, 2-685 to 2-692
  - enabling/disabling, 3-52
  - subcommands, 2-685 to 2-692
- tasks, show system command, 2-683
- TCP, 2-693 to 2-695
  - subcommands, 2-693 to 2-695
- technical publications, xix
- technical support, xx
- Technician Interface environment, 2-176
- telnet
  - enabling/disabling, 3-54
  - subcommands, 2-696
- text conventions, xiv
- TFTP, 2-698
  - enabling/disabling, 3-55
  - subcommands, 2-698
- thresholds, statistical, 2-635
- timers, bgp, 2-134
- token ring, 2-699 to 2-710
  - enabling/disabling, 3-56
  - subcommands, 2-699 to 2-710
- total neighbors, vines, 2-720
- total routes, vines, 2-720
- totals, at, 2-63
- traffic filters
  - decnet, 2-212
  - ip, 2-369
  - ipx, 2-409
  - vines, 2-721
  - xns, 2-768

- translation bridge (XB), 2-748 to 2-757
  - enabling/disabling, 3-60
- Transmission Control Protocol (TCP), 2-693 to 2-695
  - enabling/disabling, 3-53
- transmit errors
  - all driver circuits, 2-173
  - csmacd, 2-193
  - ds1e1, 2-248
  - fddi, 2-299
  - hssi, 2-338
  - sync, 2-144, 2-678
  - token, 2-709
- transparent bridge, 2-755
  - alerts, 2-748
  - interfaces, 2-755
- Trivial File Transfer Protocol (TFTP), 2-698
  - enabling/disabling, 3-55

## U

- unreserved, rsc, 2-586

## V

- vcs
  - x25, 2-747
- ves, wcp, 2-727
- version
  - dsx3, 2-265
  - protopri, 2-555
  - x25, 2-746
- VINES, 2-711 to 2-722
  - enabling/disabling, 3-57
  - NCP, PPP, 2-545
  - subcommands, 2-711 to 2-722
- volume IDs, specifying, 1-6

## W

- WCP, 2-723 to 2-730
  - enabling/disabling, 3-58
- weights, bgp, 2-135
- wildcard searching, 2-1

## **X**

### **X.25**

subcommands, 2-737 to 2-747

### **X.25 services, 2-737 to 2-747**

enabling/disabling, 3-59

### **XB subcommands, 2-748 to 2-757**

### **Xerox Network Systems (XNS), 2-758 to 2-768**

enabling/disabling, 3-61

NCP, PPP, 2-546

RIP interfaces, 2-763

subcommands, 2-758 to 2-768

## **Z**

### **Zone Information Protocol**

AppleTalk, 2-64

statistics, 2-61

zones, at, 2-64

