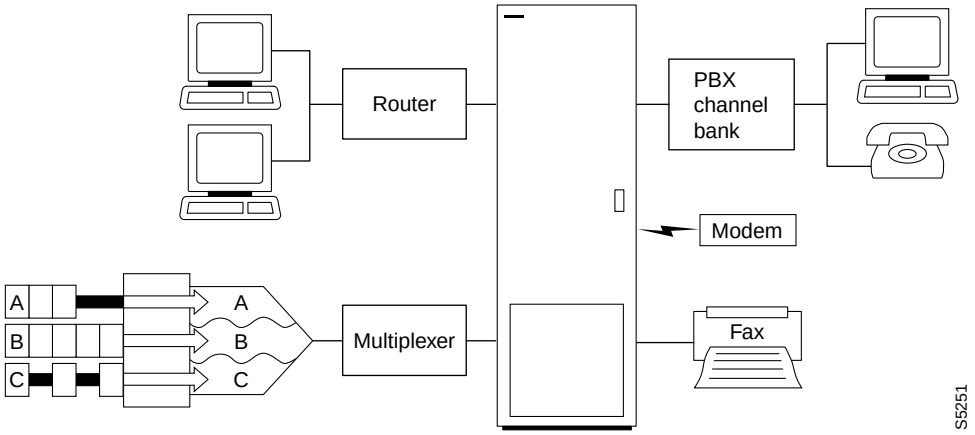
CHAPTER 6

Setting Up Lines



A circuit line is the physical line that carries frame relay, data, voice, or ATM traffic between customer equipment and an IPX or IGX node. Each piece of equipment in the illustration above is attached to the node through a circuit line. After a *card* has been "upped" with the **upcd** command, a *circuit line* on that card can be "upped" and configured.

This chapter:

- Describes input circuit line formats
- Summarizes circuit line card combinations
- Explains how to set up lines
- Describes each command

The following table shows the permissible card combinations for IPX and IGX circuit lines.

Table 6-1 Input Line Formats

Type	Country	Electrical Signal Format	Ones Density Requirement	Multiplexing
J1	Japan	Coded Mark Inversion (CMI)		31 chnls @ 64kbps each
E1	Others	Alternate Mark Inversion (AMI)	High density bipolar 3 (HDB3)	31 chnls @ 64kbps each 1 E1 line on CDP/CVM, FRP/FRM 8 E1 lines on UFM)
T1	USA Canada ASIA	Alternate Mark Inversion (AMI)	Bipolar Zero Substitution (B8ZS)	24 chnls @ 64kbps each 1 T1 line on CDP/CVM, FRP/FRM 8 T1 lines on UFM

Table 6-2 Circuit Line Card Combinations

Service	Node Type	Front Card	Back Card
Frame Relay	IPX/IGX	FRP/FRM	FRI/V.35, FRI/X.21
Frame Relay	IPX/IGX	FRP-6, FRP-31/FRM-6, FRM-31	FRI-T1, FRI-E1
Frame Relay	IPX/IGX	FRP-2, FRM-2	FRI-2-X.21
High Speed Data	IPX/IGX	SDP/HDM	SDI/RS-232 SDI/V.35 SDI/RS-422
Low Speed Data	IPX/IGX	LDP	LDI4/RS-232 LDI4/DDS LDI8/RS-232
Voice	IPX/IGX	CDP/CVM	BC-T1 BC-E1 BC-J1

Setting Up a Circuit Line

Frame relay, data, and voice connections require an active circuit line. Use the commands in the following steps to establish a circuit line and its parameters. The card must be active (**upcd**) before these commands can execute.

Step 1 Use **upcln** to activate a circuit line in a slot that contains the appropriate circuit line card set.

Step 2 Use **cnfcln** to configure the circuit line.

The **upcln** and **cnfcln** commands establish the general parameters for the circuit line. They do not establish specific frame relay, data, or voice parameters. Refer to the appropriate chapter for details of setting up a particular service on a circuit line/ line. For example, the Data Connections chapter describes specific commands for data connections, and the Frame Relay Connections chapter describes specific commands for frame relay connections.

Other Circuit Line Commands

The following describes related commands.

- **dncln**—downs a circuit line. A downed line is inactive, so no drive signals or statistics are generated. All connections on a circuit line must be removed (**delcon** or **delcongrp**) before it can be downed with **dncln**.
- **dspclncnf**—displays the configuration of a specified circuit line.
- **dspclns**—displays the circuit line configuration and alarm status for the node.
- **prtclns**—prints the circuit line configuration and circuit line alarm status for the node.

Figure 6-1 Setting up voice lines

Figure 6-2 Setting up data lines

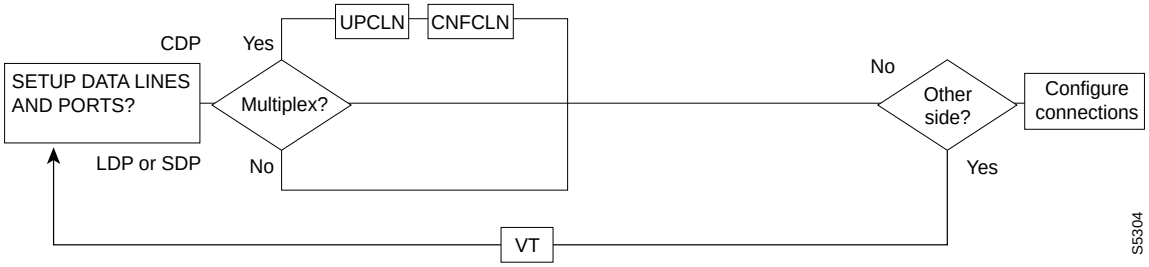


Figure 6-3 Setting up frame relay lines

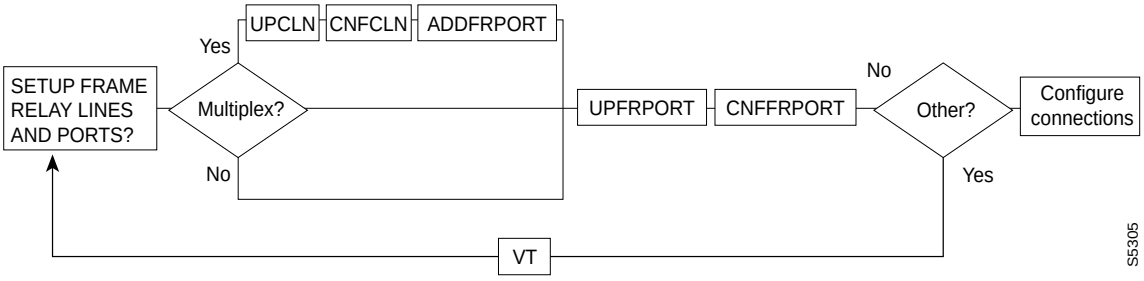


Figure 6-4 Setting up ATM lines

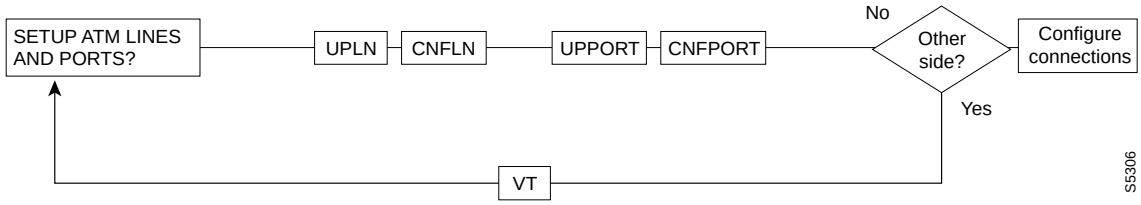
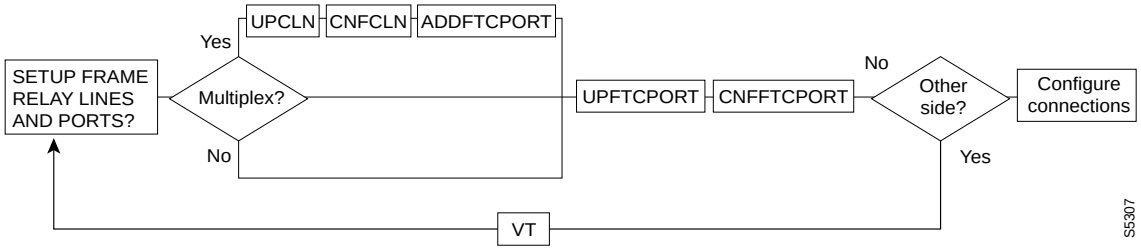


Figure 6-5 Setting up FastPAD lines



List of Commands

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

Table 6-3

Mnemonic	Description	Page
cnfcln	Configure circuit line	6-5
dncln	Down circuit line	6-9
dspclncnf	Display circuit line configuration	6-10
dsplcns	Display circuit lines	6-12
prtclns	Print circuit lines	6-14
upcln	Up circuit line	6-15

cnfcln

Configures a circuit line to be compatible with the devices to which it connects. See Table 6-2 for information about the appropriate card types for establishing connections to an IPX, IGX, or BPX.

Full Name

configure circuit line

Syntax

cnfcln <(see parameters table)>

Related Commands

cnftrk, dsplncnf

Attributes

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

Example 1 Description

cnfcln 14

Configure voice circuit line 14.

System Response

```
alpha          TRM   YourID:1        IPX 16    8.2    Mar. 23 1996 09:55 PST

CLN 14 Configuration   T1/24               CDP slot: 13
Loop clock:            --

Line framing:          --
     coding:           --
     CRC:              --
     recv impedance:   --
     E1 signalling:    --
     encoding:         --
     T1 signalling:    --
     cable type:       --
     length:           --
     56KBS Bit Pos:    --
     pct fast modem:   --


Last Command: cnfcln 14


Next Command:
```

Example 2 Description

cnfcln 7 n 2

Configure a frame relay T1 line for the following options: no loop clock and receive impedance if 75 ohms.

System Response

```
alpha          TRM   YourID:1        IPX 16    8.2    Mar. 23 1996 09:55 PST

CLN 14 Configuration   T1/24 FRPslot: 13
Loop clock:            --

Line framing: ESF
     coding:          ZCS
     CRC:              --
     recv impedance:   --
     E1 signalling:    --
     encoding:         --
     T1 signalling:    --
     cable type:       ABAH
     length:          0-133 ft.
     56KBS Bit Pos:    --
     pct fast modem:   --


Last Command: cnfcln 7 n 2


Next Command:
```

Table 6-4 cnfcln – Parameters

Parameter	Description			Default
slot or slot.line	Specifies the line. If the interface card has only one circuit line connector and cable, only the slot number is necessary. If the card has more than one physical connector, the number for that line is also necessary.			
loop clock	Enables the transmit and receive control leads to use the same clock. Format for the parameter is Y or N			N
line framing	Configures T1 line framing: D4 or ESF. Note that UFM is ESF only.			D4 (ESF on UFM cards)
line coding	Configures T1 and E1 coding:			
	T1: ZCS			ZCS
	B8ZS			
	AMI			
	E1: HDB3			HDB3
	ZCS			
line CRC on	Enables CRC-4 detection for E1 lines. Use either Y or N			N
E1 recv impedance	Parameter	Impedance	Description	1
	1	75 ohm	unbalanced	
	2	75 ohm	balanced	
	3	120 ohm	balanced	
	4	0–133 ft	ABAM cable	
	5	133–266 ft	ABAM cable	
	6	266–399 ft	ABAM cable	
	7	399–533 ft	ABAM cable	
signalling	E1: Common channel signalling (CCS) or ABCD signalling bits with channel associated signalling (CAS)			CAS
	T1: ABCD or ABAB (with ESF line framing) or AB (with D4 line framing); CCS is available in timeslot 24 if applicable PBXs need it.			AB
encoding	Alaw µlaw			Alaw
cable type/length	Parameter	Voice Circuits	Frame Relay Circuits	4
	1	0-220 ft. MAT cable	CSU Network Interface	
	2	220-440 ft MAT cable	0–133 ft ABAM cable	
	3	440-655 ft MAT cable	133–266 ft ABAM cable	
	4	0-133 ft ABAM cable	266–399 ft ABAM cable	
	5	133-266 ft ABAM cable	399–533 ft ABAM cable	
	6	266-399 ft ABAM cable	533–655 ft ABAM cable	
	7	399-533 ft	not used	
	8	533-655 ft	not used	

Parameter	Description	Default
56kbs bit stuffing	most significant byte (msb) least significant byte (lsb)	msb
pct fast modem	Expected ADPCM fast connections (range 0-100). High speed modems preclude the use of ADPCM. Consequently, channel load requirements increase over that required for a voice channel. The pct fast modem parameters specify the expected channel utilization (%) by a high speed modem.	20

dncln

Deactivates a circuit line. Before deactivating the circuit line, all connections must be removed. Use the **delcon** command to remove all connections from the circuit line.

Full Name

down circuit line

Syntax

dncln <slot | slot.line>

Related Commands

upcln, dspclns

Attributes

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

Example Description

dncln 12

Deactivate circuit line 12.

Table 6-5 dncln – Parameters

Parameter	Description
slot or slot.line	Specifies the line. If the interface card has only one circuit line connector and cable, only the slot number is necessary. If the card has more than one physical connector, the number for that line is also necessary.

dspclncnf

Displays the configuration of a line. The following line configuration information is displayed:

Table 6-6

Screen Item	Description	Options
CLN configuration	Line type and the number of channels.	T1 E1
Loop clock	Specifies whether the receive clock is looped back to the transmit clock.	Y N
Line framing	Idnetifies the type of T1 line framing used by the circuit line.	DS4 ESF
Line coding	Identifies the line coding used by the circuit line.	E1: HDB3, AMI T1: ZCS, B8ZS, AMI
CRC	Specifies the CRC checking on E1 lines	Y N
recv impedance	Nominal impedance for the receive line.	75 ohms balanced or unbalanced 120 ohms balanced
E1 signalling	Identifies the signalling type used for E1.	CCS or ABCD with CAS
encoding	Specifies the voice encoding scheme	µlaw Alaw
T1 signalling	Identifies the signalling type used for T1	ABCD or ABAB (with ESF line framing) or AB (with D4 line framing); CCS is available in timeslot 24 if applicable PBXs need it.
Cable type	Specifies the T1 or E1 cable type (used for equalization)	MAT ABAM
Cable length	Specifies the T1 or E1 cable length in feet to the CSU or digital cross-connect.	0–220 220–440 440–655 0–133 133–266

Full Name

display circuit line configuration

Syntax

dspclcnf <slot | slot.line>

Related Commands

cnfcln

Attributes

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

Example Description

dspclncnf 9

Displays configuration for line 9.

System Response

```
D2.cb1         LAN   StrataCom       IPX 32    8.2    Jul. 24 1996 11:53 P
CLN 9 Configuration    T1/24              FRP slot: 9
Loop clock:            No

Line framing:          ESF
     coding:           B8ZS
     CRC:              --
     recv impedance:   --
     E1 signalling:    --
     encoding:         --
     T1 signalling:    --
     cable type:       ABAM
     length:           266-399 ft.
     56KBS Bit Pos:    --
     pct fast modem:   --


Last Command: dspclncnf 9


Next Command:

                                                              MAJOR ALARM
```

Table 6-7 dspclncnf – Parameters

Parameter	Description
slot or slot.line	Specifies the line. If the interface card has only one circuit line connector and cable, only the slot number is necessary. If the card has more than one physical connector, the number for that line is also necessary.

dspclns

Displays configuration information for circuit lines. The information includes the line number, the type of circuit line, and the line alarm status. The line type shows whether the line is T1 or E1 and shows the number of configured channels. Line Status categories include:

- Clear—Line OK
- Loss of Signal
- Out of Frame (for T1)
- Major—Local CGA (RED)
- Minor—Bad clock source
- Alarm Information Signal
- Remote Out of Frame (for T1)
- Remote Out of Packet Frame
- Minor—Remote CGA (YEL)
- Loss of Multiframe (for E1)

Full Name

display circuit lines

Syntax

dspclns

Related Commands

dncln, dsptrks, upcln

Attributes

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

Example Description

dspclns

Displays circuit lines for node.

System Response

```
gamma          TRM   YourID:1        IPX 16    8.2    Mar. 15 1996 18:08 CST

CLN  Type     Current Line Alarm Status

14   T1/24     Clear - Line OK
15   T1/24     Clear - Line OK









Last Command: dspclns


Next Command:
```

prtclns

Prints the current circuit line configuration for the IPX or IGX node. This command uses the same syntax, and prints the same information as is displayed using the **dspclns** command. See the **dspclns** command for syntax and output information.

Full Name

print circuit line configuration

Syntax

prtclns

Related Commands

dspclns

Attributes

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

Example Description

prtclns

Prints circuit line for the node.

upcln

Activates a circuit line on an IPX or IGX. A circuit line consists of a cable for transmitting data and the interface circuitry for the line. The cable can be coaxle wire, fiber optics, or twisted pair. See Table 6-2 for information regarding card type combinations.

This command makes the line visible to the network. For the network to detect and use the circuit line, *upcln* must execute at both ends of the line. If the command executes on only one end of the circuit line, an alarm results. Once both ends of the line have been activated, the line signal characteristics for the data intended for the circuit must be configured. See **cnfcln** for information on defining these characteristics.

Full Name

up circuit line

Syntax

upcln <slot | slot.line>

Related Commands

cnfcln, dspclns, dncln

Attributes

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

Example Description

upcln 5

Activate the line.

Table 6-8 upcln – Parameters

Parameter	Description
slot or slot.line	Specifies the line. If the interface card has only one circuit line connector and cable, only the slot number is necessary. If the card has more than one physical connector, the number for that line is also necessary.