



# Nortel CS1000 Succession 4.0 with Cisco Unified Border Element for H323-to-H323 Calls

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## Introduction

- This is an application note for connectivity of Nortel CS1000 Succession 4.0 with Cisco Unified Border Element via H.323 (10/100baseT).
- The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco Unified Border Element (CUBE) connected to the IP PBX via H.323 (10/100baseT). Connectivity is achieved by using the H.323 protocol.
- This Application Note uses the c3845 IOS-voice-gateway, however other Cisco voice gateways are also an option to use since CUBE implementation does not depend on the platform. Here is a list of Cisco Products capable of CUBE functionality:

[Cisco 2800 Series Integrated Services Routers](#)

[Cisco 3800 Series Integrated Services Routers](#)

[Cisco AS5350XM Universal Gateway](#)

[Cisco AS5400XM Universal Gateway](#)



## Network Topology

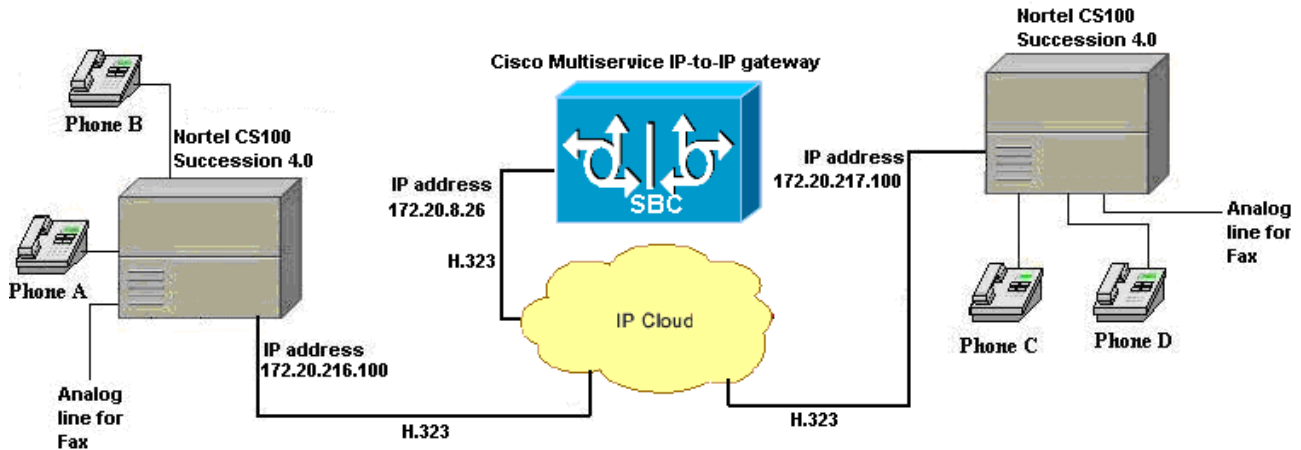


Figure 1. Network Topology or Test Setup

## Limitations

- Connected Name is not presented to the originating (calling) Phone display. CUBE relays the "Connected Number" info in a method not understood by Nortel CS1000 PBX
- Basic Call using G.726 codec is not accepted on Nortel PBX.
- Call Transfer Network/External (Trombone), When phone A calls Phone C and Phone C xfers call to Phone B, call is dropped. Nortel PBX drops call.
- Call Conference Network/External , When Phone A calls Phone C and Phone C attempts to conference in Phone B, call is dropped. Nortel PBX drops call.
- Call Forward All and No Reply Network/External, when Phone C is set to CFA/B to Phone B and Phone A calls Phone C, the call is dropped. Nortel PBX drops call.
- Fax T.38 did not interoperate, when attempted to use T.38 for fax transmission the fax was unsuccessful. H245 terminalCapabilities negotiations were unsuccessful between the CUBE and the Nortel CS1000
- DTMF in-band signaling did not interoperate. Nortel PBX did not play in-band DTMF tones



## System Components

### Hardware Requirements

Cisco equipment

- Cisco 3845 (Cisco 3800 family routers)
- Cisco Catalyst 6500

Nortel equipment

- Nortel Communication System 1000 (which includes Call Server, Signaling Server and Media gateway)

### Software Requirements

- PBX Software: Nortel Succession 4.0 Release
- Cisco IOS Release: c3845-ipvoice\_ivs-mz.124-9.T

### Features

#### Features Supported

- Basic call using G711u and A law, G729 and G723 codecs
- Local Call Transfer blind and Local Call Transfer supervised
- Local Call Conference
- Call on-hold
- Local Call Forward Busy and All
- Call Forward no reply (both local and external)
- Out-of-band DTMF signaling (H.245)
- FAX integrity (only using G.711)

#### Features Not Supported

- Connected Name
- Call Transfer Network/External (Trombone)
- Call Conference Network/External
- Call Forward All and No Reply Network/External
- Fax T.38
- DTMF in-band



## Configuration

### Configuration Sequence and Tasks

### Configuration Menus and Commands

#### Nortel Configuration

##### Call Server Setup via SSC card console

1. LD 17 – Configure the D-channel (signaling channel) between the Call Server and the Signaling Server
2. LD 97 – Configure the Super-loop for the Virtual Trunks
3. LD 14 – Configure the H.323 Virtual Trunks to the Signaling Server
4. LD 14 – Configure the Virtual Gateway Trunks
5. LD 16 – Configure the H.323 route
6. LD 86 – Configure the Route List Block for the Virtual Trunk route
7. LD 87 – Configure CDP steering codes
8. LD 11 – Configure Digital Stations

##### Signaling Server Setup via the 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
6. Configure LAN Configuration section
7. Configure the H323 GW Setting section
8. Configure the Card section for the MC-32 VGMC card section
9. Configure the Signaling Server section

##### NRS (Network Routing Server)

10. Configure the System Wide Settings
11. Configure the NRS Server Settings
12. Configure a Service Domain
13. Configure a L1 Domain (UDP)
14. Configure a L0 Domain (CDP)
15. Configure a H.323 gateway
16. Configure the Routing Entries

#### Call Server Setup:

1. LD 17 – Configure the D-channel (signaling channel) between the Call Server and the Signaling Server

```
>ld 22  
PT2000
```

```
REQ prt  
TYPE adan dch 3
```

```
ADAN DCH 3  
CTYP DCIP  
DES IP_Trunk_DCH  
USR ISLD  
ISLM 4000  
SSRC 1800
```



OTBF 32  
NASA NO  
**IFC SL1**  
CNEG 1  
RLS ID 4  
**RCAP ND2**  
MBGA NO  
**H323**  
**OVLR NO**  
**OVLS NO**

2. LD 97 – Configure the Super-loop for the Virtual Trunks

```
>ld 97
SCSYS000
MEM AVAIL: (U/P): 2854769  USED U P: 182454 59352  TOT: 3096575
DISK RECS AVAIL: 1152
REQ prt
TYPE supl
SUPL
```

SUPL SUPT SLOT XPEC0 XPEC1

```
000 STD LEFT 01 0 1 ----
004 STD LEFT 02 0 1 ----
008 STD LEFT 03 0 1 ----
012 STD LEFT 04 0 1 ----
016 STD LEFT 05 0 1 ----
032 STD LEFT 06 0 3 ----
036 STD LEFT 07 0 3 ----
040 STD LEFT 08 0 3 ----
044 STD LEFT 10 0 3 ----
048 STD LEFT 09 0 3 ----
064 STD LEFT 11 0 3 ----
068 STD LEFT 12 0 3 ----
072 STD LEFT 13 0 3 ----
096 VIRTUAL CARDS 61 - 64 81 - 84
100 VIRTUAL CARDS 65 - 68 85 - 88
128 STD LEFT 32 0 1 33 2 3
132 STD LEFT 34 0 1 35 2 3
136 STD LEFT 36 0 1 37 2 3
140 STD LEFT 38 0 1 39 2 3
144 STD LEFT 40 0 1 41 2 3
148 STD LEFT 42 0 1 43 2 3
152 STD LEFT 44 0 1 45 2 3
156 STD LEFT 46 0 1 47 2 3
```

3. LD 14 – Configure the H.323 Virtual Trunks to the Signaling Server (One trunk = one line connection)

```
>ld 20
REQ: prt
TYPE: tnb
TN 63 0 0 0
DATE
```

➔ **H323 Virtual trunk to Signaling Server**



PAGE  
DES

DES H323\_IP\_VTRK  
TN 063 0 00 00 VIRTUAL  
**TYPE IPTI**  
CDEN 8D  
CUST 0  
**XTRK VTRK**  
**ZONE 000**  
**LDOP BOP**  
TIMP 600  
BIMP 600  
AUTO\_BIMP NO  
**TRK ANLG**  
NCOS 0  
**RTMB 11 1**  
CHID 101  
TGAR 1  
**STRI/STRO IMM IMM**  
SUPN YES  
AST NO  
IAPG 0  
CLS CTD DTN WTA LPR APN THFD  
P10 NTC MID  
TKID  
AACR NO  
DATE 25 FEB 2005

4. LD 14 – Configure the Virtual Gateway Trunks (upto 32 trunks per MC-32)

>ld 20  
REQ: prt  
TYPE: tnb  
TN 3  
CDEN  
CUST  
DATE  
PAGE  
DES

DES  
**TN 003 0 00 00**  
TYPE VGW  
CUST 0  
**XTRK MC32**  
**ZONE 000**

DES  
**TN 003 0 00 01**  
TYPE VGW  
CUST 0  
XTRK MC32  
ZONE 000



5. LD 16 – Configure the H.323 route

```
>ld 21
PT1000

REQ: prt
TYPE: rdb
CUST 0
ROUT 11

TYPE RDB
CUST 00
DMOD
ROUT 11
DES H323_TIE
TKTP TIE
NPID_TBL_NUM 0
ESN NO
CNVT NO
SAT NO
RCLS EXT
VTRK YES
ZONE 000
PCID H323
CRID NO
NODE 101
DTRK NO
ISDN YES
  MODE ISLD
  DCH 3
  IFC SL1
  PNI 00001
  NCNA YES
  NCRD YES
  TRO NO
  FALT NO
  CTYP UKWN
  INAC NO
  ISAR NO
  DAPC NO
PTYP ATT
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
SRCH LIN
TRMB YES
STEP
ACOD 2311
TCPP NO
TARG 01
CLEN 1
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

PAGE 002

    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  
FRL 0 0  
FRL 1 0  
FRL 2 0  
FRL 3 0  
FRL 4 0  
FRL 5 0  
FRL 6 0  
FRL 7 0  
OHQ NO  
OHQT 00  
CBQ NO  
AUTH NO  
TTBL 0  
ATAN NO





OHTD NO  
PLEV 2  
ALRM NO  
ART 0  
SGRP 0  
AACR NO

6. LD 86 – Configure the Route List Block for the Virtual Trunk route

>ld 86  
ESN000

MEM AVAIL: (U/P): 2854769 USED U P: 182454 59352 TOT: 3096575  
DISK RECS AVAIL: 1152  
REQ prt  
CUST 0  
FEAT rlb  
**RLI 11**

**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 0  
ISDM 0  
FCI 0  
FSNI 0  
SBOC NRR  
IDBB DBD  
IOHQ NO  
OHQ NO  
CBQ NO

ISET 0  
NALT 5  
MFRL 0  
OVLL 1

7. LD 87 – Configure CDP steering codes

>ld 87  
ESN000

MEM AVAIL: (U/P): 2828167 USED U P: 200856 67552 TOT: 3096575  
DISK RECS AVAIL: 1152  
REQ prt  
CUST 0



FEAT dsc

ESN009

FEAT cdp

TYPE dsc

DSC 533

DSC 533 =====> **Dial 533 number pattern goes out H.323**

FLEN 0

DSP LSC

RLI 11 =====> **H.323 Trunk**

NPA

NXX

MEM AVAIL: (U/P): 2828167 USED U P: 200856 67552 TOT: 3096575

DISK RECS AVAIL: 1152

REQ prt

CUST 0

FEAT cdp

TYPE dsc

DSC 54

DSC 54 =====> **Dial 533 number pattern goes out H.323**

FLEN 0

DSP LSC

RLI 11 =====> **H.323 Trunk**

NPA

NXX

## 17. LD 11 – Configure Digital Stations (Phones)

DES CS101A

TN 001 0 00 08

TYPE 2616

CDEN 8D

CUST 0

AOM 0

FDN 6001

TGAR 1

LDN NO

NCOS 0

SGRP 0

RNPG 0

SCI 0

SSU

XLST

CLS CTD FBA WTA LPR MTD FNA HTA ADD HFD

MWA LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1

POD DSX VMD CMSD SLKD CCSD SWD LND CNDA

CFTA SFD MRD DDV CNID CDCA MSID DAPA BFED RCBD

ICDD CDMD LLCN MCTD CLBD AUTU

GPUD DPUD DNDA CFXA ARHD CLTD ASCD

CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD AHD



DDGA NAMA  
DRDD EXR0  
USRD ULAD RTDD RBDD RBHD PGND OCBD FLXD FTTC DNDY DNO3 MCBN CDMR  
CPND\_LANG ENG  
RCO 0  
EFD 6001  
HUNT 6001  
EHT 6001  
LHK 0  
PLEV 02  
CSDN  
AST  
IAPG 0  
AACS NO  
ITNA NO  
DGRP  
MLWU\_LANG 0  
DNDR 0  
KEY 00 SCR 2332 0 MARP  
CPND  
NAME ZEUS\_2332  
XPLN 9  
DISPLAY\_FMT FIRST, LAST  
01  
02  
03 CFW 4 4103  
04 AO6  
05 TRN  
06  
07  
08  
09  
10  
11  
12  
13  
14  
15 RGA  
DATE 7 MAR 2006  
  
DES CS101A  
TN 001 0 00 09  
TYPE 2616  
CDEN 8D  
CUST 0  
AOM 0  
FDN 6001  
TGAR 1  
LDN NO  
NCOS 0  
SGRP 0  
RNPG 0  
SCI 0



SSU  
XLST  
CLS CTD FBA WTA LPR MTD FNA HTA ADD HFD  
MWA LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1  
POD DSX VMD CMSD SLKD CCSD SWD LND CNDA  
CFTA SFD MRD DDV CNID CDCA MSID DAPA BFED RCBD  
ICDD CDMD LLCN MCTD CLBD AUTU  
GPUD DPUD DNDA CFXA ARHD CLTD ASCD  
CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD AHD  
DDGA NAMA  
DRDD EXR0  
USRD ULAD RTDD RBDD RBHD PGND OCBF FLXD FTTC DNDY DNO3 MCBN CDMR  
CPND\_LANG ENG  
RCO 0  
EFD 6001  
HUNT 6001  
EHT 6001  
LHK 0  
PLEV 02  
CSDN  
AST  
IAPG 0  
AACS NO  
ITNA NO  
DGRP  
MLWU\_LANG 0  
DNDR 0  
KEY 00 SCR 2333 0 MARP  
CPND  
NAME ZEUS\_2333  
XPLN 9  
DISPLAY\_FMT FIRST, LAST  
01  
02  
03 CFW 4 5332  
04 AO6  
05 TRN  
06  
07  
08  
09  
10  
11  
12  
13  
14  
15 RGA  
DATE 7 MAR 2006  
  
NACT

Signaling Server Setup:



## Configure the Zones

The screenshot shows the Element Manager web interface in Microsoft Internet Explorer. The browser title is "Element Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc." and the address bar shows "http://172.20.216.103/cgi/pwd.cgi". The page content is titled "Zone Basic Property and Bandwidth Management" and is part of a configuration path: "Site: 172.20.218.101 > Configuration > Call Server Configuration > Zone List > Zone 0 >".

The main content area contains a table with two columns: "Input Description" and "Input Value".

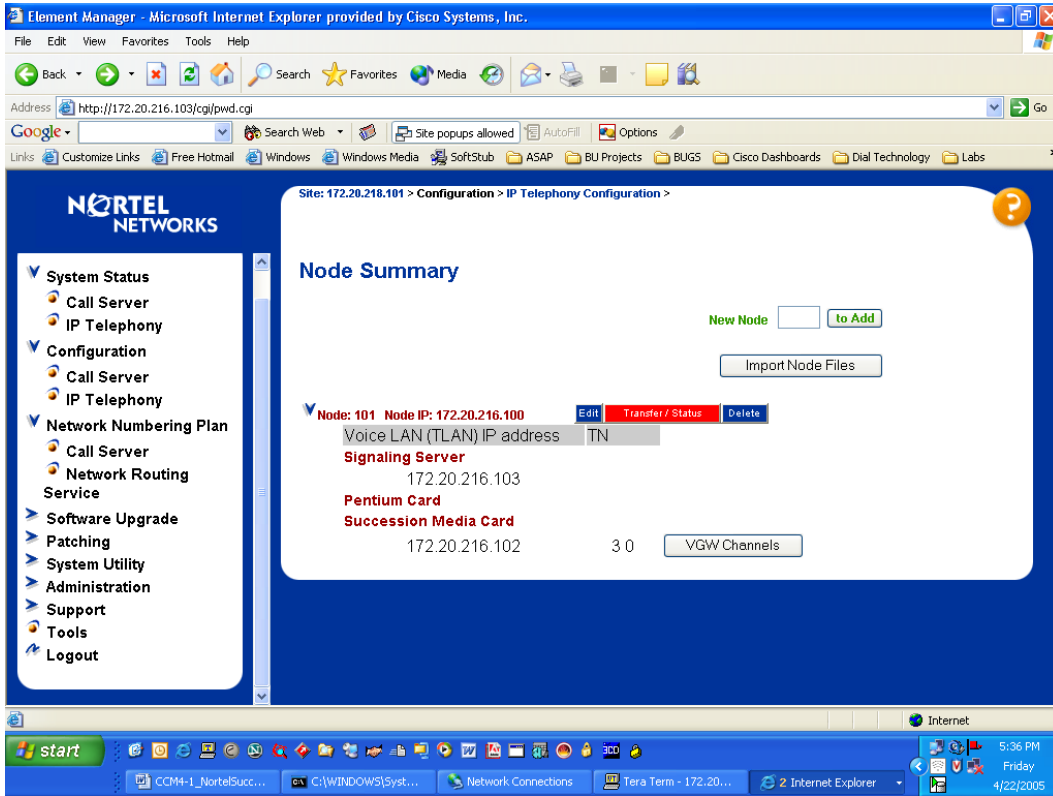
Input Description	Input Value
Zone Number (ZONE):	0
Intrazone Bandwidth (INTRA_BW):	10000
Intrazone Strategy (INTRA_STGY):	Best Quality (BQ)
Interzone Bandwidth (INTER_BW):	10000
Interzone Strategy (INTER_STGY):	Best Quality (BQ)
Resource Type (RES_TYPE):	Shared (SHARED)
Branch Office Support (ZBRN):	<input type="checkbox"/>
Description (ZDES):	

At the bottom of the form are buttons for "Submit", "Refresh", "Delete", and "Cancel".

The left sidebar shows a navigation menu with categories like "System Status", "Configuration", "Network Numbering Plan", "Software Upgrade", "Patching", "System Utility", "Administration", "Support", "Tools", and "Logout".

The Windows taskbar at the bottom shows the start button, several open applications, and the system clock indicating 5:33 PM on Friday, 4/22/2005.

Configure a new IP Telephony Node summary



Configure the Node section



The screenshot shows the Element Manager web interface in Microsoft Internet Explorer. The browser title is "Element Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.". The address bar shows the URL "http://172.20.216.103/cgi/pwd.cgi". The page content includes a navigation menu on the left with categories like System Status, Configuration, Network Numbering Plan, Software Upgrade, Patching, System Utility, Administration, Support, Tools, and Logout. The main content area is titled "Edit" and shows configuration fields for Node ID 101. The fields are: Node ID (101), Voice LAN (TLAN) Node IP address (172.20.216.100), Management LAN (ELAN) gateway IP address (172.20.218.1), Management LAN (ELAN) subnet mask (255.255.255.0), and Voice LAN (TLAN) subnet mask (255.255.255.0). Below these fields are expandable sections for SNMP, VGW and IP phone codec profile, QoS, LAN configuration, SNTP, and H323 GW Settings. The task is to configure the VGW and IP phone codec profile section.

Configure the VGW and IP phone codec profile section



Element Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.

Address: http://172.20.216.103/cgi/pwd.cgi

### NORTEL NETWORKS

- System Status
  - Call Server
  - IP Telephony
- Configuration
  - Call Server
  - IP Telephony
- Network Numbering Plan
  - Call Server
  - Network Routing Service
- Software Upgrade
- Patching
- System Utility
- Administration
- Support
- Tools
- Logout

#### VGW and IP phone codec profile

Enable Echo canceller	<input checked="" type="checkbox"/>	
Echo canceller tail delay	128	
Voice activity detection threshold	-17	Range: -20 to +10
Idle noise level	-65	Range: -327 to +327
DTMF Tone detection	<input checked="" type="checkbox"/>	
Enable V.21 FAX tone detection	<input checked="" type="checkbox"/>	
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	<input checked="" type="checkbox"/>
Codec G729A	Select	<input checked="" type="checkbox"/>
Codec G723.1	Select	<input type="checkbox"/>
Codec T38 FAX	Select	<input checked="" type="checkbox"/>
QoS		
LAN configuration		
SNTP		

start | CCMA-1\_NortelSucc... | C:\WINDOWS\Syst... | Network Connections | Tera Term - 172.20... | 2 Internet Explorer | 5:38 PM Friday 4/22/2005





Element Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.

Address: http://172.20.216.103/cgi/pwd.cgi

**NORTEL NETWORKS**

- System Status
  - Call Server
  - IP Telephony
- Configuration
  - Call Server
  - IP Telephony
- Network Numbering Plan
  - Call Server
  - Network Routing Service
- Software Upgrade
- Patching
- System Utility
- Administration
- Support
- Tools
- Logout

**Codec: G711** Select

Codec Name: G711

Voice payload size (ms/frame): 20

Voice playback (jitter buffer) nominal delay: 40

Modifications may cause changes to dependent settings

Voice playback (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 playback (jitter buffer) nominal delay: 40

Modifications may cause changes to dependent settings

Voice playback (jitter buffer) maximum delay: 80

Modifications may cause changes to dependent settings

VAD:

**Codec: G723.1** Select

**Codec: T38 FAX** Select

Codec Name: T38 FAX

start

CCM4-1\_NortelSucc... C:\WINDOWS\Syst... Network Connections Tera Term - 172.20... 2 Internet Explorer

5:38 PM Friday 4/22/2005

Configure the QoS section



Element Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.

Address: http://172.20.216.103/cgi/pwd.cgi

Google Search Web

System Status

- Call Server
- IP Telephony

Configuration

- Call Server
- IP Telephony

Network Numbering Plan

- Call Server
- Network Routing Service

Software UpgradePatchingSystem UtilityAdministrationSupportToolsLogout

Codec	G711	Select <input checked="" type="checkbox"/>
Codec	G729A	Select <input checked="" type="checkbox"/>
Codec	G723.1	Select <input type="checkbox"/>
Codec	T38 FAX	Select <input checked="" type="checkbox"/>

QoS

Diffserv Codepoint(DSCP) Control packets: 40 Range: 0 to 63

Diffserv Codepoint(DSCP) Voice packets: 46 Range: 0 to 63

Enable 802.1Q support:

802.1Q Bits value (802.1p): 6 Range: 0 to 7

LAN configuration

SNTP

H323 GW Settings

Firmware

SIP GW Settings

SIP URI Map

SIP CD Services

Cards Add

Signaling Servers Add

start

CCM4-1\_NortelSucc... C:\WINDOWS\Syst... Network Connections Tera Term - 172.20... 2 Internet Explorer

5:39 PM Friday 4/22/2005



## Configure LAN Configuration section

Element Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media Print

Address <http://172.20.216.103/cgi/pwd.cgi> Go

Google Search Web Site popups allowed AutoFill Options

Links Customize Links Free Hotmail Windows Windows Media SoftStub ASAP BU Projects BUGS Cisco Dashboards Dial Technology Labs

**NORTEL NETWORKS**

- System Status
- Call Server
- IP Telephony
- Configuration
  - Call Server
  - IP Telephony
- Network Numbering Plan
  - Call Server
  - Network Routing Service
- Software Upgrade
- Patching
- System Utility
- Administration
- Support
- Tools
- Logout

**Cotec T38 FAX** Select

**QoS**

Diffserv Codepoint(DSCP) Control packets  Range: 0 to 63

Diffserv Codepoint(DSCP) Voice packets  Range: 0 to 63

Enable 802.1Q support

802.1Q Bits value (802.1p)  Range: 0 to 7

**LAN configuration**

**Management LAN (ELAN) configuration**

Call server IP address

Survivable Succession Media Gateway IP address

Signaling port  Range: 1024 to 65535

Broadcast port  Range: 1024 to 65535

**Voice LAN (TLAN) configuration**

Signaling port  Range: 1024 to 65535

Voice port  Range: 1024 to 65535

**Routes** Add

IP address	Subnet mask	
<input type="text" value="172.20.216.1"/>	<input type="text" value="255.255.255.0"/>	<input type="button" value="Remove"/>

start

CCM-1\_NortelSucc... C:\WINDOWS\Syst... Network Connections Tera Term - 172.20... 2 Internet Explorer

5:41 PM Friday 4/22/2005



### Configure the H323 GW Setting section

The screenshot shows the Element Manager web interface in Microsoft Internet Explorer. The browser address bar shows `http://172.20.216.103/cgi/pwd.cgi`. The page title is "Element Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.". The interface includes a navigation menu on the left with categories like System Status, Configuration, Network Numbering Plan, Software Upgrade, Patching, System Utility, Administration, Support, Tools, and Logout. The main content area displays configuration settings for H323 GW Settings, including fields for Mode, Interval, Port, and various IP addresses and port numbers. The settings are as follows:

Section	Parameter	Value	Range
SNTP Server	Mode	active	
	Interval	256	Range: 1 to 2147483647
	Port	20101	
SNTP Client	Mode	passive	
	Interval	256	Range: 1 to 2147483647
	Port	20101	
H323 GW Settings	SNTP server IP address	0.0.0.0	
	Primary gatekeeper IP address	172.20.216.103	
	Alternate gatekeeper IP address	172.20.217.103	
	Primary Network Connect Server IP address	172.20.216.103	
	Primary Network Connect Server Port number	16500	Range: 1024 to 65535
	Alternate Network Connect Server IP address	172.20.217.103	
	Alternate Network Connect Server Port number	16500	Range: 1024 to 65535
Primary Network Connect Server timeout	10	Range: 1 to 30	



## Configure the Card section for the MC-32 VGMC card section

The screenshot shows the Element Manager web interface in Microsoft Internet Explorer. The browser address bar shows the URL: `http://172.20.216.103/cgi/pwd.cgi`. The page title is "Element Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.". The interface is divided into a left sidebar with a navigation menu and a main content area.

**Navigation Menu (Left Sidebar):**

- System Status
  - Call Server
  - IP Telephony
- Configuration
  - Call Server
  - IP Telephony
- Network Numbering Plan
  - Call Server
  - Network Routing Service
- Software Upgrade
- Patching
- System Utility
- Administration
- Support
- Tools
- Logout

**Main Content Area:**

- SIP GW Settings
  - SIP URI Map
  - SIP CD Services
  - Cards
    - Card 172.20.218.102 Properties (Selected)

**Card 172.20.218.102 Properties Configuration:**

Property	Value
Role	Follower
Management LAN (ELAN) IP address	172.20.218.102
Management LAN (ELAN) MAC address	00:11:F9:E4:D0:11
Voice LAN (TLAN) IP address	172.20.216.102
Voice LAN (TLAN) gateway IP address	172.20.216.1
Hostname	MG_Node101_3
Card TN	3
Card processor type	Succession Media Card
H323 ID	MG_Node101
Enable set TPS	<input checked="" type="checkbox"/>
System name	MG_Node_101
System location	Dewey Lab
System contact	Fred McClintic



## Configure the Signaling Server section

The screenshot shows the Element Manager web interface in Microsoft Internet Explorer. The browser title is "Element Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.". The address bar shows the URL "http://172.20.216.103/cgi/pwd.cgi". The page content is divided into a left navigation pane and a main configuration area.

**Navigation Pane (Left):**

- System Status
  - Call Server
  - IP Telephony
- Configuration
  - Call Server
  - IP Telephony
- Network Numbering Plan
  - Call Server
  - Network Routing Service
- Software Upgrade
- Patching
- System Utility
- Administration
- Support
- Tools
- Logout

**Main Configuration Area:**

**Signaling Servers** (Add)

**Signaling Server 172.20.218.103 Properties** (Remove)

Property	Value
Role	Leader
Management LAN (ELAN) IP address	172.20.218.103
Management LAN (ELAN) MAC address	00:02:b3:f7:3a:86
Voice LAN (TLAN) IP address	172.20.216.103
Voice LAN (TLAN) gateway IP address	172.20.216.1
Hostname	SS_Node101_Ldr
H323 ID	Gateway_Node101
Enable set TPS	<input checked="" type="checkbox"/>
Enable virtual trunk TPS	H.323 and SIP
Enable SIP Proxy / Redirect Server	<input checked="" type="checkbox"/>
SIP Transport Protocol	TCP
Local SIP Port	5060
SIP Domain name	birch.com
SIP Gateway Endpoint Name	Gateway_Node101
SIP Gateway Authentication Password	••••
Enable H323 Gatekeeper	<input checked="" type="checkbox"/>
Network Routing Service Role	Primary
System name	SS_Node101_Ldr



## Network Routing Server Setup:

### Configure the System Wide Settings

The screenshot shows the NRS Manager web interface in Microsoft Internet Explorer. The browser title is "NRS Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc." and the address bar shows "http://172.20.216.103/cgi/nrsm.cgi". The page header includes the Nortel Networks logo and "Network Routing Service". The navigation menu has tabs for Home, Configuration, Tools, Reports, and Administration. The current page is "System Wide Settings", which is part of the "Administration" section. The settings are as follows:

Setting	Value
DB sync interval for alternate [Hours]	24
SIP registration time to live timer [Seconds]	30
H.323 gatekeeper registration time to live timer [Seconds]	30
H.323 alias name	H323NRS101
Alternate NRS server is permanent	<input type="checkbox"/>
Auto backup time [HH:MM]	23:59
Auto backup to FTP site enabled	<input type="checkbox"/>
Auto backup FTP site IP address	
Auto backup FTP site path	
Auto backup FTP username	
Auto backup FTP password	

A "Save" button is located at the bottom left of the settings area.

### Configure the NRS Server Settings



NRS Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.

Address: http://172.20.216.103/cgi/nrsm.cgi

### NORTEL NETWORKS Network Routing Service

Home | Configuration | Tools | Reports | Administration | Help | Logout

Location: Home > NRS Server Settings >

NRS Overview  
System Wide Settings  
=> NRS Server Settings

#### NRS Settings

Host name: SS\_Node101\_Ldr  
Primary IP (TLAN): 172.20.216.103  
Alternate IP (TLAN): 172.20.217.103  
Control priority: 40

#### H.323 Gatekeeper Settings

Location request (LRQ) response timeout [Seconds]: 3

#### SIP Server Settings

Mode: Redirect  
UDP transport enabled:   
UDP port: 5060  
UDP maximum transmission unit (MTU): 1500

NRS Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.

Address: http://172.20.216.103/cgi/nrsm.cgi

### NORTEL NETWORKS Network Routing Service

Home | Configuration | Tools | Reports | Administration | Help | Logout

NRS Overview  
System Wide Settings  
=> NRS Server Settings

#### SIP Server Settings

Mode: Redirect  
UDP transport enabled:   
UDP port: 5060  
UDP maximum transmission unit (MTU): 1500  
TCP transport enabled:   
TCP port: 5060  
TCP maximum transmission unit (MTU): 1500

#### Network Connection Server (NCS) Settings

Primary NCS port: 16500  
Alternate NCS port: 16500  
Primary NCS timeout [Seconds]: 10

Save

Configure a Service Domain





NRS Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print

Address http://172.20.216.103/cgi/nrsm.cgi

Google Search Web Site popups allowed AutoFill Options

**NORTEL NETWORKS** Network Routing Service

Home **Configuration** Tools Reports Administration Active DB view (set Standby DB view) Help Logout

Location: Configuration > Service Domains > View Service Domain Property >

**View Service Domain Property**

Domain name	<input type="text" value="birch.com"/>
Domain description	<input type="text" value="required service domain"/>

*\* Mandatory field indicator*

- Service Domains
  - L1 Domains (UDP)
  - L0 Domains (CDP)
  - Gateway Endpoints
  - User Endpoints
  - Routing Entries
  - Default Routes
  - Collaborative Servers

Internet



## Configure a L1 Domain (UDP)

The screenshot shows the NRS Manager interface in Microsoft Internet Explorer. The browser address bar displays `http://172.20.216.103/cgi/nrsm.cgi`. The page title is "NRS Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.". The main content area is titled "View L1 Domain Property (birch.com)". On the left, there is a navigation menu with "L1 Domains (UDP)" selected. The configuration form includes the following fields:

- Domain name: `mcccomm.com`
- Domain description: `Enterprise (company) domain`
- Endpoint authentication enabled: `Authentication off`
- Authentication password: (empty)
- E.164 country code: `1`
- E.164 area code: `314`
- International dialing access code: `011`
- L1 domain dialing access code: (empty)
- National dialing access code: `1`
- Local dialing access code: (empty)
- Special number 1: (empty)
- Special number 2: (empty)

## Configure a L0 Domain (CDP)

The screenshot shows the NRS Manager interface in Microsoft Internet Explorer. The browser address bar displays `http://172.20.216.103/cgi/nrsm.cgi`. The page title is "NRS Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.". The main content area is titled "View L0 Domain Property (birch.com / mcccomm.com)". On the left, there is a navigation menu with "L0 Domains (CDP)" selected. The configuration form includes the following fields:

- Domain name: `CDP`
- Domain description: `CDP (local extension) domain`
- Special number label: (empty)
- Unqualified number label: (empty)
- Endpoint authentication enabled: `Authentication off`
- Authentication password: (empty)
- E.164 country code: `1`
- E.164 area code: `314`
- International dialing access code: `011`
- L1 domain dialing access code: (empty)
- National dialing access code: (empty)
- Local dialing access code: (empty)





## Configure a H.323 gateway

NRS Manager - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

**NORTEL NETWORKS** Network Routing Service

Home Configuration Tools Reports Administration Active DB view (set Standby DB view) Help Logout

Location: Configuration > Gateway Endpoints > View Gateway Endpoint Property >

### View Gateway Endpoint Property (pbxlab.org / rtp / interop)

Endpoint name	<input type="text" value="TonyIPIPGW"/>
Endpoint description	<input type="text" value="Tony B IPIPGW"/>
Tandem endpoint name	<input type="text"/> <a href="#">Look up</a>
Endpoint authentication enabled	<input type="text" value="Not configured"/>
Authentication password	<input type="text"/>
E.164 country code	<input type="text"/>
E.164 area code	<input type="text"/>
International dialing access code	<input type="text"/>
L1 domain dialing access code	<input type="text"/>
National dialing access code	<input type="text"/>
Local dialing access code	<input type="text"/>
Special number 1	<input type="text"/>
Special number 2	<input type="text"/>
Static endpoint address type	<input type="text" value="IP version 4"/>
Static endpoint address	<input type="text" value="172.20.8.26"/>
H.323 Support	<input type="text" value="Not RAS H.323 endpoint"/>
SIP support	<input type="text" value="Static SIP endpoint"/>



## Configure the Routing Entries

NRS Manager - Microsoft Internet Explorer provided by Cisco Systems, Inc.

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media Print Mail

Address http://172.20.216.103/cgi/nrsm.cgi

Google Search Web Site popups allowed Autofill Options

**NORTEL NETWORKS** Network Routing Service

Home Configuration Tools Reports Administration Active DB view (set Standby DB view) Help Logout

Location: Configuration > Routing Entries >

**Routing Entries**

Show Routing Entries for (Service Domain / L1 Domain / L0 Domain / Endpoint):

birch.com / mcccmm.com / CDP / NortelCS101 [Look up](#)

Showing 1 - 1 of 1 < Previous Next >

#	DN Prefix	DN Type	Route Cost	SIP URI Phone Context
1	3	Level0 regional	1	CDP.mcccmm.com

Service Domains  
L1 Domains (UDP)  
L0 Domains (CDP)  
Gateway Endpoints  
User Endpoints  
=> Routing Entries  
Default Routes  
Collaborative Servers

Internet



## Cisco 3845 IOS Configuration

```
tony_3845#sh run
Building configuration...
```

```
Current configuration : 2286 bytes
```

```
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname tony_3845
!
boot-start-marker
boot system flash:c3845-ipvoice_ivs-mz.124-3.9.PI3d
boot-end-marker
!
logging buffered 100000000 debugging
no logging console
enable password cisco
!
no aaa new-model
!
resource policy
!
ip subnet-zero
ip cef
!
!
!
no ip domain lookup
voice-card 0
no dspfarm
!
!
!
voice service voip
allow-connections h323 to h323
allow-connections h323 to sip
allow-connections sip to h323
allow-connections sip to sip
fax protocol t38 ls-redundancy 0 hs-redundancy 0 fallback pass-through g711ulaw
h323
sip
!
!
!
voice class codec 1
codec preference 1 g711ulaw ==> Note: This is set to G.729 or G.723 to test voice quality and initiate T.38
!
!
!
!
```



```
!  
!  
!  
!  
!  
!  
!  
!  
!  
!  
interface GigabitEthernet0/0  
ip address 172.20.8.26 255.255.255.0  
duplex auto  
speed auto  
media-type rj45  
negotiation auto  
!  
interface GigabitEthernet0/1  
no ip address  
shutdown  
duplex auto  
speed auto  
media-type rj45  
negotiation auto  
!  
ip default-gateway 172.20.8.1  
ip classless  
ip route 0.0.0.0 0.0.0.0 172.20.8.1  
!  
ip http server  
!  
!  
!  
!  
control-plane  
!  
!  
!  
dial-peer voice 5330 voip  
destination-pattern 5...  
signaling forward unconditional  
voice-class codec 1  
session target ipv4:172.20.217.100  
dtmf-relay h245-alphanumeric  
no fax-relay sg3-to-g3  
no vad  
supplementary-service pass-through  
!  
dial-peer voice 2330 voip  
destination-pattern 2...  
signaling forward unconditional  
voice-class codec 1  
session target ipv4:172.20.216.100  
dtmf-relay h245-alphanumeric  
no fax-relay sg3-to-g3  
no vad  
supplementary-service pass-through  
!  
!  
gatekeeper
```



```
shutdown
!  
!  
line con 0  
password cisco  
stopbits 1  
line aux 0  
stopbits 1  
line vty 0 4  
password cisco  
login  
!  
scheduler allocate 20000 1000  
!  
end  
  
tony_3845#
```





### Acronyms

Acronym	Definitions
CUBE	Cisco Unified Border Element
Cisco IOS	Cisco Internetwork Operating System



## Important Information

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