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NORTEL

Nortel Communication Server 1000 Release 6.0 Interoperability Config Guide

Cisco Unified Communications Manager Release 6.0.1 via SIP

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Introduction

The purpose of this document is to detail the steps and configuration necessary for Nortel Communication Server 1000 Release 6.0 to interoperate with Cisco Unified Communications Manager running software release 6.0.1 over SIP Trunks only. There is a known issue to interop with Cisco Unified Communications Manager over H323 trunk as Cisco uses different ports in OLC and OLCAck. That cause one way speech issue for any call involving hold and retrieve over H323**. So we recommend using SIP or QSIG to interop with Cisco Unified Communications Manager until the issue is fixed.**

This document doesn't include every possible combination of hardware, software, Protocol or feature testing scenarios.

Basic Configuration Notes

This application note is based on the configuration shown in the diagram on page 9.
Default configurations are used on both systems with the exception of the following:

- Cisco Unified Communications Manager is configured as a Static SIP end point to Nortel SPS.
- Cisco Unified Communications Manager is also configured as (MTP) media Termination Point. (Required)
- G711 codec with 20ms payload on CCM, 30 and 10 ms also work.
- CDP dialing plan on Nortel

Hardware and Software Versions

Nortel

Quantity	Hardware	Software Version
1	Nortel (CS 1000) Communication server 1000 (CPPM)	6.0
1	Signaling Servers (CPPM)	6.0
1	(SPS) SIP proxy Server HP DL320	6.0
1	CallPilot for messaging (TRP) 703	05.00.41.30
2	1140 IP sets	
1	T7316 Nortel Digital Phone	
1	Nortel Call Server Patch(s)	Deplist
3	Signaling Server Patch(s)	Deplist

Cisco

Quantity	Hardware	Software Version
1	Cisco Unified Communications Manager MCS7825H- 3.0-IPC1, DL320 G2	6.1.3.3190-1
2	7960 IP sets (SCCP)	cmterm-7940-7960-sccp.8-0-7.cop
1	7960 IP set (SIP)	cmterm-7940-7960-8.8.00-sip.cop
1	CCM patch	N/A

LAN Infrastructure

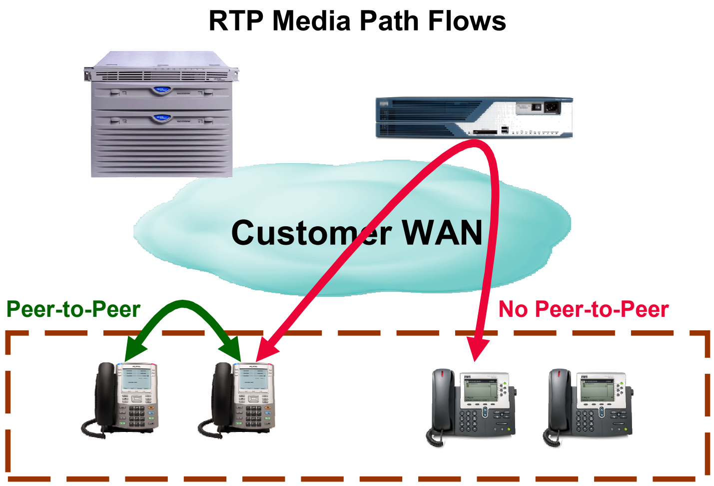
Quantity	Hardware	Software Version
1	Cisco 6503 Router	(C6MSFC2-PSV-M), Version 12.1(19)E1
1	Cisco 4503 L2 Switch	8.4(2)GLX
1	Nortel Baystack 5520 L2 Switch	5.0.5.020
1	DNS Server (Dell PC)	Windows 2000

Features Over SIP Trunk

- Basic Call
- Hold and Retrieve
- Attended Transfer
- Blind Transfer
- Call Forward
- Conference
- Personal Call Assistant (PCA)
- Caller Line ID (CLID) and Name Display
- Messaging CallPilot
- RFC2833
- G711 Codec with 30ms, 20ms and 10ms payload.
- Secured Reliable Transfer Protocol (SRTP)

Integration Notes and Limitations

1) No direct media path for IP Trunking
The Nortel Communication server 1000 supports a direct peer-to-peer media path between all IP endpoints. When these two systems are interconnected, the Cisco Unified Communications Manager requires the media path to pass through the Cisco Unified Communications Manager. This may have a significant impact on WAN bandwidth engineering if the voice packets need to be backhauled to Cisco Unified Communications Manager in a remote location as in the diagram below.



2) Cisco Media Termination Points and G.711 requirement
To interoperate with the Nortel Communication server 1000 the Cisco Unified Communications Manager requires Media Termination Points (MTPs) to provide any supplementary features beyond basic call setup and teardown. While the Nortel Communication server 1000 is able to support and intelligently negotiate different codecs, the Cisco Unified Communications Manager's software based MTP will only support G.711. Special consideration may need to be given for additional bandwidth requirements.

3) **Calling Party Name Display and Caller ID**
The Nortel Communication server 1000 uses the standard SIP "***P-Asserted-Id***" field to pass Calling Party Name Display as well as Caller ID information across SIP trunk resources to other nodes in the network. The Cisco Unified Communications Manager employs a different implementation, and therefore is unable to pass along this information to the Communication server 1000. This will have a negative impact to call routing for Caller ID sensitive applications such as a Contact Center and proper E911 call recognition and termination.

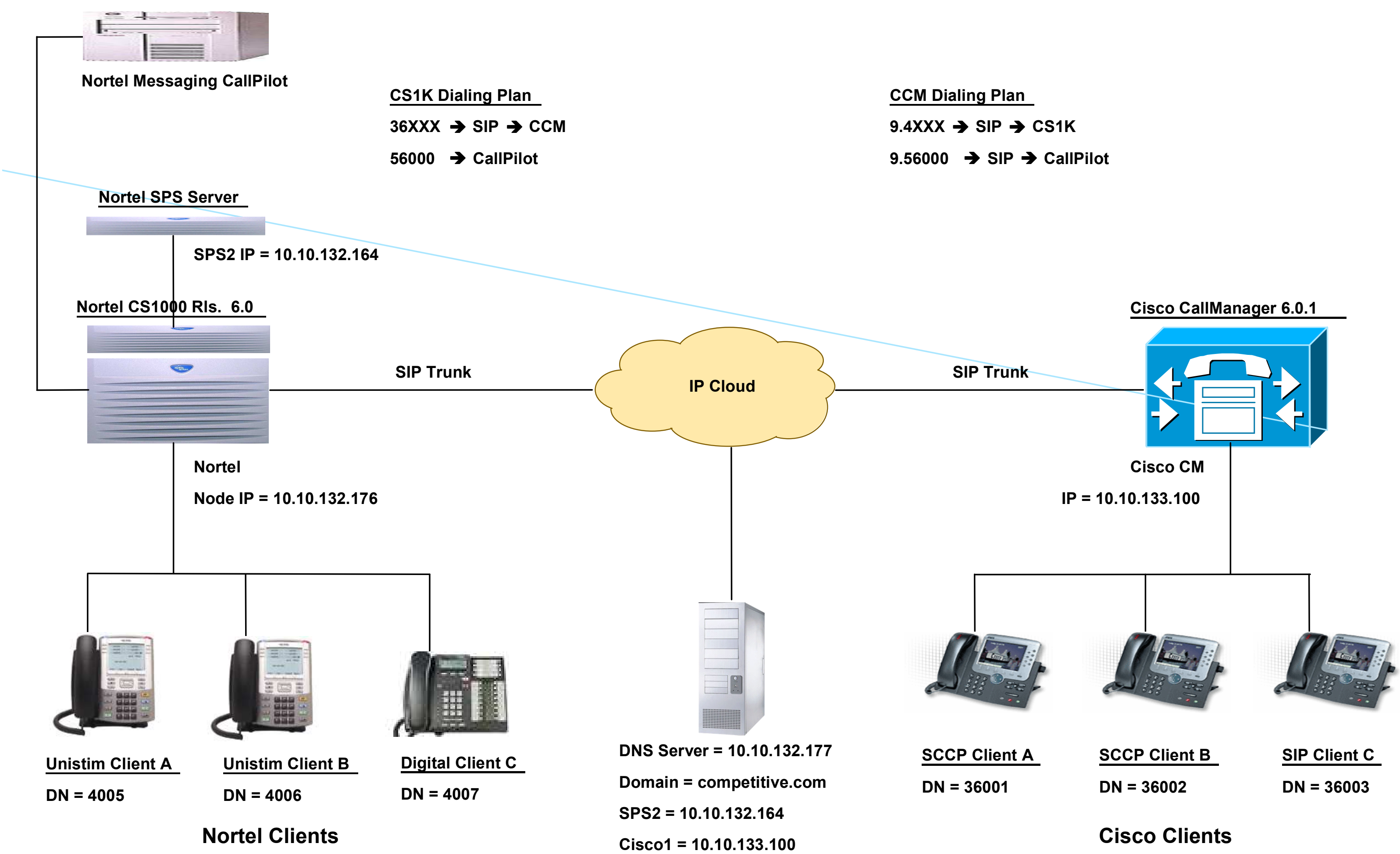
4) **Call Redirect Information**
Call redirect information is used by various other applications such as CallPilot to terminate the call directly into the called party's mailbox. Interworking between these two devices limits critical information over SIP trunk, preventing calls from properly terminating.

5) **SRTP on IP Trunks**
The Cisco Unified Communications Manager does not currently support the SRTP protocol over IP trunks. Calls originated from clients on the Cisco Unified Communications Manager with SRTP are passed over IP Trunks in an unencrypted state. The Nortel clients must be set for “Best Effort” security for SRTP so that proper negotiation can take place between the Cisco and Nortel clients.

6) **DTMF over SIP to Callpilot**
In Cisco Callmanager 5.0, DTMF from Cisco Client can’t be passed to Nortel Callpilot properly. However, this is no longer an issue with Cisco Unified Communications Manager 6.0.

Network Topology

Nortel-Cisco End-to-End Call Setup Configuration using SPS and SIP Trunk



CISCO UNIFIED COMMUNICATIONS MANAGER SETUP

1) Create Cisco IP Clients.
2) Configure Cisco IP phone and line DN
3) Configure Cisco Unified Communications Manager DNS and Domain settings
4) Configure Microsoft Windows 2000 DNS Server settings
4) Create the Media Resource Group and Media Resource Group List for the MTP requirements.
5) Create Region.
6) Create Device Pool.
7) Create SIP Trunk Profile.
8) Add a SIP Trunk for Nortel Communication server 1000 under the Device pull-down menu.
9) Add a Route Pattern to reach the Nortel's phone DN extensions.
10) Add a Route Pattern to reach the Nortel CallPilot VoiceMail system.
11) Create Top level (SIP) Domain in Enterprise Parameters.

Nortel Communication server 1000 Setup

Signaling Server Setup Sequence using Nortel Element Manager

1) Configure the Zones
2) Configure a new IP Telephony Node summary
3) Configure the Node section
4) Configure the VGW and IP phone codec profile section
5) Configure the Quality of Service (QoS) section. (Use default)
6) Configure LAN Configuration section
7) Configure the SIP GW Setting section (Top level Domain must match CCM)
8) Configure the Signaling Server section
9) Configure (MGC) Media Gateway Controller (Required for Conference Calls)

(SPS) SIP Proxy Server Setup Sequence using Web Browser

1) Configure the System Wide Settings
2) Configure the SPS Server Settings
3) Configure a Service Domain
4) Configure a L1 Domain (UDP)
5) Configure a L0 Domain (CDP)
6) Configure a SIP Gateway Endpoint
7) Configure the Routing Entries for SIP

Call Server Setup Sequence using CPPM Card Console

1) Configure the IP D-channel (signaling channel) between the Call Server and the Signaling Server
2) Configure the Super-loop for the Virtual Trunks
3) Configure the SIP Virtual Trunks to the Signaling Server
4) Configure the Virtual Gateway Trunks
5) Configure the Virtual lines for the Nortel IP phone
6) Configure the SIP route
7) Configure the Route List Block for the Virtual Trunk route

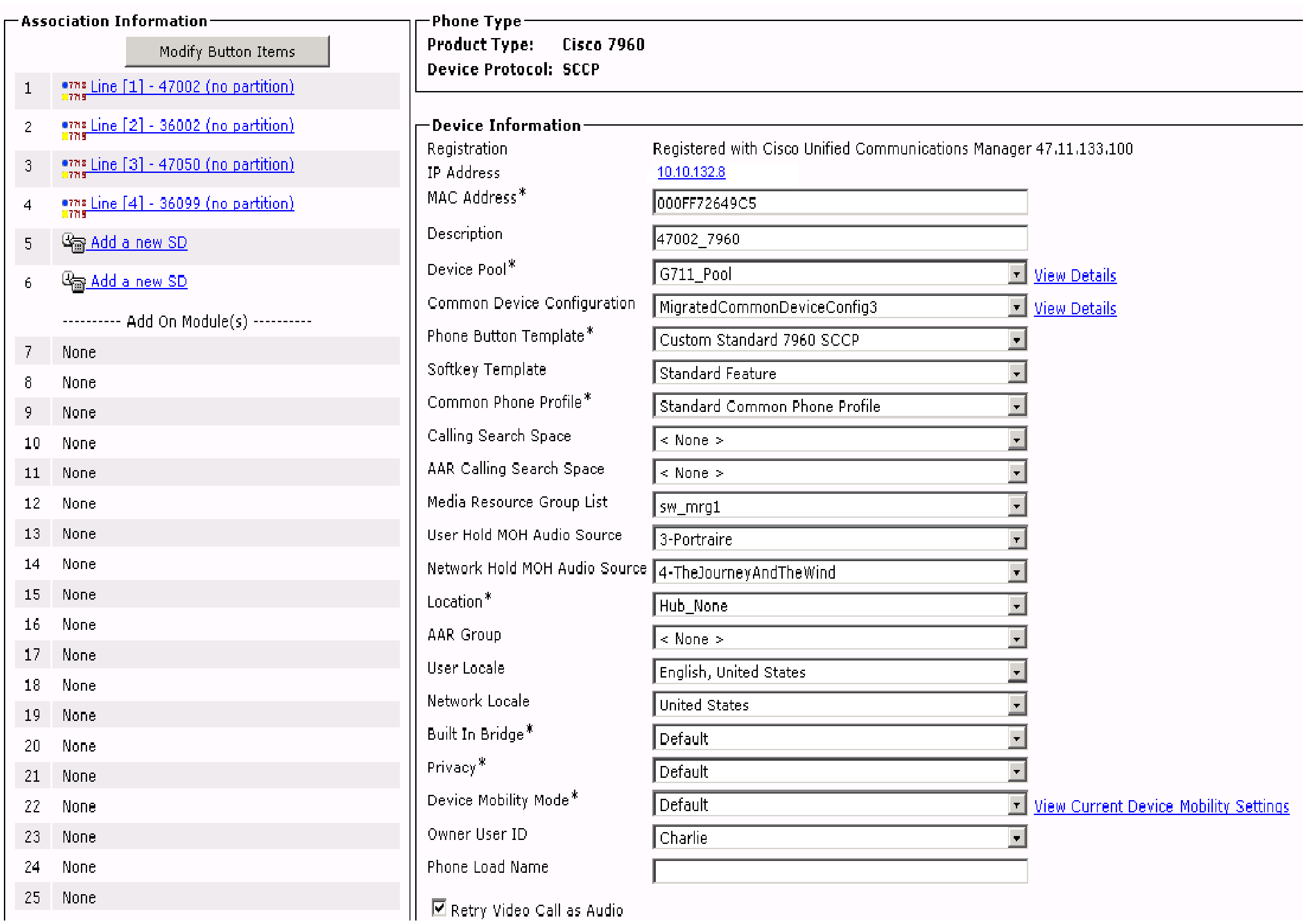
8) Configure CDP steering codes

Cisco Unified Communications Manager Configuration Sequence.

Phone Configuration on Cisco Unified Communications Manager

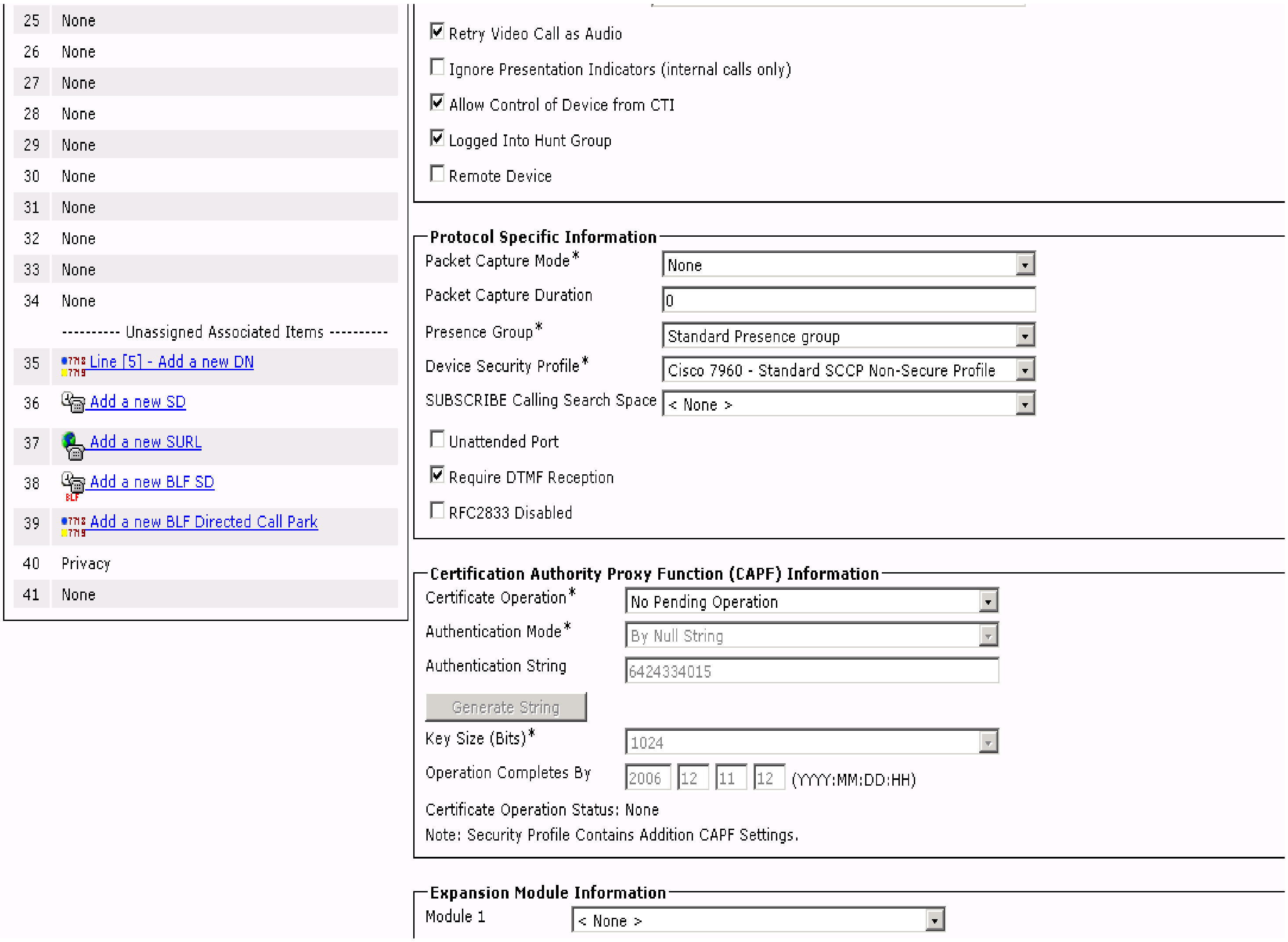
Use the Cisco Unified Communications Manager Administration Phone Configuration window to configure Cisco Unified IP Phones and devices:

From Cisco Unified Communications Manager Administration Window drop down menu. Select:- Device / Phone / Add New, Select the phone type from drop down menu and the protocol, SIP or SCCP.



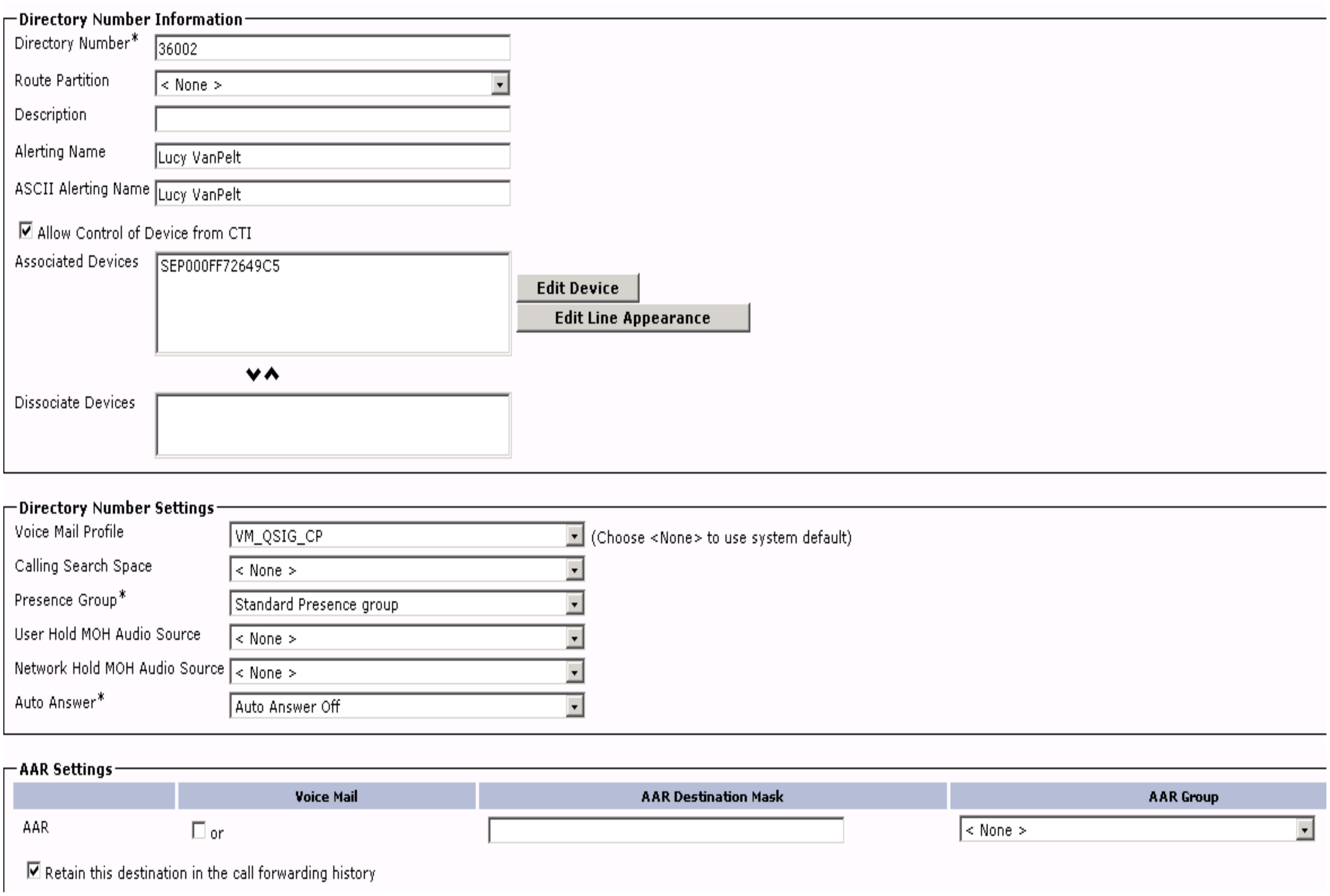
Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

Phone Configuration Continued.



Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

Phone DN Configuration.



Directory Number Information

Directory Number* 36002

Route Partition < None >

Description

Alerting Name Lucy VanPelt

ASCII Alerting Name Lucy VanPelt

☑ Allow Control of Device from CTI

Associated Devices SEP000FF72649C5

Edit Device

Edit Line Appearance

Dissociate Devices

Directory Number Settings

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

Calling Search Space < None >

Presence Group* Standard Presence group

User Hold MOH Audio Source < None >

Network Hold MOH Audio Source < None >

Auto Answer* Auto Answer Off

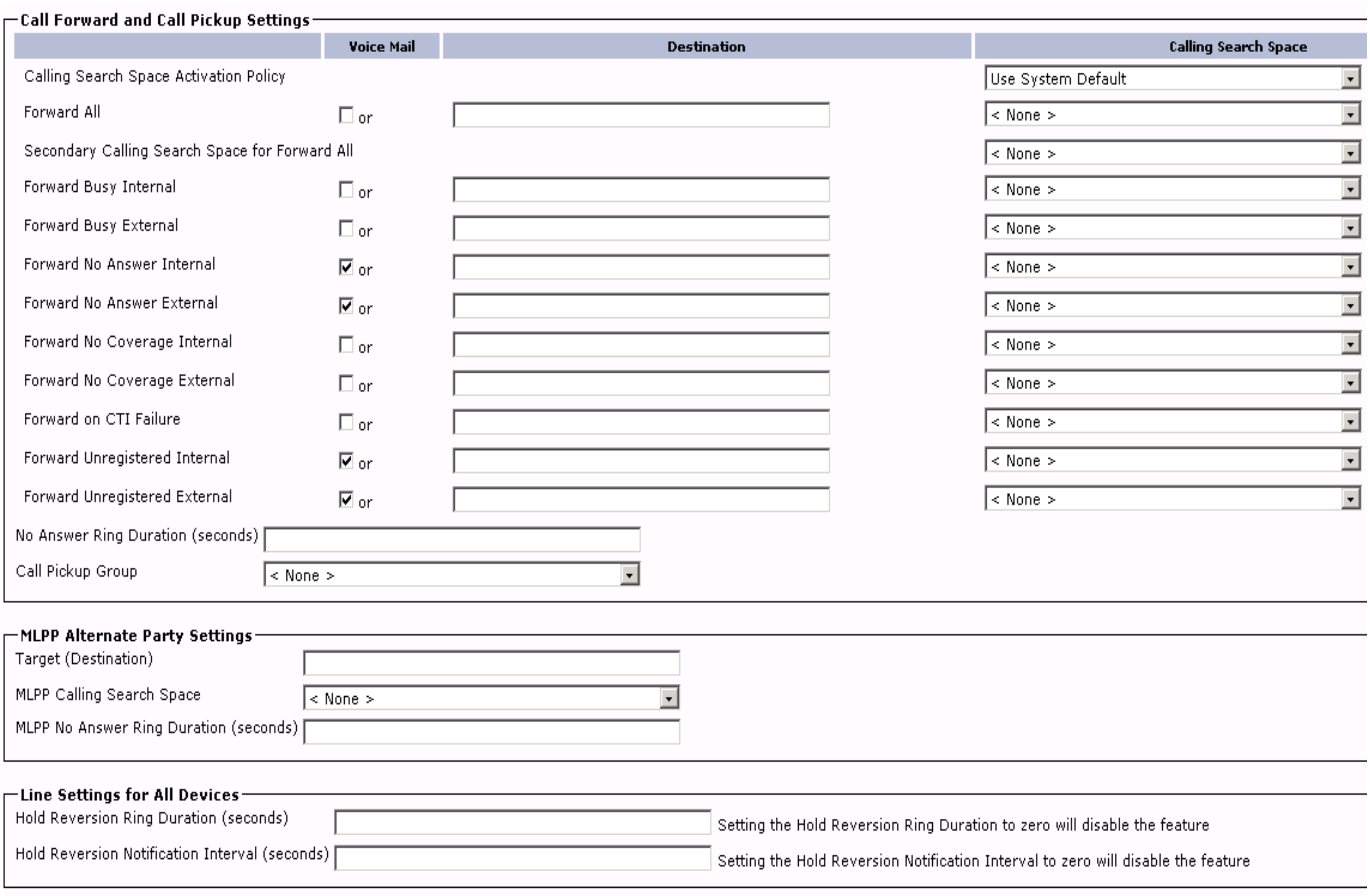
AAR Settings

	Voice Mail	AAR Destination Mask	AAR Group
AAR	☐ or		< None >

☑ Retain this destination in the call forwarding history

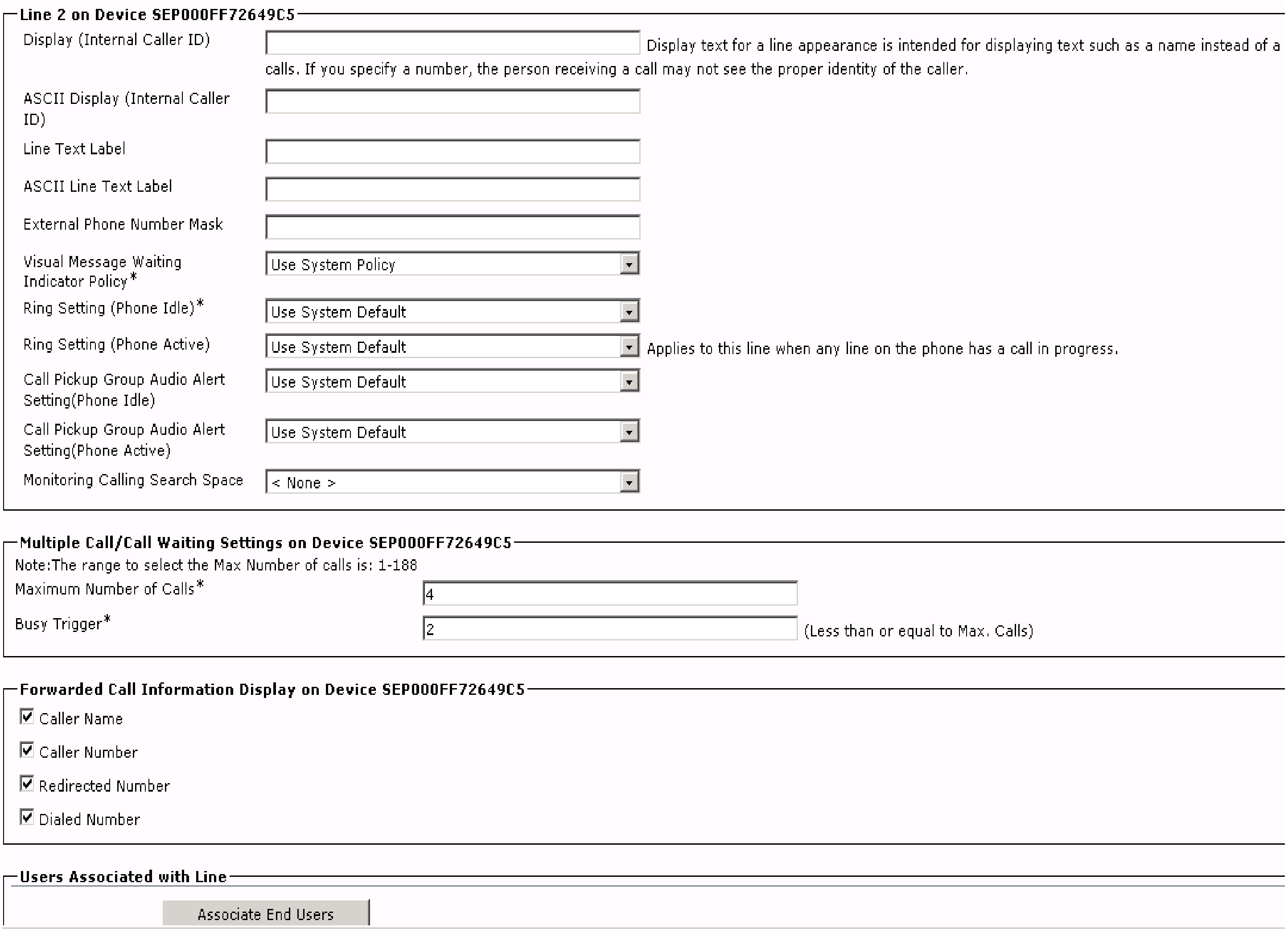
Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

Phone DN Configuration Continued.



Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

Phone DN Configuration Continued.



Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

DNS and Domain Configuration on Cisco Unified Communications Manager

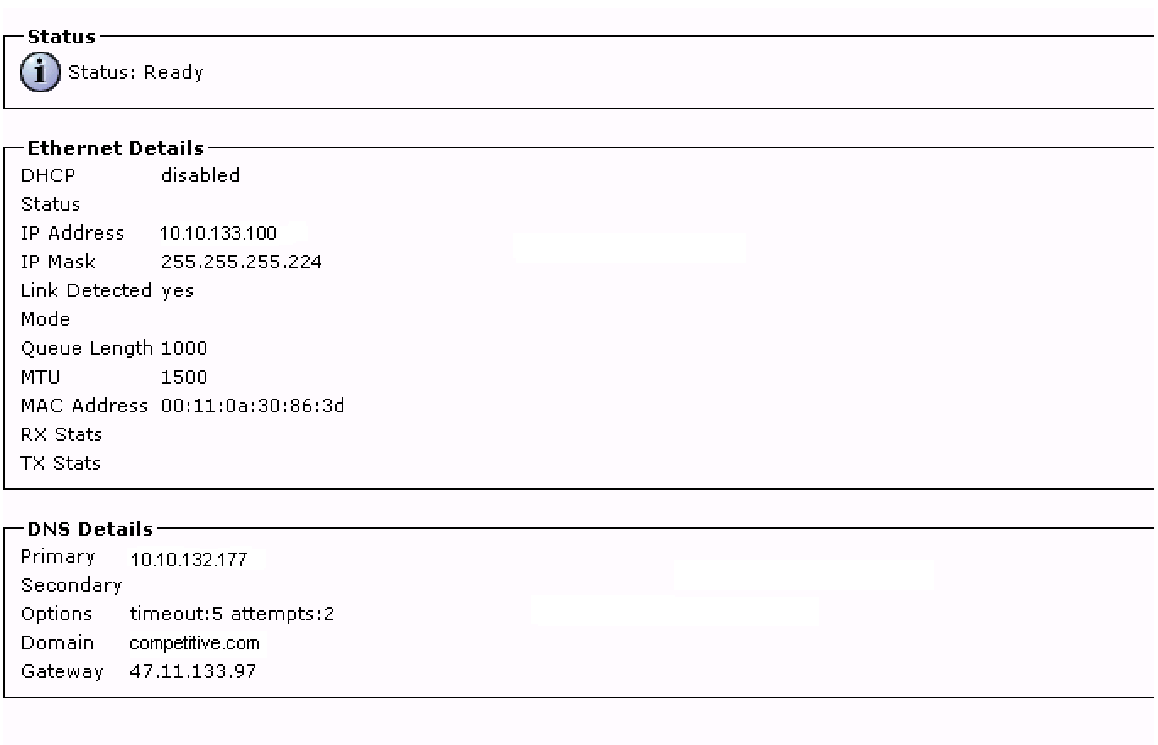
Use putty or secured shell client (port 22) to login into Cisco Unified Communications Manager with administrative privileges. At the CLI command prompt use the following command to configure DNS and Domain name in which to place Communications Manager.

Note: After the changes are made reboot is required.

At the CLI command prompt type the following.

1) set network dns primary 10.10.132.177
2) set network domain competitive.com *

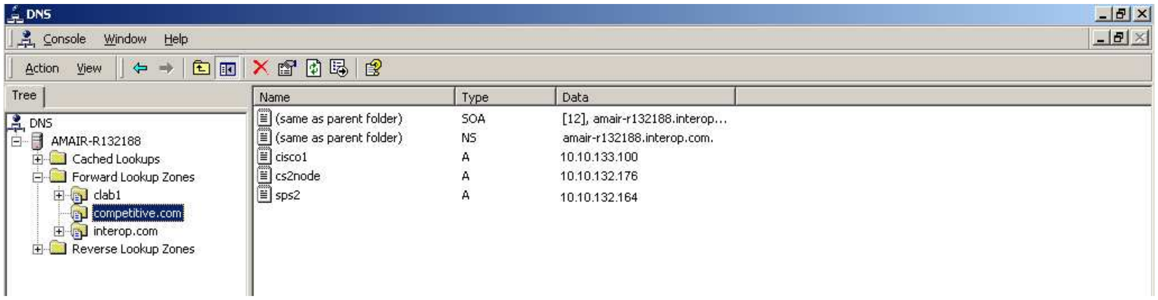
Following is a GUI output to confirm changes after the reboot.



Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

DNS Names and Domain Configuration on Microsoft Windows DNS Server

Domain = competitive.com *
sps2.competitive.com = 10.10.132.164 *



Note: This is a proprietary screenshot from Microsoft Windows 2000 DNS Server

*: In this guide , we are using xyz.com as the network domain, but simply using com as the network domain will work fine as well. See example below.

Domain = com
competitive.com = 10.10.132.164

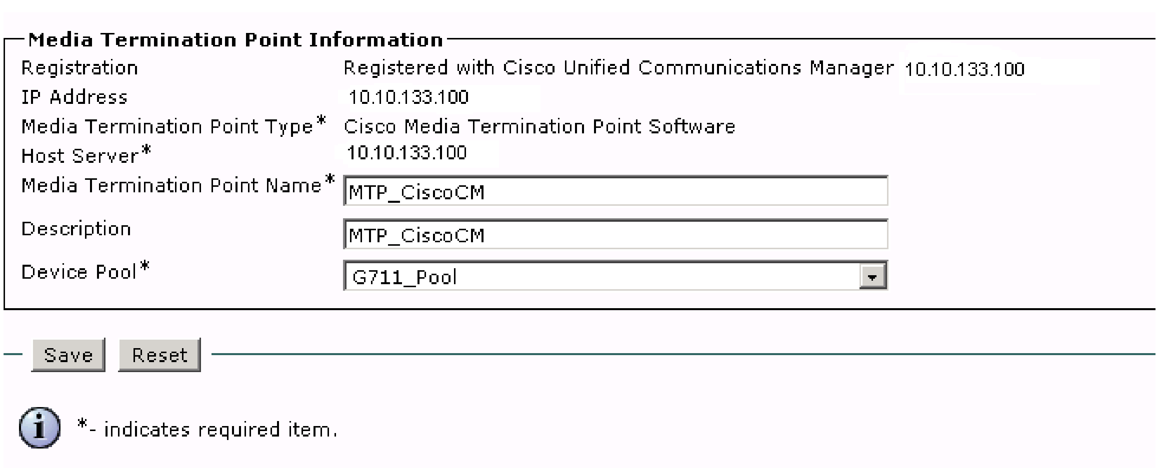
MTP Configuration on Cisco Unified Communications Manager

For Nortel Communication server 1000 and Cisco Unified Communications Manager to interoperate with each other (Basic Call and/or Supplementary features), it required MTP resources.

Cisco Unified Communications Manager requires an RFC 2833 DTMF-compliant MTP device to make SIP calls. The current standard for SIP uses inband payload types to indicate DTMF tones, and Cisco IP telephony components such as SCCP IP phones support only out-of-band payload types. Thus, an RFC 2833-compliant MTP device monitors for payload type and acts as a translator between inband and out-of-band payload types.

Users should refer to Cisco Unified Communications Manager System Guide Chapter 61 for more details
http://www.cisco.com/en/US/docs/voice_ip_comm/cucm/admin/6_1_1/ccmcfg/bccm.pdf

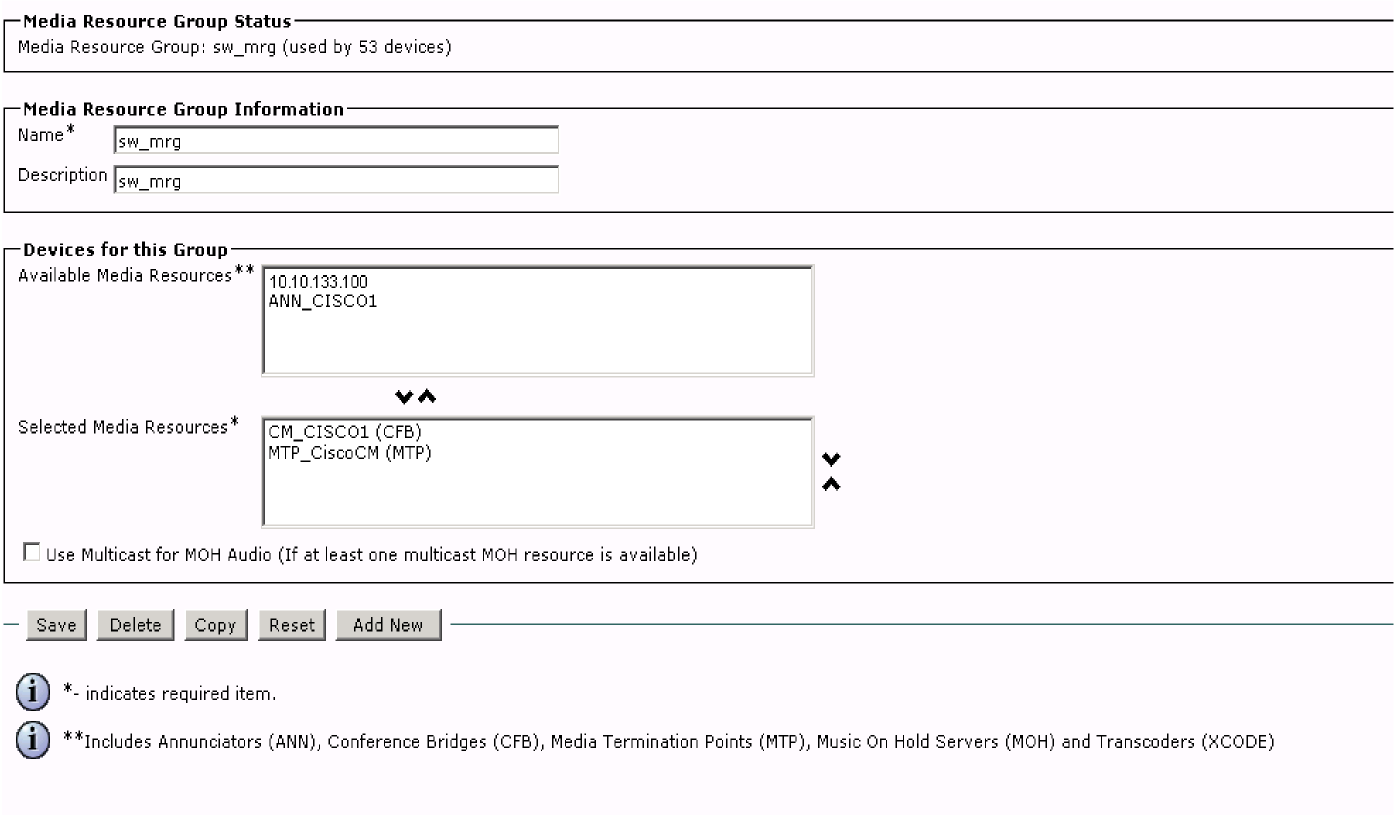
Create (MTP) Media Termination Point
From Cisco Unified Communications Manager Administration Window drop down menu.
Select:- Media Resources / Media Termination Point / Add New



Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

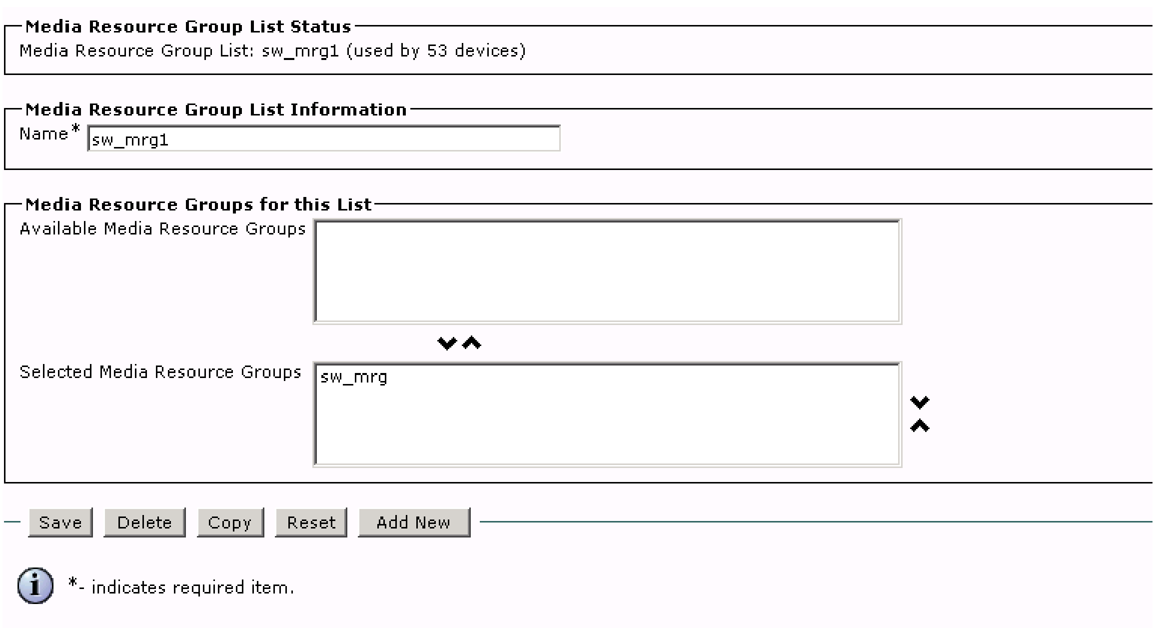
MTP Configuration Continued.

Create Media Resource Group
Select:- Media Resources / Media Resource Group / Add New



Create Media Resource Group List

Select:- Media Resources / Media Resource Group List / Add New

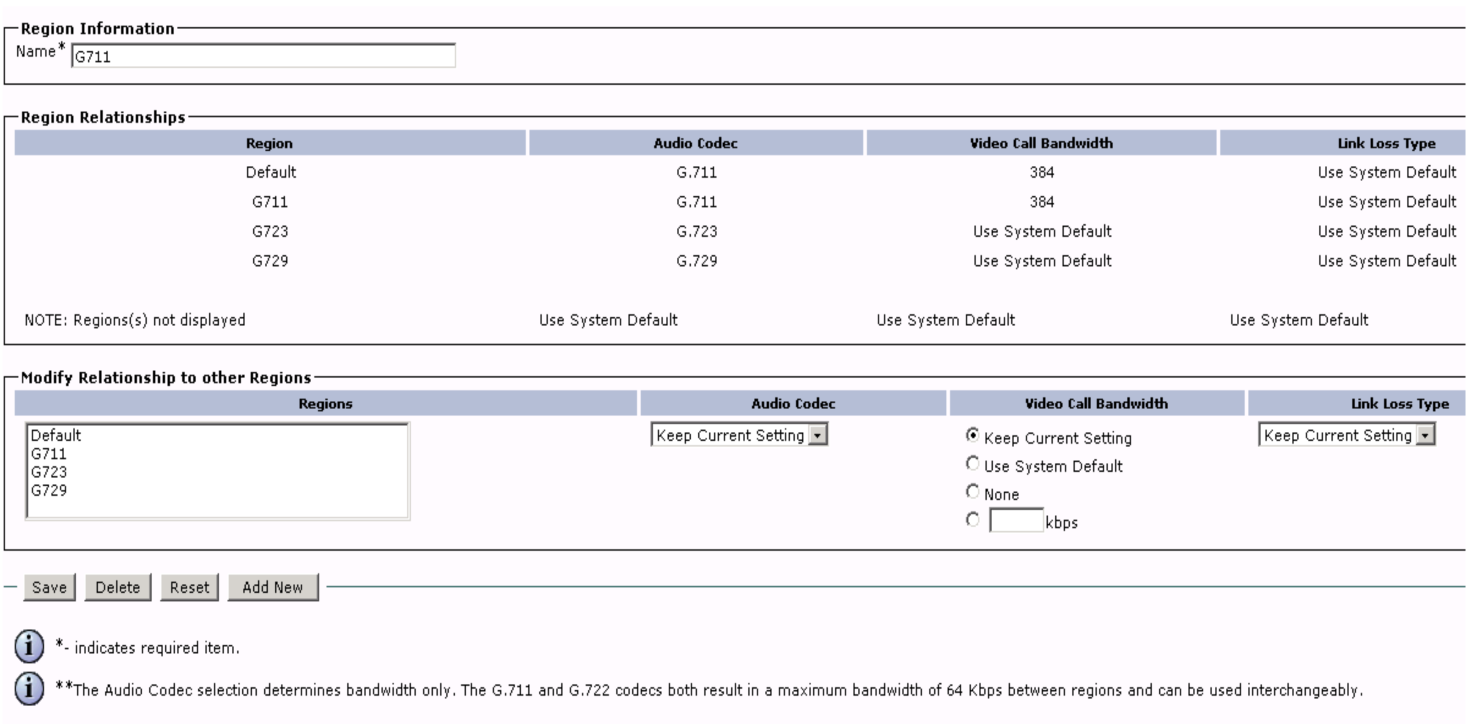


Note: These are proprietary screenshots from Cisco Unified Communications Manager 6.0

Region Configuration on Cisco Unified Communications Manager

Regions are used to specify the bandwidth that is used for audio and video calls within a region and between existing regions.

From Cisco Unified Communications Manager Administration Window drop down menu.
Select:- System / Region / Add New


Region Information

Name* G711

Region Relationships

Region	Audio Codec	Video Call Bandwidth	Link Loss Type
Default	G.711	384	Use System Default
G711	G.711	384	Use System Default
G723	G.723	Use System Default	Use System Default
G729	G.729	Use System Default	Use System Default
NOTE: Regions(s) not displayed	Use System Default	Use System Default	Use System Default

Modify Relationship to other Regions

Regions	Audio Codec	Video Call Bandwidth	Link Loss Type
Default G711 G723 G729	Keep Current Setting	Keep Current Setting Use System Default None kbps	Keep Current Setting

Save Delete Reset Add New

*- indicates required item.

**The Audio Codec selection determines bandwidth only. The G.711 and G.722 codecs both result in a maximum bandwidth of 64 Kbps between regions and can be used interchangeably.

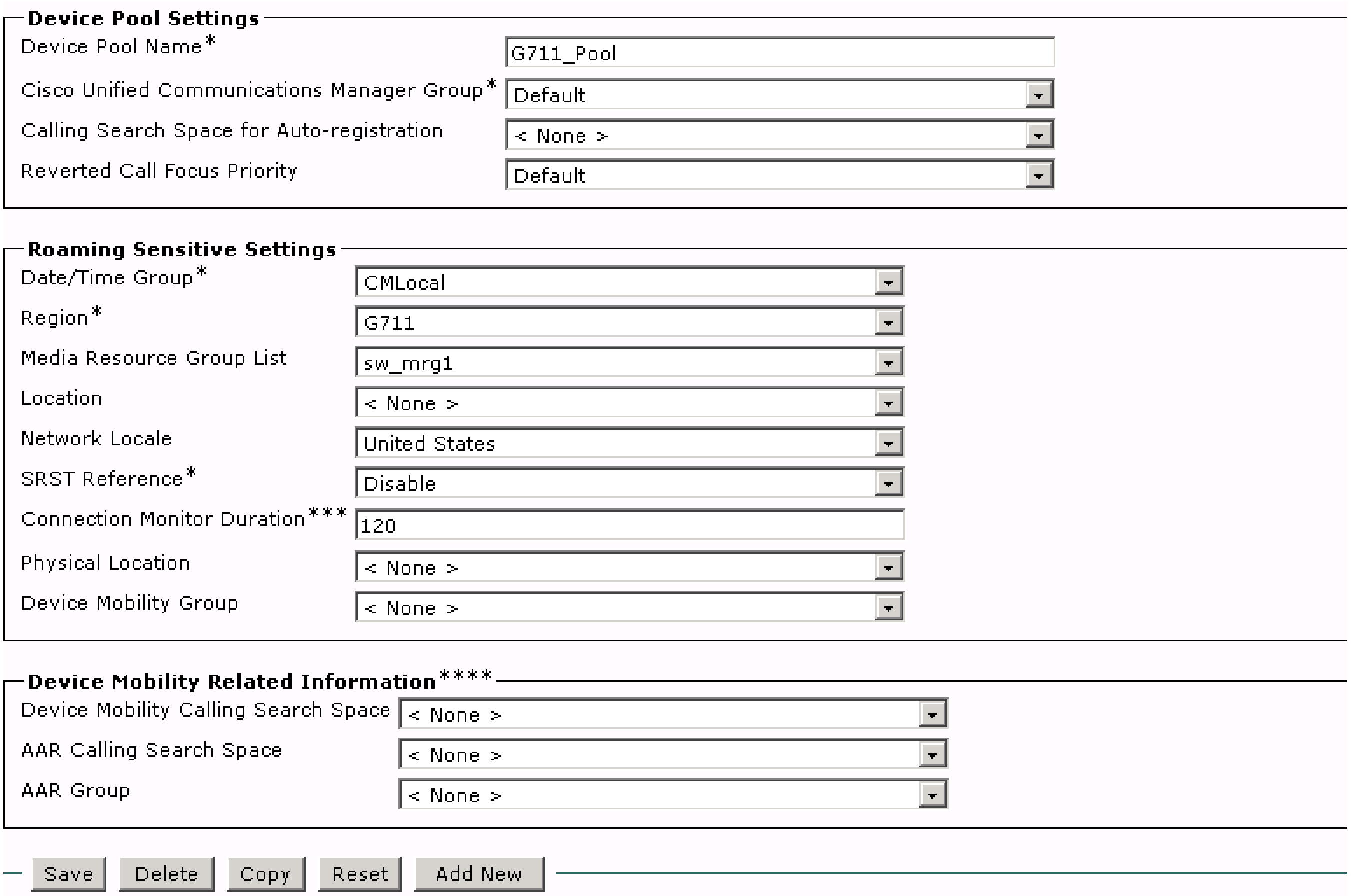
Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

Device Pool Configuration on Cisco Unified Communications Manager

Use device pools to define sets of common characteristics for devices. You can specify the following device characteristics for a device pool:

• Cisco Unified Communications Manager Group
• Date/time group
• Region
• Softkey template
• SRST reference
• Calling search space for auto-registration
• Media resource group list
• Music On Hold (MOH) audio sources
• User and network locales
• Connection monitor duration timer for communication between SRST and
Cisco Unified Communications Manager
• MLPP settings

From Cisco Unified Communications Manager Administration Window drop down menu.
Select:- System / Device Pool / Add New



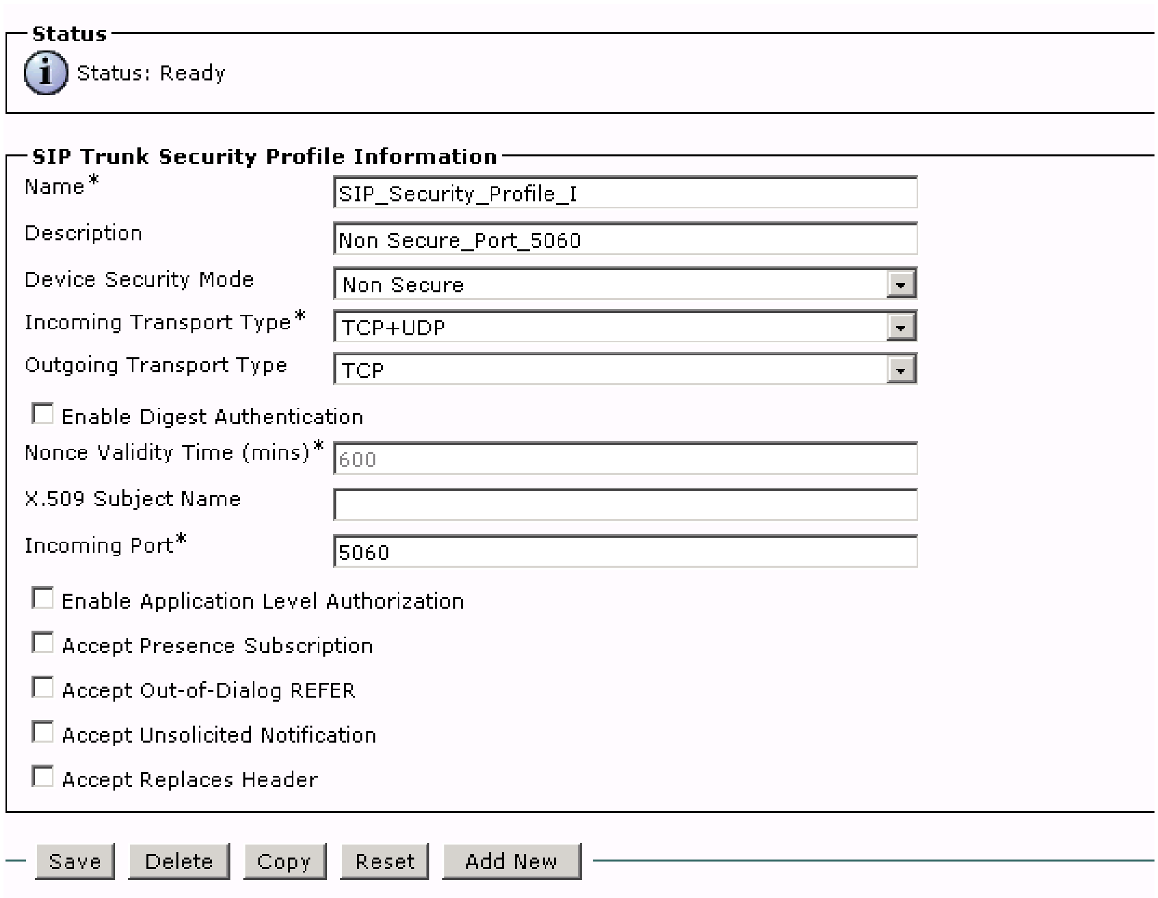
Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

SIP Trunk Profile Setup on Cisco Unified Communications Manager

The SIP Trunk Security Profile window includes security-related settings such as transport type, device security mode, digest authentication settings, and authorization settings for incoming SIP messages. You must apply a security profile to all SIP trunks that are configured in Cisco Unified Communications Manager Administration.

From Cisco Unified Communications Manager Administration Window drop down menu. Select:- System / Security Profile / SIP Trunk Security Profile / Add New

For a Non Secure SIP Trunk

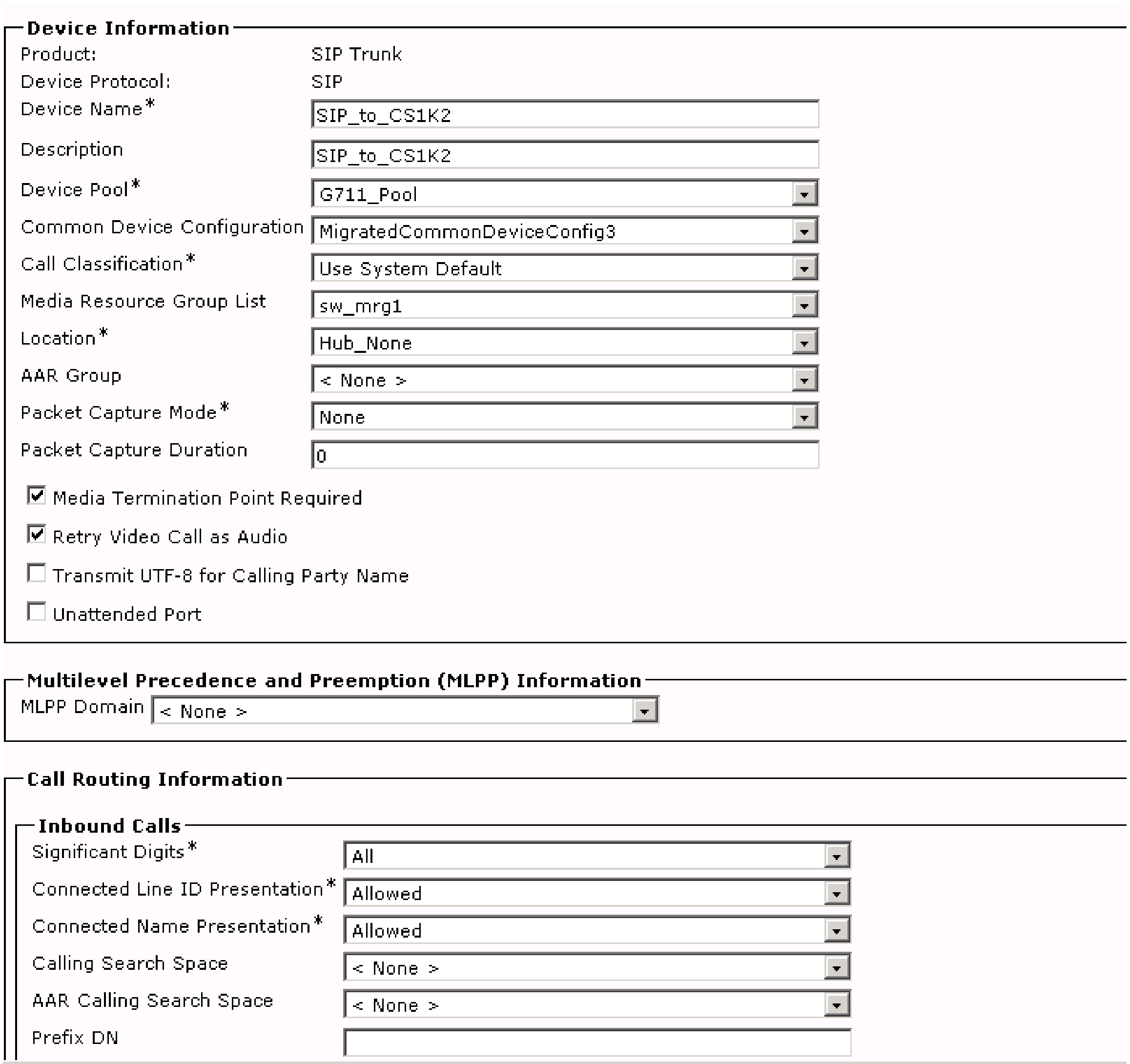


Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

SIP Trunk Configuration on Cisco Unified Communications Manager

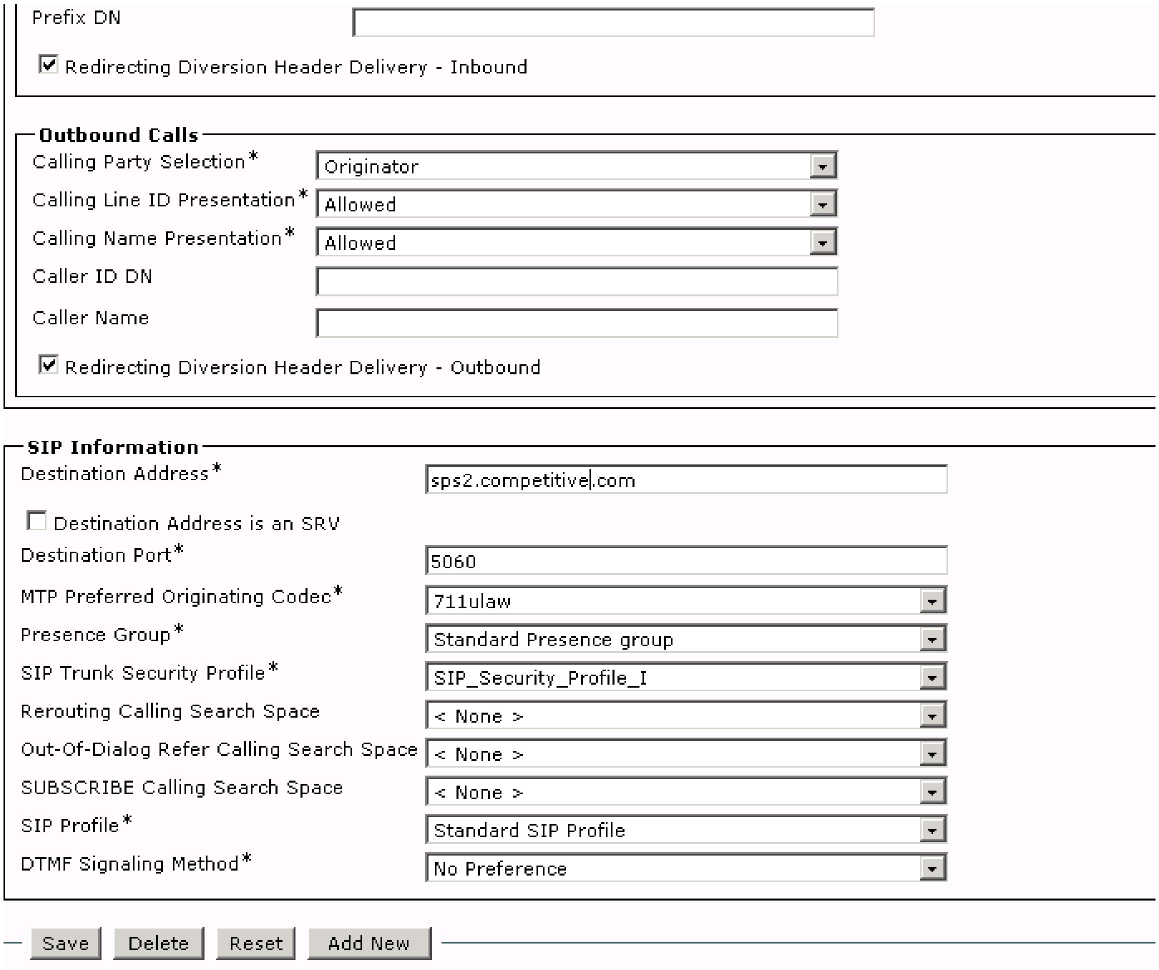
Use a trunk device to configure a logical route to a gatekeeper (that is, the wholesale network or an intercluster trunk with gatekeeper control), to an intercluster trunk without a gatekeeper, or to a SIP network. For trunk to Nortel CS 1000 use FQDN of SPS.

From Cisco Unified Communications Manager Administration Window drop down menu. Select:- Device / Trunk / Add New / Trunk Type = SIP / Device Protocol = SIP



Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

SIP Trunk Configuration continued.



Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

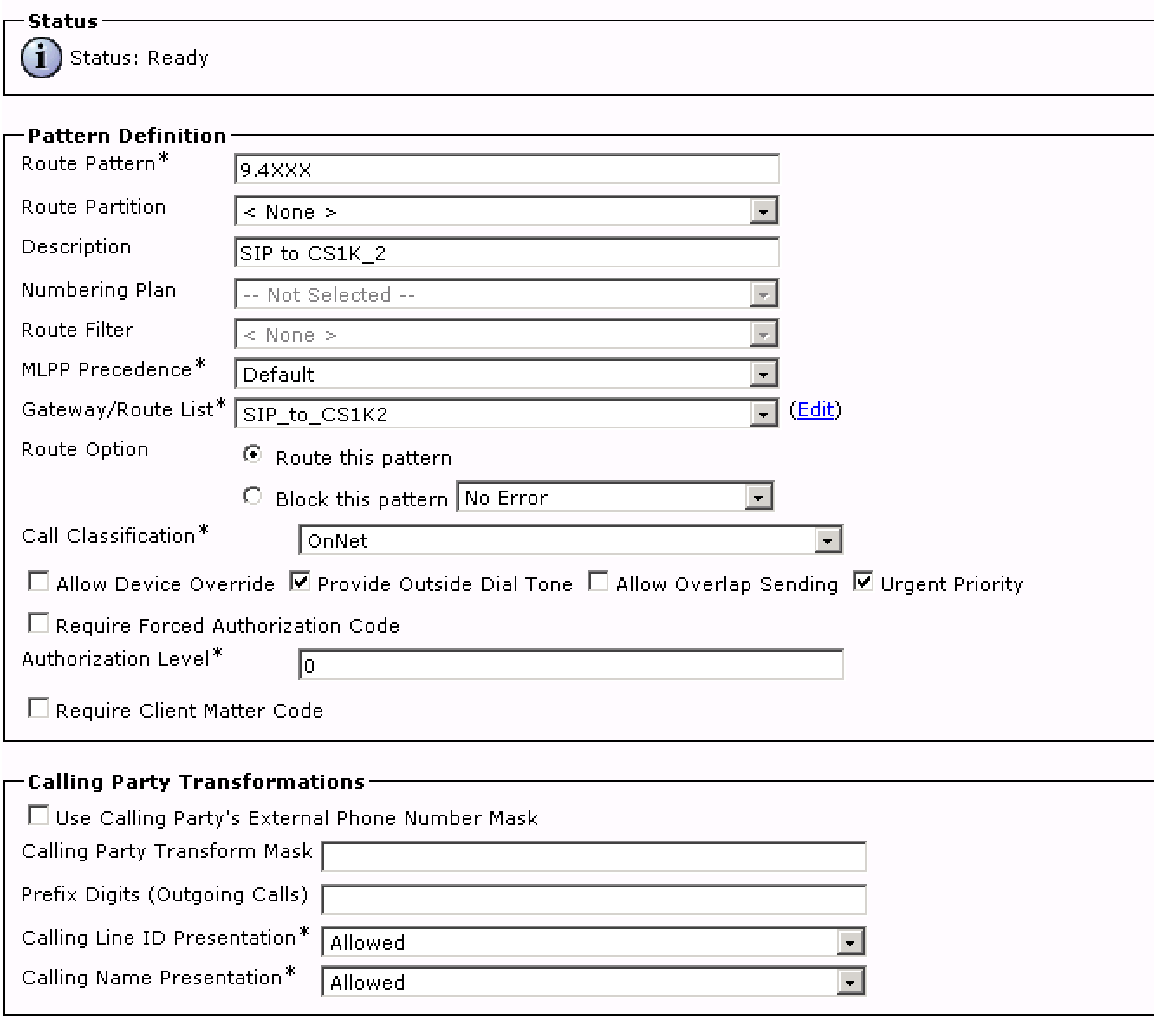
Put **competitive.com** in the Destination Address field if you are using **com** as the network domain.

Call Routing Configuration on Cisco Unified Communications Manager

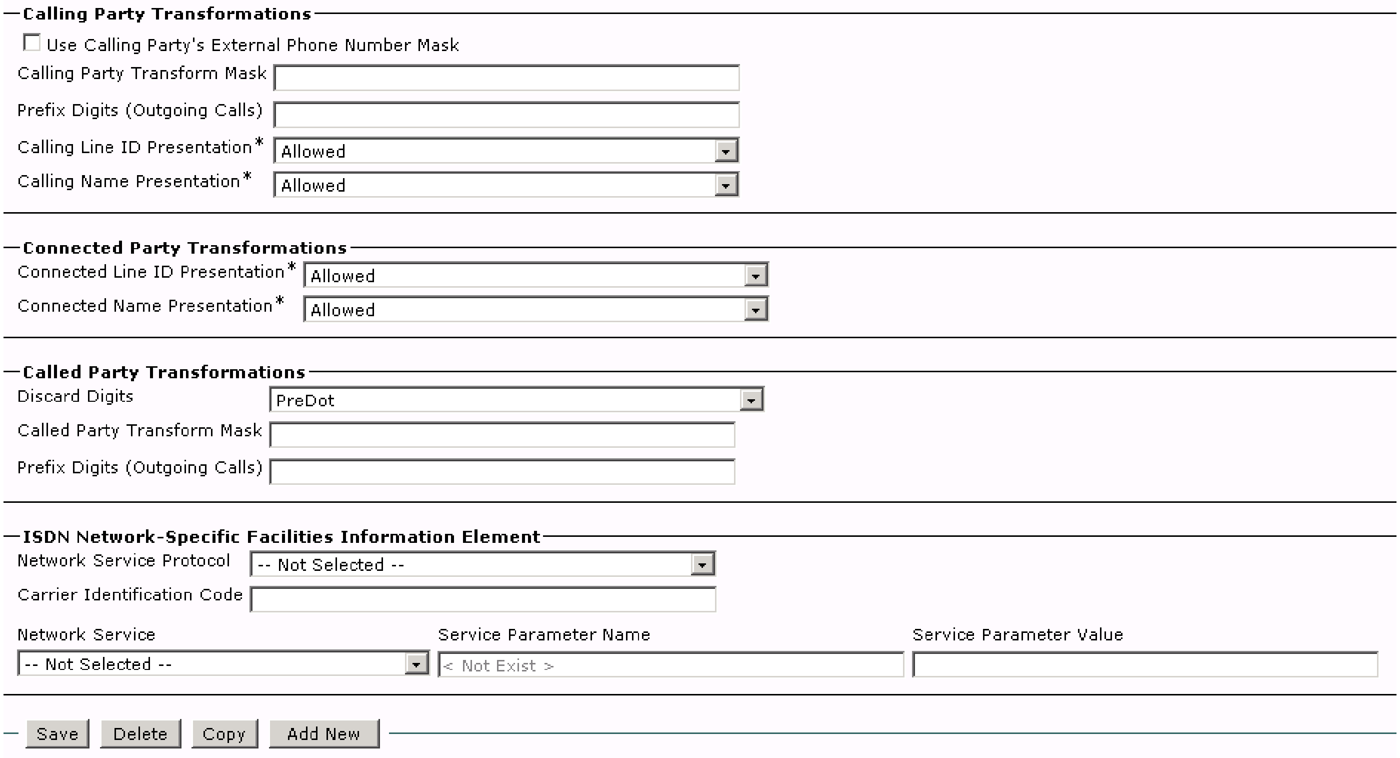
A route pattern comprises a string of digits (an address) and a set of associated digit manipulations that route calls to a route list or a gateway. Route patterns provide flexibility in network design. Please enter the correct digits for the destination and associate with the Gateway/Route from the drop down menu.

Dialing Plan (Cisco Route Patterns under Call Routing drop down menu)
9.4XXX ➔ SIP ➔ CS1K
9.5XXXX ➔ SIP ➔ CallPilot

From Cisco Unified Communications Manager Administration Window drop down menu.
Select:- Call Routing / Route Hunt / Route pattern / Add New.



Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0



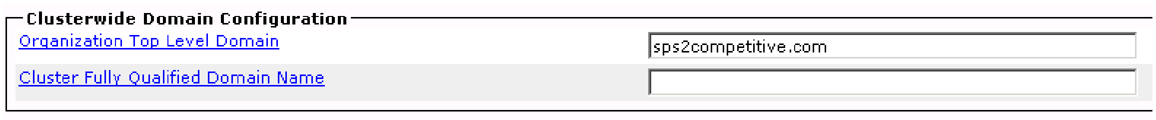
Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

Cluster Wide Domain Name Setup on Cisco Unified Communications Manager

From Cisco Unified Communications Manager Administration Window drop down menu. Select:- System / Enterprise Parameters.

Enter Domain name.

Note: For SIP Trunks the Domain name must match the top level Domain in Nortel SPS / NRS. The name must be in “doted” notation, e.g. nortel.com, university.org. Stand alone name e.g. nortel or university will be rejected by Cisco Unified Communications Manager.



Note: This is a proprietary screenshot from Cisco Unified Communications Manager 6.0

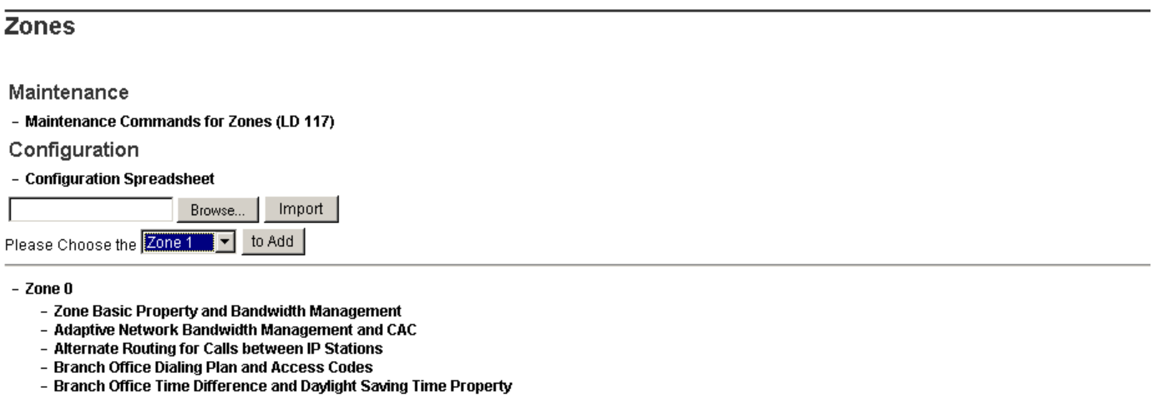
Put **competitive.com** in the Organization Top Level Domain field if you are using **com** as the network domain.

Nortel Signaling Server Configuration Sequence.

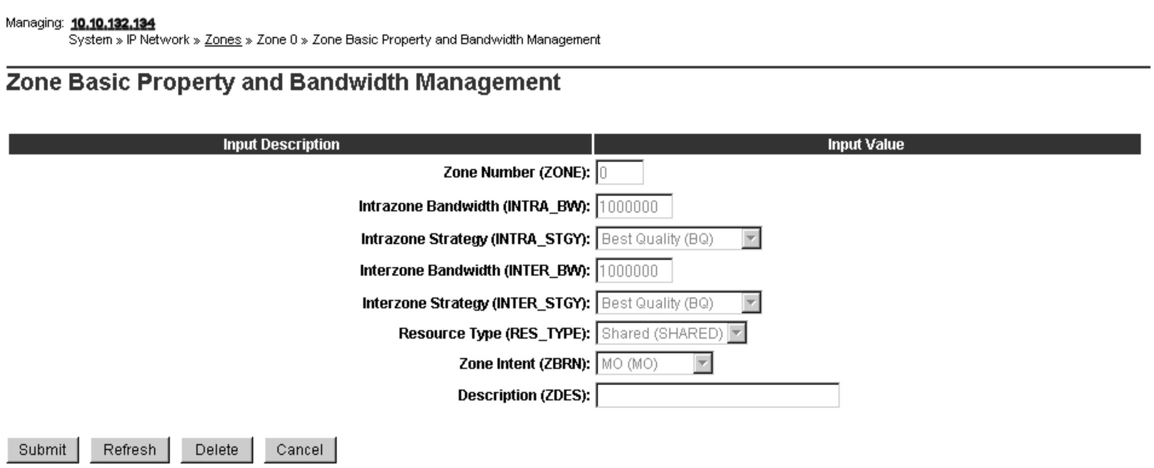
Zone Configuration on Nortel Communication server 1000

Zones are used to specify the bandwidth that is used for audio and video calls within a region and between existing regions.
IP Telephony zones corresponds to commands in LD 117, Ethernet Management. Use the default and do not change any settings.

From Nortel Element Manager main window
Select:- System / IP Network / Zones



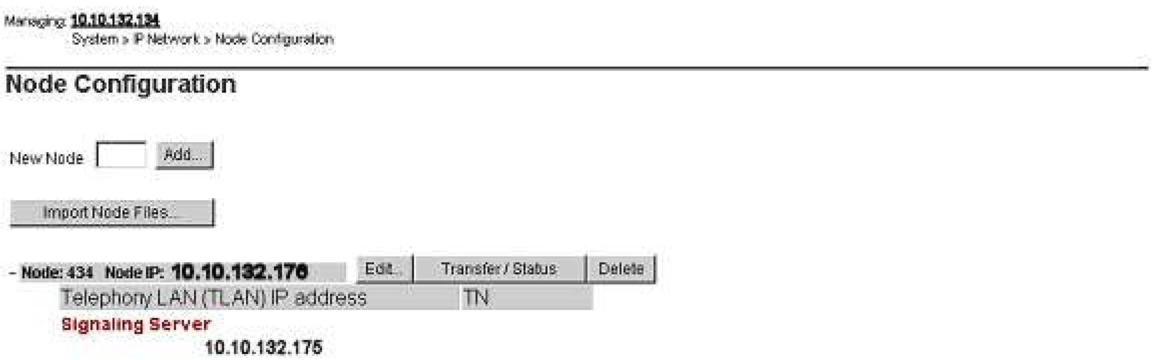
Select:- System / IP Network / Zones / Zone 0 / Zone Basic Property and Bandwidth Management



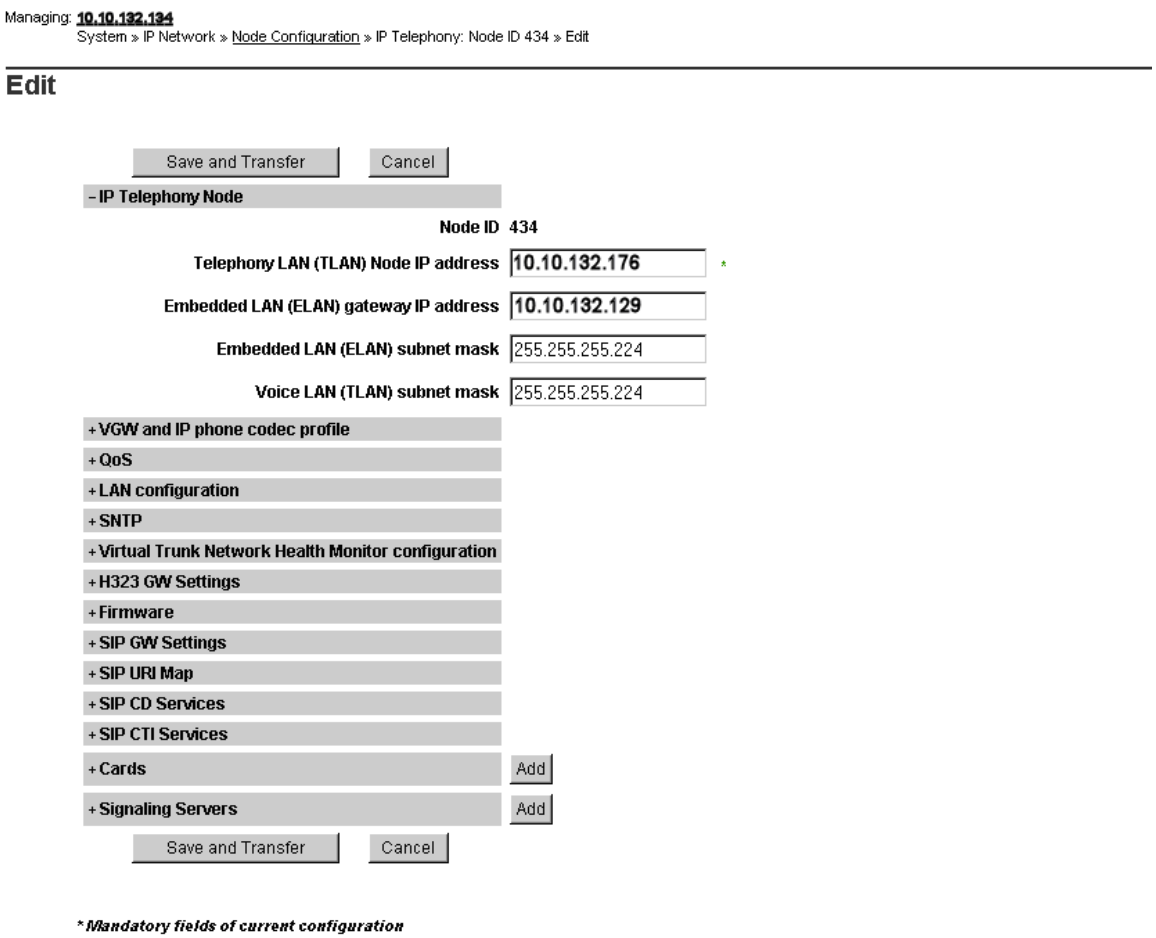
Node IP Configuration on Nortel Communication server 1000

View basic information on existing Nodes here. You can add a node, or select a node to edit or delete a Node.

From Nortel Element Manager main window
Select:- System / IP Network / Nodes: Servers, Media Cards / Node Configuration.



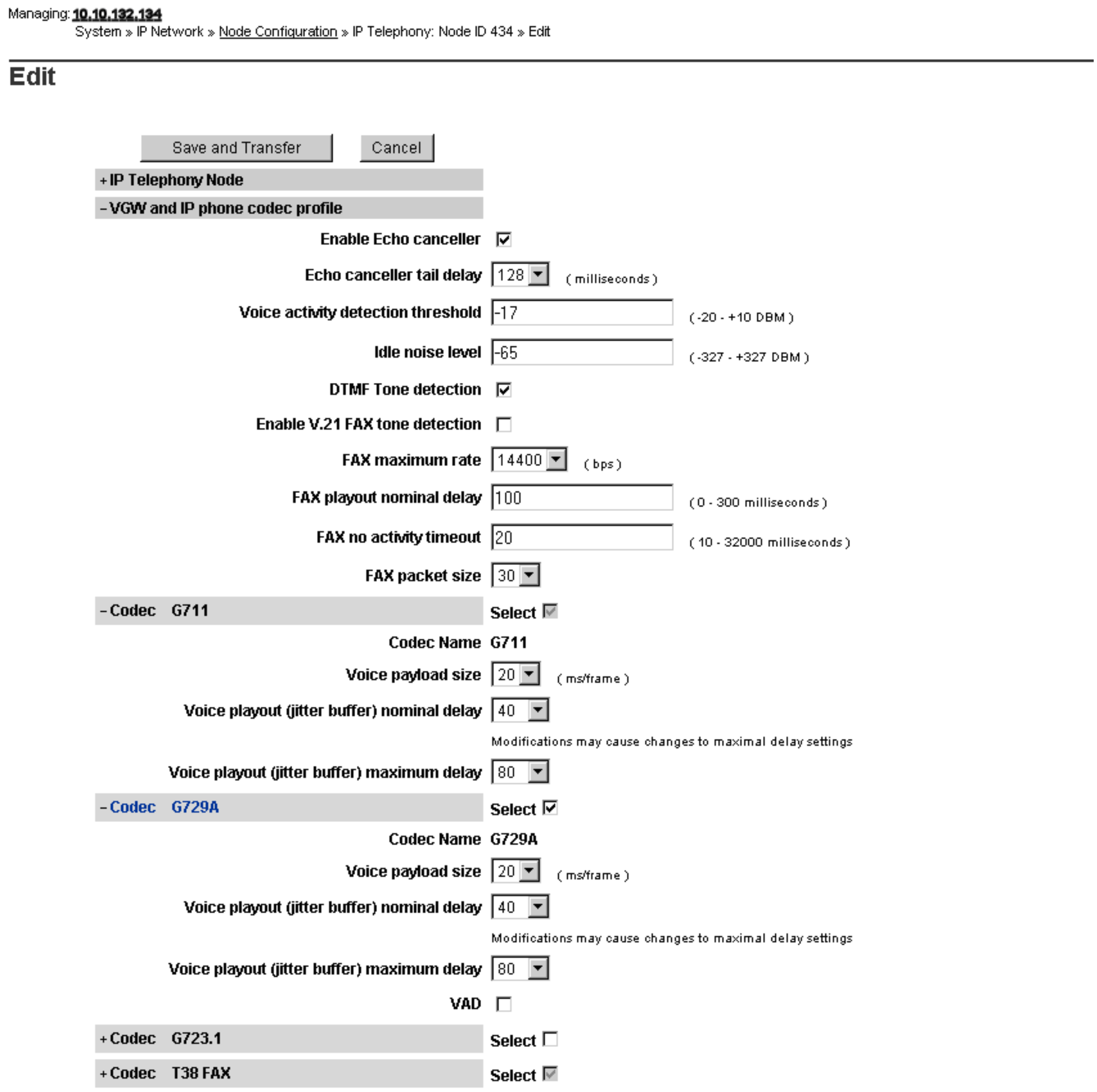
IP Telephony Node Configuration Continued.



VGW and IP Phone Codec Configuration on Nortel Communication server 1000

View basic information on existing codecs here. G711 is the default codec with 20ms payload, supported payloads are 30, 20, 10 ms. You can select a codec to edit its properties. Cisco Unified Communications Manager with MTP enabled requires G711 codec.

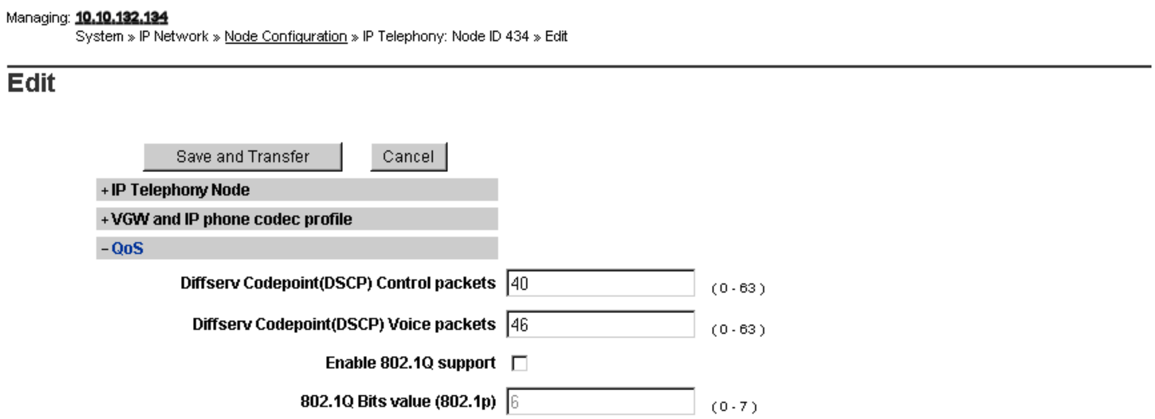
From Nortel Element Manager main window
Select:- System / IP Network / Nodes: Servers, Media Cards / VGW and IP Phone Codec Profile.



QoS Configuration on Nortel Communication server 1000

View QoS information here, Changes made to QoS will not effect Cisco clients.

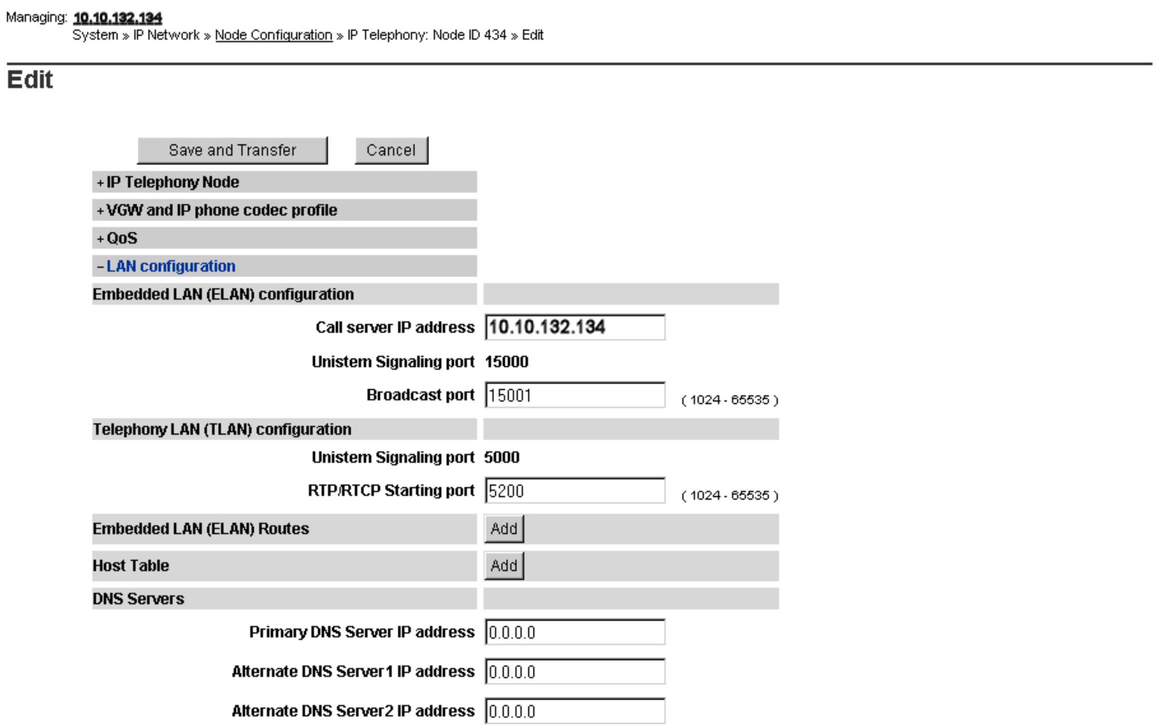
From Nortel Element Manager main window
Select:- System / IP Network / Nodes: Servers, Media Cards / QoS.



LAN Configuration on Nortel Communication server 1000

View or Change LAN information. Enter Call Server IP address and leave all settings to default.

From Nortel Element Manager main window
Select:- System / IP Network / Nodes: Servers, Media Cards / LAN

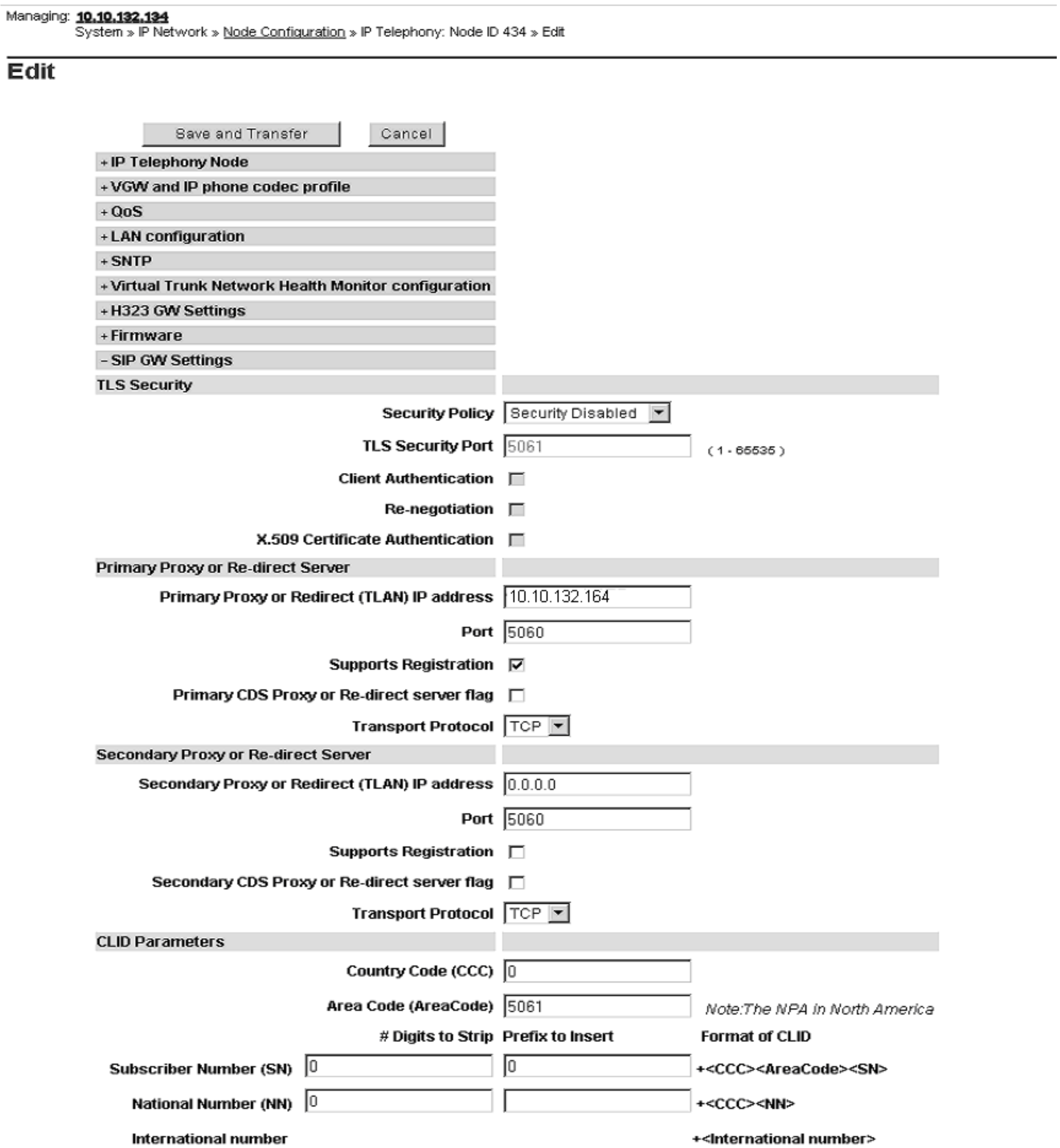


SIP GW Configuration on Nortel Communication server 1000

View or Change SIP GW settings here. Since this is a co-resident the primary proxy redirect server has the same IP address as Signaling Server.

Note: Cisco Unified Communications Manager will use the Node IP address to communicate via SIP trunk.

From Nortel Element Manager main window
Select:- System / IP Network / Nodes: Servers, Media Cards / SIP GW Settings

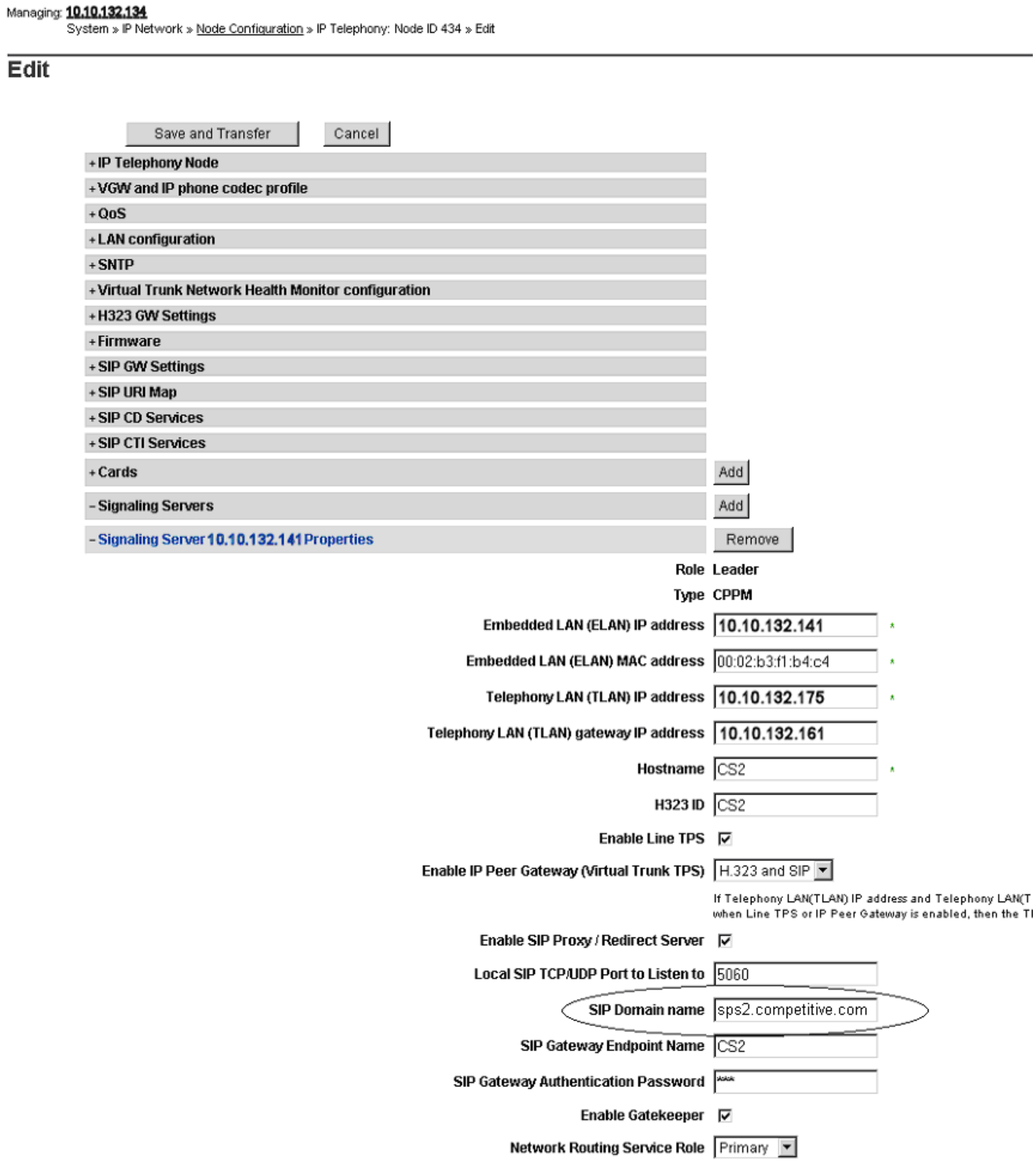


Signalling Server Configuration on Nortel Communication server 1000

Configure Signaling Server settings on this page.

Note: SIP Domain Name (encircled below) must match the Service Domain in Nortel SPS and Organization Top Level Domain in Cisco Unified Communications Manager Enterprise Parameters.

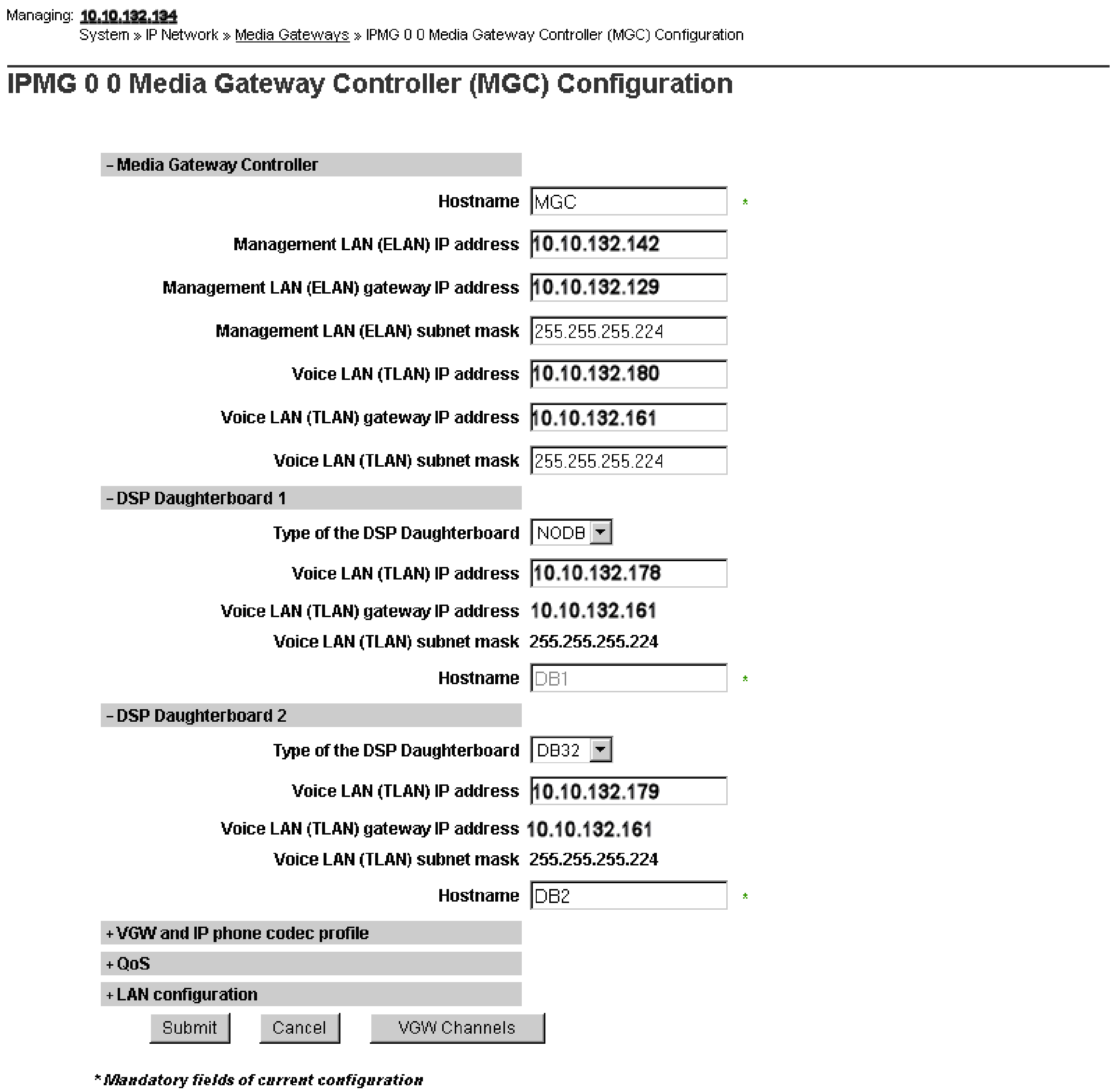
From Nortel Element Manager main window
Select:- System / IP Network / Nodes: Servers, Media Cards / SIP GW Settings



<u>(MGC) Media Gateway Controller Configuration on Nortel Communication server 1000</u>

Configure MGC if you need conferencing or non-IP clients to interop with CCM. Enter correct IP address for MGC and daughter board and use default settings for the rest.

From Nortel Element Manager main window
Select:- System / IP Network / Media Gateways

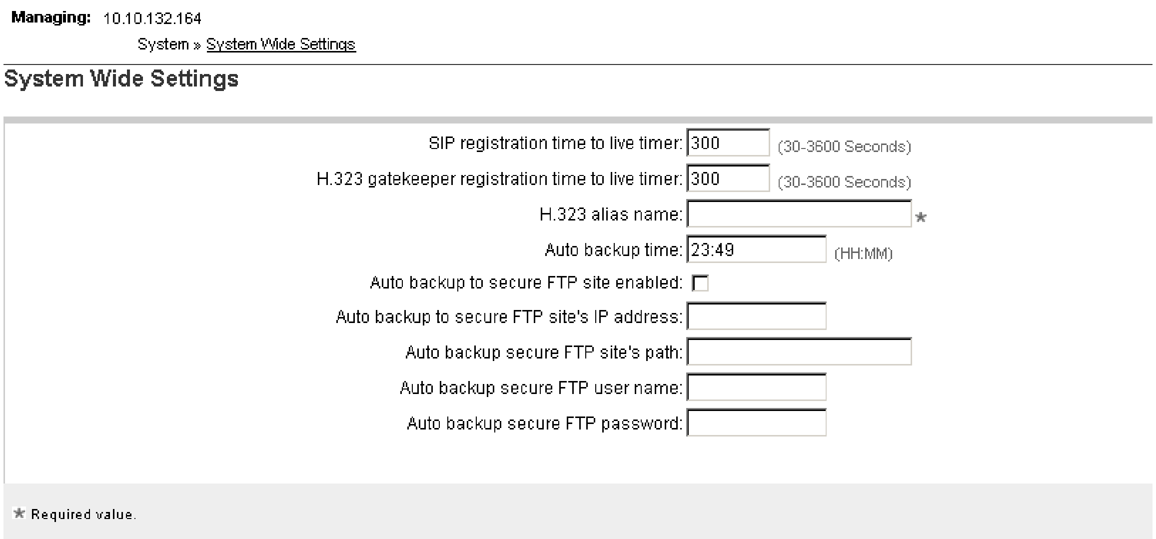


Nortel (SPS) SIP Proxy Server Configuration Sequence.

(SPS) SIP proxy Server System Wide Configuration on Communication server 1000

The (SPS) SIP Proxy Server uses a basic SIP structure for its configuration, which is applicable for SIP, H.323, and Network Connection Server (NCS) call completion. This structure is the basis of the single network dialing/numbering plan.

SPS/NRS System Wide Settings, Please use default values.



(SPS) SIP proxy Server Configuration on Communication server 1000

Managing: 10.10.132.164

System » NRS Server

NRS Server

Service Status

Enable | Graceful disable | Restart

	Service Name	Service Status
1	SIP Proxy Server (SPS)	In service
2	Gatekeeper (GK)	In service
3	Network Connection Server (NCS)	In service

Server Configuration

NRS Setting

Host name	sps2
Primary TLAN IP address	10.10.132.164
Secondary TLAN IP address	0.0.0.0
Secondary server host name	SecondaryHostName
Control priority	40
Server mate communication port	5005
Realm name	realmName
Server role	Primary

H.323 Gatekeeper Settings

Location request (LRQ) response timeout	3

SIP Server Settings

Mode	proxy
Public name for non-trusted networks	unknown
Public number for non-trusted networks	000-000
UDP Transport enabled	☑
Primary server UDP IP	10.10.132.164
Primary server UDP port	5060
Secondary server UDP IP	0.0.0.0
Secondary server UDP port	5060
UDP maximum transmission unit (MTU)	1500
TCP Transport enabled	☑
Primary server TCP IP	10.10.132.164

SPS/NRS Configuration continued.

SPS/NRS System Wide Settings, use defaults, no change required.

Primary server TCP port	5060
Secondary server TCP IP	0.0.0.0
Secondary server TCP port	5060
TCP maximum transmission unit (MTU)	1500
TLS Transport enabled	☑
Primary server TLS IP	10.10.132.164
Primary server TLS port	5061
Secondary server TLS IP	0.0.0.0
Secondary server TLS port	5061
TLS maximum transmission unit (MTU)	1500

Transport Layer Security (TLS) Settings

Maximum session cache	2048000
Session cache timeout	600
Renegotiation in byte	2048000
X509 Certificate authentication	☑
Client authentication	☐

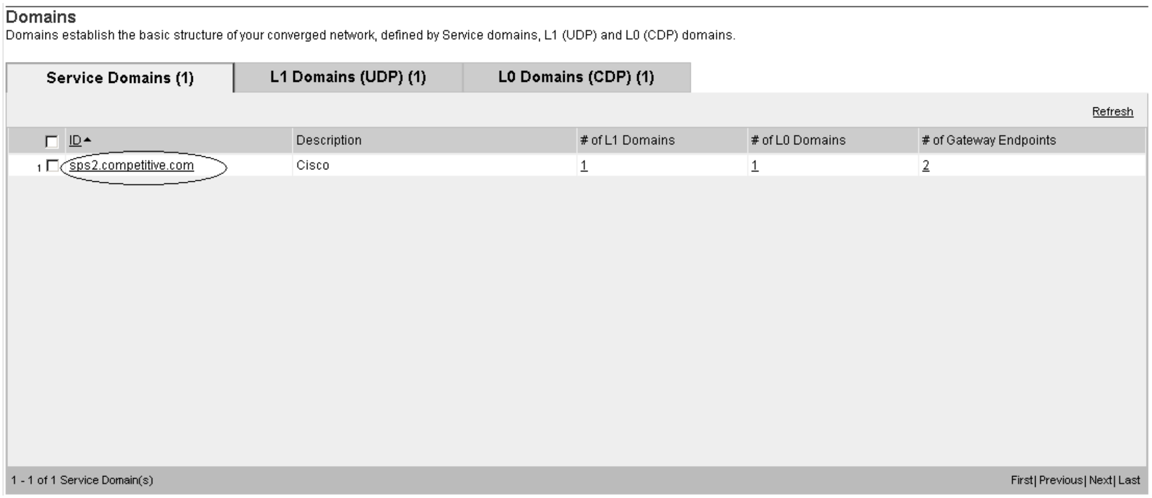
Network Connection Server (NCS) Settings

Primary NCS port	16500
Secondary NCS port	16500
Primary NCS timeout	10

SPS / SIP Configuration continued.

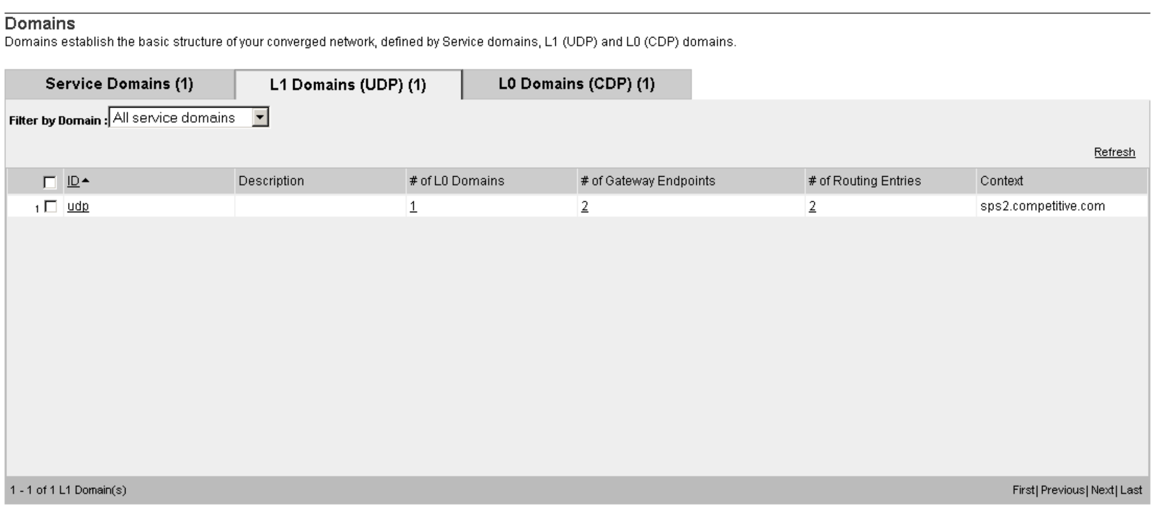
Service Domain Configuration on Nortel Communication server 1000

Note: Service Domain Name (encircled below) must match the SIP Domain in Nortel SS and Organization Top Level Domain in Cisco Unified Communications Manager Enterprise Parameters.



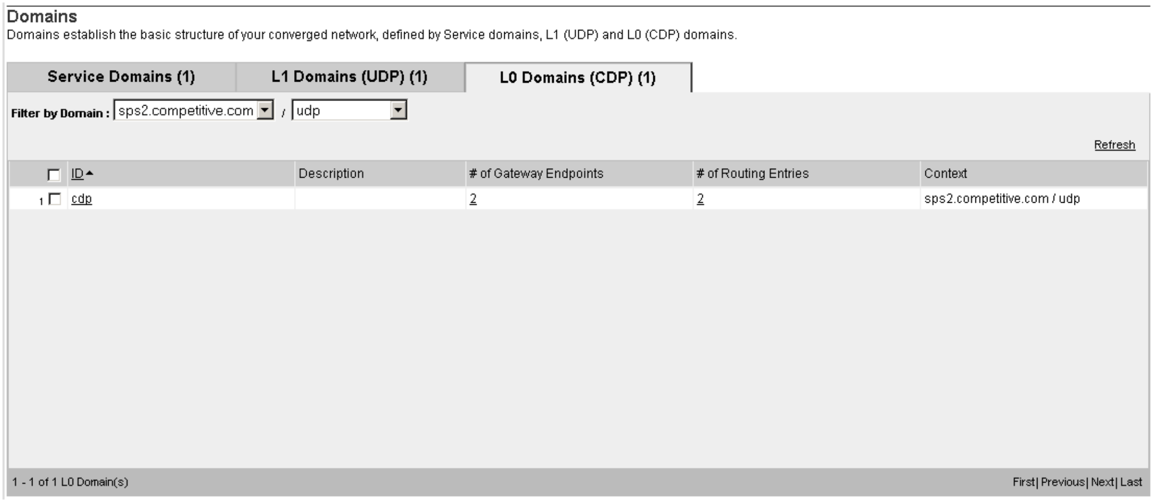
L1 (UDP) Domain Configuration on Nortel Communication server 1000

Note: Create UDP Domain under Service Domain Name that match the Top Level Domain in Cisco Unified Communications Manager Enterprise Parameters.



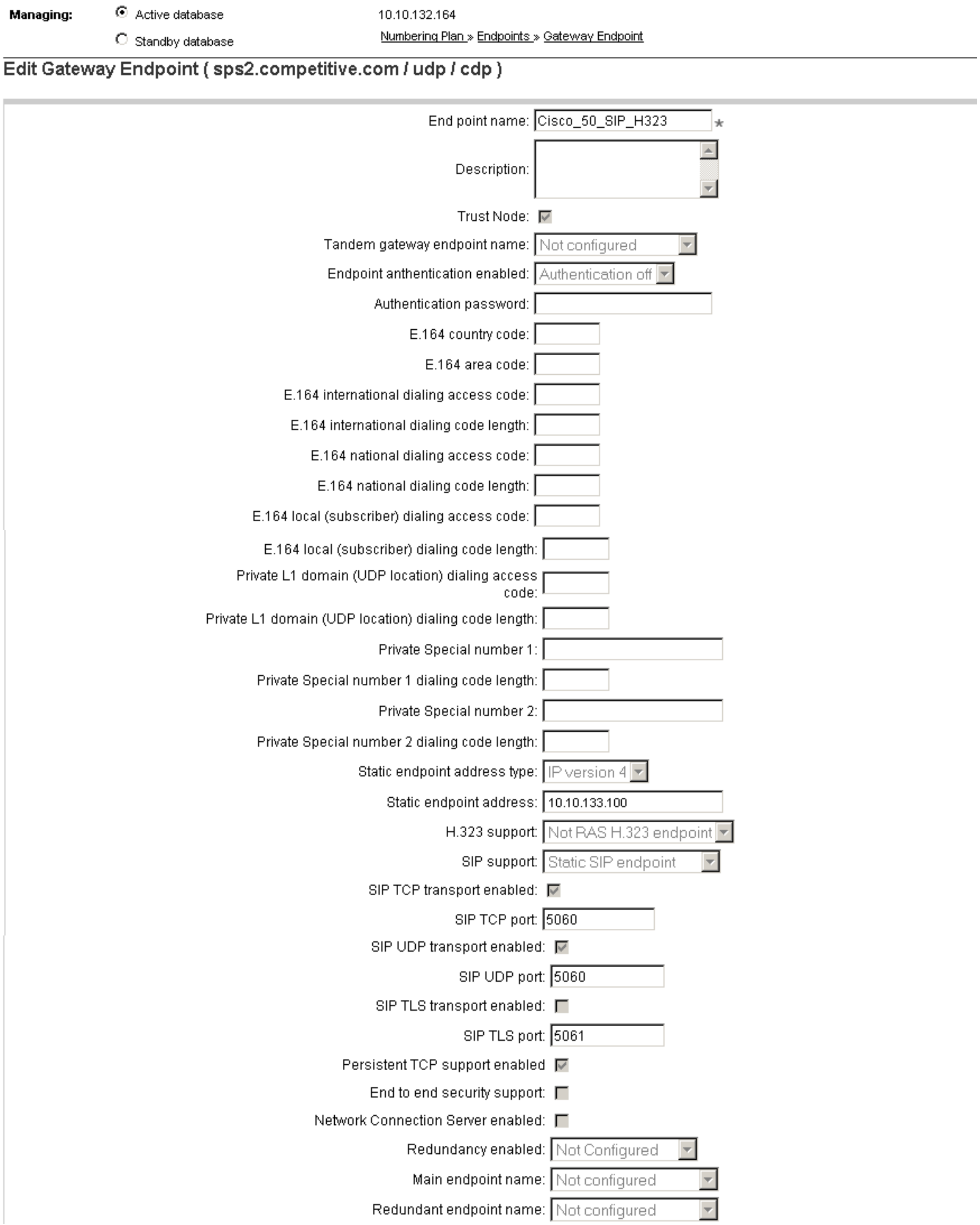
L0 (CDP) Domain Configuration on Nortel Communication server 1000

Note: Create UDP/CDP Domain under Service Domain Name that matches the Top Level Domain in Cisco Unified Communications Manager Enterprise Parameters.



SIP Gateway Endpoint Configuration on Nortel Communication server 1000

Enter Endpoint name, description, Enter the IP address of Cisco Callmanger. Select Static SIP endpoint, use TCP for transport and default SIP port of 5060.



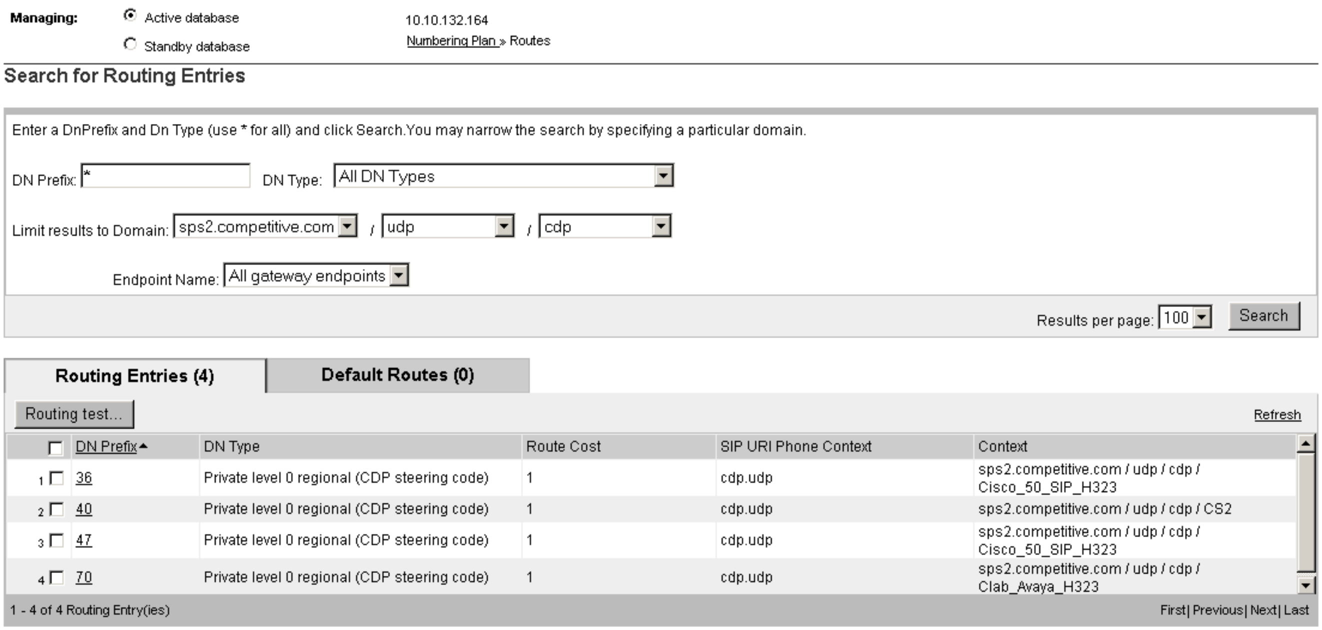
Managing: Active database 10.10.132.164
Standby database Numbering Plan » Endpoints » Gateway Endpoint

Edit Gateway Endpoint (sps2.competitive.com / udp / cdp)

End point name:	Cisco_50_SIP_H323 *
Description:	
Trust Node:	☑
Tandem gateway endpoint name:	Not configured
Endpoint anthentication enabled:	Authentication off
Authentication password:	
E.164 country code:	
E.164 area code:	
E.164 international dialing access code:	
E.164 international dialing code length:	
E.164 national dialing access code:	
E.164 national dialing code length:	
E.164 local (subscriber) dialing access code:	
E.164 local (subscriber) dialing code length:	
Private L1 domain (UDP location) dialing access code:	
Private L1 domain (UDP location) dialing code length:	
Private Special number 1:	
Private Special number 1 dialing code length:	
Private Special number 2:	
Private Special number 2 dialing code length:	
Static endpoint address type:	IP version 4
Static endpoint address:	10.10.133.100
H.323 support:	Not RAS H.323 endpoint
SIP support:	Static SIP endpoint
SIP TCP transport enabled:	☑
SIP TCP port:	5060
SIP UDP transport enabled:	☑
SIP UDP port:	5060
SIP TLS transport enabled:	☐
SIP TLS port:	5061
Persistent TCP support enabled	☑
End to end security support:	☐
Network Connection Server enabled:	☐
Redundancy enabled:	Not Configured
Main endpoint name:	Not configured
Redundant endpoint name:	Not configured

SIP Routing Enteries Configuration on Nortel Communication server 1000

36XXX is a SIP route to CCM



Managing: Active database / Standby database

10.10.132.164

Numbering Plan » Routes

Search for Routing Entries

Enter a DnPrefix and Dn Type (use * for all) and click Search.You may narrow the search by specifying a particular domain.

DN Prefix: * DN Type: All DN Types

Limit results to Domain: sps2.competitive.com / udp / cdp

Endpoint Name: All gateway endpoints

Results per page: 100 Search

Routing Entries (4) | **Default Routes (0)**

Routing test... Refresh

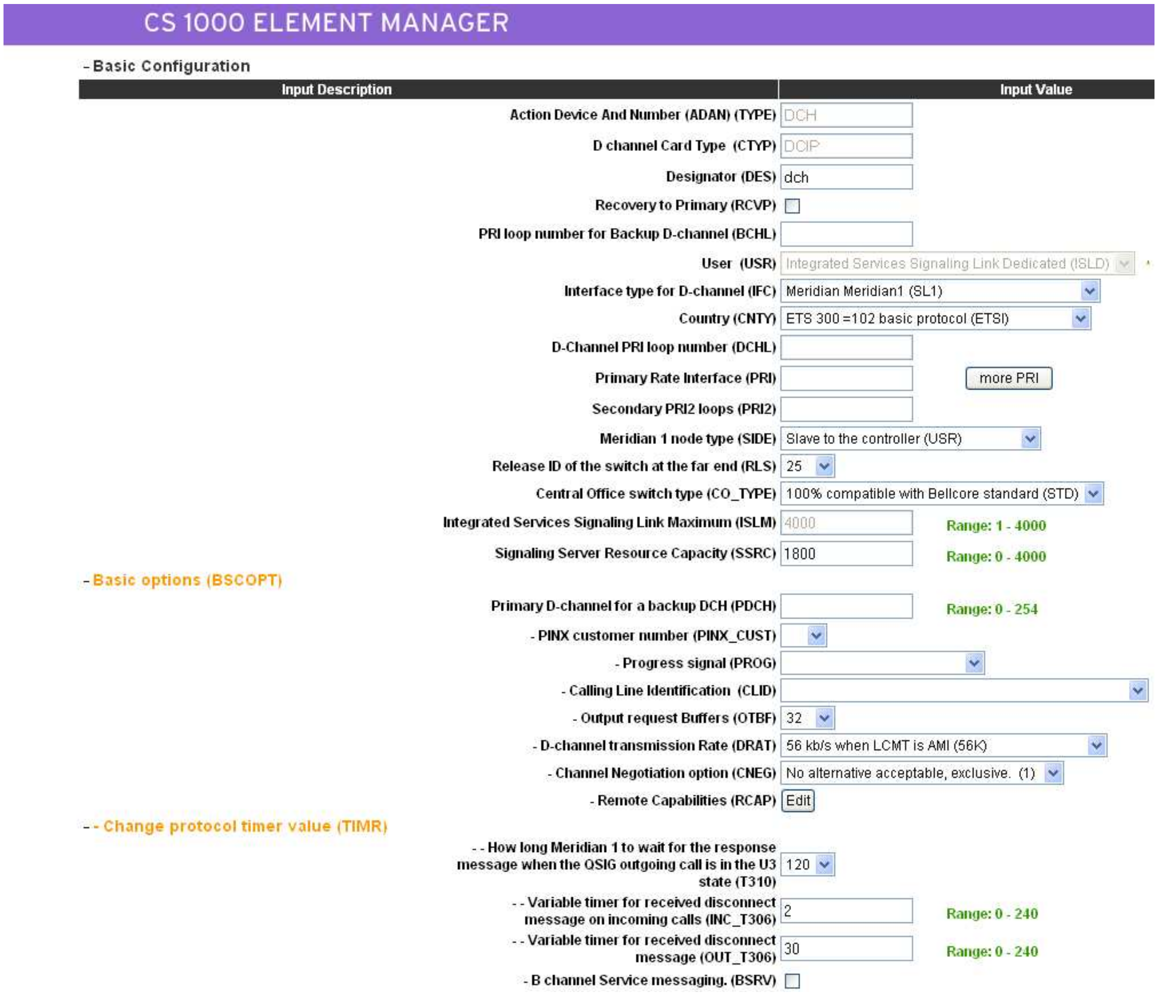
	DN Prefix	DN Type	Route Cost	SIP URI Phone Context	Context
1	36	Private level 0 regional (CDP steering code)	1	cdp.udp	sps2.competitive.com / udp / cdp / Cisco_50_SIP_H323
2	40	Private level 0 regional (CDP steering code)	1	cdp.udp	sps2.competitive.com / udp / cdp / CS2
3	47	Private level 0 regional (CDP steering code)	1	cdp.udp	sps2.competitive.com / udp / cdp / Cisco_50_SIP_H323
4	70	Private level 0 regional (CDP steering code)	1	cdp.udp	sps2.competitive.com / udp / cdp / Clab_Avaya_H323

1 - 4 of 4 Routing Entry(ies) First | Previous | Next | Last

Nortel Call Server Configuration Sequence.

IP D-channel Configuration on Nortel Communication server 1000

Use EM to configure D-channel



D-channel Configuration continued.

- Advanced options (ADVOPT)

- Layer 3 call control message count per 5 second time interval (ISDN_MCNT)	300	Range: 60 - 350
- Number of Status Enquiry Messages sent within 128 ms (SEMT)	1	
- Map channel number to timeslots on a PRI2 loop (QCHID)	☑	

- H323 Overlap Signaling Settings (H323)

- Overlap Receiving (OVLR)	☐	
- Overlap Sending (OVLS)	☐	
--Overlap Timer (OVLT)		
- Multilocation Business Group Allowed (MBGA)	☐	
- Network Attendant Service Allowed (NASA)	☑	

- - Link Access Protocol for D-channel (LAPD)

- - Interface guard Timer or DCHI only (T23)	20	
- - Retransmission Timer (T200)	3	
- - Maximum Time allowed without frames being exchanged (T203)	10	
- - Maximum Number of retransmissions (N200)	3	
- - Maximum Number of octets in information element (N201)	260	Range: 4 - 260
- - Maximum number of outstanding unacknowledged frames (K)	7	
- - Maximum number of status inquires when remote is busy (N2X4)	10	

- Feature Packages

- Digital Private Network Signaling System 1 — Package: 123

Input Description	Input Value
Digital Private Network Signaling (DPNS)	☐

- Virtual Network Services — Package: 183

Input Description	Input Value	
Virtual Network Services Network Signalling option (VSIG)	☐	
Virtual Network Services Maximum (VNSM)		Range: 1 - 300
Virtual Network Services Customer number (VNSC)	0	
Virtual Network Services Private Network Identifier (VNSP)		Range: 0 - 32700
Virtual Network Services Network Call Party Name Display (VCNA)	☐	
Virtual Network Services Network Call Redirection (VCRD)	☐	

You can also use CLI to configure D-Channel: Use LD 17 to configure D-channel signalling between Call Server and Signalling Server.

```
ADAN     DCH 10
  CTYP DCIP
  DES  vtrk
  USR  ISLD
  ISLM 4000
  SSRC 1800
  OTBF 32
  NASA NO
  IFC  SL1
  CNEG 1
  RLS  ID  25
  RCAP ND3
  MBGA NO
  H323
    OVLR NO
    OVLS NO
```

Super-Loop Configuration on Nortel Communication server 1000

Use EM to configure super-loops

CS 1000 ELEMENT MANAGER

Managing: 10.10.132.134
System » Core Equipment » Superloops » Superloops 0 Property Configuration

Superloops 0 Property Configuration

Input Description	Input Value
Superloop (SUPL)	000
Superloop Type (SUPT)	IPMG

Shelf 0

Input Description	Input Value	
Zone number (ZONE0)	000	Range: 0 - 255
IP based Media Gateway 0 (IPMG0)	0	
ELAN IP address (IPR0)	10.10.132.142	
IPMG Type (TYP0)	MGC	*
ELAN Passthrough Port (CE0)	CE	
Faceplate ELAN Port (E10)	1E	
Backplane ELAN Connection (E0)	E	
TLAN Passthrough Port (CT0)	CT	
Faceplate TLAN Port (T20)	2T	
Backplane TLAN Connection (T0)	T	

Shelf 1

Input Description	Input Value	
Zone Number (ZONE1)		Range: 0 - 255
IP based Media Gateway 1 (IPMG1)	1	
ELAN IP Address (IPR1)		
IPMG Type (TYP1)	MGC	*
ELAN Passthrough Port (CE1)	CE	
Faceplate ELAN Port (E11)	1E	
Backplane ELAN Connection (E1)	1ELAN	
TLAN Passthrough Port (CT1)	CT	
Faceplate TLAN Port (T21)	2T	
Backplane TLAN Connection (T1)	2TLAN	

Super-Loop Configuration continued.

Superloops 96 Property Configuration

Input Description	Input Value
Superloop (SUPL)	096
Superloop Type (SUPT)	Virtual

Superloops 100 Property Configuration

Input Description	Input Value
Superloop (SUPL)	100
Superloop Type (SUPT)	Virtual

You can also use CLI to configure Super-Loops: Use LD 97 to configure Super-Loops, Super-Loops are required for Virtual Trunks.

SUPL SUPT SLOT XPEC0 XPEC1 IPMG ZONE0/1 IPR0/1

000 IPMG ---- -- - - -- - - 001 000 10.10.132.142 **(SUPL for MGC)**
096 ---- ---- VIRTUAL -- - - --- --- - --- --------------- **(Virtual SUPL)**
100 ---- ---- VIRTUAL -- - - --- --- - --- --------------- **(Virtual SUPL)**

SIP Routes and Trunks Configuration on Nortel Communication server 1000

Use EM to configure Routes and Trunks

CS 1000 ELEMENT MANAGER

Managing: 10.10.132.134
Routes and Trunks » Routes and Trunks » Customer 0, Route 11 Property Configuration

Customer 0, Route 11 Property Configuration

- Basic Configuration

Input Description	Input Value	
Route Data Block (RDB) (TYPE)	RDB	
Customer number (CUST)	00	
Route Number (ROUT)	11	
Designator field for trunk (DES)	SIP	
Trunk Type (TKTP)	TIE	
Incoming and Outgoing trunk (ICOG)	Incoming and Outgoing (IAO)	
Access Code for the trunk route (ACOD)	8011	*
Trunk type M911P (M911P)	☐	
The route is for a virtual trunk route (VTRK)	☑	
- Zone for codec selection and bandwidth management (ZONE)	003	Range: 0 - 255
- Node ID of signaling server of this route (NODE)	434	Range: 0 - 9999
- Protocol ID for the route (PCID)	SIP (SIP)	
- Print Correlation ID in CDR for the route (CRID)	☐	
Integrated Services Digital Network option (ISDN)	☑	
- Mode of operation (MODE)	Route uses ISDN Signaling Link (ISLD)	
- D channel number (DCH)	10	Range: 0 - 254
- Interface type for route (IFC)	Meridian M1 (SL1)	
- Private Network Identifier (PNI)	00001	Range: 0 - 32700
- Network Calling Name Allowed (NCNA)	☑	
- Network Call Redirection (NCRD)	☑	
- - Trunk Route Optimization (TRO)	☐	
- Recognition of DTI2 ABCD FALT signal for ISL (FALT)	☐	
- Channel Type (CHTY)	B-channel (BCH)	
- Call Type for outgoing direct dialed TIE route (CTYP)	Unknown Call type (UKWN)	
- Insert ESN Access Code (INAC)	☑	
- Integrated Service Access Route (ISAR)	☐	
- Display of Access Prefix on CLID (DAPC)	☐	
- Mobile Extension Route (MBXR)	☐	

Routes and Trunks Configuration continued.

- Basic Route Options

Input Description	Input Value
Billing Number Required (BILN)	☐
Call Detail Recording (CDR)	☐
Controls or timers (CNTL)	☐
Conventional (Tie trunk only) (CNVT)	☐
Incoming DID Digit Conversion on this route (IDC)	☐
Multifrequency Compelled or MFC Signaling (MFC)	No MFC (NO)
Process Notification Networked Calls (PNNC)	☐

- Network Options

Input Description	Input Value
Electronic Switched Network pad control (ESN)	☐
Signaling arrangement (SIGO)	DTI data calls plus all other types (ESN5)
Route Class (RCLS)	Route Class marked as external (EXT)
Off-Hook Queuing (OHQ)	☐
Off-Hook Queue Threshold (OHQT)	0
Authcode (AUTH)	☐

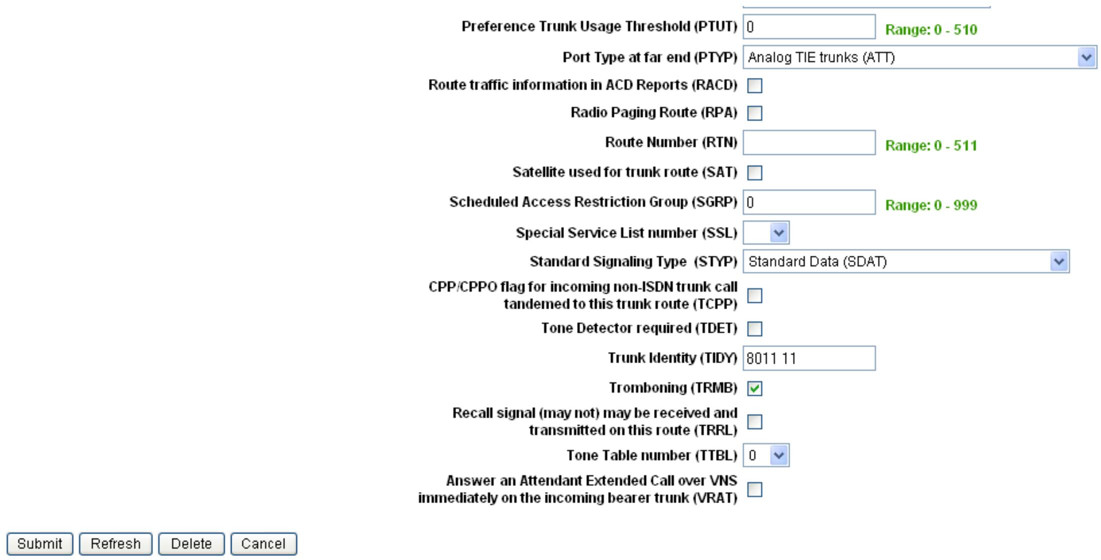
- General Options

Input Description	Input Value
M1 is the only Controlling Party on incoming calls (CPDC)	☐
Dial Tone on originating calls (DLTN)	☐
Hold failure threshold (HOLD)	02 02 40
Trunk Access Restriction Group (TARG)	01
Alternate trunk route for outgoing trunks (STEP)	Range: 0 - 511
Actual outgoing toll digits to be ignored for Code Restriction (OABS)	
Display IDC Name (DNAM)	☐
Enable Equal Access Restrictions (EQAR)	☐
ACD DNIS route (DNIS)	☐
Include DNIS number in CDR records (DCDR)	☐

Routes and Trunks Configuration continued.

- Advanced Configurations

Input Description	Input Value
Malicious Call Trace Alarm is allowed for external calls (ALRM)	☐
Allow last Re-directing Number (ARDN)	ARDN (NO)
ANI identifier number (ANTK)	
AC15 Timed Reminder Recall (ATRR)	☐
Auto terminate (AUTO)	☐
Collect Call Blocking Allowed (CCBA)	☐
Call Forward Restriction (CFWR)	☐
Maximum number of CNI digits (CLEN)	1
Time (in seconds) that an extension is allowed to ring or be On-hold or Call Park before the trunk is disconnected (DCTI)	0 Range: 0 - 511
North American Distinctive Ringing for incoming calls (DRNG)	☐
Home Local Number (HLCL)	
Home National Number (HNTN)	
In-Band Automatic Number Identification route (IANI)	☐
Incoming Identifier Send (ICIS)	☑
Internal/external definition (IDEF)	Use network info (NET)
Identify Originating Party (IDOP)	☐
Insert (INST)	
Manual Outgoing trunk route (MANO)	☐
Manual Route (MNL)	☐
Music On-Hold (MUS)	☐
North American Toll scheme (NATL)	☑
Outgoing Identifier Send (OGIS)	☑
Off-Hook Timer Delay (OHTD)	☐
Outpulsing Route (OPR)	☐
Pseudo Answer (PANS)	☑
Periodic Clearing Signal (PECL)	☐
Priority Level (PLEV)	2
Protocol Selection (PSEL)	DM-DM Protocol Selection (DMDM)



You can also use CLI to configure Routes and Trunks:

Use LD 14 to configure SIP Trunks, One Virtual Trunk is required for each connection. (MSNV) Media Security should be Never.

DES SIP
TN 100 0 02 00 VIRTUAL
TYPE IPTI
CDEN 8D
CUST 0
XTRK VTRK
ZONE 000
LDOP BOP
NMUS NO
TRK ANLG
NCOS 0
RTMB 11 1
CHID 33
TGAR 0
STRI/STRO IMM IMM
SUPN YES
AST NO
IAPG 0
CLS UNR DTN CND ECD WTA LPR APN THFD XREP SPCD **MSNV (SRTP=Never)**
P10 NTC MID
TKID
AACR NO
DATE 12 NOV 2006

Routes and Trunks Configuration continued
Use LD 16 to configure SIP Route.

```
TYPE RDB
CUST 00
ROUT 11
DES  SIP
TKTP TIE
M911P NO
ESN  NO
RPA  NO
CNVT NO
SAT  NO
RCLS EXT
VTRK YES
ZONE 000
PCID SIP
CRID YES
NODE 434
DTRK NO
ISDN YES
   MODE ISLD
   DCH  10
   IFC  SL1
   PNI  00001
   NCNA YES
   NCRD YES
   TRO  YES
   FALT NO
   CTYP UKWN
   INAC YES
```

```
    ISAR NO
    DAPC NO
PTYP ATT
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
SRCH LIN
TRMB YES
STEP
ACOD 8011
TCPP NO
TARG 01
CLEN 1
BILN NO
OABS
INST
ANTK
SIGO STD
STYP SDAT
MFC  NO
ICIS YES
OGIS YES
PTUT 0
TIMR ICF  1920
     OGF  1920
     EOD  13952
     DSI  34944
     NRD  10112
     DDL  70
     ODT  4096
     RGV  640
     GTO  896
     GTI  896
     SFB  3
     NBS  2048
     NBL  4096
     IENB  5
     TFD  0
     VSS  0
     VGD  6
     EESD  1024
SST  5 0
DTD  NO
SCDT NO
2 DT NO
NEDC ORG
FEDC ORG
```

CPDC NO
DLTN NO
HOLD 02 02 40
SEIZ 02 02
SVFL 02 02
DRNG NO
CDR NO
NATL YES
SSL
CFWR NO
IDOP NO
VRAT NO
MUS NO
PANS YES
MANO NO
OHQ NO
OHQT 00
CBQ NO
AUTH NO
TDET NO
TTBL 0
ATAN NO
OHTD NO
PLEV 2
OPR NO
ALRM NO
ART 0
PECL NO
DCTI 0
TIDY 8011 11
ATRR NO
TRRL NO
SGRP 0
CCBA NO
ARDN NO
ANIE 0
CAC_CIS 3
AACR NO

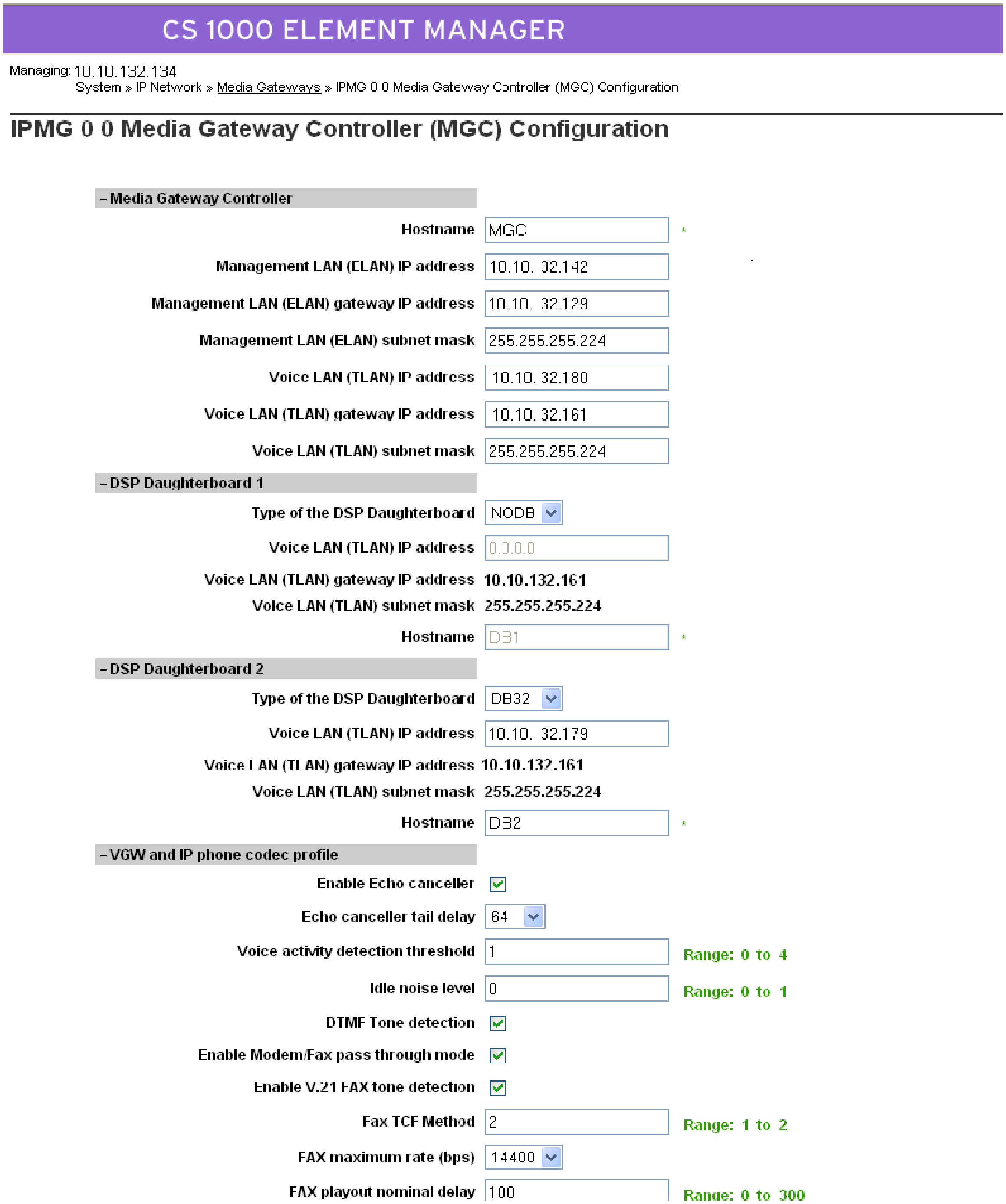
Routes and Trunks Configuration continued
Use LD 86 to configure (RLI) Route List Block. RLI for SIP calls.

RLI 11
ENTR 0
LTER NO
ROUT 11
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON
VNS NO
SCNV NO
CNV NO
EXP NO
FRL 0
DMI 10
ISDM 0
FCI 0
FSNI 0
DORG NO
SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO

ISET 0
NALT 5
MFRL 0
OVLL 0

MGC Trunk Configuration on Nortel Communication server 1000

Use EM to configure MGC


CS 1000 ELEMENT MANAGER
Managing: 10.10.132.134
System » IP Network » Media Gateways » IPMG 0 0 Media Gateway Controller (MGC) Configuration
IPMG 0 0 Media Gateway Controller (MGC) Configuration
- Media Gateway Controller
Hostname MGC
Management LAN (ELAN) IP address 10.10. 32.142
Management LAN (ELAN) gateway IP address 10.10. 32.129
Management LAN (ELAN) subnet mask 255.255.255.224
Voice LAN (TLAN) IP address 10.10. 32.180
Voice LAN (TLAN) gateway IP address 10.10. 32.161
Voice LAN (TLAN) subnet mask 255.255.255.224
- DSP Daughterboard 1
Type of the DSP Daughterboard NODB
Voice LAN (TLAN) IP address 0.0.0.0
Voice LAN (TLAN) gateway IP address 10.10.132.161
Voice LAN (TLAN) subnet mask 255.255.255.224
Hostname DB1
- DSP Daughterboard 2
Type of the DSP Daughterboard DB32
Voice LAN (TLAN) IP address 10.10. 32.179
Voice LAN (TLAN) gateway IP address 10.10.132.161
Voice LAN (TLAN) subnet mask 255.255.255.224
Hostname DB2
- VGW and IP phone codec profile
Enable Echo canceller
Echo canceller tail delay 64
Voice activity detection threshold 1
Range: 0 to 4
Idle noise level 0
Range: 0 to 1
DTMF Tone detection
Enable Modem/Fax pass through mode
Enable V.21 FAX tone detection
Fax TCF Method 2
Range: 1 to 2
FAX maximum rate (bps) 14400
FAX playout nominal delay 100
Range: 0 to 300

FAX no activity timeout	20 Range: 10 to 32000
FAX packet size	30
- Codec G711	Select
Codec Name	G711
Voice payload size (ms/frame)	20
Voice playout (jitter buffer) nominal delay	40
Modifications may cause changes to dependent settings	
Voice playout (jitter buffer) maximum delay	80
Modifications may cause changes to dependent settings	
VAD	
- Codec G729A	Select
Codec Name	G729A
Voice payload size (ms/frame)	20
Voice playout (jitter buffer) nominal delay	40
Modifications may cause changes to dependent settings	
Voice playout (jitter buffer) maximum delay	80
Modifications may cause changes to dependent settings	
VAD	
- Codec G723.1	Select
Codec Name	G723.1
Voice payload size (ms/frame)	30
Voice playout (jitter buffer) nominal delay	60
Modifications may cause changes to dependent settings	
Voice playout (jitter buffer) maximum delay	120
Modifications may cause changes to dependent settings	
VAD	
- Codec T38 FAX	Select
Codec Name	T38 FAX
- QoS	
Diffserv Codepoint(DSCP) Control packets	40 Range: 0 to 63
Diffserv Codepoint(DSCP) Voice packets	46 Range: 0 to 63
- LAN configuration	
Embedded LAN (ELAN) configuration	
Primary Call server IP address	10.10.132.134
Primary Call server Hostname	Primary_CS
Signaling port	15000
Broadcast port	15001 Range: 1024 to 65535
Telephony LAN (TLAN) configuration	
Signaling port	5000
Voice port	5200 Range: 1024 to 65535

Submit Cancel VGW Channels

Mandatory fields of current configuration

You can also use CLI to configure Routes and Trunks:

Use LD 14 to configure Trunks for MGC, One Virtual Trunk is required for each channel. 32 Virtual trunks for low density MGC daughter board and 96 for high density.

DES Low Density DB
TN 000 0 00 01 VIRTUAL (Channel #1)
TYPE VGW
CUST 0
XTRK DB32
ZONE 000

DES Low Density DB
TN 000 0 00 02 VIRTUAL (Channel #2)
TYPE VGW
CUST 0
XTRK DB32
ZONE 000
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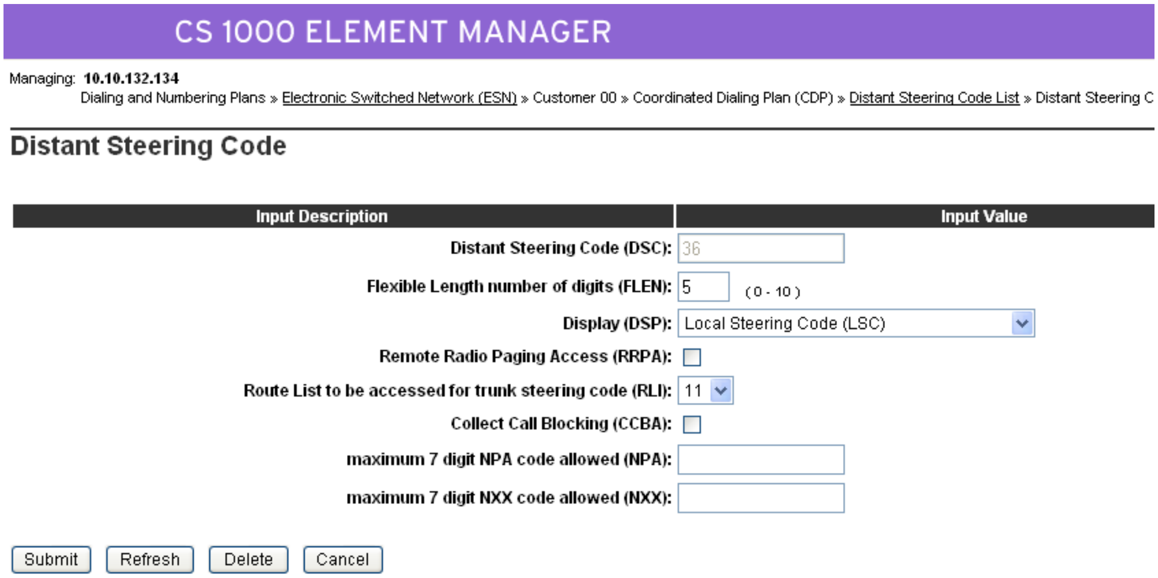
DES Low Density DB
TN 000 0 00 32 VIRTUAL (Channel #32)
TYPE VGW
CUST 0
XTRK DB32
ZONE 000

CDP Steering Code Configuration on Nortel Communication server 1000

Use EM to configure CDP



You can also use CLI to configure CDP

DSC 36 (36XXX is SIP route to Cisco Unified Communications Manager)
FLEN 5
DSP LSC
RRPA NO
RLI 11
CCBA NO
NPA
NXX

END