



Cisco 3640 Series Gateway-PBX Interoperability: Nortel Meridian 1 Option 11C PBX with E1-PRI Signaling

This document describes the interoperability and configuration of a 3640 voice gateway with a Nortel Meridian 1 PBX using E1-PRI signaling. It includes the following sections:

- System Components
- Configuration Tasks

System Components

PBX Model	Nortel Meridian 1 Option 11C
PBX Release	Release 21, Issue 54
Telephony Signaling	E1-PRI
Voice Gateway	Cisco 3640
Gateway Release	IOS™ 12.2(1)T
VoX Protocol	H.323

Configuration Tasks

See the following sections for configuration tasks for this feature:

- Setup
- Nortel PBX Configuration
- Cisco 3640 Gateway Configuration

Setup

This section includes the following information:

- Connectivity Diagrams
- Set Up Notes

Connectivity Diagrams

Figure 1: *Test Configuration*

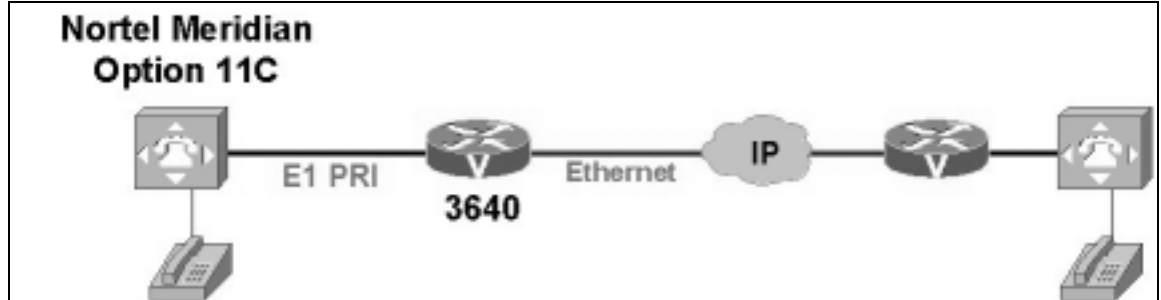


Figure 1 represents the configuration used for testing. A Nortel Meridian 1 Option 11C PBX connected to a Cisco 3640 voice gateway via an E1 PRI NET5 connection

Set Up Notes

- The Nortel configuration screen for the E1 trunk interface is reached using LD 17, setting the CEQU (Common Equipment parameters).
- E1 Clocking on the Nortel Meridian Option 11C PBX was set to card/slot number holding the clock controller. This is configured using LD 73.
- The Cisco 3640 gateway with ISDN switch type setting of **isdn switch-type primary-net5** supports both protocol sides by using the **isdn protocol-emulate network/user** command
- If the Nortel 1 Option 11C operation is set for User side, layers 2 & 3 protocol side are set for User side. The Cisco 3640 gateway is set to Network protocol side by issuing the command: **isdn protocol-emulate network**.

Nortel PBX Configuration

TRUNK CONFIGURATION

LD 20
PT0000
MARP NOT ACTIVATED

REQ: PRRTYPE: TNBTN 5 1DATE PAGE DES
TN 005 01
TYPE TIE
CDEN SD

CUST 0
TRK PRI2
PDCA 1
PCML A
NCOS 0
RTMB 105 1
B-CHANNEL SIGNALING
TGAR 0
CLS UNR DTN WTA LPR APN XREP
P10 VNL
TKID
DATE 1 APR 1993

NACT ****
>

ROUTE DATA BLOCK CONFIGURATION

OVL000
>LD 21PT1000

REQ: PRRTYPE: RDBCUST 0ROUT 105
TYPE RDB
CUST 00
DMOD
ROUT 105
TKTP TIE
ESN NO
RPA NO
CNVT NO
SAT NO
RCLS EXT
DTRK YES
BRIP NO
DGTP PRI2
ISDN YES
MODE PRA
IFC EURO
CNTY ETSI
SBN NO
PNI 00000
NCNA NO
NCRD NO
CTYP UKWN
INAC NO
ISAR NO
TGAR 0
PTYP DTT
AUTO NO
DNIS NO
DCDR NO

ICOG IAO
SRCH RRB
TRMB YES
STEP
ACOD 705
TCPP NO
TARG
BILN NO
OABS
INST
IDC NO
DCNO 0 *
NDNO 0
DEXT NO
SIGO STD
TIMR ICF 1920
OGF 1920
EOD 13952
LCT 256
NRD 10112
DDL 70
ODT 4096
RGV 640
GTO 896
GTI 896
SFB 3
PRPS 800
NBS 2048
NBL 4096
NRAG 30
IENB 5
TFD 0
VSS 0
VGD 6
DTD NO
SCDT NO
2 DT NO
DRNG NO
CDR NO
NATL YES
SSL
CFWR NO
IDOP NO
VRAT NO
MUS NO
PANS YES
EQAR 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
PLEV 2
ALRM NO
ART 0
PECL NO
DCTI 0
TIDY 705 105
SGRP 0

REQ: ****

D-CHANNEL CONFIGURATION

>
OVL000
>LD 22PT2000
MARP NOT ACTIVATED

REQ PRTTYPE ADAN
ADAN HIST
SIZE 5000
USER MTC SCH BUG
ADAN TTY 0
CARD 00
PORT 0
DES
USER MTC SCH BUG
XSM NO
ADAN TTY 1
CARD 00
PORT 1
DES
BPS 9600
BITL 8
STOP 1
PARY NONE
FLOW NO
USER MTC SCH BUG
XSM NO
ADAN TTY 2
CARD 00
PORT 2
DES
BPS 9600
BITL 8
STOP 1
PARY NONE

FLOW NO
USER MTC SCH BUG
XSM NO
ADAN DCH 5
CTYP MSDL
CARD 05
PORT 1
DES EURO
USR PRI
DCHL 5
OTBF 32
PARM RS422 DTE
DRAT 64KC
CLOK EXT
NASA NO
IFC EURO
CNTY ETSI
SIDE USR
CNEG 1
RLS ID **
RCAP ND2
MBGA NO
OVLN NO
OVLS YES
OVLT 0
T310 30
T200 3
T203 10
N200 3
N201 260
K 7
ADAN DPNSS DCH 9

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CTYP DCHI
CARD 09
PORT 1
DES FUCT
USR DPNSS

COMMON EQUIPMENT COMFIGURATION

REQ PRTOTYPE CEQU
CEQU
MPED 8D
SUPL 000 004 008 012
016 032 036 040
048
DDCS 09

DTCS
XCT 000
CONF 029 030 031

DLOP NUM DCH FRM LCMT YALM TRSH
PRI 006 23 ESF B8S FDL 15
PRI2 05
APVL
DTI2
MISP
MTYP 384K

REQ ****
>
OVL000

DIGITAL STATION PHONE CONFIGURATION

>LD 11
REQ: PRTTYE: 2616

MARP NOT ACTIVATED

TN 001 0 00 00DATE PAGE DES
DES TEST1
TN 001 0 00 00
TYPE 2616
CDEN 8D
CUST 0
AOM 0
FDN
TGAR 0
LDN NO
NCOS 0
SGRP 0
RNPG 0
SCI 0
SSU
LNRS 16
XLST
SCPW
CLS CTD FBD WTA LPR MTD FND HTD ADD HFA
MWA AAD IMD XHD IRD NID OLD VCE DRG1
POD DSX VMD CMSD CCSD SWD LNA CNDA
CFTA SFD MRD PDN DDV CNIA
ICDD CDMD MCTD CLBD AUTU
GPUD DPUD DNDA CFXA ARHD CLTD ASCD
ABDD CFHD FICD NAID
UDI HBTD AHD DDGA NAMA MIND PRSD NRWD NRCD NROD
EXR0
USRD ULAD OCB
CPND_LANG ENG
RCO 0

EFD
HUNT
EHT
PLEV 02
AST
IAPG 0
ITNA NO
DGRP
DNDR 0
KEY 00 SCR 3501 MARP
 CPND
 NAME BIG BIRD
 XPLN 8
 DISPLAY_FMT FIRST, LAST
01
02
03 CFW 16 7055002
04 AO6
05 TRN
06 DSP
07
08 ADL 16
09 ADL 16
10 ADL 16
11 ADL 16
12 ADL 16
13 ADL 16
14 ADL 16
15
DATE 1 APR 1993

NACT *****

SYSTEM PACKAGE INFORMATION

>
OVL000
>LD 22PT2000
MARP NOT ACTIVATED

REQ	PRTTYPE	PKGOPTF	1
CUST	2		
CDR	4		
CTY	5		
RAN	7		
TAD	8		
DNDI	9		
EES	10		
INTR	11		
BRTE	14		
DNDG	16		
MSB	17		

SS25	18
DDSP	19
ODAS	20
DI	21
DISA	22
CHG	23
CAB	24
BAUT	25
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
ACDD	50
LNK	51
FCA	52
SR	53
AA	54
HIST	55
AOP	56
NARS	58
CDP	59
PQUE	60
FCBQ	61
OHQ	62
NAUT	63
SNR	64
NXFR	67
HOT	70
DHLD	71
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DRNG	74
PBXI	75
DLDN	76
CSL	77
SCI	80
CCOS	81
RSDB	82
CDRQ	83
TENS	86
DSET	88
LNR	90
PXLT	92
CPND	95
DNIS	98
BGD	99
RMS	100
MR	101
AWU	102
PMSI	103
MCT	107
ICDR	108
APL	109
TVS	110
TOF	111
IDC	113
AUXS	114
DCP	115
PAGT	116
CCDR	118
EMUS	119
PLDN	120
COMDT	122
IDA	122
DPNSS	123
DASS2	124
FTC	125
BKI	127
DTI2	129
SUPP	131
TBAR	132
ENS	133
AFNA	134
LSCM	137
DTD	138
FFC	139
DCON	140
MPO	141
ABCD	144
ISDN	145
PRA	146
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HVS 179
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SACP 181
VNS 183
OVL P 184
EDRG 185
RPA 187
UK 190
SECL 191
ORC-RVQ 192
RCK 193
AINS 200
IPRA 202
XPE 203
XCT0 204
XCT1 205
NACD 207
HSE 208
MLM 209
MAID 210
VAWU 212
EAR 214
ECT 215
BRI 216
IVR 218
MSDL 222
CWNT 225
SSAU 229
DNWK 231
FCDR 234
BRIL 235
ACRL 236
MCMO 240

ALRM_FILTER 243
CALL ID 247
DPNA 250
SCDR 251
ARFW 253
PHTN 254
ADMINSET 256
ATX 258
CDRX 259
EURO 261
SAMM 262
QSIG 263
UIGW 283
DPNSS189I 284
DPNSS_ES 288
ADSP 289
MQA 297
CPP 301

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TATO 312

—
SYSTEM SOFTWARE RELEASE / VERSION

REQ ****

>

OVL000

>LD 22PT2000

MARP NOT ACTIVATED

REQ ISS

VERSION 1411

RELEASE 21

ISSUE 54

REQ ****

>OVL000

Cisco 3640 Gateway Configuration

The following is the configuration of the Cisco 3640 gateway connected to the Nortel Option 11C PBX E1-PRI interface.

Cisco 3640 Voice Gateway Version Information

```
3640_B#sho ver
Cisco Internetwork Operating System Software
IOS (tm) 3600 Software (C3640-JS-M), Version 12.2(1), RELEASE SOFTWARE (fc2)
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Fri 27-Apr-01 05:00 by cmong
Image text-base: 0x60008950, data-base: 0x61492000

ROM: System Bootstrap, Version 11.1(19)AA, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)

3640_B uptime is 2 hours, 23 minutes
System returned to ROM by power-on
System image file is "flash:c3640-js-mz.122-1"

cisco 3640 (R4700) processor (revision 0x00) with 59392K/6144K bytes of memory.
Processor board ID 10620494
R4700 CPU at 100Mhz, Implementation 33, Rev 1.0
Channelized E1, Version 1.0.
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
TN3270 Emulation software.
Primary Rate ISDN software, Version 1.1.
2 Ethernet/IEEE 802.3 interface(s)
62 Serial network interface(s)
2 Channelized E1/PRI port(s)
2 Voice FXO interface(s)
2 Voice FXS interface(s)
DRAM configuration is 64 bits wide with parity disabled.
125K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash (Read/Write)
```

Cisco 3640 Voice Gateway Sample Configuration

```
3640_B#sho run
Building configuration...

Current configuration : 1710 bytes
!
version 12.2
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname 3640_B
!
logging rate-limit console 10 except errors
!
voice-card 1
!
ip subnet-zero
!
!
no ip finger
!
no ip dhcp-client network-discovery
isdn switch-type primary-net5
call rsvp-sync
!
!
```

```
!  
!  
!  
!  
controller E1 1/0  
  shutdown  
  framing NO-CRC4  
  pri-group timeslots 1-31  
!  
controller E1 1/1  
  pri-group timeslots 1-31  
!  
!  
interface Ethernet0/0  
  ip address 100.100.100.2 255.255.255.0  
  no ip mroute-cache  
  half-duplex  
!  
interface Ethernet0/1  
  ip address 171.69.231.23 255.255.255.0  
  no ip mroute-cache  
  half-duplex  
!  
interface Serial1/0:15  
  no ip address  
  no logging event link-status  
  shutdown  
  isdn switch-type primary-net5  
  isdn incoming-voice voice  
  isdn T310 60000  
  no cdp enable  
!  
interface Serial1/1:15  
  no ip address  
  no logging event link-status  
  isdn switch-type primary-net5  
  isdn overlap-receiving  
  isdn incoming-voice voice  
  isdn T309-enable  
  isdn T203 30000  
  isdn T310 60000  
  isdn bchan-number-order ascending  
  no cdp enable  
  
ip kerberos source-interface any  
ip classless  
no ip http server  
!  
!  
voice-port 1/0:15  
!  
voice-port 1/1:15  
!  
voice-port 2/0/0  
!  
voice-port 2/0/1  
!  
voice-port 2/1/0  
!  
voice-port 2/1/1  
!  
dial-peer cor custom  
!  
!  
!  
dial-peer voice 1 pots  
  destination-pattern 3...  
  direct-inward-dial  
  port 1/1:15  
  prefix 3  
!
```

```
dial-peer voice 2 pots
 destination-pattern 9000
 port 2/0/0
!
dial-peer voice 4 voip
 destination-pattern 5...
 session target ipv4:100.100.100.1
!
dial-peer voice 5 voip
 destination-pattern 6000
 session target ipv4:100.100.100.1
!
!
line con 0
 transport input none
line aux 0
line vty 0 4
 login
!
end
```

Caveats

- As of Nortel Option 11C software release 24, Calling Name delivery and presentation is only supported on the European ETSI QSIG types ESGF, EGF4 and ISO ISGF.
- Although the Nortel PBX is set for Overlap Sending, it still includes the Called Number information in the SETUP packet.