Release Notes for Site Manager Software Version 4.0

Router Software Version 10.0
Site Manager Software Version 4.0

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Release Notes for Site Manager Version 4.0

Site Manager Version 4.0 lets you manage Bay Networks™ routers running Router Software Versions 8.10, 8.11, 9.0, and 10.0. These release notes include information on the following topics:

- New features in Version 4.0
- Online Library Version 10.0
- Guidelines for working with Site Manager 4.0
- Amendments to the documentation
- Task maps for installing or upgrading hardware and software
- Finding instructions on performing tasks after installing or upgrading

New Features in Version 4.0

Version 4.0 of Site Manager supports the new features in Router Software Version 10.0, described in *Release Notes for Router Software 10.0*.

File Selection Window Limits Increased

The number of files that can appear in the Path List and Directories List display windows in the File Selection window has been increased from 100 to 500.

Online Library Version 10.0

Read this section before you install the Online Library Version 10.0 CD.

Selectively Installing Databases on the Hard Drive

You can now selectively install databases on the PC and Macintosh platforms. Refer to the Online Library 10.0 guide for instructions.

Caution: *If you choose not to install certain databases on your hard drive, the viewing program continues to try to access those databases from the CD. If you try to view one of these databases without inserting the CD in the CD drive, an error message appears, and you may need to reboot your computer.*

It is not possible to selectively install databases on the UNIX platforms. You must install all databases on the hard drive and then delete any databases you do not want (refer to “Deleting Databases on a UNIX Workstation”).

Viewing Figures

You can now choose to view figures within the text of a document or in a separate window. The default setting allows you to view figures in a separate window; follow the procedures below to view figures in the body of the text.

- On UNIX platforms, select Options→Prefs, then choose Inline from the Set Artwork Display menu.
- On a PC, select Options→Preferences, then click on the In-Line option.
- On a Macintosh, select Edit→Preferences, then click on the In Document Windows option.

Limitations

If you access the Online Library from the main window of a Site Manager tool on a PC, you will see

- A screen that identifies the Online Library Version
- A list of the databases in the library

In future releases, if you access the Online Library in this way, you will see the appropriate information for the Site Manager tool. For information on accessing the Online Library from Site Manager, refer to the *Read Me First* section in the Getting Started database on the CD.

Guidelines for Working with Site Manager

The sections that follow provide guidelines for working with Site Manager Version 4.0. These guidelines supplement the instructions in the documentation set. Unless otherwise indicated, the guidelines that follow apply to Site Manager software running under all supported operating systems: UNIX on the Sun SPARCstation, HP 9000, IBM RS/6000, and MS Windows on the PC.

Site Manager and Router Software Compatibility

Site Manager 4.0 is supported for use with routers operating the following releases:

- 8.10
- 8.1*x* (such as 8.12)
- 9.0
- 9.0*x* (such as 9.01)
- 10.0

Outbound LAN Traffic Filters

When implementing outbound traffic filters for LAN protocols, note that in some configurations the filters may cause a decline in throughput performance. For LAN circuits where the forwarding rate of the router is critical, we suggest that you monitor the throughput performance after configuring outbound LAN filters. If you notice an unacceptable performance degradation, try using inbound traffic filters to accomplish the filtering goal.

Using X11R6 with Site Manager

You must upgrade to fix 12 of X11R6 for Site Manager to operate correctly with that product.

Socket Binding Message with Network Management Systems

Network management systems such as OpenView or SunNet Manager may prevent Site Manager from binding to the SNMP sockets. As a result, you may receive one of the following trap messages:

```
wftraps: : Unable to bind udp/snmp sockets. (C3501)
```

```
wftraps: : Permission to bind a socket is denied. Verify that the
application is owned by “root”, and that the permissions have been
configured to set the effective user id to that of the owner of the
file when the file is run. If the permissions are correct, another
process may have already bound to the udp ports. (C3501)
```

To solve this problem, stop the network management system that is binding to the socket (kill the process ID).

Using Site Manager with Chameleon

Version 4.01 of the Chameleon stack has a trap feature and if it is enabled, it blocks Site Manager from receiving traps and causes Site Manager to fail. If you are using Version 4.01 Chameleon, you can disable the trap feature by selecting Custom→Services→SNMP→Trap→Disable.

Using a 7.57 Configuration File with a Later Release

You cannot boot a router running Version 7.60 or later with a 7.57 configuration file created with an application other than Site Manager, because the configuration file is missing a component. To work around this limitation, first read the configuration file into Site Manager and save it. Then you can successfully use the configuration file to start the router.

ANH with N11

The ANH™ router with N11 may malfunction when you initially configure the DCM using Site Manager. To avoid this problem, create the DCM using Site Manager, and verify that wfDMONN11 agent is operational. You can then modify any DCM values according to the RMON network management software package you use.

Config Generator Tool

Config Generator is a UNIX command line tool that lets you create bootable binary configuration files from the edited ASCII configuration file reports that you create with the Report Generator tool. This new feature replaces the Profiler feature, which is no longer available. (In previous releases, the Profiler feature was available as an option on the File menu in the Configuration Manager window.)

Joining an Incompatible Emulated LAN

Bay Networks routers currently support only Ethernet IEEE 802.3 emulated LAN connectivity. When accepting the default, Unspecified, for the LEC LAN Type parameter, ensure that the LAN Emulation Configuration Server (LECS) supplies a configuration for an IEEE 802.3 emulated LAN. (Refer to *Configuring ATM Services* for more information about the LEC LAN Type parameter.)

If the LECS tries to assign a client to a Token Ring 802.5 emulated LAN, the attempt fails and the router software generates the following log message:

```
#   58: 01/11/96 17:05:59.714   WARNING   SLOT  5  ATM_LE Code:  34
LEC: Config Resp incompatible LAN type (802.5) returned - FAILED
```

New Default for Keepalive Time Parameter in DLSw Configurations

The Keepalive Time parameter now has a default value of 60 seconds. In new DLSw configurations, this setting may cause TCP log entries that did not previously appear in the log.

Ensuring Correct FTP Transfer Type

The FTP server that runs on the router uses a default transfer type of Binary. (You can change the default transfer type to ASCII using the Type of Service parameter in the Edit FTP Global Parameters window. See *Configuring TCP Services* for more information.) The default transfer type for UNIX FTP clients is ASCII. Be sure to change the transfer type on the FTP client for the type of transfer you want before you initiate the transfer. For text files, choose ASCII; for image files, choose Binary.

Changing Site Manager Fonts and Colors

Refer to the appropriate section to display and change the Site Manager fonts and colors:

- "Changing Fonts and Colors on a PC"
- "Changing Fonts and Colors on a UNIX Workstation"

Changing Fonts and Colors on a PC

This section describes how to change the fonts and colors displayed in the Site Manager windows.

Fonts

To change Site Manager fonts on the PC, open the file *jam.ini* in your MS Windows directory (usually *\windows*). Search for the following line:

```
SystemFont=OEM_FIXED_FONT
```

Change `OEM_FIXED_FONT` to the font you want. The*jam.ini* file provides examples. A sample change follows:

```
SystemFont=SYSTEM_FIXED_FONT
```

Colors

The color scheme of the Microsoft Windows Program Manager determines the colors displayed in Site Manager windows. To change the colors, refer to the Microsoft Windows reference manual.

Caution: *We strongly recommend that you do not edit the colors defined in the jam.ini file; this may cause problems with Site Manager.*

Changing Fonts and Colors on a UNIX Workstation

You can change fonts and colors for your own use of Site Manager or for all users of Site Manager on a workstation.

The *.Xdefaults* file in your home directory determines the fonts and colors for your own use of Site Manager.

The *XJam* file determines the fonts and colors displayed in Site Manager windows for all users of Site Manager. On SPARCstations running OpenWindows, this file is in the *$OPENWINHOME/lib/app-defaults* directory. On SPARCstations running X11, HP 9000, or RS/6000 workstations, this file is in the */usr/lib/X11/app-defaults* directory.

When changing a font or color, first make sure that your system supports the new color. Refer to the documentation that comes with your system.

Fonts

To change the font for your own use of Site Manager:

1. **Add the following line to your** *.Xdefaults* **file, where** *font* **is the name of the font you want:**

   XJam*fontList:*font**

2. **Save your** *.Xdefaults* **file.**

3. **Enter the following command to reload the contents of the** *.Xdefaults* **file on the X server:**

   xrdb -merge .Xdefaults

To change the font for all users of Site Manager on this workstation:

1. **Open the** *XJam* **file.**
2. **Search for the following line:**

   `XJam*fontList:8x13`
3. **Change** `8x13` **to the font you want.**
4. **Save the** *XJam* **file.**

Colors

To change the foreground or background color for your own use of Site Manager:

1. **Add the appropriate line to your** *.Xdefaults* **file.**

   If you want to change the foreground, add the following line, where *color* is the name of the color you want:

   XJam*foreground:*color**

   If you want to change the background, add the following line, where *color* is the name of the color you want:

   XJam*background:*color**
2. **Save your** *.Xdefaults* **file.**
3. **Enter the following command to reload the contents of the** *.Xdefaults* **file on the X server:**

   xrdb -merge.Xdefaults

To change the foreground or background color for all users of Site Manager on this workstation:

1. **Open the** *XJam* **file.**
2. **Search for the appropriate line, as follows:**

   If you want to change the foreground, search for the following line:

   `XJam*foreground:steelblue3`

   If you want to change the background, search for the following line:

   `XJam*background:chartreuse3`
3. **Change the color name to the one you want.**
4. **Save the** *XJam* **file.**

Amendments to the Documentation

The sections that follow describe amendments to the Version 10.0 documentation noted in the following headings.

Configuring PPP Services

Subject: **Max Links and Max Buffers Parameters**

Description: The Max Links and Max Buffers parameters described in Chapter 4 and Appendix A no longer appear in the PPP Interface Lists window.

Configuring Bridging Services

Subject: **Priority Parameter**

Description: The description of the Priority parameter (which appears in the Spanning Tree Interfaces window) on page 1-31 incorrectly lists the range of values as 0 to 255. The correct range is 1 to 255.

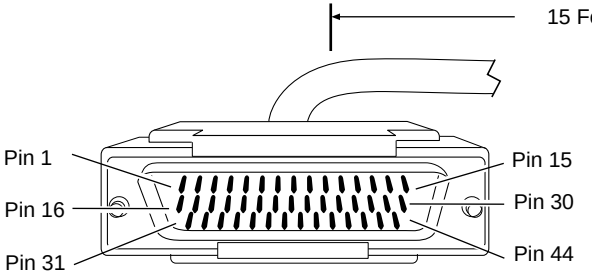
Subject: **Bridge Table Size Parameter**

Description: The function description of the Bridge Table Size parameter (which appears in the Edit Bridge Global Parameters window) on page 1-21 incorrectly states that if you enter an invalid value, the system rounds up or down from the invalid value to the nearest valid value. You should click on the Values button and select one of the values listed. If you type a value other than one of those listed, the system returns an error message.

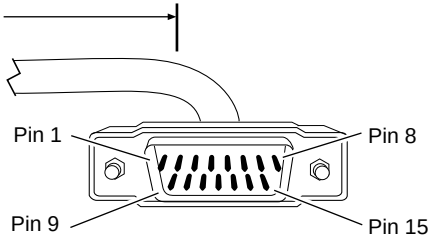
Cable Guide for Routers and BNX Platforms

Subject: **44-Pin Synchronous to X.21 Cable**

Description: On page 6-28, the illustration of the 44-pin synchronous to X.21 cable (Order No. 7224) incorrectly shows a 44-position D-sub plug to a 25-position D-sub plug. The correct illustration should show a 44-position D-sub plug to a 15-position D-sub plug. The correct illustration follows.



44-Position D-Sub Plug with Screw Locks
(Ground Shield Connected to Backshell)



15-Position D-Sub Plug with Locking Posts
(Ground Shield Connected to Backshell)

Using Technician Interface Scripts

Subject: **show IP Scripts**

Description: The following sections include updated information on **show IP** scripts.

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 specify an IP address, the command displays the associated MAC address. The ARP 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      Physical Address     Type
---------------- ------------------- --------
151.11.1.2       00-00-A2-06-B9-AA    Dynamic
151.11.2.2       00-00-A2-06-7A-FA    Dynamic
192.32.37.161    00-00-A2-01-DF-B7    Dynamic
192.32.37.162    08-00-20-1F-25-8B    Dynamic

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 [est. 0]
hosts.
Maximum policy rules per type per protocol: 32

------------------------------------------------------------------
```

Subject: **Script Output for show atm phy Subcommand**

Description: The following script information lists all of the Type and Framing Mode possibilities for the **show atm phy** subcommand.

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, or 44,736,000 Mb/s
Type	Interface type: OC-3 MM (multimode), OC-3 SM (single mode), DS3, or E3
Framing Mode	Transceiver mode: SDH, SONET, CBIT, M23, G751, or G832

Subject: **ATM show dsx3 Script Output**

Description: The following is a description of the ATM **show dsx3** script.

show dsx3 *<option>*

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 • *B3ZS* • *HDB3* 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:
------------
                        Sec into    # of      Line
Circuit Name  Index     Interval  Intervals  Coding  Line Type   Status
------------  -------  --------  ---------  ------  ---------   -------
A41           1404101       704         68  HDB3    E3_other    NoAlarm
A61           1405101       705         68  B3ZS    DS3_M23     NoAlarm
```

current [*<circuit 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 • *B3ZS* • *HDB3*
Line Type	The line type of this circuit. 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

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.
CSESs	The number of C-bit severely errored seconds (CSESs) in the current interval. A CSES 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 CSES 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.
CSESs	The number of C-bit severely errored seconds (CSESs) in the current interval. A CSES 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 CSES 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 • *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 current

```
                                    Sec into    # of    Line
Circuit Name  Index   Interval Intervals  Coding  Line Type   Status
------------ ------- -------- ---------  ------  ----------  ---------
A41           1404101      747         68  HDB3    E3_other    NoAlarm

Line stats:
-----------
Circuit Name     Interval LESs  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

                     Sec into    # of    Line
Circuit Name  Index   Interval Intervals  Coding  Line Type   Status
------------ ------- -------- ---------  ------  ----------  ---------
A61           1405101      749         68  B3ZS    DS3_M23     NoAlarm

Line stats:
-----------
Circuit Name     Interval LESs  SEFSs UASs    LCVs
---------------- -------- ----- ----- ----- --------
A61               current     0     0     0        0



Pbit status:
-----------
Circuit Name     Interval PESs  PSESs UASs    PCVs
---------------- -------- ----- ----- ----- --------
A61               current     0     0     0        0

Cbit stats:
-----------
Circuit Name     Interval CESs  CSESs UASs    CCVs
---------------- -------- ----- ----- ----- --------
A61               current     0     0     0        0

FarEnd Cbit stats:
------------------
Circuit Name     Interval CESs  CSESs 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 • *B3ZS* • *HDB3*
Line Type	The line type of this circuit. 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

Line Stats

Circuit Name	Name of the circuit associated with this line.
Interval	A historical breakdown of intervals, including • The current interval (incomplete) • All but the last two intervals (that is, all of the intervals except the current interval and the previous interval) • The previous interval (that is, the last complete interval) • All of the intervals (total)
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 • The current interval (incomplete) • All but the last two intervals (that is, all of the intervals except the current interval and the previous interval) • The previous interval (that is, the last complete interval) • All of the intervals (total)
PESs	The number of P-bit errored seconds (PESs) for each interval category.
PSESs	The number of P-bit severely errored seconds (PSESs) 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 • The current interval (incomplete) • All but the last two intervals (that is, all of the intervals except the current interval and the previous interval) • The previous interval (that is, the last complete interval) • All of the intervals (total)
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 • The current interval (incomplete) • All but the last two intervals (that is, all of the intervals except the current interval and the previous interval) • The previous interval (that is, the last complete interval) • All of the intervals (total)
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.

DS3 Plcp Stats

Circuit Name	Name of the circuit associated with this line.
Interval	A historical breakdown of intervals, including • The current interval (incomplete) • All but the last two intervals (that is, all of the intervals except the current interval and the previous interval) • The previous interval (that is, the last complete interval) • All of the intervals (total)
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 • *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 history

```
DSX3 entries:
-------------
                      Sec into    # of    Line
Circuit Name  Index   Interval Intervals  Coding  Line Type   Status
------------- ------- -------- ---------  ------  ----------  ---------
A41           1404101      830        68  HDB3    E3_other    NoAlarm

Line stats:
-----------
Circuit Name     Interval LESs  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

DS3 Plcp stats:
---------------
Circuit Name     Interval SEFSs UASs    Status
---------------- -------- ----- ----- ----------
A41                 total     0     0 LOF


                      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 LESs  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

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: 1.4 Date: 1/17/96
```

Subject: **show ppp Scripts**

Description: The following sections describe the **multilink**, **wcp**, and **chap** subcommand options to the **show ppp** command.

multilink {information | circuits}

Displays all configurable parameters for circuits configured as PPP multilink. The table includes the following information:

Circuit	Name of the circuit on which the protocol runs
Line Count	Number of lines in the bundle
Bundle Speed	Aggregate speed of the bundle
Line	Line identifier(s)

Sample Display – show ppp multilink information

```
PPP Multilink Information
-------------------------

                       Bundle
 Circuit  Line Count   Speed      Line
 -------- ----------- --------- ----------
 S51                0         0       None

 1 Entry found.
```

circuits

Displays the circuit data for circuits configured as PPP multilink. The table includes the following information:

Circuit	Name of the circuit on which the protocol runs.
Config Mode	The configured mode of the circuit; that is, whether the circuit is configured as multilink or non-multilink (“normal”). For multilink circuits, this indicates whether the local peer is the multilink monitor.
Actual Mode	The actual mode of the circuit.
Tx Packets	Number of packets transmitted.
Rx Packets	Number of packets received.

Sample Display – show ppp multilink circuits

```
 PPP Multilink Circuits
----------------------


 Circuit   Config Mode    Actual Mode   Tx Packets  Rx Packets
 -------- -------------- -------------- ----------- -----------
 S51      ML_Non-Monitor Normal                   0           0

 1 Entry found.
```

wcp

Displays Network Control Protocol (NCP) compression data for PPP circuits. The table includes the following information:

Circuit	Name of the circuit on which the protocol runs
State	Current state (enabled or disabled) of the indicated circuit

Sample Display – show ppp wcp

```
 PPP: WCP NCP Information
------------------------

 Circuit   State
 -------- --------
 S51      Disabled

 1 Entry found.
```

chap {local | remote}

local

Displays local CHAP configuration information for PPP circuits. The table includes the following information:

Circuit	Name of the circuit on which the protocol runs.
Line.LLIndex	The line number assigned to the driver on top of which PPP is running, followed after the dot by the lower layer index presented to PPP by the layer immediately below it on the protocol stack. If the lower layer is a driver, the index is 0.
LCP State	The current state of the OSINLCP Finite State Machine; possible values are starting(1) closed(2) stopped(3) closing(4) stopping(5) reqsent(6) ackrcvd(7) acksent(8) opened(9)
Local CHAP Name	This attribute assigns a local CHAP Name that informs our peer of our identity.
Local CHAP Secret	This CHAP Secret *must* be the same on both sides of the link if CHAP is used as the Authentication protocol.

Sample Display – show ppp chap local

```
 PPP Line: Local CHAP Configuration
---------------------------------

           Line.       LCP             Local                    Local
 Circuit   LLIndex    State          CHAP NAME               CHAP Secret
-------- ---------- -------- ------------------------  -----------------
 S51      205101.0   Opened    None                     None

 1 Entry found.
```

remote

Displays local CHAP configuration information for PPP circuits. The table includes the following information:

Circuit	Name of the circuit on which the protocol runs.
Line.LLIndex	The line number assigned to the driver on top of which PPP is running, followed after the dot by the lower layer index presented to PPP by the layer immediately below it on the protocol stack. If the lower layer is a driver, the index is 0.
LCP State	The current state of the OSINLCP Finite State Machine; possible values are starting(1) closed(2) stopped(3) closing(4) stopping(5) reqsent(6) ackrcvd(7) acksent(8) opened(9)
Remote CHAP Name	This attribute stores our peer's CHAP Name, which is used to learn our peer's identity.
Remote CHAP Secret	This CHAP Secret *must* be the same on both sides of the link if CHAP is used as the Authentication protocol.

Sample Display – show ppp chap remote

```
PPP Line: Remote CHAP Configuration
-----------------------------------

          Line.       LCP             Remote                    Remote
Circuit  LLIndex    State          CHAP NAME        Expected CHAP Secret
-------- --------- -------- ------------------- -----------------------------
 S51      205101.0   Opened   None                      None

 1 Entry found.
```

Subject: **disable/enable snmp Script**

Description: The following is a description of the **disable snmp** and **enable snmp** commands.

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, BOOTP, DHCP, and RARP Services.*

Subject: **show wcp Scripts**

Description: The following is a description of the **show wcp** script.

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:

circuits [<circuit_name>]	stats [errors]|[<line_number.llindex.circuit_number.vc_id>]
lines [<line_number.llindex>]	hwcomp [stats,errors][slot.module.engine]
vcs [<line_number.llindex.circuit_number.vc_id>] (circuit number can be obtained by issuing the command **show wcp circuit**)	version

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, History Size, or Engine Type according to case.
History Size	History size for the compression facility: 32 KB, 8 KB, or Inherit.
Engine Type	Engine type for this circuit: Software, Hardware or Inherit

Sample Display – show wcp circuits

```
WCP Circuit Entries
-------------------
                                                  Cfg
 Circuit Circuit          Compression History Engine
  Name    Number  Enable      Mode      Size   Type
-------- ------- -------- ----------- ------- -------
S31            2 Enabled  Inherit     Inherit Inherit
S32            3 Enabled  Inherit     Inherit Inherit
S33            4 Enabled  Inherit     Inherit Inherit
S34            5 Enabled  Inherit     Inherit Inherit
S35            6 Enabled  Inherit     Inherit Inherit
S36            7 Enabled  Inherit     Inherit Inherit
S37            8 Enabled  Inherit     Inherit Hw
S38            9 Enabled  Inherit     Inherit Sw

8 WCP circuit(s) configured.
```

lines [*<line>*]

Displays information about WCP lines for all configured lines or for a specified line.

<line>	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.
Engine Type	Engine Type for the lines display: Hardware or Software

Sample Display – show wcp lines

```
WCP Line Entries
----------------
                                                                      Cfg
   Line      LL                                Compress Hist   Buffer   Engine
  Number   Index Slot Module Conn   Enable     Mode   Size    Size     Type
---------- ----- ---- ------ ----- -------- -------- ---- ---------- ------
    203101     0    3      1 COM1  Enabled  CPC      32K  Normal     Hw
    203102     0    3      1 COM2  Enabled  CPC      32K  Normal     Hw
    203103     0    3      1 COM3  Enabled  CPC      32K  Normal     Hw
    203104     0    3      1 COM4  Enabled  CPC      32K  Normal     Hw
    203105     0    3      1 COM5  Enabled  CPC      32K  Normal     Sw
    203106     0    3      1 COM6  Enabled  CPC      32K  Normal     Sw
    203107     0    3      1 COM7  Enabled  CPC      32K  Normal     Sw
    203108     0    3      1 COM8  Enabled  CPC      32K  Normal     Sw

8 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 (retransmitting).
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.
Engine Type	Engine type for this virtual circuit: Hardware or Software

Sample Display – show wcp vcs

```
WCP Virtual Circuit Entries
---------------------------
                                                                    Act  Act
   Line      LL             Vc   Compression Decompression Compress Hist Eng
  Number   Index Cct Name   Id      State        State       Mode   Size Type
---------- ----- -------- ----- ------------ ------------- -------- ---- ----
    203101     0 S31          0 Data         Data          CPC      32K  Hw
    203102     0 S32          0 Data         Data          CPC      32K  Hw
    203103     0 S33          0 Data         Data          CPC      32K  Hw
    203104     0 S34          0 Data         Data          CPC      32K  Hw
    203105     0 S35          0 Data         Data          CPC      32K  Sw
    203106     0 S36          0 Data         Data          CPC      32K  Sw
    203107     0 S37          0 Data         Data          CPC      32K  Sw
    203108     0 S38          0 Data         Data          CPC      32K  Sw

8 WCP virtual circuit(s) configured.
```

stats [**errors**] [*<line number.llindex.circuit number.VC ID>*]

Displays statistics for all existing WCP virtual circuits. This command displays the following information.

Compression Ratio	Compressor In divided by Compressor Out.
Decompression Ratio	Compressor Out divided by Compressor In.
Compressor In	Number of bytes inputted into the compression facility.
Compressor Out	Number of bytes outputted from the compression facility.
Decompressor In	Number of bytes inputted into the decompression facility.
Decompressor Out	Number of bytes outputted 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       LL              Vc  Compression Decompression
  Number     Index Circuit    Id     Ratio        Ratio
---------- ------- -------- ----- ----------- -------------
    201301       0 Demand 2     0       6.3:1         6.5:1

   Compressor   Compressor  Decompressor Decompressor
       In           Out          In           Out
  ------------ ------------ ------------ ------------
          8732         1372         1334         8732

   CPC Packets  CPC Packets  PPC Packets  PPC Packets
   Transmitted   Received    Transmitted   Received
  ------------ ------------ ------------ ------------
            18           18            0            0

1 Entry.
```

Sample Display – show wcp stats 201301.0.2.0

```
WCP Performance and Data Statistics
-----------------------------------

   Line      LL              Vc  Compression Decompression
  Number    Index Circuit    Id     Ratio        Ratio
---------- ------- -------- --- ----------- -------------
    201301       0 Demand 2   0       8.3:1         8.3:1

   Compressor   Compressor  Decompressor Decompressor
       In           Out          In           Out
  ------------ ------------ ------------ ------------
         13098         1560         1566        13098

   CPC Packets  CPC Packets  PPC Packets  PPC Packets
   Transmitted   Received    Transmitted   Received
  ------------ ------------ ------------ ------------
            27           27            0            0

1 Entry.
```

Sample Display – show wcp stats errors 201301.0.2.0

```
WCP Error Statistics
--------------------

   Line      LL              Vc  Compression Decompression
  Number   Index  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.
```

hardware compression [<slot.module>]

Displays information about hardware compression for all configured modules or for specified modules.

Slot	Slot number.
Module	Module number.
State	Indicates whether the module is up or down.
Hardware Compression Module Type	Module type: 32 8-KB contexts or 128 8-KB contexts.
Active 32 K CPC Contexts	Number of active 32 KB continuous packet compression contexts.
Active 8 K CPC Contexts	Number of active 8 KB continuous packet compression contexts.
Active PPC Contexts	Number of active packet-by-packet compression contexts.
Unused 32 K CPC Contexts	Number of unused 32 KB continuous packet compression contexts.
Unused 8 K CPC Contexts	Number of unused 8 KB continuous packet compression contexts.
Total Compressed Packets	Total number of packets that have been compressed.
Total Decompressed Packets	Total number of packets that have been decompressed.

Total Tx Expanded Packets	Total number of packets that expanded, resulting in the original packet being sent.
Total Rx NonCompressed Packets	Total noncompressed packets received.
Total Mod Compress Errors	Total compression errors on the module.
Total Mod Decompress Errors	Total decompression errors on the module.
Total Mod LCB Errors	Indicates total number of frames dropped between the remote end and this end. Causes include line errors, such as CRC errors, and buffer unavailability.
Total Tx Non Compress Packets	Total number of noncompressed packets transmitted because a buffer for compression was unavailable. The original packet is sent.
Total Rx Dropped Packets	Total number of compressed packets that were dropped because a buffer for decompression was unavailable. The history is updated, and WCP arranges for the retransmission of the dropped packets.

Sample Display – show wcp hwcomp

```
Hardware Compression Module Entries
-----------------------------------
                    Hardware    Active    Active    Active    Unused    Unused
                    Compress   32K  CPC  8K   CPC    PPC     32K  CPC  8K   CPC
Slot Module  State  Mod Type   contexts  contexts  contexts  contexts  contexts
---- ------  -----  ---------  --------  --------  --------  --------  --------
3    1       UP     HwComp32          8         0         0         0         0
4    1       UP     HwComp128        31         1         0         0         2

2 Hardware Compression Module(s) in use.
```

Sample Display – show wcp hwcomp stats

```
Hardware Compression Module Aggregate Statistics
------------------------------------------------

              Total         Total         Total       Total Rx
            Compressed   Decompressed  Tx Expanded  NonCompressed
Slot Module   Packets      Packets       Packets       Packets
---- ------  ----------  -----------   ----------   -----------
3    1            10000       100000           73           101

1 Hardware Compression Module(s) in use.
```

Sample Display – show wcp hwcomp errors

```
Hardware Compression Module Aggregate Errors
--------------------------------------------

             Total Mod  Total Mod  Total Mod   Total Tx    Total Rx
              Compress  Decompres      LCB     NonCompress   Dropped
Slot Module    Errors     Errors     Errors     Packets     Packets
---- ------  ---------  ---------  ---------   ---------   ---------
3    1               0          0          0           0           0

1 Hardware Compression Module(s) in use.
```

Version

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

```
WCP.bat Version:  1.5 Date: 1/17/95.
```

Using Technician Interface Software

This section contains amendments to *Using Technician Interface Software*.

Upgrading and Verifying a PROM

These are the latest revised procedures for upgrading a boot or diagnostics PROM in a router or BNX platform.

You use the **prom** command to upgrade or verify the software on the diagnostics PROM or bootstrap PROM. This command is restricted to the Manager access level.

Caution: *If a software release includes a PROM software upgrade, see the upgrade documentation shipped with the software for instructions on upgrading the PROMs on your router. The instructions describe*

- *How to determine the router models that need PROM updates*
- *How to determine whether you must upgrade the PROM(s) in a specific model of router by using the Technician Interface* **prom** *command, or by physically replacing the existing PROM device with a new PROM device*
- *How the PROM upgrade process works*
- *How to determine the current versions of PROM images residing in a router*
- *What you need to know about upgrading PROMs in a remote router*
- *How to specify the commands necessary to upgrade and verify a PROM*

If you do not follow these instructions, you may disable the router you are trying to upgrade.

During an upgrade, the system erases the image stored in the target PROM and writes the new image to the PROM. This is sometimes called “burning” the PROM. To verify the image upgrade, the system compares the contents of the new image file to the image file in the PROM.

Upgrading PROMs Remotely

Because the operations involved in upgrading PROMs place an increased load on the router, there is a greater chance that the PROM upgrade process will time out or fail during periods of peak traffic on your network.

Caution: *If the PROM upgrade process is interrupted, the router could be disabled.*

Follow these guidelines to ensure that the PROM upgrade is successful:

- Store the PROM executable files (for example, *frediag.exe* or *freboot.exe*) on a Flash card that resides on the least utilized slot in the system.
- Perform the upgrade during non-peak hours to ensure a minimum traffic load on the router.
- On multislot systems, upgrade the PROM for each slot separately. Attempting to upgrade multiple slots at the same time increases the load on the backplane.

Determining Current PROM Image Versions

To decide whether you need to upgrade the PROMs in a router, you need to determine the versions of Boot and Diagnostics PROM images currently running in that router.

Note: *A label on the back panel of some router models indicates the installed version of Boot and Diagnostic PROMs.*

Determining the Version of the Current Boot PROM Image

To determine the version number of Boot PROM images residing in a router, start a Telnet session with the router and enter the following command at the Technician Interface prompt:

get wfHwEntry.19.*

With a Model BLN router, for example, information similar to the following appears, with one `wfHwEntry.wfHwBootPromSource` line for each slot.

```
wfHwEntry.wfHwBootPromSource.1 = (nil)
wfHwEntry.wfHwBootPromSource.2 = "rel/8.10/freboot.exe"
wfHwEntry.wfHwBootPromSource.3 = "rel/8.10/freboot.exe"
wfHwEntry.wfHwBootPromSource.4 = "rel/8.10/freboot.exe"
wfHwEntry.wfHwBootPromSource.5 = "rel/8.10/freboot.exe"
```

Each line of response to the command specifies

- A slot number (for example, "`wfHwEntry.wfHwBootPromSource.2`" identifies Slot 2).
- A pathname that contains the version number of the image stored in the Boot PROM (for example, "`rel/8.10/freboot.exe`" identifies the Version 8.10 Boot PROM image *freboot.exe* in Slot 2).

Note: *The command does not return a Boot PROM version number for Slot 1 because Slot 1 contains a System Resource Module (SRM). This applies to all router models except AN and ASN routers.*

Determining the Version of the Current Diagnostics PROM Image

To determine the version number of DIAG PROM images residing in a router, start a Telnet session with the router and enter the following command at the Technician Interface prompt:

get wfHwEntry.16.*

With a Model BLN router, for example, information similar to the following appears, with one `wfHwEntry.wfHwDiagPromSource` line for each slot:

```
wfHwEntry.wfHwDiagPromSource.2 =
"/harpdiag.rel/v4.00/wf.pj/harpoon.ss/image.p/frediag.exe"
wfHwEntry.wfHwDiagPromSource.3 =
"/harpdiag.rel/v4.00/wf.pj/harpoon.ss/image.p/frediag.exe"
wfHwEntry.wfHwDiagPromSource.4 =
"/harpdiag.rel/v4.00/wf.pj/harpoon.ss/image.p/frediag.exe"
wfHwEntry.wfHwDiagPromSource.5 =
"/harpdiag.rel/v4.00/wf.pj/harpoon.ss/image.p/frediag.exe"
```

Each line of response to the command specifies

- A slot number (for example, "`wfHwEntry.wfHwDiagPromSource.2`" identifies Slot 2).
- A pathname that contains the version number of the image stored in a diagnostics PROM (for example, `"/harpdiag.rel/v4.00/wf.pj/harpoon.ss/image.p/frediag.exe"` identifies the "v4.00" (Version 4.0) diagnostics PROM image *frediag.exe* in Slot 2).

Using the prom Command

Note: *Before upgrading any router software, always save a copy of the original configuration file and boot image as a safeguard, in case you encounter problems during the procedure.*

To upgrade the PROMs:

1. **Insert a Flash card with contiguous free space sufficient to accommodate the PROM images you want to use as source files for upgrading boot or diagnostic PROMs on one or more slots.**

   To determine the amount of contiguous free space, display the directory of the Flash volume by entering the following command from the Technician Interface prompt:

   dir *<volume_no.>***:**

   If you need more contiguous free space for the image:

   - Delete unnecessary or obsolete files.
   - Compact the contents of the Flash card.

2. **Transfer the PROM image files (for example,** *freboot.exe* **and** *frediag.exe***) to the Flash card.**

   From the Technician Interface, use the **tftp** command. (Refer to "In-Band File Transfers" in Chapter 4 if you need more information.)

3. **Establish a Technician Interface session with the router.**

   Refer to Chapter 1 if you need more information on how to open a Technician Interface session with the router.

4. **If you are updating a Boot PROM, enter**

   prom -w *<volume_no.>*:*<Boot_PROM_source_file> <slot_ID >*

   For example:

   prom -w 2:freboot.exe 3

Note: *Once you enter the* **prom** *command, it must run to completion. The control-c (abort) command is disabled for the duration of the* **prom** *command execution to allow it to run to completion. Upgrading takes from 2 to 10 minutes per PROM. Verifying takes up to 2 minutes per PROM.*

5. **If you are updating a Diagnostic PROM, enter**

   prom -w *<volume_no.> <Diag_PROM_source_file> <slot_ID >*

   For example, to upgrade the diagnostics PROMs in Slots 2 through 5, you can enter

   prom -w 2:frediag.exe 2-5

Caution: *When upgrading PROMs with new software, upgrade all slots that contain FRE modules to avoid a mismatch of software.*

   More examples of command lines appear at the end of this section.

6. **To verify successful completion of a PROM upgrade, enter**

   prom -v *<volume_no.> <Diag_PROM_source_file> <slot_ID >*

   For example, for a boot PROM, enter

   prom -v *<volume_no.>***: [freboot.exe | asnboot.exe | anboot.exe]** *<slot_ID>*

   For a diagnostics PROM, enter

   prom -v *<volume_no.>***: [frediag.exe | asndiag.exe | andiag.exe]** *<slot_ID>*

   The system verifies that the PROM image on a designated Flash volume (that is, the image file used as a source for upgrading the PROM) matches the image actually stored in the boot or diagnostics PROM on a designated slot.

   When you use the **-v** option, the console displays one of the following messages after the verification routine terminates:

   ```
   prom: slot <slot_ID> completed successfully
   ```

   ```
   prom: PROM data does not match file data on slot <slot ID>
   ```

   If the operation succeeds, the new images stored in the boot and diagnostics PROMs run when you reboot the router.

   If the operation fails, the console displays a message describing the cause of the failure.

Additional Examples:

If you enter:	The system:
prom -v 2:frediag.exe 3	Verifies the contents of the diagnostics PROM on Slot 3 against the contents of the *frediag.exe* file on Volume 2.
prom -w 2:freboot.exe 3	Erases the bootstrap PROM on Slot 3 and copies the contents of the *freboot.exe* file on Volume 2 to the PROM on Slot 3.
Any one of the following: **prom -w 2:frediag.exe 2, 3, 4, 5** **prom -w 2:frediag.exe 2 3 4 5** **prom -w 2:frediag.exe 2, 3-5** **prom -w 2:frediag.exe 2-5**	Erases the diagnostics PROMs on Slots 2, 3, 4, and 5 and copies the contents of the *frediag.exe* file on Volume 2 to the PROMs on Slots 2, 3, 4, and 5.

Modifying Router Software Images for Routers

Subject: **New Executable Files in Router Software Image**

Description: Router software images now contain a *.ppc* file for each protocol. The *.ppc* files are equivalent to *.exe* files; however, you use the *.ppc* files for protocols (instead of the*.exe* files for protocols) on ATM Routing Engine (ARE) slots only. For example, instead of using *ip.exe* on an ARE slot, you would use *ip.ppc*.

Subject: **Making Space Available on PCs and UNIX Workstations**

Description: When you use Image Builder, it creates a builder directory. On a PC, the directory is *\wf\builder.dir*. On a UNIX workstation, the directory is */usr/stufts/.builder_dir*. This directory contains portions of old images that are no longer used. You can remove these partial images to free up space on your workstation.

Configuring Line Services

Subject: **Options for Primary Clock and Secondary Clock Parameters Depend on Number of Ports on MCE1 Module**

Description: When choosing a value for the Primary Clock and Secondary Clock parameters in the Clock Parameters window for an MCE1 module, note that Port 2 Ext Loop is available only on dual port MCE1 modules.

Subject: **DS3 Scrambling Parameter**

Description: The section "Editing ATM ARE Line Details" in Chapter 3 describes the DS3 Scrambling parameter, which appears in the ATM/ARE Line Driver Attributes window. The parameter name is actually DS3/E3 Scrambling, and the parameter description is as follows:

Parameter: **DS3/E3 Scrambling**

Default: On

Options: On | Off

Function: If you select On, the router randomizes cell payload sufficiently to guarantee cell synchronization. If you select Off, cell synchronization problems may result.

Note that ATM devices with different scrambling settings cannot communicate. For example, if you configure a router to enable scrambling, and configure a hub to disable scrambling, the router and hub cannot communicate.

You can set this parameter only when using DS3 and E3 modules.

Instructions: Select On or Off. If you select On, be sure to enable scrambling for all devices on the network. If you select Off, be sure to disable scrambling for all devices on the network.

MIB Object ID: 1.3.6.1.4.1.18.3.4.23.3.2.1.22

Configuring VINES Services

Subject: **New Parameter to Enable/Disable Generation of VINES RTP Redirect Packets**

Description: You can use the parameter *wfVinesIfEntry.wfVinesIfRedirectEnable* to disable the generation of VINES RTP Redirect packets. Redirect packets are generated when the router determines that a packet's source and destination are on the same network. In this situation, it is not necessary for the packet to be sent to the router. The router redirects the packet to the source address so that subsequent packets to the destination will not go to the router.

You might want to disable this parameter in a non-fully meshed group mode (hub and spoke) Frame Relay setup. In this case, all end nodes (spokes) use the same interface on the router to communicate with each other. If the router sends a VINES Redirect packet, connectivity problems can occur since the end nodes will to try to communicate with each other directly, which is not possible.

Subject: **Configuring Routers for Multiple-Hop Topologies with Serverless Segments**

Description: In *Configuring VINES Services*, Figure 2-1 and the corresponding text indicate that ARP should be enabled on interfaces E3 and E4 only. However, ARP must also be enabled on the other interface of Router A (the interface connected to E2 of Router B). All routers between the client and server need to have ARP enabled on the client side (the incoming path from the client to the server).

Configuring Traffic Filters and Protocol Prioritization

Subject: **MCE1 Support**

Description: Outbound traffic filters are supported on MCE1 circuits (in addition to the circuits the document lists in Chapter 1).

Quick-Starting Routers and BNX Platforms

Subject: **Install.bat Supports Zero Subnets**

Description: On page 2-3 of *Quick-Starting Routers and BNX PLatforms*, add the following note under the subnet mask section of the "IP Interface Configuration Information:"

Note: Install.bat *supports zero subnet. If you enter a valid zero subnet mask, the* Install.bat *script prompts you to enable zero subnets.*

Event Messages for Routers and BNX Platforms

Subject: **Severity Change for TFTP Message 6 (Routers Only)**

Description: The severity of event message 6 (decimal identifier 16779014) for TFTP (entity code 7) has been changed from Trace to Info for routers only. For BNX platforms, event message 6 remains a warning message.

Subject: **New FTP Info Message**

Description: The following is a new Info message for FTP (entity code 88).

Entity Code/Event Code	**88/58**
Decimal Identifier	**16799802**
Severity:	Info
Message:	File transfer request -- Filename: <*filename*> <From | To>:<*IP_address*>
Meaning:	FTP received a file transfer request of <*filename*> either from or to the address identified by <*IP_address*>.

Configuring ATM Services

Subject: **Supported Protocols**

Description: Disregard the list of supported protocols (Table 1) in Chapter 6 of *Configuring ATM Services*. The revised Table 1 that follows provides the correct list of supported protocols.

Table 1. Supported Protocols

PVC	SVC Using LLC/SNAP or NULL (RFC 1577)	SVC Using LANE 802.3
Bridge	IP	Bridge
- Spanning Tree	- RIP	- Spanning Tree
- Native Mode LAN	- BGP	- Native Mode LAN
IP	- OSPF	IP
- RIP		- RIP
- EGP		- BGP
- BGP		- OSPF
- OSPF		- BOOTP
- BOOTP		- Router Discovery
- IGMP		- NetBIOS
— DVMRP		DECnet IV
- NetBIOS		VINES
DECnet IV		IPX
VINES		-RIP/SAP
IPX		XNS
- RIP/SAP		- RIP (XNS)
XNS		AppleTalk
- RIP (XNS)		LLC2
AppleTalk		DLSw

Subject:	**ATM/ARE Clocking Signal Source Parameter Change**
Description:	The Clocking Signal Source parameter in the ATM/ARE Line Driver Attributes window now provides a choice between Loop clocking and Internal clocking. Refer to the following parameter when specifying a clocking signal source.

Parameter:	**Clocking Signal Source**
Default:	Loop
Options:	Loop | Internal
Function:	Specifies whether the router uses its internal clock or derives timing signals externally from an incoming clock on this interface.
Instructions:	Select Loop to use external timing signals from an incoming clock; select Internal to use the router's clock.
MIB Object ID:	1.3.6.1.4.1.18.3.4.23.3.2.1.18

Subject:	**ATM/ARE DS3 Scrambling Parameter Change**
Description:	The DS3 Scrambling parameter heading now reads "DS3/E3 Scrambling." Refer to the following parameter when changing DS3/E3 scrambling.

Parameter:	**DS3/E3 Scrambling**
Default:	On
Options:	On | Off
Function:	If you select On, the router randomizes cell payload sufficiently to guarantee cell synchronization. If you select Off, cell synchronization problems may result. Note that ATM devices with different scrambling settings cannot communicate. For example, if you configure a router to enable scrambling, and configure a hub to disable scrambling, the router and hub cannot communicate. You can set this parameter only when using DS3 modules.
Instructions:	Select On or Off. If you select On, be sure to enable scrambling for all devices on the network. If you select Off, be sure to disable scrambling for all devices on the network.
MIB Object ID:	1.3.6.1.4.1.18.3.4.23.3.2.1.22

Configuring Dial Services

Subject: **New Description for Local Group Parameter**

Description: The following is a new description of the Local Group parameter.

Parameter: **Local Group**

Default: 0

Range: 0 to 1000

Function: Identifies the demand circuit group associated with the PAP ID or CHAP Name in the caller resolution table. This parameter applies only to the demand circuit group for this interface.

Instructions: Enter the ID number of the demand circuit group that you want the PAP ID or CHAP Name to reference. The number must be between 1 and 1000. If you enter a value for this parameter, Site Manager does not allow you to select an individual circuit.

Accept the default, 0, if you are configuring an individual circuit. By accepting the default, Site Manager prompts you to select a local circuit. This value is then entered for the Local Circuit parameter.

MIB Object ID: 1.3.6.1.4.1.18.3.5.9.2.3.1.6

Subject: **Affects of Changing the ISDN Switch Type**

Description: If you change the Switch Type parameter in Dynamic mode, the router's ISDN software makes changes to account for the new switch, and then restarts. Any existing calls are disconnected while the software makes the adjustments. Once the router adjusts to the new switch, you can reconnect.

Subject: **New MIB Object IDs for Bandwidth-on-Demand Options**

Description: The following Bandwidth-on-Demand Options parameters have incorrect MIB OID numbers. These are the parameters you set so that the monitor router can check congestion on the primary line. The correct numbers are

BOD Exam Period - 1.3.6.1.4.1.18.3.5.9.2.2.1.52

BOD Full Threshold - 1.3.6.1.4.1.18.3.5.9.2.2.1.53

BOD Periods to Fail - 1.3.6.1.4.1.18.3.5.9.2.2.1.54

BOD Recovery Threshold - 1.3.6.1.4.1.18.3.5.9.2.2.1.59

BOD Periods to Fail - 1.3.6.1.4.1.18.3.5.9.2.2.1.60

Subject: **New Parameters for the Outgoing Phone List**

Description: Two new parameters, Remote Pool Type and Phone Number Connection Type, have been added to the Outgoing Phone List window. To access this window, go to the Dialup option from the Configuration Manager main menu and select either the Demand Circuits, Backup Circuits, or Bandwidth-on-Demand Circuits option.

For backup and bandwidth-on-demand circuits, Site Manager displays the appropriate Circuit Definition window. For demand circuits, Site Manager displays the Demand Pools window. From here, click on Circuits to access the Demand Circuits window. From any Circuits window, click on Phone Out.

Parameter:	**Remote Pool Type**
Default:	Dial and Bandwidth-on-Demand
Options:	Dial-on-Demand | Bandwidth-on-Demand | Dial and Bandwidth-on-Demand
Function:	Specifies whether the remote router's line associated with this local circuit's outgoing phone number is in a dial-on-demand pool, bandwidth-on-demand pool, or both. This parameter is for applications that use bandwidth-on-demand to aid congested demand circuits. Refer to "Using the Remote Pool Type Parameter" for an example of how to use this parameter.
Instructions:	Enter the type of remote line pool associated with the outgoing phone number. Use the following guidelines: • Enter Dial-on-Demand if the line connected to the remote router is only in a demand pool. • Enter Bandwidth-on-Demand if the line connected to the remote router is only in a bandwidth-on-demand pool. • Enter Dial and Bandwidth-on-Demand if the line connected to the remote router is in dial-on-demand and bandwidth-on-demand pools.
MIB Object ID:	1.3.6.1.4.1.18.3.5.1.4.6.1.11

Parameter: **Phone Number Connection Type**

Default: Multiple

Options: Single | Multiple

Function: Indicates whether the router uses the phone number for a single call or multiple calls.

If you select Single, the router checks whether this phone number is already in use for a circuit on the same slot. If the remote device is already busy, the router does not attempt to place the call using this number. Choosing the Single option is particularly important if the line is connected to an external device such as a modem. If the router places a call to a device that is busy, it takes a long time before the router determines that the device is unavailable. By selecting Single, you eliminate this loss of time.

If you select Multiple, the router can use the phone number for many calls. For example, if you are using PRI service, you have many channels that can use the same phone number to place a call. Therefore, you would select Multiple for this parameter.

Instructions: Choose Single if the remote destination can support only a single connection with this outgoing phone number. If a circuit on the same slot is already using this phone number, the router will use another phone number in the list. Otherwise, accept the default.

MIB Object ID: 1.3.6.1.4.1.18.3.5.1.4.6.1.12

Using the Remote Pool Type Parameter

Router 1 is communicating to Central Router 2 through an ISDN network. Router 1 has the following outgoing phone numbers for Demand Circuit 1:

Table 2. Router 1 with Remote Pool Type Configured

Outgoing Phone List	Remote Pool Type
555-1234	Dial-on-Demand
555-2323	Dial-on-Demand
555-8182	Dial and Bandwidth-on-Demand
555-7911	Bandwidth-on-Demand
555-6543	Bandwidth-on-Demand

Central Router 2 has the following configuration for its Demand and Bandwidth-on-Demand Pools:

Table 3. Central Router 2 Phone Number Configuration

Pool	Slot/Port	Local Phone Number
Demand Pool 1	2/1 2/2	555-1234 555-2323 555-8182
Bandwidth-on-Demand Pool 1	1/1 2/3	555-7911 555-6543

Based on Router 1's configuration, when it initially tries to establish a circuit to Central Router 2, it uses phone numbers 555-1234, 555-2323, and 555-8182, in that order, until it makes a successful connection. Note that the Remote Pool Type for these numbers is Dial-on-Demand or Dial and Bandwidth-on-Demand. The router does not use phone numbers 555-7911 and 555-6543 for the initial connection because the Remote Pool Type is Bandwidth-on-Demand.

If the initial circuit becomes congested, the router then uses lines in a bandwidth-on-demand pool to aid the demand circuit. In this case, Router 1 would then use the bandwidth-on-demand phone numbers to establish additional circuits.

By configuring the Remote Pool Type as Table 2 shows, you prevent the local circuit from using a phone number associated with the wrong type of remote pool. If a demand circuit places a call to a bandwidth-on-demand pool, the remote router would terminate the connection.

Configuring IPX Services

Subject: **Novell Encapsulation**

Description: Novell encapsulation is not supported on a synchronous line with IPX. Although the Configured Encaps parameter described on pages 3-4 and 4-22 states that Novell encapsulation is supported on a synchronous line, Novell encapsulation cannot be configured. There is no selection box available.

Subject: Service Network and Name Filter Precedence

Description: The following information should be added to Chapter 4 at the end of the section "Using Pattern Matching with SAP Filters."

The server name filters take precedence over the service network filters. Both service name and service network filters have an associated priority, with smaller values denoting a higher priority. Matching is performed by first checking all service name filters in order by priority. If a match isn't found, then the service network filters are checked in order by priority

If one or more server name filters have the same priority, the IPX router compares the server name filters with the following server types, listed in the order of precedence:

1. Specific server types
2. Wildcard server types (configured as 0xFFFF)

If one or more server name filters have the same priority, the IPX router compares server network filters with the following server types and network numbers, listed in the order of precedence:

1. Specific server types and specific server network numbers
2. Wildcard server types and specific network numbers
3. Wildcard network numbers (configured as 0xFFFFFFFF)

Subject: Hop Count Parameter

Description: The parameter description of the Hop Count parameter in the IPX Static Service Configuration window incorrectly lists its MIB Object ID number as 1.3.6.1.4.1.18.3.5.5.12.1.10. The correct MIB Object ID number for this parameter is 1.3.6.1.4.1.18.3.5.5.23.1.10.

Subject: Default Route Supply Parameter

Description: The parameter description of the Default Route Supply parameter in the IPX RIP Circuit window incorrectly states that the default is Enable. The correct default setting for this parameter is Disable.

Subject: **NSQ Alphabetical Parameter**

Description: Although this parameter appears in the IPX SAP Circuits configuration window, its functionality is not supported for this release.

Configuring DLSw Services

Subject: **Canureach Timer2 and Canureach Retries2 Parameters**

Description: The DLS Local Device Configuration window now contains additional canureach timer and retry parameters. The Canureach Timer2 and Canureach Retries2 parameters allow you to configure a second pair of timer/retry settings that start when the standard Canureach Timer and Canureach Retries parameter settings expire. The following are the descriptions of these new parameters.

Parameter: **Canureach Timer2**

Default: 30

Range: 0 to 3600 seconds

Function: Specifies the time interval (in seconds) after which the router sends a canureach message to the remote DLSw peer to establish a session. This parameter setting becomes active when the standard Canureach Timer and Canureach Retries parameter settings expire.

Set the Canureach Timer2 and the Canureach Retries2 parameters in configurations where you want to switch to a longer interval if the initial connection does not occur within the standard Canureach Timer and Canureach Retries parameter settings. The Slow Poll Timer would then use the Canureach Timer2 and Canureach Retries2 parameter settings.

Instructions: Enter the number of seconds you want for the time interval. For example, enter 1 to transmit a canureach message once per second, or enter 3600 to transmit the command once per hour. Enter 0 if you do not want to transmit a canureach message.

MIB Object ID: 1.3.6.1.4.1.18.3.5.1.5.12.1#18

Parameter:	**Canureach Retries2**
Default:	0
Range:	0 to 4294967295
Function:	Specifies the number of times a canureach message is sent to the remote DLSw peer to establish a session. This parameter setting becomes active when the standard Canureach Retries parameter setting expires. Set the Canureach Timer2 and the Canureach Retries2 parameters in configurations where you want to switch to a longer interval if the initial connection does not occur within the standard Canureach Timer and Canureach Retries parameter settings. The Slow Poll Timer would then use the Canureach Timer2 and Canureach Retries2 parameter settings.
Instructions:	Type the number of retries you want. Enter 0 if you do not want to transmit canureach messages. Type 4294967295 to send an infinite number of canureach messages for this connection.
MIB Object ID:	1.3.6.1.4.1.18.3.5.1.5.12.1#13

Subject:	**DLSw Support for Secondary SDLC**
Description:	The following sections describe new features in DLSw.

Secondary SDLC Support

Secondary SDLC services enable a Bay Networks router to act as a secondary device on an SDLC link. Specifically, the router:

- Supports a single SDLC link communicating to a Front End Processor (FEP) or similar SNA communications processor
- Functions as a secondary PU 2.0 device on that link
- Co-exists with other secondary SDLC devices, PU 2.0 or PU 2.1, on the same SDLC link
- Allows SNA devices attached to multiple remote routers to share a single SDLC link to the FEP
- Communicates at up to 256 Kb/s, depending on other devices connected to the link
- Attaches to the FEP directly (by using a null modem cable) or via a leased line

Figure 1 illustrates single switch and dual switch configurations where Bay Networks routers are configured as secondary SDLC nodes.

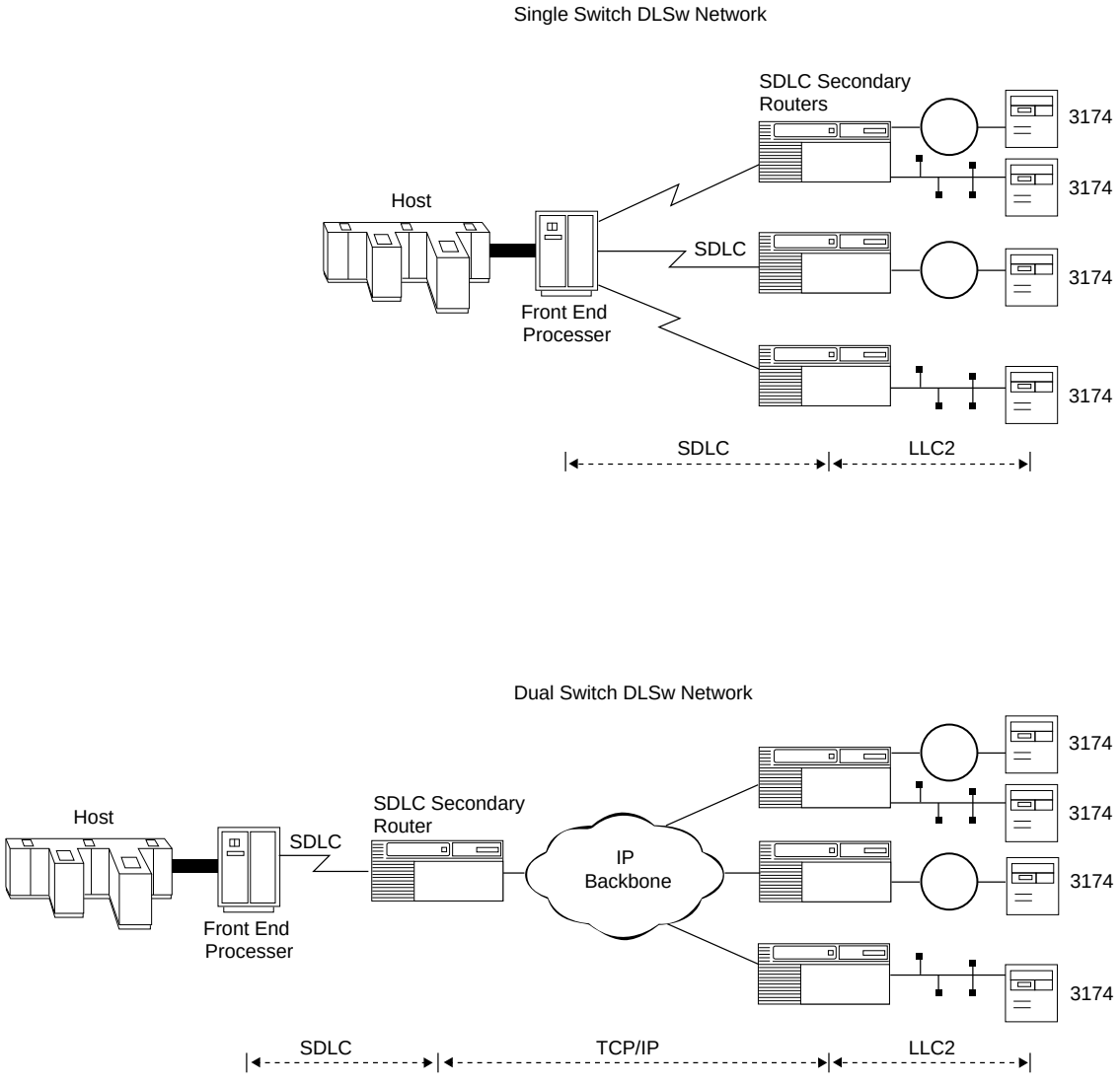


Figure 1. Bay Networks Routers as Secondary SDLC Devices in Single and Dual Switch Networks

Secondary SDLC Limitations with Release 10.0

With Release 10.0, the following limitations apply to Bay Networks routers configured as secondary SDLC link stations:

- The router functions as a secondary PU 2.0 device only.
- The router does not support multiple stations on a single DLSw interface.

Enhanced Synchronous Pass-Through

Using primary and secondary SDLC services enables existing SDLC traffic to be transported by a router-based network. This topology:

- Enables existing SDLC traffic to utilize a high-speed multiprotocol backbone network
- Simplifies the migration to a router-based network, by incorporating SDLC traffic into the multiprotocol backbone without converting the existing endstations
- Provides local acknowledgment of the SDLC protocol at each side of the router-based network, eliminating polling and acknowledgment traffic from the network backbone

Figure 2 illustrates Locally Acknowledged Synchronous Pass-Through using single switch and dual switch services.

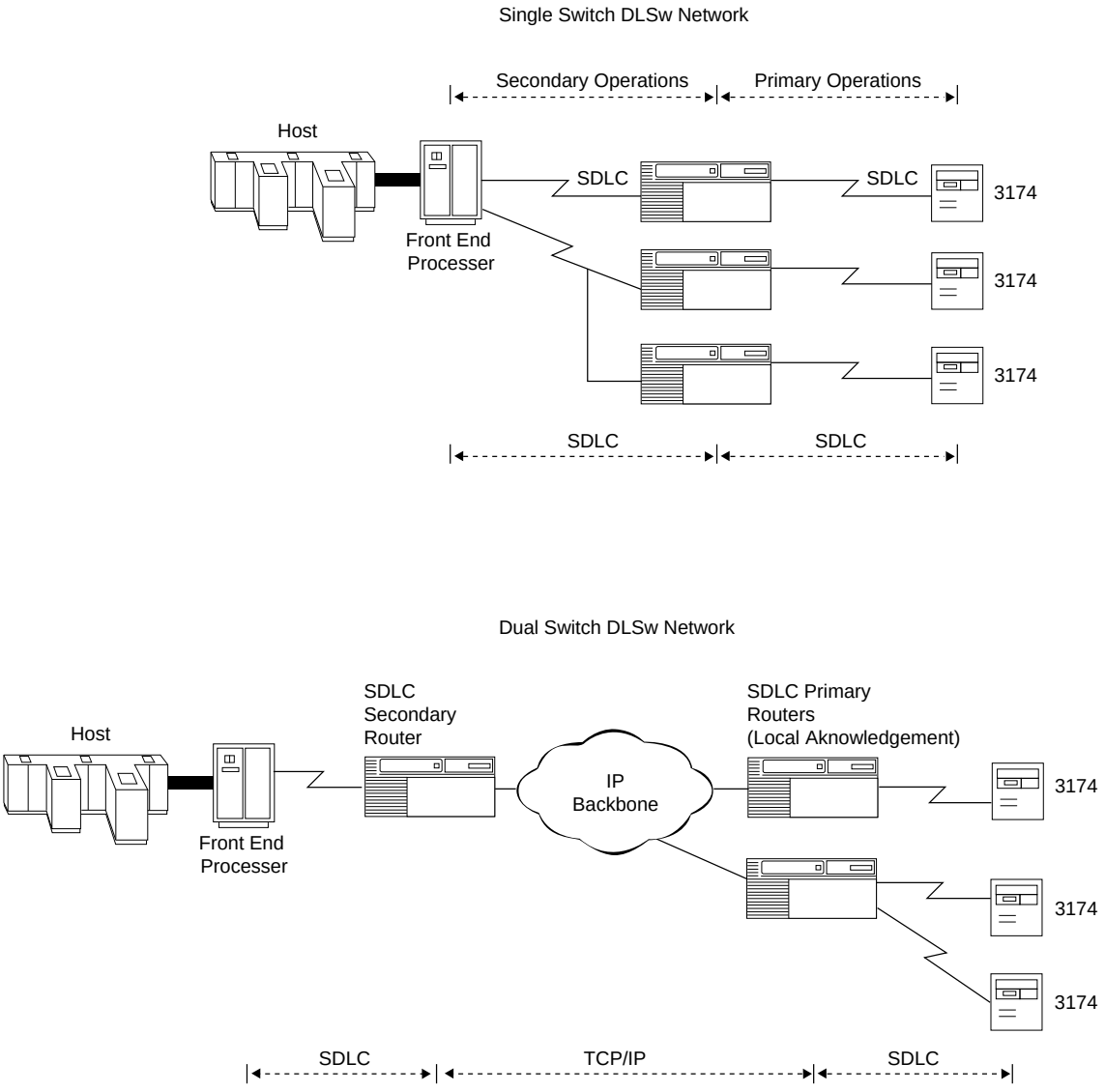


Figure 2. Locally Acknowledged Synchronous Pass-Through in DLSw Networks

Subject: **DLSw Mode Parameter**

Description: The following is a description of the new DLSw Mode parameter, which allows you to configure primary or secondary operations on DLSw interfaces and SDLC local devices.

Parameter: **DLSw Mode**

Default: Primary

Options: Primary | Secondary PP | Secondary MP

Function: Specifies the type of link station you are configuring on this node. A primary link station controls a data link, issues commands, polls secondary stations, and initiates error-recovery procedures. Only one link station on an SDLC line can be the primary station; all other stations on the line must be secondary. When configured as a primary SDLC link station, the router communicates with downstream PU 2.0 and PU 2.1 nodes

A secondary link station receives commands and responds to primary link station polls. When configured as a secondary SDLC link station, the router emulates a PU 2.0 device.

Instructions: Click on Values and select Primary, Secondary Point-to-Point (PP), or Secondary Multipoint (MP).

MIB Object ID: 1.3.6.1.4.1.18.3.5.1.5.2.1.8

Installing and Starting BayStack AN Routers

The following sections contain amendments to the section “Requirements for European Operation” in Appendix C of *Installing and Starting BayStack AN Routers*.

Safety Status (Order Nos. AE1001009, AE1001010, AE1001011, and AE1001012)

Table 4 lists the safety status of interconnection points to the connection of other equipment.

Table 4. Safety Status (Order Nos. AE1001009, AE1001010, AE1001011, and AE1001012)

Port Location	Port Description	Type of Circuit
COM1	V.28, X.21, V.35	TNV @ SELV levels
COM2	V.28, X.21, V.35	TNV @ SELV levels
Console	V.28	SELV
UTP 1 - 8	Ethernet 10Base-T	SELV
AUI	Ethernet	SELV

Access Node (AN) Options

The cards listed in Table 5 are approved only for installation in a host, and with host attachments, which are either type approved for such apparatus or, if supplied after 1st March 1989, are marked with or supplied with a statement that the host meets the terms of General Approval Number NS/G/1234/J/100003.

Table 5. Access Node Options

Product Name	Order No.	Part Number
ISDN BRI	24000	107977
ISDN BRI ANH-8	AE0004006, AE0011013, AE0011019	111865

Safety Status (Order Nos. 24000, 24000-S, 50022, AE0004006, AE0011013, and AE0011019)

The safety status of interconnection points to the connection of other equipment is listed in Table 6.

Table 6. Safety Status (Order Nos. 24000, 24000-S, 50022, AE0004006, AE0011013, and AE0011019)

Port Location	Port Description	Type of Circuit
ISDN	BRI ISDN	TNV (Telecommunications Network Voltage)
P6	Host Port	SELV (Safety Extra Low Voltage)

Safety Status (Order Nos. AE0004005, AE0011012, and AE0011020)

Order Nos. AE0004005, AE0011012, and AE0011020 are upgrade options that provide a third synchronous interface. These options can be installed in the following models: AE1001009, AE1001010, AE1001011, and AE1001012 Access Nodes.

Table 7 lists the safety status of the interconnection point (COM3) provided by Order Nos. AE0004005, AE0011012, and AE0011020 to the connection of other equipment.

Table 7. Safety Status (Order Nos. AE0004005, AE0011012, and AE0011020)

Port Location	Port Description	Type of Circuit
COM3	V.28, X.21, V.35	TNV @ SELV levels

Installing or Upgrading Hardware and Software

The task map that follows lists the tasks that you need to perform when installing a new Version 10.0 router and the manuals that explain these tasks.

For information on the tasks required to upgrade a router to Version 10.0, refer to one of the following manuals:

- *Upgrading Routers from Version 7-9.xx to Version 10.0*
- *Upgrading Routers from Version 5 to Version 10.0*

Installing New Router	1. Read about the new features, guidelines, resolved anomalies, known anomalies, and amendments to the documentation. • *Read Me First* • *Release Notes for Router Software Version 10.0* • *Release Notes for Site Manager Software Version 4.0* • *Known Anomalies Router Software 10.0 and Site Manager 4.0* 2. Unpack and install your router, as described in the manual that came with your router. 3. Configure the router's initial IP interface, install the Site Manager software, create a pilot configuration file, and boot the router with it. • *Quick-Starting Routers and BNX Platforms* 4. Enhance the *pilot.cfg* file by defining the rest of the router's interfaces. • *Configuring Routers*

Finding Instructions on Performing Tasks after Installing or Upgrading

After you install or upgrade your router, use the following table to help locate instructions in the documentation set for other optional tasks you want to perform.

Task	Documentation
Restrict read/write access to a router	*Quick-Starting Routers and BNX Platforms* and *Configuring SNMP, BOOTP, DHCP, and RARP Services*
Create a security filter	*Quick-Starting Routers and BNX Platforms* and *Configuring Routers*
Set a router to operate in Secure mode	*Quick-Starting Routers and BNX Platforms*
Learn about Site Manager	*Using Site Manager Software*
Learn about the Technician Interface	*Using Technician Interface Software*
Write Technician Interface Scripts	*Writing Technician Interface Scripts*
Use the Technician Interface scripts	*Using Technician Interface Scripts*
Enable and customize Line Services (change default settings for any of these line types: Ethernet, Synchronous, E1, T1, Asynchronous, FDDI, SMT, ATM, Token Ring, and HSSI)	*Configuring Line Services*
Configure MCT1	The “Configuring MCT1” chapter in *Configuring Line Services*
Configure MCE1	The “Configuring MCE1” chapter in *Configuring Line Services*
Configure Multiline	The “Configuring Multiline Services” chapter *in Configuring Line Services*
Edit circuits (move, rename, delete a circuit on the router, assign additional IP interfaces to a circuit, add or delete protocols to or from a circuit)	The “Editing Circuits” chapter in *Configuring Routers*
Specify the Technician Interface connection	The “Using the Configuration Manager” chapter in *Configuring Routers*
Specify administrative information	The “Specifying Administrative Information” chapter in *Configuring Routers*
Configure Inbound Traffic Filters, Protocol Prioritization, or Outbound Traffic Filters	*Configuring Traffic Filters and Protocol Prioritization*

Task	Documentation
Save configuration changes; transfer a file to the router (in local mode); reboot the router with a new file	The “Modifying Configurations with New Link Modules” appendix in *Configuring Routers*
Look up Site Manager defaults	Appendix A in configuration manuals
Enable Frame Relay and customize Frame Relay defaults; add, edit, group, or delete PVCs (permanent virtual circuits); delete Frame Relay from the router	*Configuring Frame Relay Services*
Enable SMDS and customize SMDS defaults; delete SMDS from the router	*Configuring SMDS Services*
Enable X.25 and Customize X.25 defaults; add, edit, or delete X.25 Network Service Records	*Configuring X.25 Services*
Enable PPP and customize PPP defaults	*Configuring PPP Services*
Create or modify Dial-on-Demand line pools; create or edit Dial-on-Demand circuits	*Configuring Dial Services*
Create Dial Backup Line Pools; modify Dial Backup Lines and Pool IDs; create or edit primary circuits and defaults	*Configuring Dial Services*
Enable AppleTalk and customize AppleTalk defaults	*Configuring AppleTalk Services*
Enable APPN and customize APPN defaults	*Configuring APPN Services*
Enable Bridging and customize defaults for the Transparent Bridge, Spanning Tree, Source Routing, and the Translation Bridge	*Configuring Bridging Services*
Enable ATM UNI or ATM DXI and customize defaults	*Configuring ATM Services*
Enable BSC Transport Services	*Configuring BSC Transport Services*
Enable Data Compression and customize Data Compression defaults	*Configuring Data Compression Services*
Enable DECnet and customize defaults	*Configuring DECnet Services*
Enable DLSw and customize defaults	*Configuring DLSw Services*
Enable IP and customize defaults	*Configuring IP Services*
Enable IPX and customize defaults	*Configuring IPX Services*
Enable LLC and customize defaults	*Configuring LLC Services*
Enable LNM and customize defaults	*Configuring LNM Services*
Enable OSI and customize defaults	*Configuring OSI Services*

Task	Documentation
Enable SDLC and customize defaults	*Configuring SDLC Services*
Enable SNMP, BOOTP, DHCP, and RARP and customize the defaults for these services	*Configuring SNMP, BOOTP, DHCP, and RARP Services*
Enable TCP and customize defaults	*Configuring TCP Services*
Enable VINES and customize defaults	*Configuring VINES Services*
Enable XNS and customize defaults	*Configuring XNS Services*
Use the Events Manager to display event logs; read, filter, and find events; save event log files; reference all Fault, Warning, and Info events	*Event Messages for Routers and BNX Platforms*
Use the Trap Monitor to display, filter, and save traps	*Managing Routers and BNX Platforms*
Use Statistics Manager to display data link layer and network layer statistics; use MIB Browser to view the Bay Networks MIB; use Screen Builder to create or edit custom statistics screens; use Screen Manager to add or remove screens from the current screen list	*Managing Routers and BNX Platforms*
Use the Router File Manager to display the contents of a volume; compact or format a memory card; manipulate the files on your router	*Managing Routers and BNX Platforms*
Display the Site Manager or router software version; boot the router; reset the slot in a router; ping a remote device	*Managing Routers and BNX Platforms*
Use Image Builder to remove protocols from or add them to the router software image	*Modifying Software Images for Routers*
Access the router interior; remove or install air flow modules; locate and determine the meaning of LEDs	Depending on the router model, consult one of the following books: *Installing and Maintaining BN Routers; Installing and Maintaining ASN Routers and BNX Platforms; Installing and Starting BayStack AN Routers; Installing and Starting 8-Port Access Node Hub (ANH) Systems;* or *Installing and Maintaining FN, LN, CN, AFN, and ALN Routers*
Hot-swap the router hardware	*Installing and Maintaining BN Routers*
Configure hardware modules	*Installing and Maintaining BN Routers*

Task	Documentation
Select the software configuration option for connecting your AN, ANH, or ASN to the network; configure your UNIX workstation as a BOOTP server	*Connecting BayStack AN and ANH Systems to a Network* or *Connecting ASN Routers and BNX Platforms to a Network*
Get information about cables	*Cable Guide for Routers and BNX Platforms*