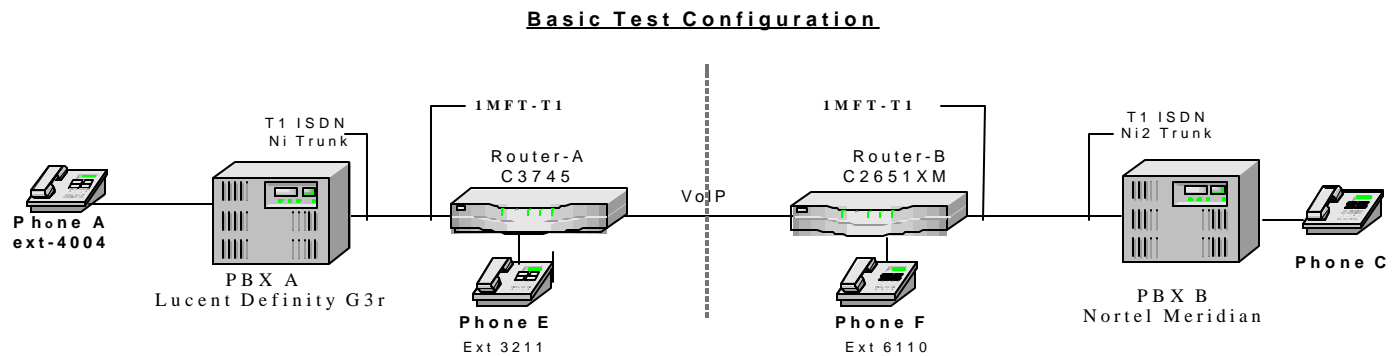


Cisco 3745 Gateway - PBX Interoperability: Avaya Definity G3 PBX using Q.931 PRI User Side Interfaces to an H.323 Gateway

Introduction

- This Application Note describes the interoperability of a Cisco 3745 gateway and an Avaya Definity G3 PBX using Q.931 PRI user-side interfaces.
- The network topology diagram shows the end-to-end interoperability when configured for back-to-back VoIP operation.

Network Topology



System Components

Hardware Requirements

- Cisco 3745 modular access router with a 1MFT-T1 interface card
- Avaya Definity G3r PBX

Software Requirements

- Cisco IOS Software Release 12.2(15)ZJ
- Avaya Definity G3r - G3V7i.01.0.343.7



Configuration

Configuring the Avaya Definity G3r

Configure the PBX in the following sequence:

- CO Trunk
- Trunk Group
- Signaling Group
- Dial Plan Record
- Optional Features

Configuring the CO Trunk

The screenshot shows the Avaya Site Administration interface for configuring a DS1 Circuit Pack. The window title is "Avaya Site Administration - [lucent_V7 GEDI]". The menu bar includes File, Edit, View, System, Action, Tools, Window, and Help. The toolbar contains various icons for file operations and navigation. The main area displays the configuration for a DS1 Circuit Pack with the following fields:

Field	Value
Location	01A12
Bit Rate	1.544
Line Compensation	1
Signaling Mode	isdn-pri
Connect	line-side
Name	T1 to U6
Line Coding	b8zs
Framing Mode	esf
Country Protocol	1
Protocol Version	b
CRC?	n
Interface Companding	mulaw
Idle Code	11111111
DCP/Analog Bearer Capability	3.1kHz
Slip Detection?	<input type="checkbox"/> n
Near-end CSU Type	other
Alarm When PRI Endpoint Detached?	<input checked="" type="checkbox"/> y

Right-click in a field to see a list of valid entries or help text
Ready



Configuring the CO Trunk (2 of 2)

Avaya Site Administration - [lucent_V7 GEDI]

File Edit View System Action Tools Window Help

lucent_V7

change ds1 a12 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8)

1 2

DS1 CIRCUIT PACK

ESF DATA LINK OPTIONS

Network Management Protocol: **tabs**

Send ANSI-T1.403 One-Second Performance Reports? **n**

Far-end CSU Address: **b**

Right-click in a field to see a list of valid entries or help text

Ready



Configuring the Trunk Group (1 of 3)

Avaya Site Administration - [lucent_V7 GED1]

File Edit View System Action Tools Window Help

lucent_V7

change trunk-group 12 send (return) help (F5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8)

1 2 3 4 5 6 7 8 9 10

TRUNK GROUP

Group Number: 12 Group Type: isdn CDR Reports: y
Group Name: U7 to PSTN on U6 COR: 1 TN: 1 TAC: 612
Direction: two-way Outgoing Display? y
Dial Access? y Busy Threshold: 99 Night Service:
Queue Length: 0
Service Type: tandem TestCall ITC: unre
Far End Test Line No:
TestCall BCC: 4

TRUNK PARAMETERS

Codeset to Send Display: 0 Codeset to Send TCM,Lookahead: 6
Max Message Size to Send: 260 Charge Advice: none
Supplementary Service Protocol: a Digit Handling (in/out): enbloc/enbloc

Trunk Hunt: ascend
Connected to Toll? n STT Loss: normal DTT to DCO Loss: normal
Calling Number - Delete: Insert: Numbering Format:
Bit Rate: 1200 Synchronization: async Duplex: full
Disconnect Supervision - In? y Out? n
Answer Supervision Timeout: 0

Right-click in a field to see a list of valid entries or help text

Ready



Configuring the Trunk Group (2 of 3)

Avaya Site Administration - [lucent_V7 GEDI]

File Edit View System Action Tools Window Help

lucent_V7

change trunk-group 12 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8)

1 2 3 4 5 6 7 8 9 10

TRUNK FEATURES

ACA Assignment? Measured: none Wideband Support?
Maintenance Tests?
Data Restriction? NCA-TSC Trunk Member:
Send Name: Send Calling Number:
Used for DCS? Hop Dgt?
Suppress # Outpulsing? Numbering Format: public
Outgoing Channel ID Encoding: preferred UUI IE Treatment: service-provider

Send Connected Number:

Send UCID?
Send Codeset 6/7 LAI IE?

Right-click in a field to see a list of valid entries or help text

Ready



Configuring the Trunk Group (3 of 3)

Avaya Site Administration - [lucent_V7 GEDI]

File Edit View System Action Tools Window Help

lucent_V7

change trunk-group 12 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8)

1 2 3 4 5 6 7 8 9 10

TRUNK GROUP

Administered Members (min/max): 1/5
Total Administered Members: 5

GROUP MEMBER ASSIGNMENTS

Port	Code	Sfx	Name	Night	Sig Grp
1:	01A1201	TN464	F		12
2:	01A1202	TN464	F		12
3:	01A1203	TN464	F		12
4:	01A1204	TN464	F		12
5:	01A1205	TN464	F		12
6:					
7:					
8:					
9:					
10:					
11:					
12:					
13:					
14:					
15:					

Right-click in a field to see a list of valid entries or help text

Ready



Configuring the Signaling Group

Avaya Site Administration - [lucent_V7 GEDI]

File Edit View System Action Tools Window Help

lucent_V7

change signaling-group 12 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8)

1 | 2 | 3 | 4 | 5

SIGNALING GROUP

Group Number: 12

Associated Signaling? Max number of NCA TSC:

Primary D-Channel: Max number of CA TSC:

Trunk Group for Channel Selection: Trunk Group for NCA TSC:

Supplementary Service Protocol:

Right-click in a field to see a list of valid entries or help text

Ready



Configuring the Dial Plan Record (1 of 2)

The screenshot shows the Avaya Site Administration interface for a Lucent_V7 GEDI system. The window title is "Avaya Site Administration - [lucent_V7 GEDI]". The menu bar includes File, Edit, View, System, Action, Tools, Window, and Help. The toolbar contains various icons for file operations and navigation. The main display area shows the "DIAL PLAN RECORD" configuration for Local Node Number 1. The configuration includes a 4-digit Uniform Dialing Plan (UDP) with a search order of "udp-table-first". A "FIRST DIGIT TABLE" is displayed with columns for "First Digit" (1-6) and "Length". The table entries are: 1: extension, 2: extension, 3: extension, 4: extension, 5: extension, 6: dac, 7: pextension, 8: fac, 9: fac, 0: attd, *: fac, #: . The status bar at the bottom left shows "Ready".

```
DIAL PLAN RECORD

Local Node Number: 1
ETA Node Number:
ETA Routing Pattern:

Uniform Dialing Plan: 4-digit
UDP Extension Search Order: udp-table-first
FIRST DIGIT TABLE
First Digit - 1 - - 2 - - 3 - - 4 - - 5 - - 6 -
1: extension
2: extension
3: extension
4: extension
5: extension
6: dac
7: pextension
8: fac
9: fac
0: attd
*: fac
#: .
```




Configuring the Dial Plan Record (2 of 2)

Avaya Site Administration - [lucent_V7 GEDI]

File Edit View System Action Tools Window Help

lucent_V7

display route-pattern 12 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8)

Pattern Number: 12

Grp. No.	FRL	NPA	Pfx Mrk	Hop Lmt	Toll List	No. Digits	Del	Inserted Digits	IXC
1: 12	0	408				3			user
2:									user
3:									user
4:									user
5:									user
6:									user

	BCC VALUE					TSC	CA-TSC	ITC	BCIE	Service/Feature	Numbering Format	LAR
	0	1	2	3	4	W	Request					
1:	y	y	y	y	y	n	y	rest			nat1-pub	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

Ready



Configuring Optional Features (1 of 2)

Avaya Site Administration - [lucent_V7 GEDI]

File Edit View System Action Tools Window Help

lucent_V7

display route-pattern 12 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8)

Pattern Number: 12

Grp. No.	FRL	NPA	Pfx Mrk	Hop Lmt	Toll List	No. Digits	Del	Inserted Digits	IXC
1: 12	0	408				3			user
2:									user
3:									user
4:									user
5:									user
6:									user

	BCC VALUE					TSC	CA-TSC	ITC	BCIE	Service/Feature	Numbering Format	LAR
	0	1	2	3	4	W	Request					
1:	y	y	y	y	y	n	y	rest			nat1-pub	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

Ready



Configuring Optional Features (2 of 2)

Avaya Site Administration - [lucent_V7 GEDI]

File Edit View System Action Tools Window Help

lucent_V7

display system-parameters custo send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8)

1 2 3 4

OPTIONAL FEATURES

ISDN Feature Plus? n	Restrict Call Forward Off Net? y
ISDN-BRI Trunks? y	Secondary Data Module? y
ISDN-PRI? y	Station and Trunk MSP? n
Malicious Call Trace? y	Survivable Remote Processor? n
Mode Code Interface? y	Tenant Partitioning? n
Multifrequency Signaling? y	Terminal Trans. Init. (TTI)? y
Multimedia Appl. Server Interface (MASI)? n	Time of Day Routing? y
Multimedia Call Handling (Basic)? n	Uniform Dialing Plan? y
Multimedia Call Handling (Enhanced)? n	Usage Allocation Enhancements? y
Personal Station Access (PSA)? n	Wideband Switching? n
	Wireless? n
Processor and System MSP? n	
Private Networking? y	

(NOTE: You must logoff & login to effect the permission changes.)

Ready

Configuring the Cisco 3745

```
C3745XM#show running-config
Building configuration...
```

```
Current configuration : 1986 bytes
!
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname c3745
!
boot system flash:c3745-jsx-mz-v122_15_zj_throttle.0.5.0
logging queue-limit 100
logging buffered 1000000 debugging
!
ip subnet-zero
!
no ip domain lookup
!
mpls ldp logging neighbor-changes
```



```
isdn switch-type primary-ni
!
voice-card 2
  no dspfarm
!
voice-card 3
  no dspfarm
!
voice-card 4
  no dspfarm
!
!
no voice hpi capture buffer
no voice hpi capture destination
!
mta receive maximum-recipients 0
!
controller T1 2/0
  framing esf
  linecode b8zs
  pri-group timeslots 1-5,24
!
controller T1 2/1
  framing esf
  linecode b8zs
  pri-group timeslots 1-5,24
!
interface FastEthernet0/0
  ip address 172.16.1.1 255.255.255.0
  duplex auto
  speed auto
!
interface FastEthernet0/1
  ip address 172.20.8.20 255.255.255.0
  duplex auto
  speed auto
!
interface Serial2/0:23
  no ip address
  no logging event link-status
  isdn switch-type primary-ni
  isdn incoming-voice voice
  isdn bchan-number-order ascending
  no cdp enable
!
interface Serial2/1:23
  no ip address
  no logging event link-status
  isdn switch-type primary-ni
  isdn incoming-voice voice
  isdn bchan-number-order ascending
  no cdp enable
!
ip default-gateway 10.1.1.2
ip http server
ip classless
ip route 0.0.0.0 0.0.0.0 FastEthernet0/1
!
call rsvp-sync
!
voice-port 2/0:23
!
```



```
voice-port 2/1/0
!
voice-port 2/1/1
!
voice-port 2/1:23
!
voice-port 4/1/0
  no battery-reversal
!
voice-port 4/1/1
!
mgcp profile default
!
dial-peer cor custom
!
dial-peer voice 1 pots
  destination-pattern 20..
  direct-inward-dial
  port 2/1:23
  prefix 20
!
dial-peer voice 3 voip
  destination-pattern 26..
  session target ipv4:172.16.1.2
!
dial-peer voice 4 voip
  destination-pattern 4000
  session target ipv4:172.16.1.2
!
dial-peer voice 2 pots
  destination-pattern 3000
  port 2/1/1
!
line con 0
line aux 0
line vty 0 4
  login
!
end
```

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