



Cisco Unified CallManager Release 4.2-PBX with Avaya Definity G3 MV1.3 to Cisco WS-X6608-T1 using Q.SIG as MGCP Gateway

November 2, 2007 Revision 5

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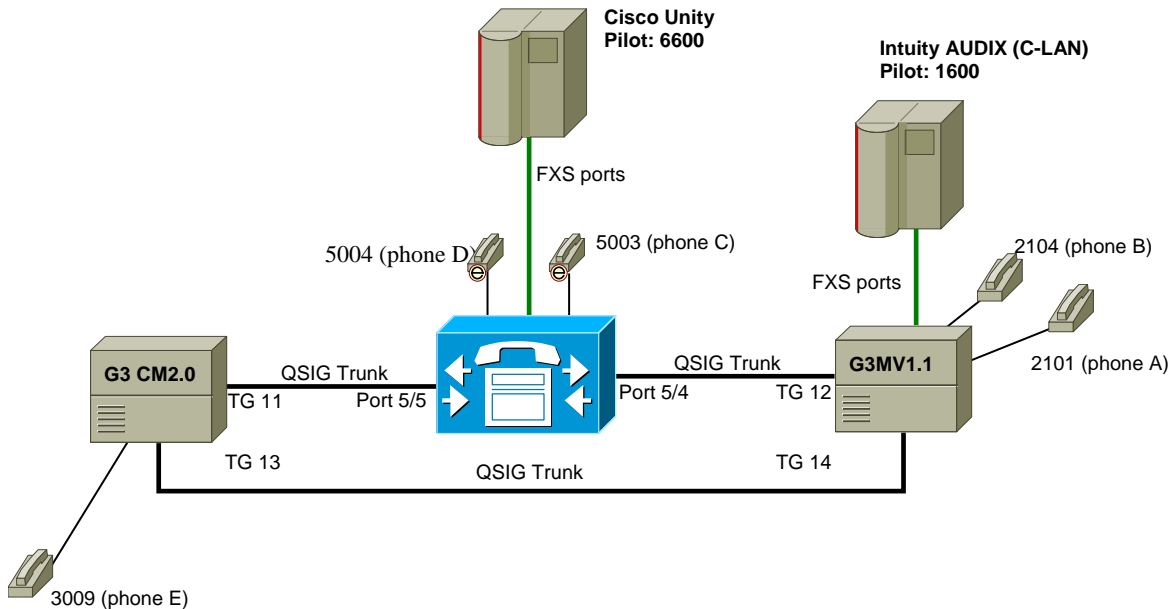
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Introduction

- This is an application note for connectivity of Avaya Definity G3 MV1.3 PBX with Cisco Unified CallManager Release 4.2 using Cisco WS-X6608-T1 QSIG as MGCP gateway.
- The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco CallManager connected to the PBX via WS-X6608-T1 QSIG link as MGCP gateway.
- Connectivity is achieved by using the PRI ISO QSIG T1 protocol type on the MGCP gateway and ISO QSIG switch type on the Avaya Definity G3 MV1.3 PBX.
- This Application Note uses the WS-X6608-T1 voice gateway, however other Cisco MGCP-controlled voice gateways are also an option to use since CallManager QSIG implementation does not depend on the physical interface.

Network Topology

Figure 1. Network topology of test setup



Limitations

- As of this round of testing, the Avaya Call Diversion by Reroute cannot be disabled. Thus, when testing Call Forwarding (Unconditional, Busy or No Reply) by Join or Path replacement for forwarded calls (Unconditional, Busy or No Reply) over a QSIG network, the Avaya automatically performs a Call Diversion by reroute method to obtain the best route. Path replacement method was properly executed on an established call after a Call Transfer.
- For Path Replacement on tromboned calls to work, the destination local station on the Avaya (2XXX) must be listed in the isdn public-unknown page. The numbering format for calling and called number must be set to UNKNOWN.

System Components

Hardware Requirements

The following hardware is required:

- Cisco Catalyst 6500 switch
- Cisco WS-X6608-T1 Module
- Cisco Unified CallManager 4.2 MCS Server
- Avaya TN464F, DS1 INTFC 24/32 circuit pack

Software Requirements

The following software is required:



- Cisco Unified CallManager Release 4.2
- Avaya MV1.3
- CatOS 7.6(8)

Features

This section lists new and changed features and features that are not supported.

Features Supported

- CLIP-Calling Line (Number) Identification Presentation
- CLIR-Calling Line (Number) Identification Restriction
- CNIP-Calling Name Identification Presentation
- CNIR-Calling Name Identification Restriction
- COLP-Connected Line (Number) Identification Presentation
- COLR- Connected Line (Number) Identification Restriction
- CONP-Connected Name Identification Presentation
- CONR- Connected Name Identification Restriction
- Alerting Name
- CT-Call Transfer (by join)
- CFU-Call Forwarding Unconditional (by Reroute)
- CFB-Call Forwarding Busy (by Reroute)
- CFNR-Call Forwarding No Reply (by Reroute)
- CCBS-Call Completion to Busy Subscriber
- CCNR-Call Completion No Reply
- ANF-PR-Additional Network Feature Path Replacement (for Call Transfer by join)
- ANF-PR-Additional Network Feature Path Replacement (for Call Diversion by forward switching)
- ANF-PR-Additional Network Feature Path Replacement (for Trombone connection)
- MWI- Message Waiting Indication (lamp ON, lamp OFF)Configuration

Features Not Supported

- CFU-Call Forwarding Unconditional (by join)
- CFB-Call Forwarding Busy (by join)
- CFNR-Call Forwarding No Reply (by join)

Configuration

This section contains configuration menus and commands and describes configuration sequences and tasks.



Configuring the Avaya Definity G3si MV1.3 PBX

Configure in the following sequence:

1. Add the new circuit pack.
2. Add the new signaling group.
3. Add the new trunk group.
4. Add Uniform Dialing Plan.

Configuration Menus and Commands

Software Version

```
list configuration software-versions Page 1
          SOFTWARE VERSIONS
          SPE_A          SPE_B
          UPDATE FILE
Creation (GMT) Date: none
          Old Version: none
          Old Identifier: none
          New Identifier: none
          Update State: none in memory
          SOFTWARE VERSION
Memory Resident: R011i.03.0.526.5
Mem Card Resident: none
Update Identifier: none
          TRANSLATION DATE
Memory Resident: date invalid
Mem Card Resident: date invalid
          press CANCEL to quit -- press NEXT PAGE to continue
```

System Parameters Customer Options



```
display system-parameters customer-options Page 1 of 9
OPTIONAL FEATURES
G3 Version: U11 Maximum Ports: 274 USED 146
Location: 1 Maximum XMOBILE Stations: 10 0
Platform: 2
IP PORT CAPACITIES
Maximum Administered IP Trunks: 1 1
Maximum Concurrently Registered IP Stations: 16 0
Maximum Administered Remote Office Trunks: 0 0
Maximum Concurrently Registered Remote Office Stations: 0 0
Maximum Concurrently Registered IP eCons: 1 0
Maximum Number of DS1 Boards with Echo Cancellation: 30 0
Maximum TN2501 UAL Boards: 1 0
(NOTE: You must logoff & login to effect the permission changes.)
```

```
display system-parameters customer-options Page 2 of 9
OPTIONAL FEATURES
Abbreviated Dialing Enhanced List? y Audible Message Waiting? y
Access Security Gateway (ASG)? n Authorization Codes? y
Analog Trunk Incoming Call ID? y CAS Branch? n
A/D Grp/Sys List Dialing Start at 01? y CAS Main? n
Answer Supervision by Call Classifier? y Change COR by FAC? y
ARS? y Computer Telephony Adjunct Links? n
ARS/AAR Partitioning? y Co-Res DEFINITY LAN Gateway? n
ARS/AAR Dialing without FAC? n Cvg Of Calls Redirected Off-net? y
ASAI Link Core Capabilities? n DCS (Basic)? y
ASAI Link Plus Capabilities? n DCS Call Coverage? y
Dialing with Rerouting? y
Async. Transfer Mode (ATM) Trunking? n Digital Loss Plan Modification? y
ATMS? y DS1 MSP? n
Attendant Vectoring? y DS1 Echo Cancellation? y
(NOTE: You must logoff & login to effect the permission changes.)
```



OPTIONAL FEATURES

Emergency Access to Attendant? y	ISDN Feature Plus? y
Enable 'dadmin' Login? y	ISDN Network Call Redirection? n
Enhanced Conferencing? y	ISDN-BRI Trunks? y
Enhanced EC500? y	ISDN-PRI? y
Extended Cvg/Fwd Admin? y	Local Spare Processor? n
External Device Alarm Admin? y	Malicious Call Trace? y
Five Port Networks Max Per MCC? n	Media Encryption Over IP? n
Flexible Billing? y	Mode Code for Centralized Voice Mail? y
Forced Entry of Account Codes? y	
Global Call Classification? y	Multifrequency Signaling? y
Hospitality (Basic)? y	Multimedia Appl. Server Interface (MASI)? n
Hospitality (G3V3 Enhancements)? y	Multimedia Call Handling (Basic)? y
IP Trunks? y	Multimedia Call Handling (Enhanced)? y
	Multiple Locations? y
IP Attendant Consoles? y	Personal Station Access (PSA)? y
IP Stations? y	Posted Messages? n

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

OPTIONAL FEATURES

	Tenant Partitioning? n
Port Network Support? y	Terminal Trans. Init. (TTI)? y
	Time of Day Routing? y
Processor and System MSP? n	Uniform Dialing Plan? y
Private Networking? y	Usage Allocation Enhancements? y
	TN2501 VAL Maximum Capacity? y
Remote Office? y	Wideband Switching? y
Restrict Call Forward Off Net? y	Wireless? n
Secondary Data Module? y	
Station and Trunk MSP? n	
Station as Virtual Extension? y	
Survivable Remote Processor? n	
System Management Data Transfer? y	

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



```
display system-parameters customer-options Page 5 of 9
CALL CENTER OPTIONAL FEATURES

Call Center Release: 11.1

ACD? y PASTE (Display PBX Data on Phone)? y
BCMS (Basic)? n Reason Codes? n

BCMS/UuStats Service Level? y Service Observing (Basic)? y
Business Advocate? n Service Observing (Remote/By FAC)? y
Call Work Codes? n Service Observing (UDNs)? n
DTMF Feedback Signals For URU? n Timed ACW? y
Dynamic Advocate? n Vectoring (Basic)? n
Expert Agent Selection (EAS)? n Vectoring (Prompting)? y
EAS-PHD? n Vectoring (G3U4 Enhanced)? n
Forced ACD Calls? n Vectoring (ANI/II-Digits Routing)? n
Least Occupied Agent? n Vectoring (G3U4 Advanced Routing)? n
Lookahead Interflow (LAI)? n Vectoring (CINFO)? n
Multiple Call Handling (On Request)? y Vectoring (Best Service Routing)? n
Multiple Call Handling (Forced)? y Vectoring (Holidays)? y

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

```
display system-parameters customer-options Page 7 of 9
QSIG OPTIONAL FEATURES

Basic Call Setup? y
Basic Supplementary Services? y
Centralized Attendant? y
Interworking with DCS? y
Supplementary Services with Rerouting? y
Transfer into QSIG Voice Mail? y
Value-Added (VALU)? y

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



System Parameters Features

display system-parameters features Page 1 of 12

```
FEATURE-RELATED SYSTEM PARAMETERS
  Self Station Display Enabled? y
  Trunk-to-Trunk Transfer: all
Automatic Callback - No Answer Timeout Interval (rings): 3
  Call Park Timeout Interval (minutes): 10
  Off-Premises Tone Detect Timeout Interval (seconds): 20
  AAR/ARS Dial Tone Required? y
  Music/Tone on Hold: none
  Music (or Silence) on Transferred Trunk Calls? no
  DID/Tie/ISDN Intercept Treatment: attd

Internal Auto-Answer of Attd-Extended/Transferred Calls: transferred
  Automatic Circuit Assurance (ACA) Enabled? n

  Abbreviated Dial Programming by Assigned Lists? n
  Auto Abbreviated/Delayed Transition Interval (rings): 2
  Protocol for Caller ID Analog Terminals: Bellcore
Display Calling Number for Room to Room Caller ID Calls? y
```

display system-parameters features Page 7 of 12

```
FEATURE-RELATED SYSTEM PARAMETERS

ISDN PARAMETERS

Send Non-ISDN Trunk Group Name as Connected Name? n
Display Connected Name/Number for ISDN DCS Calls? n
  Send ISDN Trunk Group Name on Tandem Calls? n

  QSIG TSC Extension: 2099
MWI - Number of Digits Per Voice Mail Subscriber: 4
  Feature Plus Ext: 2098
  National CPN Prefix:
  International CPN Prefix:
  Pass Prefixed CPN to ASAI? n
  Unknown Numbers Considered Internal for AUDIX? y Maximum Length: 4
  USNI Calling Name for Outgoing Calls? y
  Path Replacement with Measurements? y
  QSIG Path Replacement Extension: 2097
  Path Replace While in Queue/Vectoring? y
```



DS1 Circuit Pack

```
display ds1 1a12 Page 1 of 2
DS1 CIRCUIT PACK
Location: 01A12 Name: T1 to CCM
Bit Rate: 1.544 Line Coding: b8zs
Line Compensation: 1 Framing Mode: esf
Signaling Mode: isdn-pri
Connect: pbx Interface: peer-master
TN-C7 Long Timers? n Peer Protocol: Q-SIG
Interworking Message: PROGRESS Side: a
Interface Companding: mulaw CRC? n
Idle Code: 11111111
DCP/Analog Bearer Capability: 3.1kHz

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

Signaling Group

```
display signaling-group 12
SIGNALING GROUP
Group Number: 12 Group Type: isdn-pri
Associated Signaling? y Max number of NCA TSC: 5
Primary D-Channel: 01A1224 Max number of CA TSC: 5
Trunk Group for Channel Selection: 12 Trunk Group for NCA TSC: 12
Supplementary Service Protocol: b X-Mobility/Wireless Type: NONE
```



Trunk Group

```
display trunk-group 12 Page 1 of 10
TRUNK GROUP
Group Number: 12          Group Type: isdn          CDR Reports: y
Group Name: QSIG to CM-Neptune    COR: 1          TN: 1          TAC: 612
Direction: two-way          Outgoing Display? y    Carrier Medium: PRI/BRI
Dial Access? y              Busy Threshold: 99     Night Service:
Queue Length: 0
Service Type: tie          Auth Code? n          TestCall ITC: rest
                          Far End Test Line No:
TestCall BCC: 4
TRUNK PARAMETERS
  Codeset to Send Display: 0      Codeset to Send National IEs: 6
  Max Message Size to Send: 260  Charge Advice: none
  Supplementary Service Protocol: b  Digit Handling (in/out): enbloc/enbloc
  Trunk Hunt: ascend
  QSIG Value-Added? y
  Digital Loss Group: 13
Calling Number - Delete:      Insert:              Numbering Format: unk-unk
  Bit Rate: 1200              Synchronization: async  Duplex: full
Disconnect Supervision - In? y  Out? y
Answer Supervision Timeout: 0
```

```
display trunk-group 12 Page 2 of 10
TRUNK FEATURES
  ACA Assignment? n          Measured: none        Wideband Support? n
  Internal Alert? n          Maintenance Tests? y
  Data Restriction? n        NCA-TSC Trunk Member: 2
  Send Name: y              Send Calling Number: y
  Used for DCS? n           Hop Dgt? y
  Suppress # Outpulsing? n   Numbering Format: unknown
Outgoing Channel ID Encoding: preferred  UII IE Treatment: service-provider
  Replace Restricted Numbers? y
  Replace Unavailable Numbers? y
  Send Called/Busy/Connected Number: y
  Send UII IE? n
  Send UCID? n
Send Codeset 6/7 LAI IE? y          Ds1 Echo Cancellation? n
Path Replacement with Retention? n
Path Replacement Method: better-route
  SBS? n  Network (Japan) Needs Connect Before Disconnect? n
```




Uniform Dialing Plan

```
list uniform-dialplan Page 1
```

UNIFORM DIAL PLAN TABLE						
Matching Pattern	Len	Del	Insert Digits	Net	Conv	Node Num
10	4	0	998	aar	n	
2000	4	0	222	aar	n	
2005	4	0	777	aar	n	
2012	4	0	333	aar	n	
2651	4	0	555	aar	n	
300	4	0	300	aar	n	
3008	4	0	614	aar	n	
3009	4	0	614	aar	n	
31	4	0	310	aar	n	
41	4	0	530	aar	n	
5003	4	0	512	aar	n	
5004	4	0	512	aar	n	
5005	4	0	530	aar	n	
5017	4	0	530	aar	n	
5020	4	0	530	aar	n	

press CANCEL to quit -- press NEXT PAGE to continue

AAR Analysis

```
display aar analysis 3 Page 1 of 2
```

AAR DIGIT ANALYSIS TABLE							Percent Full: 3
Dialed String	Total		Route Pattern	Call Type	Node Num	ANI Reqd	
	Min	Max					
300	4	7	30	pubu		n	
310	7	7	15	aar		n	
333	7	7	14	aar		n	
444	7	7	104	lev0	2	n	
510	7	7	30	aar		n	
512	7	7	12	aar	3	n	
530	7	7	13	aar	3	n	
555	7	7	105	aar		n	
611	7	7	13	aar		n	
614	7	7	14	aar	2	n	
777	7	7	13	aar		n	
888	7	7	15	aar		n	
998	7	7	11	aar		n	
999	7	7	98	aar		n	



Dialplan Analysis

```
display dialplan analysis
```

Page 1 of 3

DIAL PLAN ANALYSIS TABLE									
Percent Full: 3									
Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	Dialed String	Total Length	Call Type	
0	1	attd							
16	4	ext							
20	4	ext							
22	4	dac							
26	4	ext							
3	4	ext							
4	4	ext							
5	4	ext							
6	3	dac							
7	5	ext							
8	1	fac							
9	1	fac							
*	3	fac							

Route Patterns

```
display route-pattern 12
```

Pattern Number: 12 Pattern Name:

Grp No	FRL	NPA	Pfx Mrk	Hop Lmt	Toll List	No. Del	Inserted Dgts	DCS/ QSIG Intw	IXC
1:	12	0					3	n	user
2:								n	user
3:								n	user
4:								n	user
5:								n	user
6:								n	user

Grp No	BCC	VALUE	TSC	CA-TSC	ITC	BCIE	Service/Feature	BAND	No. Dgts	Numbering Format	LAR
1:	y	y	y	y	y	n	y	none	rest		next
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



ISDN Private Numbering Plan

```
display public-unknown-numbering
```

Page 1 of 8

NUMBERING - PUBLIC/UNKNOWN FORMAT									
Ext Len	Ext Code	Trk Grp(s)	CPN Prefix	Total CPN Len	Ext Len	Ext Code	Trk Grp(s)	CPN Prefix	Total CPN Len
4	2			4					
4	4			4					
4	5	4		4					

Configuring the Cisco Unified CallManager

CM4.2-T1 Gateway Configuration



Gateway Configuration

[Back to Find/List Gateways](#)
[Dependency Records](#)

Product : Cisco Catalyst 6000 T1 VoIP Gateway
Gateway : S0/DS1-0@SDA0001C9D93A9B
Device Protocol: Digital Access PRI
Registration: Registered with Cisco CallManager 172.20.236.2
IP Address: [172.20.236.16](#)

Status: Ready

Device Information

MAC Address*	<input type="text" value="0001C9D93A9B"/>
Description	<input type="text" value="Cat 6500 port 5/4 - MV1.1"/>
Device Pool*	<input type="text" value="Default"/>
Common Profile	<input type="text" value="< None >"/>
Call Classification*	<input type="text" value="OnNet"/>
Network Locale	<input type="text" value="United States"/>
Media Resource Group List	<input type="text" value="MRGL_CM_Neptune"/>
Location	<input type="text" value="Location_3"/>
AAR Group	<input type="text" value="AAR_group_1"/>
Load Information	<input type="text"/>

Multilevel Precedence and Preemption (MLPP) Information

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain (e.g., "0000FF")	<input type="text"/>
MLPP Indication	<input type="text" value="Off"/>
MLPP Preemption	<input type="text" value="Disabled"/>

Interface Information

PRI Protocol Type*	<input type="text" value="PRI QSIG T1"/>
Protocol Side*	<input type="text" value="User"/>
Channel Selection Order*	<input type="text" value="Top Down"/>
Channel IE Type*	<input type="text" value="Use Number when 1B"/>
PCM Type*	<input type="text" value="μ-law"/>
Delay for first restart (1/8 sec ticks)	<input type="text" value="32"/>
Delay between restarts (1/8 sec ticks)	<input type="text" value="4"/>
<input checked="" type="checkbox"/> Inhibit restarts at PRI initialization	
<input type="checkbox"/> Enable status poll	

Call Routing Information

Inbound Calls

Significant Digits*	<input type="text" value="All"/>
Calling Search Space	<input type="text" value="IPphones"/>
AAR Calling Search Space	<input type="text" value="IPphones"/>

Call Routing Information

Inbound Calls

Significant Digits*	<input type="text" value="All"/>
Calling Search Space	<input type="text" value="IPphones"/>
AAR Calling Search Space	<input type="text" value="IPphones"/>
Prefix DN	<input type="text"/>

Outbound Calls

Calling Line ID Presentation*	<input type="text" value="Allowed"/>
Calling Party Selection*	<input type="text" value="Originator"/>
Called party IE number type unknown*	<input type="text" value="Cisco CallManager"/>
Calling party IE number type unknown*	<input type="text" value="Cisco CallManager"/>
Called Numbering Plan*	<input type="text" value="Cisco CallManager"/>
Calling Numbering Plan*	<input type="text" value="Cisco CallManager"/>
Number of digits to strip*	<input type="text" value="0"/>
Caller ID DN	<input type="text"/>
SMDI Base Port*	<input type="text" value="0"/>

PRI Protocol Type Specific Information

- Display IE Delivery
- Redirecting Number IE Delivery - Outbound

PRI Protocol Type Specific Information

- Display IE Delivery
- Redirecting Number IE Delivery - Outbound
- Redirecting Number IE Delivery - Inbound
- Send Extra Leading Character In DisplayIE***
- Setup non-ISDN Progress Indicator IE Enable****
- MCDN Channel Number Extension Bit Set to Zero**
- Send Calling Name In Facility IE
- Interface Identifier Present**

Interface Identifier Value**

Connected Line ID Presentation (QSIG Inbound Call)*

UUIE Configuration

- Passing Precedence Level Through UUIE

Security Access Level

Product Specific Configuration

Clock Reference*

TX-Level CSU*

SP1 Clock Source*

Product Specific Configuration

Clock Reference*	Network
TX-Level CSU*	0dB
FDL Channel*	ATT 54016
Framing*	ESF
Audio Signal Adjustment into IP Network*	NoDbPadding
Audio Signal Adjustment from IP Network*	NoDbPadding
Yellow Alarm*	Bit2
Zero Suppression*	B8ZS
Digit On Duration(50-500ms)*	100
Interdigit Duration(50-500msec)*	100
SNMP Community String*	public
Disable SNMP Set operations	<input type="checkbox"/>
Debug Port Enable	<input checked="" type="checkbox"/>
Hold Tone Silence Duration*	0
Port Used for Voice Calls	<input checked="" type="checkbox"/>
Port Used for Modem Calls	<input checked="" type="checkbox"/>
Port Used for Fax Calls	<input checked="" type="checkbox"/>

Fax and Modem Parameters

Fax and Modem Parameters

Fax Relay Enable	<input checked="" type="checkbox"/>
Fax Error Correction Mode Override	<input checked="" type="checkbox"/>
Maximum Fax Rate*	14400bps
Fax Payload Size*	20
Non Standard Facilities Country Code*	65535
Non Standard Facilities Vendor Code*	65535
Fax/Modem Packet Redundancy	<input type="checkbox"/>
NSE Type*	Non-IOS Gateways

Playout Delay Parameters

Initial Playout Delay*	40
Minimum Playout Delay*	20
Maximum Playout Delay*	150

Echo Canceller Configuration

Echo TailLength (ms)*	32 ms
Minimum ERL (db)*	6 db



Partitions Configuration

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions



Find and List Partitions

[Add a New Partition](#)

1 matching record(s) for Partition Name begins with ""

Find Partitions where Partition Name
and show items per page

To list all items, click Find without entering any search text.

Matching record(s) 1 to 1 of 1

<input type="checkbox"/>	Partition Name	Description
<input type="checkbox"/>	 CiscoPartition	CiscoPartition

First Previous Next Last

Page of 1

Partition Configuration

[Add a New Partition](#)
[Back to Find/List Partitions](#)
[Dependency Records](#)

Partition: CiscoPartition

Status: Ready

Update

Delete

Restart Devices

Partition Name*

CiscoPartition

Description

CiscoPartition

Time Schedule

< None >

Time Zone Originating Device

Specific Time Zone

(GMT) Monrovia, Casablanca

* indicates required item



Calling Search Space

Calling Search Space Configuration

[Add New Calling Search Space](#)
[Back to Find/List Calling Search Spaces](#)
[Dependency Records](#)

Calling Search Space: IPphones

Status: Ready

Calling Search Space Information

Calling Search Space Name*

Description

Route Partitions for this Calling Search Space

Find Partitions containing

Available Partitions



Selected Partitions*
(ordered by highest priority)

CiscoPartition

* indicates required item



Route Pattern Configuration

Route Pattern Configuration

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

Route Pattern: 21XX

Status: Ready

Note: Any update to this Route Pattern automatically resets the associated gateway or Route List

Copy

Update

Delete

Pattern Definition

Route Pattern*	<input type="text" value="21XX"/>	
Partition	<input type="text" value="CiscoPartition"/>	
Description	<input type="text" value="To Lucent MV1.3"/>	
Numbering Plan*	<input type="text" value="North American Numbering Plan"/>	
Route Filter	<input type="text" value=" < None >"/>	
MLPP Precedence	<input type="text" value="Default"/>	
Gateway or Route List*	<input type="text" value="S0/DS1-0@SDA0001C9D93A9B"/> (Edit)	
Route Option	<input checked="" type="radio"/> Route this pattern <input type="radio"/> Block this pattern <input type="text" value="— Not Selected —"/>	
Call Classification*	<input type="text" value="OnNet"/> <input type="checkbox"/> Allow Device Override	
<input type="checkbox"/> Provide Outside Dial Tone	<input type="checkbox"/> Allow Overlap Sending	<input type="checkbox"/> Urgent Priority
<input type="checkbox"/> Require Forced Authorization Code		
Authorization Level	<input type="text" value="0"/>	
<input type="checkbox"/> Require Client Matter Code		



Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation

Calling Name Presentation

Connected Party Transformations

Connected Line ID Presentation

Connected Name Presentation

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Carrier Identification Code

Network Service Protocol

Network Service	Service Parameter Name	Service Parameter Value
<input type="text" value="— Not Selected —"/>	<input type="text" value=" < Not Exist >"/>	<input type="text"/>

* indicates required item.



Service Parameters - MWI Inbound Calling Search Space

Clusterwide Parameters (Feature - General)

Parameter Name	Parameter Value	Suggested Value
Call Park Display Timer (sec)*	<input type="text" value="10"/>	10
Call Park Reversion Timer (sec)*	<input type="text" value="60"/>	60
Maximum Call Duration Timer (min)*	<input type="text" value="720"/>	720
Maximum Hold Duration Timer (min)*	<input type="text" value="360"/>	360
Party Entrance Tone*	<input type="text" value="True"/>	True
Suppress MOH to Conference Bridge*	<input type="text" value="True"/>	True
Message Waiting Lamp Policy*	<input type="text" value="Primary Line - Light and Prompt"/>	Primary Line - Light and Prompt
Message Waiting Indicator InBound Calling Search Space	<input type="text" value="IPphones"/>	
Message Waiting Indicator APDU Digit Translation CSS	<input type="text" value="< None >"/>	
Multiple Tenant MWI Modes*	<input type="text" value="False"/>	False
Block OffNet To OffNet Transfer*	<input type="text" value="False"/>	False



Service Parameters - Forward

Clusterwide Parameters (Feature - Forward)		
Parameter Name	Parameter Value	Suggested Value
Forward Maximum Hop Count*	<input type="text" value="12"/>	12
Forward No Answer Timer (sec)*	<input type="text" value="12"/>	12
Max Forward Hops to DN*	<input type="text" value="12"/>	12
Retain Forward Information*	<input type="text" value="True"/>	False
Forward By Reroute Enabled*	<input type="text" value="True"/>	False
Transform Forward by Reroute Destination*	<input type="text" value="True"/>	True
Always Forward Switch Voice Mail Calls*	<input type="text" value="True"/>	True
Forward By Reroute T1 Timer (sec)*	<input type="text" value="10"/>	10
Include Original Called Info for Q.SIG Call Diversions*	<input type="text" value="Only after the first diversion"/>	Only after the first diversion
Max Forward UnRegistered Hops to DN*	<input type="text" value="0"/>	0

Some parameters in this group are hidden, click on Advanced button to see hidden parameters



Service Parameters – Path Replacement

Clusterwide Parameters (Feature - Path Replacement)		
Parameter Name	Parameter Value	Suggested Value
Path Replacement Enabled*	<input type="text" value="True"/>	False
Path Replacement on Tromboned Calls*	<input type="text" value="True"/>	True
Start Path Replacement Minimum Delay Time (sec)*	<input type="text" value="5"/>	0
Start Path Replacement Maximum Delay Time (sec)*	<input type="text" value="10"/>	0
Path Replacement T1 Timer (sec)*	<input type="text" value="30"/>	30
Path Replacement T2 Timer (sec)*	<input type="text" value="15"/>	15
Path Replacement PINX ID	<input type="text" value="5555"/>	
Path Replacement Calling Search Space	<input type="text" value="IPphones"/>	



Service Parameters – Call Back

Clusterwide Parameters (Feature - Call Back)		
Parameter Name	Parameter Value	Suggested Value
Call Back Enabled Flag*	True	True
Call Back Notification Audio File Name*	CallBack.raw	CallBack.raw
Connection Proposal Type*	Connection Retention	Connection Retention
Connection Response Type*	Default to Connection Retention	Default to Connection Retention
Call Back Request Protection T1 Timer (sec)*	10	10
Call Back Recall T3 Timer (sec)*	20	20
Call Back Calling Search Space	IPphones	
No Path Reservation*	True	True
Set Private Numbering Plan for Call Back*	False	False



IP Phone Configuration

Phone Configuration

- [Add a new phone](#)
- [Add/Update Speed Dials](#)
- [Add/Update Busy Lamp Fields](#)
- [Subscribe/Unsubscribe Services](#)
- [Dependency Records](#)
- [Back to Find/List Phones](#)

Directory Numbers

Base Phone

- 7712 Line 1 - 5004 in
7719 CiscoPartition
- 7712 Line 2 - Add new DN
7719

Phone: SEP000BBEAD4C1C (Test Phone - Bench 8 (5004))
Registration: Registered with Cisco CallManager 172.20.236.2
IP Address: [172.20.236.8](#)

Status: Ready

Phone Configuration (Model = Cisco 7960)

Device Information

MAC Address*	<input type="text" value="000BBEAD4C1C"/>
Description	<input type="text" value="Test Phone - Bench 8 (5004)"/>
Owner User ID	<input type="text"/> (Select User ID)
Device Pool*	<input type="text" value="Default"/> (View Details)
Common Profile	<input type="text" value="< None >"/> (View Details)
Calling Search Space	<input type="text" value="IPphones"/>
AAR Calling Search Space	<input type="text" value="IPphones"/>
Media Resource Group List	<input type="text" value="< None >"/>
User Hold Audio Source	<input type="text" value="< None >"/>
Network Hold Audio Source	<input type="text" value="< None >"/>
Location	<input type="text" value="Location_2"/>



Location	<input type="text" value="Location_2"/>
AAR Group	<input type="text" value="AAR_group_1"/>
User Locale	<input type="text" value="English United States"/>
Network Locale	<input type="text" value="United States"/>
Device Security Mode	<input type="text" value="Use System Default"/>
	<i>Device security mode only takes effect if the enterprise parameter Cluster Security Mode is set to 1</i>
Signal Packet Capture Mode	<input type="text" value="None"/>
Packet Capture Duration	<input type="text" value="60"/>
Built In Bridge	<input type="text" value="On"/>
Privacy	<input type="text" value="Off"/>
Device Mobility Mode	<input type="text" value="Default"/> (View Current Settings)
<input checked="" type="checkbox"/> Retry Video Call as Audio	
<input type="checkbox"/> Ignore Presentation Indicators (internal calls only)	
<input checked="" type="checkbox"/> Logged into Hunt Group	
Phone Button Template Information	
Phone Button Template*	<input type="text" value="Standard 7960"/> (View button list)
Softkey Template Information	
Softkey Template	<input type="text" value="Custom Feature"/>



Expansion Module Information

Module 1

Module 2

Firmware Load Information (leave blank to use default)

Phone Load Name

Module 1 Load Name (Module 1 selection required)

Module 2 Load Name (Module 2 selection required)

Cisco IP Phone - External Data Locations (leave blank to use default)

Information

Directory

Messages

Services

Authentication Server

Proxy Server

Idle

Idle Timer (seconds)




Directory Number Configuration

Directory Number Configuration

[Configure Device \(SEP000BBEAD4C1C\)](#)

[Dependency Records](#)

Associated With

 **SEP000BBEAD4C1C**
7960 (Line 1)

Directory Number: 5004 (CiscoPartition)

Status: Ready

Note: Any update to this Directory Number automatically resets the associated devices

Update

Remove from Device

Reset Devices

Directory Number

Directory Number*

Partition

Directory Number Settings

Voice Mail Profile
(Choose <None> to use default)

Calling Search Space

User Hold Audio Source

Network Hold Audio Source

Auto Answer

AAR Settings

	Voice Mail	AAR Destination Mask	AAR Group
AAR	<input type="checkbox"/>	<input type="text" value="2101"/>	<input type="text" value="AAR_group_1"/>

- Remove this destination from the call forwarding history
- Retain this destination in the call forwarding history

Call Forward and Pickup Settings



Call Forward and Pickup Settings

	Voice Mail	Coverage/ Destination	Calling Search Space
Forward All	<input type="checkbox"/>	<input type="text"/>	< None > ▾
Forward Busy Internal	<input checked="" type="checkbox"/>	<input type="text"/>	< None > ▾
Forward Busy External	<input checked="" type="checkbox"/>	<input type="text"/>	< None > ▾
Forward No Answer Internal	<input checked="" type="checkbox"/>	<input type="text"/>	< None > ▾
Forward No Answer External	<input checked="" type="checkbox"/>	<input type="text"/>	< None > ▾
Forward No Coverage Internal	<input checked="" type="checkbox"/>	<input type="text"/>	< None > ▾
Forward No Coverage External	<input checked="" type="checkbox"/>	<input type="text"/>	< None > ▾
Forward Unregistered Internal	<input type="checkbox"/>	2104	IPphones ▾
Forward Unregistered External	<input type="checkbox"/>	2101	IPphones ▾
No Answer Ring Duration	<input type="text"/>	(seconds)	
Call Pickup Group	<input type="text"/>	< None > ▾	(View Details)

MLPP Alternate Party Settings

Target (Destination)	<input type="text"/>
Calling Search Space	< None > ▾
No Answer Ring Duration	<input type="text"/> (seconds)

Line Settings for all Devices

Alerting Name	5004 (alert)
---------------	--------------

Line Settings for this Device

Line Settings for this Device

Display (Internal Caller ID)	<input type="text" value="CM-Neptune 5004"/>
Line Text Label	<input type="text" value="CM-Neptune 5004"/>
External Phone Number Mask	<input type="text"/>
Message Waiting Lamp Policy	<input type="text" value="Use System Policy"/>
Ring Setting (Phone Idle)	<input type="text" value="Use System Default"/>
Ring Setting (Phone Active)**	<input type="text" value="Use System Default"/>
Call Pickup Group Audio Alert Setting(Phone Idle)	<input type="text" value="Use System Default"/>
Call Pickup Group Audio Alert Setting(Phone Active)	<input type="text" value="Use System Default"/>

Multiple Call / Call Waiting Settings

Maximum Number of Calls*	<input type="text" value="4"/> (1 - 200)
Busy Trigger*	<input type="text" value="3"/> (<= Max. Calls)

Forwarded Call Information Display

- | | |
|---|---|
| <input checked="" type="checkbox"/> Caller Name | <input checked="" type="checkbox"/> Caller Number |
| <input type="checkbox"/> Redirected Number | <input checked="" type="checkbox"/> Dialed Number |

* indicates required item; changes to Line or Directory Number settings require restart.

** Ring Setting (Phone Active) applies to this line when any line on the phone has a call in progress.

Note:

If you are using a language other than English for Display (Internal Caller ID) or Line Text Label text, make sure the correct character set (shown below) is selected. Text displays incorrectly if the wrong character set is selected. (English characters are included in all character sets.)

Character Set



AAR Group Configuration

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions



Automated Alternate Routing Group Configuration

[Add a New AAR Group](#)
[Back to Find/List AAR Groups](#)
[Dependency Records](#)

AAR Group: AAR_group_1

Status: Ready

Update

Delete

AAR Group Name*

AAR_group_1

Prefix digits within AAR_group_1

Prefix Digits

AAR_group_1

* indicates required item



Device Pool Configuration

Device Pool Configuration

[Add new Device Pool](#)
[Back to Find/List Device Pools](#)
[Dependency Records](#)

Device Pool: Default (42 members**)

Status: Ready

Copy

Update

Delete

Reset Devices

Device Pool Settings

Device Pool Name*	Default
Cisco CallManager Group*	Default
Date/Time Group*	CMLocal
Region*	Default
SRST Reference*	Disable
Calling Search Space for Auto-registration	< None >
Media Resource Group List	MRGL_CM_Neptune
Network Locale	United States
Device Mobility Group	< None >
Location	< None >
Physical Location	< None >
Connection Monitor Duration***	



Location Configuration

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration

For Cisco IP Telephony Solutions



Find and List Locations

[Add a New Location](#)

3 matching record(s) for Location begins with ""

Find locations where begins with
and show items per page

To list all items, click Find without entering any search text.

Matching record(s) 1 to 3 of 3

<input type="checkbox"/>	Location	Voice Bandwidth	Video Bandwidth	Copy
<input type="checkbox"/>	Location_1	200	384	
<input type="checkbox"/>	Location_2	100	384	
<input type="checkbox"/>	Location_3	Unlimited	384	

First Previous Next Last

Page of 1

Configuring the Cisco Catalyst 6500 Switch

```
Console> (enable) sh version
WS-C6506 Software, Version NmpSW: 7.6(8)
Copyright (c) 1995-2004 by Cisco Systems
NMP S/W compiled on Jul 15 2004, 19:13:13
```

```
System Bootstrap Version: 5.3(1)
System Boot Image File is 'bootflash:cat6000-supk8.7-6-8.bin'
System Configuration register is 0x2102
```

```
Hardware Version: 2.0 Model: WS-C6506 Serial #: TBA04110341
```



PS1 Module: WS-CAC-1300W Serial #: SON04080868

Mod	Port	Model	Serial #	Versions
1	2	WS-X6K-SUP1A-2GE	SAD041504XL	Hw : 3.1 Fw : 5.3(1) Fw1: 5.1(1)CSX Sw : 7.6(8) Sw1: 7.6(8)
		WS-F6K-PFC	SAD0413097K	Hw : 1.1 Sw :
		WS-X6K-SUP1A-2GE	SAD041504XL	Hw : 3.1 Sw :
2	48	WS-X6348-RJ-45	SAL0708D6FK	Hw : 6.2 Fw : 5.4(2) Sw : 7.6(8)
		WS-F6K-VPWR		Hw : 2.0 Sw : 1.0
3	5	WS-SVC-CMM	SAD0825030S	Hw : 2.5 Fw : 12.2(13)ZP3, Sw : 12.2(13)ZP3,
4	24	WS-X6624-FXS	SAD050203M8	Hw : 3.0 Fw : 5.4(2) Sw : 7.6(8) HP : A00204000005; DSP : A0034133 (4.1.
33)				
5	8	WS-X6608-E1	SAD043300AJ	Hw : 1.1 Fw : 5.4(2) Sw : 7.6(8) HP1: D00404000006; DSP1: D0054133 (4.1.
33)				
				HP2: D00404000006; DSP2: D0054133 (4.1.
33)				
				HP3: D00404000006; DSP3: D0054133 (4.1.
33)				
				HP4: D00404000006; DSP4: D0054133 (4.1.
33)				
				HP5: D00404000011; DSP5: D0054140 (4.1.
40)				
				HP6: D00404000011; DSP6: D0054140 (4.1.
40)				
				HP7: D00404000011; DSP7: D0054140 (4.1.
40)				
				HP8: C00103010014; DSP8: C002E031 (3.3.
2)				
6	8	WS-X6608-T1	SAD080303C2	Hw : 1.4 Fw : 5.4(2) Sw : 7.6(8) HP1: D00404000006; DSP1: D0054133 (4.1.
33)				
				HP2: D00404000006; DSP2: D0054133 (4.1.
33)				
				HP3: D00404000006; DSP3: D0054133 (4.1.
33)				



```

33) HP4: D00404000006; DSP4: D0054133 (4.1.
40) HP5: D00404000011; DSP5: D0054140 (4.1.
40) HP6: D00404000011; DSP6: D0054140 (4.1.
40) HP7: D00404000011; DSP7: D0054140 (4.1.
40) HP8: D00404000011; DSP8: D0054140 (4.1.

```

Module	DRAM			FLASH			NVRAM		
	Total	Used	Free	Total	Used	Free	Total	Used	Free
1	65408K	46141K	19267K	16384K	15489K	895K	512K	293K	219K

Uptime is 21 days, 19 hours, 22 minute

Console> (enable) **sh module**

Mod	Slot	Ports	Module-Type	Model	Sub	Status
1	1	2	1000BaseX Supervisor	WS-X6K-SUP1A-2GE	yes	ok
2	2	48	10/100BaseTX Ethernet	WS-X6348-RJ-45	yes	ok
3	3	5	Communication Media Mod.	WS-SVC-CMM	no	other
4	4	24	FXS	WS-X6624-FXS	no	ok
5	5	8	E1	WS-X6608-E1	no	ok
6	6	8	T1	WS-X6608-T1	no	ok

Mod	Module-Name	Serial-Num
1		SAD041504XL
2		SAL0708D6FK
3		SAD0825030S
4		SAD050203M8
5		SAD043300AJ
6		SAD080303C2

Mod	MAC-Address(es)	Hw	Fw	Sw
1	00-d0-d3-37-f9-8e to 00-d0-d3-37-f9-8f	3.1	5.3(1)	7.6(8)
	00-d0-d3-37-f9-8c to 00-d0-d3-37-f9-8d			
	00-01-63-af-5c-00 to 00-01-63-af-5f-ff			
2	00-0c-30-44-30-30 to 00-0c-30-44-30-5f	6.2	5.4(2)	7.6(8)
3	00-11-5c-28-e8-bc to 00-11-5c-28-e8-c5	2.5	12.2(13)ZP	12.2(13)ZP3,
4	00-03-32-ba-2e-35	3.0	5.4(2)	7.6(8)
5	00-01-64-12-22-80 to 00-01-64-12-22-87	1.1	5.4(2)	7.6(8)
6	00-0e-38-79-ae-f6 to 00-0e-38-79-ae-fd	1.4	5.4(2)	7.6(8)

Mod	Sub-Type	Sub-Model	Sub-Serial	Sub-Hw	Sub-Sw
1	L3 Switching Engine	WS-F6K-PFC	SAD0413097K	1.1	
2	Inline Power Module	WS-F6K-VPWR		2.0	1.0

Console> (enable)



Console> (enable) **sh port 3**

* = Configured MAC Address

Port	Name	Status	Vlan	Duplex	Speed	Type
3/1		connected	231	full	1000	1000BaseT
3/2		notconnect	231	full	100	100BaseTX
3/3		notconnect	1	full	100	100BaseTX
3/4		notconnect	1	full	100	100BaseTX
3/5		notconnect	1	full	100	100BaseTX

Port	Trap	IfIndex
3/1	disabled	111
3/2	disabled	112
3/3	disabled	113
3/4	disabled	114
3/5	disabled	115

Port	Status	ErrDisable Reason	Port	ErrDisableTimeout	Action on Timeout
3/1	connected	-	Enable		No Change
3/2	notconnect	-	Enable		No Change
3/3	notconnect	-	Enable		No Change
3/4	notconnect	-	Enable		No Change
3/5	notconnect	-	Enable		No Change

Console> (enable)

Console> (enable) **sh vlan**

VLAN	Name	Status	IfIndex	Mod/Ports, Vlans
1	default	active	5	1/1-2
32	VLAN0032	active	104	2/1
66	VLAN0066	active	105	
225	VLAN0225	active	102	2/2, 2/4-12, 2/14-24 4/1-24 5/1-4 6/1-4
231	VLAN0231	active	110	2/25-48 5/5-8 6/5-8
700	VLAN0700	active	109	2/13
1002	fddi-default	active	6	
1003	token-ring-default	active	9	
1004	fddinet-default	active	7	
1005	trnet-default	active	8	



VLAN	Type	SAID	MTU	Parent	RingNo	BrdgNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
32	enet	100032	1500	-	-	-	-	-	0	0
66	enet	100066	1500	-	-	-	-	-	0	0
225	enet	100225	1500	-	-	-	-	-	0	0
231	enet	100231	1500	-	-	-	-	-	0	0
700	enet	100700	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	trcrf	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	-	-	0	0
1005	trbrf	101005	1500	-	-	-	ibm	-	0	0

VLAN	MISTP-Inst	DynCreated	RSPAN
1	-	static	disabled
32	-	static	disabled
66	-	static	disabled
225	-	static	disabled
231	-	static	disabled
700	-	static	disabled
1002	-	static	disabled
1003	-	static	disabled
1004	-	static	disabled
1005	-	static	disabled

```
VLAN AREHops STEHops Backup CRF lq VLAN
-----
1003 7          7          off
Console> (enable)
```

```
Console> (enable) sh config
This command shows non-default configurations only.
Use 'show config all' to show both default and non-default configurations.
```

```
.....
.....
.....
.....
.....
```

```
..
begin
!
# ***** NON-DEFAULT CONFIGURATION *****
!
!
#time: Wed Sep 15 2004, 12:40:15
```



```
!  
#version 7.6(8)  
!  
!  
#dot1x  
set dot1x shutdown-timeout 0  
!  
#!  
#vtp  
set vtp mode transparent  
set vlan 1 name default type ethernet mtu 1500 said 100001 state active  
set vlan 1002 name fddi-default type fddi mtu 1500 said 101002 state active  
set vlan 1004 name fddinet-default type fddinet mtu 1500 said 101004 state active  
e stp ieee  
set vlan 1005 name trnet-default type trbrf mtu 1500 said 101005 state active st  
p ibm  
set vlan 32,66,225,231,700  
set vlan 1003 name token-ring-default type trcrf mtu 1500 said 101003 state acti  
ve mode srb aremaxhop 7 stemaxhop 7 backupcrf off  
!  
#ip  
set interface sc0 225 172.20.31.20/255.255.255.0 172.20.31.255  
  
set interface sc1 0 0.0.0.0/0.0.0.0 0.0.0.0  
  
set interface sc1 down  
set ip route 0.0.0.0/0.0.0.7 172.20.31.1  
set ip alias default 0.0.0.0  
!  
#spantree  
#vlan parameters  
set spantree fwddelay 15 1003  
set spantree maxage 20 1003  
set spantree disable 1005  
set spantree fwddelay 15 1005  
set spantree maxage 20 1005  
!  
#syslog  
set logging level ld 2 default  
set logging level privatevlan 2 default  
set logging level ethc 2 default  
set logging level gl2pt 2 default  
!  
#set boot command  
set boot config-register 0x2102  
set boot system flash bootflash:cat6000-supk8.7-6-8.bin  
!  
#igmp  
set igmp disable  
!  
#qos  
set qos enable  
set qos wrr 2q2t 5 255  
set qos wrr 1p2q2t 5 255
```



```
set qos wred lp2q2t tx queue 1 40:80 70:100
set qos wred lp2q2t tx queue 2 40:80 70:100
clear qos acl all
#IP_PHONE_SCCP
set qos acl ip IP_PHONE_SCCP dscp 26 tcp any any range 2000 2002
#
commit qos acl all
!
# default port status is enable
!
!
#module 1 : 2-port 1000BaseX Supervisor
!
#module 2 : 48-port 10/100BaseTX Ethernet
set vlan 32 2/1,2/3
set vlan 225 2/2,2/4-12,2/14-24
set vlan 231 2/25-48
set vlan 700 2/13
set port speed 2/1,2/3 100
set port duplex 2/1,2/3 full
set trunk 2/1 desirable dot1q 1-1005,1025-4094
!
#module 3 : 5-port Communication Media Mod.
set vlan 231 3/1-2
!
#module 4 : 24-port FXS
set port voice interface 4/1-24 dhcp enable vlan 225
!
#module 5 : 8-port E1
set port voice interface 5/1 dhcp enable vlan 225
set port voice interface 5/2 dhcp enable vlan 225
set port voice interface 5/3 dhcp enable vlan 225
set port voice interface 5/4 dhcp enable vlan 225
set port voice interface 5/5 dhcp enable vlan 231
set port voice interface 5/6 dhcp enable vlan 231
set port voice interface 5/7 dhcp enable vlan 231
set port voice interface 5/8 dhcp enable vlan 231
!
#module 6 : 8-port T1
set port voice interface 6/1 dhcp enable vlan 225
set port voice interface 6/2 dhcp enable vlan 225
set port voice interface 6/3 dhcp enable vlan 225
set port voice interface 6/4 dhcp enable vlan 225
set port voice interface 6/5 dhcp enable vlan 231
set port voice interface 6/6 dhcp enable vlan 231
set port voice interface 6/7 dhcp enable vlan 231
set port voice interface 6/8 dhcp enable vlan 231
!
#module 15 empty
!
#module 16 empty
end
```



Acronyms

Acronym	Definitions
ANF-PR	Additional Network Feature Path Replacement
CCM	Cisco CallManager
CCBS	Call Completion to Busy Subscriber
CCNR	Call Completion on No Reply
CFB	Call Forwarding on Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CLIP	Calling Line (Number) Identification Presentation
CLIR	Calling Line (Number) Identification Restriction
CNIP	Calling Name Identification Presentation
CNIR	Calling Name Identification Restriction
COLP	Connected Line (Number) Identification Presentation
COLR	Connected Line (Number) Identification Restriction



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