



Cisco 3640 Gateway-PBX Interoperability: Ericsson MD-10 PBX with E&M signaling

This document describes the interoperability and configuration of a Cisco 3640 voice gateway with a VIC E&M card with Ericsson MD-10 PBX using E&M signaling. It includes the following sections:

- System Components
- Configuration Tasks
- Caveats

System Components

PBX Model	Ericsson MD-10
PBX Release	Software Version ASB50104-R6-SES-R9-BC90D/CNI80
Telephony Signaling	E&M
Voice Gateway	Cisco 3640
Gateway Release	IOS™ Version 12.2(3.6)T1
VoX Protocol	H.323

Configuration Tasks

See the following sections for configuration tasks for this feature:

- Set Up
- Ericsson MD-110 Configuration
- Cisco 3640 Gateway Configuration

Set Up

This section includes the following information:

- Connectivity Diagrams

Connectivity Diagrams

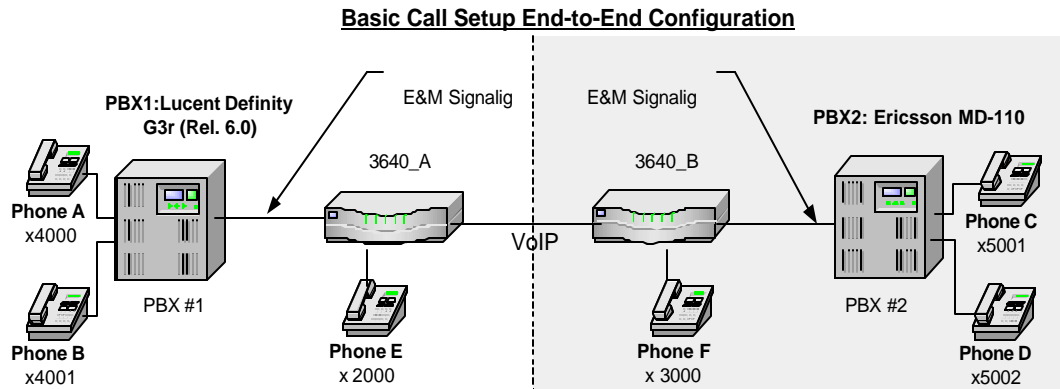


Figure 1: Test Configuration

Figure 1 represents the configuration used for testing: an Ericsson MD-10 PBX connected via an E&M tie trunk to a Cisco 3640.

Ericsson MD-110 Configuration

Ericsson PBX switch version

```
< CADAP ;
CALENDAR DATA
IDENTITY=DANDS-EURO-TEST
VERSION=ASB50104-R6-SES-R9-BC90D/CNI80
14:04:45
THU 13 SEP 2001
END
```

Class of Service and Class of Restriction

```
< RODDP:DEST=ALL;
EXTERNAL DESTINATION ROUTE DATA
```

DEST	DRN	ROU	CHO	CUST	ADC	TRC	SRT	NUMACK	PRE
2		20			100500000000025000	0	1	0	
30		1			100500000000025000	0	3	0	
31		2			100500000000025000	0	3	0	
32		3			100500000000025000	0	3	0	
33		4			100500000000025000	0	3	0	
34		5			100500000000025000	0	3	0	
35		6			000500000000025000	0	3	0	
36		7			000500000000025000	0	3	0	

```
37      8          000500000000025000 0  3  0
39      21         100500000000025000 0  3  0
40      11         100500000000025000 0  3  0
41      12         000500000000025000 0  3  0
42      13         000500000000025000 0  3  0
```

END

E&M Trunk Signaling parameters

Route Category Data

< ROCAP:ROU=12;

ROUTE CATEGORY DATA

ROU SEL	TRM SERV	NODG	DIST	DISL	TRAF	SIG	BCAP
12	012000000000	7	0010000000	0	5	120 03151515	511000000000 001101

END

E&M Trunks physical parameters

< ROEDP:ROU=12,TRU=ALL;

ROUTE EQUIPMENT DATA

ROU	TRU	EQU	SQU	INDDAT
12	001-1	001-1-63-00		

END

E&M Trunk status

< SUSIP:ROU=12,TRU=ALL;

STATUS INFORMATION AT 14:09:04 13SEP01

ROU	TRU	TYPE	TRAFFIC	STATE/PTR	LINE	STATE/PTR	ADD INFO
12	001-1	TL22	IDLE	#0061	FREE	#0081	

END

Telephone COS, Restrictions, Naming conventions, etc.

< KSCAP:DIR=5001&&5002;

KEY SYSTEM CATEGORY PRINT

DIR	TRAF	SERV	CDIV	ROC	ITYPE	TRM	ADC
5001	03151515	02001207	011151333	7237	21	1	00100003010
5002	03151515	02001207	011151333	7237	21	1	00100003010

END

E&M Route Data Blk, DTMF Immediate

< RODAP:ROU=12;

ROUTE DATA

ROU	TYPE	VARC	VARI	VARO	FILTER
12	TL22	H'002F0032	H'00012040	H'42011010	NO

END

Cisco 3640 Gateway Configuration

The following is the configuration of the Cisco 3640 voice gateway connected to the Ericsson MD-10 PBX 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(3.6)T1,  MAINTENANCE INTERIM SOFTWARE
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Tue 21-Aug-01 04:54 by ccai
Image text-base: 0x600089A8, data-base: 0x6178E000

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

3640_B uptime is 5 days, 21 hours, 0 minutes
System returned to ROM by power-on
System image file is "flash:c3640-js-mz.122-3.6.T1"

cisco 3640 (R4700) processor (revision 0x00) with 59392K/6144K bytes of memory.
Processor board ID 09195735
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 FXS interface(s)
2 Voice E & M 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)
20480K bytes of processor board PCMCIA Slot1 flash (Read/Write)

Configuration register is 0x0

3640_B#
3640_B# sho diag 2
Slot 2:
 4 PORT Voice PM for MARs Port adapter
Port adapter is analyzed
Port adapter insertion time unknown
EEPROM contents at hardware discovery:
Hardware revision 1.1          Board revision H0
Serial number 25100359        Part number 800-02491-02
Test history 0x0              RMA number 00-00-00
EEPROM format version 1
EEPROM contents (hex):
 0x20: 01 65 01 01 01 7F 00 47 50 09 BB 02 00 00 00 00
 0x30: 88 00 00 00 01 03 09 17 FF FF FF FF FF FF FF FF

WIC Slot 0:
FXS Voice daughter card (2 port)
Hardware revision 1.1          Board revision B0
Serial number 22775000        Part number 800-02493-02
Test history 0x0              RMA number 00-00-00
Connector type Wan Module
EEPROM format version 1
EEPROM contents (hex):
 0x20: 01 0E 01 01 01 5B 84 D8 50 09 BD 02 00 00 00 00
 0x30: 58 00 00 00 00 11 06 01 FF FF FF FF FF FF FF FF
```

```
WIC Slot 1:
E&M Voice daughter card (2 port)
Hardware revision 1.1          Board revision B0
Serial number 22850848        Part number 800-02497-02
Test history 0x0              RMA number 00-00-00
Connector type Wan Module
EEPROM format version 1
EEPROM contents (hex):
 0x20: 01 0F 01 01 01 5C AD 20 50 09 C1 02 00 00 00 00
 0x30: 58 00 00 00 00 10 18 01 FF FF FF FF FF FF FF FF
```

```
3640_B#
3640_B#
3640_B#
3640_B#
```

E&M Type 2 -- 2-wire -- dtmf ---- immediate

```
3640_B#
3640_B#sho voice port 2/1/0
```

```
recEive And transMit 2/1/0 Slot is 2, Sub-unit is 1, Port is 0
Type of VoicePort is E&M
Operation State is DORMANT
Administrative State is UP
The Last Interface Down Failure Cause is Administrative Shutdown
Description is not set
Noise Regeneration is enabled
Non Linear Processing is enabled
Non Linear Mute is disabled
Non Linear Threshold is -21 dB
Music On Hold Threshold is Set to -38 dBm
In Gain is Set to 0 dB
Out Attenuation is Set to 0 dB
Echo Cancellation is enabled
Echo Cancellation NLP mute is disabled
Echo Cancellation NLP threshold is -21 dB
Echo Cancel Coverage is set to 8 ms
Playout-delay Mode is set to default
Playout-delay Nominal is set to 60 ms
Playout-delay Maximum is set to 200 ms
Playout-delay Minimum mode is set to default, value 40 ms
Playout-delay Fax is set to 300 ms
Connection Mode is normal
Connection Number is not set
Initial Time Out is set to 10 s
Interdigit Time Out is set to 10 s
Call Disconnect Time Out is set to 60 s
Ringing Time Out is set to 180 s
Wait Release Time Out is set to 30 s
Companding Type is u-law
Region Tone is set for US
```

```
Analog Info Follows:
Currently processing none
Maintenance Mode Set to None (not in mtc mode)
Number of signaling protocol errors are 1
Impedance is set to 600r Ohm
Station name None, Station number None
```

```
Voice card specific Info Follows:
Operation Type is 2-wire
E&M Type is 2
Signal Type is immediate
Dial Type is dtmf
In Seizure is inactive
Out Seizure is inactive
Digit Duration Timing is set to 100 ms
InterDigit Duration Timing is set to 100 ms
```



```
!  
interface Serial1/0:15  
  no ip address  
  no logging event link-status  
  shutdown  
  isdn switch-type primary-qsig  
  isdn incoming-voice voice  
  isdn T310 60000  
  isdn bchan-number-order ascending  
  no cdp enable  
!  
interface Serial1/1:15  
  no ip address  
  no logging event link-status  
  shutdown  
  isdn switch-type primary-qsig  
  isdn overlap-receiving  
  isdn protocol-emulate network  
  isdn incoming-voice voice  
  no isdn T309-enable  
  isdn T310 40000  
  no cdp enable  
!  
ip classless  
no ip http server  
ip pim bidir-enable  
!  
no cdp run  
!  
!  
snmp-server manager  
tftp-server flash  
tftp-server nvram  
tftp-server slot0:  
call rsvp-sync  
!  
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  
  type 2  
  signal immediate  
!  
voice-port 2/1/1  
  type 2  
!  
!  
mgcp profile default  
!  
dial-peer cor custom  
!  
!  
!  
dial-peer voice 3 pots  
  destination-pattern 5...  
  progress_ind progress enable 8  
  port 2/1/0  
  prefix 5  
!  
dial-peer voice 1 pots  
  destination-pattern 3000  
  port 2/0/0  
!  
dial-peer voice 2 voip  
  destination-pattern 4...  
  session target ipv4:1.1.1.1  
!  
!
```

```
dial-peer voice 4 voip
 destination-pattern 2000
 session target ipv4:1.1.1.1
!
!
line con 0
line aux 0
line vty 0 4
 password cisco
 no login
!
!
end
3640_B#
```

Caveats

- The Ericsson MD-110 PBX user interface is very cryptic. All parameters and options are mapped to position-dependent numeric fields within the various commands listed below. The user must have the correct revision of the Ericsson MD-110 PBX Administration manual to be able to decipher each field position to determine its meaning. Therefore it is advised not to make changes to an MD-110 PBX unless you know exactly what you are doing. A single number out of place in a command string can cause unusual behavior on the PBX.