



Cisco IOS Voice Gateway – PBX Interoperability: Avaya 8500 Communications Manager 2.1 to T1 QSIG with H.323

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Introduction

Although specific gateway router models were used to validate its content, this application note also applies to all Cisco 1700/2600/3600/3700/2800/3800 series Cisco IOS voice gateways.

This application note provides configuration guidelines for a toll-bypass network using Cisco IOS voice gateways to connect Avaya 8500 Communications Manager 2.1 PBXs. The PBXs are connected to the Cisco IOS voice gateways by T1 QSIG trunk circuits. The Cisco IOS voice gateways “extend” the T1 QSIG trunk circuits with VoIP, using the H.323 protocol.

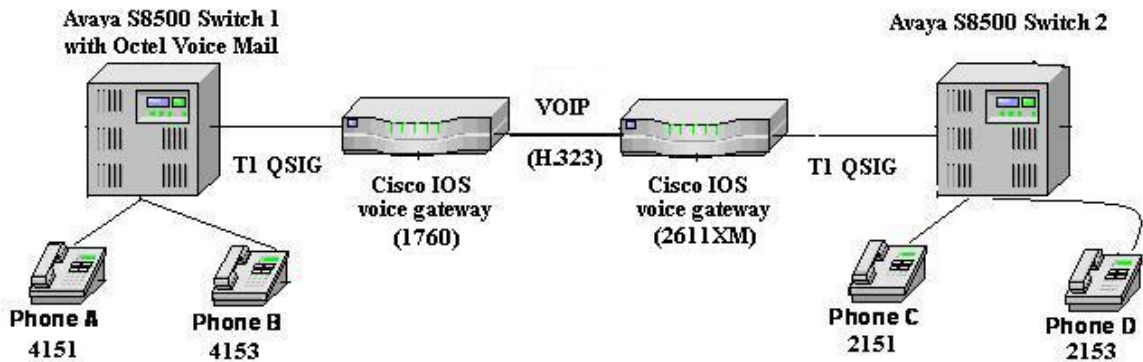
Two Avaya 8500 Communications Manager 2.1 PBXs were connected via T1 QSIG trunk to two Cisco IOS voice gateways. The voice gateways were connected via IP over Ethernet, and configured for VoIP using H.323. End-to-end calls were placed between the PBXs to exercise and test basic calls as well as QSIG supplementary services such as MWI, call hold, call transfer, call conference, and call forward.

Using the Avaya PBX configurations and Cisco IOS voice gateway configurations in this application note, successful toll bypass integration was achieved. This includes basic call, call transfer, call conference, and call forward, with some limitations on Caller ID features during transfer, forward, and conference scenarios. These limitations are detailed in the following sections and all were found to be inherent to the Avaya PBXs. Thus, H.323 toll bypass introduced no new restrictions to the available features or performance.



Network Topology

Figure 1. Network Topology



Limitations

On basic calls, the CONNECTED NUMBER, not the CALLED NUMBER, is displayed on the originating extension. The CONNECTED NUMBER is carried in the ISDN CONNECT message, not the ALERTING message, and is sent when the called extension answers. This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.

On Supervised Transfers, the Calling Name/Number displayed on the final destination digital extension was updated to the original calling extension name/number information only after the transfer was complete. This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.

On Supervised Transfers, the Called Name/Number displayed on the originating digital extension was updated to the final destination extension name/number information only after the transfer was complete. This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.

On Local Conference Calls originating from an external call (e.g., originate call from 'C' to 'A', and conference from 'A' to 'B'), the Connected Name/Number are not updated on the original digital extension when the conferencing extension drops out. The original call is still displayed (e.g., 'A' Name/Number displayed on 'C'). This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.

On External Conference Calls originating from a local call (e.g., originate call from 'A' to 'B', and conference from 'B' to 'C'), the Calling Name/Number are not passed to the remaining conferee ('C') when the conferencing extension ('B') drops out. The conferencing extension's information is still displayed (e.g., 'B' Name/Number displayed on 'C'). This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.

On Network/External Conference Calls originating from an external call (e.g., originate from 'C' to 'A', and conference from 'A' to 'D' or originate from 'C' to 'A', and conference from 'C' to 'B'), the Calling Name/Number are not passed to the remaining conferee when the conferencing extension drops out. The conferencing extension's Name/Number are displayed. This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.



On Network/External Conference Calls originating from an external call (e.g., originate from 'C' to 'A', and conference from 'A' to 'D' or originate from 'C' to 'A', and conference from 'C' to 'B'), the Connected Name/Number are not updated on the original calling extension when a conferee drops out. In cases where the conferencing extension drops, the conferencing extension's Name/Number are displayed on the originating extension. In cases where the originating extension is the conferencing extension, and another extension drops, there is no Connected Name/Number on the original/conferencing extension. However, the Connected Name/Number of the conferenced extension does appear briefly on the conferencing extension display before the conference is completed. This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.

On Forwarded Calls, the original Calling Number is not passed to the final destination extension. This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.

On Forwarded Calls, the forwarding Called Number is not passed to the final destination extension. This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.

On Forwarded Calls, the final destination Connected Number is not updated at the originating extension. This is inherent to the PBXs and also occurs with the PBXs connected directly via a T1 QSIG trunk.

On Forwarded Calls involving an external call followed by an external forward (e.g., originate from 'C' to 'A' and forward from 'A' to 'D'), the forwarding Called Name is not passed to the final destination extension. However, this feature worked properly in release 12.4 (3.9) T1.

Hardware Requirements

- (2) Cisco IOS voice gateways with T1 VWICs (voice/WAN interface cards)
- (2) Avaya 8500s
- (4) Avaya digital station telephones

Software Requirements

Avaya PBXs: Communications Manager Release 2.1

Cisco IOS voice gateways: Cisco IOS Release Version 12.3(13) or later.

Features

- Basic Call (ENBLOC and Overlap)
- Call Transfer: Supervised Local Transfer
- Call Transfer: Supervised Network/External Transfer
- Call Conference: Local
- Call Conference: Network/External
- Call Forward: Local
- Call Forward: Network/External



Figure 4. AAR Analysis (1 of 2)

display aar analysis 0 Page 1 of 2

AAR DIGIT ANALYSIS TABLE Percent Full: 1

| Dialed String | Total Min | Total Max | Route Pattern | Call Type | Node Num | ANI Req'd |
|---------------|-----------|-----------|---------------|-----------|----------|-----------|
| 2 | 7 | 7 | 999 | aar | | n |
| 222 | 7 | 7 | 21 | aar | | n |
| 224 | 7 | 7 | 99 | aar | | n |
| 225 | 7 | 7 | 4 | aar | | n |
| 226 | 7 | 7 | 13 | aar | | n |
| 3 | 7 | 7 | 999 | aar | | n |
| 4 | 4 | 4 | 39 | aar | | n |
| 5 | 7 | 7 | 999 | aar | | n |
| 6 | 7 | 7 | 999 | aar | | n |
| 7 | 7 | 7 | 999 | aar | | n |
| 8 | 7 | 7 | 999 | aar | | n |
| 9 | 7 | 7 | 999 | aar | | n |
| | | | | | | n |
| | | | | | | n |
| | | | | | | n |

CANCEL REFRESH HELP GO TO PAGE NEXT PAGE PREV PAGE

Alt: Host Chat LogonWiz WinLink Cmd Mode Send Fax Explorer DOS Prmpt
ATT 4410 1K-Xmodem direct connect-Telnet rd sd cd cts 1:51PM Row 2 Col 54
Port opened - Telnet Connected 00:11:15
Start com_1 - HyperTerminal TFTP Server Procomm Plus Telnet ... untitled - Paint 1:51 PM



Figure 6. Designated Route Pattern (21) (1 of 3)

The screenshot shows a Procomm Plus Telnet window with the following content:

```
display route-pattern 21                                     Page 1 of 3
Pattern Number: 21   Pattern Name: ISDN TIE
Secure SIP? n
```

| Grp | FRL | NPA | Pfx | Hop | Toll | No. | Inserted | DCS/ | IXC |
|-----|-----|-----|-----|-----|------|-----|----------|------|------|
| No | | | Mrk | Lmt | List | Del | Digits | QSIG | |
| | | | | | | | Dgts | Intw | |
| 1: | 6 | 0 | | | | | 3 | n | user |
| 2: | | | | | | | | n | user |
| 3: | | | | | | | | n | user |
| 4: | | | | | | | | n | user |
| 5: | | | | | | | | n | user |
| 6: | | | | | | | | n | user |

| | BCC | VALUE | TSC | CA-TSC | ITC | BCIE | Service/Feature | BAND | No. | Numbering | LAR |
|----|-----|-------|-----|--------|-----|------|-----------------|-----------|---------|-----------|------|
| | 0 | 1 | 2 | 3 | 4 | W | Request | | Dgts | Format | |
| 1: | Y | Y | Y | Y | Y | n | y | as-needed | bothept | unk-unk | none |
| 2: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 3: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 4: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 5: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 6: | Y | Y | Y | Y | Y | n | n | | rest | | none |

Navigation buttons: CANCEL, REFRESH, HELP, GO TO PAGE, NEXT PAGE, PREV PAGE



Figure 7. Designated Route Pattern (21) (2 of 3)

The screenshot shows the Procomm Plus Telnet interface. The main window displays the command 'display route-pattern 21' and its output. The output is divided into two sections: a header section and a data table section.

Header section:

```
display route-pattern 21                                     Page 2 of 3
Pattern Number: 21
```

| Grp No | FRL | NPA | Pfx | Hop | Toll | No. | Inserted | DCS/ | IXC |
|--------|-----|-----|-----|-----|------|-----|----------|------|------|
| | | | Mrk | Lmt | List | Del | Digits | QSIG | |
| | | | | | | | Dgts | Intw | |
| 7: | | | | | | | | n | user |
| 8: | | | | | | | | n | user |
| 9: | | | | | | | | n | user |
| 10: | | | | | | | | n | user |
| 11: | | | | | | | | n | user |
| 12: | | | | | | | | n | user |

| | BCC | VALUE | TSC | CA-TSC | ITC | BCIE | Service/Feature | BAND | No. | Numbering | LAR |
|-----|-----|-------|-----|--------|-----|------|-----------------|------|------|-----------|------------|
| | 0 | 1 | 2 | 3 | 4 | W | Request | | Dgts | Format | Subaddress |
| 7: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 8: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 9: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 10: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 11: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 12: | Y | Y | Y | Y | Y | n | n | | rest | | none |

At the bottom of the window, there are several buttons: CANCEL, REFRESH, HELP, GO TO PAGE, NEXT PAGE, and PREV PAGE.



Figure 8. Designated Route Pattern (21) (3 of 3)

display route-pattern 21 Page 3 of 3

Pattern Number: 21

| Grp No | FRL | NPA | Pfx | Hop | Toll | No. | Inserted | DCS/ | IXC |
|--------|-----|-----|-----|-----|------|-----|----------|------|------|
| | | | Mrk | Lmt | List | Del | Digits | QSIG | |
| | | | | | | | Dgts | Intw | |
| 13: | | | | | | | | n | user |
| 14: | | | | | | | | n | user |
| 15: | | | | | | | | n | user |
| 16: | | | | | | | | n | user |

| BCC | VALUE | TSC | CA-TSC | ITC | BCIE | Service/Feature | BAND | No. | Numbering | LAR |
|-----|-------|-----|--------|-----|------|-----------------|------|------|-----------|------------|
| 0 | 1 | 2 | 3 | 4 | W | Request | | Dgts | Format | Subaddress |
| 13: | Y | Y | Y | Y | Y | n | n | rest | | none |
| 14: | Y | Y | Y | Y | Y | n | n | rest | | none |
| 15: | Y | Y | Y | Y | Y | n | n | rest | | none |
| 16: | Y | Y | Y | Y | Y | n | n | rest | | none |

CANCEL REFRESH HELP GO TO PAGE NEXT PAGE PREV PAGE

Alt: Host Chat LogonWiz WinLink Cmd Mode Send Fax Explorer DOS Prmpt
ATT 4410 1K-Xmodem direct connect-Telnet rd sd cd cts 2:08PM Row 2 Col 1
Port opened - Telnet Connected 00:28:11
Start com_1 - HyperTermi... TFTP Server Procomm Plus Tel... untitled - Paint C:\Documents and ... 2:08 PM



Figure 9. Route Patterns (1 of 1)

| Route Pat | Name/Trk Pref Grp | FRL | Hop Lmt | IXC | BCC | | | | | TSC | CA-TSC Request | ITC | Service/Feature |
|-----------|-------------------|-----|---------|------|-----|---|---|---|---|-----|----------------|-----------|-----------------|
| | | | | | 0 | 1 | 2 | 3 | 4 | | | | |
| 4 | 1 4 | 0 | | user | Y | Y | Y | Y | Y | n | Y | as-needed | both |
| 13 | 1 13 | 0 | 5 | user | Y | Y | Y | Y | Y | n | n | none | rest |
| 21 | ISDN TIE | | | | | | | | | | | | |
| | 1 6 | 0 | | user | Y | Y | Y | Y | Y | n | Y | as-needed | both |
| 99 | CCS Server A | | | | | | | | | | | | |
| | 1 1 | 0 | | user | Y | Y | Y | Y | Y | n | Y | as-needed | both |



Figure 10. Signaling Group (6) (1 of 1)

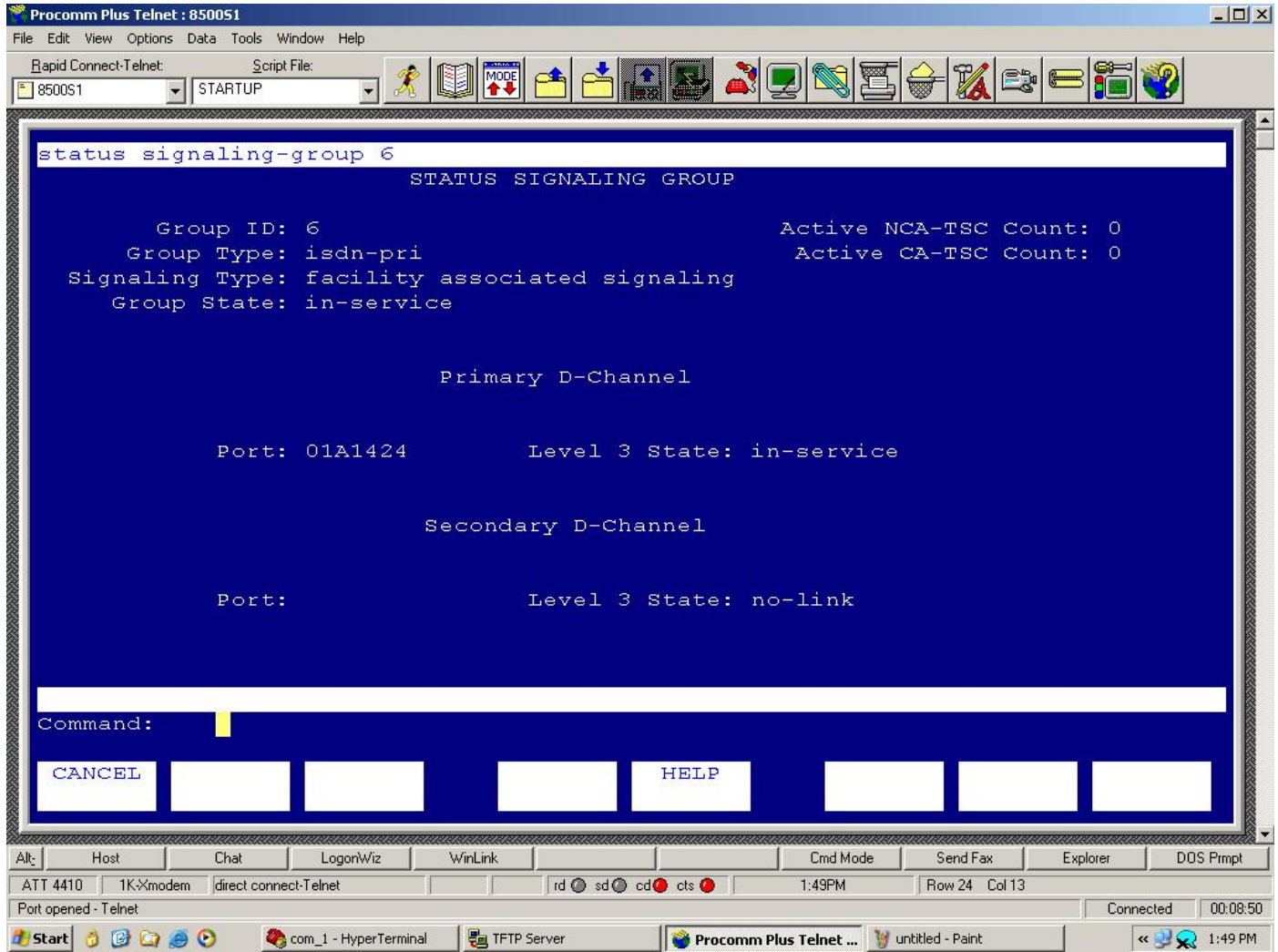




Figure 11. DS1 Board (1 of 2)

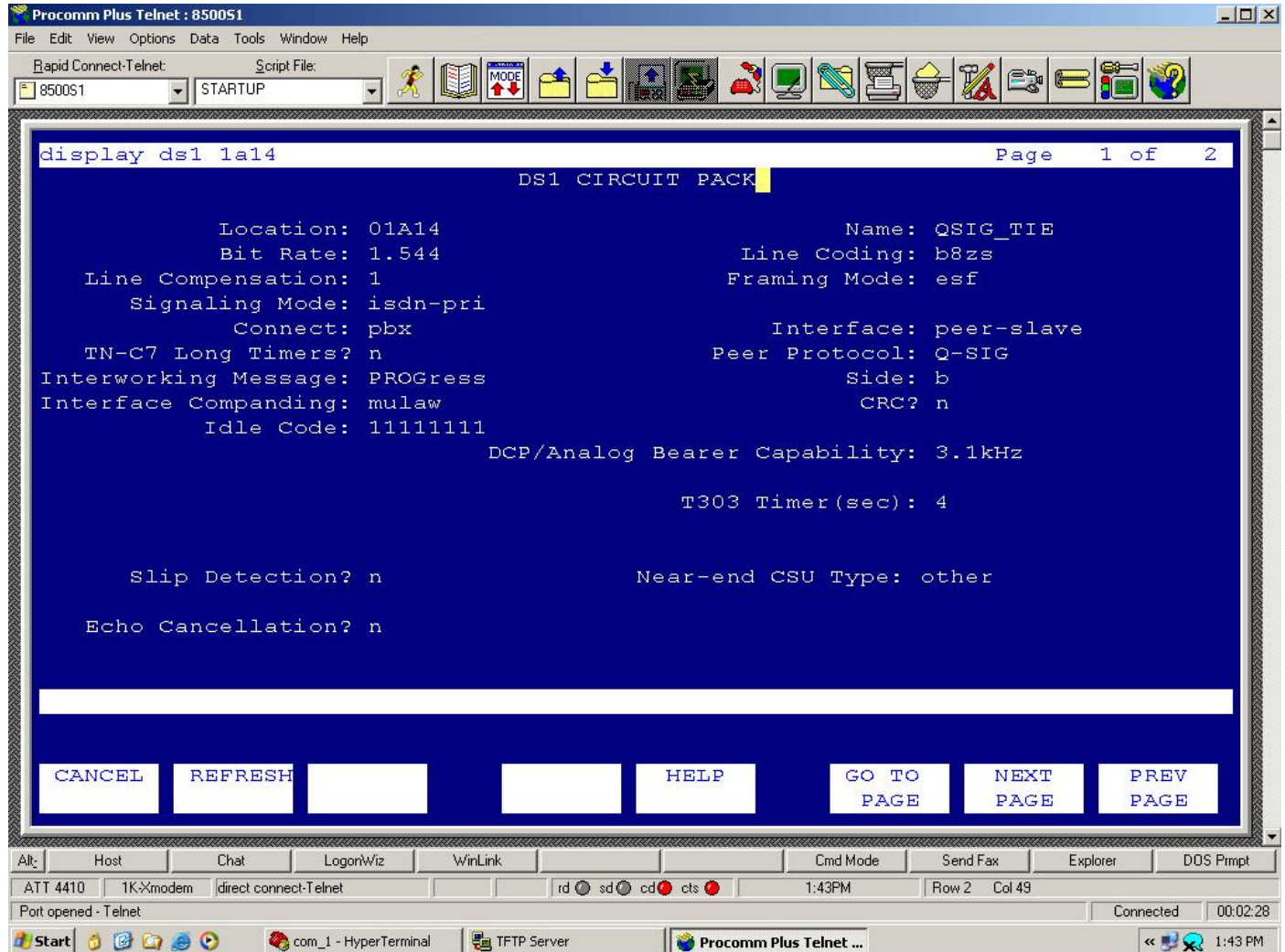




Figure 12. DS1 Board (2 of 2)

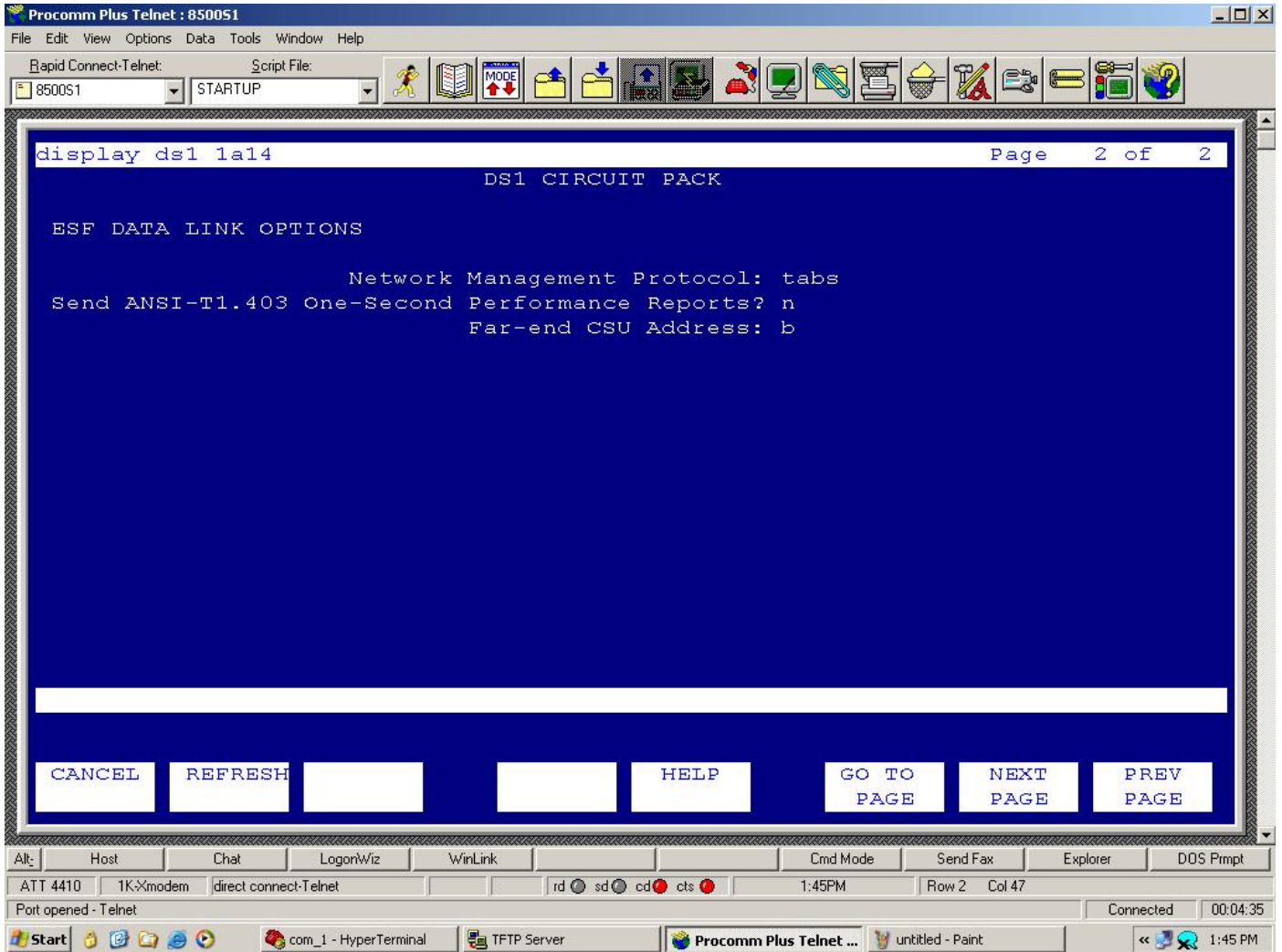




Figure 13. Trunks Status (1 of 1)

status trunk 6

TRUNK GROUP STATUS

| Member | Port | Service State | Mtce Connected Ports Busy |
|----------|---------|-----------------|---------------------------|
| 0006/001 | 01A1401 | in-service/idle | no |
| 0006/002 | 01A1402 | in-service/idle | no |
| 0006/003 | 01A1403 | in-service/idle | no |
| 0006/004 | 01A1404 | in-service/idle | no |
| 0006/005 | 01A1405 | in-service/idle | no |
| 0006/006 | 01A1406 | in-service/idle | no |
| 0006/007 | 01A1407 | in-service/idle | no |
| 0006/008 | 01A1408 | in-service/idle | no |
| 0006/009 | 01A1409 | in-service/idle | no |
| 0006/010 | 01A1410 | in-service/idle | no |

Command successfully completed
Command:

CANCEL HELP

Alt: Host Chat LogonWiz WinLink Cmd Mode Send Fax Explorer DOS Prmpt
ATT 4410 1K-Xmodem direct connect-Telnet rd sd cd cts 1:46PM Row 24 Col 10
Port opened - Telnet Connected 00:05:49
Start com_1 - HyperTerminal TFTP Server Procomm Plus Telnet ... untitled - Paint 1:46 PM



Figure 16. AAR Analysis (1 of 2)

display aar analysis 21 Page 1 of 2

AAR DIGIT ANALYSIS TABLE Percent Full: 1

| Dialed String | Total Min | Total Max | Route Pattern | Call Type | Node Num | ANI Req'd |
|---------------|-----------|-----------|---------------|-----------|----------|-----------|
| 222 | 7 | 7 | 99 | aar | | n |
| 223 | 7 | 7 | 21 | aar | 1 | n |
| 3 | 7 | 7 | 999 | aar | | n |
| 4 | 7 | 7 | 999 | aar | | n |
| 5 | 7 | 7 | 999 | aar | | n |
| 6 | 7 | 7 | 999 | aar | | n |
| 7 | 7 | 7 | 999 | aar | | n |
| 8 | 7 | 7 | 999 | aar | | n |
| 9 | 7 | 7 | 999 | aar | | n |

CANCEL REFRESH HELP GO TO PAGE NEXT PAGE PREV PAGE

Alt: Host Chat LogonWiz WinLink Cmd Mode Send Fax Explorer DOS Prmpt
ATT 4410 1K-Xmodem direct connect-Telnet rd sd cd cts 3:34PM Row 2 Col 54
Port opened - Telnet Connected 01:23:39
Start xyz - HyperTerminal TFTP Server Procomm Plus Telnet ... untitled - Paint 3:34 PM



Figure 18. Designated Route Pattern (21) (1 of 3)

display route-pattern 21 Page 1 of 3

Pattern Number: 21 Pattern Name: ISDN NODE 1
Secure SIP? n

| Grp No | FRL | NPA | Pfx Mrk | Hop Lmt | Toll List | No. Del | Inserted Digits | DCS/ QSIG | IXC |
|--------|-----|-----|---------|---------|-----------|---------|-----------------|-----------|------|
| 1: | 6 | 0 | | | | 3 | | n | user |
| 2: | | | | | | | | n | user |
| 3: | | | | | | | | n | user |
| 4: | | | | | | | | n | user |
| 5: | | | | | | | | n | user |
| 6: | | | | | | | | n | user |

| | BCC | VALU | TSC | CA-TSC | ITC | BCIE | Service/Feature | BAND | No. Dgts | Numbering Format | LAR |
|----|-----|------|-----|--------|-----|------|-----------------|---------|----------|------------------|------|
| | 0 | 1 | 2 | 3 | 4 | W | Request | | | Subaddress | |
| 1: | Y | Y | Y | Y | Y | n | Y as-needed | bothept | | unk-unk | none |
| 2: | Y | Y | Y | Y | Y | n | n | rest | | | none |
| 3: | Y | Y | Y | Y | Y | n | n | rest | | | none |
| 4: | Y | Y | Y | Y | Y | n | n | rest | | | none |
| 5: | Y | Y | Y | Y | Y | n | n | rest | | | none |
| 6: | Y | Y | Y | Y | Y | n | n | rest | | | none |

CANCEL REFRESH HELP GO TO PAGE NEXT PAGE PREV PAGE



Figure 19. Designated Route Pattern (21) (2 of 3)

The screenshot shows a Procomm Plus Telnet window with the following content:

```
display route-pattern 21                                     Page 2 of 3
Pattern Number: 21

Grp FRL NPA Pfx Hop Toll No.  Inserted          DCS/ IXC
No   Mrk Lmt List Del  Digits          QSIG
                                     Dgts          Intw

7:                                     n   user
8:                                     n   user
9:                                     n   user
10:                                    n   user
11:                                    n   user
12:                                    n   user

BCC VALUE  TSC CA-TSC  ITC BCIE Service/Feature BAND  No. Numbering LAR
0 1 2 3 4 W      Request      Dgts Format      Subaddress

7: Y Y Y Y Y n  n                rest                none
8: Y Y Y Y Y n  n                rest                none
9: Y Y Y Y Y n  n                rest                none
10: Y Y Y Y Y n n                rest                none
11: Y Y Y Y Y n  n                rest                none
12: Y Y Y Y Y n  n                rest                none
```

Navigation buttons: CANCEL, REFRESH, HELP, GO TO PAGE, NEXT PAGE, PREV PAGE.

Window status: ATT 4410, 1K-Xmodem, direct connect-Telnet, rd sd cd cts, 3:42PM, Row 2 Col 1, Connected, 01:30:59.



Figure 20. Designated Route Pattern (21) (3 of 3)

The screenshot shows a Procomm Plus Telnet window titled "Procomm Plus Telnet : 8500s2". The main display area shows the command "display route-pattern 21" and the output for Pattern Number: 21. The output is divided into two sections: a header section and a data section.

Header section:

| Grp No | FRL | NPA | Pfx | Hop | Toll | No. | Inserted | DCS/ | IXC |
|--------|-----|-----|-----|-----|------|-----|----------|------|-----|
| | | | Mrk | Lmt | List | Del | Digits | QSIG | |
| | | | | | | | Dgts | Intw | |

Data section:

| Grp No | BCC | VALUE | TSC | CA-TSC | ITC | BCIE | Service/Feature | BAND | No. | Numbering | LAR |
|--------|-----|-------|-----|--------|-----|------|-----------------|------|------|-----------|------------|
| | 0 | 1 | 2 | 3 | 4 | W | Request | | Dgts | Format | Subaddress |
| 13: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 14: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 15: | Y | Y | Y | Y | Y | n | n | | rest | | none |
| 16: | Y | Y | Y | Y | Y | n | n | | rest | | none |

At the bottom of the window, there are several buttons: CANCEL, REFRESH, HELP, GO TO PAGE, NEXT PAGE, and PREV PAGE. The status bar at the bottom shows "Port opened - Telnet", "Connected", and the time "01:31:57".



Figure 21. Route Patterns (1 of 1)

The screenshot shows a Procomm Plus Telnet window titled "Procomm Plus Telnet : 8500s2". The window has a menu bar (File, Edit, View, Options, Data, Tools, Window, Help) and a toolbar with various icons. The main display area is a blue terminal window with the following content:

```
list route-pattern
```

| Route Pat | Name/Trk | | FRL | Hop Lmt | IXC | BCC | | | | | TSC | CA-TSC Request | ITC | Service/Feature | | |
|-----------|----------|-------|-----|---------|------|-----|---|---|---|---|-----|----------------|-----------|-----------------|---|--|
| | 1 | Grp | | | | 0 | 1 | 2 | 3 | 4 | | | | | w | |
| 21 | ISDN | NODE | 1 | | | | | | | | | | | | | |
| | 1 | 6 | 0 | | user | y | y | y | y | y | n | y | as-needed | both | | |
| 99 | CCS | Sever | 2 | | | | | | | | | | | | | |
| | 1 | 1 | 0 | | user | y | y | y | y | y | n | y | as-needed | both | | |

Command successfully completed
Command:

CANCEL [] [] [] [] HELP [] [] []

The window also shows a status bar at the bottom with various indicators and a taskbar at the very bottom with open applications like "xyz - HyperTerminal", "TFTP Server", "Procomm Plus Telnet ...", and "untitled - Paint".



Figure 22. Signaling Group (6) (1 of 1)

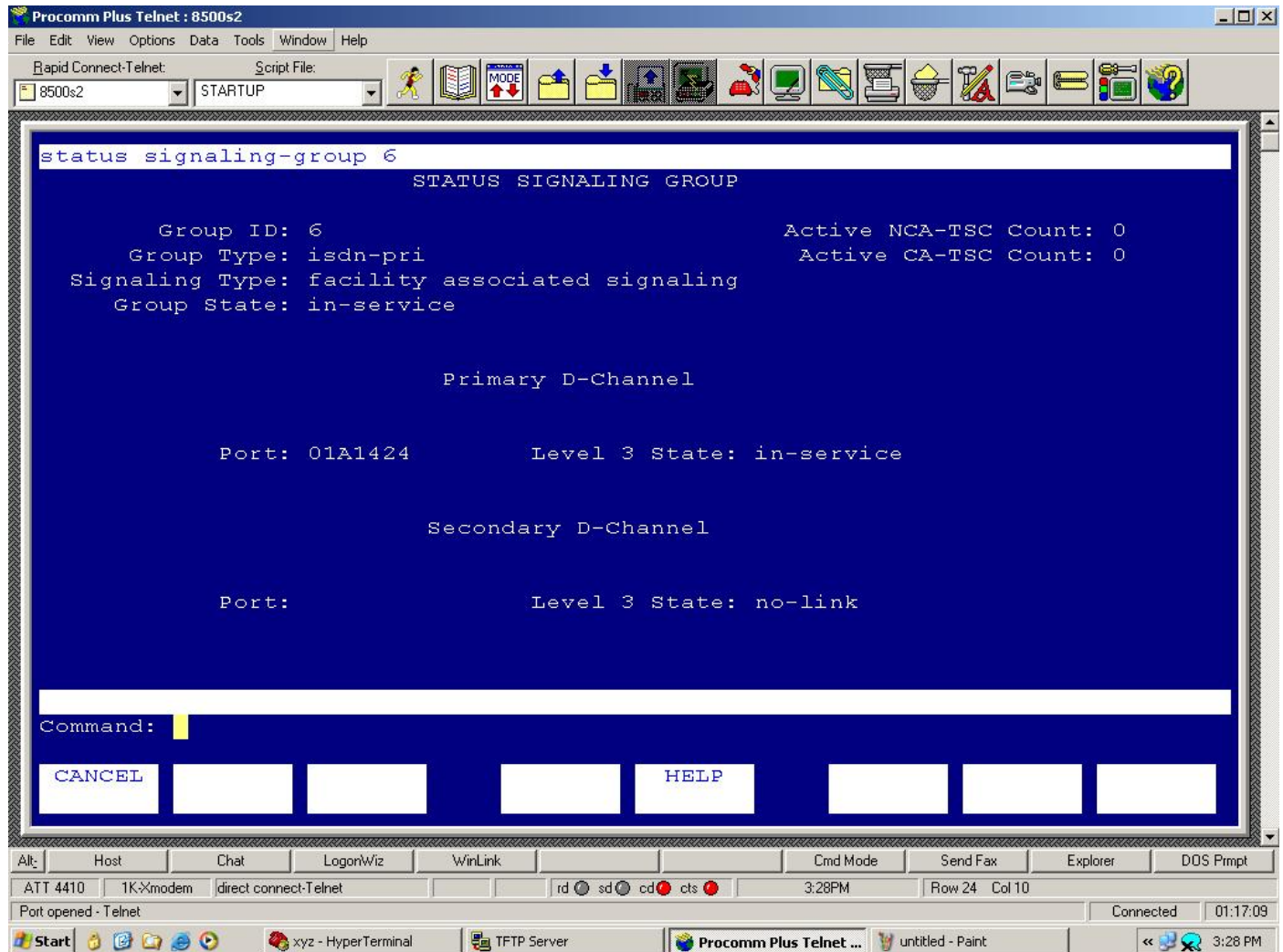




Figure 23. DS1 Board (1 of 2)

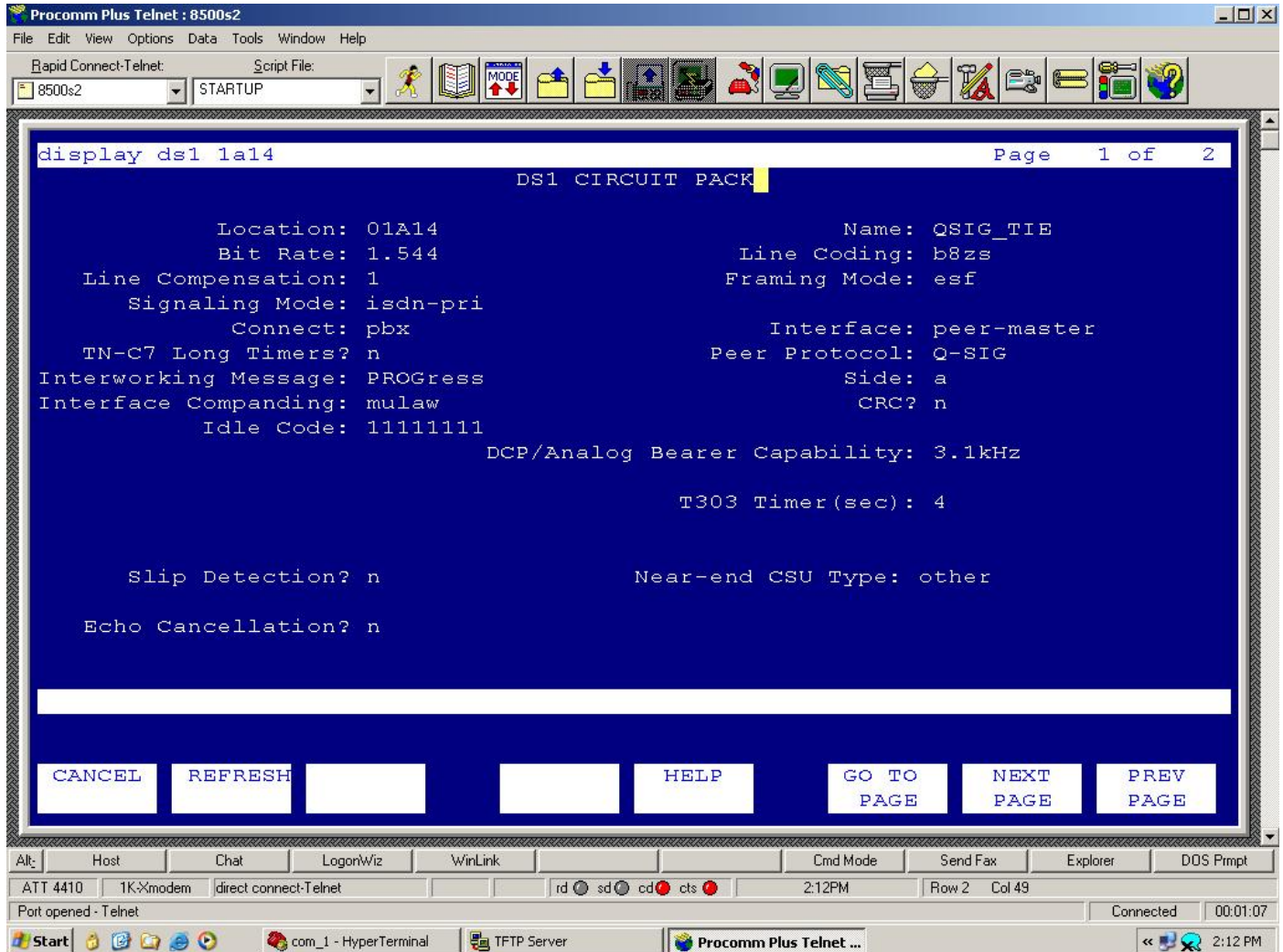




Figure 24. DS1 Board (2 of 2)

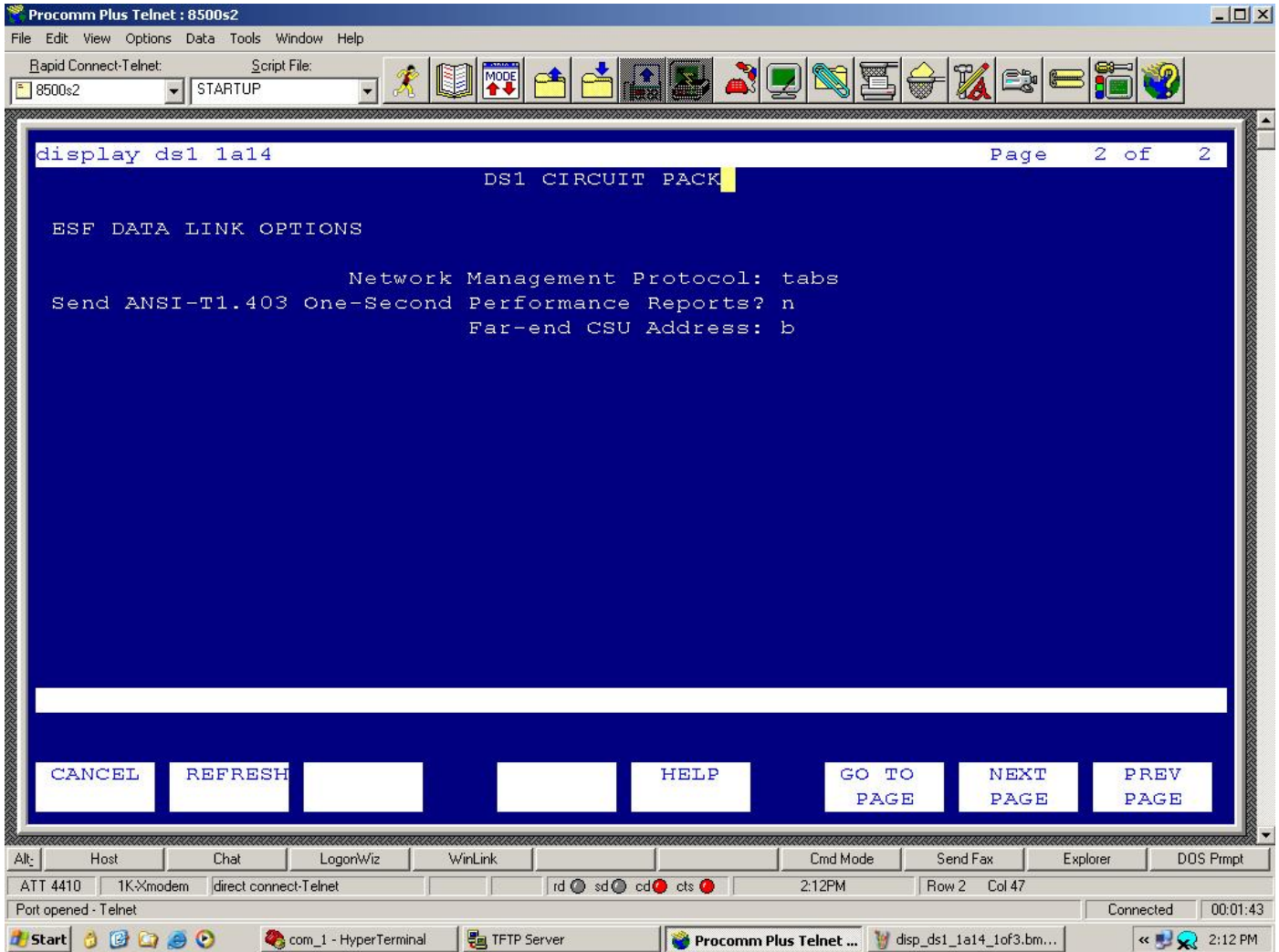




Figure 25. Trunks Status (1 of 1)

```
status trunk 6

TRUNK GROUP STATUS

Member      Port      Service State      Mtce Connected Ports
              Busy

0006/001    01A1401    in-service/idle    no
0006/002    01A1402    in-service/idle    no
0006/003    01A1403    in-service/idle    no
0006/004    01A1404    in-service/idle    no
0006/005    01A1405    in-service/idle    no
0006/006    01A1406    in-service/idle    no
0006/007    01A1407    in-service/idle    no
0006/008    01A1408    in-service/idle    no
0006/009    01A1409    in-service/idle    no
0006/010    01A1410    in-service/idle    no

Command successfully completed
Command: 
```

CANCEL [] [] [] [] HELP [] [] []

Alt: Host Chat LogonWiz WinLink Cmd Mode Send Fax Explorer DOS Prmpt
ATT 4410 1K-Xmodem direct connect-Telnet rd sd cd cts 3:25PM Row 24 Col 10
Port opened - Telnet Connected 01:14:47
Start xyz - HyperTerminal TFTP Server Procomm Plus Telnet ... untitled - Paint 3:25 PM



Cisco 1760 Configuration

1760_A# **show version**

Cisco Internetwork Operating System Software

IOS (tm) C1700 Software (C1700-IPVOICE-M), Version 12.3(13), RELEASE SOFTWARE (fc2)

Technical Support: <http://www.cisco.com/techsupport>

Copyright (c) 1986-2005 by cisco Systems, Inc.

Compiled Thu 10-Feb-05 08:03 by ssearch

Image text-base: 0x8000816C, data-base: 0x81428708

ROM: System Bootstrap, Version 12.2(4r)XL, RELEASE SOFTWARE (fc1)

ROM: C1700 Software (C1700-IPVOICE-M), Version 12.3(13), RELEASE SOFTWARE (fc2)

1760_A uptime is 6 days, 23 hours, 29 minutes

System returned to ROM by power-on

System image file is "flash:c1700-ipvoice-mz.123-13.bin"

cisco 1760 (MPC860P) processor (revision 0x200) with 49152K/16384K bytes of memory.

Processor board ID VEN0530003X (355247610), with hardware revision 0000

MPC860P processor: part number 5, mask 2

Bridging software.

X.25 software, Version 3.0.0.

Primary Rate ISDN software, Version 1.1.

1 FastEthernet/IEEE 802.3 interface(s)

24 Serial network interface(s)

2 Channelized T1/PRI port(s)

2 Voice FXS interface(s)

32K bytes of non-volatile configuration memory.

16384K bytes of processor board System flash (Read/Write)

Configuration register is 0x2101



1760_A# **show running-config**

Building configuration...

Current configuration : 2133 bytes

!

version 12.3

service timestamps debug datetime msec

service timestamps log uptime

no service password-encryption

!

hostname 1760_A

!

boot-start-marker

boot-end-marker

!

logging buffered 999999 debugging

enable password cisco

!

memory-size iomem 25

tdm clock T1 1/0 both export line

mmi polling-interval 60

no mmi auto-configure

no mmi pvc

mmi snmp-timeout 180

voice-card 0

!

voice-card 1

!

no aaa new-model



```
ip subnet-zero
ip cef
!
!
no ip domain lookup
no ftp-server write-enable
isdn switch-type primary-qsig
!
!
voice call send-alert
voice rtp send-recv
!
voice service voip
h323
!
!
voice class h323 1
!
!
controller T1 1/0
framing esf
linecode b8zs
pri-group timeslots 1-24
!
controller T1 1/1
framing esf
linecode b8zs
!
!
```



```
!  
interface FastEthernet0/0  
ip address 172.20.26.252 255.255.255.0  
no ip mroute-cache  
speed auto  
!  
interface Serial1/0:23  
no ip address  
no logging event link-status  
isdn switch-type primary-qsig  
isdn overlap-receiving  
isdn protocol-emulate network  
isdn incoming-voice voice  
isdn negotiate-bchan  
no cdp enable  
!  
ip classless  
ip route 0.0.0.0 0.0.0.0 FastEthernet0/0  
no ip http server  
!  
tftp-server flash:c1700-sv8y7-mz.bcp050303  
!  
voice-port 0/0  
!  
voice-port 0/1  
!  
voice-port 1/0:23  
!  
dial-peer cor custom
```



```
!  
!  
dial-peer voice 51000 voip  
incoming called-number .  
shutdown  
destination-pattern 4085251...  
session target ipv4:172.20.26.253  
dtmf-relay h245-signal  
codec g711alaw  
ip qos dscp cs5 media  
!  
dial-peer voice 1 pots  
incoming called-number .  
shutdown  
destination-pattern 4085252...  
direct-inward-dial  
forward-digits all  
!  
dial-peer voice 1023 pots  
destination-pattern 41..  
direct-inward-dial  
port 1/0:23  
forward-digits all  
!  
dial-peer voice 323 voip  
destination-pattern 21..  
session target ipv4:172.20.26.253  
!  
dial-peer voice 4100 pots
```



```
destination-pattern 4100
```

```
port 0/1
```

```
!
```

```
dial-peer voice 5100 pots
```

```
destination-pattern 2100
```

```
port 0/0
```

```
!
```

```
dial-peer voice 5050 pots
```

```
destination-pattern 5050
```

```
direct-inward-dial
```

```
port 1/0:23
```

```
forward-digits all
```

```
!
```

```
gateway
```

```
!
```

```
line con 0
```

```
exec-timeout 0 0
```

```
line aux 0
```

```
line vty 0 4
```

```
password cisco
```

```
login
```

```
!
```

```
end
```

```
1760_A#
```




Cisco 2611XM Configuration

26xm# show version

Cisco Internetwork Operating System Software

IOS (tm) C2600 Software (C2600-IPVOICE-M), Version 12.3(13), RELEASE SOFTWARE (fc2)

Technical Support: <http://www.cisco.com/techsupport>

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Compiled Thu 10-Feb-05 02:11 by ssearch

Image text-base: 0x80008098, data-base: 0x81833D30

ROM: System Bootstrap, Version 12.2(7r) [cmong 7r], RELEASE SOFTWARE (fc1)

ROM: C2600 Software (C2600-IPVOICE-M), Version 12.3(13), RELEASE SOFTWARE (fc2)

26xm uptime is 6 days, 4 hours, 0 minutes

System returned to ROM by power-on

System image file is "flash:c2600-ipvoice-mz.123-13.bin"

cisco 2611XM (MPC860P) processor (revision 0x100) with 92160K/6144K bytes of memory.

Processor board ID JAD07060ATN (1435121423)

M860 processor: part number 5, mask 2

Bridging software.

X.25 software, Version 3.0.0.

Primary Rate ISDN software, Version 1.1.

2 FastEthernet/IEEE 802.3 interface(s)

24 Serial network interface(s)

2 Channelized T1/PRI port(s)

32K bytes of non-volatile configuration memory.

49152K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102



26xm# **show running-config**

Building configuration...

Current configuration : 2076 bytes

!

version 12.3

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname 26xm

!

boot-start-marker

boot-end-marker

!

logging buffered 1000000 debugging

!

no network-clock-participate slot 1

no network-clock-participate wic 0

voice-card 1

!

no aaa new-model

ip subnet-zero

ip cef

!

!

no ip domain lookup

ip host r2 2065 1.1.1.1

no ftp-server write-enable



```
isdn switch-type primary-qsig
!
voice call send-alert
voice rtp send-recv
!
voice service voip
h323
!
!
voice class h323 1
!
!
controller T1 1/0
framing esf
linecode b8zs
pri-group timeslots 1-24
!
controller T1 1/1
framing sf
linecode ami
!
!
interface Loopback1
ip address 1.1.1.1 255.255.255.255
!
interface FastEthernet0/0
ip address 172.20.26.253 255.255.255.0
duplex auto
speed auto
```



```
!  
interface FastEthernet0/1  
no ip address  
shutdown  
duplex auto  
speed auto  
!  
interface Serial1/0:23  
no ip address  
no logging event link-status  
isdn switch-type primary-qsig  
isdn overlap-receiving  
isdn incoming-voice voice  
isdn negotiate-bchan  
isdn bchan-number-order ascending  
no cdp enable  
!  
ip classless  
ip route 0.0.0.0 0.0.0.0 FastEthernet0/0  
ip http server  
!  
!  
voice-port 1/0:23  
!  
!  
dial-peer cor custom  
!  
!  
dial-peer voice 52001 voip
```



```
description Send VoIP to 1760
incoming called-number .
shutdown
destination-pattern 4085252...
session target ipv4:172.20.26.252
dtmf-relay h245-signal
codec g711alaw
ip qos dscp cs5 media
!
dial-peer voice 1 pots
incoming called-number .
shutdown
destination-pattern 4085251...
direct-inward-dial
forward-digits all
!
dial-peer voice 1023 pots
destination-pattern 21..
direct-inward-dial
port 1/0:23
forward-digits all
!
dial-peer voice 323 voip
destination-pattern 41..
session target ipv4:172.20.26.252
!
dial-peer voice 5100 voip
destination-pattern 51..
session target ipv4:172.20.26.252
```




```
!  
dial-peer voice 5050 voip  
destination-pattern 5050  
session target ipv4:172.20.26.252
```

```
!  
!  
line con 0  
line aux 0  
transport input all  
line vty 0 4  
login  
!  
!  
end
```

```
26xm#
```



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