

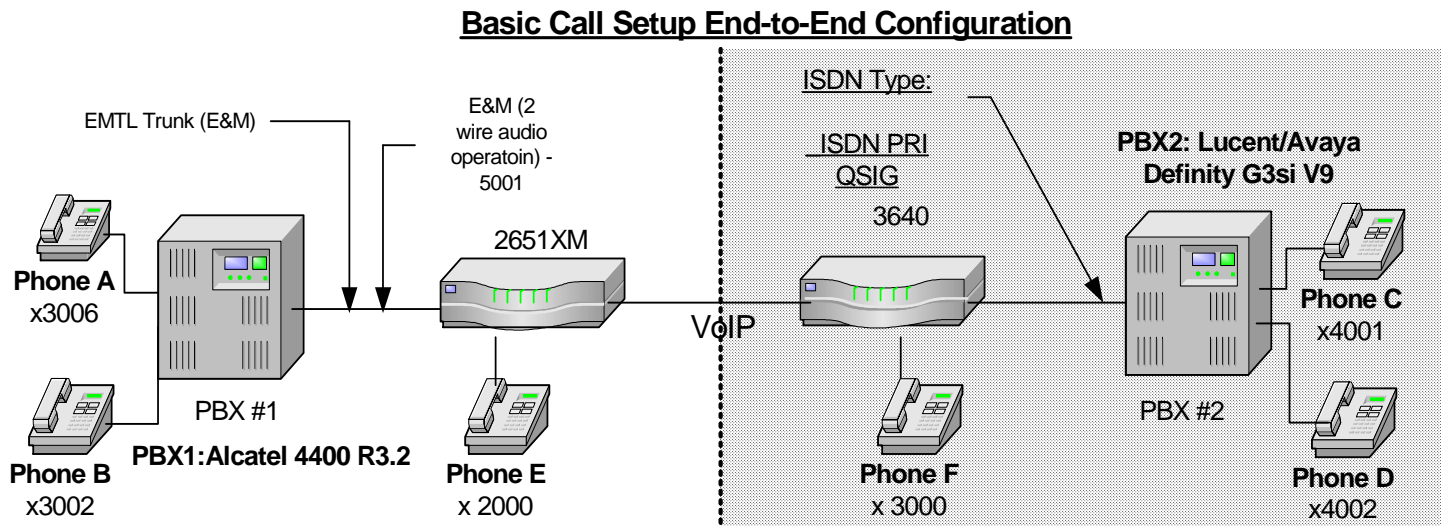
Cisco 3640 Router - PBX Interoperability: Lucent/Avaya Definity G3si V9 PBX Interoperability with an E1 ISDN PRI Interface

Introduction

- This note describes interoperability of the Cisco 3640 router connected to a Lucent/Avaya Definity G3si V9 PBX via E1 ISDN PRI interface.
- The Network Topology diagram shows the test set-up for end-to-end interoperability between Cisco 2651XM and Cisco 3640 connected to the PBX through an analog E&M signaling (2 wire audio operation with immediate start) voice port (VIC 2E/M) on one router (Cisco 2651XM) and E1 ISDN PRI interface on another router (Cisco 3640) with Alcatel 4400 R3.2 and Lucent/Avaya Definity G3si V9 PBXs connected at each end.
- Connectivity is achieved by using the ETSI standard PRI protocol. The Lucent/Avaya Definity G3si can be configured as either network or user side.

Network Topology

Figure 1. Network Topology





Limitations

To place a VoIP call from analog phone on the Cisco 3640 router through the Cisco 2651XM router's E&M signaling (2 wire audio operation with immediate start) voice port to the Alcatel 4400 R3.2 PBX's EMTL Trunk and ring the Alcatel digital phone , "dtmf relay h245-alphanumeric" has to be enabled on the Cisco 3640 router.

System Components

Hardware Requirements

- Cisco 2651XM Gateway with VIC 2E/M, 800-02497-02B0
- Cisco 3640 Gateway with E1 interface cards
- Lucent/Avaya Definity G3si V9 PBX, TN464F, DS1 INTFC 24/32

Software Requirements

- Cisco IOS Software Release 12.2(11)T
-

Configuration

Configuration Tasks

- Configure DS1 Circuit Pack
- Configuring Signaling Group
- Configure Trunk Group
- Configure Trunk Features
- Configure Trunk Group
- Configure Dial Plan Record



Configuring the Lucent/Avaya Definity G3si V9 PBX Configuration

DS1 Circuit Pack

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AvayaV9

change ds1 a14 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8) next form (f8)

1

DS1 CIRCUIT PACK

Location: 01A14 Name: E1-ISDN QSIG
Bit Rate: 2.048 Line Coding: hdb3

Signaling Mode: isdn-pri
Connect: network
CentreVu Long Timers? n Country Protocol: 1
Interworking Message: PROGRESS Protocol Version: b
Interface Companding: alaw CRC? u
Idle Code: 11111111 DCP/Analog Bearer Capability: 3.1kHz

Slip Detection? n Near-end CSU Type: other

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Signaling Group

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change signaling-group 14 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8) next form (f6)

1 2 3 4 5

SIGNALING GROUP

Group Number: 14

Associated Signaling?

Max number of NCA TSC:

Primary D-Channel:

Max number of CA TSC:

Trunk Group for NCA TSC:

Trunk Group for Channel Selection:

Supplementary Service Protocol:

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Trunk Group

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change trunk-group 14 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8) next form (f8)

1 2 3 4 5 6 7 8 9 10

TRUNK GROUP

Group Number: 14 Group Type: **isdn** CDR Reports: **y**
Group Name: **E1 ISDN** COR: **1** TN: **1** TAC: **669**
Direction: **two-way** Outgoing Display? **y**
Dial Access? **y** Busy Threshold: **99** Night Service:
Queue Length: **0**
Service Type: **tandem** TestCall ITC: **rest**
Far End Test Line No:
TestCall BCC: **4**

TRUNK PARAMETERS

Codeset to Send Display: **7** Codeset to Send National IEs: **7**
Max Message Size to Send: **260** Charge Advice: **none**
Supplementary Service Protocol: **c** Digit Handling (in/out): **enbloc/enbloc**

Trunk Hunt: **ascend**

Calling Number - Delete: Insert: Digital Loss Group: **13**
Bit Rate: **1200** Synchronization: **async** Duplex: **full**
Disconnect Supervision - In? **y** Out? **y**
Answer Supervision Timeout: **0**

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Trunk Features

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1 2 3 4 5 6 7 8 9 10

TRUNK FEATURES

ACA Assignment? Measured: Wideband Support?
Maintenance Tests?

Data Restriction? NCA-TSC Trunk Member:
Send Name: Send Calling Number:

Used for DCS? Hop Dgt?

Suppress # Outpulsing? Numbering Format:

Outgoing Channel ID Encoding: UUI IE Treatment:

Replace Restricted Numbers?
Replace Unavailable Numbers?
Send Connected Number:

Send UCID?
Send Codeset 6/7 LAI IE? Ds1 Echo Cancellation?

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Trunk Group

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change trunk-group 14 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8) next form (f6)

1 2 3 4 5 6 7 8 9 10

TRUNK GROUP
Administered Members (min/max): 1/30
Total Administered Members: 30

GROUP MEMBER ASSIGNMENTS

	Port	Code	Sfx	Name	Night	Sig Grp
1:	01A1401	TN464	F			14
2:	01A1402	TN464	F			14
3:	01A1403	TN464	F			14
4:	01A1404	TN464	F			14
5:	01A1405	TN464	F			14
6:	01A1406	TN464	F			14
7:	01A1407	TN464	F			14
8:	01A1408	TN464	F			14
9:	01A1409	TN464	F			14
10:	01A1410	TN464	F			14
11:	01A1411	TN464	F			14
12:	01A1412	TN464	F			14
13:	01A1413	TN464	F			14
14:	01A1414	TN464	F			14
15:	01A1415	TN464	F			14

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File Edit View System Action Tools Window Help

AvayaV9

change trunk-group 14 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8) next form (f8)

1 2 3 4 5 6 7 8 9 10

TRUNK GROUP
Administered Members (min/max): 1/30
GROUP MEMBER ASSIGNMENTS
Total Administered Members: 30

	Port	Code	Sfx	Name	Night	Sig Grp
16:	01A1417	TN464	F			14
17:	01A1418	TN464	F			14
18:	01A1419	TN464	F			14
19:	01A1420	TN464	F			14
20:	01A1421	TN464	F			14
21:	01A1422	TN464	F			14
22:	01A1423	TN464	F			14
23:	01A1424	TN464	F			14
24:	01A1425	TN464	F			14
25:	01A1426	TN464	F			14
26:	01A1427	TN464	F			14
27:	01A1428	TN464	F			14
28:	01A1429	TN464	F			14
29:	01A1430	TN464	F			14
30:	01A1431	TN464	F			14

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Dial Plan Record

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change dialplan send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8) next form (f6)

1

DIAL PLAN RECORD

Local Node Number:
ETA Node Number:
Uniform Dialing Plan: ETA Routing Pattern:
UDP Extension Search Order:

FIRST DIGIT TABLE

First Digit	- 1 -	- 2 -	- 3 -	- 4 -	- 5 -	- 6 -
1:				peextension		
2:				extension		
3:				extension		
4:				extension		
5:						
6:			dac			
7:						
8:	fac					
9:	fac					
0:	attd					
*:			fac			
#:						

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Ready



Configuring the Cisco 3640 Router

```
3640_Analog#sh run
Building configuration...

Current configuration : 2298 bytes
!
version 12.2
no parser cache
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
no service dhcp
!
hostname 3640_Analog
!
no logging buffered
!
voice-card 1
!
ip subnet-zero
!
!
no ip domain lookup
!
isdn switch-type primary-net5
isdn voice-call-failure 0
!
!
voice call carrier capacity active
!
!
mta receive maximum-recipients 0
!
controller E1 1/0
 framing NO-CRC4
 ds0-group 1 timeslots 1 type e&m-immediate-start
!
controller E1 1/1
 pri-group timeslots 1-31
!
!
interface Ethernet0/0
 ip address 10.10.10.102 255.255.255.0
 no ip mroute-cache
 shutdown
 full-duplex
 no cdp enable
!
interface Ethernet0/1
 ip address 1.1.1.1 255.255.255.0
 no ip mroute-cache
 full-duplex
 no cdp enable
!
interface Serial1/1:15
 no ip address
 no logging event link-status
 isdn switch-type primary-net5
 isdn overlap-receiving
 isdn protocol-emulate network
 isdn incoming-voice voice
 no cdp enable
!
interface BRI2/0
 no ip address
 isdn switch-type basic-qsig
 isdn protocol-emulate network
 isdn layer1-emulate network
```



```
    isdn incoming-voice voice
    isdn static-tei 0
    isdn skipsend-idverify
    !
interface BRI2/1
    no ip address
    shutdown
    isdn switch-type basic-qsig
    isdn overlap-receiving
    isdn incoming-voice voice
    !
ip classless
no ip http server
!
!
no cdp run
!
snmp-server manager
call rsvp-sync
!
voice-port 1/0:1
    shutdown
    !
voice-port 1/1:15
    !
voice-port 2/0/0
    !
voice-port 2/0/1
    !
voice-port 3/0/0
    !
voice-port 3/0/1
    !
voice-port 3/1/0
    !
voice-port 3/1/1
    !
no mgcp timer receive-rtcp
!
mgcp profile default
!
dial-peer cor custom
!
!
dial-peer voice 1 pots
    shutdown
    destination-pattern 5...
    direct-inward-dial
    port 2/0/0
    forward-digits all
    !
dial-peer voice 2 voip
    destination-pattern 2...
    session target ipv4:1.1.1.2
    !
dial-peer voice 3 pots
    destination-pattern 3000
    port 3/0/0
    !
dial-peer voice 4 pots
    destination-pattern 3001
    port 3/0/1
    !
dial-peer voice 5 pots
    shutdown
    destination-pattern 3...
    progress_ind setup enable 1
    direct-inward-dial
    port 2/0/1
    forward-digits all
    !
```



```
dial-peer voice 6 pots
 destination-pattern 4...
 port 1/1:15
 prefix 4
!
dial-peer voice 7 voip
 destination-pattern 5...
 session target ipv4:1.1.1.2
 dtmf-relay h245-alphanumeric
!
!
line con 0
line aux 0
line vty 0 4
 login
!
!
end
```

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