



# Avaya Definity CM 2.0 to a Cisco IAD243X using E1-CAS E&M with SIP

January 5, 2007 Initial Version

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## Introduction

This is an application note for connectivity to the Avaya Definity G3 Communications Manager 2.0 with Cisco IAD243X Gateway via E1 CAS e&m-to-SIP communication (10/100baseT).

The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco IAD243X Gateway connected to the PBX via E1-CAS E&M signaling. IP trunk connectivity between the IAD243X's is achieved by using SIP protocol.



## Network Topology

### Basic Call Setup End-to-End Configuration

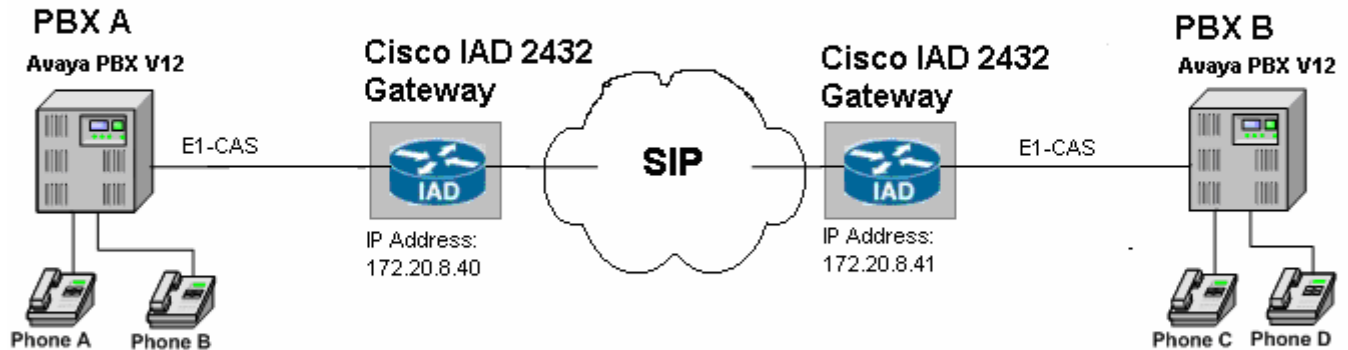


Figure 1. Network Topology

### Limitations

ANI (Automatic Number Identification) is not supported with the detailed Avaya configuration.

When a call conference is initiated by the external calling phone to conference a local phone (i.e. Phone A calls Phone C, Phone A conferences Phone D), in order for the call not to drop between the local phones at the instance that the conferencing phone leaves (i.e. Phone A hangs-up), the Avaya trunk configuration must be set for “Disconnect Supervision – In? yes Out? yes. This is detailed in the Configuration section.

### Hardware Requirements

- 2 Cisco IAD2432 24FXS
- 2 Avaya Definity G3 w/ TN464F circuit pack
- 4 Avaya Digital stations 8410D
- 1 Cisco Catalyst switch (CAT6500)

### Software Requirements

- Avaya PBX: G3 Version 12 Communications Manager 2.0
- Cisco IOS Release: c2430-ik9o3s-mz-124-9.T1

### Features

#### Features Supported

- Basic end-to-end calls



Call Transfer – Local and Network/External

Call Waiting

Call on-hold

Call Forward (Unconditional, Busy and No answer) – local and Network/External

3-way Conference

### Features Not Supported

ANI (Automatic Number Identification, also known as Caller ID)

### Configuration

#### Configuration Sequence and Tasks for the Avaya System

1. DS1 Configuration
2. Trunk group
3. Assign trunk members
4. Uniform-dialing
5. ARR
6. Route Pattern
7. Digital station config

#### Avaya PBX Configuration

```
DS1 CIRCUIT PACK

Location: 01A12                               Name: Tony IAD test
Bit Rate: 2.048                               Line Coding: hdb3

Signaling Mode: CAS

Interconnect: pbx                             Country Protocol: 4

Interface Companding: alaw                    CRC? y
Idle Code: 11111111

Slip Detection? n                             Near-end CSU Type: other
```



```
 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
TRUNK GROUP

Group Number: 12                Group Type: tie                CDR Reports: y
Group Name: Tony B. IAD testing  COR: 1                TN: 1                TAC: 612
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 Flash? n

TRUNK PARAMETERS
Trunk Type (in/out): delay/delay    Incoming Rotary Timeout(sec):
Outgoing Dial Type: tone            Incoming Dial Type: tone
Wink Timer(msec): 500                Disconnect Timing(msec):
Digit Treatment:                    Digits:
                                      Sig Bit Inversion: A&B
Analog Loss Group: 9                Digital Loss Group: 13
Incoming Dial Tone? y

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

```
 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
TRUNK FEATURES

ACA Assignment? n                Measured: none
Internal Alert? n                Maintenance Tests? y
Data Restriction? n
Glare Handling: none

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

Incoming Tone (DTMF) ANI: no        Per Call CPN Blocking Code:
Connected to CO? n                Per Call CPN Unblocking Code:

Ds1 Echo Cancellation? n
```



```
1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
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
  Flash Length(msec): 540   Incoming Incomplete Dial Alarm(sec): 255

END TO END SIGNALING
  Tone(msec): 300           Pause(msec): 150

OUTPUTSING INFORMATION
  PPS: 10   Make(msec): 40   Break(msec): 60
```



```
 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
ATMS THRESHOLDS
TTL Type: 105-w-r1      Far End Test No:
TTL Vendor:            TTL Contact:
Trunk Vendor:          Trunk Contact:
Trunk Length:

MARGINAL                UNACCEPTABLE
  Min    Max            Min    Max
1004 Hz Loss: -2    21    -2    21

-Dev    +Dev            -Dev    +Dev
 404 Hz Loss:  9     9     9     9
2804 Hz Loss:  9     9     9     9

Maximum C Message Noise:    55                55
Maximum C Notched Noise:    74                74
Minimum SRL-HI:              0                 0
Minimum SRL-LO:              0                 0
Minimum ERL:                  0                 0

Allow ATMS Busyout, Error Logging and Alarming? n
```



1	2	3	4	5	6	7	8	9	10	11		
<b>TRUNK GROUP</b>												
										Administered Members (min/max):	1/4	
<b>GROUP MEMBER ASSIGNMENTS</b>										Total Administered Members:		4
	<b>Port</b>	<b>Code</b>	<b>Sfx</b>	<b>Name</b>	<b>Night</b>	<b>Mode</b>	<b>Type</b>	<b>Ans</b>	<b>Delay</b>			
1:	01A1201	TN464	F									
2:	01A1202	TN464	F									
3:	01A1203	TN464	F									
4:	01A1204	TN464	F									
5:												
6:												
7:												
8:												
9:												
10:												
11:												
12:												
13:												
14:												
15:												

Note: When adding members to the trunk group you will need to add all available ports to the trunk group. For T1 you will configure all 24 available timeslots (e.g. 01A1201 thru 01A1224). Do so in a sequential manner.



1	2											
UNIFORM DIAL PLAN TABLE												
											Percent Full	
Matching	Insert			Node	Matching	Insert						
Pattern	Len	Del	Digits	Net	Conv	Num	Pattern	Len	Del	Digits	Net	Conv
4001	4	0	612	aar	n							n
4002	4	0	612	aar	n							n

1	2							
AAR DIGIT ANALYSIS TABLE								
							Percent Full:	9
	Dialed	Total		Route	Call	Node	ANI	
	String	Min	Max	Pattern	Type	Num	Reqd	
612		7	7	12	aar		n	

Pattern Number: 12 Pattern Name:

Grp	FRL	NPA	Pfx	Hop	Toll	No.	Inserted	DCS/ IXC	
No			Mrk	Lmt	List	Del	Digits	QSIG	Intw
							Dgts		
1:	12	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	
										Subaddress
1:	y	y	y	y	y	n	y	none	rest	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





```
1 | 2 | 3 | 4 |
STATION

Extension: 2004          Lock Messages? n          BCC: 0
Type: 8410D             Security Code:            TN: 1
Port: 01A0604          Coverage Path 1: 103     COR: 1
Name: PBX-Ken1         Coverage Path 2:        COS: 1
                        Hunt-to Station:

STATION OPTIONS
    Loss Group: 2          Personalized Ringing Pattern: 1
    Data Module? n        Message Lamp Ext: 2004
    Speakerphone: 2-way   Mute Button Enabled? y
    Display Language: english

                                Media Complex Ext:
                                IP SoftPhone? n
```

```
1 | 2 | 3 | 4 |
STATION

FEATURE OPTIONS
    LWC Reception: spe    Auto Select Any Idle Appearance? n
    LWC Activation? y     Coverage Msg Retrieval? y
    LWC Log External Calls? n    Auto Answer: none
    CDR Privacy? n        Data Restriction? n
    Redirect Notification? y     Idle Appearance Preference? n
    Per Button Ring Control? n   Restrict Last Appearance? n
    Bridged Call Alerting? n
    Active Station Ringing: single

    H.320 Conversion? n      Per Station CPN - Send Calling Number?
    Service Link Mode: as-needed
    Multimedia Mode: basic    Audible Message Waiting? y
    MWI Served User Type:    Display Client Redirection? y
                                Select Last Used Appearance? n
                                Coverage After Forwarding? s
                                Multimedia Early Answer? n
                                Direct IP-IP Audio Connections? y
                                IP Audio Hairpinning? y

Emergency Location Ext: 2004
```



```
1 | 2 | 3 | 4 |
STATION

SITE DATA
Room: Headset? n
Jack: Speaker? n
Cable: Mounting: d
Floor: Cord Length: 0
Building: Set Color:

ABBREVIATED DIALING
List1: List2: List3:

BUTTON ASSIGNMENTS
1: call-appr 6:
2: call-appr 7:
3: cfwd-bsyda Ext: 8:
4: 9:
5: 10: last-numb
```

```
1 | 2 | 3 | 4 |
STATION

SOFTKEY BUTTON ASSIGNMENTS

1: lwc-store
2: lwc-cancel
3: auto-cback
4: timer
5: call-fwd Ext:
6: call-park
7: date-time
8: priority
9: abr-prog
10: abr-spchar Char: ~p
11: abr-spchar Char: ~m
12: abr-spchar Char: ~w
```





```
interface FastEthernet0/1
no ip address
shutdown
duplex auto
speed auto
!
ip default-gateway 172.20.8.1
ip http server
!
ip classless
ip route 0.0.0.0 0.0.0.0 172.20.8.1
!
!
!
!
control-plane
!
!
!
voice-port 1/1:0
!
voice-port 2/0
!
voice-port 2/1
!
voice-port 2/2
!
voice-port 2/3
!
voice-port 2/4
!
voice-port 2/5
!
voice-port 2/6
!
voice-port 2/7
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voice-port 2/8
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voice-port 2/9
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voice-port 2/10
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voice-port 2/11
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voice-port 2/12
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voice-port 2/13
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voice-port 2/14
!
voice-port 2/15
!
voice-port 2/16
!
voice-port 2/17
!
voice-port 2/18
!
voice-port 2/19
!
voice-port 2/20
!
voice-port 2/21
!
```



```
voice-port 2/22
!
voice-port 2/23
!
!
!
dial-peer voice 4000 voip
destination-pattern 4...
session protocol sipv2
session target ipv4:172.20.110.254
supplementary-service pass-through
!
dial-peer voice 2000 pots
destination-pattern 2...
supplementary-service pass-through
port 1/1:0
forward-digits all
!
!
line con 0
password cisco
line aux 0
line vty 0 4
password cisco
login
!
end
```

IAD\_SIP1\_V7#



## Acronyms

Acronym	Definitions
IAD	Integrated Access Device
SIP	Session Initiation Protocol



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