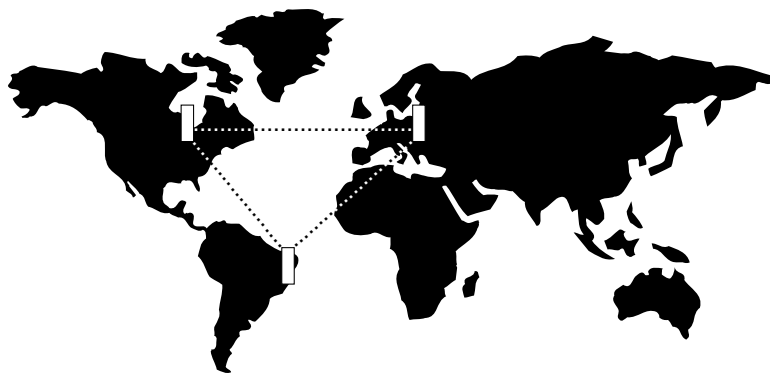# Setting Up Trunks

This chapter describes the commands related to trunks. The contents in this chapter are as follows:

- Introduction

- A table showing the supported combinations of nodes, card sets, and line types

- Descriptions of trunk-related procedures:

  — Setting up a trunk

  — Setting up a virtual trunk

  — Reconfiguring a trunk

  — Removing a trunk

  — Displaying or printing a trunk configuration

  — Specifying trunk redundancy

  — Using subrate trunk interface control templates

- A list of commands in this chapter with beginning page number

- Descriptions of the trunk commands

Introduction

After *node* configuration, the *trunks* have to be activated. Trunks are intra-node communication links in a network. A trunk can connect any combination of IPX, IGX, or BPX nodes. Trunk characteristics are:

- Physical line type: T1 (including fractional), E1 (including fractional), Subrate, E3, T3, or OC3 (STM1).

- Communication technology: Asynchronous Transfer Mode (ATM) or FastPackets.

Trunks require specific front and back card combinations in each node. The following table shows the communication technology for each node type, card combination, and line type.

Table 5-1

Node Type	Front Card	Back Card	Line Types	Technology
IPX	NTC	BC-T1	T1, T1 Fractional	FastPacket
IGX	NTM	BC-T1	T1, T1 Fractional	FastPacket
IPX	NTC	BC-E1	E1, E1 Fractional	FastPacket
IGX	NTM	BC-E1	E1, E1 Fractional	FastPacket
IPX	NTC	BC-SR	Subrate	FastPacket
IGX	NTM	BC-SR	Subrate	FastPacket
IPX	NTM	BC-Y1	Y1	FastPacket
IGX	NTM	BC-Y1	Y1	FastPacket
IPX	AIT	BC-T3, BC-E3	T3, E3	ATM
IGX	ALM/B	BC-UAI-1T3, BC-UAI-1E3	T3, E3	ATM
IGX	BTM	BC-T3, BC-E3	T3, E3	ATM
BPX	BNI	LM-3T3, LM-3E3	T3, E3	ATM
BPX	ASI	LM-2T3	T3, E3 (with external adapter)	ATM

Setting Up a Trunk

Prior to executing the commands in this section, node setup must be complete (see Chapter 4). Also, the front and back cards that support the proposed line type and communication technology must reside in the slot intended for the trunk.

1 Use the **uptrk** command to up the trunk. This command activates the card so it can begin generating framing. It also determines whether the trunk is physical-only or a virtual trunk. The third place digit signals that the trunk is virtual.

Each node can have a combined maximum of 32 virtual and physical trunks. The BNI-T3 or E3 can support up to 32 virtual trunks on 1 or both physical ports. A BNI-OC3 line can support up to 11 virtual trunks. Note that, like regular trunks, virtual trunks can carry high-priority traffic.

The **uptrk** command must execute at each end of the trunk. When the trunk is up at only one end, the node detects it as being in an alarm state (see **dsptrks**). Upping the trunk at both ends clears the alarm.

2   Use the **cnftrk** command to override trunk default values. The **cnftrk** command is mandatory for virtual trunks but optional for physical trunks. For virtual trunks, the VPI must be changed to a non-0 value before execution of **addtrk**.

If **cnftrk** is used, identical changes must take place at both ends of the trunk. To display existing trunk parameters, use the **dsptrkcnf** command. The configurable parameters are listed for each card type in the following table. (The possibilities are PKT for FastPackets, ATM cells, BNI if the trunk is a BNI card, or ALL.) Not all of these parameters apply to the BPX. The BPX parameters are in a list that follows the table.

Once the trunk is configured and after the trunk is added (**addtrk**), certain parameters can be re-specified. For example, a period of trunk usage may reveal a need to change parameters to optimize trunk usage. Refer to the forthcoming section called "Reconfiguring a trunk" for details.

3   Use the **addtrk** command to add the trunk. Adding the trunk makes the trunk a usable resource, so connections can be added (**addcon**) for carrying traffic. Add a trunk at only one end of the trunk.

(To add an interface shelf in a tiered network, use **addshelf**. See Chapter 4.)

Setting Up a Virtual Trunk

This section describes how to set up a virtual trunk using a BPX cloud. Virtual trunking is a purchased feature, so Cisco must enable it on each node you intend to use virtual trunking. Also, firmware levels on ASI and BNI cards must be current. For more information on virtual trunking, see the *System Manual*.

Step 1   Set up cables as follows: in the cloud network, physically connect an ASI port to each BNI port that is likely to carry virtual trunks.

Step 2   For each ASI port connected to a BNI virtual trunk port, use the following configuration sequence:

upln *slot.port*

upport *slot.port*

cnfport *slot.port*, and set the *shift* parameter to "N" for *no shift*.

Step 3   Execute **addcon**. In the cloud network, add a virtual path ASI connection for each end of the virtual trunk that is to be routed through the cloud. An example of the syntax for this is:

   addcon joker 5.1.1.* swstorm 6.2.10.*

where 5.1 and 6.2 are ASI ports hooked up and configured for virtual trunking. DACS connections are acceptable. Note that the third number is the VPI, which must correspond to the virtual trunk VPI configured with **cnftrk** in step 4. The CBR/VBR parameter must also correspond to the Virtual Trunk Type of the virtual trunk. For T3, set PCR to 96000 and CDTV to 24000 for the connection so that the ASI does not drop cells.

Step 4   Configure BNI trunks. Take this step if the ATM cloud provider has assigned the VPC. On BNIs that connect to the cloud's ASI ports, configure the virtual trunks, as follows:

uptrk *slot.port.vtrk* (If the cloud is already configured, the alarm on the virtual trunk should clear.)

 cnftrk *slot.port.vtrk*

When you use **cnftrk**, make sure the virtual trunk type and VPI correspond to the existing ASI Virtual Path connections.

addtrk *slot.port.vtrk*

The parameters *slot.port.vtrk* on a BNI card can have the following values:

- Slot can be 1–6, 9–14.

- Port is the physical port number, which can be 1–3 for T3/E3 or 1–2 for OC3/STM1.

- Vtrk is the virtual trunk number, which can be 1–32 for T3/E3 or 1–11 for OC3/STM1.

Reconfiguring a Trunk

This section describes how to change trunk parameters after the trunk has been added. After trunk is added, some parameters can be reconfigured without first deleting the trunk (**deltrk**). These parameters appear in the list that follows. All other changes to trunk parameters must follow trunk deletion. Instructions for changes these parameters follow the list.

The parameters that are changeable *without* first deleting the trunk are:

- PCC restrict

- Pass sync

- Loop clock

- Statistical reserve

- Bursty data peak speed

- Bursty data peak average frame

- Idle Code

- User traffic

- Connection channels (virtual trunks only)

To display the current trunk parameters, use the **dsptrkcnf** command. If all the parameters to be changed can be done **without** deleting the trunk, execute just the **cnftrk** command. Use **cnftrk** at *both* ends of the trunk.

To change parameters that require trunk deletion:

Step 1 Delete the trunk using **deltrk**. Execute **deltrk** at one end of the trunk.

Step 2 Execute **cnftrk** to reconfigure parameters. Use **cnftrk** at both ends of the trunk.

Step 3 Execute **addtrk** to add the trunk. Do so at only one end of the trunk.

Removing a Trunk

To remove a trunk:

Step 1   Use the **deltrk** command to delete the trunk. If both ends of the trunk are reachable, perform this command at one end of the trunk only. Otherwise, this command must be performed at both ends. Connections using the deleted trunk that cannot be rerouted are automatically deleted.

Step 2   Use the **dntrk** command to down the trunk. Execute **dntrk** at both ends of the trunk.

Displaying or Printing Trunk Configurations

The network trunk configuration can be displayed on the screen or printed on the printer in a one step process by using any one of the following commands.

- **dsptrks**—Displays the current trunk configuration and alarm status at a node.

- **prttrks**—Prints the current trunk configuration and alarm status at a node.

- **dspnw**—Displays all trunks for each node in a domain.

- **prtnw**—Prints all trunks for each node in a domain.

Setting Up ATM Trunk Redundancy

ATM trunk redundancy is the T3 and E3 trunk redundancy supported by the AIT, ALM/B, and BTM cards. Redundancy can exist between either an AIT card and BNI (BPX), a ALM/B and BNI, or a BTM and a BNI. Trunk redundancy cannot exist between IPXs and IGXs. Also, virtual trunking and trunk redundancy are incompatible. Trunk redundancy uses the standard trunk cables rather than a Y-cable. (For all service card sets other than trunk cards, redundancy is managed through the Y-cable redundancy commands **addyred**, **delyred**, **prtyred**, and **dspyred**).

Trunk redundancy depends on the applicable commands, the trunk card in the adjacent slot, and the standard trunk cable. Trunk redundancy commands execute only on the IPX or IGX. The BPX does not require information regarding this feature. The following commands manage trunk redundancy:

- **addtrkred**—Sets up redundancy for a pair of AIT, BTM, or ALM/B cards.

- **deltrkred**—Deletes redundancy for a current redundant pair.

- **dsptrkred**—Displays all redundant ATM trunk pairs

Using Subrate Trunk Interface Control Templates

Subrate trunks use an Interface Control Template that specifies the configuration of an output control lead. The template defines which output lead is to be configured and whether the lead is asserted, inhibited, or follows a specified input source. A template for a subrate trunk can be configured individually or copied from the template of another subrate trunk.

Subrate trunk interface control templates are managed through the following commands.

- **cnftrkict**—Configures an interface control template for a subrate trunk.

- **cpytrkict**—Copies the template from one subrate trunk and applies to another trunk.

- **dsptrkict**—Displays the interface control template for a specifies line.

- **prttrkict**—Prints the interface control template for a specifies line.

Summary of Commands

The following list shows the full name and starting page for the description of each trunk command.

Table 5-2

Mnemonic	Description	Page
addtrk	Add trunk	5-7
addtrkred	Add trunk redundancy	5-9
cnftrk	Configure trunk	5-11
cnftrkalm	Configure trunk alarm	5-17
cnftrkict	Configure trunk interface control template	5-19
cpytrkict	Copy trunk interface control template	5-21
deltrkred	Delete trunk redundancy	5-25
dntrk	Down trunk	5-27
dspnw	Display network	5-29
dsptrkbob	Display trunk breakout box	5-31
dsptrkcnf	Display trunk configuration	5-33
dsptrkict	Display trunk interface control template	5-36
dsptrkred	Display trunk redundancy	5-38
dsptrks	Display trunks	5-40
dsptrkstats	Display trunk statistics	5-42
prtnw	Print network	5-44
prttrkict	Print trunk interface control template	5-46
prttrks	Print trunks	5-47
uptrk	Up trunk	5-48

addtrk

Adds a trunk between two nodes. It must be executed at one of the nodes terminating the line. A trunk must be "added" to the network before it can be used for traffic. Before a trunk can be added to the network, the line must be activated, or "upped", at both ends of the connection using the **uptrk** command. The **addtrk** command only has to be entered at one end of the connection. A trunk must be free of major alarms before it can be added. If you use **addtrk** to join two previously separate networks, the local node verifies that all node names in both networks are unique before it adds the trunk.

You cannot execute **addtrk** while any of the following conditions are true:

- Another node is attempting to change the network topology by adding or deleting a trunk.

- Another node is notifying all nodes that it has been renamed.

- Another node is currently adding or deleting a connection in the network with the **addcon** or **delcon** command.

- An unreachable node exists in the network.

- Two networks are to be joined, but the node names are not unique across both networks.

When using the **addtrk** command, exercise caution when adding a new node to a network or one network to another network. With these particular operations, the user IDs and passwords may be replaced by those in the other network. Consult Cisco TAC before performing these operations.

Full Name
Add trunk to the network

Syntax
addtrk <slot.port>[.vtrk]

Related Commands
deltrk, dsptrks, uptrk

Attributes

Privilege	1
Jobs	Yes
Log	Yes
Node	IPX, IGX, BPX
Lock	Yes

Example 1

addtrk 7

Description

Add trunk between node beta slot 7 and node alpha slot 10.

System Response

```
beta            TRM   YourID:1        IPX 32    8.2    Mar. 3 1996 15:04 MST

PLN  Type       Current Line Alarm Status          Other End
7    E1/32      Clear - Line OK                     alpha.10
9    T1/24      Clear - Line OK                     gamma.10
13   T1/24      Clear - Line OK                     alpha.14
15   T1/24      Clear - Line OK                     gamma.15
20   T3/3       Major - AIT Missing                 -




Last Command: addtrk 7


Next Command:
```

Table 5-3   addtrk – Parameters

Parameter	Description
slot.port	Specifies the slot and port number of the trunk to add.

Table 5-4   addtrk – Optional Parameters

Parameter	Description
vtrk	Specifies the virtual trunk number. The maximum on a node is 32. The maximum on a T3 or E3 line is 32. The maximum on an OC3/STM1 line is 11.

addtrkred

Configures trunk redundancy on an ATM trunk. The **addtrkred** command specifies a backup trunk to the primary trunk. Applicable line types are T3 and E3. This redundancy scheme requires two sets of ATM trunk cards and two T3 or E3 cables. Note the following characteristics of trunk redundancy:

- Applicable card sets are the AIT, BTM, and ALM/B connected to a BNI card set on a BPX. (Trunk redundancy between an AIT, BTM, and ALM/B is not allowed.)

- Execute **addtrkred** on an IPX or IGX but not on the BPX side.

- Primary and backup card sets must be in adjacent slots.

- After a primary trunk failure clears, the traffic automatically returns to the primary card set.

Full Name

Add trunk redundancy

Syntax

addtrkred <primary trunk> <secondary trunk>

Related Commands

deltrkred, dsptrkred

Attributes

Privilege	1–4
Jobs	No
Log	Yes
Node	IPX, IGX
Lock	Yes

Example 1

addtrkred 4 5

Description

Add bandwidth redundancy for the primary ATM trunk in slot 4 with backup from the ATM trunk in slot 5.

System Response

```
beta            TRM   YourID:1        IPX 32    8.2    Mar. 3 1996 15:15 MST

ATM Line           Backup ATM Line
4                       5
```

```
Last Command: addtrkred 4 5


Next Command:
```

Table 5-5   addtrkred – Parameters

Parameter	Description
primary trunk	Specifies the slot number of the primary trunk card set.
secondary trunk	Specifies the slot number of the secondary trunk card set as backup.

cnftrk

Configures trunk parameters. A trunk has a default configuration after it is *upped* with **uptrk**. Beyond this default configuration, the **cnftrk** command lets you configure trunk parameters. You must execute **cnftrk** at both ends of a trunk.

In the display for **cnftrk**, the current value for each parameter appears on screen. At the command line prompt for each parameter, the current or default value appears in parentheses and stays the same if you press Return without typing any characters. Configurable parameters depend on the trunk type. For example, an NTM and BNI support different parameters. If a displayed parameter is not available for the current interface, its name appears at half-intensity, and the value field contains dashes. (Note that Clock Rate is a required parameter for only HSSI. The Clock Rate range is 4 Mbps–50.84 Mbps. The actual clock limits depend on the front card.)

> **Note** If you specify **cnftrk** in a job, prompts appear for line format and line options when you create or edit the job with **addjob** or **editjob**, respectively.

Receive and Transmit Rates on Physical Trunks

The parameters RCV Trunk Rate and XMT Trunk Rate apply to standard, physical ATM trunks (but RCV Trunk Rate does not apply to BNI cards). These parameters let you configure lower rates than the maximum line rate for the trunk type. If you adjust a rate, do so at both ends of the trunk. For example, if RCV Trunk Rate on an IGX is 40,000 packets per second (pps), XMT Trunk Rate on the far end must be 20,000 cells per second (cps).

For ATM trunks terminating on an AIT (IPX) or a BTM (IGX), make sure the receive rate is below the maximum of the T3 or E3 line rate. For these cards, the rate should be no more than 40,000 packets per second. (On an IPX, the reason for reducing the rate is to prevent the MUXBUS from becoming overloaded. Furthermore, the rate should be even less if large numbers of T1 or E1 trunks exist on the same IPX.) Increments for RCV Trunk Rate and XMT Trunk Rate can be as small as 1 cell or packet per second. (Note that the node may round up or round down the value you enter.)

The default value for XMT Trunk Rate is the maximum rate for the back card type. You can reduce this rate to any number of cells per second that is less than or equal to the physical port rate. If E3 or T2 is selected, the bandwidth is reduced from the T3 rate.

Receive and Transmit Rates on Virtual Trunks

The implementation of XMT Trunk Rate on a virtual trunk differs from the implementation on a physical trunk. On a physical trunk, XMT Trunk Rate limits the rate at which the back card physically generates cells. For a virtual trunk, XMT Trunk Rate does not limit the rate at which the back card generates cells: the line rate stays at the maximum for the line type. However, XMT Trunk Rate is the maximum transmission rate allowed on a virtual trunk.

The provider of the virtual trunk service assigns the value for XMT Trunk Rate. You must have this provider-assigned value for XMT Trunk Rate and enter it when you use **cnftrk**.

Subrate and Fractional Trunks

For configuring an NTC or NTM trunk, the Subrate interface and Subrate data rate fields are configurable only if the back card is a BC-SR. The choices for interface type are V.11, X.21, V.35, and RS449. Set the data rate to match the subrate facility within the range 64 Kbps–1.920 Mbps.

The DS-0 map is used to define fractional E1 and T1 trunks. It consists of a repeating set of specifications in the form <x[-y[a]]>, where "x" and optional "y" are DS-0 numbers in the range 0–23, and the optional "a" indicates *alternating*. The value of "y" must be greater than the value of "x." The values of both "x" and "y" cannot be less than 0 or greater than the maximum number of DS-0s for the line type. In the DS-0 map for unframed E1, use 0-31. For framed E1, use 1-31. For 30 DS-0 E1, use 1-15, 17-31. Normally, the parameters are set after the trunk has been upped but before it has been added to the network with the **addtrk** command.

The section "cnftrk–parameters" in this definition shows required trunk parameters. Virtual trunk parameters are in the section titled "cnftrk–optional parameters." You can reconfigure some parameters after adding a trunk. See the section "Reconfiguring a trunk."

Full Name
Configure trunk

Syntax
cnftrk <*slot.port*>[.*vtrk*] <options for E1 | T1 | E3 | T3 | OC3 | E2 | HSSI | SR >

Related Commands
addtrk, dsptrkcnf

Attributes

Privilege	1
Jobs	Yes
Log	Yes
Node	IPX, IGX, BPX
Lock	Yes

Example 1
cnftrk 11

Description
Configure trunk 11. The trunk in slot 11 is an ATM T3 trunk on an ALM/B. (If you want to verify the card is the trunk version of the ALM, use either **dspcd** or **dspcds** and check the front card "Rev." An ALM/B shows a the first character in the Rev column.)

System Response

```
IGX16           TN    SuperUser      IGX 16   8.2 Dec. 5 1996  16:38 PST


PLN 11 Config           T3/576 [192000pps]    ALM slot: 11
Clock Rate:             --                    Idle code:            7F hex
Transmit Trunk Rate:    96000 cps             Restrict PCC traffic: No
Rcv Trunk Rate:         192000 pps            Link type:            Terrestrial
Subrate interface:      --                    Line framing:         --
Subrate data rate:      --                        coding:           --
Line DS-0 map:          --                        CRC:              --
Pass sync:              Yes                       recv impedance:   --
Loop clock:             No                        cable type:
Statistical Reserve:    992   pps                     length:       0-225 ft.
Header Type:            STI                   HCS Masking:          Yes
Gateway Type:           BAM                   Payload Scramble:     No
VPI Address:            0                     End supp BData:       Yes
VCI Address:            0                     End supp FST:         Yes



Last Command: cnftrk 11


Next Command:
```

Example 2

cnftrk 1.1

Description

Configure trunk 1.1. This trunk is an ATM T3 trunk on a BPX.

System Response

```
batman          TN    SuperUser      BPX 15   8.2       Date/Time Not Set

TRK  1.1 Config         T3   [96000 cps]   BNI-T3 slot:  1
                                           Restrict CC traffic:   No
Transmit Rate:          96000              Link type:             Terrestrial
Subrate interface:      --                 Line framing:          --
Subrate data rate:      --                     coding:            --
Line DS-0 map:          --                     CRC:               --
Pass sync:              Yes                     recv impedance:    --
Loop clock:             No                      cable type:
Statistical Reserve:    992   cps                   length:       0-225 ft.
Idle code:              7F hex             HCS Masking:           Yes
Connection Channels:    1771               Payload Scramble:      No
Valid Traffic Classes:                     Frame Scramble:        --
        V,TS,NTS,FR,FST,CBR,VBR,ABR        Virtual Trunk Type:    --
                                              Virtual Trunk VPI:     --
                                              Virtual Trunk Service: --

This Command: cnftrk 1.1


Transmit Rate [T2=14490, E3=80000, T3=96000, OC3 = 353208](96000):
```

Example 3

cnftrk 13.1.1

Description

Configure trunk 13.1.1 (a virtual trunk on an ATM T3).

System Response

```
sw97              TN   SuperUser      BPX 15    8.2       July 30 1996 11:45 GMT

TRK 13.1.1 Config  T3          [2867  cps]  BNI-T3 slot:  13
                                            Restrict CC traffic:   No
Transmit Rate:         3000                 Link type:             Terrestrial
Subrate interface:     --                   Line framing:          --
Subrate data rate:     --                     coding:              --
Line DS-0 map:         --                   CRC:                   --
Pass sync:             No                     recv impedance:      --
Loop clock:            No                     cable type:
Statistical Reserve:   992   cps                    length:        0-225 ft.
Idle code:             7F hex               HCS Masking:           Yes
Connection Channels:   55                   Payload Scramble:      No
Valid Traffic Classes:                      Frame Scramble:        --
        V,TS,NTS,FR,FST,CBR,VBR,ABR         Virtual Trunk Type:    CBR
                                            Virtual Trunk VPI:     0
                                            Virtual Trunk Service: 4

Last Command: cnftrk 13.1.1 3000 N N 992 7F 55 V,TS,NTS,FR,FST,CBR,VBR,ABR N TER
RESTRIAL 0 Y N CBR 0

Next Command:
```

Table 5-6   cnftrk – Parameters

Trunk Option	Type	Description	Possible Entries	Default
slot.port	ALL	The number of the trunk to configure.	Any valid slot and port. For cards with one port, use slot.	N/A
Trunk Identification (informational display only)	ALL	Displays trunk number, trunk type and bandwidth supplied, and the card type and slot number of the unit supporting the trunk.	T3, E3, T1, E1, fractional T1, fractional E1 subrate, ATM, NTC, NTM, OC3, STM1.	none
Clock Rate	ATM	The clock rate for HSSI only.	4 Mbps–50.84Mbps	
Rcv TRK Rate	ATM	CELLBUS or MUXBUS bandwidth in packets per second (pps) to allocate to a BTM, ALM/B, or AIT. Unused on BPX.	0–192,000 pps for ALM/B 0–80,000 pps for BTM (IGX) or AIT (IPX) cards	1000
Tx TRK Rate	ATM	Maximum transmit rate in cells per second (cps) over a trunk. Note that defaults for virtual trunks are 1/32 of the default for T3/E3 and 1/11 of the default for OC3/STM1.	0–96000 cps for T3 0–80000 cps for E3 0–353,208 cps for OC3 0–14490 cps for T2	96000 for T3 80000 for E3 353,208 for OC3 14490 for T2
Subrate interface	PKT	Subrate physical interface type	X.21	V.35	X.21
Subrate data rate	PKT	Subrate data rate (Kbps)	64–1920	1920

Trunk Option	Type	Description	Possible Entries	Default
DS-0 map	PKT	DS-0s to use for a fractional T1 bundle. Optional "a" = "use alternating channels."	x–y[a]	0-31 (E1) 0-23 (T1)
Pass sync	ALL	Enables the trunk to pass a clock for network synchronization.	Yes | No	Yes for standard, no for virtual trunks
Loop Clock	ALL	Loop receive clock back to transmit.	Yes | No	No
Statistical Reserve	ALL	This trunk bandwidth is reserved for non-standard traffic, such as internode controller messages or user traffic diverted because of a failure.	0–10666	600 for FastPackets 1000 for ATM cells (992 cells on BNI)
Header Type	ATM	Defines the ATM cell header type used: UNI, NNI, or STI. See *System Manual* for a description.	UNI | NNI | STI .	STI
Gateway Type	ATM	Defines the type of addressing mode for this trunk. See *System Manual* for a description.	BPX–BPX (BAM) Cloud (CAM) Simple (SAM)	BAM
VPI Address	ATM	Virtual path address in ATM cell. Must be non-0 for a virtual trunk.	0–255	0
VCI Address	ATM	Virtual circuit address in ATM cell.	0–65,535	0
Idle code	ALL	Hex code that occupies the payload space of an ATM idle cell. On a FastPacket trunk, idle code is on the line.	0–FF (hex)	54 (E1) 7F (T1, ATM)
Restrict CC traffic (requires super user privilege)	ALL	Restrict node controller messages from a trunk. Restricting CC traffic can cause serious problems. Contact Customer Engineering before you change it.	Y | N	No
Link type	ALL	Terrestrial or Satellite link.Link Type applies to configuring a route so it can "avoid satellite."	T | S	T
Line framing	PKT	T1 line framing	D4 | ESF	D4
Line coding	PKT	E1 line coding T1 line coding	HDB3 | AMI ZCS | B8ZS | AMI	HDB3 ZCS
Line CRC	PKT	E1 CRC-4	Yes | No	No
Recv impedance	PKT	E1 receive impedance	1 = 75W unbalanced 2 = 75W balanced 3 = 120W balanced	1
Cable type and cable length	PKT ATM	Length and type of cable used for trunk. Designates the software configurable line build-out to match the cable length from the IPX or IGX to the DSX cross-connect.	1 = 0–220' MAT 2 = 220–440' MAT 3 = 440–655' MAT 4 = 0 -133' ABAM 5 = 133–266' ABAM 6 = 266–399' ABAM 7 = 399–533' ABAM 8 = 533–655' ABAM	4
		For BPX, the choices are 0–225 feet and over 225 feet. Cable type is not selectable for BPX.	0= 0–225 1= greater than 255	0

Trunk Option	Type	Description	Possible Entries	Default
HCS Masking	ATM	Mask the ATM cell header checksum to disable error checking. This applies to E3 and OC3 only.	Yes | No	Yes
Payload Scramble	ATM BNI	Scramble the cell payload.	Yes | No	Yes for BNI-E3 No for all others
End supp BData	PKT ATM	Indicates whether the far end of a trunk supports bursty, frame relay data.	Yes | No	No
End supp FST	PKT ATM	Indicates whether the far end of the trunk supports ForeSight for frame relay.	Yes | No	No
Gateway Efficiency	ATM	How many packets to stuff into an ATM cell. Does not apply to BNI.	1 | 2 | 3	2

Table 5-7   cnftrk – Optional Parameters

Virtual Trunk Parameter	Type	Description	Possible Entries	Default
Connection Channels	BNI	The maximum number of connection channels per trunk. All virtual trunks on the port share this total. The number of connections added to the port cannot exceed the number of connection channels configured for the port.	BNI-T3/E3: max 1771 BNI-OC3: max 15867	BNI-T3/E3: 1771 BNI-OC3: 15867 For Virtual Trunks: BNI-T3/E3: 55 BNI-OC3: 1442
Valid Traffic Classes	BNI	The valid types of traffic for a virtual trunk. The recommended traffic classes for each virtual trunk types: On a CBR trunk: ATM CBR, NTS, TS, voice. On a VBR trunk: ATM VBR and bursty data A. On an ABR trunk: ATM ABR and bursty data B (ForeSight).	V—voice TS—timestamped NTS—non-timestamped FR—frame relay FST—ForeSight CBR—constant bit rate VBR—variable bit rate ABR—available bit rate	
Virtual Trunk Type	BNI	This choice usually comes from the carrier that provides the ATM cloud.	CBR, VBR, ABR	CBR
Virtual Trunk VPI	BNI	Virtual Trunks must be configured to have a greater-than-0 VPI before connections are added by **addcon**. This value usually comes from the carrier that provides the ATM cloud.	1–255 for T3/E3 1–63 for OC3 (STM1)	

cnftrkalm

Configures alarm reporting for a trunk. When a trunk are upped and added to the network, alarm reporting is enabled, but **cnftrkalm** allows disabling of alarms on upped trunks. This can be useful for trunks that are connected to a node but not yet in service or when a trunk has occasional bursts of errors but still functions. When enabled, alarms cause an output from the ARC or ARM card or an indication to StrataView Plus.

Full Name

Configure trunk alarms

Syntax

cnftrkalm <slot.port>[.vtrk] <e | d>

Related Commands

dspalms, dsptrks

Attributes

Privilege	1–5
Jobs	Yes
Log	Yes
Node	IPX, IGX, BPX
Lock	Yes

Example 1

cnftrkalm 7 d

Description

Disable trunk alarms on trunk 7

System Response

```
beta            TRM   YourID:1        IPX 32    8.2    Mar. 3 1996 15:21 MST

PLN   Type        Current Line Alarm Status              Other End
7     E1/32       Clear - Line OK                        alpha.10
9     T1/24       Clear - Line OK                        gamma.10
13    T1/24       Clear - Line OK                        alpha.14
15    T1/24       Clear - Line OK                        gamma.15
20    T3/3        Major - AIT Missing                       -




Last Command: cnftrkalm 7 d


Next Command:
```

Table 5-8   cnftrkalm – Parameters

Parameter	Description
slot.port	Specifies the trunk number.
e	Enables the alarm.
d	Disables the alarm.

Table 5-9   cnftrkalm – Optional Parameters

Parameter	Description
vtrk	Specifies the virtual trunk number.

cnftrkict

Configures the output lines of an interface control template for a subrate trunk. The following list shows the configurable signals:

Table 5-10

Interface Type	Output Signal	Inputs
X.21	C, I	
V.35	RTS, DTR	CTS, DSR
MIL-188	IS, LL, RL, RS, SF, SS, TR	DM, CS

Full Name
Configure trunk interface control template

Syntax
cnftrkict <line> <output> <source>

Related Commands
dsptrkict, prttrkict

Attributes

Privilege	1–2
Jobs	Yes
Log	Yes
Node	IPX, IGX
Lock	Yes

Example 1
cnftrkict 9 c on

Description
Configure output lead "c" as "on" in the interface control template for subrate trunk 9.

System Response

```
beta            TRM   YourID:1        IPX 32   8.2    Mar. 3 1996 15:15 MST


Packet Line:9
Interface:X.21DTE

Interface Control Template for Trunk Line

LeadOutput ValueLeadOutput Value
C/DTR ON




Last Command: cnftrkict 9 c on


Next Command:
```

Table 5-11   cnftrkict – Parameters

Parameter	Description
line	Specifies the trunk whose interface control template is to be configured.
output	Specifies the output lead to be configured. Configurable output leads vary depending on the type of data interface (X.21, V.35, or MIL-188) used.
source	Specifies how the specified output lead is to be configured. The options are as follows: • On, which means the output lead is asserted • Off, which means the output lead is inhibited • l (lower case L) Output follows a local input lead • Input, which specifies the name of the local input lead that the output lead follows. Input leads vary depending on the type of data interface (X.21, V.35, or MIL-188) supported.

cpytrkict

Copies the interface control template of one trunk to another trunk. Once copied, the control information can be edited with the **cnftrkict** command. See the **cnftrkict** description for more information on configuring the trunk interface control templates.

Full Name

Copy trunk interface control template

Syntax

cpytrkict <source_trunk> <destination_trunk>

Related Commands

cnftrkict, dsptrkict

Attributes

Privilege	1–2
Jobs	Yes
Log	Yes
Node	IPX, IGX
Lock	Yes

Example 1
cpytrkict 9 11

Description
Copy the interface control template for trunk 9 to trunk 11.

System Response

```
beta            TRM   YourID:1          IPX 32    8.2    Mar. 3 1996 15:15 MST


Packet Line:9
Interface:X.21DTE

Interface Control Template for Trunk Line

LeadOutput ValueLeadOutput Value
C/DTR ON




Last Command: cpytrkict 9 11


Enter destination line number:
```

Table 5-12   cpytrkict – Parameters

Parameter	Description
source trunk	Specifies the trunk number of the interface control template information to be copied.
destination trunk	Specifies the trunk number to which the interface control template information will be copied.

deltrk

Deletes a trunk. Because deleting a trunk removes the communication path between two nodes, using **deltrk** may split a network into two separate networks. If **deltrk** execution splits the network, deletion of the connections that were using the deleted trunk also occurs.

If both nodes on the trunk are reachable, executing **deltrk** is necessary on only one node. If a trunk is deleted on a node while the node at the other end is unreachable, the unreachable node does not detect the deletion, so be sure to delete the trunk at both nodes in this case.

After you delete a trunk, it still carries framing signals but no traffic. Also, the trunk can generate alarms for counting. To remove a trunk completely, use **dntrk** after the **deltrk** command.

In the following situations, the node does not allow **deltrk** to execute:

- Another node is attempting to change the network topology by adding or deleting a trunk.

- Another node is notifying all other nodes that it has a new node name.

- Another node is adding or deleting a channel connection in the network with the **addcon** or **delcon** command.

Full Name
Delete trunk from a network

Syntax
deltrk <slot.port>[.vtrk]

Related Commands
addtrk, dntrk, dspnw, dsptrks uptrk

Attributes

Privilege	1
Jobs	Yes
Log	Yes
Node	IPX, IGX, BPX
Lock	Yes

Example 1
deltrk 7

Description
Delete trunk 7 from the network.

System Response

```
beta            TRM   YourID:1        IPX 32    8.2    Mar. 15 1996 15:02 MST

PLN  Type      Current Line Alarm Status           Other End
7    E1/32     Clear - Line OK                      -
9    T1/24     Clear - Line OK                      gamma.10
13   T1/24     Clear - Line OK                      alpha.14
15   T1/24     Clear - Line OK                      gamma.15
20   T3/3      AIT   - AIT Missing                  -




Last Command: deltrk 7


Next Command:
```

Table 5-13   deltrk – Parameters

Parameter	Description
slot.port	Specifies the physical trunk number.

Table 5-14   deltrk – Optional Parameters

Parameter	Description
vtrk	Specifies the virtual trunk portion of the trunk identifier.

deltrkred

Removes redundancy from an ALM/B, BTM, or AIT trunk. After you execute **deltrkrd**, you can remove the backup card without causing an alarm.

Full Name

Delete ATM trunk redundancy

Syntax

deltrkred <backup ATM trunk number>

Related Commands

addtrkred, dsptrkred

Attributes

Privilege	1–4
Jobs	No
Log	Yes
Node	IPX, IGX
Lock	Yes

Example 1

deltrkred 5

Description

Remove ATM trunk redundancy for the card set in slot 5.

System Response

```
beta            TRM   YourID:1        IPX 32   8.2   Mar. 15 1996 15:15 MST

ATM Line            Backup ATM Line

7                       8
```

```
Last Command: deltrkred 5


Next Command:
```

Table 5-15   deltrkred – Parameters

Parameter	Description
Backup trunk number	Specifies of the ATM card set assigned as the backup.

dntrk

Downs a trunk, after which the line no longer has framing nor statistics gathering. Before it can be downed with **dntrk**, a trunk must be removed from the network with **deltrk** (or **delshelf** in a tiered nets).

Full Name

Down trunk

Syntax

dntrk <slot.port>[.vtrk]

Note No space exists between the port number and the "." for the virtual trunk specification.

Related Commands

addtrk, deltrk, uptrk, dsptrks

Attributes

Privilege	1–2
Jobs	Yes
Log	Yes
Node	IPX, IGX, BPX
Lock	Yes

Example 1

dntrk 9

Description

Deactivate trunk 9.

System Response

```
beta            TRM   YourID:1        IPX 32   8.2    Mar. 3 1996 10:53 MST

From Type       Current Line Alarm Status              Other End
13   T1/24      Clear - Line OK                         alpha.14
15   T1/24      Clear - Line OK                         gamma.15
20   T3/3       Major - AIT Missing                     -




Last Command: dntrk 9


Next Command:
```

Table 5-16   dntrk – Parameters

Parameter	Description
slot.port	Specifies the physical trunk.

Table 5-17   dntrk – Optional Parameters

Parameter	Description
vtrk	Specifies a virtual trunk number (applies to BNI only). T3/E3 range is 1–32. OC3 range is 1–11.

dspnw

Displays the network topology in tabular form. Alarms appear in a column, and added trunks (by **addtrk**) appear to the right to the node name. Each trunk entry shows the local back card slot number and the node name and back card slot number on the other end of the line. Note the following conventions:

- ~ indicates that the trunk is a satellite line.

- Flashing entry indicates a failed line.

- Blinking node name indicates a node executing downloader software.

If the network has more nodes and trunk connections than are currently on the screen, a "Continue?" prompt appears. Press the Return key to display other parameters, or enter "n" to exit the command.

Full Name
Display network

Syntax
dspnw [+b | -b] [+z | -z]

Related Commands
dspnds, prtnw

Attributes

Privilege	1–6
Jobs	No
Log	No
Node	IPX, IGX, BPX
Lock	No

Example 1
dspnw

Description
Display the network topology in tabular form.

System Response

```
sw91            TN   SuperUser      IPX 8     8.2 Nov. 13 1996 16:06 GMT


NodeName    Alarm           Packet Line
sw92        UNRCH
   8-7/sw91
sw200       UNRCH
   14-14/sw201              15-15/sw201              16-16/sw201
sw201       UNRCH
   14-14/sw200              15-15/sw200              16-16/sw200
   12.1-4.5/sw26
sw12        MAJOR
   3.1.2-4.7/sw26           3.1.3-6.3/sw91
sw91        MAJOR
   7-8/sw92                 6.3-3.1.3/sw12           6.4-3.1.4/sw68
sw68        Minor
   3.1.4-6.4/sw91

This Command: dspnw


Continue?
```

The display shows a network containing the nodes alpha, beta, and gamma. The word "Major" on the right of "gamma" and "beta" (see Alarm column) indicates the existence of alarm conditions such as loss of signal.

The "10-9/beta" listed to the right of node gamma indicates that trunk 10 on node gamma connects to node beta as trunk 9. The "7-10/alpha" listed to the right of node beta indicates that trunk 7 on node beta connects to node alpha as trunk 10. If the two trunk numbers are separated by an tilde (~) in place of a dash (-), the display is indicating a satellite. The following illustrates a map of this network.

Table 5-18   dspnw – Optional I Parameters

Parameter	Description
+b	Display only the lines that support bursty data.
-b	Display only the lines that do no support bursty data.
+z	Display only the lines that use ZCS encoding.
-z	Display only the lines that do not use ZCS encoding.

dsptrkbob

Displays the state of all inputs from subrate line equipment to an IPX or IGX and the state of all outputs from the node to the subrate line equipment. Display updates can occur at an optional, user-specified interval. Otherwise, the display remains on-screen until Delete is pressed or the display times out. The default interval for updating the display is every 5 seconds. If a trunk is disabled, its number appears in dim, reverse video. See **cnftrkict** for configuration details.

Full Name

Display trunk breakout box

Syntax

dsptrkbob <line> [interval]

Related Commands

cnftrkict, dsptrkict

Attributes

Privilege	1–6
Jobs	No
Log	No
Node	IPX, IGX
Lock	Yes

Example 1

dsptrkbob 9

Description

Display the breakout for subrate trunk 9.

System Response

```
beta            TRM   YourID:1       IPX 32    8.2     April 15 1996 15:15 MST


Packet Line:9
Interfaces:    X.21    DTE

Inputs from Line Equipment              Outputs to Line Equipment
Lead  Pin    State  Lead Pin  State Lead    Pin   State  Lead Pin   State
RxD   4/11   Idle   TxD  2/9  Active
I/DSR 5/12   On                         C/DTR  3/10  On
S/RxC 6/13   Active



Last Command: dsptrkbob 9


Hit DEL key to quit:
```

Table 5-19   dsptrkbob – Parameters

Parameter	Description
trunk	Specifies the subrate trunk.

Table 5-20   dsptrkbob – Optional Parameters

Parameter	Description
interval	The number of seconds between updates of the breakout box display. The range is 1–60.

dsptrkcnf

Displays trunk configuration. The parameter values that **dsptrkcnf** displays have been set with **cnftrk** or are default values.

Full Name

Display trunk configuration

Syntax

dsptrkcnf <slot.port>[.vtrk]

Related Commands

cnftrk

Attributes

Privilege	1–6
Jobs	No
Log	No
Node	IPX, IGX, BPX
Lock	No

Example 1

dsptrkcnf 6

Description

Display the configuration for trunk 6. Trunk 6 is an AIT trunk on an IPX.

System Response

```
sw91            TN    SuperUser      IPX 8    8.2      May  22 1996 16:09 GMT

PLN 6 Configuration   T3/3   [1000  pps]   AIT slot: 6
Clock Rate:           --                   Idle code:            7F hex
Transmit Trunk Rate:  96000 cps            Restrict PCC traffic: No
Rcv Trunk Rate:       1000 pps             Link type:            Terrestrial
Subrate interface:    --                   Line framing:         --
Subrate data rate:    --                      coding:            --
Line DS-0 map:        --                      CRC:               --
Pass sync:            Yes                      recv impedance:   --
Loop clock:           No    pps              cable type:
Statistical Reserve:  992                          length:       0-225 ft.
Header Type:          STI                  HCS Masking:          Yes
Gateway Type:         BAM                  Payload Scramble:     No
VPI Address:          0                    End supp BData:       Yes
VCI Address:          0                    End supp FST:         Yes


Last Command: dsptrkcnf 6


Next Command:
```

Example 2

dsptrkcnf 11

Description

Display the configuration for the E3 trunk in slot 11 (an ALM/B trunk).

System Response

```
IGX16           TN    SuperUser      IGX 16   8.2 Jan. 23 1997 02:08 GMT

PLN 11 Config         E3/480 [160000pps]   ALM slot: 11
Clock Rate:           --                   Idle code:            7F hex
Transmit Trunk Rate:  80000 cps            Restrict PCC traffic: No
Rcv Trunk Rate:       160000 pps           Link type:            Terrestrial
Subrate interface:    --                   Line framing:         --
Subrate data rate:    --                      coding:            --
Line DS-0 map:        --                      CRC:               --
Pass sync:            Yes                      recv impedance:   --
Loop clock:           No                      cable type:
Statistical Reserve:  992   pps                    length:       0-225 ft.
Header Type:          STI                  HCS Masking:          Yes
Gateway Type:         BAM                  Payload Scramble:     No
VPI Address:          0                    End supp BData:       Yes
VCI Address:          0                    End supp FST:         Yes


Last Command: dsptrkcnf 11


Next Command:
```

Example 3

dsptrkcnf 13.3.1

Description

Display the configuration for virtual trunk 13.3.1. The trunk is on a BNI-T3 card set in a BPX.

System Response

```
sw97            TN    SuperUser      BPX 15    8.2       June 22 1996 07:34 GMT

TRK 13.3.1 Config  T3        [2867  cps]  BNI-T3 slot:  13
                                          Restrict CC traffic:   No
Transmit Rate:        3000                Link type:             Terrestrial
Subrate interface:    --                  Line framing:          --
Subrate data rate:    --                      coding:            --
Line DS-0 map:        --                  CRC:                   --
Pass sync:            No                      recv impedance:    --
Loop clock:           No                      cable type:
Statistical Reserve:  992   cps                     length:      0-225 ft.
Idle code:            7F hex              HCS Masking:            Yes
Connection Channels:  55                 Payload Scramble:       No
Valid Traffic Classes:                   Frame Scramble:         --
        V,TS,NTS,FR,FST,CBR,VBR,ABR      Virtual Trunk Type:     CBR
                                         Virtual Trunk VPI:      1
                                         Virtual Trunk Service: 3

Last Command: dsptrkcnf 13.3.1


Next Command:
```

Table 5-21   dsptrkcnf – Parameters

Parameter	Description
slot.port	Specifies the physical slot and port number of the trunk.

Table 5-22   dsptrkcnf – Optional Parameters

Parameter	Description
vtrk	Specifies the virtual trunk number. The maximum value on a node is 32. The maximum on a T3 or E3 line is 32. The maximum for user traffic on an OC3/STM1 trunk is 11. (See also the section called "Setting Up a Virtual Trunk" at the front of this chapter.)

dsptrkict

Displays interface control information for the subrate trunks. The displayed information includes:

- Specified line.

- Associated leads and their status (i.e., on or off)

- Whether output follows a local input.

- Name of the local or remote input lead that the output lead follows.

To see a list of configurable outputs, and information on how to configure an output, see the **cnftrkict** command. Disabled trunks have their trunk number displayed in dim, reverse video on the screen.

Full Name
Display trunk interface control templates

Syntax
dsptrkict <line>

Related Commands
cnftrkict, prttrkict

Attributes

Privilege	1–2
Jobs	No
Log	No
Node	IPX, IGX
Lock	No

Example 1
dsptrkict 9

Description
Display subrate for the trunk 9 interface control template.

System Response

```
beta            TRM   YourID:1        IPX 32    8.2  Mar. 15 1996 15:15 MST


Packet Line:9
Interface:X.21DTE

Interface Control Template for Trunk Line

LeadOutput ValueLeadOutput Value
C/DTR ON




Last Command: dsptrkict 9


Next Command:
```

dsptrkred

Displays the backup and primary cards for a trunk.

Full Name

Display ATM trunk redundancy

Syntax

dsptrkred [trunk]

Related Commands

addtrkred, deltrkred

Attributes

Privilege	1–4
Jobs	No
Log	No
Node	IPX, IGX, BPX
Lock	No

Example 1

dsptrkred

Description

Display all ATM trunks with redundancy.

System Response

```
beta            TRM   YourID:1        IPX 32    8.2    Mar. 15 1996 15:15 MST

ATM Line        Backup ATM Line
4                    5
7                    8
```

```
Last Command: dsptrkred


Next Command:
```

Table 5-23   dsptrkred – Optional Parameters

Parameter	Description
ATM trunk number	Specifies the slot number of the primary or backup ATM card set to display. Without this optional entry, the screen displays all primary and backup ATM trunks.

dsptrks

Displays basic trunk information for all trunks on a node. This command applies to both physical only and virtual trunks. The displayed information consists of:

- Trunk number, including the virtual trunk number if applicable

- Line type (E1, T3, or OC3, for example)

- Alarm status

In addition, for trunks that have been added to the network with the **addtrk** command, the information includes the node name and trunk number at the other end. Trunks that have a "–" in the Other End column have been upped with **uptrk** but not yet added on both ends with **addtrk**. For disabled trunks, the trunk numbers appear in reverse video on the screen.

Full Name

Display trunks

Syntax

dsptrks

Related Commands

addtrk, deltrk, dntrk, dsptrks, uptrk

Attributes

Privilege   1–6

Jobs   No

Log   No

Node   IPX, IGX, BPX

Lock   No

Example 1

dsptrks

Description

Display information on the trunk configuration and alarm status for the trunks at a node. The trunk numbers with three places represent virtual trunks.

System Response

```
sw53           TN   SuperUser      BPX 15   8.2    April 24 1996 23:03 GMT

TRK    Type   Current Line Alarm Status        Other End
 1.1   T3     Clear - OK                        sw89(IPX/AF)
 1.2   T3     Clear - OK                        -
 1.3   T3     Clear - OK                        -
 2.1.1 OC3    Clear - OK                        -
 3.1   T3     Clear - OK                        sw92(IPX/AF)
 3.2   T3     Clear - OK                        sw91(IPX/AF)
 3.3   T3     Clear - OK                        sw90(IPX/AF)
 4.1   T3     Clear - OK                        sw24(IPX/AF)
 4.2   T3     Clear - OK                        swstorm/1.1
 4.3   T3     Clear - OK                        sw25(IPX/AF)
13.1   T3(E3) Clear - OK                        -
13.2.1 T3     Clear - OK                        -
13.2.2 T3     Clear - OK                        -
13.2.3 T3     Clear - OK                        -


Last Command: dsptrks


Next Command:
```

dsptrkstats

Displays the trunk port status, ATM cell loss counts, cell payload errors, and cell header errors for the specified trunk port. The table that follows lists the other statistics. By including the optional *clear* parameter, **dsptrkstats** execution clears these statistics.

Table 5-24

Statistics	Description
Cells dropped due to BFrame parity err.	A parity error was detected in one or more of the P bits in the BFrame header or in the BIP-16 parity check for the header causing the cell to be dropped.
Cell header mismatch error count.	A count of cells received by a BNI in this slot.port with an incorrect header address for that card.
First mismatch cell header VPI/VCI.	This displays the VPI/VCI address of the first header mismatch to be received by the card in this slot.port.
BFrame cell data payload error.	A separate BIP-16 parity check is used for the payload data. This number represents the number of errors detected by this parity check. This does not necessarily cause a cell to be dropped.
BFrame cell loss due to admin access.	Internal to the BNI card is an administrative processor. This statistic is a count of the cells that were lost in an internal administrative shuffle.

Full Name

Display trunks statistics

Syntax

dsptrkstats <slot.port> [clear]

Related Commands

cnftrkstats, dsptrkerrs

Attributes

Privilege   1–6

Jobs   No

Log   No

Node   BPX

Lock   Yes

Example 1

dsptrkstats 1.1

Description

Display cell statistics for ATM trunk 1.1.

System Response

```
sw53              TN    SuperUser      BPX 15    8.2        April 24 1996 23:07 GMT

Trunk  1.1      Status: Clear - OK                      Cleared: 04/24/96 17:31:16
Type                                 Count
Cells dropped due to BFrame parity err    0
Cell header mismatch error count          0
BFrame cell data payload error            0
BFrame cell loss due to disabled chan     0
BFrame cell count(TX)                8316        non-hipri cells -    52
BFrame cell count(RX)                12452

First mismatch cell masked VPI/VCI        0
First mismatch cell full VPI/VCI          0



Last Command: dsptrkstats 1.1


Next Command:
```

Table 5-25   dsptrkstats – Parameters

Parameter	Description
slot.port	Specifies the physical part of the logical trunk number.

Table 5-26   dsptrkstats – Optional Parameters

Parameter	Description
clear	Clear the statistics after the system displays them.

prtnw

Prints the network topology table. Alarms print in a column, and added trunks (by **addtrk**) appear to the right to the node name. Each trunk entry shows the local back card slot number and the node name and back card slot number on the other end of the line. Note the following conventions:

- ~   indicates the trunk is a satellite line.

- Flashing entry indicates a failed line.

- Blinking node indicates a node is executing downloader software.

Parameters set Zero Coded Suppression (ZCS) display characteristics. ZCS writes a 1 over the least significant bit of any byte that contains 0s. The purpose is to ensure a minimum occurrence of 1s so that the receiving node can extract timing information. Command uses the same syntax, and prints the same information as is displayed using the **dspnw** command.

Full Name
Print network

Syntax
prtnw [+b | -b] [+z | -z]

Related Commands
dspnw

Attributes

Privilege	1–6
Jobs	Yes
Log	No
Node	IPX, IGX, BPX
Lock	Yes

Example 1
prtnw

Description
Print the network topology.

System Response
(No screen display, just a printout.)

Table 5-27   prtnw – Parameters

Parameter	Description
+b	Display only the lines that support bursty data.
-b	Display only the lines that do no support bursty data.
+z	Display only the lines that use ZCS encoding.
-z	Display only the lines that do not use ZCS encoding.

prttrkict

Prints the interface control template of a subrate trunk. For a list of configurable outputs and configuration steps, see the **cnftrkict** description. The printed information includes:

- Specified line.

- Associated leads and their status

- Whether output follows a local input

- Name of the local or remote input lead that the output lead follows

Full Name

Print trunk interface control template

Syntax

prttrkict *<line>*

Related Commands

dsptrkict

Attributes

Privilege	1–2
Jobs	Yes
Log	No
Node	IPX, IGX
Lock	Yes

Example 1

prttrkict

Description

Print network topology.

System Response

(No screen display, just a printout.)

Table 5-28   prttrkict – Parameters

Parameter	Description
line	Specifies the trunk interface control template.

prttrks

Prints the trunk configuration for the node. This command uses the same syntax and prints the same information as the **dsptrks** command. Configuration information for trunks includes the trunk number and the type of line (T3, E3, and so on). For trunks that have been added to the network with the **addtrk** command, the configuration information also includes the node name and trunk number at the other end of the line.

Note the following printout characteristics:

- Those trunks that show a "–" in the "Other End" column, have been *upped* with the **uptrk** command but not yet *added* with the **addtrk** command.

- The Other End column shows the node name and slot number of the other end of the trunk.

- Names of disabled trunk appear as light text in the printout.

Full Name
Print trunks

Syntax
prttrks

Related Commands
dsptrks

Attributes

Privilege	1–6
Jobs	Yes
Log	No
Node	IPX, IGX, BPX
Lock	Yes

Example 1
prttrks

Description
Print trunk configuration for the node.

System Response
(No screen display, just a printout.)

uptrk

Activates (or "ups") a trunk and, if you include the optional *vtrk* parameter, activates the trunk as a *virtual* trunk.

After you have upped the trunk but not yet *added* it, the trunk carries line signalling but does not yet carry live traffic. With the trunk in this state, the node can monitor it for reliability. Once a trunk has shown reliability and is ready to go into service, use **addtrk** to add the trunk to the network. If you need to take an active trunk out of service, use **dntrk**. The **dntrk** command causes the node to reroute any existing traffic if sufficient bandwidth is available.

You cannot mix physical and virtual trunk specifications. For example, after you up a trunk as a standard trunk, you cannot add it as a virtual trunk when you execute **addtrunk**. Furthermore, if you want to change trunk types between standard and virtual, you must first down the trunk with **dntrk** then up it as the new trunk type.

You cannot up a trunk if the required card is not available. Furthermore, if a trunk is executing self-test, a "card in test" message may appear on-screen. If this message appears, re-enter **uptrk**.

Full Name
Up trunk

Syntax
uptrk <slot.port>[.vtrk]

Related Commands
addtrk, dntrk

Attributes

Privilege	1–2
Jobs	Yes
Log	Yes
Node	IPX, IGX, BPX
Lock	Yes

Example 1
uptrk 21

Description
Activate (up) trunk 21—a single-port card, in this case, so only the slot is necessary.

Example 2

uptrk 6.1.1

Description

Activate (up) trunk 6.1.1—a virtual trunk, in this case, which the third digit indicates.

Table 5-29   uptrk – Parameters

Parameter	Description
slot.port	Specifies the slot and port of the trunk to activate. If the card has only one port, the *port* parameter is not necessary. An NTM, for example, has one port.

Table 5-30   uptrk – Optional Parameters

Parameter	Description
vtrk	Specifies the virtual trunk number. The maximum on a node is 32. The maximum on a T3 or E3 line is 32. The maximum for user traffic on an OC3/STM1 trunk is 11 (so more than one OC3/STM1 may be necessary). See also the section called "Setting Up a Virtual Trunk" at the front of this chapter.