

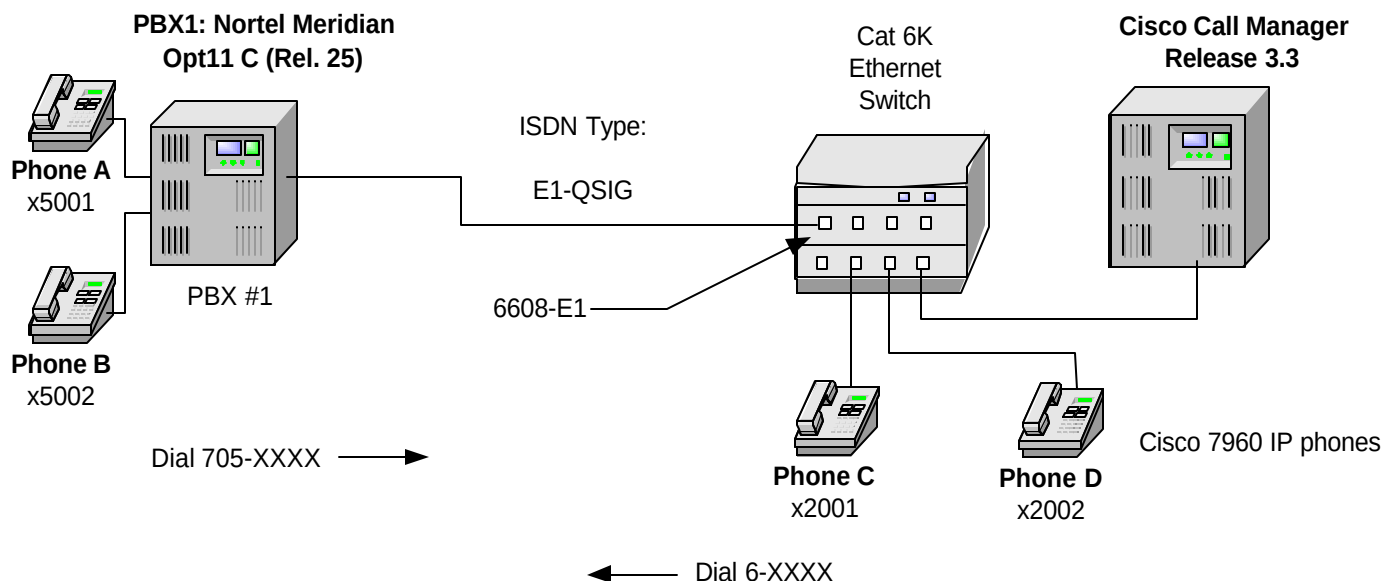
Cisco Catalyst 6608-PBX Interoperability: Nortel Meridian Opt11C with E1 MGCP Signaling

Introduction

This document describes connectivity between a Nortel Meridian Opt11C Release 25 PBX featuring an ISGF switch type and Cisco CallManager using a Cisco 6608 using PRI ISO QSIG E1 as the MGCP gateway.

Network Topology

Basic Call Setup End-to-End Configuration



Limitations

Cisco CallManager 3.3 does not support sending the following types of identifiers:

- Alerting Name or Busy Name Identification information.
- Restricted Calling Name Identification
- Restricted Connected Name Identification.
- Restricted Connected Number Identification



System Components

Hardware Requirements

- Cisco hardware— Cisco Catalyst 6608 switch with E1
- PBX hardware— Nortel Meridian O11c with NTB50AA, 2 Mb PRI

Software Requirements

- Cisco IOS software release— NmpSW: 6.1(4)
- PBX software release—version 25
- Cisco CallManager release—version 3.3

Configuration

Configuring the Nortel Meridian Opt11C

Be sure to configure the Nortel PBX components in the following sequence:

Step 1. Configure common equipment.

Step 2. Configure the D-Channel.

Step 3. Configure the route data block.

Step 4. Configure the trunk.

Configuration Menus and Commands

Common equipment

> LD 22

PT2000

MARP NOT ACTIVATED

REQ PRT

TYPE CEQU

CEQU

MPED 8D

SUPL 000 004 008 012

016 032 036 040

044 048 064 068

072

XCT 000

CONF 029 030 031 062

094 095

DLOP NUM DCH FRM LCMT YALM T1TE TRSH



```
PRI 004 23 ESF B8S FDL - 00
PRI2 05
DTI2
MISP
```

```
REQ ****
>
```

Configure D-Channel

```
>LD 22
PT2000
MARP NOT ACTIVATED
```

```
REQ PRT
```

```
TYPE ADAN DCH 5
```

```
ADAN      DCH 5
  CTYP MSDL
  CARD 05
  PORT 1
  DES E1_ISGF
  USR PRI
  DCHL 5
  OTBF 32
  PARM RS422 DTE
  DRAT 64KC
  CLOK EXT
  IFC ISGF
    PINX_CUST 0
    ISDN_MCNT 300
  CLID OPT0
  CO_TYPE STD
  SIDE NET
  CNEG 1
  RLS ID **
  QCHID YES
  RCAP COLP NDI CCBI CCNI PRI DV1I CTI
  PR_TRIGS DIV 2 3
            CNG 2 3
  PR_RTN NO
  MBGA NO
  OVLR YES
  DIDD 0
  OVLS YES
  OVLT 0
  T310 120
```



```
T200 3
T203 10
N200 3
N201 260
K      7
```

```
REQ ****
>
```

Configure Route Data Block

```
>LD 21
```

```
PT1000
```

```
REQ: PRT
```

```
TYPE: RDB
```

```
CUST 0
```

```
ROUT 105
```

```
TYPE RDB
CUST 00
DMOD
ROUT 105
DES E1_ISGF
TKTP TIE
NPID_TBL_NUM 0
ESN NO
CNVT NO
SAT NO
RCLS EXT
DTRK YES
BRIP NO
DGTP PRI2
ISDN YES
    MODE PRA
    IFC ISGF
    SBN NO
    PNI 00001
    NCNA NO
    NCRD NO
    CTYP UKWN
    INAC NO
    ISAR NO
    CPFXS YES
    DAPC NO
```



INTC NO
DSEL VOD
PTYP DTT
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
SRCH RRB
TRMB YES
STEP
ACOD 705
TCPP NO
TARG 01
CLEN 1
BILN NO
OABS
INST
ANTK
SIGO STD
ICIS YES
TIMR ICF 512
OGF 512
EOD 13952
NRD 10112
DDL 70
ODT 4096
RGV 640
GRD 896
SFB 3
NBS 2048
NBL 4096
TFD 0
DRNG NO
CDR NO
MUS NO
OHQ NO
OHQT 00

PAGE 002

CBQ NO
AUTH NO
TTBL 0
PLEV 2
ALRM NO
ART 0
SGRP 0
AACR NO



REQ: ****
>

Configure Trunk

>LD 20
PT0000
MARP NOT ACTIVATED

REQ: PRT

TYPE: TNB

TN 5 1

DATE

PAGE

DES

TN 005 01
TYPE TIE
CDEN SD
CUST 0
TRK PRI2
PDCA 1
PCML A
NCOS 0
RTMB 105 1
B-CHANNEL SIGNALING
TGAR 1
AST NO
IAPG 0
CLS UNR DTN CND WTA LPR APN THFD
P10 VNL
TKID
DATE 24 APR 2002
>



Configuring Cisco CallManager

6608-E1 Gateway Configuration

Cisco CallManager 3.3 Administration - Gateway Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Print

Address <http://ferengi/CCMAdmin/gatewayconfig.asp?pkid={CB557D64-12B9-451A-979A-E4D32198D86A}&type=2> Go Links

Cisco CallManager Administration
For Cisco IP Telephony Solutions

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

Product : Cisco Catalyst 6000 E1 VoIP Gateway
Gateway : S0/DS1-0@SDA000164122280
Device Protocol: Digital Access PRI
Registration: Registered with Cisco CallManager 10.10.10.1
IP Address: [10.10.10.104](#)

Status: Ready

Device Information

MAC Address*	000164122280
Description	SDA000164122280
Device Pool*	Default
Network Locale*	United States
Media Resource Group List	< None >
Location	< None >
AAR Group	< None >
Load Information	

Interface Information

PRI Protocol Type*	PRI ISO QSIG E1
Protocol Side*	User
Channel Selection Order*	Top Down
Channel IE Type*	Timeslot Number

Done Local intranet



Cisco CallManager 3.3 Administration - Gateway Configuration - Microsoft Internet Explorer

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Address <http://ferengi/CCMAdmin/gatewayconfig.asp?pkid={CB557D64-12B9-451A-979A-E4D32198D86A}&type=2> Go Links

PCM Type* A-law

Delay for first restart (1/8 sec ticks) 32

Delay between restarts (1/8 sec ticks) 4

☒ Inhibit restarts at PRI initialization

☐ Enable status poll

Call Routing Information

Inbound Calls

Significant Digits* 23

Calling Search Space < None >

AAR Calling Search Space < None >

Prefix DN

Outbound Calls

Calling Party Presentation* Allowed

Calling Party Selection* Originator

Called party IE number type unknown* Cisco CallManager

Calling party IE number type unknown* Cisco CallManager

Called Numbering Plan* Private

Calling Numbering Plan* Cisco CallManager

Number of digits to strip* 0

Caller ID DN

PRI Protocol Type Specific Information

☐ Display IE Delivery

☐ Redirecting Number IE Delivery - Outbound

Done Local intranet



Cisco CallManager 3.3 Administration - Gateway Configuration - Microsoft Internet Explorer

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Address <http://ferengi/CCMAdmin/gatewayconfig.asp?pkid={CB557D64-12B9-451A-979A-E4D32198D86A}&type=2> Go Links

☐ 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**

☐ Interface Identifier Present**

Interface Identifier Value**

Product Specific Configuration

Clock Reference*

Framing*

Audio Signal Adjustment into IP Network*

Audio Signal Adjustment from IP Network*

Zero Suppression*

Digit On Duration(50-500ms)*

Interdigit Duration(50-500msec)*

Adaptive Gain Control Enable* ☒

SNMP Community String

Debug Port Enable* ☒

Hold Tone Silence Duration*

Port Used for Voice Calls* ☒

Port Used for Modem Calls* ☒

Port Used for Fax Calls* ☒

Fax and Modem Parameters

Done Local intranet



Cisco CallManager 3.3 Administration - Gateway Configuration - Microsoft Internet Explorer

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Address <http://ferengi/CCMAdmin/gatewayconfig.asp?pkid={CB557D64-12B9-451A-979A-E4D32198D86A}&type=2> Go Links

Fax and Modem Parameters

Fax Relay Enable*	☒
Fax Error Correction Mode Override*	☒
Maximum Fax Rate*	14400bps
Fax Payload Size*	20
Non Standard Facilities Country Code*	65535
Non Standard Facilities Vendor Code*	65535
Fax/Modem Packet Redundancy*	☐
V.21 Flag Sequence Detection Count*	4
NSE Type*	Non-IOS Gateways

Playout Delay Parameters

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

* indicates required item
** applicable to DMS-100 protocol only
*** applicable to DMS-100 protocol and DMS-250 protocol only
**** may be required to force ringback from some PBXs

[Back to Find/List Gateways](#)

Local intranet



Enbloc Route Pattern Configuration

Cisco CallManager 3.3 Administration - Route Pattern Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Reload Home Search Favorites History Print

Address <http://klingon/CCMAdmin/routepatternconfig.asp?pkid={6294CFA3-B099-4C88-A5DE-1D9756D2E7AB}> Go Links »

Copy Update Delete

Pattern Definition

Route Pattern*

Partition

Numbering Plan*

Route Filter

Gateway/Route List* (Edit)

Route Option
☒ Route this pattern ☐ Block this pattern

☒ Provide Outside Dial Tone ☐ Urgent Priority

Calling Party Transformations

☐ Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Party 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
— Not Selected —	< Not Exist >	

* indicates required item.

Done Local intranet



Overlap Sending Route Pattern Configuration

Cisco CallManager 3.3 Administration - Route Pattern Configuration - Microsoft Internet Explorer

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Address <http://kingon/CCMAdmin/routepatternconfig.asp?pkid={D676A9B4-AE3A-4E41-9CFD-798307A28392}> Go Links >>

Copy Update Delete

Pattern Definition

Route Pattern*

Partition

Numbering Plan*

Route Filter

Gateway/Route List* (Edit)

Route Option ☒ Route this pattern ☐ Block this pattern

☒ Provide Outside Dial Tone ☐ Urgent Priority

Calling Party Transformations

☐ Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Party 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
— Not Selected —	< Not Exist >	

* indicates required item.

Done Local intranet



Configuring the Cisco Catalyst 6608

Console> (enable) **sh version**

WS-C6506 Software, Version NmpSW: 6.1(4)
Copyright (c) 1995-2001 by Cisco Systems
NMP S/W compiled on May 15 2001, 12:27:20

System Bootstrap Version: 5.3(1)

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

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 : 6.1(4) Sw1: 6.1(4)
3	48	WS-F6K-PFC	SAD0413097K	Hw : 1.1
		WS-X6248-RJ-45	SAD04150CK1	Hw : 1.2 Fw : 5.1(1)CSX Sw : 6.1(4)
4	24	WS-X6624-FXS	SAD050203M8	Hw : 3.0 Fw : 5.4(2) Sw : 6.1(4)
5	8	WS-X6608-E1	SAD043300AJ	HP : A00203030009; DSP : A003D033 (3.6.33) Hw : 1.1 Fw : 5.4(2) Sw : 6.1(4) HP1: D00403030009; DSP1: D005D033 (3.6.33) HP2: D00403030009; DSP2: D005D033 (3.6.33) HP3: D00403030009; DSP3: D005D033 (3.6.33) HP4: D00403030009; DSP4: D005D033 (3.6.33) HP5: C00103010007; DSP5: C002E031 (3.3.2) HP6: C00103010007; DSP6: C002E031 (3.3.2) HP7: C00103010007; DSP7: C002E031 (3.3.2) HP8: C00103010007; DSP8: C002E031 (3.3.2)

Module	DRAM			FLASH			NVRAM		
	Total	Used	Free	Total	Used	Free	Total	Used	Free
1	65408K	43764K	21644K	16384K	5327K	11057K	512K	245K	267K

Uptime is 229 days, 22 hours, 39 minutes

Console> (enable)

Console> (enable) **sh module**

Mod	Slot	Ports	Module-Type	Model	Sub Status
1	1	2	1000BaseX Supervisor	WS-X6K-SUP1A-2GE	yes ok



3	3	48	10/100BaseTX Ethernet	WS-X6248-RJ-45	no	ok
4	4	24	FXS	WS-X6624-FXS	no	ok
5	5	8	E1	WS-X6608-E1	no	ok

Mod	Module-Name	Serial-Num
1		SAD041504XL
3		SAD04150CK1
4		SAD050203M8
5		SAD043300AJ

Mod	MAC-Address(es)	Hw	Fw	Sw
1	00-d0-d3-37-f9-8e to 00-d0-d3-37-f9-8f 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	3.1	5.3(1)	6.1(4)
3	00-01-97-4a-10-30 to 00-01-97-4a-10-5f	1.2	5.1(1)CSX	6.1(4)
4	00-03-32-ba-2e-35	3.0	5.4(2)	6.1(4)
5	00-01-64-12-22-80 to 00-01-64-12-22-87	1.1	5.4(2)	6.1(4)

Mod	Sub-Type	Sub-Model	Sub-Serial	Sub-Hw
1	L3 Switching Engine	WS-F6K-PFC	SAD0413097K	1.1

Console> (enable)

Console> (enable) **sh port 5/1**

Port	Name	Status	Vlan	Duplex	Speed	Type
5/1		connected	1	full	2.048	E1

Port	DHCP	MAC-Address	IP-Address	Subnet-Mask
5/1	enable	00-01-64-12-22-80	10.10.10.104	255.255.255.0

Port	Call-Manager(s)	DHCP-Server	TFTP-Server	Gateway
5/1	10.10.10.1	10.10.10.1	10.10.10.1	10.10.10.125

Port	DNS-Server(s)	Domain
5/1	-	-

Port	CallManagerState	DSP-Type
5/1	registered	C549

Port	NoiseRegen	NonLinearProcessing
5/1	enabled	enabled

Port	Trap	IfIndex
------	------	---------



```
-----  
5/1 disabled 66  
Console> (enable)
```

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