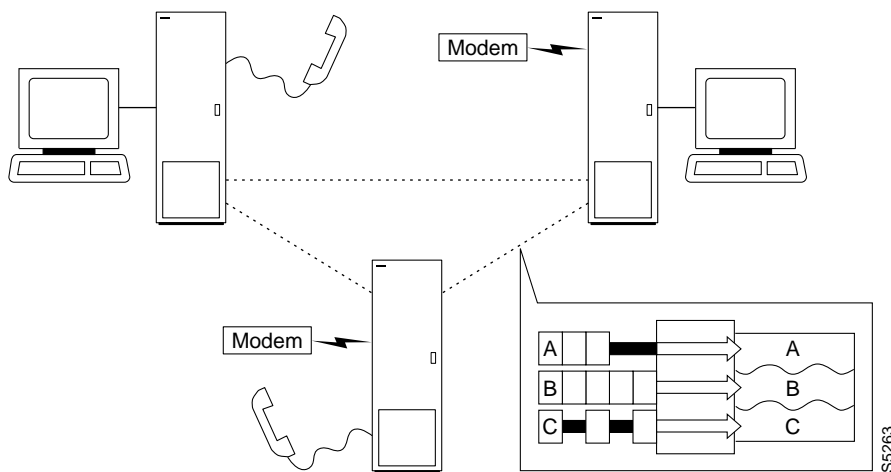# ATM Connections

S5263

The ATM commands are for activating and configuring ATM connections and statistical reporting for these connections. ATM trunks are physical connections between BPX, IGX, or IPX nodes that support ATM connections. The ATM connections on a BPX require the use of either an ASI or BNI front card and a back card that supports T3, E3, or OC3 (STM1). The following table lists the permissible card combinations for BPX lines.

Table 10-1   Front and Back Card

Application	Front Card	Back Card
ATM	BNI-T3	LM-3T3 (Three ports)
ATM	BNI-E3	LM-3E3 (Three ports)
ATM	ASI-T3	LM-2T3 (Two ports)
ATM	ASI-E3	LM-2E3 (Two ports)
ATM	ASI-155	MMF-2-BC
ATM	ASI-155	SMF-2-BC
ATM	ASI-155	SMF LR-2-BC
ATM	BNI-155	MMF-2-BC
ATM	BNI-155	SMF-2-BC
ATM	BNI-155	SMF LR-2-BC

Setting Up an ATM Connection

To set up an ATM connection, perform the following steps:

Step 1 Activate the ATM port with the **upport X.X** command, where X.X is the shelf slot and port (1–4) of the ATM card set.

Step 2 Use the **cnfport** command to establish the characteristics for the ATM port.

Step 3 If a suitable class is already configured, note its number and use this class when adding the ATM connection with the **addcon** command. (The **dspcls** command displays the parameters for each connection class. The **cnfcls** command allows an individual class to be modified.)

Step 4 Use the **vt** command to log in to the node at the remote end of the proposed ATM connection.

Step 5 At the remote node, use the **upport** and **cnfport** as listed in steps 1 and 2 to activate and configure the remote port.

Step 6 Use the **addcon** command at one end of the connection to activate the ATM connection.

Managing Bandwidth

There are a number of commands that assist in managing bandwidth to achieve satisfactory traffic patterns.

cnfpref   The configure preference command can be used to specify preferred routing for intra-domain connections. This command can be used to assist in balancing the load on the network's trunks.

dsprts, prtrts   The display and print routes commands can be used in conjunction with the cnfpref command to display the current connection routing information.

upcon, dncon   The up and down connection commands can be used to temporarily down connections, thus releasing bandwidth for other services. Often it is possible to down some voice connections to provide more bandwidth for data, frame relay, or ATM traffic.

Other Commands

The following commands may be useful for establishing connections.

- delcon   deletes a connection from an ATM line.

- dnln   downs a line. A downed line is deactivated with no drive signals and no
                statistics. All connections on the line must be deleted (delcon) before a line
                can be downed.

- dspcons   displays the connections on a specified ATM line.

- dsplns   displays the line configuration and alarm status for the node.

- dsplnutl   displays the line utilization for an ATM line.

Summary of Commands

The location of each ATM command description appears in the following table:

Table 10-2   ATM Command Descriptions and Page Numbers

Mnemonic	Description	Page
addcon	Add connection	10-6
addcongrp	Add connection group	10-15
clrchstats	Clear channel statistics	10-17
cnfcls	Configure class	10-19
cnfconsc	Configure connection	10-23
cnfport	Configure port	10-27
cnfportq	Configure port queue	10-30
delcon	Delete connection	10-32
delcongrp	Delete connection group	10-34
dnport	Down port	10-38
dspchstats	Display channel statistics	10-40
dspcls	Display class	10-42
dspcon	Display connection	10-44
dspconcnf	Display connection configuration	10-48
dspcongrp	Display connections in a group	10-50
dspcongrps	Display connection groups	10-52
dspcons	Display connections	10-54
dsplmistats	Display LMI statistics	10-58
dsplncnf	Display line configuration	10-60
dspport	Display port	10-64
dspportq	Display port queue	10-67
dspportstats	Display Port Statistics	10-69
grpcon	Group a connection	10-71
prtlns	Print lines	10-73
upport	Up port	10-76

addcon

Establish an ATM connection for a channel between the current node and one or more nodes in the network. You can specify a port on either an ASI, BNI, BTM, or AIT front card. For a description of the **addcon** command as it applies to frame relay connections, voice connections, or data connections, refer to the chapter that applies to the specific connection type. When used with the syntax in this chapter, **addcon** adds either a standard ATM connection, a frame relay-to-ATM interworking connection (ATFR), or a frame relay-to-ATM interworking with ForeSight (ATFST) connection.

The node on which **addcon** executes is the "owner" of the connection. Connection ownership is important because automatic rerouting and preferred routing information for a connection is entered on the node that owns the connection. See the **cnfpref** and **cnfcos** descriptions for information on automatic rerouting.

The displayed parameter prompts depend on the connection type. Before a connection is added, the proposed connection appears on the screen with a prompt for confirmation. After **addcon** executes, the system software automatically routes the connection. The figures on this and the following pages are flow diagrams showing the sequence of possible parameter prompts according to the connection type and whether Usage Parameter Control (UPC) is enabled. The flow diagrams begin after the remote node name and VPI and VCI have been entered. The subsequent tables define the parameters and list the defaults and ranges for each parameter. Refer to the *System Manual* and the ATM Forum specifications for more details on ATM parameters and concepts such as the *leaky buckets* for controlling cell admissions to the network.

A form of notation appears for some parameters that may need explanation. The notation is either (0), (1), or (0+1). This refers to the state of the Cell Loss Priority (CLP) bit. The usage of the CLP bit is in the traffic policing schemes. (0+1) means cells with CLP=0 or 1. (0) means cells with CLP=0. (1) means cells with CLP=1. The CLP bit is used in different contexts. For example, CDVT (0+1) refers to Cell Delay Variation Tolerance (CDVT) for cells with CLP=0 or 1. CDVT (0) means CDVT for cells with CLP=0. PCR(0) means PCR for cells with CLP=0. For a description of CLP and CDVT usage and policing concepts in general, refer to the *System Manual* and the ATM Forum specifications.

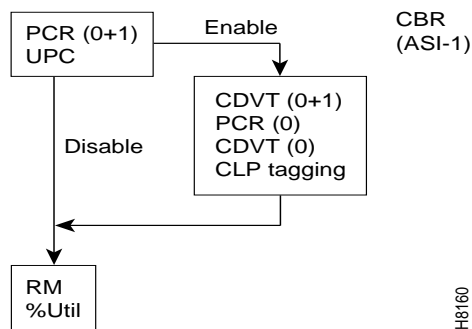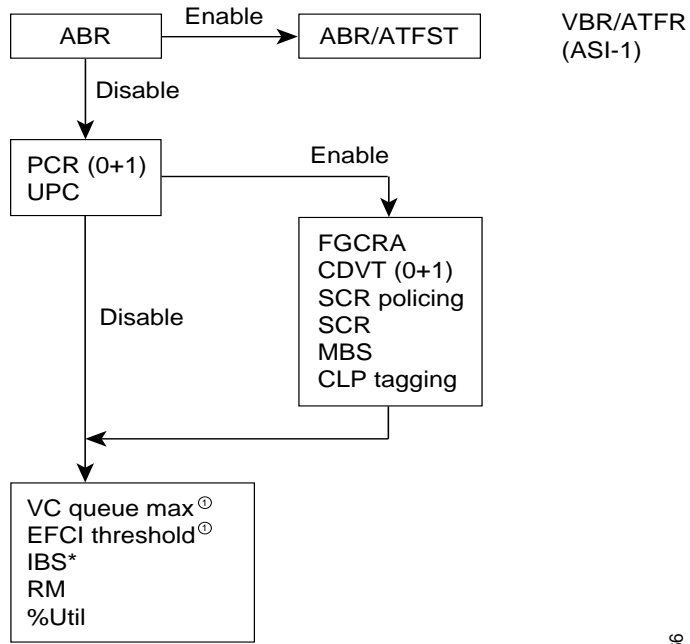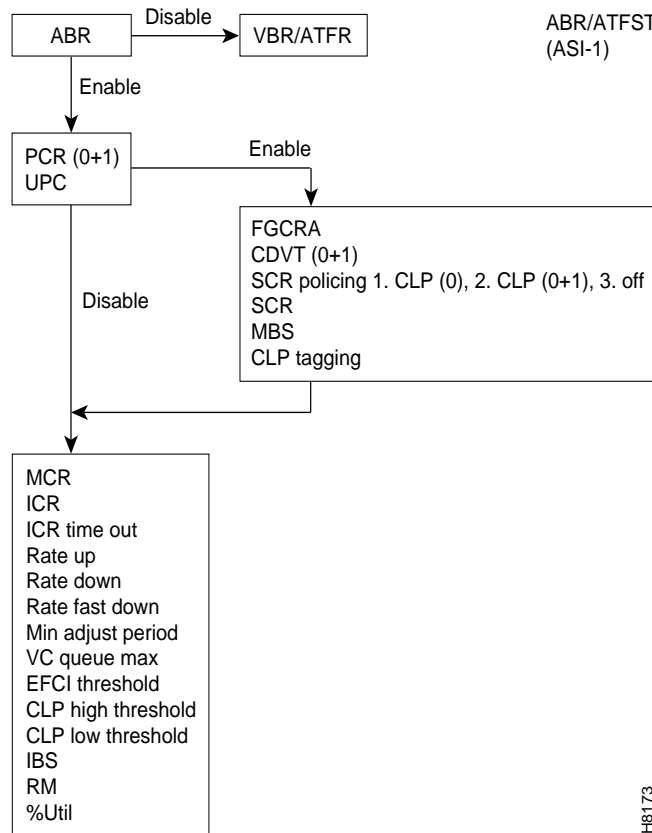**Figure 10-1   Prompt Sequence for a CBR Connection**

Figure 10-2   Prompt Sequence for a VBR/ATFR Connection

```
        Enable
ABR ─────────────►  ABR/ATFST          VBR/ATFR
 │                                      (ASI-1)
 │ Disable
 ▼
PCR (0+1)   ─────────Enable──────┐
UPC                              ▼
                        ┌──────────────────┐
                        │ FGCRA            │
                        │ CDVT (0+1)       │
                        │ SCR policing     │
   Disable              │ SCR              │
                        │ MBS              │
                        │ CLP tagging      │
                        └──────────────────┘
   ┌─────────────◄──────────────┘
   ▼
┌──────────────────────┐
│ VC queue max ①       │
│ EFCI threshold ①     │
│ IBS*                 │
│ RM                   │
│ %Util                │
└──────────────────────┘
```

① Prompted only for ATFR connections.

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Figure 10-3   Prompt Sequence for a ABR/ATFST Connection

```
        Disable
ABR ─────────────►  VBR/ATFR           ABR/ATFST
 │                                      (ASI-1)
 │ Enable
 ▼
PCR (0+1)   ─────────Enable──────┐
UPC                              ▼
                ┌───────────────────────────────────────────────┐
                │ FGCRA                                          │
                │ CDVT (0+1)                                     │
                │ SCR policing 1. CLP (0), 2. CLP (0+1), 3. off  │
   Disable      │ SCR                                            │
                │ MBS                                            │
                │ CLP tagging                                    │
                └───────────────────────────────────────────────┘
   ┌─────────────◄──────────────┘
   ▼
┌──────────────────────┐
│ MCR                  │
│ ICR                  │
│ ICR time out         │
│ Rate up              │
│ Rate down            │
│ Rate fast down       │
│ Min adjust period    │
│ VC queue max         │
│ EFCI threshold       │
│ CLP high threshold   │
│ CLP low threshold    │
│ IBS                  │
│ RM                   │
│ %Util                │
└──────────────────────┘
```

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ATM Connections   **10-7**

The following table contains descriptions of the ATM parameters that appear on screen. The subsequent table gives the defaults, ranges (or values), and granularity for each parameter. The last section contains screen examples. The preceding flow diagrams help clarify the information in these forthcoming sections.

Note If the description states the parameter is transmit/receive, the system is prompting for two values: one is for the transmit direction, the other for the receive direction. Also, not all parameters apply to OC3/STM1, as the text shows.

Table 10-3   addcon – Parameters

Parameter/Prompt	Description
local channel	Specifies the local slot, port, virtual path identifier (vpi), and virtual connection identifier (vci) for the connection. The format is *slot.port.vpi.vci*. The vpi and vci ranges are:
	The vpi range for a UNI connection is 0–255. The vpi range for an NNI connection is 0–1023
	The range for a vci is 1–4095. The vci can be an asterisk (*) to indicate the connection is a *virtual path* (the vci does not provide a distinction within the network).
remote node name	Specifies the name of the node at the other (or remote) end of the connection.
remote channel	Specifies the remote node's slot, port, vpi, and vci for this connection. The format is *slot.port.vpi.vci*. The vpi and vci ranges are:
	The vpi range for a UNI connection is 0–255. The vpi range for an NNI connection is 0–1023
	The range for a vci is 1–4095. The vci can be an asterisk (*) to indicate the connection is a *virtual path* (the vci does not provide a distinction within the network).
connection class	Specifies one of the following connection types: VBR, CBR, ABR, ATFR (VBR with ATM-to-frame relay interworking), or ATFST (ABR with interworking and ForeSight). The parameters that follow this selection depend on the chosen connection type. Refer to the flow diagrams on the preceding pages.
	The option for choosing a class *number* is also available. The class is a *template* for a connection type. This serves as an alternative to specifying each parameter for a connection type. To specify a connection class, enter a digit in the range 1–10. To see the parameter values for a class, use the **dspcls** commands. To customize any class template, use **cnfcls**.
ABR	T3/E3: Enables/disables ForeSight. Refer to the flow diagrams on the preceding pages for help with the following explanation:
	If the connection type selected at the "connection class" prompt was VBR and ABR is *enabled* at this prompt, the connection type changes to ABR, and prompts for ABR parameters subsequently appear. On the other hand, if the selected connection type is ABR and ABR is *disabled* at this ABR prompt, the connection type changes to VBR, so only VBR parameters are requested.

Parameter/Prompt	Description
PCR(0+1)	T3/E3: Specifies the transmit/receive Peak Cell Rate (PCR) for cells leaving the first leaky bucket on the ASI card with CLP(0+1). Applies to only CBR connections.
	OC3 (STM1): Specifies the transmit/receive Peak Cell Rate (PCR).
	The range is 10 cps up to the maximum line rate. (See table of defaults and ranges.)
UPC	T3/E3 or OC3 (STM1): Enables/disables Usage Parameter Control (UPC). With UPC, additional user-specified parameters become available for each connection type. Refer to the preceding flow diagrams to see the parameters available for each connection type. The system uses the default if no parameter change occurs. See next table for defaults.
FGCRA	T3/E3: Enables either the Frame-Based Generic Cell Rate Algorithm (FGCRA) or the standard GCRA (the default).
	FGCRA controls automatic cell discarding (or tagging) of the remainder of a frame when one cell from the frame is non-compliant. FGCRA is a Cisco enhancement of the ATM-UNI Generic Cell Rate Algorithm (GCRA) for associating a cell with the frame from which it originated. Cisco supports configuration on a per-connection basis.
CDVT(0+1)	T3/E3 or OC3 (STM1): Specifies the transmit/receive Cell Delay Variation Tolerance (CDVT) for the *first* leaky bucket, which applies to cells with CLP(0+1). CDVT is the maximum time for accumulated violations of cell-arrival time parameters.
PCR(0)	T3/E3: Specifies the transmit/receive Peak Cell Rate (PCR) for cells leaving the second leaky bucket [CLP(0)] on the ASI card.
	OC3 (STM1): PCR(0) not used by ASI-2 OC3 (STM1).
CDVT(0)	T3/E3: Specifies the transmit/receive Cell Delay Variation Tolerance (CDVT) for the second leaky bucket. The *second* bucket applies to cells with CLP(0). CDVT is the maximum time for accumulated violations of cell-arrival time parameters.
	OC3 (STM1): CDVT(0) not used by ASI-2 OC3 (STM1) card.
SCR policing	T3/E3: Specifies the traffic policing for a VBR or ABR connection. The possible policing configurations are SCR policing of CLP (0+1) (which is selected as SCR#2), SCR policing of CLP(0) (which is selected as SCR#1), or SCR policing off (SCR#3). The SCR Policing parameter is not used by ASI-2 OC3 (STM1) card.
SCR	T3/E3: Sustainable Cell Rate (SCR) specifies a compliant cell rate threshold for transmit/receive. SCR is available with ABR and VBR connections and is less than or equal to the Peak Cell Rate (PCR). The ASI-2 OC3 (STM1) card does not use SCR policing.
MBS	T3/E3 or OC3 (STM1): The transmit/receive Maximum Burst Size for SCR policing.
CLP tagging	T3/E3 and OC3 (STM1): Enables/disables Cell Loss Priority (CLP) tagging. If CLP tagging is enabled, the CLP bit is set as a result of a UPC violation.
MCR	T3/E3: Specifies the transmit/receive Minimum Cell Rate (MCR) for ABR connections.
ICR	T3/E3: Specifies the transmit/receive Initial Cell Rate. ICR is the rate that occurs after a period of inactivity on an ABR connection. (This period is the value of ICR TO). The cell rate then goes up or down under the control of the ForeSight Rate Control Algorithm. The range is 0 cps through the line's maximum. The ICR default is a range under the control of the ForeSight Rate Control Algorithm. See also the descriptions of Rate Up and Rate Dn.

Parameter/Prompt	Description
ICR TO	T3/E3: ICR timeout. Specifies a period of inactivity before a connection's cell rate is reset to the specified ICR.
Rate Up	T3/E3: Specifies the increment in cell rate when the rate goes up. This ForeSight Rate Up increment is in cells per second per adjustment.
Rate Dn	T3/E3: Specifies large reductions in the transmit/receive cell rate. This ForeSight Rate Down value is a percentage of the current rate.
Rate FastDn	T3/E3: Specifies a rate of decrease in the transmit/receive cell rate when ForeSight quickly adjusts the rate down. This value is a percentage of the SCR.
Minimum Adjust	T3/E3: Minimum Adjust Period specifies the interval before the ingress sends rate adjustments for ABR connections. This is the time period before either a rate adjustment is made or a message is sent that an adjustment is not necessary. It serves as a stand-in round trip delay until a true RTD is measured. Older software refers to this as Maximum Adjust Rate.
VC Qdepth	T3/E3: Specifies the maximum ABR VC queue depth for transmit/receive.
EFCI	T3/E3: The transmit/receive percent of ABR VC queue depth that causes EFCI to be set.
CLP Hi	T3/E3: Specifies a percent of the transmit/receive ABR VC queue depth. When a transmit/receive threshold is exceeded, the node discards cells with CLP=1 in the connection until the VC queue level falls below the depth specified by CLP lo.
CLP Lo	T3/E3: Specifies a percent of the transmit/receive ABR VC queue depth such that, when the VC queue level falls below this level, the node stops discarding CLP=1 cells.
IBS	T3/E3: Initial Burst Size (IBS) for transmit/receive. Applies to only ABR connections.
RM	T3/E3: Enables Resource Management cells to go to a port on an ASI. RM cells provide backwards congestion notification, which subsequently goes to external equipment. For BNI cards, leave RM disabled. In older software, the name of this parameter is BCM.
% Util	T3/E3: Specifies the percent of bandwidth utilization for a connection. The allocation of trunk bandwidth that is based on %util depends on the connection type, as follows:
	For CBR, the default is 100%, and the bandwidth allocation is PCR(0+1) * %util.
	For VBR, the default in the command prompt is the *minimum* of either 100% or 120(SCR/PCR). The bandwidth allocation is PCR(0+1) * %util.
	For ABR, the default is 100%. The bandwidth allocation is MCR * %util.

Table 10-4   addcon – Parameter Defaults and Ranges

Parameter	Range or Value	Default	Dependency	Granularity
ABR	enable/disable	VBR: disable ATFR: disable ABR: enable ATFST: enable		n/a
PCR(0+1)	PCR in cells/sec 7–96000:T3 7–80000: E3 7–353200: OC3 (STM1)	10	Range is limited to 7–5333 cps for ATF connections.	10 cps
UPC	enable/disable	enable		n/a
FGCRA	enable/disable	disable		n/a
CDVT(0+1)	CDVT, in microsecs. 0-250000: T3/E3 and OC3/STM1	CBR: 10000 All others: 250000		1 microsec.
PCR(0)	PCR in cells/sec 7–96000:T3 7–80000: E3	PCR(0+1)	PCR(0) <= PCR(0+1).	10 cps
CDVT(0)	CDVT uSec 0-250000: T3/E3	CDVT(0+1)		1 microsec.
SCR policing	1-3 1 = CLP(0) 2 = CLP(0+1) 3 = Off	1		n/a
SCR	SCR in cells/sec 7–96000:T3 7–80000: E3 7–353200: OC3/STM1	Value of PCR(0+1)	SCR <= PCR(0+1). Range is limited to 7–5333 cps for ATF connections. Upper limit = max line rate.	10 cps
MBS	MBS in cells 1–24000: T3/E3 10–1000: OC3 (STM1)	1000		1 cell
CLP tagging	enable/disable	enable	For SCR Policing CLP(0+1), tagging always disabled	n/a
MCR	MCR in cells/sec 0–96000:T3 0–80000: E3	ABR: 0 ATFST: 10	MCR <= PCR(0+1). Range is limited to 7–5333 cps for ATFST cons.	10 cps
ICR	ICR in cells/sec 0–96000:T3 0–80000: E3	Maximum of: MCR or PCR(0+1)/10	ICR >= MCR and ICR <= PCR(0+1). Range is limited to 7–5333 cps for ATFST connections.	10 cps
ICR time out	1–255 Seconds	10		1 second

Parameter	Range or Value	Default	Dependency	Granularity
Rate up increment	In Cells/Sec/Adjust 10–96000	Maximum of: 10% of MCR or 2000		10 cells
Rate down	1–100%	87%		1%
Rate fast down	1–100%	50%		1%
Min. adjust period	20–250 msec	40		10 msec
VC Qdepth	ABR: 1–64000 cells ATFR: 1-1366	ABR: 16000 ATFR: 1366	Does not apply to OC3/STM1	1 cell
EFCI threshold	1–100% of VC queue depth	100%		1%
CLP high threshold	1–100% of VCqueue depth	90%		1%
CLP low threshold	1-100% of VCqueue depth	80%		1%
IBS	ABR: 0–24000 cells ATFR: 1–107 cells	0		1 cell
RM	enable/disable	disable		n/a
% utilization	1–100%	CBR:100% ABR:100% VBR: min. of: 120% * (SCR/PCR(0+1)) or 100%	VBR default: minimum of: 120% * (SCR/PCR(0+1)) or 100%	1%

Full Name
Add a connection

Syntax
addcon *parameters* (see preceding flow diagrams and tables)

Related Commands
delcon, dspcons

Attributes

Privilege   1–2

Jobs   Yes

Log   Yes

Node   IPX, IGX, BPX

Lock   Yes

Example 1

addcon   4.1.2.1 sw53 4.1.2.2

Description

Add a connection between 4.1.2.1 on node swstorm and 4.1.4.2 on node sw53.

System Response

```
swstorm        TN    SuperUser       BPX 15    8.2    July 26 1996 20:05 GMT

 Local          Remote     Remote                              Route
 Channel        NodeName   Channel       State  Type       Avoid COS O
 4.1.2.1        sw53       4.1.4.2       Ok     atfr             0  L
```

```
This Command: addcon 4.1.2.1 sw53 4.1.4.2 atfr * * * * * * * * * * * * * *


Add these connections (y/n)?
```

Example 2

addcon 3.2.9.251 nmsbpx04 5.2.7.251 (with defaults illustrated)

In this case, the screen shows the value for each parameter entered on the command line.

System Response

```
nmsbpx03      TN   SuperUser      BPX 15   8.2   Nov. 3 1996  18:02 PDT

 Local          Remote     Remote                          Route
 Channel        NodeName   Channel       State  Type       Avoid COS O
 3.2.9.251      nmsbpx04   5.2.7.251     Ok     abr               0  L
```

```
This Command: addcon 3.2.9.251 nmsbpx04 5.2.7.251 abr e 10 10 1000 e 10 10 10 10
 110 87 50 100 64000 100 100 d e 100 90 e

Add these connections (y/n)?
```

addcongrp

Sets up a group to which ATM connections between the local node and a remote node are added. The connection group is a routing entity that is initially empty and to which individual connections (virtual circuits) are added using the **grpcon** command. Connections added to a group must be of the inter-node, non-bundled, ATM type. The connections must have the same routing parameters. These parameters include connection owner, class of service (COS), connection state, route restrictions, and ForeSight enable status.

Connection grouping permits an IPX or IGX node to have up to 1000 connections and a BPX node to have up to 5000 connections. A connection group may have up to 16 connections.

Full Name

Add connection group

Syntax

addcongrp <remote node> [.group number]

Related Commands

grpcon, delcongrp, dspcongrp, dspcongrps

Attributes

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

Example 1

addcongrp bpx4

Description

Add a connection group to node bpx4. The system adds the connection and automatically creates the group name with the ".1" appended to the remote node name.

System Response

```
bpx1            TN   SuperUser      BPX 15   8.2        Feb. 14 1996 19:53 PST

Only to                          Route
bpx4            Count  State  Avoid  COS  FST  Owner
bpx4.1            0                             Local
```

```
Last Command: addcongrp bpx4


Next Command:
```

Table 10-5   addcongrp – Parameters

Parameter	Description
remote node name	Specifies the name of the remote node to which the grouped connections are routed.

Table 10-6   addcongrp – Optional Parameters

Parameter	Description
.number	Users have the option of specifying the appended group number. Without a user-specified number, the system assigns the next available number.

clrchstats

Clears the gathered statistics for either a specific channel or all channels. When you enter a specific channel number, a display of the current channel statistics appears. The display asks if you confirm the choice for clearing. If you enter "*" (all channels) for the channel specification, the display prompts you to confirm the decision to clear all channel statistics.

Full Name

Clear channel statistics

Syntax

clrchstats <channel | *>

Related Commands

dspchstats

Attributes

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

Example 1

clrchstats 3.1.1

Description

Clear channel statistics for 3.1.1.

System Response

```
sw83            TN   SuperUser      IPX 16    8.2        Apr. 23 1996 19:24 PST

Channel Statistics: 3.1.1        Cleared: Apr. 17 1996 08:10
MIR: 3.8 kbps          Collection Time: 6 day(s) 10:04:58      Corrupted: NO
                    Frames   Avg Size Avg    Util         Packets      Avg
                             (bytes)  (fps)  (%)                       (pps)
From Port:          1516586    198     2     35
To Network:         1516215    198     2     35        16678365        30
Discarded:             371     198     0      0
From Network:       1518665    197     2     35        16705146        30
To Port:            1518629    198     2     35
Discarded:              36     120     0      0            238          0
                ECN Stats:  Avg Rx VC Q:         0    ForeSight RTD    40
Min-Pk bytes rcvd:     52470  FECN Frames:         0    FECN Ratio (%)   0
Minutes Congested:         0  BECN Frames:        16    BECN Ratio (%)   0
Frames rcvd in excess of CIR:    0  Bytes rcvd in excess of CIR:       0
Frames xmtd in excess of CIR:    0  Bytes xmtd in excess of CIR:       0

This Command: clrchstats 3.1.1


OK to clear (y/n)?
```

Table 10-7   clrchstats – Parameters

Parameter	Description
channel	Specifies the channel whose statistics are cleared.
*	Specifies all channel statistics.

cnfcls

The **cnfcls** command allows the ten Cisco-supplied class templates for connection configuration to be modified. (The **addcon** command can take a class as an input).

When you enter the number of the class to configure, the display shows the current value of each parameter in the class. For each item in the class, a prompt appears for changing or keeping the current value.

Full Name
Configure class

Syntax
cnfcls <class number> [*optional parameters*]

Related Commands
addcon, dspcls

Attributes

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

Example 1
cnfcls 10

Description
Configure connection class 10. The display prompts for parameters.

System Response

```
night           TN    SuperUser      BPX 15   8.2    July 28 1996 13:02 GMT

                         ATM Connection Classes
Class:  1
Type:  VBR

UPC       SCR           IBS          MBS       ABR      PCR           ABR PCR
 y     500/500         10/10       1000/1000    -      500/500          -/-

      ICR        ICR TO Rate Up Rate Dn Rate FastDn Max Adjust   CDVT[in cells]
      -/-            -        -        -        -        -        64000/64000

  EFCI    % Util FGCRA     MFS      CLP  CLP Hi  CLP Lo  BCM
100/100  100/100  n/n      -/-       y  100/100 100/100   n/n

        Description: "Default VBR 500"


This Command: cnfcls 1


Enter class type (VBR, CBR, ABR, ATFR):
```

Table 10-8   cnfcls – Parameters

Parameter	Description
class	Specifies the class to configure. The class numbers are 1–10.

Table 10-9   cnfcls – Optional Parameters

Parameter	Description
optional parameters	Individual parameters are specific to the type of connection (CBR, VBR, ABR, ATFR). Use the **dspcls** command to see the parameters in each of the classes.

cnfcon

Configures the ATM bandwidth parameters for a specified connection. The initial cell rate (ICR) normally is set to the port speed. It may be lower if other constraints exist on the data generation rate. If ICR is too low, cells are dropped. If it is too high, bandwidth may be wasted unless ForeSight is used. Statistical reports are the best source of information for deciding what to adjust.

If the connection type includes ForeSight (abr enabled), the results of the last test round trip delay command (**tstdelay**) appear. Note that this is not the current RTD but the result of the last test that ran. Connection priority — high or low — is displayed for standard frame relay connections and ForeSight connections. Several checks are done on the parameters that specify bandwidth to assist users in efficient use of network bandwidth. The following messages describe the performance evaluation.

- Error   Min cannot exceed peak.

- Warning   Min exceeds this port's speed.

- Warning   Sum of mins exceeds port's speed.

- Warning   Peak exceeds this port's speed.

Warning messages are informational only, so the related operation continues. If an error message appears, the operation does not continue.

Full Name

Configure connection

Syntax

cnfcon <slot.port.vpi.vci>   [bandwidth parameters]

Related Commands

addcon, dspcon

Attributes

Privilege   1–2

Jobs   Yes

Log   Yes

Node   IPX, IGX, BPX

Lock   Yes

Example 1

cnfcon 12.1.1.6

Description

Configure ASI port 12.1.1.6. Parameter prompts appear.

System Response

```
a20            LAN   SuperUser      BPX 15   8.2     Mar. 29 1996 11:43 PST

Conn:  12.1.1.6         ca19          4.1.1.6            ABR
Description:

    SCR            IBS         MBS     ABR    MCR        PCR          ICR
  100/100        10/10       10/10      y    10/10    96000/96000    10/10

 ICR TO  Rate Up Rate Dn Rate FastDn Max Adjust   VC Qdepth     EFCI    % Util
  10       100     100       100        100     64000/64000  100/100  100/100

 CLP   CLP Hi    CLP Lo
  y   100/100    90/90




 This Command: cnfcon 12.1.1.6

 MBS (10) must exceed IBS (10)
 Enter the MBS [10/10]:
```

Table 10-10   cnfcon – Parameters

Parameter	Description
channel	Specifies the connection to configure. This command configures one connection at a time. The channel specification has the following format: slot.port.vpi.vci

Table 10-11   cnfcon – Optional Parameters

Parameter	Description
bandwidth parameters	Refer to the **addcon** command in this chapter for descriptions and connection types.

cnfcondsc

Assigns a user-specified, reference description to a connection. The connection descriptor is independently configurable at each end of a connection**.** To remove a descriptor, enter this command and specify a null descriptor. A descriptor cannot be deleted in a job, just reconfigured. The **dspcon** and **dspcons** +**d** commands display any existing connection descriptors.

Full Name

Configure connection description

Syntax

cnfcondsc <channel> <descriptor>

Related Commands

dspcon, dspcons

Attributes

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

Example 1

cnfcondsc 5.1 darjeeling

Description

Assign the descriptive name "darjeeling" to channel 5.1. To assign this descriptor at the other end of the connection, **vt** to the other end of the connection, enter **cnfcondsc**, and specify the name "darjeeling."

System Response

```
alpha           TRM   YourID:1        IPX 16    8.2     Mar. 15 1996 15:40 PST

Conn:  5.1         beta         25.1        256 7/8   Desc: gracie's_FAX



Owner: REMOTE  Restriction: NONE  COS: 0                    Status: OK
Compression: NONE

Path:     alpha   10-- 7beta
Pref:     Not Configured


alpha 5.1                                       beta 25.1
SDP:   OK                                       SDP:   OK
SDI:   OK                                       SDI:   OK
Clock: OK                                       Clock: OK

Last Command: cnfcondsc 5.1 darjeeling


Next Command:
```

Table 10-12   cnfcondsc – Parameters

Parameter	Description
channel	Specifies the local voice, data, frame relay, or ATM channel to describe.
descriptor	Specifies a string of up to 20 characters. The descriptor cannot begin with a number, and no spaces are allowed.

cnfln

Configures an ATM line on an ASI to be configured so that it matches the characteristics of the user device to which it connects. You can use **cnfln** to restrict the transmit trunk rate when, for example, an external T3-E3 converter is used or when the CPE requires it.

Full Name
Configure line

Syntax
cnfln <line number> <E1 options>

Related Commands
dsplns

Attributes

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

Example 1
cnfln 4.2 7F 0 N

Description
Configure ASI port 4.2 with an idle code 7F and without payload scrambling

System Response

```
ca19            VT   SuperUser     BPX 15   8.2    Mar. 23 1996 19:11 GMT

LN   4.2 Configuration T3   [96000 cps]   ASI-T3 slot:4
Loop clock:            --                 Idle code:              7F hex

Line framing:          --
     coding:           --
     CRC:              --
     recv impedance:   --
     E1 signalling:    --
     encoding:         --               cable type:
     T1 signalling:    --                 length:              0-450 ft.
                                        HCS Masking:           Yes
                                        Payload Scramble:      No

     56KBS Bit Pos:    --
     pct fast modem:   --


Last Command: cnfln 4.2 7F 0 N


Next Command:
```

Table 10-13   cnfln – Parameters

Parameter	Description			
line number	Specifies the ASI line to configure			
line options	Specifies the ATM line options:			
	Parameter	**Description**	**Options**	**Default**
	Idle Code	Hex data in payload space of an idle cell.	0 - FF (hex)	7F
	Cable Type/Length	Length and type of cable used for trunk.	1 = 0 - 225 2 = >225	1
	HCS Masking	Masking of cell header checksum to disable error checking.	Yes | No	Yes
	Payload Scramble	Whether or not to scramble (randomize) the cell payload data. Note: for E3, you must set Payload Scramble to Yes.	Yes | No	No

cnfport

Configures the parameters of an ATM port on an ASI card. Press Return to keep the current value of a parameter. See the parameter table for important information.

Full Name

Configure port

Syntax

cnfport <port> [<params>]

Related Commands

upport, dnport, dspport, dspports

Attributes

Privilege	1–2
Jobs	Yes
Log	Yes
Node	BPX
Lock	Yes

Example 1

cnfport 12.1 N N N H N N

Description

Configure port 12.1 to have an UNI cell header format; not to be an AXIS shelf; not to have a Metro Cell Header format; shift on HCF; use no protocol; and not to apply %util.

System Response

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

Port:       12.1
Interface:       T3-2
Type:            UNI                        %Util Use:        Disabled
Speed:           96000
Shift:           SHIFT ON HCF (Normal Operation)
VBR Queue Depth: 1000

Protocol:        NONE




Last Command: cnfport 12.1 N N N H N N


Next Command:
```

Table 10-14   cnfport – Parameters

Parameter	Description
slot.port	Specifies the ASI card slot and port number.
nni/uni	Specifies whether the cell header format is NNI or UNI.
axis	Specifies AXIS queue depth for each slot.
metro data cell header	Specifies whether the metro data cell header type is used.
shift h | n	Specifies whether a one-byte shift on the HCF field of the cell header occurs. The choice of H (shift) or N (no shift) depends on whether the ATM cloud includes non-Cisco WAN Switching nodes and whether virtual trunking is in operation: Select H (the default) if the cloud includes non-Cisco WAN Switching nodes or if only a physical trunk is configured for the ASI port. Select N if virtual trunks are configured *and* the ATM cloud consists of Cisco WAN Switching nodes only.
protocol	Specifies the use of either an LMI protocol, an protocol, or no specified protocol.

Parameter	Description
%util	Enables/disables percent utilization. This parameter supports ATM VBR/ABR fairness for ASI terminated connections and applies to only VBR and ABR connections. To change the %util status of a port, no connections can be currently terminating on the port. Therefore, if connections terminate on the port, they must be deleted before **cnfport** execution then re-added after execution of **cnfport**.
	When this feature is disabled, the port queue bandwidth is calculated using the sum of the MCRs or PCRs for the connections terminating on the port. This is identical to the port queue bandwidth calculation prior to the implementation of the %util feature.
	The port queue bandwidth with %util feature *disabled* is:
	• For ABR connections Port Queue BW = sum (MCR)
	• For VBR connections Port Queue BW = sum (PCR)
	• For CBR connections Port Queue BW = sum (PCR)
	When the %util feature is enabled, the port queue bandwidth is calculated for ABR and VBR connections as follows: for ABR connections, the port queue bandwidth is the sum of a percentage of the MCRs for the connections terminating on the port; for VBR connections, the port queue bandwidth is the sum of a percentage of the PCRs for connections terminating on the port. The feature is not applied to CBR connections.
	In summary, the port queue bandwidth with feature %util *enabled* is:
	• For ABR connections Port Queue BW = sum (MCR * %util)
	• For VBR connections Port Queue BW = sum (PCR * %util)
	For CBR connections Port Queue BW = sum (PCR)

cnfportq

Configures queue parameters for a port on an ASI card. Pressing the Return key keeps the current value for the parameter.

Full Name

Configure port

Syntax

cnfport <port> [<params>]

Related Commands

upport, dnport, dspportq

Attributes

Privilege	2
Jobs	Yes
Log	Yes
Node	BPX
Lock	Yes

Example 1

cnfportq 4.2 200 80 60 80 1000 80 60 80 9800 80 60 80

Description

Configure port 4.2 to the parameters indicated. Note that the sequence of three Ns is in response to questions about the interface, a cell header, and the presence of an AXIS.

System Response

```
ca19            VT    SuperUser      BPX 15   8.2    Mar. 23 1996 19:11 GMT


Port:       4.2    [INACTIVE]
Interface:         T3-2
Type:              UNI
Speed:             96000 (cps)

CBR Queue Depth:             200
CBR Queue CLP High Threshold: 80%
CBR Queue CLP Low Threshold:  60%
CBR Queue EFCI Threshold:     80%
VBR Queue Depth:             1000    ABR Queue Depth:             9800
VBR Queue CLP High Threshold: 80%    ABR Queue CLP High Threshold:  80%
VBR Queue CLP Low Threshold:  60%    ABR Queue CLP Low Threshold:   60%
VBR Queue EFCI Threshold:     80%    ABR Queue EFCI Threshold:      80%




Last Command: cnfport 4.2 N N N 200 80 60 80 1000 80 60 80 9800 80 60 80


Next Command:
```

Table 10-15   cnfportq – Parameters

Parameter	Description
slot.port	Specifies the ASI card slot and port number.
nni/uni	Specifies whether the cell header format is NNI or UNI.
cbr queue parms	Specifies the CBR queue parameters of depth, cbr-hi, cbr-lo, and efci. The ranges are 0 to 24000 for depth and 0 to 100% for all others.
vbr queue parms	Specifies the VBR queue parameters of depth, vbr-hi, vbr-low, and efci. The ranges are 0 to 24000 for depth and 0 to 100% for all others.
abr queue parms	Specifies the ABR queue parameters of depth, abr-hi, abr-low, and efci. The ranges are 0 to 24000 for depth and 0 to 100% for all others.

delcon

Removes connections from the network. The same command with differing syntax may be used to delete voice connections, data connections, frame relay connections, or ATM connections. The syntax in this section deletes an ATM connection. You can verify connection deletions by using the **dspcons** command.

Full Name

Delete connections

Syntax

delcon <channel(s)>

Related Commands

addcon, dspcon, dspcons

Attributes

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

Example 1

delcon 4.1.1.4

Description

Delete connection 4.1.1.4. The connections to delete are highlighted, and a prompt appears asking you to confirm the deletion. Respond with "y", for yes, and Connection 4.1.1.4 is deleted.

System Response

```
ca19           VT    SuperUser      BPX 15    8.2    Mar. 23 1996 20:36 GMT

 Local          Remote     Remote                           Route
 Channel        NodeName   Channel      State  Type        Avoid COS O
 4.1.1.4        ca20       12.1.1.4     Ok     CBR              0   R
 4.1.1.5        ca20       12.1.1.5     Ok     VBR              0   R
 4.1.1.6        ca20       12.1.1.6     Ok     ABR              0   R
 4.1.1.7        ca20       12.1.1.7     Ok     VBR              0   R
 4.2.1.1        ca20       12.2.1.1     Ok     CBR              0   L
 4.2.1.2        ca20       12.2.1.2     Ok     VBR              0   L
 4.2.1.3        ca20       12.2.1.3     Ok     ABR              0   L




 Last Command: delcon 4.1.1.4

 Delete connections? (y)
 Next Command:
```

Table 10-16   delcon – Parameters

Parameter	Description
channel	Specifies the channel or set of channels for deleting connections. <channel> is specified in the following format:
	slot.port.vpi.vci

delcongrp

Deletes a group. The group must be empty (all connections must first have been removed with the **delcon** command). The group can be deleted from either the local or remote end of the group.

Full Name

Delete connection group

Syntax

delcongrp <connection group>

Related Commands

addcongrp, dspcongrp, dspcongrps, grpcon

Attributes

Privilege   1–2

Jobs   Yes

Log   Yes

Node   IPX, IGX, BPX

Lock   Yes

Example 1

delcongrp bpx4.1

Description

Delete connection group bpx4.1

System Response

```
bpx1            TN   SuperUser      BPX 15   8.2      Feb. 14 1996 20:12 PST

                              Route
Group           Count  State  Avoid  COS  FST  Owner
bpx4.1          0                               Local




This Command: delcongrp bpx4.1


Delete this group (y/n)?
```

Table 10-17   delcongrp – Parameters

Parameter	Description
connection group	The connection group has the following format:
	remote node name.group number

dnln

Deactivates (or *downs*) an ASI line. After **dnln** executes, the line no longer generates framing, and no statistics are gathered. All connections must be removed with the **delcon** command before a line can be downed. Activate lines using **upln**.

Full Name
Down line

Syntax
dnln <line number>

Related Commands
upln, dsplns

Attributes

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

Example 1
dnln 5.1

Description
Down line 5.1. The screen in the example shows that the operation was successful.

System Response

```
pubsbpx1      TN    SuperUser      BPX 15    8.2      Aug. 26 1996 16:13 GMT

From Type      Current Line Alarm Status




















Last Command: dnln 5.1


Next Command:
```

Table 10-18   dnln – Parameters

Parameter	Description
slot.port	Specifies the shelf slot number, and one of the port numbers. The ASI uses port 1 or port 2.

dnport

Deactivates (or "downs") the specified ATM port. Before downing a port, you must remove all connections from the port.

Full Name
Down port

Syntax
dnport <port>

Related Commands
cnfport, dspport, upport

Attributes

Privilege	1–2
Jobs	Yes
Log	Yes
Node	BPX
Lock	Yes

Example 1
dnport 4.2

Description
Down port 4.2

System Response

```
ca19            VT    SuperUser      BPX 15   8.2    Mar. 23 1996 19:49 GMT

ASI Port States
Port  State
4.1   ACTIVE
4.2   INACTIVE
```

```
Last Command: dspports
```

```
Next Command: dnport 4.2
```

Table 10-19   dnport – Parameters

Parameter	Description
slot . port	Specifies the shelf slot number and port numbers

dspchstats

Displays statistics for a channel. The display is periodically updated until the Delete key is pressed.

Full Name

Display channel statistics

Syntax

dspchstats <channel> [interval]

Related Commands

clrchstats

Attributes

Privilege   5

Jobs   No

Log   No

Node   IPX, IGX, BPX

Lock   No

Example 1

dspchstats 4.1.50.1

Description

Display the channel statistics for connection 4.1.50.1.

System Response

```
night          TN    SuperUser     BPX 15    8.2      July 17 1996 02:46 GMT

Channel Statistics for 4.1.50.1    Cleared: July 13 1996 02:53  (|)
MCR: 0 cps              Collection Time: 0 day(s) 18:10:22     Corrupted: NO
   Traffic       Cells      CLP      Avg CPS   %util  Discards:       Cells
From Port   :     14710        0         0        0   VcQ > CLP:          0
To Network  :     14710      ---         0        0   VcQ Full :          0
From Network:     14710      ---         0        0   Qbin Full:          0
To Port     :     14710     14710        0        0   Qbin> CLP:          0
                                                      Failed   :      14710
                           OAM         Cells         RsrcOVL  :          0
VC Q        :        0   Tx OAM :       29608        NonCompliant:       0
Rx EFCI     :        0   Rx AIS :       14710
Tx EFCI     :        0   Rx FERF:           0        ForeSight      Cells
                         Rx BCM :           0        Adj Up :            0
                         Tx BCM :           0        Adj Dn :            0
AAL-5 Frames:        0                               Adj Fdn:            0

This Command: dspchstats 4.1.50.1


Hit DEL key to quit:
```

Table 10-20   dspchstats – Parameters

Parameter	Description
channel	Specifies the channel for statistics display.

Table 10-21   dspchstats – Optional Parameters

Parameter	Description
interval	Specifies the interval for displaying statistics.

dspcls

Displays the current parameters for a connection class template. The number of classes is ten. The parameters and the values for each varies with the type of connection (CBR, VBR, ABR, and ATFR).

Full Name

Display connection class

Syntax

dspcls <class number>

Related Commands

addcon, cnfcls, dspcon, dspcons

Attributes

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

Example 1

dspcls 1

Description

Display the parameters for configuration class 1.

System Response

```
night           TN    SuperUser      BPX 15    8.2    July 28 1996 13:22 GMT


                        ATM Connection Classes
Class:  1
Type:  VBR

UPC       SCR          IBS          MBS       ABR       PCR          ABR PCR
 y     500/500        10/10       1000/1000    -      500/500          -/-

      ICR         ICR TO Rate Up Rate Dn Rate FastDn Max Adjust   CDVT[in cells]
      -/-             -       -       -       -        -         64000/64000

  EFCI    % Util FGCRA     MFS      CLP  CLP Hi  CLP Lo  BCM
100/100  100/100  n/n       -/-      y  100/100 100/100   n/n

        Description: "Default VBR 500"


Last Command: dspcls 1


Next Command:
```

Table 10-22   dspcls – Parameters

Parameter	Description
class number	Specifies the class whose current parameters you want to see. Values are 1–10.

dspcon

Displays connection information for a specified channel. The information displayed includes:

- The channel numbers for both the local and remote ends of the connection.

- The node names at both ends of the connection.

- The type or data rate of the connection.

- The routing restriction.

- The class of service (COS) of the connection.

- The connection route, listing the end nodes and any intermediate nodes.

- The preferred route for the connection (if configured).

- The status of the cards associated with the connection.

- Any Y-cable conflicts.

- The compression status.

- The connection bandwidth parameter values.

- The connection/type descriptor (if configured).

- The circuit round trip delay (if ForeSight is enabled).

Any failures that affect the connection flash on the screen. For frame relay NNI ports, the NNI value indicates the A-bit value received across the NNI from the remote network. The status that may be displayed includes:

OK	Connection OK
FAILED	Connection failed
MISSING	VPI.VCI was deleted in other network at NNI. A previous status report indicated a valid VPI.VCI present but an updated report did not.
UNUSED	indicates the UNI port does not support reporting of NNI A-bit status

Full Name
Display connections

Syntax
dspcon <channel>

Related Commands
addcon, cnfcon, dspcon

Attributes

Privilege   1–6

Jobs   No

Log   No

Node   IPX, IGX, BPX

Lock   No

Example 1

dspcon 12.1.1.5

Description

Display connection information for channel 12.1.1.5 (VBR)

System Response

```
ca20            LAN   SuperUser     BPX 15    8.2     Mar. 29 1996 10:44 PST

Conn: 12.1.1.5        ca19       4.1.1.5          VBR   Status: Down
   SCR           MBS           PCR        ABR PCR    UPC FST CLP  % util
 1000/1000       10/10       500/500       --/--      y   n   y  100/100
Owner: LOCAL  Restriction: NONE  COS: 0
Group: NONE   TestRTD: 16705 msec


Path:   Downed by user
Pref:   Not Configured



ca20         ASI-T3   : OK        ca19       ASI-T3    : OK
             Line 12.1 : OK                  Line  4.1 : OK


Last Command: dspcon 12.1.1.5


Next Command:
```

Example 2

dspcon 12.1.1.4

Description

Display connection information for channel 12.1.1.4 (CBR)

System Response

```
ca20            LAN  SuperUser      BPX 15   8.2     Mar. 29 1996 10:42 PST

Conn:  12.1.1.4        ca19        4.1.1.4          CBR   Status: Down
   PCR          CDVT          MCR        ABR PCR    UPC FST CLP  % util
  100/100        10/10       --/--        --/--      y   n   y  100/100
Owner: LOCAL  Restriction: NONE  COS: 0
Group: NONE  TestRTD: 0 msec


Path:   Downed by user
Pref:   Not Configured



ca20          ASI-T3   : OK        ca19      ASI-T3    : OK
              Line 12.1 : OK                 Line  4.1 : OK


Last Command: dspcon 12.1.1.4


Next Command:
```

Example 3
dspcon 12.1.1.100

Description
Display connection information for channel 12.1.1.100 (ABR)

System Response

```
ca20            LAN  SuperUser      BPX 15   8.2     Mar. 29 1996 10:31 PST

Conn:  12.1.1.100      ca20
    SCR          MBS          MCR        ABR PCR    UPC FST CLP  % util
20000/20000      50/50    20000/20000  96000/96000  y   y   y  100/100
  ForeSightRTD: 0 msec


Path:   Route information not applicable for local connections



ca20          ASI-T3   : OK        ca20      ASI-T3    : OK
              Line 12.1 : OK                 Line 12.2 : OK


Last Command: dspcon 12.1.1.100


Next Command:
```

Example 3

dspcon 4.1.2.1

Description

Display connection information for channel 4.1.2.1 (ATFST)

System Response

```
sw53            TN    SuperUser      BPX 15    8.2    July 26 1996 13:40 GMT

Conn:  4.1.2.1          sw53       4.3.2.1          atfst    Status: OK
   SCR          MBS           MCR         ABR PCR     UPC FST CLP  % util
   25/25       1000/1000     25/25         25/25       y   y   y  100/100
  ForeSightRTD: 0 msec



Path:   Route information not applicable for local connections



sw53          BNI-T3   : OK          sw53       BNI-T3    : OK
              Line  4.1 : OK                     Line  4.3 : OK
              OAM Cell RX: Clear                 NNI       : OK
              NNI      : OK

Last Command: dspcon 4.1.2.1


Next Command:
```

Table 10-23   dspcon – Parameters

Parameter	Description
channel	Specifies the channel for which to display connection details. The command displays connection information for one channel at a time. You cannot specify a set of channels. Channel is specified in the following format:
	slot.port.vpi.vci

dspconcnf

Displays the following information for a connection's configuration:

- The channel numbers for both the local and remote ends of the connection.

- The node names at both ends of the connection.

- The preferred route for the connection (if configured).

- The bandwidth parameter values for ATM connections.

- VC queue depth.

- The connection type (if configured).

- Other values (see example screen).

Full Name

Display connection configuration

Syntax

dspconcnf <channel>

Related Commands

addcon, dspcon, dspcons, delcon

Attributes

Privilege	1–6
Jobs	No
Log	No
Node	BPX
Lock	No

Example 1

dspconcnf 4.1.2.1

Description

Display the configuration for 4.1.2.1

System Response

```
sw53            TN    SuperUser      BPX 15    8.2    July 26 1996 13:52 GMT

Conn:  4.1.2.1         sw53         4.3.2.1         atfst
Description:

UPC      SCR           IBS          MBS      ABR     MCR            PCR
 y     25/25         10/10      1000/1000    y     25/25          25/25

     ICR          ICR TO Rate Up Rate Dn Rate FastDn Max Adjust     VC Qdepth
   25/25           10     40       87       50       100       64000/64000

  EFCI    % Util FGCRA     MFS      CLP  CLP Hi  CLP Lo  BCM
100/100  100/100  n/n      -/-       y   100/100 100/100  n/n




Last Command: dspconcnf 4.1.2.1


Next Command:
```

Table 10-24   dspconcnf – Parameters

Parameter	Description
channel	Specifies the channel for which to display connection configuration. The command displays connection information for one channel at a time. You cannot specify a set of channels. Channel is specified in the following format:
	slot.port.vpi.vci

dspcongrp

Displays the connections in a particular group. The information displayed consists of:

- Each connection in the group

- The node name at the remote end of the connection

- The state of the connection

- The connection type

- The routing restriction (route avoid)

- The class of service (COS) of the connection

- The owner of the connection

Failures that affect a connection appear flashing on screen. For frame relay NNI ports, the NNI value indicates the A-bit value received across the NNI from the remote network.

Full Name

Display connection group

Syntax

dspcongrp <connection group>

Related Commands

addcon, cnfcon, dspcon

Attributes

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

Example 1

dspcongrp sw86.14

Description

Display the connections in the group named sw86.14.

System Response

```
sw81          TN   SuperUser      BPX 15    8.2    Jan. 29 1996 17:43 PST

Local            Remote      Remote                          Route
Channel          NodeName    Channel       State   Type      Avoid COS O
13.1.1.209       sw86        12.1.1.209    Ok      abr-Grp         0  R
13.1.1.210       sw86        12.1.1.210    Ok      abr-Grp         0  R
13.1.1.211       sw86        12.1.1.211    Ok      abr-Grp         0  R
13.1.1.212       sw86        12.1.1.212    Ok      abr-Grp         0  R
13.1.1.213       sw86        12.1.1.213    Ok      abr-Grp         0  R
13.1.1.214       sw86        12.1.1.214    Ok      abr-Grp         0  R
13.1.1.215       sw86        12.1.1.215    Ok      abr-Grp         0  R
13.1.1.216       sw86        12.1.1.216    Ok      abr-Grp         0  R
13.1.1.217       sw86        12.1.1.217    Ok      abr-Grp         0  R
13.1.1.218       sw86        12.1.1.218    Ok      abr-Grp         0  R
13.1.1.219       sw86        12.1.1.219    Ok      abr-Grp         0  R
13.1.1.220       sw86        12.1.1.220    Ok      abr-Grp         0  R
13.1.1.221       sw86        12.1.1.221    Ok      abr-Grp         0  R

This Command: dspcongrp sw86.14


Continue?
```

Table 10-25   dspcongrp – Parameters

Parameter	Description
group	Specifies the group whose members are listed. The name can be obtained from the **dspcongrps** command.

dspcongrps

Displays a list of all grouped connections on the current node. The optional parameter narrows the scope of the list to grouped connections either on a named node or in a named group. The displayed information consists of:

- The node name and the count that each group represents for that node

- The number of connections in each group

- The state of the connection group

- Any specified route to avoid

- The Class of Service for the group

- Whether the connections have ForeSight

- Whether the owner of the group is a remote node or the local node

Full Name

Display connection groups

Syntax

dspcongrps   [node name | group name]

Related Commands

addcongrp, dspcongrp

Attributes

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

Example 1

dspcongrps

Description

Display all grouped connections.

System Response

```
sw81            TN    SuperUser      BPX 15   8.2    Jan. 29 1996 16:51 PST

From                        Route
sw86.28          Count  State  Avoid  COS  FST  Owner
sw86.28          16     Ok            0    y    Remote
sw86.29          16     Ok            0    y    Remote
sw86.30          16     Ok            0    y    Remote
sw86.31          16     Ok            0    y    Remote
sw86.32          16     Ok            0    y    Remote




Last Command: dspcongrps


Next Command:
```

Table 10-26   dspcongrps – Optional Parameters

Parameter	Description
node name or group name	Restricts the groups displayed to either a node name or a connection group name.

dspcons

Displays information about the connections on an IPX, IGX, or BPX node. (For information about **dspcons** for an AXIS card, refer to the *AXIS Command Supplement*.)

The following table lists all possible information headings that appear in the display. The actual headings that appear depend on the choice of selected optional parameters—including no parameters. The screen examples reflect various optional parameters.

Note This description contains all parameters that are displayed even though some parameters are meaningless on a BPX.

Table 10-27

Fields	Description
Local Channel	The connection's channel at this node.
Remote Node Name	The name of the node at the other end of the connection.
Remote Channel	The connection's channel at the remote node.
State	The state of the connection(s) are as follows.
	State Parameter
	OK routed
	Down downed
	Failed unrouted, but trying
Type	The type of connection (vbr, cbr, abr, atfr, or atfst).
Route Avoid	The type of lines to avoid when routing (satellite lines, terrestrial lines, lines with zero code suppression).
COS	The Class Of Service.
Owner	The end of the connection in control of re-routing.

Full Name

Display connections

Syntax

dspcons [*start_channel*] [*nodename*] [+d] [-f] [-v] [-d] [-g] [-atfr] [-abit] [-fabit] [-fail] [-down]

where

start_channel	is the starting channel to display
nodename	specifies that connections for only the named node appear in the display
+d	equals display the connection's optional descriptor specified by the **cnfcondsc** command
-f	equals display frame relay connection only
-v	equals display only voice connections

-d	equals display only data connections and do so in Kbps.
-g	equals display only grouped connections
-atfr	equals frame relay to ATM interworking connections (also displays atfr with ForeSight)
-abit	equals show status of the A-bit
-fabit	equals show only connections with failed A-bits
-down	equals show only downed connections

Note   NOTE: Some parameters may supersede other parameters.

Related Commands
addcon, delcon, cnfcondsc

Attributes

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

Example 1
dspcons 4.1.1.4

Description
Displays all connections starting with 4.1.1.4.

System Response

```
ca19            VT    SuperUser      BPX 15    8.2    Mar. 23 1996 19:44 GMT

   Local            Remote     Remote                             Route
   Channel          NodeName   Channel        State  Type      Avoid COS O
   4.1.1.4          ca20       12.1.1.4       Ok     CBR             0   R
   4.1.1.5          ca20       12.1.1.5       Ok     VBR             0   R
   4.1.1.6          ca20       12.1.1.6       Ok     ABR             0   R
   4.1.1.7          ca20       12.1.1.7       Ok     VBR             0   R




   Last Command: dspcons


   Next Command:
```

Example 2
dspcons -abit

Description
Display the A-bit status for all connections starting with 1.1.3.66

System Response

```
sw81            TN    SuperUser      BPX 15    8.2       Feb. 14 1996 10:32 PST

 Local          Remote     Remote                       Local      Remote
 Channel        NodeName   Channel        State         A-bit      A-bit
 1.1.3.66       sw81       1.1.3.66       Ok            OK         OK
 1.1.3.67       sw81       1.1.3.67       Ok            OK         OK
 1.1.3.68       sw81       1.1.3.68       Ok            OK         OK
 1.1.3.69       sw81       1.1.3.69       Ok            OK         OK
 1.1.3.70       sw81       1.1.3.70       Ok            OK         OK
 1.1.3.71       sw81       1.1.3.71       Ok            OK         OK
 1.1.3.72       sw81       1.1.3.72       Ok            OK         OK
 1.1.3.73       sw81       1.1.3.73       Ok            OK         OK
 1.1.3.74       sw81       1.1.3.74       Ok            OK         OK
 1.1.3.75       sw81       1.1.3.75       Ok            OK         OK
 1.1.3.76       sw81       1.1.3.76       Ok            OK         OK
 1.1.3.77       sw81       1.1.3.77       Ok            OK         OK
 1.1.3.78       sw81       1.1.3.78       Ok            OK         OK

 This Command: dspcons -abit


 Continue?
```

Table 10-28   dspcons – Optional Parameters

Parameter	Description
start channel	Specifies the beginning channel to display. The *start channel* format is: *slot.port.vpi.vci*
	If no starting channel is specified, the display begins with the first connected channel.
node name	Specifies that connections to a specific remote node are displayed.
+d	Connection descriptor
-g	Grouped connections
-atfr	Frame relay to ATM interworking connections
-abit	A-bit status
-fabit	Connections with A-bit errors
-fail	Failed connections
-down	Downed connections

dsplmistats

Displays LMI statistics for a specified channel.

Full Name

Display connections

Syntax

dsplmistats

Related Commands

Attributes

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

Example 1

dsplmistats 1.1

Description

Display LMI statistics for channel 1.1.1.1

System Response

```
sw81            TN   SuperUser      BPX 15   8.2      Jan. 29 1996 14:44 PST

                Annex G  LMI Statistics for slot:1 port:1
VPI.VCI:        0.0                     Lmi enabled        Lmi polling enabled
Invalid Pdu      Rx:          0    Status Polling Timer (T396) :     10
Invalid Pdu Len  Rx:          0    Status Enquiry Timer (T393) :     10
Unknown Pdu Type Rx:          0    Max Status Enquiry Retry (N394):   5
Unknown IE Type  Rx:          0    Update Status Timer (T394)   :     10
Bad Transaction  Rx:          0    Max Update Status Retry (N395) :    5
Status           Rx:      77715    Spc Polling Timer            :      3
Status Enq       Tx:      77711    Spc Retry Timer              :      0
Status Enq       Rx:      77897    Spc Retry Counter            :      1
Status           Tx:      77897    Node Status Retry Timer      :      0
Status Ack       Rx:       1505    Node Status Retry Counter    :      0
Update Status    Tx:       1507    Node Status Polling Timer    :      7
Update Status    Rx:       2042
Status Ack       Tx:       2042

Last Command: dsplmistats 1.1


Next Command:
```

Table 10-29   dsplmistats – Parameters

Parameter	Description
channel	Channel is specified in the following format *slot.port*

dsplncnf

Displays the current configuration of the specified line. The following table contains the configuration parameters in the display.

Table 10-30

LN Configuration:	The line type and the number of channels.	T1 or E1
Loop clock:	Whether the receive clock is looped back to the transmit clock.	Y or N
Line framing:	The type of T1 line framing used.	DS4 or ESF
Line coding:	The type of line coding used. The types used vary between T1 and E1 lines.	HDB3 or AMI (E1) ZCS, B8ZS, or AMI (T1)
CRC:	CRC checking on E1 lines.	Y or N
recv impedance:	The nominal receive line impedance (for E1 lines only)	75 ohms balanced or unbalanced, or 120 ohms balanced
E1 signalling:	Signalling type used (for E1 lines only).	CAS or CCS
encoding:	Voice encoding scheme.	μlaw or Alaw
T1 signalling:	The T1 signalling bit pattern used.	ABCD, ABAB, AB
Cable type:	The T1 or E1 cable type used (for equalization)	MAT or ABAM
Cable length:	The T1 or E1 cable length in feet to the CSU or digital crossconnect.	0-220, 220-440, 440-655, 0-133, 133-266
56 kbps Bit Pos:	Position in word for bit stuffing on 56 kbs data channels.	MSB or LSB

Full Name

Display line configuration

Syntax

 dsplncnf <line_number>

Related Commands

cnfcln

Attributes

Privilege   1–6

Jobs   No

Log   No

Node   IPX, IGX, BPX

Lock   No

Example 1

dsplncnf 12.1

Description

Display the line configuration for 12.1

System Response

```
ca20            LAN   SuperUser      BPX 15   8.2   Mar. 23 1996 10:35 PST

LN  12.1 Configuration T3   [96000 cps]   ASI-T3 slot:12
Loop clock:             --                Idle code:            7F hex

Line framing:       --
    coding:         --
    CRC:            --
    recv impedance: --
    E1 signalling:  --
    encoding:       --                        cable type:
    T1 signalling:  --                           length:        0-450 ft.
                                           HCS Masking:          Yes
                                           Payload Scramble:     No

    56KBS Bit Pos:  --
    pct fast modem: --


Last Command: dsplncnf 12.1


Next Command:
```

Table 10-31   dsplncnf – Optional Parameters

Parameter	Description
line number	Specifies the number of the line whose configuration to display.

dsplns

Displays configuration information for ATM lines. The information displayed includes the line number, the type of physical line, and the current line alarm status. Line Status categories include:

- Clear–Line OK   Alarm Information Signal

- Loss of Signal   Remote Out of Frame (for T3)

- Out of Frame   Minor—Bad clock source

Full Name

Display lines

Syntax

dsplns

Related Commands

upln, dnln

Attributes

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

Example 1

dsplns

Description

Display lines for the node

System Response

```
ca20          LAN   SuperUser      BPX 15   8.2    Mar. 23 1996 10:40 PST

Line Type       Current Line Alarm Status
12.1 T3         Clear - OK
```

```
Last Command: dsplns


Next Command:
```

dspport

Displays one of three choices; the state of all ATM ports in a node, general information on all four ports on a selected ASI card, or detailed status on a single specified ATM port. The more specific the port address in the command, the more detail is provided. The following are examples of the **dspport** command:

- dspport   displays states of all ATM ports in the node

- dspport 8   displays the port states for ASI in slot 8

- dspport 8.1   displays the configuration for port 1 of the ASI in slot 8

A full description of these parameters is provided in the **cnfport** command.

Full Name
Display port

Syntax
dspport [slot | slot.port]

Related Commands
cnfport, upport, dnport

Attributes

Privilege	1–2
Jobs	No
Log	No
Node	BPX
Lock	No

Example 1
dspport

Description
Display the port status of ASIs on the node

System Response

```
a19              VT    SuperUser      BPX 15    8.2    Mar. 23 1996 18:52 GMT

ASI Port States
Port   State
4.1    ACTIVE
```

```
Last Command: dspport
```

```
Next Command:
```

Example 2
dspport 4

Description
Display the port statuses for the ASI in slot 4

System Response

```
ca19              VT    SuperUser       BPX 15    8.2    Mar. 23 1996 18:53 GMT

Port configuration for ASI 4

Port   Chan      Speed      Interface      State      Protocol    Type
1      1       96000 (cps)  T3-2           ACTIVE     NONE        UNI
```

```
Last Command: dspport 4
```

```
Next Command:
```

Example 3

dspport 4.1

Description

Display the status of ASI port 4.1

System Response

```
swstorm         TN    SuperUser      BPX 15    8.2    July 26 1996 17:57 GMT

Port:        4.1    [ACTIVE  ]
Interface:          T3-2
Type:               UNI
Speed:              96000 (cps)
VBR Queue Depth:    10800

Protocol:           NONE




Last Command: dspport 4.1


Next Command:
```

Table 10-32   dspport – Optional Parameters

Parameter	Description
slot.port	Specifies the slot number and port to display.

dspportq

Displays the port queue configuration for an ASI card. If you enter this command without a parameter, the display shows a list of ports on all ASI cards and the status (Active/Standby) of each. If you enter only the slot, the display shows a list of ports, the speed of each, its interface type, and queue information. If you enter the slot and port number, the display shows the detailed information shown in the example figure.

Full Name
Display port queue configuration.

Syntax
dspportq [slot | slot.port]

Related Commands
cnfportq

Attributes

Privilege	1–2
Jobs	No
Log	No
Node	BPX
Lock	No

Example 1
dspportq 4.1

Description
Display the port queue configuration for 4.1

System Response

```
swstorm        TN    SuperUser        BPX 15    8.2    July 26 1996 18:01 GMT


Port:        4.1     [ACTIVE  ]
Interface:           T3-2
Type:                UNI
Speed:               96000 (cps)

CBR Queue Depth:              200
CBR Queue CLP High Threshold: 80%
CBR Queue CLP Low Threshold:  60%
CBR Queue EFCI Threshold:     80%
VBR Queue Depth:              10800  ABR Queue Depth:              0
VBR Queue CLP High Threshold: 80%    ABR Queue CLP High Threshold: 80%
VBR Queue CLP Low Threshold:  60%    ABR Queue CLP Low Threshold:  60%
VBR Queue EFCI Threshold:     80%    ABR Queue EFCI Threshold:     80%




Last Command: dspportq 4.1


Next Command:
```

Table 10-33   dspportq – Optional Parameters

Parameter	Description
slot or slot.port	Specifies either the slot number or the slot and port number.

dspportstats

Displays a summary of port statistics for the ATM port specified. These include the cell count in the transmit and receive directions, and error counts associated with the port. The display indicates the date and time that the statistics were cleared and the statistics collection time since the last clearance. Cells transmitted indicates the amount of data transmitted out the port to the user device. Cells received indicates the amount of data received from the user device at the port. Corrupted statistics result from channel/port loopbacks or port tests. A yes in this field indicates that such loopback or port test have occurred since the statistics were last cleared.

Full Name

Display port statistics

Syntax

dspportstats <port> [interval]

Related Commands

clrportstats

Attributes

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

Example 1

dspportstats 4.1

Description

Display the statistics for ASI port 4.1

System Response

```
ca19            VT    SuperUser      BPX 15   8.2    Mar. 23 1996 18:55 GMT

Port Statistics for 4.1        Cleared: Mar. 23 1996 18:19
Port Speed: 96000 cps   Collection Time: 0 day(s) 00:00:00      Corrupted: NO

              Cells         CLP        (EFCI)
Rx Port:    1274609      1032194          0
Tx Port:    1274607      1032192          0
                                              CellBuf Ofl:         0
Unknown Addr:            0
Last Unknown Addr:
Tx Payload Err Cnt:      0
Tx Hdr Err discard:      0
Nonzero GFC Count:       0




This Command: dspportstats 4.1


Hit DEL key to quit:
```

Table 10-34   dspportstats – Parameters

Parameter	Description
slot.port	Specifies the ATM card set and port number.

Table 10-35   dspportstats – Optional Parameters

Parameter	Description
interval	Specifies the refresh interval time for data. It can be specified between 1 and 60 seconds. The default interval is 1 seconds.

grpcon

Adds a connection to a group. Adding a connection to a group has two prerequisites:

- The connection must already exist on the node (see the **addcon** command).

- The connection group must already exist (see the **addcongrp** command).

No command exists to delete an individual connection from a group. Instead, the connection must be deleted (using **delcon**) then added again. The **grpcon** command can be used to add either a single connection or multiple connections. Using the optional *channel ... channel* parameter format, a range of 1 - 16 connections can be added to the group in one command. All connections in the group must be of the inter-node, non-bundled ATM type. They must also have the same endpoints, routing characteristics, and ForeSight enable status.

The first connection added to a group determines the routing characteristics of the entire group. All subsequent connections must match the first connection's characteristics of ownership, COS, routing state, routing restrictions, and ForeSight. Attempting to add a dissimilar connection results in an error message "mismatched connection/group" characteristic. For example, the ownership of both the connection group and the connection itself must be either local or remote. Non-connection parameters, such as fail state, loop state, and configuration, can be specified for an individual connection in the group after the connection has been added to the group.

Full Name

Group a connection

Syntax

grpcon <connection group> <channel> [channel... channel]

Related Commands

delcongrp, addcongrp, dspcongrps, dspcongrp

Attributes

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

Example 1

grpcon bpx6.1 9.1.100.100

Description

Establish a connection group to BPX6 for connection 9.1.100.100.

System Response

```
bpx1            TN    SuperUser      BPX 15    8.2         Feb. 14 1996 20:00 PST

 Local          Remote     Remote                              Route
 Channel        NodeName   Channel       State  Type        Avoid COS O
 9.1.100.100    bpx6       11.2.100.100  Ok     vbr                 0  L
```

```
This Command: grpcon bpx6.1 9.1.100.100


Group these connections (y/n)?
```

Table 10-36   grpcon – Parameters

Parameter	Description
connection group	The name of the connection group that has been established on the local node.
channel	The local node channel to be added to the group in the format *slot.port.vpi.vci*.

Table 10-37   grpcon – Optional Parameters

Parameter	Description
.chan ... chan	Specifies a contiguous range of up to 16 connections to add to the group at once.

prtlns

Prints the current line configuration and line alarm status for a node. This command uses the same syntax and prints the same information as is displayed using the **dsplns** command. See the **dsplns** command for syntax and output information.

Full Name

Print lines

Syntax

prtlns

Related Commands

upln, dnln

Attributes

Privilege	1–6
Jobs	Yes
Log	No
Node	BPX
Lock	No

Example 1

prtlns

Description

This command uses the same syntax and prints the same information as is displayed using the **dsplns** command. See the **dsplns** command for syntax and output information.

upln

Activates (ups) a line. This command makes the line available for configuring and causes statistics gathering to begin. Connections may now be added with the **addcon** command. Line activation may be verified using the **dsplns** command.

Full Name
Up line

Syntax
upln <slot.port>

Related Commands
dnln, dsplns

Attributes

Privilege	1–2
Jobs	Yes
Log	Yes
Node	BPX
Lock	Yes

Example 1
upln 4.2

Description
Activate line 4.2

System Response

```
ca19           VT    SuperUser      BPX 15    8.2    Mar. 23 1996 19:08 GMT

Line Type      Current Line Alarm Status
 4.1 T3        Clear - OK
 4.2 T3        Clear - OK
```

```
Last Command: upln 4.2F
```

```
Next Command:
```

Table 10-38   upln – Parameters

Parameter	Description
slot. port	Specifies the shelf slot number, and one of the ports.

upport

Activates a single port on an ASI. If the port has not been configured, the default configuration values are used to configure the port.

Full Name

Up port

Syntax

upport <slot.port>

Related Commands

dnport, cnfport, upln

Attributes

Privilege	1–2
Jobs	Yes
Log	Yes
Node	BPX
Lock	Yes

Example 1

upport 4.2

Description

Activate port 2 on the ASI in slot 4

System Response

```
ca19             VT    SuperUser      BPX 15   8.2    Mar. 23 1996 19:17 GMT


Port:       4.2    [ACTIVE  ]
Interface:         T3-2
Type:              UNI
Speed:             96000 (cps)

CBR Queue Depth:               200
CBR Queue CLP High Threshold: 80%
CBR Queue CLP Low Threshold:  60%
CBR Queue EFCI Threshold:     80%
VBR Queue Depth:               1000    ABR Queue Depth:               9800
VBR Queue CLP High Threshold: 80%      ABR Queue CLP High Threshold:  80%
VBR Queue CLP Low Threshold:  60%      ABR Queue CLP Low Threshold:   60%
VBR Queue EFCI Threshold:     80%      ABR Queue EFCI Threshold:      80%



Last Command: upport 4.2


Next Command:
```

Table 10-39   upport – Parameters

Parameter	Description
slot.port	Specifies slot number of the ASI card and the port to be activated.