

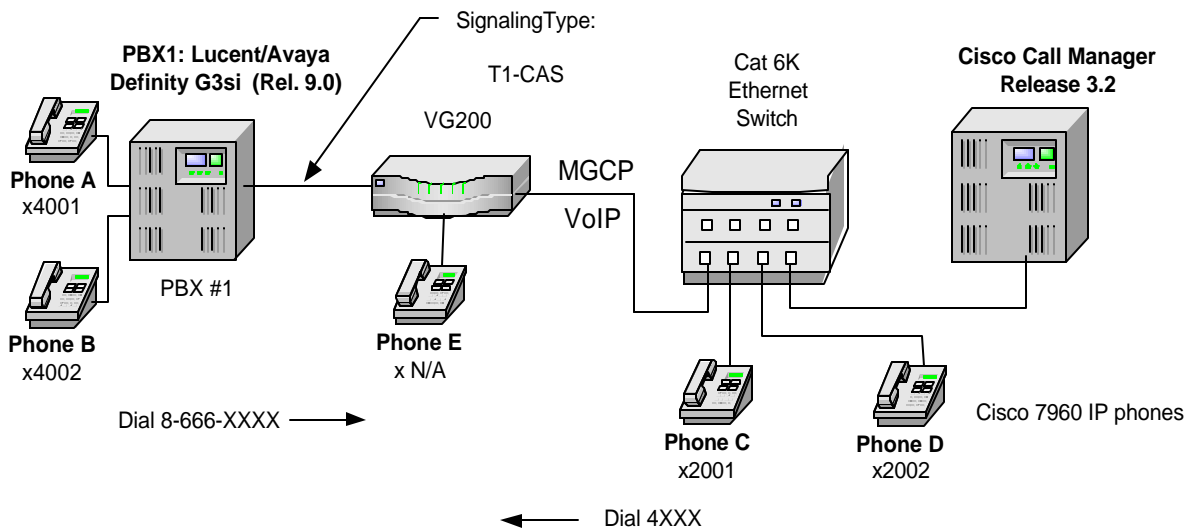
Cisco VG200 - PBX Interoperability: Lucent/Avaya Definity G3si V9 PBX with Cisco CallManager using T1 CAS as an MGCP Gateway

Introduction

This is an application note for connectivity of the Lucent/Avaya Definity G3si Version 9 PBX with Cisco CallManager using Cisco VG200-T1-CAS as an MGCP Gateway.

Network Topology

Basic Call Setup End-to-End Configuration



As shown in the diagram above, a Lucent/Avaya Definity G3si PBX was connected via a T1-CAS link to a Cisco VG200 Gateway, which in turn, was connected to an Ethernet switch. The interoperability testing involved basic call setup functionality between the Cisco CallManager and the Lucent/Avaya PBX.



Limitations

E&M-Delay-Dial signaling is not functional when the default timer setting (300msec) for the Delay-Start parameter is used on the Gateway. Since this timer parameter cannot be changed by the Cisco CallManager Gateway configuration GUI, the Wink Timer trunk parameter on the Lucent/Avaya PBX needs to be changed from the default of 300 msec. to 400 msec. in order for the Delay-Dial signaling type to work properly. Note that the Delay-Dial signaling type is a delayed version of a Wink-Start Signaling, therefore the Wink Timer on the PBX needs to be set to a greater value than the Delay-Start timer on the Gateway.

System Components

Hardware Requirements

- Cisco VG200 Gateway with 2MFT T1 Port
- Cisco Catalyst 6000 switch
- Lucent/Avaya Definity G3si Version 9 PBX, TN464F, DS1 INTFC 24/32

Software Requirements

- Cisco IOS Software Release 12.2(2)XN
- PBX Software Release 9
- Cisco CallManager Release 3.2

Configuration

Configuring the Lucent/Avaya Definity G3si PBX

Configure in the following sequence:

- Add the new circuit pack..
- Add the new trunk group.
- Configure the dialing plan.



Adding the New DS1 Circuit Pack

DEFINITY Site Administration - [AvayaV9 GEDI]

File Edit View System Action Tools Window Help

AvayaV9

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

1 2

DS1 CIRCUIT PACK

Location: 01A14 Name: T1 CAS
Bit Rate: 1.544 Line Coding: b8zs
Line Compensation: 1 Framing Mode: esf
Signaling Mode: robbed-bit

Interface Companding: mulaw
Idle Code: 11111111

Slip Detection? n Near-end CSU Type: other

Right-click in a field to see a list of valid entries or help text
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change ds1 a14 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8) next f

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**

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Configuring Trunk Group (Wink-Start Signaling)

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

1 2 3 4 5 6 7 8 9 10 11

TRUNK GROUP

Group Number: 14 Group Type: tandem CDR Reports:
Group Name: T1-CAS COR: 1 TN: 1 TAC: 669
Direction: two-way Outgoing Display? Trunk Signaling Type:
Dial Access? Busy Threshold: 99 Night Service:
Queue Length: 0 Incoming Destination:
Comm Type: voice

TRUNK PARAMETERS

Trunk Type (in/out): wink/wink Incoming Rotary Timeout(sec):
Outgoing Dial Type: tone Incoming Dial Type: tone
Wink Timer(msec): 400 Disconnect Timing(msec):
Digit Treatment: Digits:
Analog Loss Group: 9 Sig Bit Inversion: none
Incoming Dial Tone? Digital Loss Group: 13

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

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

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

1 2 3 4 5 6 7 8 9 10 11

TRUNK FEATURES

ACA Assignment? Measured: Maintenance Tests?

Data Restriction? Glare Handling:

Used for DCS? Hop Dgt?

Suppress # Outpulsing? Seize When Maintenance Busy:

Incoming Tone (DTMF) ANI: Per Call CPN Blocking Code:

Per Call CPN Unblocking Code:

Ds1 Echo Cancellation?

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

1 2 3 4 5 6 7 8 9 10 11

ADMINISTRABLE TIMERS

Incoming Disconnect(msec):	<input type="text" value="500"/>	Outgoing Disconnect(msec):	<input type="text" value="500"/>
Incoming Dial Guard(msec):	<input type="text" value="70"/>	Outgoing Dial Guard(msec):	<input type="text" value="1600"/>
Incoming Glare Guard(msec):	<input type="text" value="1500"/>	Outgoing Glare Guard(msec):	<input type="text" value="1500"/>

Programmed Dial Pause(msec):	<input type="text" value="1500"/>	Outgoing Seizure Response(sec):	<input type="text" value="5"/>
		Disconnect Signal Error(sec):	<input type="text" value="240"/>
		Incoming Incomplete Dial Alarm(sec):	<input type="text" value="255"/>

END TO END SIGNALING

Tone(msec):	<input type="text" value="350"/>	Pause(msec):	<input type="text" value="150"/>
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OUTPULSING INFORMATION

PPS:	<input type="text" value="10"/>	Make(msec):	<input type="text" value="40"/>	Break(msec):	<input type="text" value="60"/>
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Right-click in a field to see a list of valid entries or help text

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DEFINITY Site Administration - [AvayaV9 GEDI]

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 f

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?

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DEFINITY® Site Administration - [AvayaV9 GEDI]

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

1 2 3 4 5 6 7 8 9 10 11

TRUNK GROUP
Administered Members (min/max): 1/24
Total Administered Members: 24

GROUP MEMBER ASSIGNMENTS

	Port	Code	Sfx	Name	Night	Mode	Type	Ans	Delay
1:	01A1401	TN464	F			e&m	t1-stan		
2:	01A1402	TN464	F			e&m	t1-stan		
3:	01A1403	TN464	F			e&m	t1-stan		
4:	01A1404	TN464	F			e&m	t1-stan		
5:	01A1405	TN464	F			e&m	t1-stan		
6:	01A1406	TN464	F			e&m	t1-stan		
7:	01A1407	TN464	F			e&m	t1-stan		
8:	01A1408	TN464	F			e&m	t1-stan		
9:	01A1409	TN464	F			e&m	t1-stan		
10:	01A1410	TN464	F			e&m	t1-stan		
11:	01A1411	TN464	F			e&m	t1-stan		
12:	01A1412	TN464	F			e&m	t1-stan		
13:	01A1413	TN464	F			e&m	t1-stan		
14:	01A1414	TN464	F			e&m	t1-stan		
15:	01A1415	TN464	F			e&m	t1-stan		

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

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DEFINITY Site Administration - [AvayaV9 GEDI]

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 f

1 2 3 4 5 6 7 8 9 10 11

TRUNK GROUP
Administered Members (min/max): 1/24
Total Administered Members: 24

GROUP MEMBER ASSIGNMENTS

Port	Code	Sfx	Name	Night	Mode	Type	Ans	Delay
16:	01A1416	TN464	F		e&m	t1-stan		
17:	01A1417	TN464	F		e&m	t1-stan		
18:	01A1418	TN464	F		e&m	t1-stan		
19:	01A1419	TN464	F		e&m	t1-stan		
20:	01A1420	TN464	F		e&m	t1-stan		
21:	01A1421	TN464	F		e&m	t1-stan		
22:	01A1422	TN464	F		e&m	t1-stan		
23:	01A1423	TN464	F		e&m	t1-stan		
24:	01A1424	TN464	F		e&m	t1-stan		
25:								
26:								
27:								
28:								
29:								
30:								

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

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Trunk Group for Delay-Dial Signaling

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

1 2 3 4 5 6 7 8 9 10 11

TRUNK GROUP

Group Number: 14 Group Type: tandem CDR Reports: y
Group Name: T1-CAS COR: 1 TN: 1 TAC: 669
Direction: two-way Outgoing Display? y Trunk Signaling Type:
Dial Access? y Busy Threshold: 99 Night Service:
Queue Length: 0 Incoming Destination:
Comm Type: voice

TRUNK PARAMETERS

Trunk Type (in/out): delay/delay Incoming Rotary Timeout(sec):
Outgoing Dial Type: tone Incoming Dial Type: tone
Wink Timer(msec): 400 Disconnect Timing(msec):
Digit Treatment:
Analog Loss Group: 9 Sig Bit Inversion: none
Incoming Dial Tone? y Digital Loss Group: 13

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

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Configuring the Dialing Plan

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File Edit View System Action Tools Window Help

AvayaV9

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

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:						
2:				extension		
3:				extension		
4:				extension		
5:				extension		
6:			dac			
7:						
8:	fac					
9:	fac					
0:	attd					
*:			fac			
#:						

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

Ready



DEFINITY® Site Administration - [AvayaV9 GEDI]

File Edit View System Action Tools Window Help

AvayaV9

change route-pattern 2 send (return) help (f5) cancel (esc) enter (f3) schedule (f9) next (f7) previous (f8) next f

1

Pattern Number: 2

Grp. No.	FRL	NPA	Pfx Mrk	Hop Lmt	Toll List	No. Del Digits	Inserted Digits	IXC
1:	14	0	401	1		3		user
2:								user
3:								user
4:								user
5:								user
6:								user

Grp. No.	BCC VALUE							TSC	CA-TSC Request	ITC	BCIE	Service/Feature	BAND	No. Dgts	Numbering Format	LAR Subaddress
	0	1	2	3	4	W	n									
1:	y	y	y	y	y	n	n		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

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

Ready

NUM



Configuring Cisco CallManager

Vg200-MGCP Gateway Configuration

Cisco CallManager Administration
For Cisco IP Telephony Solutions

MGCP Configuration

[Back to Find/List Gateways](#)

Product: Cisco VG200
MGCP : VG200_MGCP

Status: Ready

MGCP Domain Name*

Description

Cisco CallManager Group*

Installed Voice Interface Cards		Endpoint Identifiers	
Module in Slot 1	<input type="text" value="NM-HDV"/>		
Sub-Unit 0	<input type="text" value="VVIC-2MFT-T1"/>	<input type="text" value="(1/0)T1CAS"/>	<input type="text" value="(1/1)T1CAS"/>

Product Specific Configuration

Global ISDN Switch Type

Switchback Timing*

Switchback uptime-delay (min)

Switchback schedule (hh:mm)

* indicates required item

[Back to Find/List Gateways](#)



Digital Access T1-CAS Configuration

Cisco CallManager 3.2 Administration - Gateway Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: -4FCC-9C88-72254C1BF9CB

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration

For Cisco IP Telephony Solutions

Gateway Configuration

[Back to MGCP Configuration](#)
[Back to Find/List Gateways](#)

Ports

<Add a New Port>

- Port 1
- Port 2
- Port 3
- Port 4
- Port 5
- Port 6
- Port 7
- Port 8
- Port 9
- Port 10
- Port 11
- Port 12
- Port 13
- Port 14
- Port 15
- Port 16
- Port 17
- Port 18
- Port 19
- Port 20

Product : Cisco VG200

Gateway : S1/DS1-0@VG200_MGCP

Device Protocol: Digital Access T1

Registration: Registered with Cisco CallManager 10.1.1.2

IP Address: 10.1.1.210

Status: Ready

Update Delete Reset Gateway Cancel Changes

End-Point Name* S1/DS1-0@VG200_MGCP

Description S1/DS1-0@VG200_MGCP

Device Pool* Default

Media Resource Group List <None >

Network Hold Audio Source <None >

User Hold Audio Source <None >

Calling Search Space <None >

Location <None >

Load Information

Port Selection Order* Top Down

Digit Sending* DTMF

Network Locale United States

Product Specific Configuration



Cisco CallManager 3.2 Administration - Gateway Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Print Address: -4FCC-9C88-72254C1BF9CB} Go Links >>

Product Specific Configuration ⓘ

E&M	Port 21	Line Coding*	B8ZS
E&M	Port 22	framing*	ESF
E&M	Port 23	Clock*	External
E&M	Port 24		

* indicates required item

[Back to MGCP Configuration](#)
[Back to Find/List Gateways](#)

Local intranet



T1-CAS Port Configuration

Cisco CallManager 3.2 Administration - Port Configuration - Microsoft Internet Explo...

Port Configuration

S1/DS1-0@VG200_MGCP Port Type: E&M Port Number: 1
Status: Ready

New Update Update and Close Delete Cancel Changes

Port Details

Port Direction*	Bothways
Calling Party Selection*	Originator
Caller ID Type*	ANI
Caller ID DN	
Prefix DN	
Num Digits*	4
Expected Digits*	4

Product Specific Configuration

Signaling Type*	Wink Start
-----------------	------------

* indicates required item

Done Local intranet



Route Pattern Configuration

Cisco CallManager 3.2 Administration - Route Pattern Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Print Address [-4D13-8C1E-ABC72E186041](#) Go Links >>

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions

CISCO SYSTEMS

Route Pattern Configuration

[Add a New Route Pattern](#)
[Back to Find/List Route Patterns](#)

Route Pattern: 4XXX
Status: Ready
Note: Any update to this route pattern automatically resets the associated gateway/route list

Copy Update Delete Cancel Changes

Pattern Definition

Route Pattern*	4XXX
Partition	< None >
Numbering Plan*	North American Numbering Pl
Route Filter	< None >
Gateway/Route List*	S1/DS1-0@VG200_MGCP (Edit)
Route Option	<input checked="" type="radio"/> Route this pattern <input type="radio"/> Block this pattern
<input checked="" type="checkbox"/> Provide Outside Dial Tone	<input type="checkbox"/> Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask	
Prefix Digits (Outgoing Calls)	

Called Party Transformations

Discard Digits	< None >
Called Party Transform Mask	
Prefix Digits (Outgoing Calls)	

* indicates required item.

Done Local intranet



Configuring the Cisco VG200

```
VG200_MGCP# show running config
```

```
Building configuration...
```

```
Current configuration : 1301 bytes
```

```
!  
version 12.2  
no parser cache  
no service single-slot-reload-enable  
no service pad  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname VG200_MGCP  
!  
logging rate-limit console 10 except errors  
!  
voice-card 1  
!  
ip subnet-zero  
!  
no ip dhcp-client network-discovery  
mgcp  
mgcp call-agent 10.1.1.2 2427 service-type mgcp version 0.1  
mgcp dtmf-relay voip codec all mode out-of-band  
mgcp rtp unreachable timeout 1000 action notify  
mgcp modem passthrough voip mode cisco  
mgcp sdp simple
```



```
mgcp package-capability rtp-package
mgcp package-capability sst-package
no mgcp timer receive-rtcp
no mgcp explicit hookstate
call rsvp-sync
!
!
!
!
!
ccm-manager mgcp
ccm-manager music-on-hold
ccm-manager config server 10.1.1.2
ccm-manager config
!
controller T1 1/0
    framing esf
    linecode b8zs
    ds0-group 1 timeslots 1-24 type e&m-wink-start
!
controller T1 1/1
    framing esf
    linecode b8zs
!
!
interface FastEthernet0/0
    ip address 10.1.1.210 255.255.255.0
    duplex auto
    speed auto
!
ip classless
```



```
no ip http server
!
!
voice-port 1/0:1
!
dial-peer voice 100 pots
  application mgcpapp
!
dial-peer voice 200 pots
  application mgcpapp
!
dial-peer voice 999101 pots
  application mgcpapp
  port 1/0:1
!
!
line con 0
line aux 0
line vty 0 4
  login
line vty 5 15
  login
!
end
```

VG200_MGCP#



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