



>BUSINESS MADE **SIMPLE**

NORTEL

Communication Server 1000 RIs 5.x and 6.0 Configuration Guide: Verizon Business SIP Trunking

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Table of Contents

INTRODUCTION	4
FEATURES	4
FEATURES SUPPORTED.....	4
CAVEATS	5
SYSTEM SOFTWARE	5
DEPLOYMENT OPTIONS	7
CS 1000 R5.X CONFIGURATION DETAILS.....	10
CS 1000 R6.0 CONFIGURATION DETAILS	29
VERIZON IP TOLL FREE, CONTACT CENTER AND EMEA DEPLOYMENTS	29
CALL SERVER CONFIGURATION.....	52
OVERLAY 15 - CUSTOMER DATA BLOCK.....	52
OVERLAY 17 – CONFIGURATION RECORD.....	57
APPENDIX A - EMEA CS 1000	60
RELEASE 5.X	60
RELEASE 6.0	64
APPENDIX B - ADDITION OF A SECOND CPE DEVICE (SIP GW REDUNDANCY).....	68
RELEASE 5.X	70
RELEASE 6.0	72



Introduction

This document provides a typical network deployment of Communication Server 1000 (CS1000) utilizing the Verizon Business SIP Trunking product offering. This document should serve as general guideline only, since it is not possible to document every possible variation of configuration. For more information on the Verizon Business SIP Trunking Engineering and Implementation, please contact your local Verizon CPE Specialist.

The CS 1000E system is configured as a SIP gateway endpoint on the Verizon Business network. The enterprise customer may require an additional signaling server for each SIP gateway that will be deployed as SIP trunking to the carrier.

The CS1000 in this configuration does not use a CS 1000 SIP Redirect or Proxy for Carrier SIP trunking, but rather the SIP Virtual Gateway is simply provisioned with the SBC as the static SIP endpoint of the SIP Trunk.

Features

This section lists supported and unsupported features when the CS 1000 is used on the Broadsoft SIP network as tested in the Verizon Certification lab.

Features Supported

- Basic calls (G729 20ms)
- Calling line (number) identification presentation (CLIP)
- Calling line (number) identification restriction (CLIR)
- DTMF (RFC2833)
- Call hold
- Call transfer (Blind and consultative transfers)
- Call conference
- Call forward
- Call Redirection to Voice Mail on CS1K
- Fax – G711
- QoS - DIFFSERV must be ENABLED and configured to use 28 (DSCP 40) for control packets and 46 (DSCP 46) for voice packets.

Applications Tested

- CS1000 Call Pilot – in main or expansion cabinet
- Verizon IP Toll Free
- Verizon IP Contact Center/IVR



Caveats

T.38 not supported on the Verizon network at this time, therefore G711 used – V.21 tone detect disabled in VGW profiles.

G.711 for fax and G.729 (for voice) codecs must be ENABLED, with a Voice Payload of 20ms
Secure Audio (SAVP) not supported by some endpoints in Verizon network.

System Software

Installation of the software listed below is CRITICAL to allow for correct operation.

CS 1000 Release 5.00W

Call Server: 5.00W plus latest DEPLIST

Signaling Server: SSE 5.00.31 plus the latest DEPLIST as well as the ***following additional patches:***

Note – CS 1000 R5.00W support with OCS has been clarified in bulletin 2008008981: “Nortel Communication Server 1000 Interoperability with Microsoft OCS 2007 and Microsoft Exchange 2007 Unified Messaging”. If a patch listed below conflicts with an OCS required patch, please see the bulletin for the recommended action.

Latest DEPLIST will include the following critical patches as of the writing of this document:

MPLR23632 (**superseded by merge MPLR24319 in DEPLIST**) Null values should be allowed for Public E.164/National or Subscriber fields

MPLR24687 (**superseded by merge patch MPLR24692 in DEPLIST**) CS1K fails to negotiate codec on re Invite

MPLR24983 (**superseded by merge MPLR25218 in DEPLIST**) CS1K wrong use of SIP Update

MPLR26378 - CS1K sends out UPDATE even if 100rel is not supported by far-end

Patches required that are currently NOT in the DEPLIST

MPLR22452 – SIP GW patch to remove outbound MCDN from SIP messaging

MPLR24605 (**superseded by MPLR24803**) - SIP: Incorrect port usage on sent SIP messages

MPLR22968 – PI: SIP: TO/FROM URI Incorrect - Replace domain population in the FROM field to the Node IP Address of the Signaling Server.

MPLR25981 – SIP: added capability to GW to handle 400 Bad Request message when received from network.

MPLR25529 - SIP: Partial support of DIVERSION



CS 1000 Release 5.50J

Call Server: 5.50J plus latest DEPLIST

Latest DEPLIST will include the following critical patches as of the writing of this document:

MPLR26378 - CS1K sends out UPDATE even if 100rel is not supported by far-end

Signaling Server: SSE 5.50.12 plus latest DEPLIST as well as the ***following additional patches:***

MPLR23632 - Null values should be allowed for Public E.164/National or Subscriber fields

MPLR25946 - SIP GW patch to remove outbound MCDN from SIP messaging

MPLR22968 – PI: SIP: TO/FROM URI Incorrect - Replace domain population in the FROM field to the Node IP Address of the Signaling Server.

MPLR25981 – SIP: added capability to GW to handle 400 Bad Request message when received from network.

MPLR25529 - SIP: Partial support of DIVERSION

CS 1000 Release 6.00W

Call Server: 6.00 plus latest DEPLIST

Signaling Server: SSE 6.00.18 with Service Updates (SU) at the **6.00.18.63 or higher** revision required. The patches below are “Activation” patches that will enable the functionality required to interoperate with the Verizon Network.

MPLR27408 – Removal of SIP Session Timer

MPLR22968 – PI: SIP: TO/FROM URI changes - replace domain population in the FROM field, History Info/Diversion Header to the Node IP Address of the Signaling Server

MPLR25946 – SIP GW patch to remove outbound MCDN from SIP messaging

MPLR25529 - SIP: Partial support of DIVERSION

MPLR25981 – SIP: added capability to GW to handle 400 Bad Request message when received from network.

Deployment Options

There are a number of possible engineering options to consider when deployed SIP based trunking. The two main considerations that affect hardware and patching are redundancy and Private Networking requirements.

ISP1100 servers are shown in the diagrams below, but COTS and CP-PM servers can be used as well.

Figure 1 below depicts the simplest deployment model, utilizing one or more Signaling Servers to provide Telephone Proxy and SIP GW capability. The single Node configuration would have TPS and SIP GW applications enabled for all servers in the Node. The engineering rules for co-resident TPS and SIP GW would apply. Patching on the Signaling Servers would consist of the current DEPLIST plus the required patches to support Verizon SIP Trunking. Private Networking to other Nortel products or Nortel Developer Partner products is **not** supported due the changes the Verizon specific patches introduce to the SIP signaling.

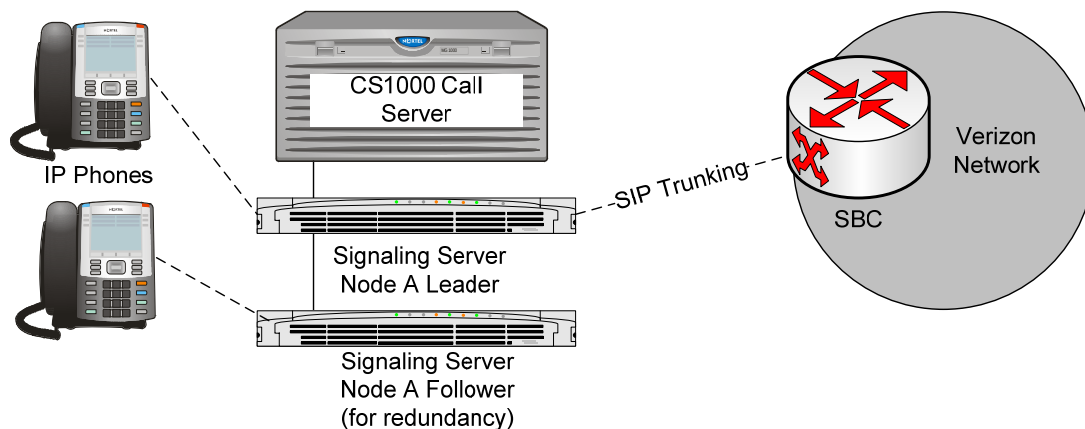


Figure 1 - Stand-Alone Communication Server and Nortel-Verizon Business Sip Trunking

In environments that will experience call rates that would exceed the co-resident TPS/SIP GW engineering recommendations, the TPS and SIP GW functionality must be split apart into different Nodes. See Figure 2 as an example where Node A is configured for TPS and is patched with the current DEPLIST. Node B is configured with SIP GW only and is patched with the current DEPLIST plus the patches required to support Verizon SIP Trunking.

Note: When creating a new Node on a separate Sig Server, remember to configure a dedicated D-Channel for each Node to communicate to the Call Server.

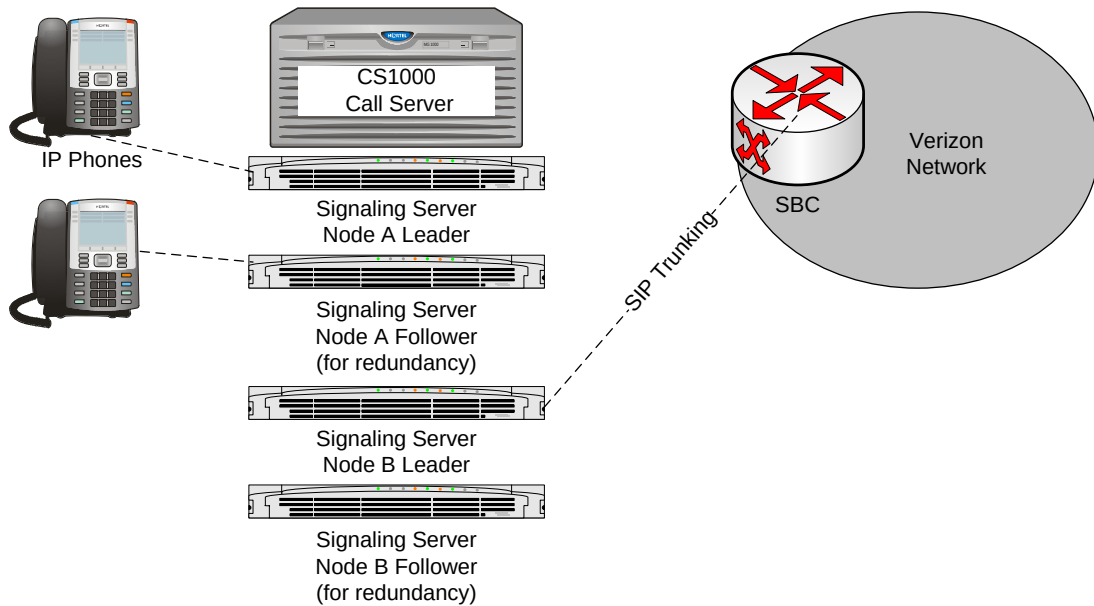


Figure 2 - Stand-Alone Communication Server and Nortel-Verizon Business Sip Trunking for High Call Volume

The deployment options become more complex when additional Call Servers or SIP Applications are introduced behind the CS1K., such as SIP DECT, OCS, ICP etc.

See Figure 3 for an example utilizing SIP Private Networking to a BCM and a SRG.

Node A is configured for TPS and SIP GW, and patched with the current DEPLIST. Node B is configured with SIP GW only and is patched with the current DEPLIST plus the patches required to support Verizon SIP Trunking.

Note: A deployment using SIP Public trunking and H.323 Private Networking is not recommended due to limitations that occur when translating between the 2 protocols.

Note: When creating a new Node on a separate Sig Server, remember to configure a dedicated D-Channel for each Node to communicate to the Call Server.

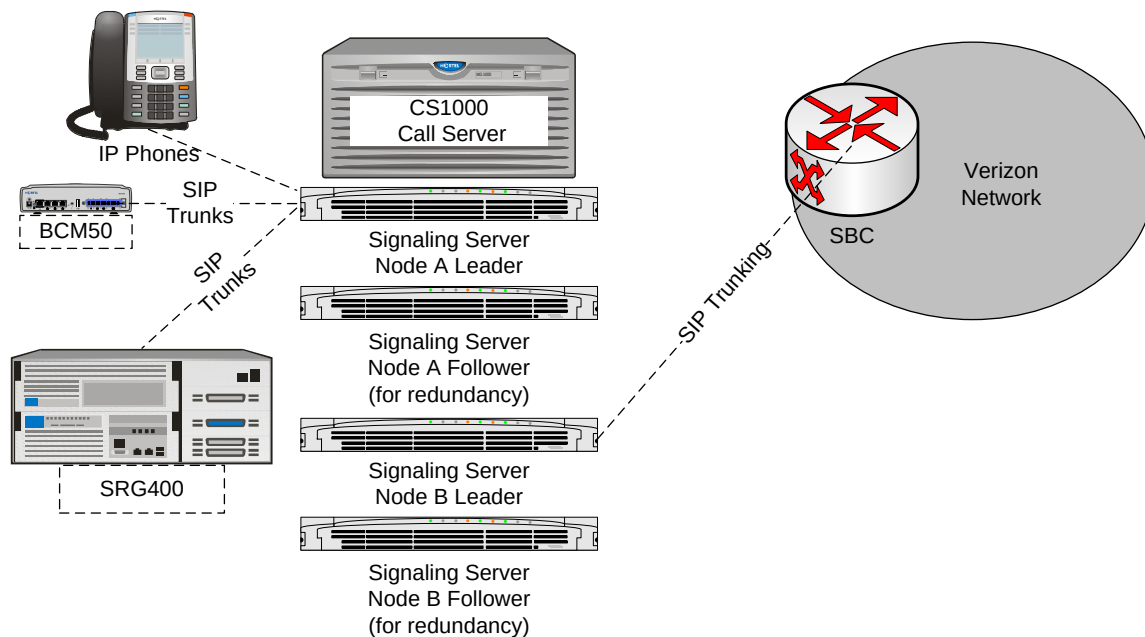
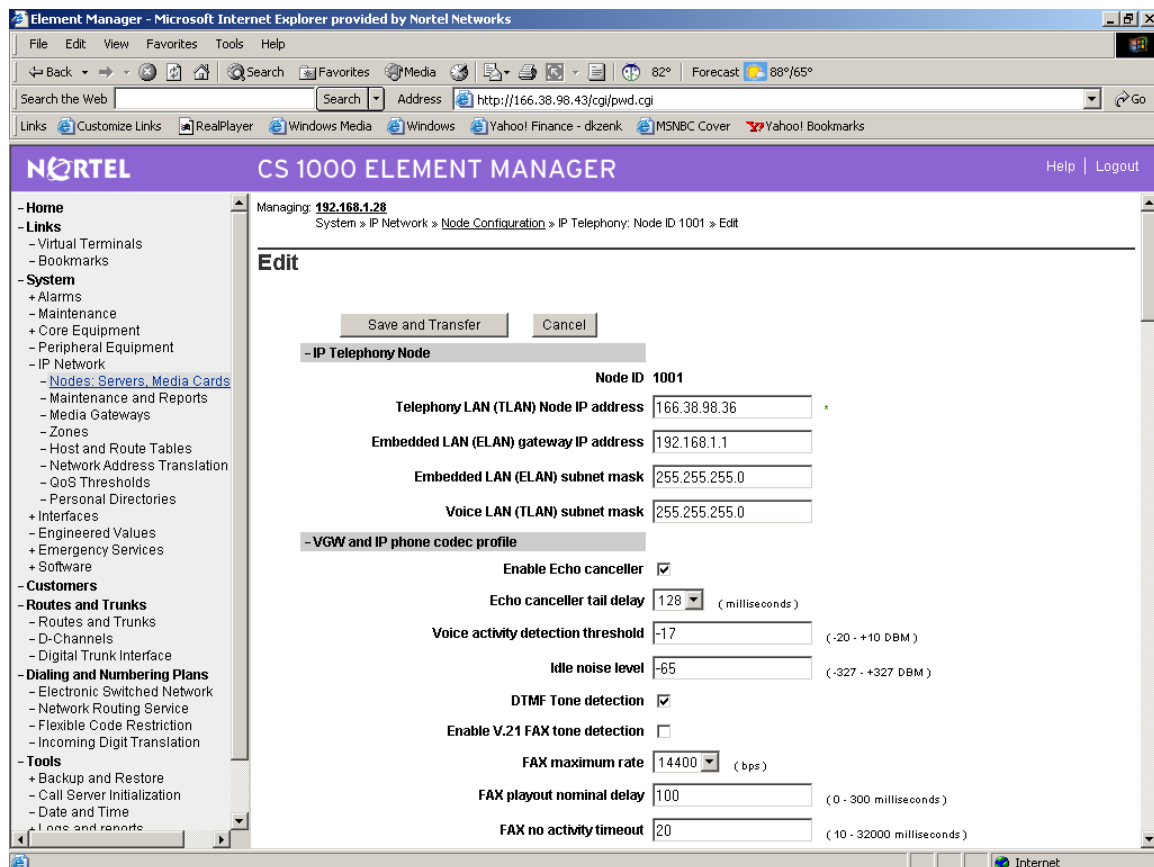


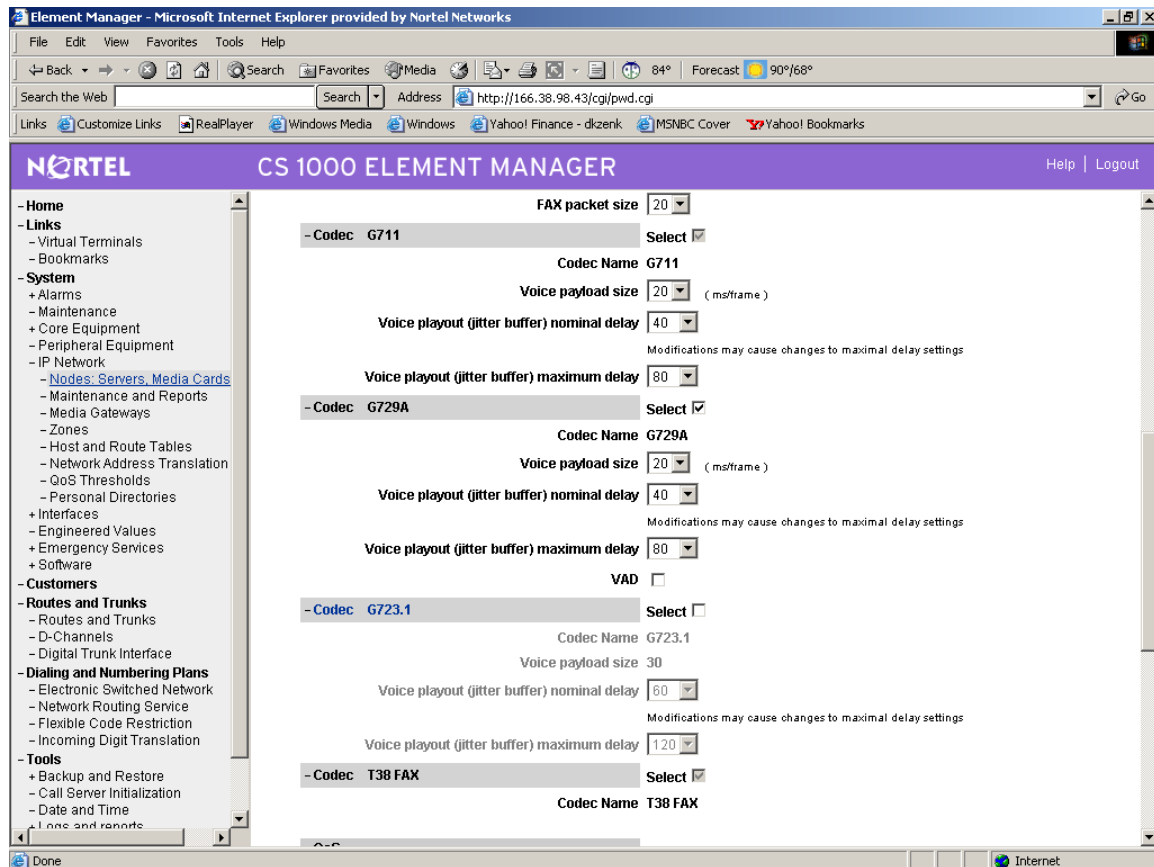
Figure 3 - Multiple Call Server with Tandem to Nortel-Verizon Business Sip Trunking

CS 1000 R5.x Configuration Details

The following screen shots show non-default changes made to the CS 1000 Node that is providing SIP Trunking to the Verizon network. If the CS 1000 is supporting both Private and Public trunking, these changes would be made on the Public Trunking Node.



T38 is disabled on the Broadworks network, so must it also be disabled in the CS1K. To do so, V.21 Fax Tone Detection is turned off in the codec profile.



The Broadworks network supports both g.711 and g.729, with the preference set to g.729. A 20ms payload size is used.

NORTEL CS 1000 ELEMENT MANAGER

- QoS

Diffserv Codepoint(DSCP) Control packets: 28 (0 - 63)

Diffserv Codepoint(DSCP) Voice packets: 46 (0 - 63)

Enable 802.1Q support: ☐

802.1Q Bits value (802.1p): 3 (0 - 7)

- LAN configuration

Embedded LAN (ELAN) configuration

Call server IP address: 192.168.1.28

Unistern Signaling port: 15000

Broadcast port: 15001 (1024 - 65535)

Telephony LAN (TLAN) configuration

Unistern Signaling port: 5000

RTP/RTCP Starting port: 5200 (1024 - 65535)

Embedded LAN (ELAN) Routes Add

Host Table Add

DNS Servers

Primary DNS Server IP address: 0.0.0.0

Alternate DNS Server 1 IP address: 0.0.0.0

Alternate DNS Server 2 IP address: 0.0.0.0

+SNTP

+Virtual Trunk Network Health Monitor configuration

+H323 GW Settings

Diff Serv is required for the network, and the default values in the system should be changed to 28 and 46.

When configuring the Layer 2/3 networking equipment on the T-Lan, program the ERS4500 or ERS2500 ports as a trusted site to pass the Dif_Serv code points to the network.

Element Manager - Microsoft Internet Explorer provided by Nortel Networks

File Edit View Favorites Tools Help

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Search the Web Search Address http://166.38.98.43/cgi/pwd.cgi Go

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NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Home
- Links
 - Virtual Terminals
 - Bookmarks
- System
 - + Alarms
 - Maintenance
 - + Core Equipment
 - Peripheral Equipment
 - IP Network
 - Nodes: Servers, Media Cards
 - Maintenance and Reports
 - Media Gateways
 - Zones
 - Host and Route Tables
 - Network Address Translation
 - QoS Thresholds
 - Personal Directories
 - + Interfaces
 - Engineered Values
 - + Emergency Services
 - + Software
- Customers
 - Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
 - Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
 - Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Alarms and reports

+ Firmware

- SIP GW Settings

TLS Security

Security Policy Security Disabled

TLS Security Port 5061 (1 - 65535)

Client Authentication ☐

Re-negotiation ☐

X.509 Certificate Authentication ☐

Primary Proxy or Re-direct Server

Primary Proxy or Redirect (TLAN) IP address 166.34.84.89

Port 5070

Supports Registration ☐

Primary CDS Proxy or Re-direct server flag ☐

Transport Protocol UDP

Secondary Proxy or Re-direct Server

Secondary Proxy or Redirect (TLAN) IP address 0.0.0.0

Port 5070

Supports Registration ☐

Secondary CDS Proxy or Re-direct server flag ☐

Transport Protocol UDP

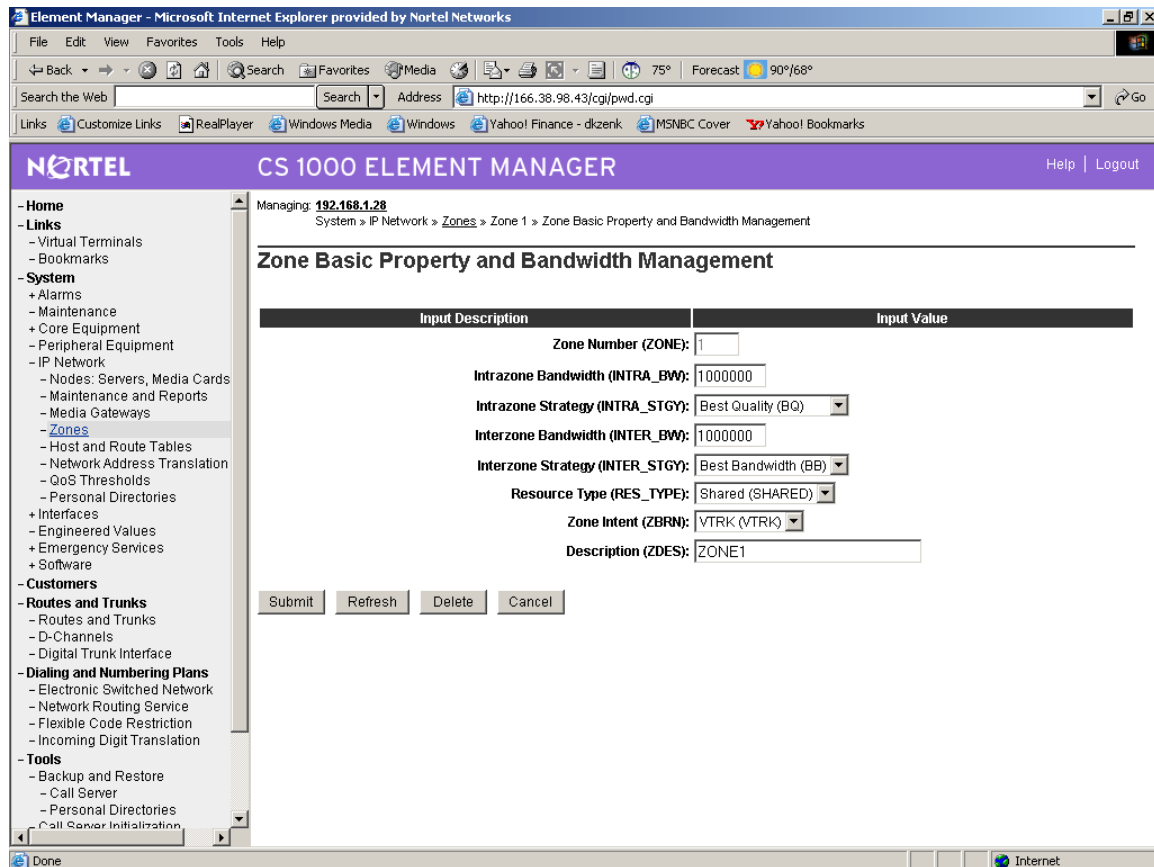
CLID Parameters

Country Code (CCC)

The primary Proxy server is the VzB SBC IP address in the cloud. All calls are routed to this SBC, within to the Broadworks network. The CS1000 will route to an IP address for the primary proxy. DNS is not supported for this entry. VzB also requires different port configuration, with NAT and ALG services fully operational on each port. An SBC can accommodate this requirement; each can be purchased through Nortel.

The SIP domain name is set to the Broadworks network, and is entered as a Fully Qualified Domain Name (FQDN). This FQDN is supplied by Verizon Business. NRS is not enabled on the CS1K Node as all calls are routed to the SBC for routing through basic BARS routing.

Not shown: In the SIP-URI Map, **NO** entries are to be put in the E.164 fields.



Default zone 0 is associated with the DSP's and the IP sets.

The screenshot shows a web browser window titled "Element Manager - Microsoft Internet Explorer provided by Nortel Networks". The address bar shows the URL "http://166.38.98.43/cgi/pwd.cgi". The page has a purple header with the Nortel logo and the title "CS 1000 ELEMENT MANAGER". A sidebar on the left contains a navigation menu with categories like Home, Links, System, Customers, Routes and Trunks, Dialing and Numbering Plans, and Tools. The main content area is titled "Zone Basic Property and Bandwidth Management" and shows the configuration for "Zone Number (ZONE): 100". The configuration includes fields for Intrazone Bandwidth (1000000), Intrazone Strategy (Best Quality (BQ)), Interzone Bandwidth (1000000), Interzone Strategy (Best Bandwidth (BB)), Resource Type (Shared (SHARED)), Zone Intent (VTRK (VTRK)), and a Description field. At the bottom of the form are buttons for Submit, Refresh, Delete, and Cancel.

Input Description	Input Value
Zone Number (ZONE):	100
Intrazone Bandwidth (INTRA_BW):	1000000
Intrazone Strategy (INTRA_STGY):	Best Quality (BQ)
Interzone Bandwidth (INTER_BW):	1000000
Interzone Strategy (INTER_STGY):	Best Bandwidth (BB)
Resource Type (RES_TYPE):	Shared (SHARED)
Zone Intent (ZBRN):	VTRK (VTRK)
Description (ZDES):	

Zone 100 is used for the Verizon SIP trunks.

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NORTEL CS 1000 ELEMENT MANAGER Help Logout

Managing: **192.168.1.28**
Routes and Trunks > [Routes and Trunks](#) > Customer 0, Route 10 Property Configuration

Customer 0, Route 10 Property Configuration

- Basic Configuration

Input Description	Input Value
Route Data Block (RDB) (TYPE)	RDB
Customer number (CUST)	00
Route Number (ROUT)	10
Designator field for trunk (DES)	SIP TRK
Trunk Type (TKTP)	TIE
Incoming and Outgoing trunk (ICOG)	Incoming and Outgoing (IAO)
Access Code for the trunk route (ACOD)	4000
Trunk type M911P (M911P)	☐
The route is for a virtual trunk route (VTRK)	☒
- Zone for codec selection and bandwidth management (ZONE)	100 Range: 0 - 255
- Node ID of signaling server of this route (NODE)	1001 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)	16 Range: 0 - 254

Done Internet

Basic SIP trunk route configuration using a different zone than the sets.

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- Nodes: Servers, Media Cards
- Maintenance and Reports
- Media Gateways
- Zones
- Host and Route Tables
- Network Address Translation
- QoS Thresholds
- Personal Directories
- + Interfaces
- Engineered Values
- Emergency Services
- Software
- Call Server PEPs
- Media Gateway PEPs
- Loadware PEPs
- File Upload
- IP Phone Firmware
- Voice Gateway Media Card
- Servers, Media Cards PEPs
- Customers
- Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
- Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
- Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Logs and reports
- Security
 - + Passwords
 - + Login Options

Integrated Services Digital Network option (ISDN) ☒

- Mode of operation (MODE) Route uses ISDN Signaling Link (ISLD)
- D channel number (DCH) 16 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 DT12 ABCD FALT signal for ISL (FALT) ☐
- Channel Type (CHTY) B-channel (BCH)
- Call Type for outgoing direct dialed TIE route (CTYP) Coordinated Dialing Plan (CDP)
- Insert ESN Access Code (INAC) ☐
- Integrated Service Access Route (ISAR) ☐
- Display of Access Prefix on CLID (DAPC) ☐

- 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)	☐
MFC feature options (MFC_FEAT)	☐

- Network Options

Input Description	Input Value
-------------------	-------------

Routing continued....

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- Nodes: Servers, Media Cards
- Maintenance and Reports
- Media Gateways
- Zones
- Host and Route Tables
- Network Address Translation
- QoS Thresholds
- Personal Directories
- + Interfaces
- Engineered Values
- Emergency Services
- Software
- Call Server PEPs
- Media Gateway PEPs
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- File Upload
- IP Phone Firmware
- Voice Gateway Media Card
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- Customers
- Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
- Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
- Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - + Logs and reports
- Security
 - + Passwords
 - + Login Options

MFC feature options (MFC_FEAT) ☐

- Network Options

Input Description	Input Value
Electronic Switched Network pad control (ESN)	☐
Signaling arrangement (SIGO)	Standard (STD)
Route Class (RCLS)	Route Class marked as external (EXT)
Off-Hook Queuing (OHQ)	☐
Off-Hook Queue Threshold (OHQT)	0
Call Back Queuing (CBQ)	☐
Number of Digits (NDIG)	2
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)	
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)	☐

Done Internet

Routing continued...

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Back Forward Stop Reload Home Search Favorites Media 82° Forecast 88°/65°

Search the Web Search Address http://166.38.98.43/cgi/pwd.cgi Go

Links Customize Links RealPlayer Windows Media Windows Yahoo! Finance - dkzenk MSNBC Cover Yahoo! Bookmarks

NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Nodes: Servers, Media Cards
- Maintenance and Reports
- Media Gateways
- Zones
- Host and Route Tables
- Network Address Translation
- QoS Thresholds
- Personal Directories
- + Interfaces
- Engineered Values
- Emergency Services
- Software
- Call Server PEPs
- Media Gateway PEPs
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- File Upload
- IP Phone Firmware
- Voice Gateway Media Card
- Servers, Media Cards PEPs
- Customers
- Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
- Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
- Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Logs and reports
- Security
 - + Passwords
 - + Login Options

- Advanced Configurations

Input Description	Input Value
Allow last Re-directing Number (ARDN)	ARDN (NO)
ANI identifier number (ANTK)	
Auto terminate (AUTO)	☐
Maximum number of CNI digits (CLEN)	1
North American Distinctive Ringing for incoming calls (DRNG)	☐
Home Local Number (HLCL)	
Home National Number (HNTN)	
In-Band Automatic Number Identification route (IANI)	☐
Internal/external definition (IDEF)	Use network info (NET)
Insert (INST)	
Manual Outgoing trunk route (MANO)	☐
Manual Route (MNL)	☐
Music On-Hold (MUS)	☐
North American Toll scheme (NATL)	☒
Off-Hook Timer Delay (OHTD)	☐
Protocol Selection (PSEL)	DM-DM Protocol Selection (DMDM)
Port Type at far end (PTYP)	Analog TIE trunks (ATT)
Route traffic information in ACD Reports (RACD)	☐
Route Number (RTN)	Range: 0 - 511
Satellite used for trunk route (SAT)	☐
Selected Access Restriction Group (SARG)	

Done Internet

Routing continued...

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Search the Web Search Address http://166.38.98.43/cgi/pwd.cgi Go

Links Customize Links RealPlayer Windows Media Windows Yahoo! Finance - dkzenk MSNBC Cover Yahoo! Bookmarks

NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Nodes: Servers, Media Cards
 - Maintenance and Reports
 - Media Gateways
 - Zones
 - Host and Route Tables
 - Network Address Translation
 - QoS Thresholds
 - Personal Directories
- + Interfaces
 - Engineered Values
 - Emergency Services
 - Software
 - Call Server PEPs
 - Media Gateway PEPs
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 - File Upload
 - IP Phone Firmware
 - Voice Gateway Media Card
 - Servers, Media Cards PEPs
- Customers
 - Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
 - Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
 - Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Logs and reports
 - Security
 - + Passwords
 - + Login Options

Insert (INST)

Manual Outgoing trunk route (MANO) ☐

Manual Route (MNL) ☐

Music On-Hold (MUS) ☐

North American Toll scheme (NATL) ☒

Off-Hook Timer Delay (OHTD) ☐

Protocol Selection (PSEL) DM-DM Protocol Selection (DMDM)

Port Type at far end (PTYT) Analog TIE trunks (ATT)

Route traffic information in ACD Reports (RACD) ☐

Route Number (RTN) Range: 0 - 511

Satellite used for trunk route (SAT) ☐

Scheduled Access Restriction Group (SGRP) 0 Range: 0 - 999

Special Service List number (SSL)

Standard Signaling Type (STYP) Standard Data (SDAT)

CPP/CPPO flag for incoming non-ISDN trunk call tandemed to this trunk route (TCPP) ☐

Tone Detector required (TDET) ☐

Tromboning (TRMB) ☒

Tone Table number (TTBL) 0

Answer an Attendant Extended Call over VNS immediately on the incoming bearer trunk (VRAT) ☐

Submit Refresh Delete Cancel

Routing continued.....

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Managing: **192.168.1.28**
Routes and Trunks > [Routes and Trunks](#) > Customer 0, Route 10, Trunk 1 Property Configuration

Customer 0, Route 10, Trunk 1 Property Configuration

- Basic Configuration

Input Description	Input Value
Trunk data block (TYPE)	IFTI
Terminal Number (TN)	096 0 02 00
Designator field for trunk (DES)	SIPTRK
Extended Trunk (XTRK)	VTRK
Route number, Member number (RTMB)	10 1
Level 3 Signaling (SIGL)	[Dropdown]
Card Density (CDEN)	8D
Start arrangement Incoming (STRJ)	Immediate (IMM)
Start arrangement Outgoing (STRO)	Immediate (IMM)
Trunk Group Access Restriction (TGAR)	1
Channel ID for this trunk, (CHID)	1
Increase or decrease the member numbers (INC)	Increase channel and member number (YES)
Class of Service (CLS)	Edit

- Advanced Trunk Configurations

Input Description	Input Value
CTI trunk Monitoring and Control (AST)	☐
Auto Terminate DN (ATDN)	[Text Field]

Done Internet

Standard SIP trunk configuration.

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Back Forward Stop Reload Home Search Favorites Media Downloads History Recent 82° Forecast 88°/65°

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NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Nodes: Servers, Media Cards
 - Maintenance and Reports
 - Media Gateways
 - Zones
 - Host and Route Tables
 - Network Address Translation
 - QoS Thresholds
 - Personal Directories
- + Interfaces
 - Engineered Values
 - Emergency Services
 - Software
 - Call Server PEPs
 - Media Gateway PEPs
 - Loadware PEPs
 - File Upload
 - IP Phone Firmware
 - Voice Gateway Media Card
 - Servers, Media Cards PEPs
- Customers
 - Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
 - Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
 - Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Logs and reports
 - Security
 - + Passwords
 - + Login Options

Music Conference Loop (CFLP) Range: 0 - 159

Call Modification Features restriction (CMF) ☐

Digit Collection Ready (DTCR) ☐

Forced Charge Account (FCAR) ☐

Multifrequency digit level (MFL) 0

Multifrequency PAD (MFPD) ☐

Manual Directory Number (MNDN)

Network Class of Service group (NCOS) 0

Night Service Group number (NGRP) 0

Night Service directory number (NITE)

Pulse Code Modulation Law (PCML)

Pad Category table number for digital trunks (PDCA) 1

Private Line Directory Number (PRDN)

Signaling Category table number (SICA) 1

Answer and disconnect Supervision required (SUPN) ☒

Supervision Type (STYP) Polarity Insensitive Pack (PIP)

Step-by-step CO trunk (SXS) ☐

Termination Impedance (TIMP) 600 ohms (600)

Trunk Identifier (TKID)

Save Delete Cancel

Done Internet

SIP Trunk Configuration continued...

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Back Forward Stop Reload Home Search Favorites Media Downloads History Recent 82° Forecast 88°/65°

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Links Customize Links RealPlayer Windows Media Windows Yahoo! Finance - dkzenk MSNBC Cover Yahoo! Bookmarks

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Managing: **192.168.1.28**
Routes and Trunks > D-Channels > D-Channels 16 Property Configuration

D-Channels 16 Property Configuration

- Basic Configuration

Input Description	Input Value
Action Device And Number (ADAN) (TYPE)	DCH
D channel Card Type (CTYP)	DCIP
Designator (DES)	SIPVerizon
Recovery to Primary (RCVP)	☐
User (USR)	Integrated Services Signaling Link Dedicated (ISLD)
Interface type for D-channel (IFC)	Meridian Meridian1 (SL1)
D-Channel PRI loop number (DCHL)	
Primary Rate Interface (PRI)	more PRI
Secondary PRI2 loops (PRI2)	
Meridian 1 node type (SIDE)	Slave to the controller (USR)
Release ID of the switch at the far end (RLS)	25
Central Office switch type (CO_TYPE)	100% compatible with Bellcore standard (STD)
Integrated Services Signaling Link Maximum (ISLM)	4000 Range: 1 - 4000
Signaling Server Resource Capacity (SSRC)	1800 Range: 0 - 4000

- Basic options (BSCOPT)

- Primary D-channel for a backup DCH (PDCH)

- PINX customer number (PINX_CUST)

Done Internet

DCH configuration with Meridian 1 simulation for the far end.

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Back Forward Stop Reload Home Search Favorites Media Downloads History Recent 82° Forecast 88°/65°

Search the Web Search Address http://166.38.98.43/cgi/pwd.cgi Go

Links Customize Links RealPlayer Windows Media Windows Yahoo! Finance - dkzenk MSNBC Cover Yahoo! Bookmarks

NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Nodes: Servers, Media Cards
 - Maintenance and Reports
 - Media Gateways
 - Zones
 - Host and Route Tables
 - Network Address Translation
 - QoS Thresholds
 - Personal Directories
- + Interfaces
 - Engineered Values
 - Emergency Services
 - Software
 - Call Server PEPs
 - Media Gateway PEPs
 - Loadware PEPs
 - File Upload
 - IP Phone Firmware
 - Voice Gateway Media Card
 - Servers, Media Cards PEPs
- Customers
- Routes and Trunks
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 - D-Channels
 - Digital Trunk Interface
- Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
- Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Logs and reports
- Security
 - + Passwords
 - + Login Options

- Basic options (BSCOPT)

- Primary D-channel for a backup DCH (PDCH)
- PINX customer number (PINX_CUST)
- Progress signal (PROG)
- Calling Line Identification (CLID)
- Output request Buffers (OTBF)
- D-channel transmission Rate (DRAT)
- Channel Negotiation option (CNEG)
- Remote Capabilities (RCAP)

- Change protocol timer value (TIMR)

- How long Meridian 1 to wait for the response message when the QSIG outgoing call is in the U3 state (T310)
- Variable timer for received disconnect message on incoming calls (INC_T306) Range: 0 - 240
- Variable timer for received disconnect message (OUT_T306) Range: 0 - 240
- B channel Service messaging. (BSRV) ☐

- Advanced options (ADVOPT)

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

+ H323 Overlap Signaling Settings (H323)

- Overlap Timer (OVL.T)
- Multilocation Business Group Allowed (MBGA) ☐
- Network Attendant Service Allowed (NASA) ☐

- Link Access Protocol for D-channel

Done Internet

D-Channel configuration continued....

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Back Forward Stop Reload Home Search Favorites Media Print Download Upload 82° Forecast 88°/65°

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NORTEL CS 1000 ELEMENT MANAGER Help Logout

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- Maintenance and Reports
- Media Gateways
- Zones
- Host and Route Tables
- Network Address Translation
- QoS Thresholds
- Personal Directories
- + Interfaces
- Engineered Values
- Emergency Services
- Software
- Call Server PEPs
- Media Gateway PEPs
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- File Upload
- IP Phone Firmware
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- Customers
- Routes and Trunks
- Routes and Trunks
- D-Channels
- Digital Trunk Interface
- Dialing and Numbering Plans
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- Network Routing Service
- Flexible Code Restriction
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- + Backup and Restore
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- Date and Time
- Logs and reports
- Security
- + Passwords
- + Login Options

128 ms (SEMT)

- Map channel number to timeslots on a PRI2 loop (QCHID) ☒

+ H323 Overlap Signaling Settings (H323)

- Overlap Timer (OVLTI)

- Multilocation Business Group Allowed (MBGA) ☐

- Network Attendant Service Allowed (NASA) ☐

+ Link Access Protocol for D-channel (LAPD)

- Feature Packages

- Digital Private Network Signaling System 1 Package: 123 -- Unequipped To Order

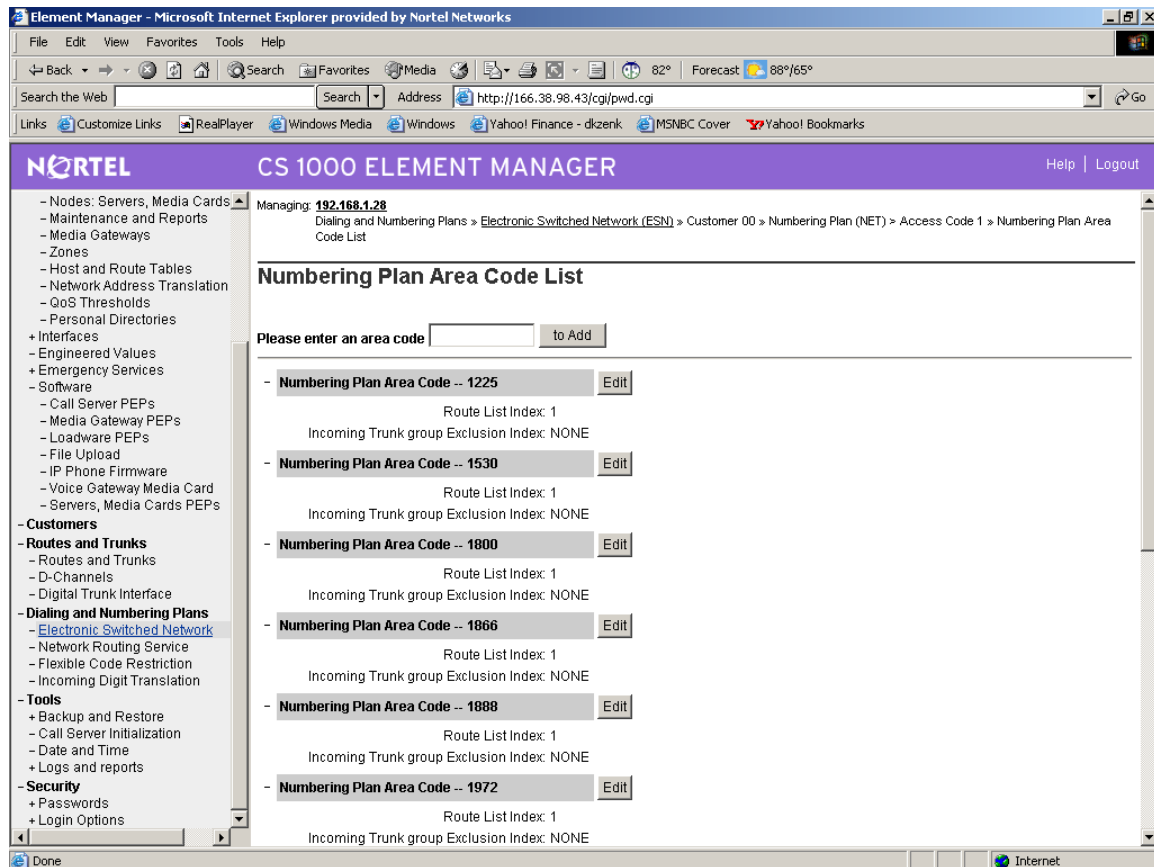
- Virtual Network Services Package: 183

Input Description	Input Value
Virtual Network Services Network Signalling option (VNSIG)	☐
Virtual Network Services Maximum (VNSM)	Range: 1 - 300
Virtual Network Services Customer number (VNSC)	0
Virtual Network Services Private Network Identifier (VNSPI)	Range: 0 - 32700
Virtual Network Services Network Call Party Name Display (VCNA)	☐
Virtual Network Services Network Call Redirection (VCRD)	☐
Trunk Route Optimization before answer available for VNS (VTRO)	☐

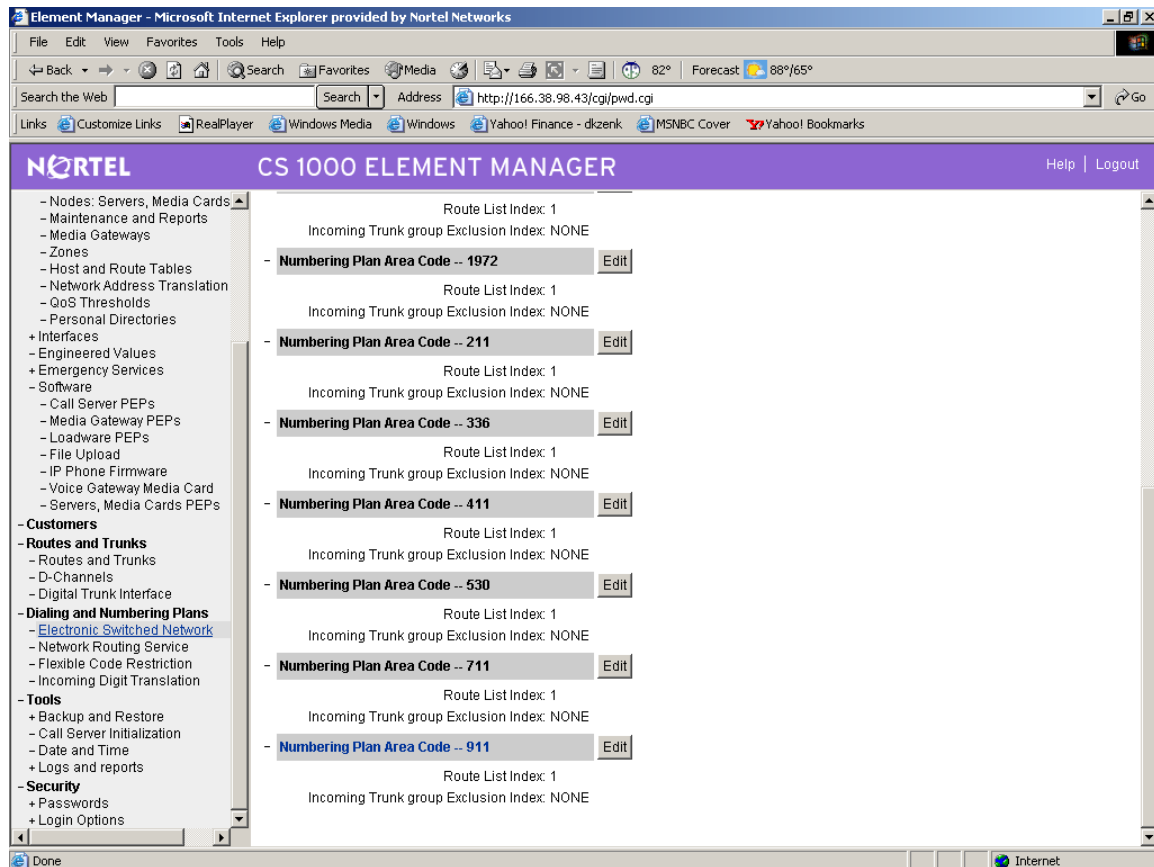
Submit Refresh Delete Cancel

Internet

D-Channel configuration continued....



Very basic BARS program to simply pass all digits out to the gateway.



Dialing plan continued...



CS 1000 R6.0 Configuration Details

The following screen shots show non-default changes made to the CS 1000 Node that is providing SIP Trunking to the Verizon network. If the CS 1000 is supporting both Private and Public trunking, these changes would be made on the Public Trunking Node.

For the lab equipment, a CS1000E was configured with 2 COTS servers for IPT (Node 1001) and 2 COTS servers for IPCC (Node 1002). Each node is configured for redundancy with a leader and follower Signaling Server.

Verizon IP Toll Free, Contact Center and EMEA Deployments

The configuration guidelines are the same for Verizon IP Toll Free (IPT), Verizon IP Contact Center (IPCC) and EMEA configurations with the exception of the SIP proxy address and domain.

The screenshot displays the Nortel CS 1000 Element Manager web interface within a Microsoft Internet Explorer browser. The address bar shows the URL: `https://172.16.3.37/emWeb_6_0/SECURE_OBJECT_ID/com.nortel.ems.cs1000/937991d3-ac5c-11de-8e6a-5792863737a7/ElementManagerLaunchServlet.secure`. The interface includes a left-hand navigation menu with categories like UCM Network Services, System, Customers, and Routes and Trunks. The main content area is titled "IP Telephony Nodes" and shows a table of configured nodes.

Node ID	Components	Enabled Applications	ELAN IP	TLAN IP	Status
1001	2	LTPS, PD, Gateway (SIPGw)	-	172.16.3.37	Synchronized
1002	2	LTPS, Gateway (SIPGw)	-	172.16.3.20	Synchronized

Below the table, there are checkboxes for "Nodes" (checked) and "Component Servers and Cards" (unchecked). The footer of the interface indicates "Copyright © 2002-2009 Nortel Networks. All rights reserved."

Nortel CS 1000 ELEMENT MANAGER

Managing: 192.168.1.39 Username: donz
System > IP Network > IP Telephony Nodes

Node Details (ID: 1001 - LTPS, PD, Gateway (SIPGw))

Node ID: 1001 * (0-9999)
Call Server IP Address: 192.168.1.39 *

Telephony LAN (TLAN)
Node IP Address: 172.16.3.37 *
Subnet Mask: 255.255.255.0 *

Embedded LAN (ELAN)
Gateway IP address: 192.168.1.39 *
Subnet Mask: 255.255.255.0 *

IP Telephony Node Properties

- Voice Gateway (VGW) and Codecs
- Quality of Service (QoS)
- LAN

Applications (click to edit configuration)

- SIP Line
- Terminal Proxy Server (TPS)
- Gateway (SIPGw)

* Required Value. [Save] [Cancel]

Associated Signaling Servers & Cards

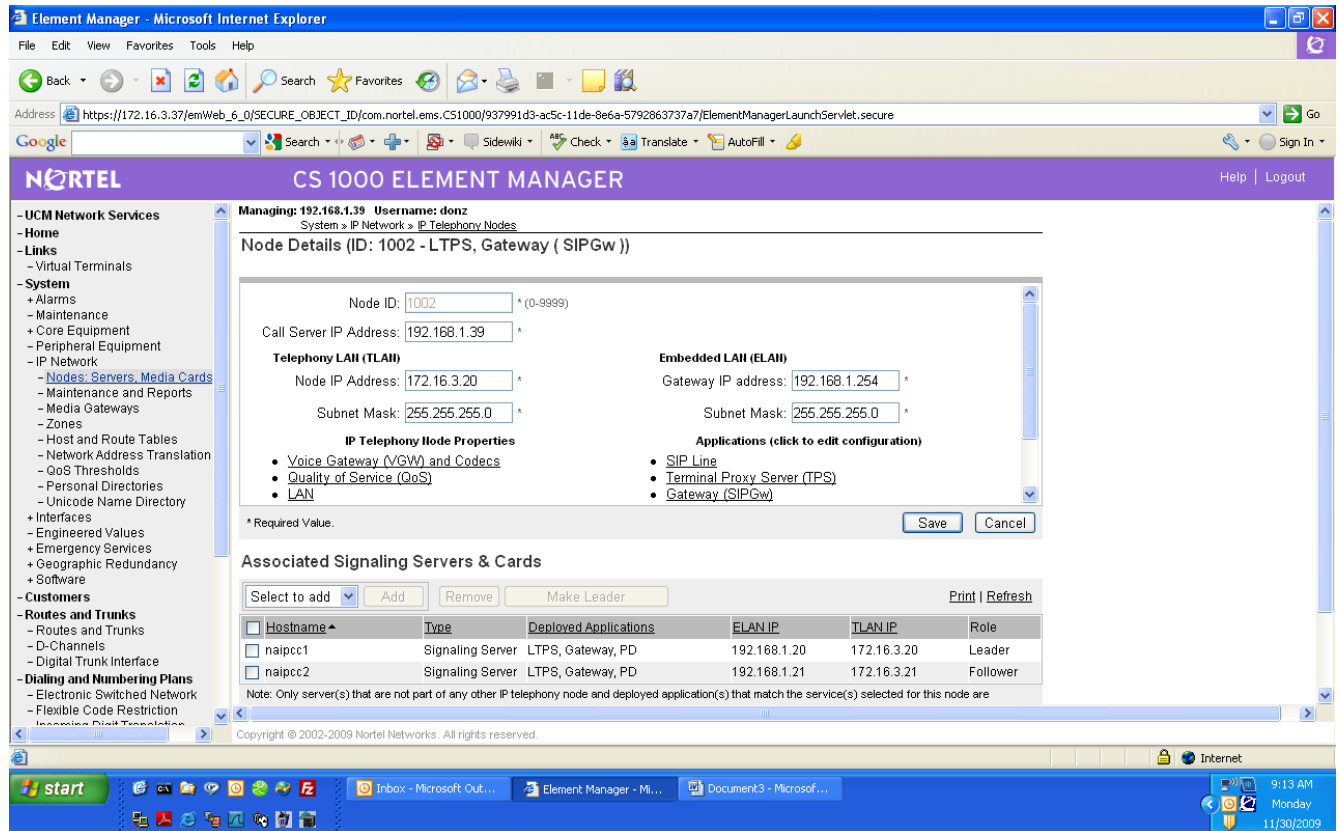
Select to add [Add] [Remove] [Make Leader] [Print] [Refresh]

Hostname	Type	Deployed Applications	ELAN IP	TLAN IP	Role
nasipcots	Signaling Server	LTPS, Gateway, PD	192.168.1.31	172.16.3.37	Leader
nasipcprm	Signaling Server	LTPS, Gateway, PD	192.168.1.40	172.16.3.39	Follower

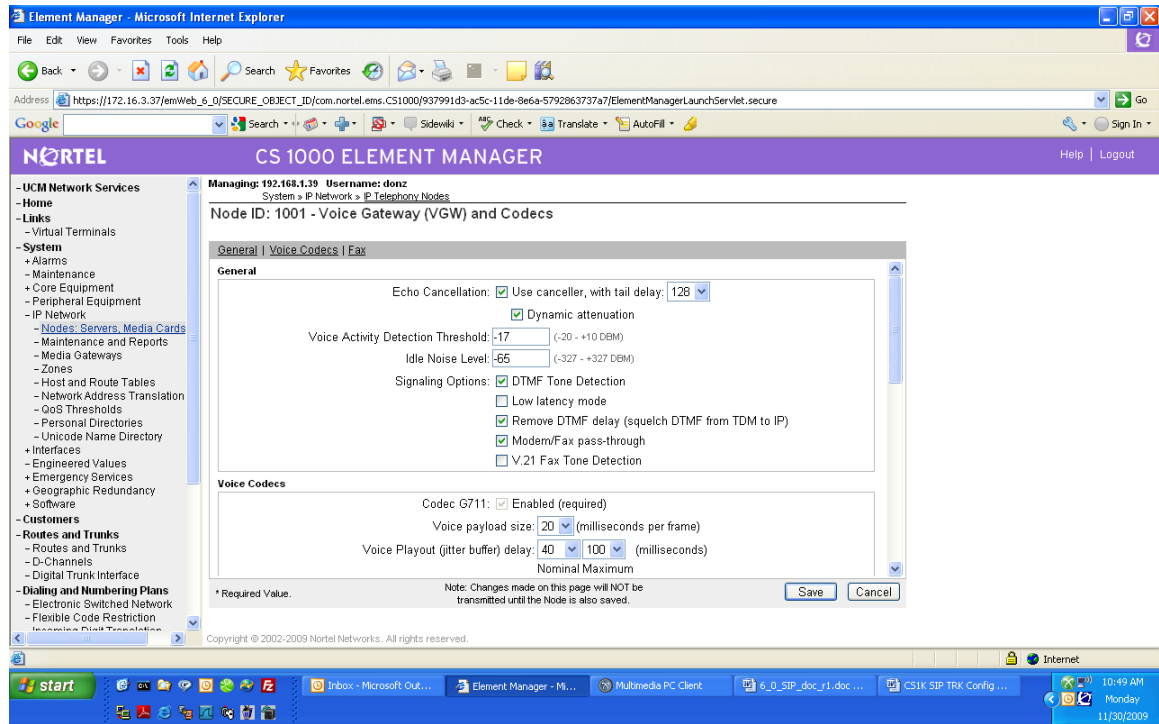
Note: Only server(s) that are not part of any other IP telephony node and deployed application(s) that match the service(s) selected for this node are

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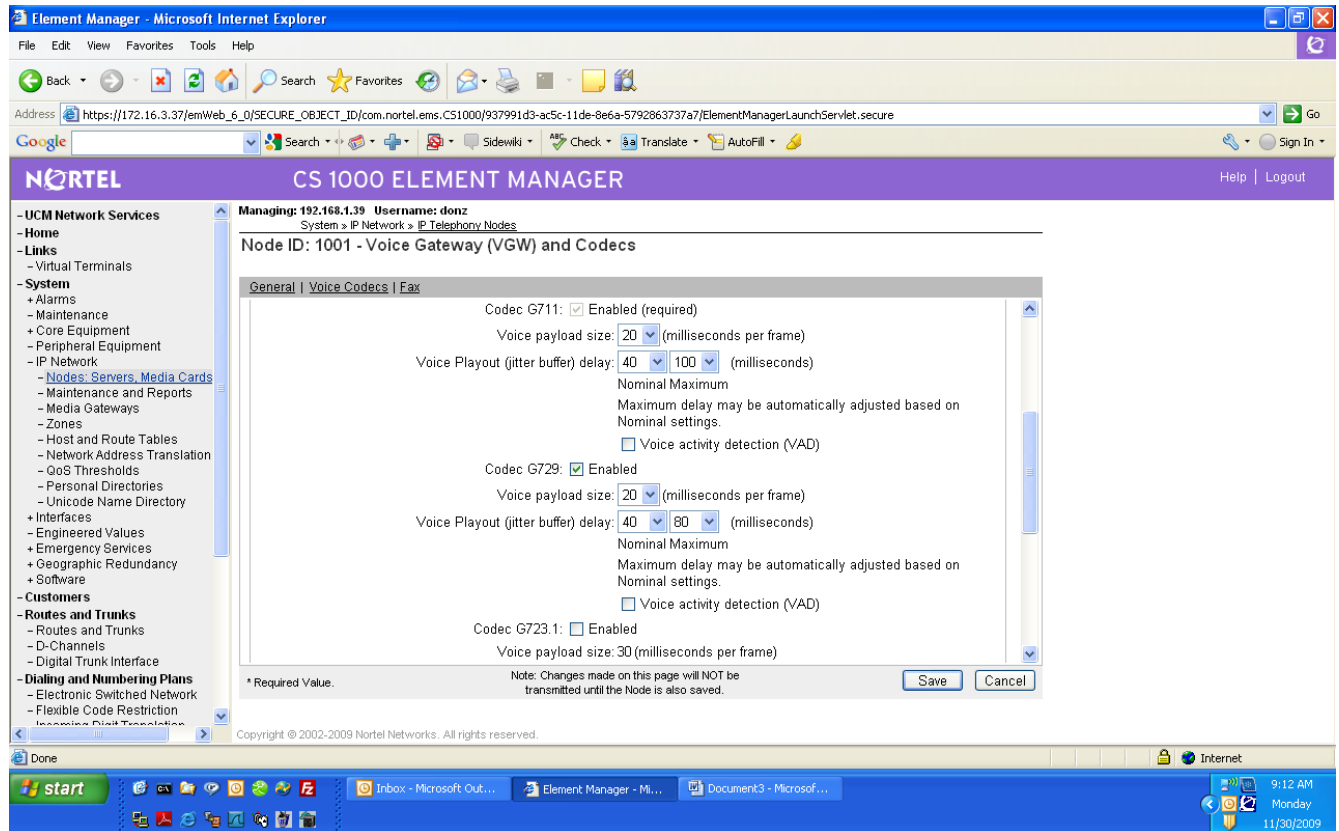
IPT Node with leader and follower Signaling Server.



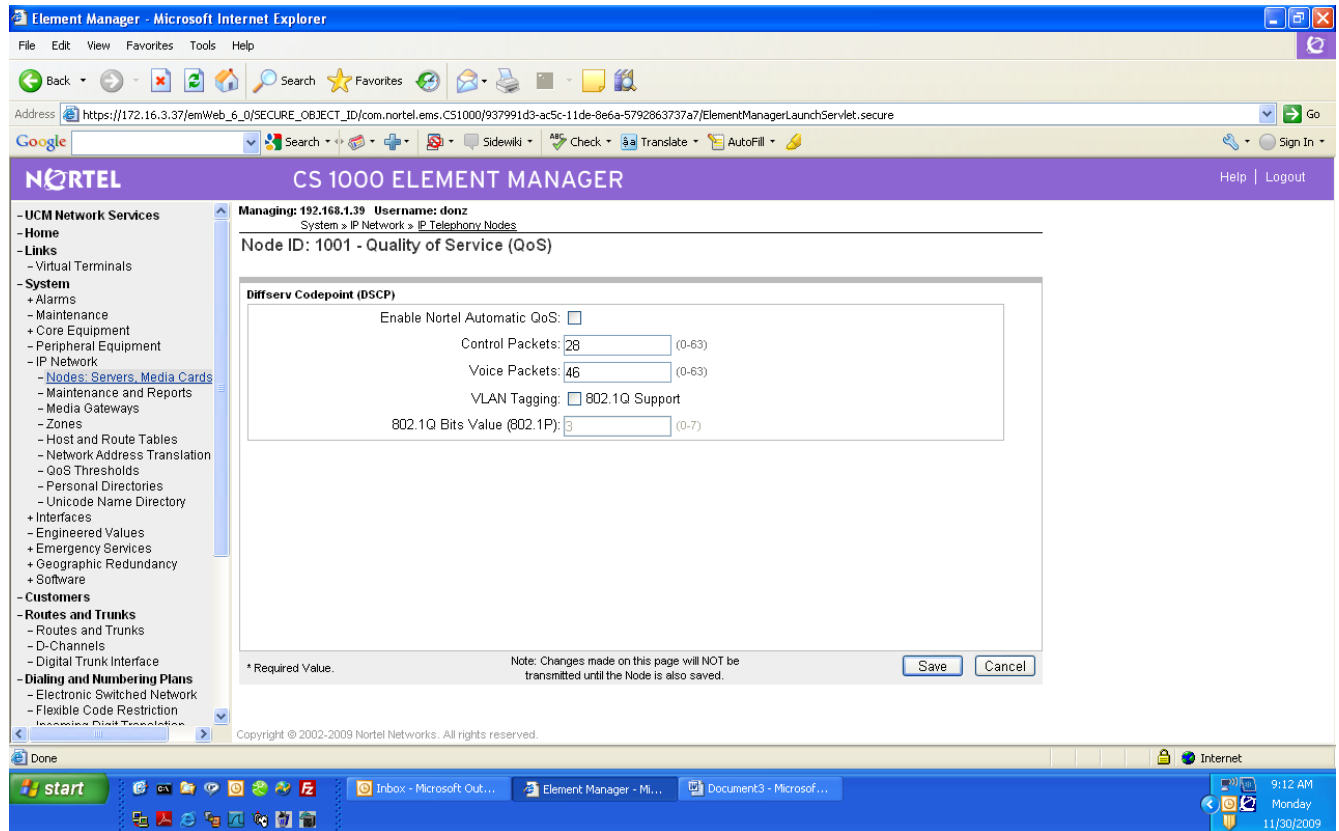
IPCC Node with leader and follower Signaling Server.



T38 is disabled on the Broadworks network, so must it also be disabled in the CS1K. To do so, V.21 Fax Tone Detection is turned off in the codec profile. Programming on the 2500 ports must include MPTA in the class of service to communicate at G.711.

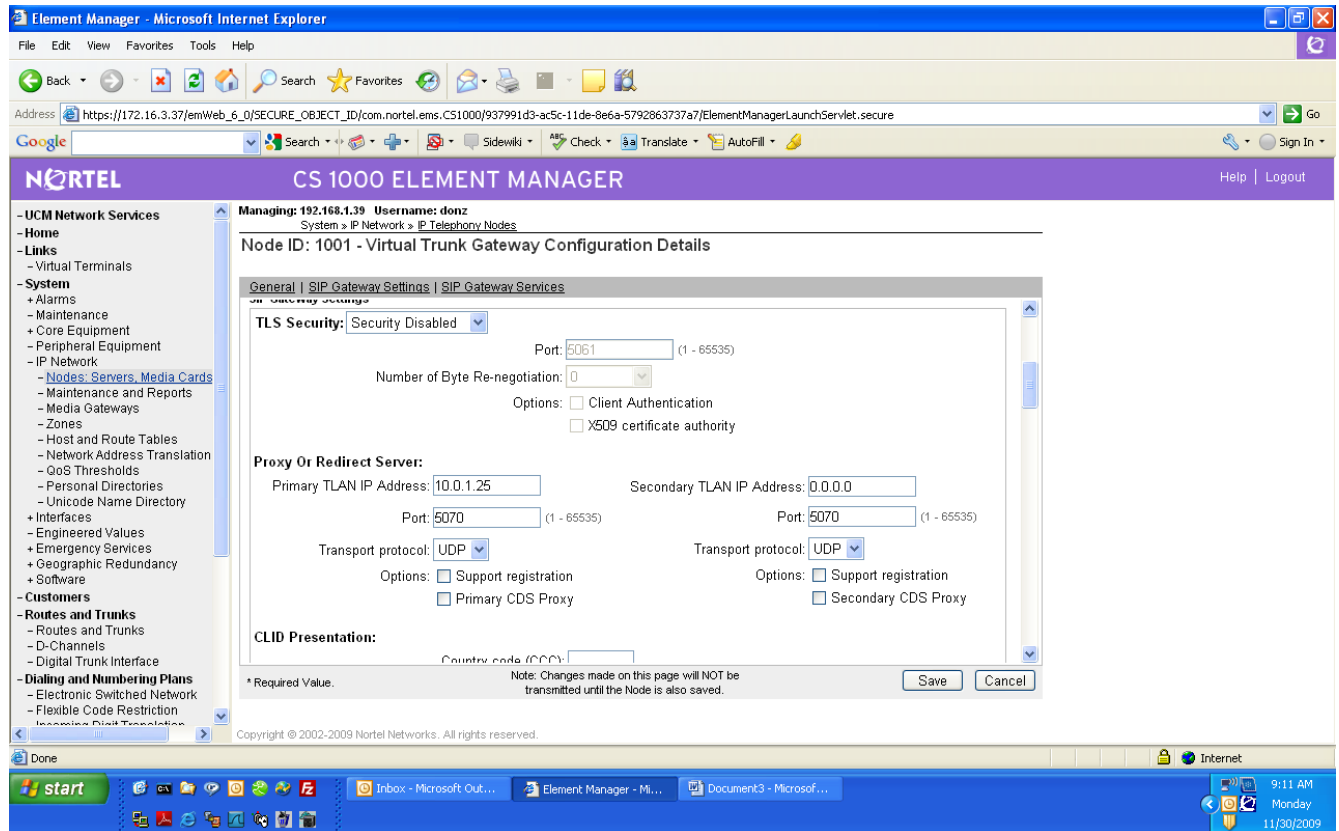


The Broadworks network supports both g.711 and g.729, with the preference set to g.729. A 20ms payload size is used.



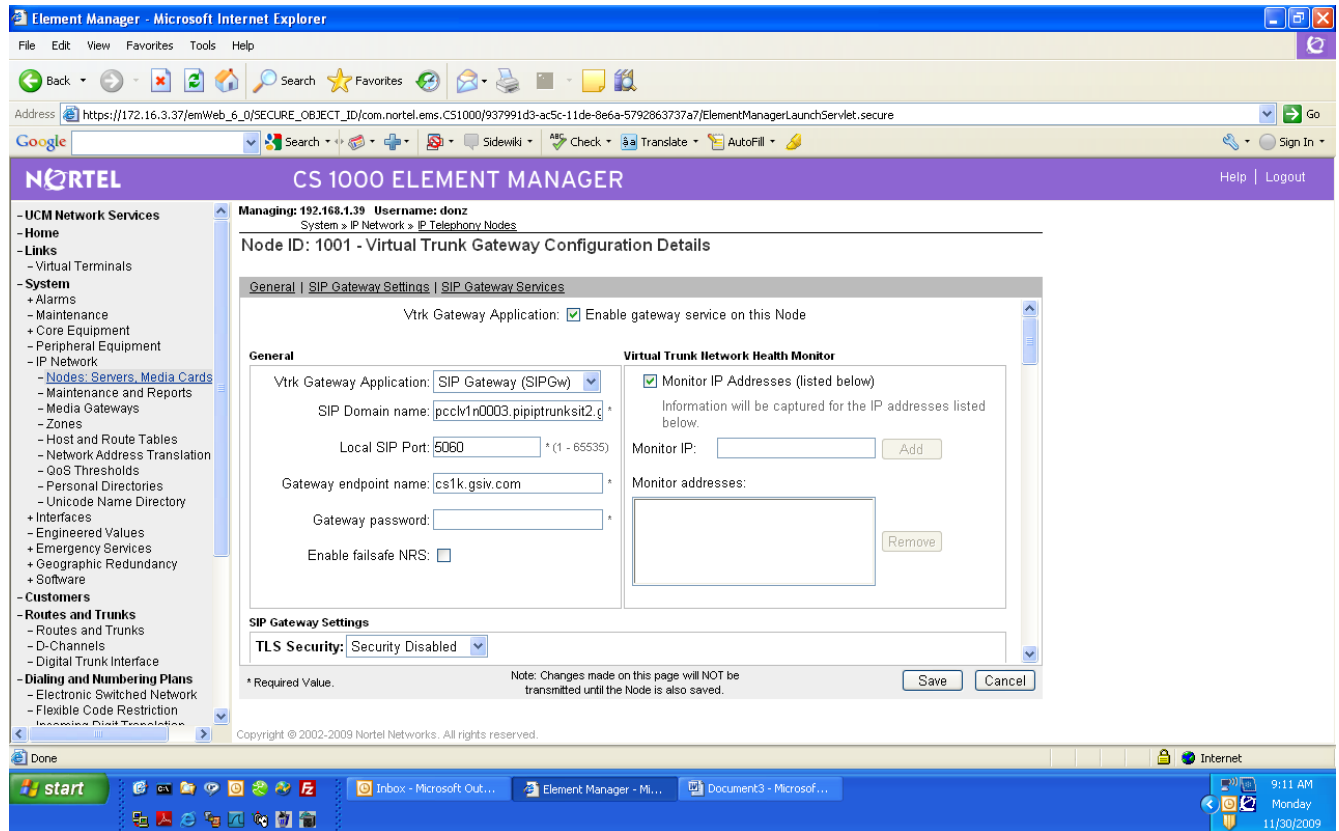
Diff Serv is required for the network, and the default values in the system should be changed to 28 and 46.

When configuring the Layer 2/3 networking equipment on the T-LAN, program the ERS4500 or ERS2500 ports as a trusted site to pass the Dif_Serv code points to the network.

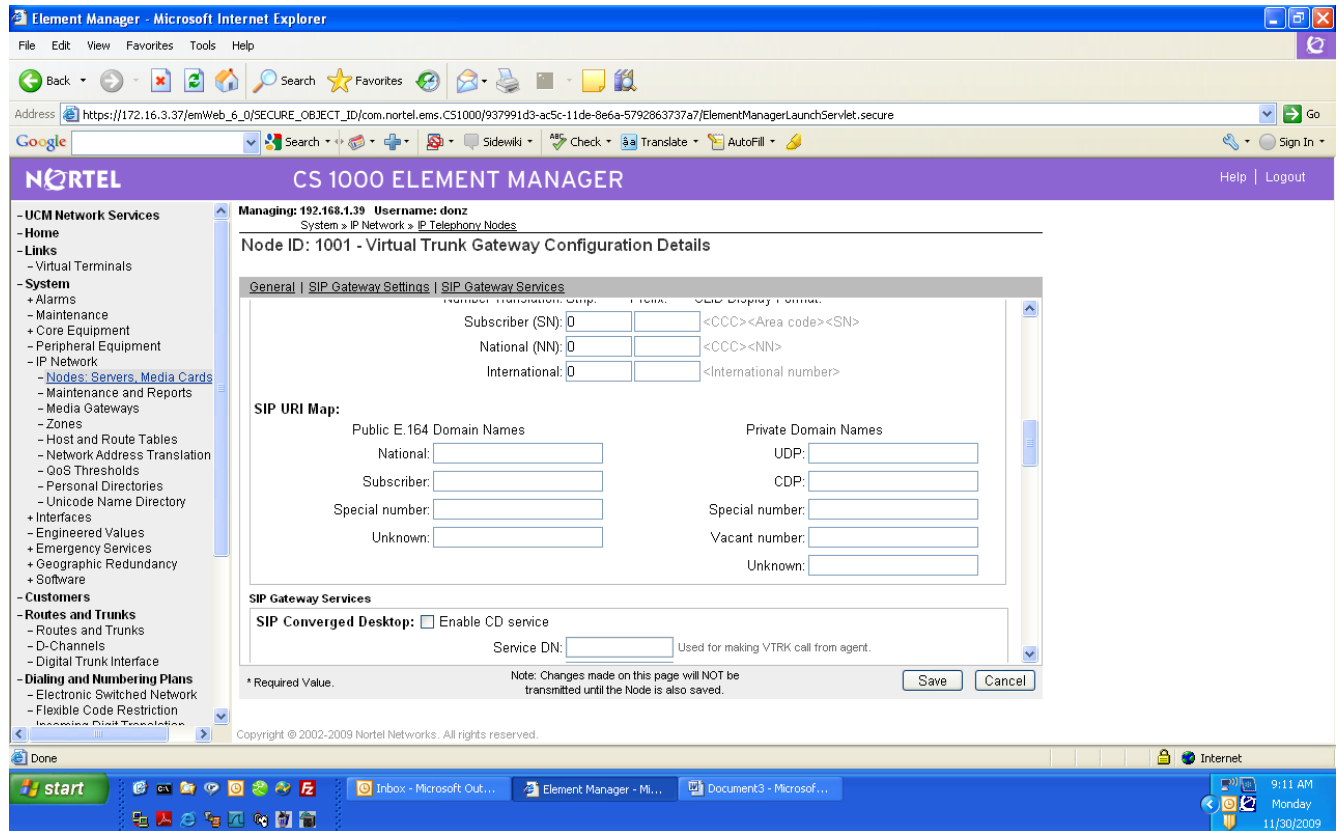


The primary Proxy server is the VzB SBC IP address in the cloud. All calls are routed to this SBC, within to the Broadworks network. The CS1000 will route to an IP address for the primary proxy. DNS is not supported for this entry.

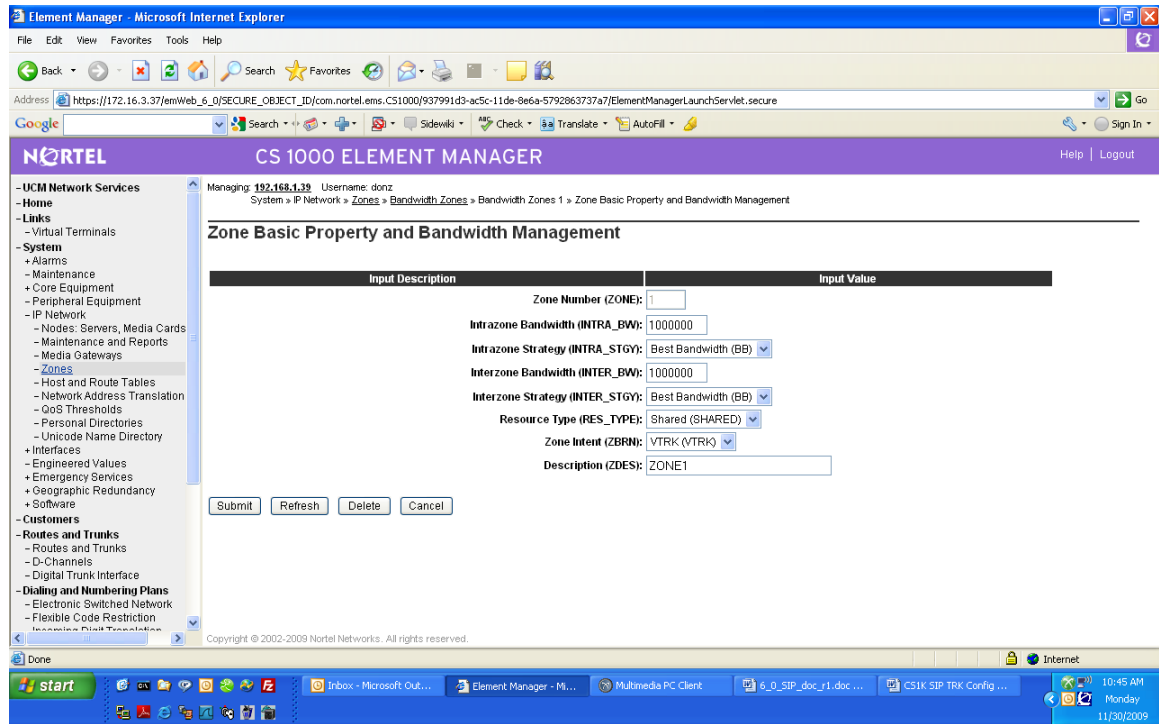
VzB also requires different port configuration, with NAT and ALG services fully operational on each port. An SBC can accommodate this requirement; each can be purchased through Nortel.



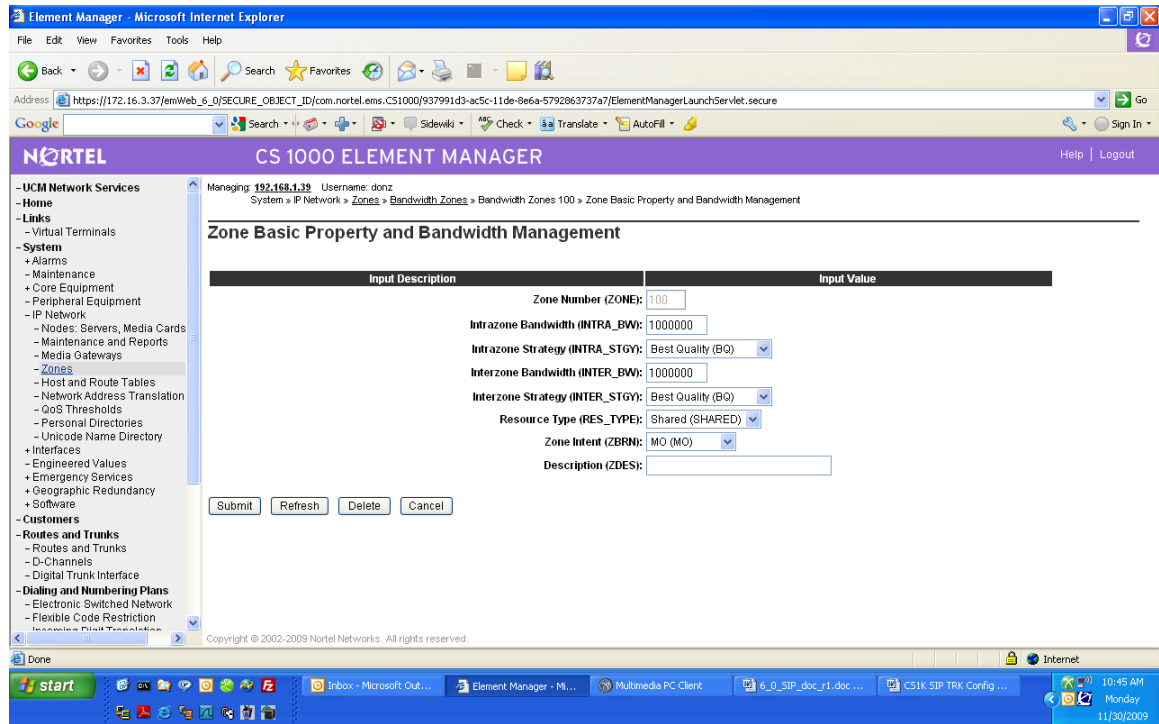
The SIP domain name is set to the Broadworks network, and is entered as a Fully Qualified Domain Name (FQDN). This FQDN is supplied by Verizon Business. NRS is not enabled on the CS1K Node as all calls are routed to the SBC for routing through basic BARS routing.



In the SIP-URI Map, **NO** entries are to be put in the E.164 fields.



Default zone 1 used for the Verizon SIP trunks.



Zone 100 is associated with the DSP's and the IP sets.

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Managing: **192.168.1.28**
Routes and Trunks > [Routes and Trunks](#) > Customer 0, Route 10 Property Configuration

Customer 0, Route 10 Property Configuration

- Basic Configuration

Input Description	Input Value
Route Data Block (RDB) (TYPE)	RDB
Customer number (CUST)	00
Route Number (ROUT)	10
Designator field for trunk (DES)	SIP TRK
Trunk Type (TKTP)	TIE
Incoming and Outgoing trunk (ICOG)	Incoming and Outgoing (IAO)
Access Code for the trunk route (ACOD)	4000
Trunk type M911P (M911P)	☐
The route is for a virtual trunk route (VTRK)	☒
- Zone for codec selection and bandwidth management (ZONE)	100 Range: 0 - 255
- Node ID of signaling server of this route (NODE)	1001 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)	16 Range: 0 - 254

Done Internet

Basic SIP trunk route configuration using a different zone than the sets.

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Back Forward Stop Reload Home Search Favorites Media Downloads History Recent 82° Forecast 88°/65°

Search the Web Search Address http://166.38.98.43/cgi/pwd.cgi Go

Links Customize Links RealPlayer Windows Media Windows Yahoo! Finance - dkzenk MSNBC Cover Yahoo! Bookmarks

NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Nodes: Servers, Media Cards
- Maintenance and Reports
- Media Gateways
- Zones
- Host and Route Tables
- Network Address Translation
- QoS Thresholds
- Personal Directories
- + Interfaces
- Engineered Values
- Emergency Services
- Software
- Call Server PEPs
- Media Gateway PEPs
- Loadware PEPs
- File Upload
- IP Phone Firmware
- Voice Gateway Media Card
- Servers, Media Cards PEPs
- Customers
- Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
- Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
- Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - + Logs and reports
- Security
 - + Passwords
 - + Login Options

Integrated Services Digital Network option (ISDN) ☒

- Mode of operation (MODE) Route uses ISDN Signaling Link (ISLD)

- D channel number (DCH) 16 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 DT12 ABCD FALT signal for ISL (FALT) ☐

- Channel Type (CHTY) B-channel (BCH)

- Call Type for outgoing direct dialed TIE route (CTYP) Coordinated Dialing Plan (CDP)

- Insert ESN Access Code (INAC) ☐

- Integrated Service Access Route (ISAR) ☐

- Display of Access Prefix on CLID (DAPC) ☐

- 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)	☐
MFC feature options (MFC_FEAT)	☐

- Network Options

Input Description	Input Value
-------------------	-------------

Done Internet

Routing continued....

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Search the Web Search Address http://166.38.98.43/cgi/pwd.cgi Go

Links Customize Links RealPlayer Windows Media Windows Yahoo! Finance - dkzenk MSNBC Cover Yahoo! Bookmarks

NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Nodes: Servers, Media Cards
- Maintenance and Reports
- Media Gateways
- Zones
- Host and Route Tables
- Network Address Translation
- QoS Thresholds
- Personal Directories
- + Interfaces
- Engineered Values
- Emergency Services
- Software
- Call Server PEPs
- Media Gateway PEPs
- Loadware PEPs
- File Upload
- IP Phone Firmware
- Voice Gateway Media Card
- Servers, Media Cards PEPs
- Customers
- Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
- Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
- Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - + Logs and reports
- Security
 - + Passwords
 - + Login Options

MFC feature options (MFC_FEAT) ☐

- Network Options

Input Description	Input Value
Electronic Switched Network pad control (ESN)	☐
Signaling arrangement (SIGO)	Standard (STD)
Route Class (RCLS)	Route Class marked as external (EXT)
Off-Hook Queuing (OHQ)	☐
Off-Hook Queue Threshold (OHQT)	0
Call Back Queuing (CBQ)	☐
Number of Digits (NDIG)	2
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)	
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)	☐

Done Internet

Routing continued...

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File Edit View Favorites Tools Help

Back Forward Stop Reload Home Search Favorites Media 82° Forecast 88°/65°

Search the Web Search Address http://166.38.98.43/cgi/pwd.cgi Go

Links Customize Links RealPlayer Windows Media Windows Yahoo! Finance - dkzenk MSNBC Cover Yahoo! Bookmarks

NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Nodes: Servers, Media Cards
- Maintenance and Reports
- Media Gateways
- Zones
- Host and Route Tables
- Network Address Translation
- QoS Thresholds
- Personal Directories
- + Interfaces
- Engineered Values
- Emergency Services
- Software
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- Security
 - + Passwords
 - + Login Options

- Advanced Configurations

Input Description	Input Value
Allow last Re-directing Number (ARDN)	ARDN (NO)
ANI identifier number (ANTK)	
Auto terminate (AUTO)	☐
Maximum number of CNI digits (CLEN)	1
North American Distinctive Ringing for incoming calls (DRNG)	☐
Home Local Number (HLCL)	
Home National Number (HNTN)	
In-Band Automatic Number Identification route (IANI)	☐
Internal/external definition (IDEF)	Use network info (NET)
Insert (INST)	
Manual Outgoing trunk route (MANO)	☐
Manual Route (MNL)	☐
Music On-Hold (MUS)	☐
North American Toll scheme (NATL)	☒
Off-Hook Timer Delay (OHTD)	☐
Protocol Selection (PSEL)	DM-DM Protocol Selection (DMDM)
Port Type at far end (PTYP)	Analog TIE trunks (ATT)
Route traffic information in ACD Reports (RACD)	☐
Route Number (RTN)	Range: 0 - 511
Satellite used for trunk route (SAT)	☐
Selected Access Restriction Group (SARG)	

Done Internet

Routing continued...

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File Edit View Favorites Tools Help

Back Forward Stop Reload Home Search Favorites Media 82° Forecast 88°/65°

Search the Web Search Address http://166.38.98.43/cgi/pwd.cgi Go

Links Customize Links RealPlayer Windows Media Windows Yahoo! Finance - dkzenk MSNBC Cover Yahoo! Bookmarks

NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Nodes: Servers, Media Cards
- Maintenance and Reports
- Media Gateways
- Zones
- Host and Route Tables
- Network Address Translation
- QoS Thresholds
- Personal Directories
- + Interfaces
- Engineered Values
- Emergency Services
- Software
- Call Server PEPs
- Media Gateway PEPs
- Loadware PEPs
- File Upload
- IP Phone Firmware
- Voice Gateway Media Card
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- Customers
- Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
- Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
- Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Logs and reports
- Security
 - + Passwords
 - + Login Options

Insert (INST)

Manual Outgoing trunk route (MANO) ☐

Manual Route (MNL) ☐

Music On-Hold (MUS) ☐

North American Toll scheme (NATL) ☒

Off-Hook Timer Delay (OHTD) ☐

Protocol Selection (PSEL) DM-DM Protocol Selection (DMDM)

Port Type at far end (PTYT) Analog TIE trunks (ATT)

Route traffic information in ACD Reports (RACD) ☐

Route Number (RTN) Range: 0 - 511

Satellite used for trunk route (SAT) ☐

Scheduled Access Restriction Group (SGRP) 0 Range: 0 - 999

Special Service List number (SSL)

Standard Signaling Type (STYP) Standard Data (SDAT)

CPP/CPPO flag for incoming non-ISDN trunk call tandemed to this trunk route (TCPP) ☐

Tone Detector required (TDET) ☐

Tromboning (TRMB) ☒

Tone Table number (TTBL) 0

Answer an Attendant Extended Call over VNS immediately on the incoming bearer trunk (VRAT) ☐

Submit Refresh Delete Cancel

Done Internet

Routing continued.....

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NORTEL CS 1000 ELEMENT MANAGER Help Logout

Managing: **192.168.1.28**
Routes and Trunks > [Routes and Trunks](#) > Customer 0, Route 10, Trunk 1 Property Configuration

Customer 0, Route 10, Trunk 1 Property Configuration

- Basic Configuration

Input Description	Input Value
Trunk data block (TYPE)	IFTI
Terminal Number (TN)	096 0 02 00
Designator field for trunk (DES)	SIPTRK
Extended Trunk (XTRK)	VTRK
Route number, Member number (RTMB)	10 1
Level 3 Signaling (SIGL)	[Dropdown]
Card Density (CDEN)	8D
Start arrangement Incoming (STR)	Immediate (IMM)
Start arrangement Outgoing (STRO)	Immediate (IMM)
Trunk Group Access Restriction (TGAR)	1
Channel ID for this trunk, (CHID)	1
Increase or decrease the member numbers (INC)	Increase channel and member number (YES)
Class of Service (CLS)	Edit

- Advanced Trunk Configurations

Input Description	Input Value
CTI trunk Monitoring and Control (AST)	☐
Auto Terminate DN (ATDN)	[Input Field]

Standard SIP trunk configuration.

Nortel CS 1000 ELEMENT MANAGER

Help | Logout

- Nodes: Servers, Media Cards
 - Maintenance and Reports
 - Media Gateways
 - Zones
 - Host and Route Tables
 - Network Address Translation
 - QoS Thresholds
 - Personal Directories
- + Interfaces
 - Engineered Values
 - Emergency Services
 - Software
 - Call Server PEPs
 - Media Gateway PEPs
 - Loadware PEPs
 - File Upload
 - IP Phone Firmware
 - Voice Gateway Media Card
 - Servers, Media Cards PEPs
- Customers
 - Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
 - Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
 - Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Logs and reports
 - Security
 - + Passwords
 - + Login Options

Music Conference Loop (CFLP) Range: 0 - 159

Call Modification Features restriction (CMF) ☐

Digit Collection Ready (DTCR) ☐

Forced Charge Account (FCAR) ☐

Multifrequency digit level (MFL) 0

Multifrequency PAD (MFPD) ☐

Manual Directory Number (MNDN)

Network Class of Service group (NCOS) 0

Night Service Group number (NGRP) 0

Night Service directory number (NITE)

Pulse Code Modulation Law (PCML)

Pad Category table number for digital trunks (PDCA) 1

Private Line Directory Number (PRDN)

Signaling Category table number (SICA) 1

Answer and disconnect Supervision required (SUPN) ☒

- Supervision Type (STYP) Polarity Insensitive Pack (PIP)

Step-by-step CO trunk (SXS) ☐

Termination Impedance (TIMP) 600 ohms (600)

Trunk Identifier (TKID)

Save Delete Cancel

SIP Trunk Configuration continued...

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Managing: **192.168.1.28**
Routes and Trunks > D-Channels > D-Channels 16 Property Configuration

D-Channels 16 Property Configuration

- Basic Configuration

Input Description	Input Value
Action Device And Number (ADAN) (TYPE)	DCH
D channel Card Type (CTYP)	DCIP
Designator (DES)	SIPVerizon
Recovery to Primary (RCVP)	☐
User (USR)	Integrated Services Signaling Link Dedicated (ISLD)
Interface type for D-channel (IFC)	Meridian Meridian1 (SL1)
D-Channel PRI loop number (DCHL)	
Primary Rate Interface (PRI)	more PRI
Secondary PRI2 loops (PRI2)	
Meridian 1 node type (SIDE)	Slave to the controller (USR)
Release ID of the switch at the far end (RLS)	25
Central Office switch type (CO_TYPE)	100% compatible with Bellcore standard (STD)
Integrated Services Signaling Link Maximum (ISLM)	4000 Range: 1 - 4000
Signaling Server Resource Capacity (SSRC)	1800 Range: 0 - 4000

- Basic options (BSCOPT)

- Primary D-channel for a backup DCH (PDCH)

- PINX customer number (PINX_CUST)

Done Internet

DCH configuration with Meridian 1 simulation for the far end.

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NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Nodes: Servers, Media Cards
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 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
- Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Logs and reports
- Security
 - + Passwords
 - + Login Options

- Basic options (BSCOPT)

- Primary D-channel for a backup DCH (PDCH)
- PINX customer number (PINX_CUST)
- Progress signal (PROG)
- Calling Line Identification (CLID)
- Output request Buffers (OTBF)
- D-channel transmission Rate (DRAT)
- Channel Negotiation option (CNEG)
- Remote Capabilities (RCAP)

- Change protocol timer value (TIMR)

- How long Meridian 1 to wait for the response message when the QSIG outgoing call is in the U3 state (T310)
- Variable timer for received disconnect message on incoming calls (INC_T306) Range: 0 - 240
- Variable timer for received disconnect message (OUT_T306) Range: 0 - 240
- B channel Service messaging. (BSRV) ☐

- Advanced options (ADVOPT)

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

+ H323 Overlap Signaling Settings (H323)

- Overlap Timer (OVL.T)
- Multilocation Business Group Allowed (MBGA) ☐
- Network Attendant Service Allowed (NASA) ☐

- Link Access Protocol for D-channel

D-Channel configuration continued....

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NORTEL CS 1000 ELEMENT MANAGER Help Logout

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 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation
- Tools
 - + Backup and Restore
 - Call Server Initialization
 - Date and Time
 - Logs and reports
- Security
 - + Passwords
 - + Login Options

128 ms (SEMT)

- Map channel number to timeslots on a PRI2 loop (QCHID) ☒

+ H323 Overlap Signaling Settings (H323)

- Overlap Timer (OVLTI)

- Multilocation Business Group Allowed (MBGA) ☐

- Network Attendant Service Allowed (NASA) ☐

+ Link Access Protocol for D-channel (LAPD)

- Feature Packages

- Digital Private Network Signaling System 1 Package: 123 -- Unequipped To Order

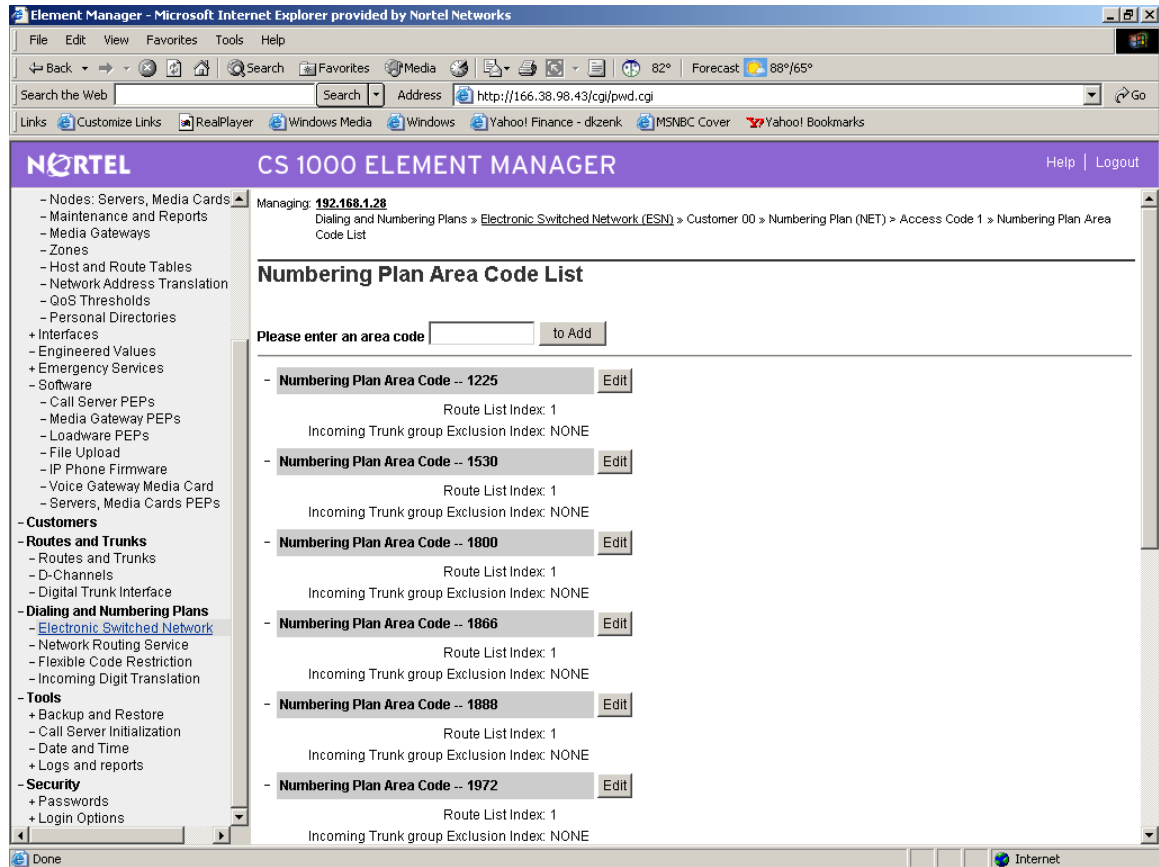
- Virtual Network Services Package: 183

Input Description	Input Value
Virtual Network Services Network Signalling option (VNSG)	☐
Virtual Network Services Maximum (VNSM)	Range: 1 - 300
Virtual Network Services Customer number (VNSC)	0
Virtual Network Services Private Network Identifier (VNSPI)	Range: 0 - 32700
Virtual Network Services Network Call Party Name Display (VCNA)	☐
Virtual Network Services Network Call Redirection (VCRD)	☐
Trunk Route Optimization before answer available for VNS (VTRO)	☐

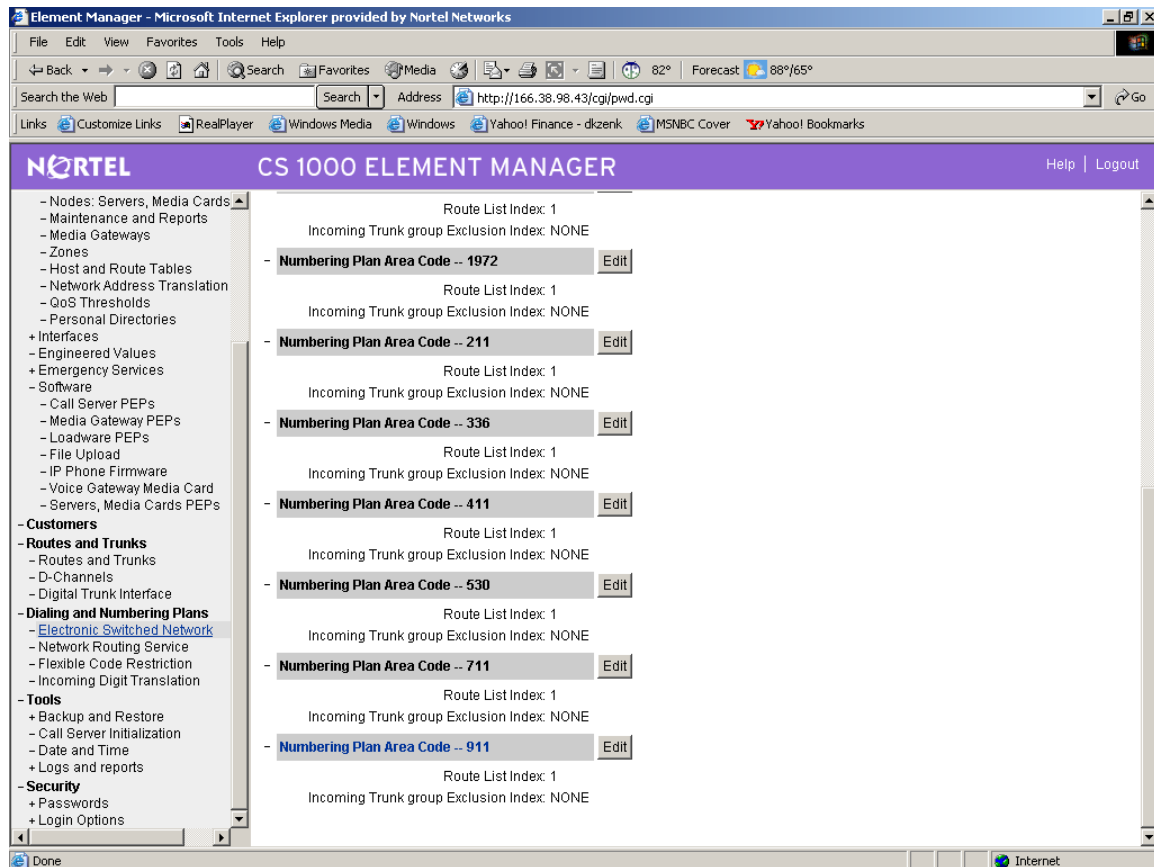
Submit Refresh Delete Cancel

Internet

D-Channel configuration continued....



Very basic BARS program to simply pass all digits out to the gateway.



Dialing plan continued...



Call Server Configuration

Overlay 15 - Customer Data Block

The following CDB print out represents the CS 1000 R5.x and R6.0 lab systems used. This configuration is very basic and will require customization for the specific customer requirements for other features and services.

```

REQ: prt                                IDBZ NO
TYPE: cdb                              PBUZ 02 10
CUST 0                                ICI 00
                                       ICI 01
                                       ICI 02
                                       ICI 03
                                       ICI 04
                                       ICI 05
                                       ICI 06
                                       ICI 07
                                       ICI 08
                                       ICI 09
                                       RICI
                                       AWU_DATA
TYPE CDB                               AWU YES
CUST 00                               ATRC NO
AML_DATA                             RANF
  OPT DNX                             RAN1 000
  VSID                               RAN2 000
  GP02                              LA11 000
  GP03                              LA12 000
  GP04                              LA21 000
  GP05                              LA22 000
  GP06                              LA31 000
  GP07                              LA32 000
  GP08                              LA41 000
  GP09                              LA42 000
  GP10                              LA51 000
  GP11                              LA52 000
  GP12                              R2BN 00 00
  GP13                              R2ED 00 00
  GP14                              NRWU 5
  GP15                              TAWU 3
ANI_DATA                             WUD NO
  ANAT 111                          STE NO
  ANLD 1111                         CAS_DATA
  M911_PANI NO                      CAS NO
ATT_DATA                             CCS_DATA
  OPT AHD BIND BIXA BLA             CCRS UNR
    DNX IC1 XTG IDP XLF XBL         ECC1 UNR
    FKA MWUD LOD                   ECC2 UNR
    REA SYD ATDA                   CNCS
  ATDN 5                            PELK NO
  NCOS 0                            CDR_DATA
  CWUP NO                           CDR YES
  CWCL 0 0                          IMPH NO
  CWTM 0 0                          OMPH NO
  CWBZ NO NO                        AXID NO
  EFLL 0                            TRCR NO
  MATT NO                           CDPR NO
  RTIM 30 30 30                     ECDR NO
  ATIM 0
  AQTT 30
  AODN
  SPVC 00
    SBLF NO
  RTSA RSAD
  SACP NO
  ABDN NO
  IRFR NO
  XRFR NO

```



```

BDI NO
PORT 2
BCAP NO
CHLN 0
FCAF NO
FCR_DATA
NFCR YES
MAXT 2
OCB1 255
OCB2 255
OCB3 255
IDCA NO
FFC_DATA
CCRS UNR
SCPL 0
FFCS NO
STRL 0
STRG
ADLD 0
FTR_DATA
**DAPC**PREFIX TABLE NO: 01 **

UNKN**INTL**NATL**ESPN**LOCL**ELOC**
ECDP**
UNKN*
E164*          900      91
This is to use the callers list and
redial the number without having to
modify the list.
PRIV*
E163*          900      91
TELX*
X121*
NATL*

OPT AHD BIND BIXA BLA CFO CFRA
COX CPA CTD DBD DNX DSX
HTU HVD XBL IC1 IDP XLF
IHD XTG FKA LOD LRA MCI
MWUD PVCD REA RND
RTR RTD ROX SBD SYD
TTAD VOBA CWRD HLPD HRLD
CXOD
DGRP 10
IRNG NO
PKND 2
DNDL NO
SPRE 2
PREO 0
BPSS NO
SRCD 1234
EEST NO
EESD NO
TTBL 0
MUS NO
ALDN
RECD NO
PORT 0
STCB NO
NSCP NO
MCDC NO
NAUT NO

```

```

IDEF NO
MTAR NO
LEND NO
MSCD NO
CPCI NO
CONF_DSP
CNFFIELD NO
CNF_NAME CONF
INTFIELD NO
INT_NAME I
EXTFIELD NO
EXT_NAME E
BSFE NO
ASPCT 010
FXS NO
DFLT_LANG ENG
STS_MSG
MSG01 Please leave message
MSG02 Back to work
MSG03 In a meeting
MSG04 On a conference call
MSG05 At lunch
MSG06 Busy call
MSG07 Out of the office today
MSG08 On a business trip
MSG09 Project deadline today
MSG10 Will reply after
VO_ALO NO
PCA OFF
TPDN
BFS_CFW YES
VO_CUR_ZONE_ZDM NO
VO_CUR_ZONE_TD NO
IMS_DATA
IMS YES
IMA YES
APL NONE
UST NO
APL NONE
UMG NO
APL NONE
INT_DATA
ACCD OVF OVF OVF ATN
CTVN OVF OVF OVF ATN
MBNR OVF OVF OVF ATN
CTRC OVF NAP OVF NAP
CLDN NAP OVF NAP NAP
NINV OVF OVF OVF ATN
NITR OVF OVF OVF ATN
NRES OVF OVF OVF ATN
NBLK OVF OVF OVF ATN
RCLE ATN OVF ATN ATN
CONG OVF
LLT OVF
DNDT BSY
ESAM OVF
LDN_DATA
OPT XLDN
DLDN NO
LDN0 4444
LDN1
LDN2

```



LDN3	CNTC
LDN4	NATC
LDN5	INTC
ICI 00	NIT_DATA
ICI 01	NIT1 7700
ICI 02	TIM1
ICI 03	NIT2
ICI 04	TIM2
ICI 05	NIT3
ICI 06	TIM3
ICI 07	NIT4
ICI 08	TIM4
ICI 09	ENS NO
MON_DATA	OAS_DATA
USBM NO	ODN0
MPO_DATA	ODN1
FMOP	ODN2
RGNA STD STD	ODN3
AOCS DIS DIS	ODN4
RCY1 04	ODN5
RCY2 04	ODN6
RALL NO	ODN7
CDTO 14	ODN8
IFLS NO	ODN9
MHLD NO	ASTM 30
PCDS	HDOPT 0
CNFD 1	HDTM 30
TGLD 2	RDR_DATA
DISD 3	OPT CFO CFRA PVCD CWRD MCI
CCDO NO	FNAD HNT
AFCO NO	FNAT HNT
ACNS NO	FNAL HNT
NET_DATA	CFTA NO
OPT RTD	CCFWDN
AC1 INTL NPA SPN NXX LOC	CFN0 4
AC2	CFN1 4
FNP YES	CFN2 4
ISDN YES	DFN0 4
VPNI 1	DFN1 4
PNI 1	DFN2 4
PINX_DN	DNDH NO
MBG 0	MDID YES
BSGC 65535	NDID YES
PFX1	MWFB YES
PFX2	TRCL 0
HLOC	CRT0 00 00 00 00
LSC	CRT1 00 00 00 00
RCNT 5	CRT2 00 00 00 00
PSTN NO	CRT3 00 00 00 00
TNDM 15	DAY0
PCMC 15	DAY1
SATD 1	DAY2
OCLI NO	DAY3
DITI YES	HOLIDAY0
TRNX YES	HOLIDAY1
EXTT YES	HOLIDAY2
FTOP FRES	HOLIDAY3
VNR NO	ROA_DATA
NIT 8	OPT ROX
NAS_ATCL YES	RICI
NAS_ACTV NO	TIM_DATA
FOPT 14	FLSH 45



PHDT 30
DIND 30
DIDT 14
LDTT 6
BOTO 14
DBRC 60
RTIM 30 30 3
ATIM 0
AQTT 30
ADLD 0
NFNA 0
HWTT 300
NIT 8
FOPT 14
TST_DATA

TYPE RDB

CUST 00
ROUT 10
DES SIP TRK
TKTP TIE
M911P NO
ESN NO
CNVT NO
SAT NO
RCLS EXT
VTRK YES
ZONE 002
PCID SIP
CRID NO
NODE 200
DTRK NO
ISDN YES
 MODE ISLD
 DCH 16
 IFC SL1
 PNI 00001
 NCNA YES
 NCRD YES
 TRO YES
 FALT NO
 CTYP CDP
 INAC YES
 ISAR NO
 DAPC YES
 TBL 1
This points to the table in the CDB.
MBXR NO
PTYP ATT
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
SRCH LIN
TRMB YES
STEP
ACOD 4000
TCPP NO
TARG 01
CLEN 10
BILN NO

OABS
INST
ANTK
SIGO STD
STYP SDAT
ICIS YES
TIMR ICF 512
 OGF 512
 EOD 13952
 DSI 34944
 NRD 10112
 DDL 70
 ODT 4096
 RGV 640
 GRD 896
 SFB 3
 NBS 2048
 NBL 4096
 IENB 5
 TFD 0
 VSS 0
 VGD 6
SST 5 0
NEDC ORG
FEDC ORG
CPDC NO
DLTN NO
HOLD 02 02 40
SEIZ 02 02
SVFL 02 02
DRNG NO
CDR NO
VRAT NO
MUS NO
MANO NO
OHQ NO
OHQT 00
CBQ NO
AUTH NO
TDET NO
TTBL 0
ATAN NO
OHTD NO
PLEV 2
ALRM NO
ART 0
SGRP 0
ARDN NO
AACR NO



Sample Fax Line configuration

```

DES  FAX1
TN   004 0 04 00  VIRTUAL
TYPE 500
CDEN 4D
CUST 0
ERL 00000
WRLS NO
DN   6664982 0      MARP
AST  NO
IAPG 0
HUNT
TGAR 0
LDN  NO
NCOS 7
SGRP 0
RNPB 0
XLST
SCI  0
CLS  UNR DTN FBD XFD WTA THFD FND
HTD  ONS
      LPR XRD CWD SWD MWD RMMD SMWD
LPD  XHD SLKD CCSD LND TVD
      CFTD SFD MRD C6D CNID CLBD AUTU
      ICDD CDMD LLCN EHTD MCTD
      GPUD DPUD CFXD ARHD OVDD AGTD
CLTD LDTD ASCD SDND
      MBXD CPFA CPTA DDGA NAMA MIND
      MCRD
      EXR0 SHL ABDD CFHD DNDY DN03
      CWND USMD USRD BNRD RTDD RBDD
RBHD FAXD CNUD CNAD PGND FTTC
      CDMR MCDD T87D PKCH  MPTA
  
```

MPTA is a Release 5.5 feature to allow a fax/modem line to set up calls at G.711 when the network is defined as G.729.



Overlay 17 – Configuration Record

The following CFN print out represents the CS 1000 R5.x and R6.0 lab systems used.

```

TYPE CFN
ADAN HIST
  SIZE 5000
  USER MTC SCH BUG OSN
ADAN TTY 0
  CTYP CPSI
  DNUM 0
  PORT 0
  DES
  BPS 9600
  BITL 8
  STOP 1
  PARY NONE
  FLOW NO
  USER MTC SCH BUG OSN
  XSM NO
  TTYLOG 0
  BANR YES
ADAN TTY 1
  CTYP MGC
  IPMG 0 0
  DNUM 1
  PORT 1
  DES
  BPS 1200
  BITL 8
  STOP 1
  PARY NONE
  FLOW NO
  USER MTC SCH BUG OSN
  XSM NO
  TTYLOG 0
  BANR YES
ADAN TTY 2
  CTYP MGC
  IPMG 0 0
  DNUM 2
  PORT 2
  DES
  BPS 1200
  BITL 8
  STOP 1
  PARY NONE
  FLOW NO
  USER CTY
  XSM NO
ADAN TTY 14
  CTYP PTY
  DNUM 14
  PORT 0
  DES
  FLOW NO
  USER MTC SCH BUG OSN
  XSM NO

TTYLOG 0
BANR YES
ADAN TTY 15
  CTYP PTY
  DNUM 15
  PORT 1
  DES
  FLOW NO
  USER MTC SCH BUG OSN
  XSM NO
  TTYLOG 0
  BANR YES
ADAN DCH 12
  CTYP TMDI
  MG_CARD 000 1 02
  PORT 1
  DES PRISIP
  USR PRI
  DCHL 53
  OTBF 32
  PARM RS232 DTE
  DRAT 64KC
  CLOK EXT
  IFC D100
  SIDE USR
  CNEG 1
  RLS ID 25
  RCAP
  MBGA NO
  OVLR NO
  OVLS NO
  T200 3
  T203 10
  N200 3
  N201 260
  K 7
ADAN DCH 16
  CTYP DCIP
  DES SIPVerizon
  USR ISLD
  ISLM 4000
  SSRC 1800
  OTBF 32
  NASA NO
  IFC SL1
  CNEG 1
  RLS ID 25
  RCAP MWI TAT
  MBGA NO
  H323
  OVLR NO
  OVLS NO
  PARM
  LPIB 3500
  HPIB 3500

```

500B 2000	REMQ
SL1B 160	SUPL V000 V096 V100 V104
NCR 20000	V108 V112
MGCR 25	SUPC
NCPU 1	SUPF
CFWS NO	XCT
PCML MU	CONF
ALRM YES	MGTDS
ERRM ERR BUG AUD	126 000 0 MGC
DTRB 100	MGCONF
TMRK 128	IPMG PORTS
FCDR OLD	IPMG_TYPE
PCDR NO	127 000 0 30 MGC
TPO NO	MFSD * 126
TSO NO	
CLID NO	DLOP NUM DCH FRM TMDI LCMT YALM
DUR5 NO	T1TE TRSH MG_CARD
MLDN YES	PRI 053 24 ESF YES B8S FDL 0
MARP YES	01 000 1 02
IPIE NO	MISP MG_CARD
FRPT NEFR	EXT0 3PE
DCUS NULL	EXT1 3PE
MSCL 255	MCFN 011 MB
PMSI	OVLY
MANU PMS1	SID 0
PMCR 20	BKGD 044
PORT NONE	PBXH 01
NDIS 20	TODR 01
OCAC NO	DROL 030 034 038 044 135
MTR0 MR	MID_SCPU NO
SBA_ADM_INS 001	MULTI_USER ON
SBA_USER 010	ATR
BCAP SPEECH	CODE 0
IDLE_SET_DISPLAY NORTEL	SOLR 12
ICON YES	ROLR +45.00
MSEC OFF ← Audio Encryption off	AOLR +45.00
in the lab systems	TOLR -45.00
CEQU	AGCD NO
MPED 8D	VOLR NO
TERM	HRLR +42.00
REMO	HTLR -44.00
TERD	ESA
REMD	LIS NONE
TERQ	DYNAMIC_ELIN_TIMEOUT 180
	DYNAMIC_ELIN_REUSE YES



Appendix A - EMEA CS 1000

Release 5.x

An EMEA system was programmed and tested as installed in Germany. The DEP list and additional patches were the same as North American system. The main difference is using the different tones and cadences and the dial plan for country codes and international dialing.

TYPE CDB	PBUZ 02 10
CUST 00	ICI 00
AML_DATA	ICI 01
OPT DNX	ICI 02
VSID	ICI 03
GP02	ICI 04
GP03	ICI 05
GP04	ICI 06
GP05	ICI 07
GP06	ICI 08
GP07	ICI 09
GP08	RICI
GP09	AWU_DATA
GP10	AWU NO
GP11	CAS_DATA
GP12	CAS NO
GP13	CCS_DATA
GP14	CCRS UNR
GP15	ECC1 UNR
ANI_DATA	ECC2 UNR
ANAT 123	CNCS 0
ANLD 1234	PELK NO
M911_PANI NO	CDR_DATA
ATT_DATA	CDR NO
OPT AHD BIND BIXA BLA	CHLN 1
DNX IC1 XTG IDP XLF XBL	FCAF NO
FKA MWUD LOD	FCR_DATA
REA SYD ATDA	NFCR NO
ATDN 0	IDCA NO
NCOS 0	FFC_DATA
CWUP NO	CCRS UNR
CWCL 0 0	SCPL
CWTM 0 0	FFCS NO
CWBZ NO NO	STRL 0
EFL 0	STRG
MATT NO	ADLD 0
RTIM 30 30 30	MFAC *
ATIM 0	FTR_DATA
AQTT 30	**DAPC**PREFIX TABLE NO: 00 **
AODN	
SPVC 00	UNKN**INTL**NATL**ESPN**LOCL**ELOC**
SBLF NO	ECDP**
RTSA RSAD	UNKN*
SACP NO	E164* 00 0
ABDN NO	PRIV*
IRFR NO	E163* 00 0
XRFR NO	TELX*
IDBZ NO	X121*



NATL*

DAPCPREFIX TABLE NO: 01 **

UNKN**INTL**NATL**ESPN**LOCL**ELOC**

ECDP**

UNKN*

E164* 900
90

This is to use the callers list and
redial the number without having to
modify the list.

PRIV*

E163*

TELX*

X121*

NATL*

OPT AHD BIND BIXA BLA CFO CFRA
COX CPA CTD DBD DNX DSX
HTU HVD XBL IC1 IDP XLF
IHD XTG FKA LOD LRA MCI
MWUD PVCD REA RND
RTR RTD ROX SBD SYD
TTAD VOBA CWRD HLPD HRLD
CXOD

DGRP 0

IRNG NO

PKND 1

DNDL NO

SPRE 2

PREO 0

BPSS NO

SRCD 1234

EEST NO

EESD NO

TTBL 1

MUS NO

ALDN

RECD NO

PORT 0

STCB NO

NSCP NO

MCDC NO

NAUT NO

IDEF NO

MTAR NO

LEND NO

MSCD NO

CPCI NO

CONF_DSP

CNFFIELD NO

CNF_NAME CONF

INTFIELD NO

INT_NAME I

EXTFIELD NO

EXT_NAME E

BSFE NO

ASPCT 000

FXS NO

DFLT_LANG GER

STS_MSG

MSG01 Nachricht hinterlassen

MSG02 Wieder erreichbar um:

MSG03 In einer Besprechung

MSG04 In Konferenzgesprch

MSG05 In der Mittagspause

MSG06 Besetzt, rufen Sie

MSG07 Heute nicht im Bro

MSG08 Auf Geschäftsreise

MSG09 Projekt-Termin heute

MSG10 Rufe zurück nach

VO_ALO NO

PCA OFF

TPDN

BFS_CFW YES

VO_CUR_ZONE_ZDM NO

VO_CUR_ZONE_TD NO

IMS_DATA

IMS NO

INT_DATA

ACCD OVF OVF OVF ATN

CTVN OVF OVF OVF ATN

MBNR OVF OVF OVF ATN

CTRC OVF NAP OVF NAP

CLDN NAP OVF NAP NAP

NINV OVF OVF OVF ATN

NITR OVF OVF OVF ATN

NRES OVF OVF OVF ATN

NBLK OVF OVF OVF ATN

RCLE ATN OVF ATN ATN

CONG OVF

LLT OVF

DNDT BSY

ESAM OVF

LDN_DATA

OPT XLDN

DLDN NO

LDN0 5541111

LDN1

LDN2

LDN3

LDN4

LDN5

ICI 00

ICI 01

ICI 02

ICI 03

ICI 04

ICI 05

ICI 06

ICI 07

ICI 08

ICI 09

MON_DATA

USBM NO

MPO_DATA

FMOP

RGNA STD STD

AOCS DIS DIS

RCY1 06

RCY2 04

RALL NO

CDTO 14



IFLS NO	ODN9
MHLD NO	ASTM 30
PCDS	HDOPT 0
CNFD 1	HDTM 30
TGLD 2	RDR_DATA
DISD 3	OPT CFO CFRA PVCD CWRD MCI
CCDO NO	FNAD HNT
AFCO NO	FNAT HNT
ACNS NO	FNAL HNT
NET_DATA	CFTA NO
OPT RTD	CCFWDN
AC1 INTL NPA SPN NXX LOC	CFN0 4
AC2	CFN1 4
FNP YES	CFN2 4
ISDN YES	DFN0 4
VPNI 1	DFN1 4
PNI 1	DFN2 4
PINX_DN	DNDH NO
MBG 0	MDID NO
BSGC 65535	NDID NO
PFX1	MWFB NO
PFX2	TRCL 0
HLOC	CRT0 00 00 00 00
LSC	CRT1 00 00 00 00
RCNT 5	CRT2 00 00 00 00
PSTN NO	CRT3 00 00 00 00
TNDM 15	DAY0
PCMC 15	DAY1
SATD 1	DAY2
OCLI NO	DAY3
DITI NO	HOLIDAY0
TRNX NO	HOLIDAY1
EXTT NO	HOLIDAY2
FTOP FTLY	HOLIDAY3
VNR NO	ROA_DATA
NIT 8	OPT ROX
NAS_ATCL YES	RICI
NAS_ACTV NO	TIM_DATA
FOPT 6	FLSH 45
CNTC	PHDT 30
NATC	DIND 30
INTC	DIDT 14
NIT_DATA	LDTT 6
NIT1	BOTO 14
TIM1	DBRC 60
NIT2	RTIM 30 30 30
TIM2	ATIM 0
NIT3	AQTT 30
TIM3	ADLD 0
NIT4	NFNA 0
TIM4	HWT 300
ENS NO	NIT 8
OAS_DATA	FOPT 6
ODN0	TST_DATA
ODN1	
ODN2	
ODN3	
ODN4	
ODN5	
ODN6	
ODN7	
ODN8	



TYPE RDB

CUST 00
 ROUT 10
 DES SIP TRK
 TKTP TIE
 M911P NO
 ESN NO
 CNVT NO
 SAT NO
 RCLS EXT
 VTRK YES
 ZONE 002
 PCID SIP
 CRID NO
 NODE 200
 DTRK NO
 ISDN YES
 MODE ISLD
 DCH 16
 IFC SL1
 PNI 00001
 NCNA YES
 NCRD YES
 TRO YES
 FALT NO
 CTYP CDP
 INAC YES
 ISAR NO
 DAPC YES
 TBL 1
 MBXR NO
 PTYP ATT
 AUTO NO
 DNIS NO
 DCDR NO
 ICOG IAO
 SRCH LIN
 TRMB YES
 STEP
 ACOD 4000
 TCPP NO
 TARG 01
 CLEN 10
 BILN NO
 OABS
 INST
 ANTK

SIGO STD
 STYP SDAT
 ICIS YES
 TIMR ICF 512
 OGF 512
 EOD 13952
 DSI 34944
 NRD 10112
 DDL 70
 ODT 4096
 RGV 640
 GRD 896
 SFB 3
 NBS 2048
 NBL 4096
 IENB 5
 TFD 0
 VSS 0
 VGD 6
 SST 5 0
 NEDC ORG
 FEDC ORG
 CPDC NO
 DLTN NO
 HOLD 02 02 40
 SEIZ 02 02
 SVFL 02 02
 DRNG NO
 CDR NO
 VRAT NO
 MUS NO
 MANO NO
 OHQ NO
 OHQT 00
 CBQ NO
 AUTH NO
 TDET NO
 TTBL 1 Points to the new FTC table
 for German tones.
 ATAN NO
 OHTD NO
 PLEV 2
 ALRM NO
 ART 0
 SGRP 0
 ARDN NO
 AACR NO



Release 6.0

An EMEA system was programmed and tested as installed in Germany. The DEP list and additional patches were the same as North American system. The main difference is using the different tones and cadences and the dial plan for country codes and international dialing.

TYPE CDB	ICI 01
CUST 00	ICI 02
AML_DATA	ICI 03
OPT DNX	ICI 04
VSID	ICI 05
GP02	ICI 06
GP03	ICI 07
GP04	ICI 08
GP05	ICI 09
GP06	RICI
GP07	AWU_DATA
GP08	AWU NO
GP09	CAS_DATA
GP10	CAS NO
GP11	CCS_DATA
GP12	CCRS UNR
GP13	ECC1 UNR
GP14	ECC2 UNR
GP15	CNCS 0
ANI_DATA	PELK NO
ANAT 123	CDR_DATA
ANLD 1234	CDR NO
M911_PANI NO	CHLN 1
ATT_DATA	FCAF NO
OPT AHD BIND BIXA BLA	FCR_DATA
DNX IC1 XTG IDP XLF XBL	NFCR NO
FKA MWUD LOD	IDCA NO
REA SYD ATDA	FFC_DATA
ATDN 0	CCRS UNR
NCOS 0	SCPL
CWUP NO	FFCS NO
CWCL 0 0	STRL 0
CWTM 0 0	STRG
CWBZ NO NO	ADLD 0
EFLL 0	MFAC *
MATT NO	FTR_DATA
RTIM 30 30 30	**DAPC**PREFIX TABLE NO: 00 **
ATIM 0	
AQTT 30	UNKN**INTL**NATL**ESPN**LOCL**ELOC**
AODN	ECDP**
SPVC 00	UNKN*
SBLF NO	E164* 00 0
RTSA RSAD	PRIV*
SACP NO	E163* 00 0
ABDN NO	TELX*
IRFR NO	X121*
XRFR NO	NATL*
IDBZ NO	
PBUZ 02 10	**DAPC**PREFIX TABLE NO: 01 **
ICI 00	

UNKN**INTL**NATL**ESPN**LOCL**ELOC**
 ECDP**
 UNKN*
 E164* 900
 90
 This is to use the callers list and
 redial the number without having to
 modify the list.
 PRIV*
 E163*
 TELX*
 X121*
 NATL*

OPT AHD BIND BIXA BLA CFO CFRA
 COX CPA CTD DBD DNX DSX
 HTU HVD XBL IC1 IDP XLF
 IHD XTG FKA LOD LRA MCI
 MWUD PVCD REA RND
 RTR RTD ROX SBD SYD
 TTAD VOBA CWRD HLPD HRLD
 CXOD

DGRP 0
 IRNG NO
 PKND 1
 DNDL NO
 SPRE 2
 PREO 0
 BPSS NO
 SRCD 1234
 EEST NO
 EESD NO
 TTBL 1
 MUS NO
 ALDN
 RECD NO
 PORT 0
 STCB NO
 NSCP NO
 MCDC NO
 NAUT NO
 IDEF NO
 MTAR NO
 LEND NO
 MSCD NO
 CPCI NO
 CONF_DSP

CNFFIELD NO
 CNF_NAME CONF
 INTFIELD NO
 INT_NAME I
 EXTFIELD NO
 EXT_NAME E

BSFE NO
 ASPCT 000
 FXS NO

DFLT_LANG GER

STS_MSG

MSG01 Nachricht hinterlassen
 MSG02 Wieder erreichbar um:
 MSG03 In einer Besprechung

MSG04 In Konferenzgesprch
 MSG05 In der Mittagspause
 MSG06 Besetzt, rufen Sie
 MSG07 Heute nicht im Bro
 MSG08 Auf Geschäftsreise
 MSG09 Projekt-Termin heute
 MSG10 Rufe zurück nach

VO_ALO NO
 PCA OFF
 TPDN
 BFS_CFW YES
 VO_CUR_ZONE_ZDM NO
 VO_CUR_ZONE_TD NO
 IMS_DATA
 IMS NO
 INT_DATA
 ACCD OVF OVF OVF ATN
 CTVN OVF OVF OVF ATN
 MBNR OVF OVF OVF ATN
 CTRC OVF NAP OVF NAP
 CLDN NAP OVF NAP NAP
 NINV OVF OVF OVF ATN
 NITR OVF OVF OVF ATN
 NRES OVF OVF OVF ATN
 NBLK OVF OVF OVF ATN
 RCLE ATN OVF ATN ATN
 CONG OVF
 LLT OVF
 DNDT BSY
 ESAM OVF

LDN_DATA
 OPT XLDN
 DLDN NO
 LDN0 5541111
 LDN1
 LDN2
 LDN3
 LDN4
 LDN5
 ICI 00
 ICI 01
 ICI 02
 ICI 03
 ICI 04
 ICI 05
 ICI 06
 ICI 07
 ICI 08
 ICI 09

MON_DATA
 USBM NO

MPO_DATA
 FMOP
 RGNA STD STD
 AOCs DIS DIS
 RCY1 06
 RCY2 04
 RALL NO
 CDT0 14

IFLS NO
 MHLN NO
 PCDS



CNFD 1	HDTM 30
TGLD 2	RDR_DATA
DISD 3	OPT CFO CFRA PVCD CWRD MCI
CCDO NO	FNAD HNT
AFCO NO	FNAT HNT
ACNS NO	FNAL HNT
NET_DATA	CFTA NO
OPT RTD	CCFWDN
AC1 INTL NPA SPN NXX LOC	CFN0 4
AC2	CFN1 4
FNP YES	CFN2 4
ISDN YES	DFN0 4
VPNI 1	DFN1 4
PNI 1	DFN2 4
PINX_DN	DNDH NO
MBG 0	MDID NO
BSGC 65535	NDID NO
PFX1	MWFB NO
PFX2	TRCL 0
HLOC	CRT0 00 00 00 00
LSC	CRT1 00 00 00 00
RCNT 5	CRT2 00 00 00 00
PSTN NO	CRT3 00 00 00 00
TNDM 15	DAY0
PCMC 15	DAY1
SATD 1	DAY2
OCLI NO	DAY3
DITI NO	HOLIDAY0
TRNX NO	HOLIDAY1
EXTT NO	HOLIDAY2
FTOP FTLY	HOLIDAY3
VNR NO	ROA_DATA
NIT 8	OPT ROX
NAS_ATCL YES	RICI
NAS_ACTV NO	TIM_DATA
FOPT 6	FLSH 45
CNTC	PHDT 30
NATC	DIND 30
INTC	DIDT 14
NIT_DATA	LDTT 6
NIT1	BOTO 14
TIM1	DBRC 60
NIT2	RTIM 30 30 30
TIM2	ATIM 0
NIT3	AQTT 30
TIM3	ADLD 0
NIT4	NFNA 0
TIM4	HWT 300
ENS NO	NIT 8
OAS_DATA	FOPT 6
ODN0	TST_DATA
ODN1	
ODN2	
ODN3	
ODN4	
ODN5	
ODN6	
ODN7	
ODN8	
ODN9	
ASTM 30	
HDOPT 0	

TYPE RDB

CUST 00
ROUT 10
DES SIP TRK
TKTP TIE
M911P NO
ESN NO

CNVT NO
 SAT NO
 RCLS EXT
 VTRK YES
 ZONE 002
 PCID SIP
 CRID NO
 NODE 200
 DTRK NO
 ISDN YES
 MODE ISLD
 DCH 16
 IFC SL1
 PNI 00001
 NCNA YES
 NCRD YES
 TRO YES
 FALT NO
 CTYP CDP
 INAC YES
 ISAR NO
 DAPC YES
 TBL 1
 MBXR NO
 PTYP ATT
 AUTO NO
 DNIS NO
 DCDR NO
 ICOG IAO
 SRCH LIN
 TRMB YES
 STEP
 ACOD 4000
 TCPP NO
 TARG 01
 CLEN 10
 BILN NO
 OABS
 INST
 ANTK
 SIGO STD
 STYP SDAT
 ICIS YES

This
 points to the prefix table in the
 CDB for redial feature.

TIMR ICF 512
 OGF 512
 EOD 13952
 DSI 34944
 NRD 10112
 DDL 70
 ODT 4096
 RGV 640
 GRD 896
 SFB 3
 NBS 2048
 NBL 4096
 IENB 5
 TFD 0
 VSS 0
 VGD 6
 SST 5 0
 NEDC ORG
 FEDC ORG
 CPDC NO
 DLTN NO
 HOLD 02 02 40
 SEIZ 02 02
 SVFL 02 02
 DRNG NO
 CDR NO
 VRAT NO
 MUS NO
 MANO NO
 OHQ NO
 OHQT 00
 CBQ NO
 AUTH NO
 TDET NO
 TTBL 1
 ATAN NO
 OHTD NO
 PLEV 2
 ALRM NO
 ART 0
 SGRP 0
 ARDN NO
 AACR NO

Points to the new FTC table
 for German tones.



Appendix B - Addition of a Second CPE device (SIP GW Redundancy)

Introduction and Scope

This document provides an overview of testing between a Nortel CS1000E Customer Premise Equipment (CPE) system and the SIP Broadsoft Network to demonstrate failover capabilities. Calls signaled via the “Leader” CPE signaling device in the normal mode. In a failover mode, call processing was accomplished via the “Follower” CPE signaling device. Additionally, IP phones were programmed to register and load share with the Leader and re-register after seven seconds with the Follower in the failover mode. The supported configurations support exactly two non-registering CPE devices, where each CPE device is assigned a unique IP address. This configuration requires all lines to be served by either of the two CPE devices.

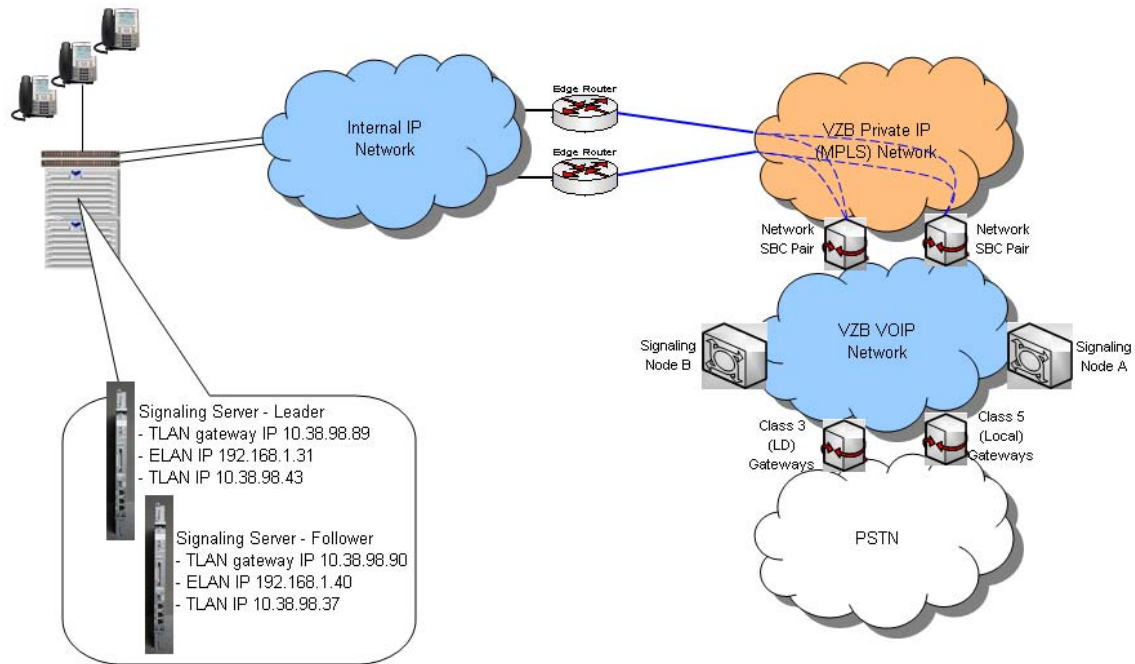
Application level configuration

To perform the desired tests, the Nortel CS1000E lab system was configured with an additional Signaling Server (SS). The additional SS consisted of a CPPM (Call Processor Pentium Mobile) equipped with a hard drive. This unit was installed within the existing Media Gateway and involved additional programming and connectivity to the system ELAN and TLAN. The Nortel practice defining the process to add the additional SS is NN43001-312.

The new equipment part is:

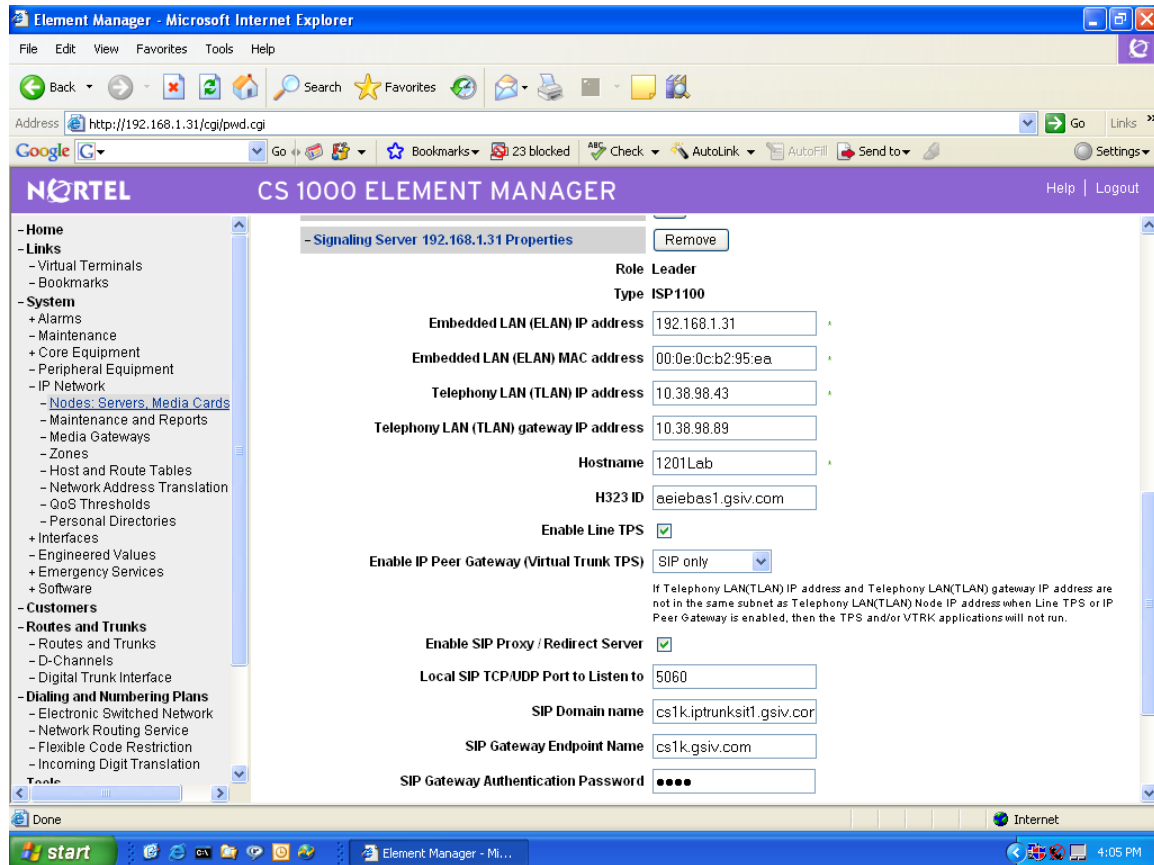
- | | | |
|---|----------|---|
| 1 | NTHU62AA | CPPM Signaling Server with Hard Drive Kit |
|---|----------|---|

The following figure depicts an outline of the lab test configuration:



Programming of the additional SS was accomplished via the system Element Manager. Screen shots of the key program elements for the “Leader and “Follower” SS are displayed in the following figures:

Release 5.x



Element Manager - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://192.168.1.31/cgi/pwd.cgi>

NORTEL CS 1000 ELEMENT MANAGER Help Logout

- Home
- Links
 - Virtual Terminals
 - Bookmarks
- System
 - + Alarms
 - + Maintenance
 - + Core Equipment
 - + Peripheral Equipment
 - IP Network
 - Nodes: Servers, Media Cards
 - Maintenance and Reports
 - Media Gateways
 - Zones
 - Host and Route Tables
 - Network Address Translation
 - QoS Thresholds
 - Personal Directories
 - + Interfaces
 - + Engineered Values
 - + Emergency Services
 - + Software
- Customers
 - Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
- Dialing and Numbering Plans
 - Electronic Switched Network
 - Network Routing Service
 - Flexible Code Restriction
 - Incoming Digit Translation

- Signaling Server 192.168.1.40 Properties Remove

Role **Follower**

Type **CPPM**

Embedded LAN (ELAN) IP address 192.168.1.40

Embedded LAN (ELAN) MAC address 00:1b:ba:fd:30:fa

Telephony LAN (TLAN) IP address 10.38.98.37

Telephony LAN (TLAN) gateway IP address 10.38.98.89

Hostname SIPCPE2

H323 ID

Enable Line TPS ☒

Enable IP Peer Gateway (Virtual Trunk TPS) SIP only

If Telephony LAN(TLAN) IP address and Telephony LAN(TLAN) gateway IP address are not in the same subnet as Telephony LAN(TLAN) Node IP address when Line TPS or IP Peer Gateway is enabled, then the TPS and/or VTRK applications will not run.

Local SIP TCP/UDP Port to Listen to 5060

SIP Domain name cs1k.iptrunksit1.gsiv.cor

SIP Gateway Endpoint Name cs1k.gsiv.com

SIP Gateway Authentication Password •••••

Save and Transfer Cancel

Done Internet

start Element Manager - Mi... 2CPE_VzB.doc - Micro... 4:05 PM

Release 6.0

Element Manager - Microsoft Internet Explorer

Address: https://172.16.3.37/emWeb_6_0/SECURE_OBJECT_ID/com.nortel.ems.cs1000/937991d3-ac5c-11de-8e6a-5792863737a7/ElementManagerLaunchServlet.secure

NORTEL CS 1000 ELEMENT MANAGER Help | Logout

Managing: 192.168.1.39 Username: donz
System > IP Network > IP Telephony Nodes

Node Details (ID: 1001 - LTPS, PD, Gateway (SIPGw))

Node ID: 1001 * (0-9999)

Call Server IP Address: 192.168.1.39 *

Telephony LAN (TLAN)

Node IP Address: 172.16.3.37 *

Subnet Mask: 255.255.255.0 *

Embedded LAN (ELAN)

Gateway IP address: 192.168.1.39 *

Subnet Mask: 255.255.255.0 *

IP Telephony Node Properties

- Voice Gateway (VGW) and Codecs
- Quality of Service (QoS)
- LAN

Applications (click to edit configuration)

- SIP Line
- Terminal Proxy Server (TPS)
- Gateway (SIPGw)

* Required Value. [Save] [Cancel]

Associated Signaling Servers & Cards

Select to add [Add] [Remove] [Make Leader] [Print] [Refresh]

Hostname	Type	Deployed Applications	ELAN IP	TLAN IP	Role
☐ nasipcots	Signaling Server	LTPS, Gateway, PD	192.168.1.31	172.16.3.37	Leader
☐ nasipcprm	Signaling Server	LTPS, Gateway, PD	192.168.1.40	172.16.3.39	Follower

Note: Only server(s) that are not part of any other IP telephony node and deployed application(s) that match the service(s) selected for this node are

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*****END*****

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