



Nortel Communication Server 1000M Release 4.0 to Cisco IOS Voice Gateway using E1 QSIG with H.323

October 30, 2007 Revision 5

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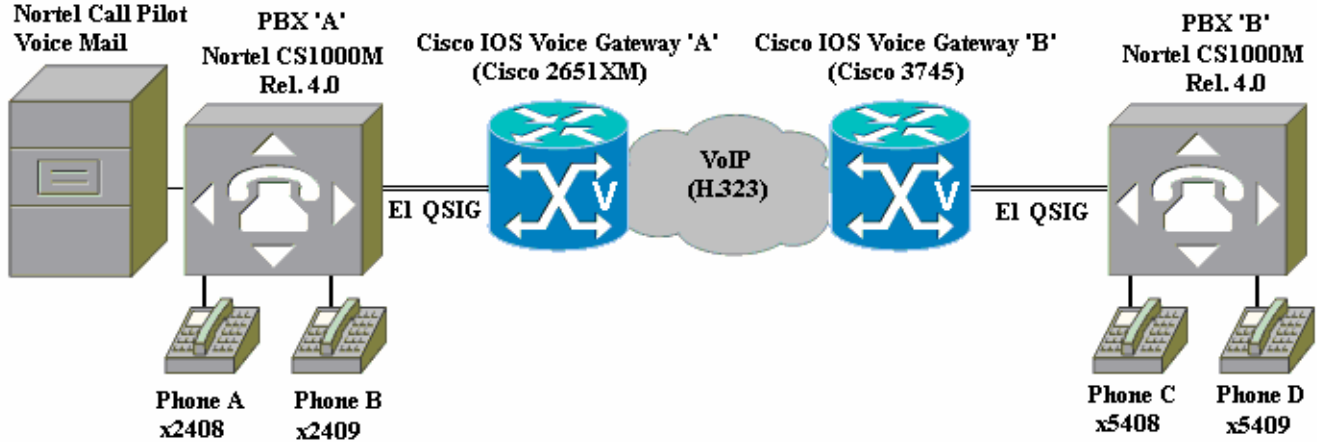
Introduction

- Although specific gateway router models were used to validate its content, this application note also applies to all Cisco 1700/2600/3600/3700/2800/3800 series Cisco IOS voice gateways.
- This application note provides configuration guidelines for a toll-bypass network using Cisco IOS voice gateways to connect Nortel Communication Server 1000M, Release 4.0 PBXs. The PBXs are connected to the Cisco IOS voice gateways by E1 QSIG trunk circuits. The Cisco IOS voice gateways “extend” the E1 QSIG trunk circuits with VoIP, using the H.323 protocol.
- Two Nortel Communication Server 1000M, Release 4.0 PBXs were connected via E1 QSIG trunk to two Cisco IOS voice gateways. The voice gateways were connected via IP over Ethernet, and configured for VoIP using H.323. End-to-end calls were placed between the PBXs to exercise and test basic calls as well as QSIG supplementary services such as MWI, call hold, call transfer, call conference, and call forward.
- Using the Nortel PBX configurations and Cisco IOS voice gateway configurations in this application note, successful toll bypass integration was achieved. This includes basic call, call transfer, call conference, and call forward, with limitations on Caller ID features during transfer, forward, hold and conference scenarios. These limitations are detailed in the following sections and all were found to be inherent to the Nortel PBXs. Thus, H.323 toll bypass introduced no new restrictions to the available features or performance.



Network Topology

Figure 1. Network Topology or Test Setup



Hardware Requirements

- (2) Cisco IOS voice gateways with E1 VWICs (voice/WAN interface cards)
- (2) Nortel Communication Server 1000M PBXs
- (1) Nortel Call Pilot Voice Mail System
- (4) Nortel digital station telephones

Software Requirements

- Nortel CS1000M Release 4.0
- Cisco IOS voice gateways: Cisco IOS Release Version 12.4(1.8)T or later.



Features

- Basic Call (ENBLOC and Overlap)
- Call Transfer: Supervised Local Transfer
- Call Transfer: Supervised Network/External Transfer
- Call Conference: Local
- Call Conference: Network/External
- Call Forward: Local
- Call Forward: Network/External
- Call Hold
- MWI

Limitations

- CONNECTED NUMBER was supported in lieu of CALLED (ALERTING) NUMBER. This is inherent to the PBXs and also occurs with the PBXs connected directly via an E1 QSIG trunk.
- During call transfers, the original calling name and number were displayed on the final destination phone only after the transfer was complete. This is inherent to the PBXs and also occurs with the PBXs connected directly via an E1 QSIG trunk.
- For conference calls, connected name and number were not updated on the originating phone when a conferee dropped out. Either the conferencing phone's name/number are displayed, or the trunk number is displayed. This is inherent to the PBXs and also occurs with the PBXs connected directly via an E1 QSIG trunk.
- For conference calls, the calling name and number were generally not passed to the remaining conferee when the conferencing phone dropped out. The only exceptions were conference calls accomplished by an external call followed by a local conference from the original called party (e.g., phone A calls phone C, then phone C conferences in phone D). In the rest of the cases, either the conferencing phone's name / number is displayed, or the trunk number is displayed. This is inherent to the PBXs and also occurs with the PBXs connected directly via a E1 QSIG trunk.
- It is important to set EXTT parameter to "yes" under LD 15 in the PBX configuration to avoid dropped calls on certain conference scenarios when the initiating/conferencing party drops (e.g., Phone A calls Phone C, Phone A conferences in Phone D, and Phone A drops).
- For forwarded calls, the original calling name was not displayed on the final destination. Only the forwarding name was displayed. This is inherent to the PBXs and also occurs with the PBXs connected directly via an E1 QSIG trunk.
- For forwarded calls, the final destination's name and number are updated at the original side before it connects. This is inherent to the PBXs and also occurs with the PBXs connected directly via an E1 QSIG trunk.
- For a call hold on a basic call, when the originating phone places the destination phone on hold, the final destination (CONNECTED) number disappears when hold is invoked and does not reappear when it is released. This does not occur if the destination phone places the originating phone on hold. This is inherent to the PBXs and also occurs with the PBXs connected directly via an E1 QSIG trunk.



Configuration

Configuring the Nortel CS1000M: Switch 1 (ENBLOC)

Note: It is important to set EXTT parameter to “yes” under LD 15 to avoid dropped calls on certain conference scenarios when the initiating/conferencing party drops (e.g., Phone A calls Phone C, Phone A conferences in Phone D, and Phone A drops).

```
*****  
COMMON EQUIPMENT CONFIGURATION  
*****
```

```
>LD 22  
PT2000
```

```
REQ PRT  
TYPE CEQU
```

```
CEQU
```

```
MPED 8D  
SUPL 000 004 008 012  
      016 032 036 040  
      044 048 064 068  
      072 V096 V100  
TDS 000  
CONF 029 030 031 062  
      094 095
```

```
DLOP NUM DCH FRM TMDI LCMT YALM T1TE TRSH  
PRI 02 24 ESF NO B8S FDL - 00  
     06 23 ESF NO B8S FDL - 00  
PRI2 04 05 07  
DTI2  
MISP
```

```
REQ
```

```
*****  
PRI2 LOOP TIMER CONFIGURATION  
*****
```

```
>LD 73  
DDB000  
MEM AVAIL: (U/P): 2825778      USED U P: 219263 67918      TOT: 3112959  
DISK RECS AVAIL: 1152  
REQ PRT  
TYPE PRI2  
FEAT LPT  
DTA300 5  
I  
LOOP 7
```



```

MFF          CRC
ACRC         NO
ALRM        REG
RAIE         NO
GLOS        YES
SLP         255      24 H      255      1 H
BPV         255      255
CRC         255      20
FAP         255      255
RATS        10
GP2         255      100 S      12 S      12 S      4 S
MNG1        240 M
NCG1        240 M
OSG1        240 M
MNG2        240 S
NCG2        240 S
OSG2        240 S
PERS        254
CLRS        255
OOSC        127
MEM AVAIL: (U/P): 2825778      USED U P: 219263 67918      TOT: 3112959
DISK RECS AVAIL: 1152
REQ

```

```

*****
D-CHANNEL CONFIGURATION
*****

```

```

>LD 22
PT2000

```

```

REQ PRT
TYPE ADAN DCH 7

```

```

ADAN      DCH 7
  CTYP MSDL
  CARD 07
  PORT 1
  DES E1_ESIGforChris
  USR PRI
  DCHL 7
  OTBF 32
  PARM RS422 DTE
  DRAT 64KC
  CLOK EXT
  IFC ISGF
    PINX_CUST 0
    ISDN_MCNT 300
  CLID OPT0
  CO_TYPE STD
  SIDE NET
  CNEG 1
  RLS ID **

```



QCHID YES
RCAP COLP NDI CCBI CCNI PRI DV3I CTI QMWI
PR_TRIGS DIV 2 3
 CNG 2 3
 CTR1 2 3
PR_RTN NO
MBGA NO
OVLN NO
OVLS NO
T310 120
T200 3
T203 10
N200 3
N201 260
K 7

ROUTE DATA BLOCK CONFIGURATION

>LD 21
PT1000

REQ: PRT
TYPE:RDB
CUST 0
ROUT 107

TYPE RDB
CUST 00
DMOD
ROUT 107
DES
TKTP TIE
NPID_TBL_NUM 0
ESN NO
CNVT NO
SAT NO
RCLS EXT
VTRK NO
NODE
DTRK YES
BRIP NO
DGTP PRI2
ISDN YES
 MODE PRA
 IFC ISGF
 SBN NO
 PNI 00001
 NCNA NO
 NCRD NO
 CTYP UKWN
 INAC NO
 ISAR NO



CPFXS YES
DAPC NO
INTC NO
DSEL VOD
PTYP DTT
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
SRCH RRB
TRMB YES
STEP
ACOD 207
TCPP NO
TARG 01
CLEN 1
BILN NO
OABS
INST
ANTK
SIGO STD
ICIS YES
TIMR ICF 512
OGF 512
EOD 13952
NRD 10112
DDL 70
ODT 4096
RGV 640
GRD 896
SFB 3
NBS 2048
NBL 4096

IENB 5
TFD 0
VSS 0

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VGD 6
DRNG NO
CDR NO
VRAT NO
MUS 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
PLEV 2
ALRM NO
ART 0
SGRP 0
AACR NO

TRUNK DATA BLOCK CONFIGURATION

>LD 20

PT0000
REQ: PRT
TYPE: TNB
TN

7 1
DATE
PAGE
DES

DES
TN 007 01
TYPE TIE
CDEN SD
CUST 0
TRK PRI2
PDCA 1
PCML A
NCOS 0
RTMB 107 1
B-CHANNEL SIGNALING
TGAR 0
AST NO
IAPG 0
CLS UNR DTN WTA LPR APN THFD
P10 VNL
TKID
AACR NO
DATE 23 AUG 2005

NACT



COORDINATED DIALING PLAN CONFIGURATION (TO DIAL 54xx)

>LD 87
ESN000

MEM AVAIL: (U/P): 2825778 USED U P: 219263 67918 TOT: 3112959
DISK RECS AVAIL: 1152
REQ PRT
CUST

0
FEAT CDP
TYPE DSC
DSC
DSC 30
FLEN 0
DSP LSC
RLI 11
NPA
NXX
DSC 31
FLEN 0
DSP LSC
RLI 10
NPA
NXX
DSC 33
FLEN 0
DSP LSC
RLI 6
NPA
NXX
DSC 34
FLEN 0
DSP LSC
RLI 7
NPA
NXX
DSC 40
FLEN 0
DSP LSC
RLI 4
NPA
NXX
DSC 4444
FLEN 0
DSP LSC
RLI 4
NPA



NXX
DSC 490
FLEN 0
DSP LSC
RLI 4
NPA
NXX
DSC 51
FLEN 0
DSP LSC
RLI 11
NPA
NXX
DSC 52
FLEN 0
DSP LSC
RLI 10
NPA
NXX
DSC 5300
FLEN 0
DSP LSC
RLI 5
NPA
NXX
DSC 532
FLEN 0
DSP LSC
RLI 5
NPA
NXX

DSC 54
FLEN 0
DSP LSC
RLI 7
NPA
NXX

DSC 5555
FLEN 0
DSP LSC
RLI 6
NPA
NXX
DSC 60
FLEN 0
DSP LSC
RLI 5
NPA
NXX
DSC 6666
FLEN 0
DSP LSC



RLI 6
NPA
NXX
DSC 70
FLEN 0
DSP LSC
RLI 6
NPA
NXX
DSC 7777
FLEN 0
DSP LSC
RLI 6
NPA
NXX

MEM AVAIL: (U/P): 2825778 USED U P: 219263 67918 TOT: 3112959
DISK RECS AVAIL: 1152
REQ

ROUTE LIST BLOCK CONFIGURATION

>LD 86
ESN000

MEM AVAIL: (U/P): 2825778 USED U P: 219263 67918 TOT: 3112959
DISK RECS AVAIL: 1152
REQ PRT
CUST 0
FEAT RLB
RLI

RLI 2
ENTR 0
LTER NO
ROUT 102
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON
VNS NO
CNV NO
EXP NO
FRL 0
DMI 0
FCI 0
FSNI 0
SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO



ISET 0
NALT 5
MFRL 0
OVLL 0

RLI 4
ENTR 0
LTER NO
ROUT 104
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON

VNS NO
CNV NO
EXP NO
FRL 0
DMI 0
FCI 0
FSNI 0
SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO

ISET 0
NALT 5
MFRL 0
OVLL 1

RLI 5
ENTR 0
LTER NO
ROUT 105
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON

VNS NO
CNV NO
EXP NO
FRL 0
DMI 0
FCI 0
FSNI 0
SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO

ISET 0
NALT 5
MFRL 0
OVLL 0



RLI 6
ENTR 0
LTER NO
ROUT 106
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON
VNS NO
CNV NO
EXP NO
FRL 0
DMI 0
FCI 0
FSNI 0
SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO

ISET 0
NALT 5
MFRL 0
OVLL 2

RLI 7
ENTR 0
LTER NO
ROUT 107
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON
VNS NO
CNV NO
EXP NO
FRL 0
DMI 0
FCI 0
FSNI 0
SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO

ISET 0
NALT 5
MFRL 0
OVLL 0

RLI 10
ENTR 0
LTER NO
ROUT 10
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 0

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
```

```
MEM AVAIL: (U/P): 2825778      USED U P: 219263 67918      TOT: 3112959
DISK RECS AVAIL: 1152
REQ
ESN004
```



DIGITAL STATION CONFIGURATION

>LD 11
SL1000
MEM AVAIL: (U/P): 2825778 USED U P: 219263 67918 TOT: 3112959
DISK RECS AVAIL: 1152
DIGITAL TELEPHONES AVAIL: 4 USED: 4 TOT: 8
IP USERS AVAIL: 4 USED: 4 TOT: 8
BASIC IP USERS AVAIL: 7 USED: 1 TOT: 8
ACD AGENTS AVAIL: 10 USED: 0 TOT: 10
PCA AVAIL: 0 USED: 0 TOT: 0
AST AVAIL: 1 USED: 0 TOT: 1
TNS AVAIL: 2327 USED: 173 TOT: 2500
DATA PORTS AVAIL: 2500 USED: 0 TOT: 2500

REQ: PRT

TYPE: 2616

TN 001 0 0 0
DATE
PAGE
DES

DES CS101A
TN 001 0 00 00
TYPE 2616
CDEN 8D
CUST 0
AOM 0
FDN 2309
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 RMD 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 RCB
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 2309
HUNT 2500
EHT 2500
LHK 0
PLEV 02
CSDN
AST
IAPG 0
AACS NO
ITNA NO
DGRP
MLWU_LANG 0
DNDR 0
KEY 00 SCR 2408 0      MARP
      CPND
      NAME ZEUS8
      XPLN 5
      DISPLAY_FMT FIRST, LAST
01
02
03 CFW 4 2500
04 AO6
05 TRN
06
07
08
09
10
11
12
13
14
15 RGA
DATE 23 AUG 2005
```

NACT



PBX SOFTWARE RELEASE

>LD 22
PT2000

REQ ISS

CALL SERVER/MAIN CAB
VERSION 2121
RELEASE 4
ISSUE 00 T +
IDLE_SET_DISPLAY NORTEL

PACKAGES INSTALLED

>LD 22

REQ	PRT
TYPE	PKG
OPTF	1
CUST	2
CDR	4
CTY	5
RAN	7
TAD	8
DNDI	9
EES	10
INTR	11
ANI	12
ANIR	13
BRTE	14
DNDG	16
MSB	17
SS25	18
DDSP	19
ODAS	20
DI	21
CHG	23
CAB	24
BAUT	25
CASM	26
CASR	27
BQUE	28
NTRF	29



NCOS	32
CPRK	33
SSC	34
IMS	35
UST	35
UMG	35
ROA	36
NSIG	37
MCBQ	38
NSC	39
BACD	40
ACDB	41
ACDC	42
LMAN	43
MUS	44
ACDA	45
MWC	46
AAB	47
GRP	48
NFCR	49
LNK	51
FCA	52
SR	53
AA	54
HIST	55
AOP	56
BARS	57
NARS	58
CDP	59
PQUE	60
FCBQ	61
OHQ	62
NAUT	63
SNR	64
NXFR	67

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HOT	70
DHLD	71
LSEL	72
SS5	73
DRNG	74
PBXI	75
DLDN	76
CSL	77
OOD	79
SCI	80
CCOS	81
CDRQ	83
TENS	86
FTDS	87



DSET	88
TSET	89
LNR	90
DLT2	91
PXLT	92
SUPV	93
CPND	95
DNIS	98
BGD	99
RMS	100
MR	101
AWU	102
PMSI	103
LLC	105
MCT	107
ICDR	108
APL	109
TVS	110
TOF	111
IDC	113
DCP	115
PAGT	116
CBC	117
CCDR	118
EMUS	119
PLDN	120
SCMP	121
FTC	125
BKI	127
DTI2	129
TBAR	132
ENS	133
FFC	139
DCON	140
MPO	141
ISDN	145
PRA	146
ISL	147
NTWK	148
IEC	149
DNXP	150
CDRE	151
FXS	152
IAP3P	153
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NAS	159
FNP	160



ISDN_INTL_SUP	161
SAR	162
MINT	163
LAPW	164
GPRI	167
ARIE	170
CPGS	172DTA300
ECCS	173
AAA	174
NMS	175
EOVF	178
HVS	179
DKS	180
SACP	181
VNS	183
OVLP	184
EDRG	185
POVR	186
SECL	191
ORC-RVQ	192
AINS	200
IPRA	202
XPE	203
XCT0	204
XCT1	205
MLWU	206
HSE	208
MLM	209
MAID	210
VAWU	212
EAR	214
ECT	215
BRI	216
IVR	218
MWI	219
MSDL	222
FC68	223
SSAU	229
BRIT	233
FCDR	234
BRIL	235
MCMO	240
MULTI_USER	242
ALRM_FILTER	243
SYS_MSG_LKUP	245
VMBA	246
CALL_ID	247
DPNA	250
SCDR	251
ARFW	253
PHTN	254
ADMINSET	256
ATX	258
CDRX	259



QSIG	263
NI-2	291
IPEX	295
MAT	296
CPP	301

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QSIGGF	305
CPRKNET	306
PAGENET	307
CPCI	310
TATO	312
OPEN_ALARM	315
QSIG-SS	316
NGEN	324
RANBRD	327
MUSBRD	328
ESA	329
ESA_SUPP	330
ESA_CLMP	331
CNUMB	332
CNAME	333
NI-2_CBC	334
MEET	348
MC32	350
DBA	351
FDID	362
NMCE	364
DTA300	
STS_MSG	380
CDIR	381
VIRTUAL_OFFICE	382
ATAN	384
NI2NAME	385
M3900_PROD_ENH	386
VIR_OFF_ENH	3875
OAS	394
ICON	397
PCA	398
H323_VTRK	399
LOCX	400
PVQM	401
SIP	406

REQ



Configuring the Nortel CS1000M: Switch 2

Note: It is important to set EXTT parameter to "yes" under LD 15 to avoid dropped calls on certain conference scenarios when the initiating/conferencing party drops (e.g., Phone A calls Phone C, Phone A conferences in Phone D, and Phone A drops).

COMMON EQUIPMENT CONFIGURATION

>LD 22
PT2000

REQ PRT
TYPE CEQU

CEQU
MPED 8D
SUPL 000 004 008 012
016 032 036 040
044 048 064 068
072 V096
TDS 000
CONF 029 030 031 062
094 095

DLOP NUM DCH FRM TMDI LCMT YALM T1TE TRSH
PRI 06 23 ESF NO B8S FDL - 00
PRI2 04 05 07
DTI2
MISP

REQ

PRI2 LOOP TIMER CONFIGURATION

>LD 73
DTA301 5

DDB000
MEM AVAIL: (U/P): 2725308 USED U P: 339895 47756 TOT: 3112959
DISK RECS AVAIL: 1152
REQ PRT
TYPE PRT
SCH0111
TYPE PRI2
FEAT
AUD000



LPTI
LOOP 7

```

MFF      CRC
ACRC     NO
ALRM     REG
RAIE     NO
G1OS     YES
SLP      255      24 H      255      1 H
BPV      255      255
CRC      255      20
FAP      255      255
RATS     10
GP2      255      100 S      12 S      12 S      4 S
MNG1     240 M
NCG1     240 M
OSG1     240 M
MNG2     240 S
NCG2     240 S
OSG2     240 S
PERS     254
CLRS     254
OOSC     127
DTA301  5

```

```

MEM AVAIL: (U/P): 2725308      USED U P: 339895 47756      TOT: 3112959
DISK RECS AVAIL: 1152
REQ *****

```

OVL000
>

```

*****
D-CHANNEL CONFIGURATION
*****

```

>LD 22
PT2000

REQ PRT
TYPE ADAN DCH 7

```

ADAN      DCH 7
CTYP     MSDL
CARD     07
PORT     1
DES      Eld17
USR      PRI
DCHL     7
OTBF     32
PARM     RS422 DTE
DRAT     64KC

```



```
CLOK EXT
IFC ISGF
  PINX_CUST 0
  ISDN_MCNT 300
CLID OPT0
CO_TYPE STD
SIDE USR
CNEG 1
RLS ID 4
QCHID YES
RCAP COLP NDI CCBI CCNI PRI DV3I CTI QMWI
PR_TRIGS DIV 2 3
  CNG 2 3
PR_RTN NO
MBGA NO
OVLN NO
OVLS NO
T310 120
T200 3
T203 10
N200 3
N201 260
K 7
```

REQ

```
*****
ROUTE DATA BLOCK CONFIGURATION
*****
```

```
>LD 21
PT1000
```

```
REQ: PRT
TYPE: RDB
CUST 0
ROUT 107
```

```
TYPE RDB
CUST 00
DMOD
ROUT 107
DES E1 CHRIS
TKTP TIE
NPID_TBL_NUM 0
ESN NO
CNVT NO
SAT NO
RCLS EXT
VTRK NO
NODE
DTRK YES
```



BRIP NO
DGTP PRI2
ISDN YES
MODE PRA
IFC ISGF
SBN NO
PNI 00001
NCNA NO
NCRD NO
CTYP UKWN
INAC NO
ISAR NO
CPFXS YES
DAPC NO
INTC NO
DSEL VOD
PTYP DTT
AUTO NO
DNIS NO
DCDR NO
ICOG IAO
SRCH RRB
TRMB YES
STEP
ACOD 507
TCPP NO
TARG 01
CLEN 1
BILN NO
OABS
INST
ANTK
SIGO STD
ICIS YES
TIMR ICF 512
OGF 512
EOD 13952
NRD 10112
DDL 70
ODT 4096
RGV 640
GRD 896
SFB 3
NBS 2048
NBL 4096

IENB 5
TFD 0
VSS 0

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VGD 6



DRNG NO
CDR NO
VRAT NO
MUS NO
OHQ NO
OHQT 00
CBQ NO
AUTH NO
TTBL 0
ATAN NO
PLEV 2
ALRM NO
ART 0
SGRP 0
AACR NO

TRUNK DATA BLOCK CONFIGURATION

>LD 20

PT0000
REQ: PRT
TYPE: TNB
TN 7 1
DATE
PAGE
DES

DES E1 CHRIS
TN 007 01
TYPE TIE
CDEN SD
CUST 0
TRK PRI2
PDCA 1
PCML A
NCOS 0
RTMB 107 1
B-CHANNEL SIGNALING
TGAR 0
AST NO
IAPG 0
CLS UNR DTN WTA LPR APN THFD
P10 VNL
TKID



AACR NO
DATE 23 AUG 2005

NACT

COORDINATED DIALING PLAN CONFIGURATION (TO DIAL 24xx)

LD 87
ESN000

MEM AVAIL: (U/P): 2725308 USED U P: 339895 47756 TOT: 3112959
DISK RECS AVAIL: 1152
REQ PRT
CUST 0
FEAT CDP
TYPE

DSC
DSC
DSC 2000
FLEN 0
DSP LSC
RLI 6
NPA
NXX
DSC 21
FLEN 0
DSP LSC
RLI 11
NPA
NXX
DSC 22
FLEN 0
DSP LSC
RLI 10
NPA
NXX
DSC 2300
FLEN 0
DSP LSC
RLI 5
NPA
NXX
DSC 232
FLEN 0
DSP LSC
RLI 5
NPA
NXX



DSC 24
FLEN 0
DSP LSC
RLI 7
NPA
NXX

DSC 2500
FLEN 0
DSP LSC
RLI 7
NPA
NXX

DSC 30
FLEN 0
DSP LSC
RLI 11
NPA
NXX

DSC 31
FLEN 0
DSP LSC
RLI 10
NPA
NXX

DSC 33
FLEN 0
DSP LSC
RLI 6
NPA
NXX

DSC 34
FLEN 0
DSP LSC
RLI 11
NPA
NXX

DSC 35
FLEN 0
DSP LSC
RLI 10
NPA
NXX

DSC 40
FLEN 0
DSP LSC
RLI 4
NPA
NXX

DSC 4444



FLEN 0
DSP LSC
RLI 4
NPA
NXX
DSC 60
FLEN 0
DSP LSC
RLI 10
NPA
NXX
DSC 62
FLEN 0
DSP LSC
RLI 11
NPA
NXX
DSC 63
FLEN 0
DSP LSC
RLI 11
NPA
NXX
DSC 640
FLEN 0
DSP LSC
RLI 11
NPA
NXX
DSC 641
FLEN 0
DSP LSC
RLI 10
NPA
NXX
DSC 70
FLEN 0
DSP LSC
RLI 6
NPA
NXX
DSC 7777
FLEN 0
DSP LSC
RLI 6
NPA
NXX

MEM AVAIL: (U/P): 2725308 USED U P: 339895 47756 TOT: 3112959
DISK RECS AVAIL: 1152
REQ



ROUTE LIST BLOCK CONFIGURATION

>LD 86
ESN000

MEM AVAIL: (U/P): 2725308 USED U P: 339895 47756 TOT: 3112959
DISK RECS AVAIL: 1152
REQ PRT
CUST

0
FEAT RLB
RLI

RLI 4
ENTR 0
LTER NO
ROUT 104
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON

VNS NO
CNV NO
EXP NO
FRL 0
DMI 0
FCI 0
FSNI 0
SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO

ISET 0
NALT 5
MFRL 0
OVLL 0

RLI 5
ENTR 0
LTER NO
ROUT 105
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON

VNS NO
CNV NO
EXP NO
FRL 0
DMI 0
FCI 0
FSNI 0



SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO

ISET 0
NALT 5
MFRL 0
OVLL 0

RLI 6
ENTR 0
LTER NO
ROUT 106
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON

VNS NO
CNV NO
EXP NO
FRL 0
DMI 0
FCI 0
FSNI 0
SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO

ISET 0
NALT 5
MFRL 0
OVLL 2

RLI 7
ENTR 0
LTER NO
ROUT 107
TOD 0 ON 1 ON 2 ON 3 ON
4 ON 5 ON 6 ON 7 ON

VNS NO
CNV NO
EXP NO
FRL 0
DMI 0
FCI 0
FSNI 0
SBOC NRR
IDBB DBD
IOHQ NO
OHQ NO
CBQ NO



ISET 0
NALT 5
MFRL 0
OVLL 0

RLI 10
ENTR 0
LTER NO
ROUT 10
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 0

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

MEM AVAIL: (U/P): 2725308 USED U P: 339895 47756 TOT: 3112959
DISK RECS AVAIL: 1152
REQ

DIGITAL STATION PHONE CONFIGURATION

>LD 11
SL1000
MEM AVAIL: (U/P): 2725308 USED U P: 339895 47756 TOT: 3112959
DISK RECS AVAIL: 1152
DIGITAL TELEPHONES AVAIL: 0 USED: 8 TOT: 8
IP USERS AVAIL: 2 USED: 6 TOT: 8
BASIC IP USERS AVAIL: 7 USED: 1 TOT: 8
ACD AGENTS AVAIL: 10 USED: 0 TOT: 10
PCA AVAIL: 0 USED: 0 TOT: 0
AST AVAIL: 1 USED: 0 TOT: 1
TNS AVAIL: 2316 USED: 184 TOT: 2500
DATA PORTS AVAIL: 2500 USED: 0 TOT: 2500

REQ: PRT
TYPE: 2616

TN 001 0 0 0
DATE
PAGE
DES

DES CS102
TN 001 0 00 00
TYPE 2616
CDEN 8D
CUST 0
AOM 0
FDN 2500
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 RCB
 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 FLXD FTTC DNDY DNO3 MCBN CDMR

CPND_LANG ENG

RCO 0

EFD 2500

HUNT 2500

EHT 2500

LHK 0

PLEV 02

CSDN

AST

IAPG 0

AACS NO

ITNA NO

DGRP

MLWU_LANG 0

DNDR 0

KEY 00 SCR 5408 0 MARP

CPND

NAME ATHENA8

XPLN 13

DISPLAY_FMT FIRST, LAST

01

02

03 CFW 4 2308

04 AO6

05 TRN

06

07

08

09

10

11

12

13

14

15 RGA

DATE 23 AUG 2005

NACT

 PBX SOFTWARE RELEASE

>LD 22

PT2000



REQ ISS

CALL SERVER/MAIN CAB
VERSION 2121
RELEASE 4
ISSUE 00 T +
IDLE_SET_DISPLAY NORTEL

PACKAGES INSTALLED

>LD 22

REQ PRT
TYPE PKG

OPTF	1
CUST	2
CDR	4
CTY	5
RAN	7
TAD	8
DNDI	9
EES	10
INTR	11
ANI	12
ANIR	13
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SACP	181
VNS	183
OVL P	184
EDRG	185
POVR	186
SECL	191
ORC-RVQ	192
AINS	200
IPRA	202
XPE	203
XCT0	204
XCT1	205
MLWU	206
HSE	208
MLM	209
MAID	210
VAWU	212
EAR	214
ECT	215
BRI	216
IVR	218
MWI	219
MSDL	222
FC68	223
SSAU	229
BRIT	233
FCDR	234
BRIL	235
MCMO	240
MULTI_USER	242
ALRM_FILTER	243
SYS_MSG_LKUP	245
VMBA	246
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DPNA	250
SCDR	251
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PVQM	401
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REQ ****
OVL000
>



Configuring the Cisco IOS Voice Gateway 'A' (2651XM)

2651XM_West#sho ver

Cisco IOS Software, C2600 Software (C2600-IPVOICE-M), Version 12.4(1.8)T, INTERI
M SOFTWARE

Technical Support: <http://www.cisco.com/techsupport>

Copyright (c) 1986-2005 by Cisco Systems, Inc.

Compiled Thu 05-May-05 06:32 by kellmill

ROM: System Bootstrap, Version 12.2(8r) [cmong 8r], RELEASE SOFTWARE (fc1)

2651XM_West uptime is 2 days, 22 hours, 47 minutes

System returned to ROM by reload

System image file is "flash:c2600-ipvoice-mz.124-1.8.T"

Cisco 2651XM (MPC860P) processor (revision 0x300) with 125770K/5302K bytes of me
mory.

Processor board ID JAE0817EK5Z (1672255744)

M860 processor: part number 5, mask 2

2 FastEthernet interfaces

31 Serial interfaces

2 Channelized E1/PRI ports

32K bytes of NVRAM.

49152K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102



```
2651XM_West#sho running-config
```

```
Building configuration...
```

```
Current configuration : 1896 bytes
```

```
!
```

```
version 12.4
```

```
service timestamps debug datetime msec
```

```
service timestamps log datetime msec
```

```
no service password-encryption
```

```
!
```

```
hostname 2651XM_West
```

```
!
```

```
boot-start-marker
```

```
boot system flash
```

```
boot-end-marker
```

```
!
```

```
logging buffered 5000000 debugging
```

```
!
```

```
no aaa new-model
```

```
!
```

```
resource policy
```

```
!
```

```
no network-clock-participate slot 1
```

```
no network-clock-participate wic 0
```

```
voice-card 1
```

```
!
```

```
ip subnet-zero
```

```
ip cef
```

```
!
```



```
!  
no ip dhcp use vrf connected  
!  
!  
no ip domain lookup  
isdn switch-type primary-qsig  
!  
!  
!  
voice service voip  
h323  
!  
!  
voice class codec 1  
codec preference 1 g729r8  
codec preference 2 g711ulaw  
codec preference 3 g711alaw  
!  
!  
controller E1 1/0  
pri-group timeslots 1-31  
description ECN-4  
!  
controller E1 1/1  
!  
!  
!  
interface FastEthernet0/0  
ip address 172.20.4.7 255.255.255.0
```



```
duplex auto
speed auto
!
interface FastEthernet0/1
no ip address
shutdown
duplex auto
speed auto
!
interface Serial1/0:15
description D-channel for ECN-4
no ip address
no logging event link-status
isdn switch-type primary-qsig
isdn overlap-receiving
isdn incoming-voice voice
isdn send-alerting
isdn bchan-number-order ascending
isdn sending-complete
no cdp enable
!
ip classless
ip route 0.0.0.0 0.0.0.0 FastEthernet0/0
!
ip http server
!
control-plane
!
!
```



```
!  
voice-port 1/0:15  
description voice port for ECN-4  
!  
!  
dial-peer voice 323 voip  
destination-pattern 5...  
session target ipv4:172.20.4.9  
!  
dial-peer voice 1015 pots  
destination-pattern 2...  
direct-inward-dial  
port 1/0:15  
forward-digits all  
!  
dial-peer voice 519 voip  
shutdown  
destination-pattern 6...  
session protocol sipv2  
session target ipv4:172.20.4.9  
supplementary-service pass-through  
!  
dial-peer voice 5050 pots  
destination-pattern 5050  
direct-inward-dial  
port 1/0:15  
forward-digits all  
!  
!
```



```
line con 0
line aux 0
line vty 0 4
exec-timeout 0 0
password cisco
login
transport input telnet
!
!
end
```

2651XM_West#sho isdn stat

Global ISDN Switchtype = primary-qsig

ISDN Serial1/0:15 interface

dsl 0, interface ISDN Switchtype = primary-qsig

**** Slave side configuration ****

Layer 1 Status:

ACTIVE

Layer 2 Status:

TEI = 0, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED

Layer 3 Status:

0 Active Layer 3 Call(s)

Active dsl 0 CCBs = 0

The Free Channel Mask: 0xFFFF7FFF

Number of L2 Discards = 0, L2 Session ID = 214

Total Allocated ISDN CCBs = 0

2651XM_West#



Configuring the Cisco IOS Voice Gateway 'B' (3745)

3745_West#sho ver

Cisco IOS Software, 3700 Software (C3745-IPVOICE-M), Version 12.4(1.8)T, INTERIM SOFTWARE

Technical Support: <http://www.cisco.com/techsupport>

Copyright (c) 1986-2005 by Cisco Systems, Inc.

Compiled Thu 05-May-05 02:04 by kellmill

ROM: System Bootstrap, Version 12.2(8r)T2, RELEASE SOFTWARE (fc1)

3745_West uptime is 2 days, 22 hours, 50 minutes

System returned to ROM by reload

System image file is "flash:c3745-ipvoice-mz.124-1.8.T"

Cisco 3745 (R7000) processor (revision 2.0) with 110592K/20480K bytes of memory.

Processor board ID JMX0813L0Z3

R7000 CPU at 350MHz, Implementation 39, Rev 3.3, 256KB L2, 2048KB L3 Cache

2 FastEthernet interfaces

31 Serial interfaces

4 Channelized E1/PRI ports

2 Voice FXS interfaces

DRAM configuration is 64 bits wide with parity disabled.

151K bytes of NVRAM.

31168K bytes of ATA System CompactFlash (Read/Write)

Configuration register is 0x2102



```
3745_West#sho running-config
```

```
Building configuration...
```

```
Current configuration : 2026 bytes
```

```
!
```

```
version 12.4
```

```
service timestamps debug datetime msec
```

```
service timestamps log datetime msec
```

```
no service password-encryption
```

```
!
```

```
hostname 3745_West
```

```
!
```

```
boot-start-marker
```

```
boot system flash
```

```
boot-end-marker
```

```
!
```

```
card type e1 1 1
```

```
logging buffered 5000000 debugging
```

```
!
```

```
no aaa new-model
```

```
!
```

```
resource policy
```

```
!
```

```
no network-clock-participate slot 1
```

```
ip subnet-zero
```

```
ip cef
```

```
!
```

```
!
```

```
no ip dhcp use vrf connected
```



```
!  
!  
no ip domain lookup  
isdn switch-type primary-qsig  
voice-card 1  
dspfarm  
!  
voice call carrier capacity active  
!  
voice service voip  
h323  
!  
!  
voice class codec 1  
codec preference 2 g711ulaw  
codec preference 3 g711alaw  
!  
!  
controller E1 1/0  
pri-group timeslots 1-31  
description ECN10  
!  
controller E1 1/1  
!  
controller E1 1/2  
!  
controller E1 1/3  
!  
!
```



```
!  
interface FastEthernet0/0  
ip address 172.20.4.9 255.255.255.0  
duplex auto  
speed auto  
!  
interface FastEthernet0/1  
no ip address  
shutdown  
duplex auto  
speed auto  
!  
interface Serial1/0:15  
description D-channel for ECN10  
no ip address  
no logging event link-status  
isdn switch-type primary-qsig  
isdn overlap-receiving  
isdn protocol-emulate network  
isdn incoming-voice voice  
isdn send-alerting  
isdn sending-complete  
no cdp enable  
!  
router eigrp 10  
network 172.20.0.0  
no auto-summary  
!  
ip classless
```



```
ip route 0.0.0.0 0.0.0.0 FastEthernet0/0
```

```
!
```

```
ip http server
```

```
!
```

```
!
```

```
control-plane
```

```
!
```

```
!
```

```
!
```

```
voice-port 1/0:15
```

```
description voice port for ECN10
```

```
!
```

```
voice-port 3/0/0
```

```
!
```

```
voice-port 3/0/1
```

```
!
```

```
!
```

```
dial-peer cor custom
```

```
!
```

```
!
```

```
!
```

```
dial-peer voice 323 voip
```

```
destination-pattern 2...
```

```
session target ipv4:172.20.4.7
```

```
!
```

```
dial-peer voice 1015 pots
```

```
destination-pattern 5...
```

```
direct-inward-dial
```

```
port 1/0:15
```



```
forward-digits all
!
dial-peer voice 519 voip
shutdown
destination-pattern 3...
session protocol sipv2
session target ipv4:172.20.4.7
supplementary-service pass-through
!
dial-peer voice 5050 voip
destination-pattern 5050
session target ipv4:172.20.4.7
!
!
line con 0
line aux 0
line vty 0 4
exec-timeout 0 0
password cisco
login
transport input telnet
!
!
end
```



3745_West#sho isdn stat

Global ISDN Switchtype = primary-qsig

ISDN Serial1/0:15 interface

***** Network side configuration *****

dsl 0, interface ISDN Switchtype = primary-qsig

**** Master side configuration ****

Layer 1 Status:

ACTIVE

Layer 2 Status:

TEI = 0, Ces = 1, SAPI = 0, State = MULTIPLE_FRAME_ESTABLISHED

Layer 3 Status:

0 Active Layer 3 Call(s)

Active dsl 0 CCBs = 0

The Free Channel Mask: 0xFFFF7FFF

Number of L2 Discards = 0, L2 Session ID = 27

Total Allocated ISDN CCBs = 0

3745_West#



Important Information

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