# Cisco 2600 Series Gateway-PBX Interoperability: Lucent Definity G3 with T1 PRI Signaling

This document describes the interoperability and configuration of a Cisco 2600 series voice gateway with a Lucent Definity G3 PBX using T1 PRI signaling. It includes the following sections:

- System Components
- Configuration Tasks
- Caveats

## System Components

| | |
|---|---|
| **PBX Model** | Lucent Definity G3 |
| **PBX Release** | G3V7i.01.0.343.7 |
| **Telephony Signaling** | T1 PRI |
| **Voice Gateway** | Cisco 2651 |
| **Gateway Release** | Cisco IOS™ 12.2.2T |
| **VoX Protocol** | H.323 |

## Configuration Tasks

See the following sections for configuration tasks for this feature:

- Set Up
- Lucent PBX Configuration
- Cisco 2651 Gateway Configuration

# Set Up

This section includes the following information:

- Connectivity Diagrams
- Set Up Notes

## Connectivity Diagrams

**Figure 1: Test Configuration**

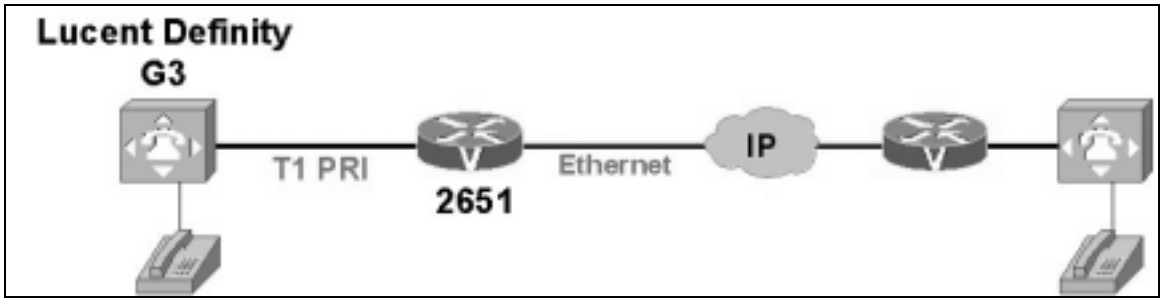



Figure 1 represents the configuration used for testing: A Lucent Definity G3 PBX connected to a Cisco 2651 voice gateway via an T1 PRI connection.

PRI switch types tested include:

- primary-5ess
  - Lucent Country/Protocol Setting: 1a
  - Lucent Country/Protocol Definition: US / AT&T TR 41449/41459
- primary-ni
  - Lucent Country/Protocol Setting: 1b
  - Lucent Country/Protocol Definition: US / Bellcore TR 1268; NIUF.302; ANSI T1.607
- primary-dms100
  - Lucent Country/Protocol Setting: 1c
  - Lucent Country/Protocol Definition: US / Nortel DMS-250BCS36/IEC01
- primary-ntt
  - Lucent Country/Protocol Setting: 3
  - Lucent Country/Protocol Definition: Japan NTT INS-NET

Support for Calling Name and Number using Codeset 0 or 7 is summarized in Table 1.

**Table 1: Calling Name and Calling Number Support**

| Lucent : Country/Protocol Setting | Lucent: Country/Protocol Definition | 3660 ISDN switch-type | Calling Name Passed | Calling Number Passed |
|---|---|---|---|---|
| 1a | US / AT&T TR 41449/41459 (also known as 5ESS Custom?) | Primary-5ess | Yes | Yes |
| 1b | US / Bellcore TR 1268; NIUF.302; ANSI T1.607 (also known as National ISDN?) | Primary-ni | Yes | Yes |
| 1c | US / Nortel DMS-250 BCS36/IEC01 | Primary-dms100 | No | Yes |
| 3 | Japan NTT INS-NET | Primary-ntt | Yes | Yes |

### Set Up Notes

- Lucent Definity G3 has no provision to receive clock on the T1 interface; it always wants to provide clock on the interface. Therefore, the Cisco 3660T1 interface must be set to "line clock" to work with it.

- Lucent Definity G3 uses the same TN464F DS1 INTFC 24/32 card for both T1 and E1 trunking. To select T1 functionality, some database entries are made in the Lucent trunk configuration screen, and there are two DIP switches on the card itself:
    - 24CH/30CH – Set to 24CH for T1, 30CH for E1
    - 120Ω/75Ω -- Set to 120Ω to use with a twisted pair E1 circuit; if set to 75Ω to use with a coaxial wire E1 circuit, must use an external adapter provided by Lucent. Not applicable for the T1 setting – leave at 120Ω.

# Lucent PBX Configuration

### Lucent PBX Version Information

- G3V7i.01.0.343.7

### Lucent PBX Sample Configuration

See the following figures for sample PBX configuration:

- Figure 2: Optional Features
- Figure 3: DS1 Circuit Pack
- Figure 4: DS1 Circuit Pack II
- Figure 5: ISDN Numbering
- Figure 6: Trunk Group
- Figure 7: Trunk Features
- Figure 8: Trunk Group II
- Figure 9: Signaling Group

☞ **Note**: The only setup screens shown are those containing features specifically needed to bring up an ISDN PRI T1 trunk.

**Figure 2: Optional Features**

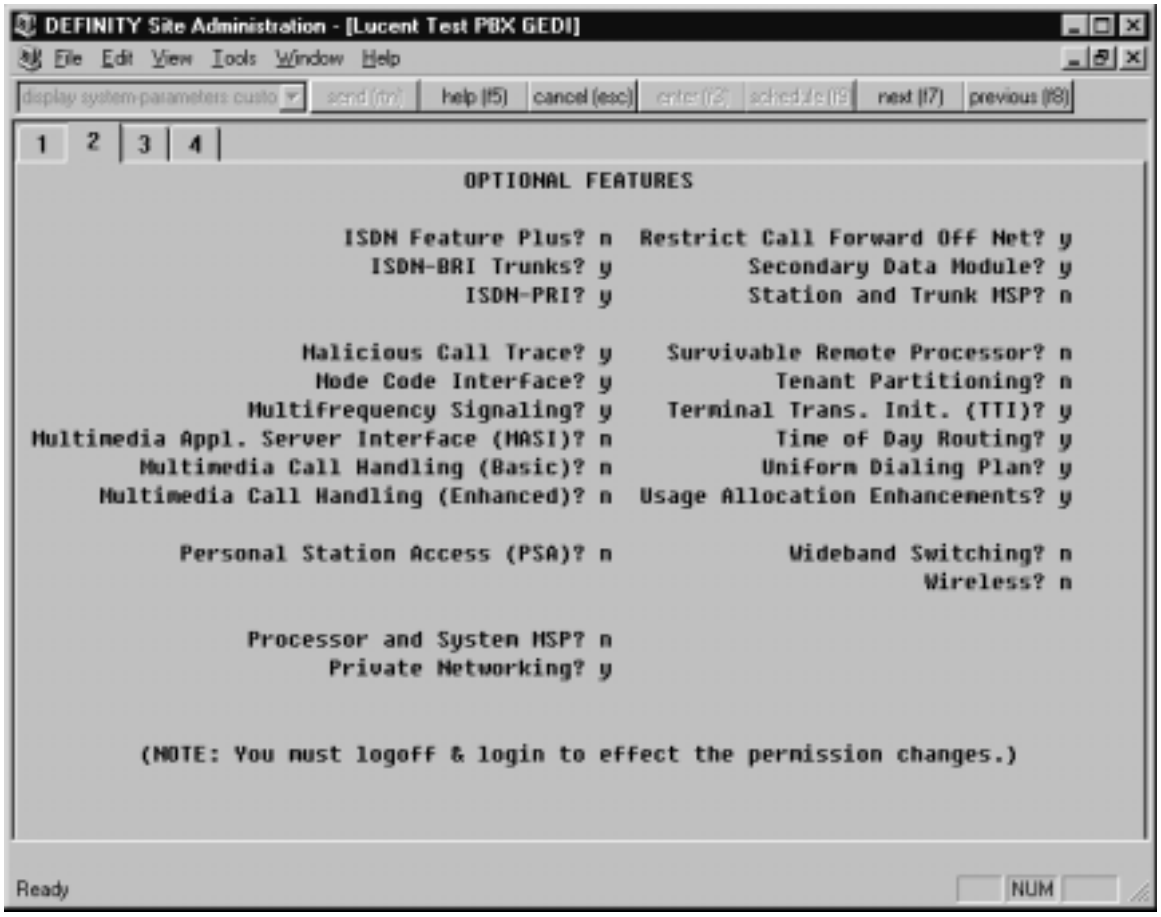


**Figure 3: DS1 Circuit Pack**

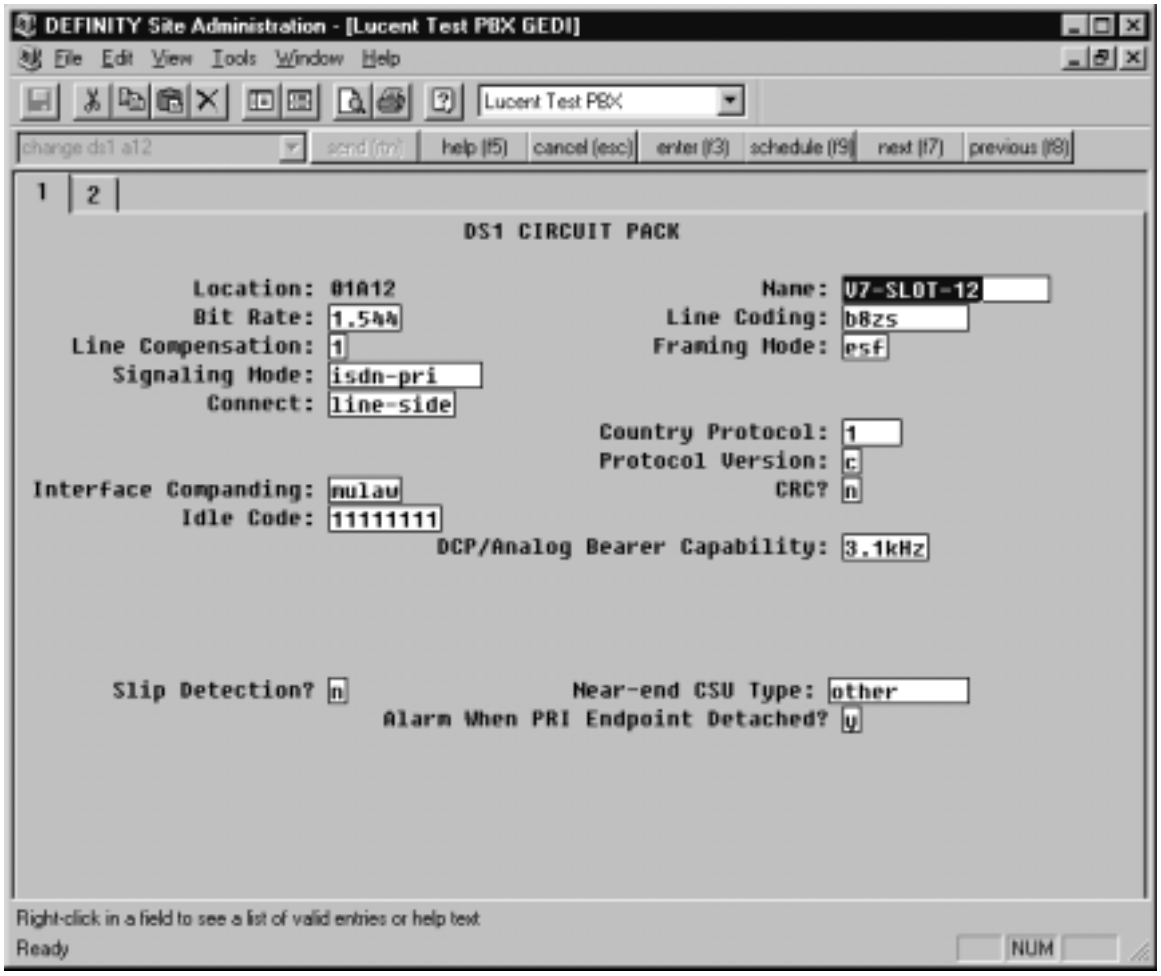


**Figure 4: DS1 Circuit Pack II**

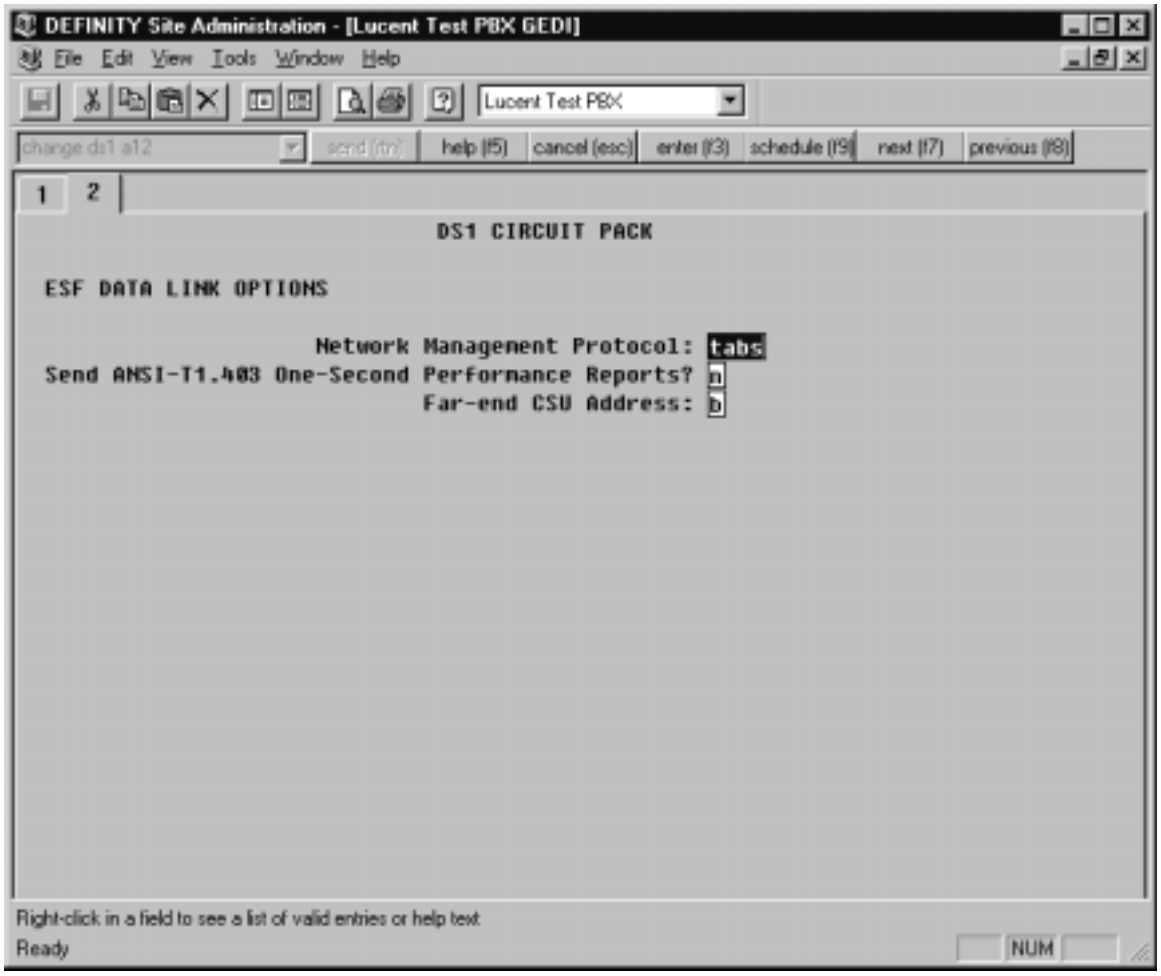


**Figure 5: ISDN Numbering**

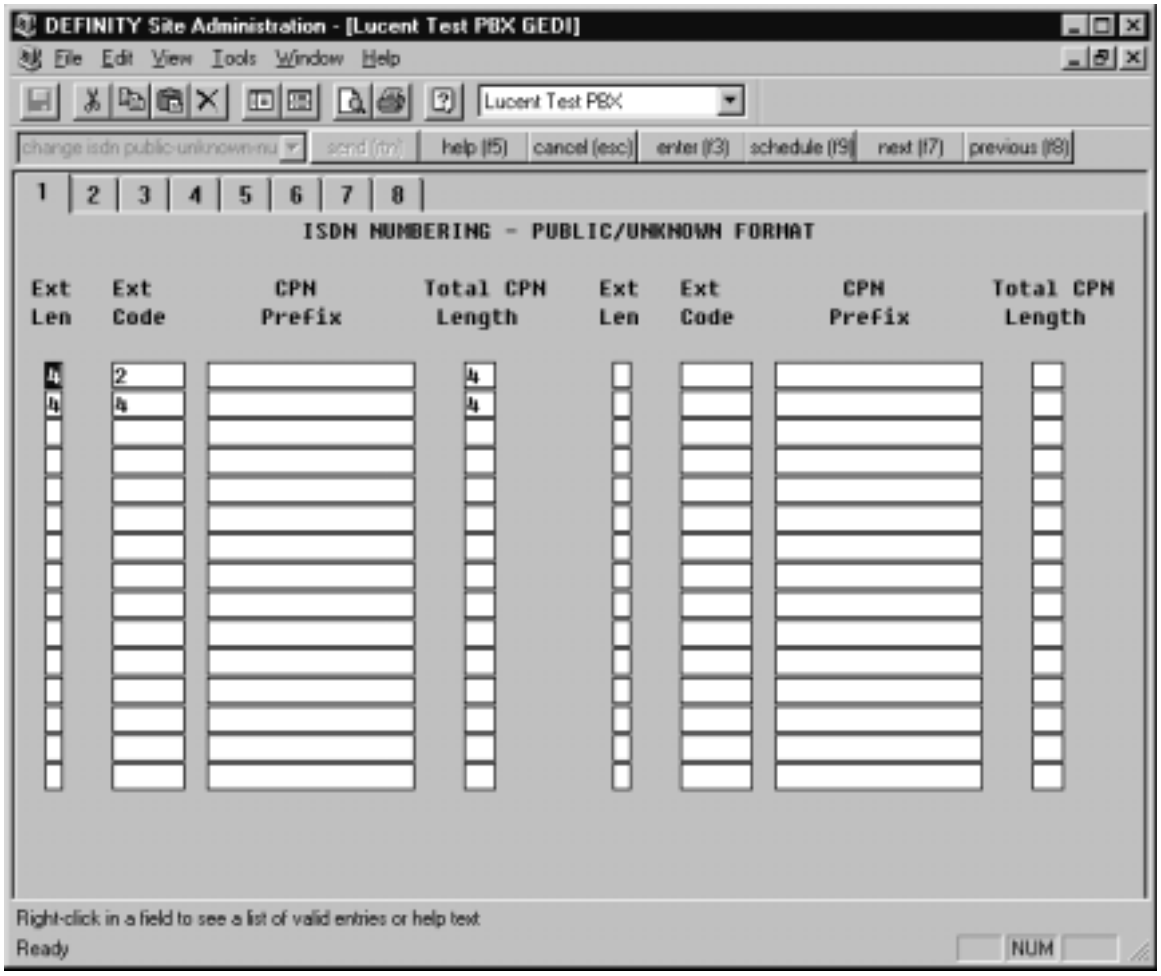


**Figure 6: Trunk Group**

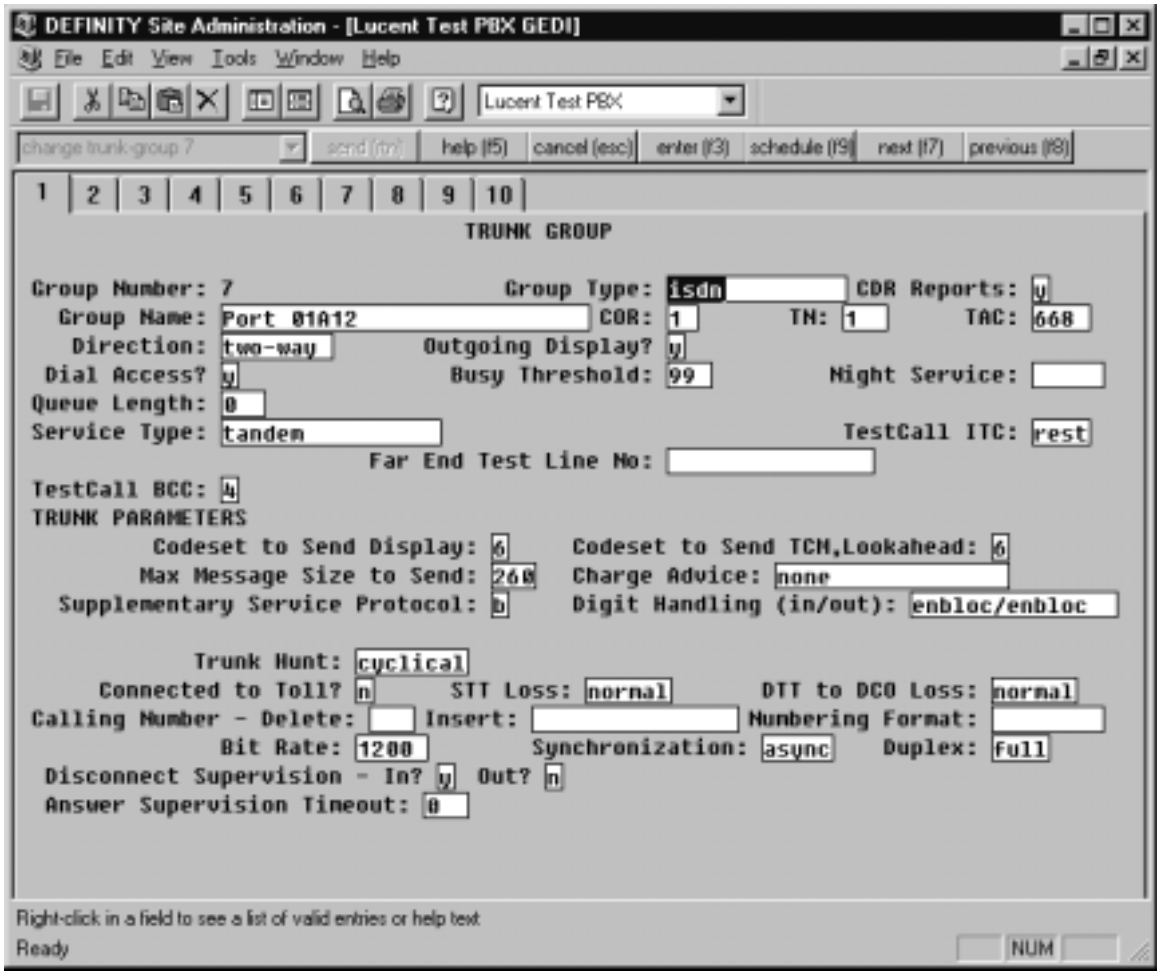


**Figure 7: Trunk Features**

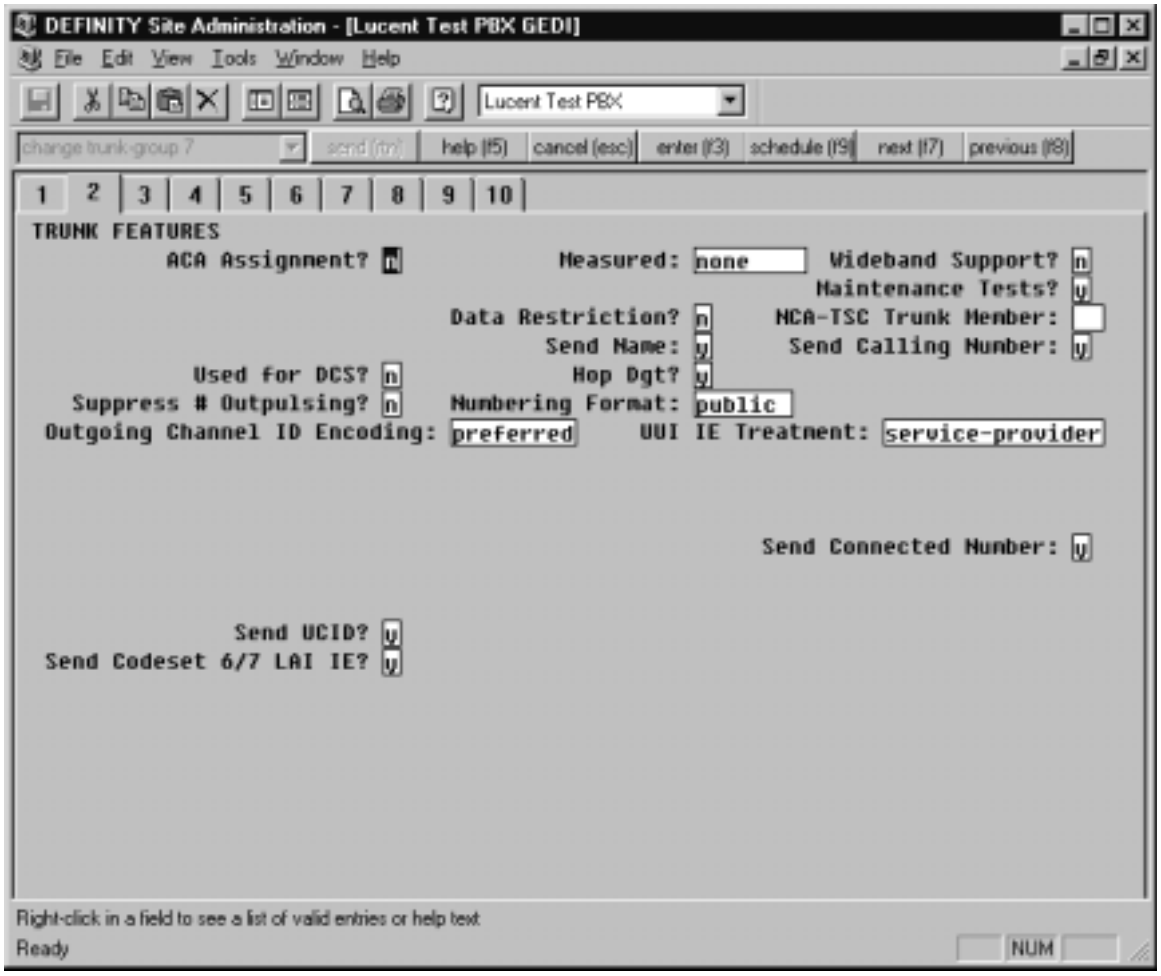


**Figure 8: Trunk Group II**

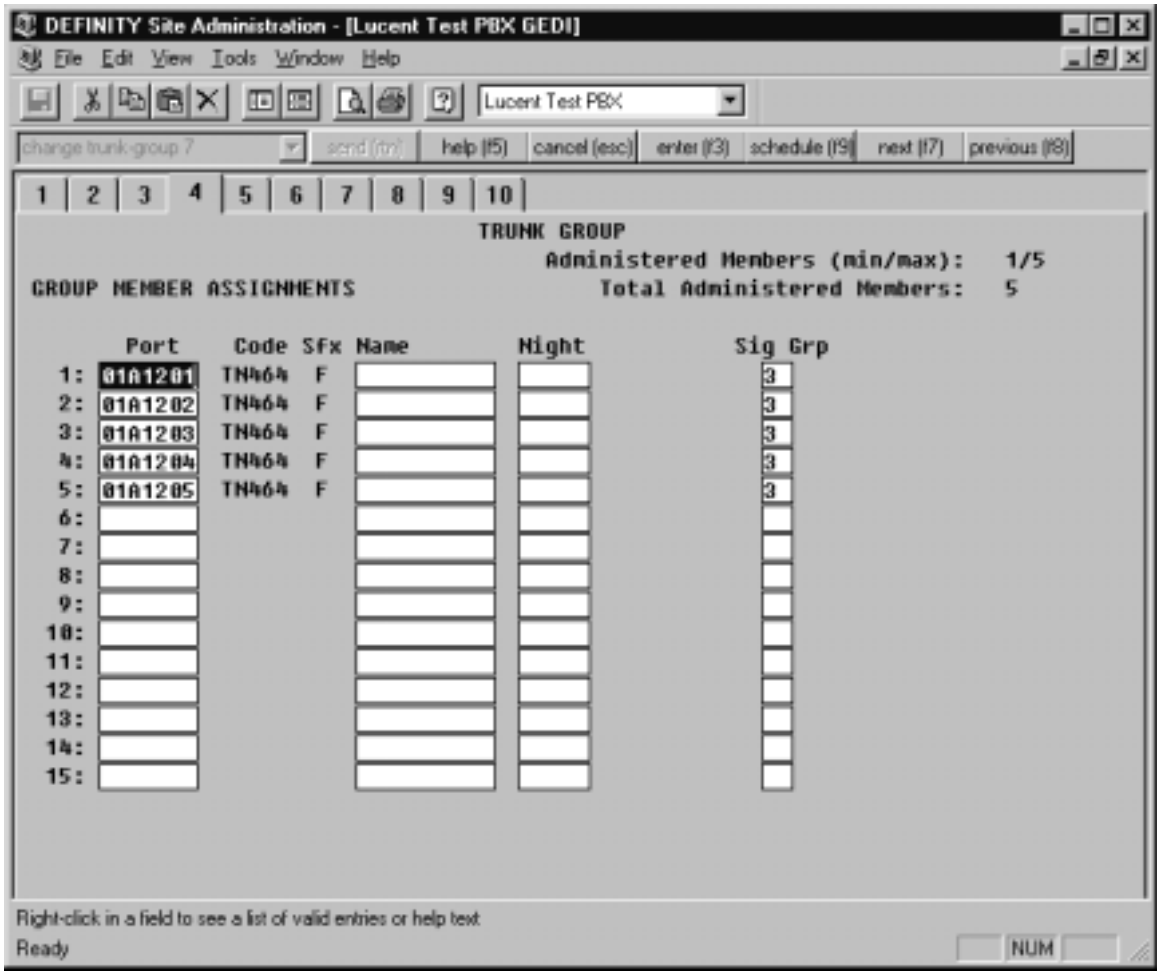
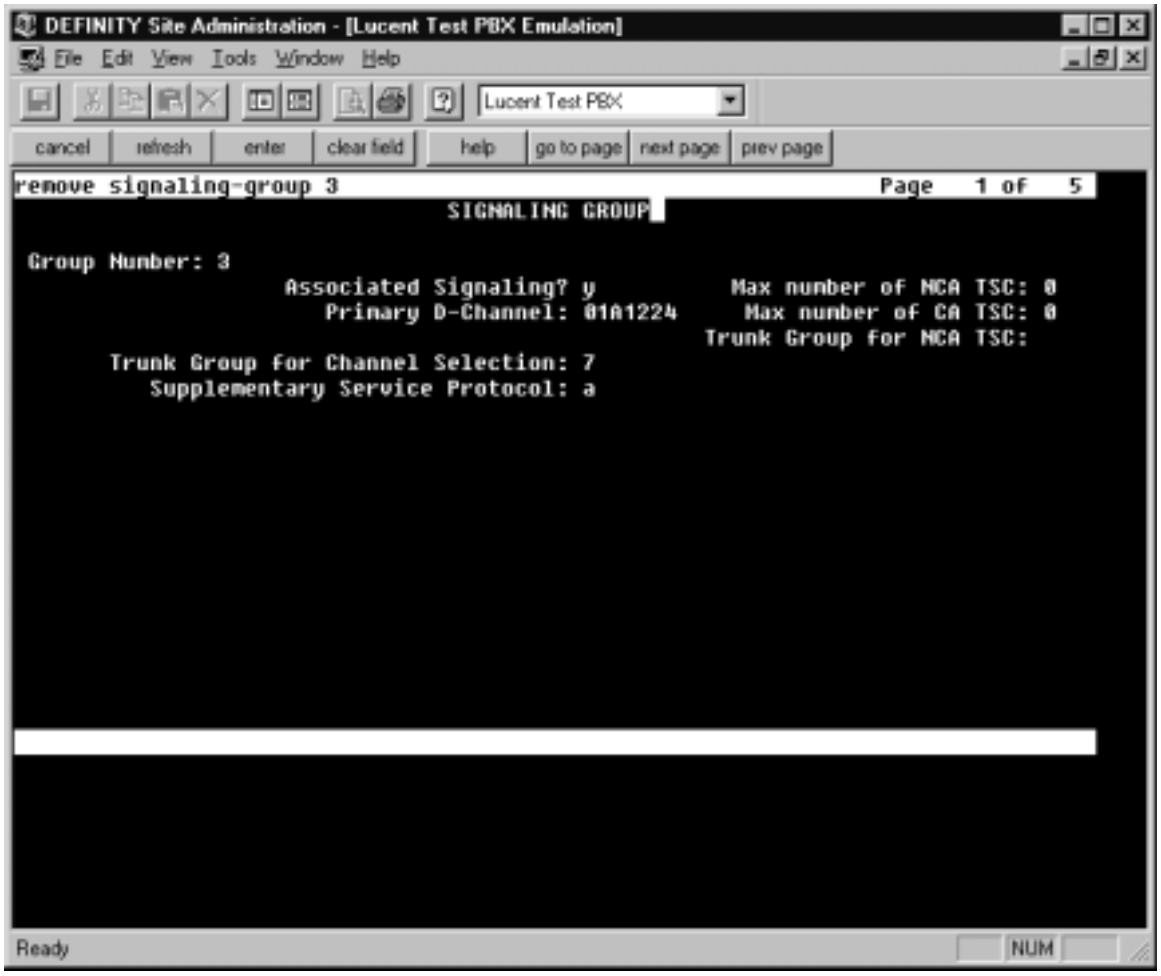


**Figure 9: Signaling Group**




# Cisco 2651 Gateway Configuration

The following is the configuration of the Cisco 2651 voice gateway connected to the Lucent Definity PBX T1 PRI interface. Network/user settings were interchanged for testing purposes, but only one configuration is shown.

### Cisco 2651 Voice Gateway Sample Configuration

```
Cisco_2651# show running-config

Building configuration...

Current configuration : 1322 bytes
!
version 12.2
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
```

```
hostname Cisco_2651
!
logging rate-limit console 10 except errors
!
!
!
voice-card 1
!
ip subnet-zero
!
!
!
no ip dhcp-client network-discovery
isdn switch-type primary-qsig
isdn voice-call-failure 0
call rsvp-sync
!
!
!
!
!
!
!
controller T1 1/0
 framing esf
 linecode b8zs
 cablelength short 133
 pri-group timeslots 1-24
!
controller T1 1/1
 framing sf
 linecode ami
!
!
!
interface Ethernet0/0
 ip address 100.100.100.2 255.255.255.0
 no ip mroute-cache
 full-duplex
!
interface Ethernet0/1
 ip address 10.1.1.1 255.255.255.0
 no ip mroute-cache
 half-duplex
 no cdp enable
!
interface Serial1/0:23
 no ip address
 no logging event link-status
 isdn switch-type primary-ni
 isdn protocol-emulate network
 isdn incoming-voice voice
 no cdp enable
!
ip default-gateway 171.71.8.6
ip classless
no ip http server
!
!
!
!
snmp-server manager
!
voice-port 1/0:23
!
dial-peer cor custom
!
```

```
!
!
dial-peer voice 15 pots
 destination-pattern 9000
!
dial-peer voice 1 pots
 destination-pattern 777222....
 direct-inward-dial
 port 1/0:23
!
dial-peer voice 2 voip
 destination-pattern 777444....
 session target ipv4:100.100.100.1
!
!
line con 0
line aux 0
line vty 0 4
 login
!
!
end
```

# Caveats

- The results represented in this Application Note include a fix for CSCdt31743.
- When configured for isdn switch-type primary-5ess, the Cisco 2651 does not pass the optional IE Calling Name, although it does pass the Calling Number.
- Overlap-signaling is not supported for the configurations detailed in this Application Note.
- Overlap-signaling is only supported for NET3, NET5 and QSIG protocols on the IOS™ voice gateways.