



Cisco 3600 Series Gateway-PBX Interoperability: Lucent Definity G3 with Analog E&M Signaling

This document describes the interoperability and configuration of a Cisco 3600 series voice gateway with a Lucent Definity G3 PBX using Analog E&M signaling. It includes the following sections:

- System Components
- Configuration Tasks
- Caveats

System Components

PBX Model	Lucent Definity G3
PBX Release	G3V4i.01.0.038.5
Telephony Signaling	Analog E&M
Voice Gateway	Cisco 3640
Gateway Release	Cisco IOS™ 12.0(4)T
VoX Protocol	H.323

Configuration Tasks

See the following sections for configuration tasks for this feature:

- Set Up
- Lucent PBX Configuration
- Cisco 3640 Gateway Configuration

Set Up

This section includes the following information:

- Connectivity Diagrams
- Set Up Notes

Connectivity Diagrams

Figure 1: Test Configuration

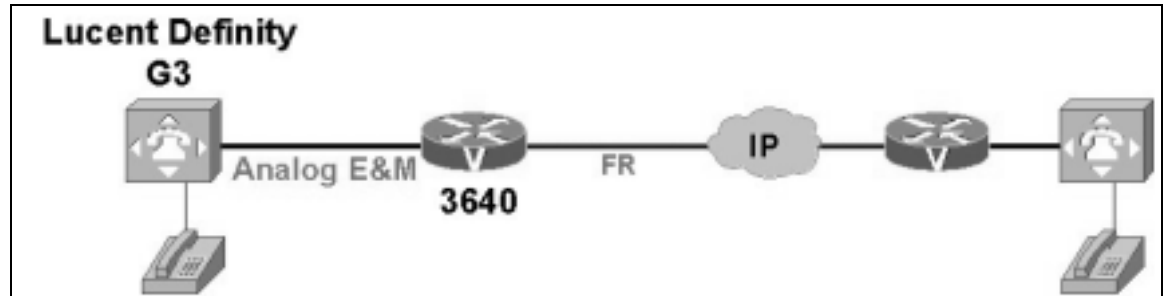


Figure 1 represents the configuration used for testing: a Lucent Definity G3 PBX connected to a Cisco 3640 voice gateway via an Analog E&M 4-wire connection.

Set Up Notes

- E&M type I, operation 4-wire, and signaling type wink-start were tested.
- The Cisco 3640 E&M analog interface does not use the same pinouts as the Lucent Definity G3I for Type 1 E&M. Use Table 1 as a guide when constructing an E&M analog cable to connect the 3640 E&M VIC to a Lucent Definity TN 760D TIE Trunk Card.

Table 1: Pinout Guidelines

Cisco 3640 E&M Pinouts		Lucent Definity E&M Pinouts	
1	SB (signal Battery)		
2	M-lead	6	M-lead
3	Ring (in)	4	Tip 1 (out)
4	Ring1 (out)	1	Tip (in)
5	Tip1 (out)	2	Ring (in)
6	Tip (in)	5	Ring 1 (out)
7	E-lead	3	E-lead
8	SG (signal ground)		

Lucent PBX Configuration

PBX Version Information

- G3V4i.01.0.038.5

Sample PBX Configuration

Trunk group 4 is associated with the E&M Analog Tie Trunk to Cisco 3640 gateway.

```

display trunk-group 4                                     Page 1 of 10
                                     TRUNK GROUP
Group Number: 4                Group Type: tie                CDR Reports: y
Group Name: CISCO 3600        COR: 1                TN: 1                TAC: 704
Direction: two-way          Outgoing Display? n    Trunk Signaling Type:
Dial Access? y              Busy Threshold: 99    Night Service:
Queue Length: 0              Incoming Destination:
Comm Type: voice              Auth Code? n

TRUNK PARAMETERS
Trunk Type (in/out): immed/immed    Incoming Rotary Timeout(sec): 5
Outgoing Dial Type: tone            Incoming Dial Type: tone
Digit Treatment:                    Disconnect Timing(msec): 500
                                      Digits:
Connected to Toll? n              STT Loss: normal        Sig Bit Inversion: none
Incoming Dial Tone? y            DTT to DCO Loss: normal

Disconnect Supervision - In? y  Out? n
Answer Supervision Timeout: 0    Receive Answer Supervision? y

```

```

display trunk-group 4                                     Page 2 of 10
TRUNK FEATURES
ACA Assignment? n                Measured: none
Internal Alert? n                Maintenance Tests? y
Data Restriction? n

Used for DCS? n
Suppress # Outpulsing? n
Seize When Maintenance Busy: neither-end

```

```

display trunk-group 4                                     Page 3 of 10
                                                    TRUNK GROUP
ADMINISTRABLE TIMERS
  Incoming Disconnect(msec): 500                      Outgoing Disconnect(msec): 500
  Incoming Dial Guard(msec): 70                       Outgoing Dial Guard(msec): 1600
  Incoming Glare Guard(msec): 1500                    Outgoing Glare Guard(msec): 1500

                                                    Outgoing Seizure Response(sec): 5
Programmed Dial Pause(msec): 1500                     Disconnect Signal Error(sec): 240
                                                    Incoming Incomplete Dial Alarm(sec): 255

END TO END SIGNALING
  Tone(msec): 350          Pause(msec): 150

OUTPULSING INFORMATION
  PPS: 10      Make(msec): 40      Break(msec): 60

```

```

display trunk-group 4                                     Page 4 of 10
                                                    TRUNK GROUP
Administered Members (min/max): 1/1
GROUP MEMBER ASSIGNMENTS                               Total Administered Members: 1

   Port   Code Sfx Name           Night           Mode           Type      Ans Delay
1: 01B0401 TN760 C E&M
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:
12:
13:
14:
15:

```

Cisco 3640 Gateway Configuration

The following is the configuration of the Cisco 3640 gateway connected to the Lucent Definity G3 Analog E&M 4-wire interface.

Cisco 3640 Voice Gateway Version Information

```
Cisco_3640# show version

Cisco Internetwork Operating System Software
IOS (tm) 3600 Software (C3640-JS-M), Version 12.0(3.0.3)T,  DEVELOPMENT TEST SOF
TWARE
Copyright (c) 1986-1999 by cisco Systems, Inc.
Compiled Tue 09-Feb-99 14:14 by kpma
Image text-base: 0x600088E0, data-base: 0x60D30000

ROM: System Bootstrap, Version 11.1(7)AX [kuong (7)AX], EARLY DEPLOYMENT RELEASE
SOFTWARE (fc2)

Cisco_3640 uptime is 4 hours, 39 minutes
System restarted by power-on
System image file is "flash:c3640-js-mz.120-3.0.3.T"

cisco 3640 (R4700) processor (revision 0x00) with 36864K/4096K bytes of memory.
Processor board ID 05634407
R4700 CPU at 100Mhz, Implementation 33, Rev 1.0
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
Primary Rate ISDN software, Version 1.1.
Basic Rate ISDN software, Version 1.1.
4 Ethernet/IEEE 802.3 interface(s)
1 Serial network interface(s)
1 ISDN Basic Rate interface(s)
1 Channelized T1/PRI port(s)
2 Voice FXO interface(s)
2 Voice FXS interface(s)
2 Voice E & M interface(s)
2 Voice TE BRI interface(s)
DRAM configuration is 64 bits wide with parity disabled.
125K bytes of non-volatile configuration memory.
8192K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102
```

Cisco 3640 Voice Gateway Sample Configuration

```
Cisco_3640# show configuration

Using 2304 out of 129016 bytes
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Cisco_3640
!
enable secret 5 $1$q8p8$9WpmKtpFAEi82g10zvQJf0
!
ip subnet-zero
!
!
!
controller T1 3/0
 framing esf
```

```
linecode b8zs
channel-group 0 timeslots 1-24 speed 64
!
!
voice-port 0/0/0
description E&M to PBX
operation 4-wire
signal immediate
!
voice-port 0/0/1
operation 4-wire
!
voice-port 0/1/0
description FXO PORT TO PBX
!
voice-port 0/1/1
!
voice-port 1/0/0
description FXS 5000
!
voice-port 1/0/1
description FXS X5002
!
voice-port 1/1/0
!
dial-peer voice 1 pots
destination-pattern 5000
port 1/0/0
!
dial-peer voice 2 voip
destination-pattern 3002
req-qos controlled-load
codec g711ulaw
session target ipv4:10.0.0.2
!
dial-peer voice 3 pots
destination-pattern 3001
port 0/0/0
!
dial-peer voice 4 voip
destination-pattern 9....
req-qos controlled-load
codec g711ulaw
session target ipv4:10.0.0.2
!
dial-peer voice 5 pots
destination-pattern 8....
port 0/1/0
!
!
interface BRI1/0
no ip address
no ip directed-broadcast
!
interface Ethernet2/0
ip address 20.0.0.1 255.0.0.0
no ip directed-broadcast
no cdp enable
!
interface Ethernet2/1
no ip address
no ip directed-broadcast
shutdown
no cdp enable
!
interface Ethernet2/2
no ip address
no ip directed-broadcast
shutdown
no cdp enable
!
interface Ethernet2/3
```

```
no ip address
no ip directed-broadcast
shutdown
no cdp enable
!
interface Serial3/0:0
mtu 300
no ip address
no ip directed-broadcast
ip rsvp bandwidth 1000 400
encapsulation frame-relay IETF
no ip route-cache
no fair-queue
frame-relay lmi-type ansi
!
interface Serial3/0:0.1 point-to-point
mtu 300
ip address 10.0.0.1 255.0.0.0
no ip directed-broadcast
no ip route-cache
no cdp enable
frame-relay interface-dlci 100
!
interface Serial3/0:0.2 point-to-point
mtu 300
ip address 30.0.0.1 255.0.0.0
no ip directed-broadcast
no ip route-cache
no cdp enable
frame-relay interface-dlci 200
!
router rip
network 10.0.0.0
network 20.0.0.0
network 135.16.0.0
!
ip classless
ip route 135.16.0.0 255.255.0.0 30.0.0.2
no ip http server
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
no cdp run
!
!
line con 0
transport input none
line aux 0
line vty 0 4
password worldwide
login
!
end
```

Caveats

There are no caveats.