



# Cisco 3600 Series Gateway-PBX Interoperability: Ericsson MD-110 with E1 QSIG Signaling

This document describes the interoperability and configuration of a Cisco 3600 series voice gateway with an Ericsson MD-110 PBX using E1 QSIG signaling. It includes the following sections:

- System Components
- Configuration Tasks
- Caveats

## System Components

<b>PBX Model</b>	Ericsson MD-110
<b>PBX Release</b>	ASB50104-R6-SES-R9-BC90D/CNI80
<b>Telephony Signaling</b>	E1 QSIG
<b>Voice Gateway</b>	Cisco 3640
<b>Gateway Release</b>	Cisco IOS™ 12.2(1)
<b>VoX Protocol</b>	H.323

## Configuration Tasks

See the following sections for configuration tasks for this feature:

- Set Up
- Ericsson PBX Configuration
- Cisco 3640 Gateway Configuration

## Set Up

This section includes the following information:

- Connectivity Diagrams
- Set Up Notes

### Connectivity Diagrams

**Figure 1: Test Configuration**

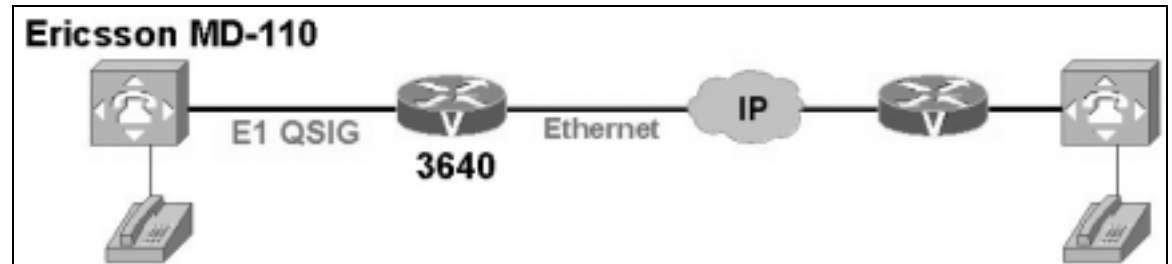



Figure 1 represents the configuration used for testing: an Ericsson MD-100 PBX connected to a Cisco 3640 voice gateway via an E1 QSIG connection.

### Set Up Notes

- The Ericsson MD-110 uses a command line interface where many switch features can be changed with a single command; therefore, the PBX documentation should be consulted prior to making any changes. Physical layer parameters, along with many other features, are controlled by using **RODAI** command.
- The Cisco 3640 router with an ISDN switch type setting of primary-qsig supports both master and slave QSIG operation by using the **isdn protocol-emulate {network | user}** command.
- Configuring the Ericsson MD-110 operation to be Master (or Network) side sets the Layers 2 & 3 protocol side setting to master as well. Therefore, the Cisco 3640 gateway should be set to Slave protocol side by issuing the **isdn protocol-emulate user** command.
- Similarly, if the Ericsson MD-110 operation is set for Slave (or user) side, layers 2 & 3 protocol side are set for slave side. The Cisco 3640 gateway is set to Master protocol side by issuing the **isdn protocol-emulate network** command.
- The Ericsson MD-110 supports both USER (peer-slave) and NETWORK (peer-master) protocol sides by using **RODAI** command.
- The Cisco 3640 uses the ECMA QSIG standard. ECMA QSIG uses channel numbers 1-15 and 17-31 as B-channels, while channel 16 is allocated for the D-channel. Since the Ericsson MD-110 PBX also supports the ECMA standard, logical channels 16-30 are mapped correctly to the Cisco 3640's 17-31 timeslots. Therefore, the **isdn contiguous-bchan** command is not needed on the Cisco 3640 router. However, it may be necessary in the Cisco 3640 to use this command to allow the Cisco 3640 gateway to support ETSI QSIG channel mapping standard.

## Ericsson PBX Configuration

 **Note:** All parameters and options for the Ericsson MD-110 PBX are mapped to position-dependent numeric fields within the various commands listed below. To understand each field position's meaning, you must have the correct version of the Ericsson MD-110 PBX Administration manual.

### Version Information

```
<•CADAP;
CALENDAR DATA

IDENTITY=CISCO-SYSTEMS
VERSION=ASB50104-R6-SES-R9-BC90D/CNI80

CALENDAR TIME NOT VALID
03:32:31
TUE 15 MAY 2001
END
```

### Ericsson PBX Sample Configuration

See the following sections for sample configuration information:

- Class of Service and Class of Restriction
- E1-QSIG D-Channel Signaling Parameters
- E1-QSIG B-Channel Physical Parameters
- E1-QSIG Trunk Status
- Telephone COS, Restrictions, Naming Conventions, Etc.
- Telephone Key Mapping
- E1-QSIG Route Data Blk, Protocol Side User
- E1-QSIG Route Data Blk, Protocol Side Network

### Class of Service and Class of Restriction

Route Information- Note QSIG uses Route 9

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

DEST  DRN  ROU  CHO  CUST  ADC          TRC  SRT  NUMACK  PRE
2      9      100500000000025000 0    1    0
30     1      100500000000025000 0    3    0      E1-QSIG B-Channel
Physical Parameters
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     10     100500000000025000 0    3    0
40     11     100500000000025000 0    3    0

END
```

**E1-QSIG D-Channel Signaling Parameters**

## Route Category Data

&lt;•ROCAP:ROU=9;

ROUTE CATEGORY DATA

ROU SEL	TRM SERV	NODG	DIST	DISL	TRAF	SIG	BCAP
9	711000000000	7	3110000010	0	5	20	03151515 211100000031 111111

END

**E1-QSIG B-Channel Physical Parameters**

&lt;•ROEDP:ROU=9,TRU=ALL;

ROUTE EQUIPMENT DATA

ROU	TRU	EQU	SQU	INDDAT
9	001-1	001-1-40-01		H'000000000000
9	001-2	001-1-40-02		H'000000000000
9	001-3	001-1-40-03		H'000000000000
9	001-4	001-1-40-04		H'000000000000
9	001-5	001-1-40-05		H'000000000000
9	001-6	001-1-40-06		H'000000000000
9	001-7	001-1-40-07		H'000000000000
9	001-8	001-1-40-08		H'000000000000
9	001-9	001-1-40-09		H'000000000000
9	001-10	001-1-40-10		H'000000000000
9	001-11	001-1-40-11		H'000000000000
9	001-12	001-1-40-12		H'000000000000
9	001-13	001-1-40-13		H'000000000000
9	001-14	001-1-40-14		H'000000000000
9	001-15	001-1-40-15		H'000000000000
9	001-17	001-1-40-17		H'000000000000
9	001-18	001-1-40-18		H'000000000000
9	001-19	001-1-40-19		H'000000000000
9	001-20	001-1-40-20		H'000000000000
9	001-21	001-1-40-21		H'000000000000
9	001-22	001-1-40-22		H'000000000000
9	001-23	001-1-40-23		H'000000000000
9	001-24	001-1-40-24		H'000000000000
9	001-25	001-1-40-25		H'000000000000
9	001-26	001-1-40-26		H'000000000000
9	001-27	001-1-40-27		H'000000000000
9	001-28	001-1-40-28		H'000000000000
9	001-29	001-1-40-29		H'000000000000
9	001-30	001-1-40-30		H'000000000000
9	001-31	001-1-40-31		H'000000000000

END

**E1-QSIG Trunk Status**

&lt;•SUSIP:ROU=9, TRU=ALL;

STATUS INFORMATION AT 00:00:00 01JAN00

ROU	TRU	TYPE	TRAFFIC	STATE/PTR	LINE	STATE/PTR	ADD INFO
9	001-1	TL60	IDLE	#009B	FREE	#0061	
9	001-2	TL60	IDLE	#009A	FREE	#0060	
9	001-3	TL60	IDLE	#0099	FREE	#005F	
9	001-4	TL60	IDLE	#0098	FREE	#005E	
9	001-5	TL60	IDLE	#0097	FREE	#005D	
9	001-6	TL60	IDLE	#0096	FREE	#005C	
9	001-7	TL60	IDLE	#0095	FREE	#005B	

```

9      001-8      TL60      IDLE          #0094      FREE       #005A
9      001-9      TL60      IDLE          #0093      FREE       #0059
9      001-10     TL60      IDLE          #0092      FREE       #0058
9      001-11     TL60      IDLE          #0091      FREE       #0057
9      001-12     TL60      IDLE          #0090      FREE       #0056
9      001-13     TL60      IDLE          #008F      FREE       #0055
9      001-14     TL60      IDLE          #008E      FREE       #0054
9      001-15     TL60      IDLE          #008D      FREE       #0053
9      001-17     TL60      IDLE          #007D      FREE       #0070
9      001-18     TL60      IDLE          #007C      FREE       #006F
9      001-19     TL60      IDLE          #007B      FREE       #006E
9      001-20     TL60      IDLE          #007A      FREE       #006D
9      001-21     TL60      IDLE          #0079      FREE       #006C
9      001-22     TL60      IDLE          #0078      FREE       #006B
9      001-23     TL60      IDLE          #0077      FREE       #006A
9      001-24     TL60      IDLE          #0076      FREE       #0069
9      001-25     TL60      IDLE          #0075      FREE       #0068
9      001-26     TL60      IDLE          #0074      FREE       #0067
9      001-27     TL60      IDLE          #0073      FREE       #0066
9      001-28     TL60      IDLE          #0072      FREE       #0065
9      001-29     TL60      IDLE          #0071      FREE       #0064
9      001-30     TL60      IDLE          #0070      FREE       #0063
9      001-31     TL60      IDLE          #006F      FREE       #0062
END

```

### Telephone COS, Restrictions, Naming Conventions, Etc.

```

<*KSCAP:DIR=ALL;
KEY SYSTEM CATEGORY PRINT

```

DIR	TRAF	SERV	CDIV	ROC	ITYPE	TRM	ADC
5000	03151515	02001207	011151111	7237	21	1	00100013010
5001	03151515	02001207	011151111	7237	21	1	00100013010
5002	03151515	02001207	011151111	7237	21	1	00100013010
5003	03151515	02001207	011151111	7237	21	1	00100013010
5006	03151515	02001207	011151111	7237	21	1	00100013010
5007	03151515	02001207	011151111	7237	21	1	00100013010

END

### Telephone Key Mapping

```

<*KSFKP:DIR=ALL;
KEY SYSTEM FUNCTION KEY DATA PRINT

```

DIR = 5000

KEY	KTYPE	VALUE	DIG
00	PGM		
01	FCN	TNS	
02	FCN	TNS	
03	FCN	CNF	
04	SKI	F1	
05	SKI	F2	
06	SKI	F3	
07	SKI	F4	
08	SKI	MENU	
09	ODN	5000	
10	ODN	5000	
11	ODN	5000	
13	FCN	TNS	
14	FCN	CAD	
15	FCN	TNS	
16	FCN	TNS	
17	FCN	TNS	
18	FCN	TNS	

19	FCN	TNS
20	FCN	TNS
21	FCN	TNS
22	FCN	TNS
23	FCN	TNS
24	FCN	TNS
25	FCN	TNS
26	FCN	TNS
27	FCN	TNS
28	FCN	TNS
29	FCN	TNS
30	FCN	TNS
31	FCN	TNS
32	FCN	TNS
33	FCN	TNS
34	FCN	TNS
35	FCN	TNS
36	FCN	TNS
37	FCN	TNS
38	FCN	TNS
39	FCN	TNS
40	FCN	TNS

DIR = 5001

KEY	KTYPE	VALUE	DIG
00	PGM		
01	FCN	TNS	
02	FCN	TNS	
03	FCN	CNF	
04	SKI	F1	
05	SKI	F2	
06	SKI	F3	
07	SKI	F4	
08	SKI	MENU	
09	ODN	5001	
10	ODN	5001	
11	ODN	5001	
13	FCN	TNS	
14	FCN	CAD	
15	FCN	TNS	
16	FCN	TNS	
17	FCN	TNS	
18	FCN	TNS	
19	FCN	TNS	
20	FCN	TNS	
21	FCN	TNS	
22	FCN	TNS	
23	FCN	TNS	
24	FCN	TNS	
25	FCN	TNS	
26	FCN	TNS	
27	FCN	TNS	
28	FCN	TNS	
29	FCN	TNS	
30	FCN	TNS	
31	FCN	TNS	
32	FCN	TNS	
33	FCN	TNS	
34	FCN	TNS	
35	FCN	TNS	
36	FCN	TNS	
37	FCN	TNS	
38	FCN	TNS	
39	FCN	TNS	
40	FCN	TNS	

DIR = 5002

KEY	KTYPE	VALUE	DIG
00	PGM		
01	FCN	TNS	
02	FCN	TNS	
03	FCN	CNF	
04	SKI	F1	
05	SKI	F2	
06	SKI	F3	
07	SKI	F4	
08	SKI	MENU	
09	ODN	5002	
10	ODN	5002	
11	ODN	5002	
13	FCN	TNS	
14	FCN	CAD	
15	FCN	TNS	
16	FCN	TNS	
17	FCN	TNS	
18	FCN	TNS	
19	FCN	TNS	
20	FCN	TNS	
21	FCN	TNS	
22	FCN	TNS	
23	FCN	TNS	
24	FCN	TNS	
25	FCN	TNS	
26	FCN	TNS	
27	FCN	TNS	
28	FCN	TNS	
29	FCN	TNS	
30	FCN	TNS	
31	FCN	TNS	
32	FCN	TNS	
33	FCN	TNS	
34	FCN	TNS	
35	FCN	TNS	
36	FCN	TNS	
37	FCN	TNS	
38	FCN	TNS	
39	FCN	TNS	
40	FCN	TNS	

END

**E1-QSIG Route Data Blk, Protocol Side User**

<•RODAP:ROU=9;  
ROUTE DATA

ROU	TYPE	VARC	VARI	VARO	FILTER
9	SL60	H'00000010	H'15400000	H'06004010	NO

END

**E1-QSIG Route Data Blk, Protocol Side Network**

<•RODAP:ROU=9;  
ROUTE DATA

ROU	TYPE	VARC	VARI	VARO	FILTER
9	SL60	H'00000010	H'15400000	H'06204010	NO

END

**List of System Equipment**

&lt;•SYEDP:LIM=1;

## SYSTEM EQUIPMENT DATA

EQU	BOARDID	TYPE	DIR	ROU/TRU
001-0-00-00	71	SL 63		1/001-01
001-0-00-01	71	SL 63		1/001-02
001-0-00-02	71	SL 63		1/001-03
001-0-00-03	71	SL 63		1/001-04
001-0-00-04	71	SL 63		1/001-05
001-0-00-05	71	SL 63		1/001-06
001-0-00-06	71	SL 63		1/001-07
001-0-00-07	71	SL 63		1/001-08
001-0-00-08	71	SL 63		1/001-09
001-0-00-09	71	SL 63		1/001-10
001-0-00-10	71	SL 63		1/001-11
001-0-00-11	71	SL 63		1/001-12
001-0-00-12	71	SL 63		1/001-13
001-0-00-13	71	SL 63		1/001-14
001-0-00-14	71	SL 63		1/001-15
001-0-00-15	71	SL 63		1/001-16
001-0-00-16	71	SL 63		1/001-17
001-0-00-17	71	SL 63		1/001-18
001-0-00-18	71	SL 63		1/001-19
001-0-00-19	71	SL 63		1/001-20
001-0-00-20	71	SL 63		1/001-21
001-0-00-21	71	SL 63		1/001-22
001-0-00-22	71	SL 63		1/001-23
001-0-00-23	71	-		
001-0-10-00	102	AD 0		
001-0-10-01	102	AD 0		
001-0-10-02	102	AD 0		
001-0-10-03	102	AD 0		
001-0-10-04	102	AD 0		
001-0-10-05	102	AD 0		
001-0-10-06	102	AD 0		
001-0-10-07	102	AD 0		
001-0-10-08	102	AD 0		
001-0-10-09	102	AD 0		
001-0-10-10	102	AD 0		
001-0-10-11	102	AD 0		
001-0-10-12	102	AD 0		
001-0-10-13	102	AD 0		
001-0-10-14	102	AD 0		
001-0-10-15	102	AD 0		
001-0-10-16	102	AD 0		
001-0-10-17	102	AD 0		
001-0-10-18	102	AD 0		
001-0-10-19	102	AD 0		
001-0-10-20	102	AD 0		
001-0-10-21	102	AD 0		
001-0-10-22	102	AD 0		
001-0-10-23	102	AD 0		
001-0-10-24	102	AD 0		
001-0-10-25	102	AD 0		
001-0-10-26	102	AD 0		
001-0-10-27	102	AD 0		
001-0-10-28	102	AD 0		
001-0-10-29	102	AD 0		
001-0-10-30	102	AD 0		
001-0-10-31	102	AD 0		
001-0-20-00	71	SL 63		2/001-01
001-0-20-01	71	SL 63		2/001-02
001-0-20-02	71	SL 63		2/001-03
001-0-20-03	71	SL 63		2/001-04
001-0-20-04	71	SL 63		2/001-05



001-0-20-05	71	SL 63		2/001-06
001-0-20-06	71	SL 63		2/001-07
001-0-20-07	71	SL 63		2/001-08
001-0-20-08	71	SL 63		2/001-09
001-0-20-09	71	SL 63		2/001-10
001-0-20-10	71	SL 63		2/001-11
001-0-20-11	71	SL 63		2/001-12
001-0-20-12	71	SL 63		2/001-13
001-0-20-13	71	SL 63		2/001-14
001-0-20-14	71	SL 63		2/001-15
001-0-20-15	71	SL 63		2/001-16
001-0-20-16	71	SL 63		2/001-17
001-0-20-17	71	SL 63		2/001-18
001-0-20-18	71	SL 63		2/001-19
001-0-20-19	71	SL 63		2/001-20
001-0-20-20	71	SL 63		2/001-21
001-0-20-21	71	SL 63		2/001-22
001-0-20-22	71	SL 63		2/001-23
001-0-20-23	71	-		
001-0-30-00	71	SL 63		3/001-01
001-0-30-01	71	SL 63		3/001-02
001-0-30-02	71	SL 63		3/001-03
001-0-30-03	71	SL 63		3/001-04
001-0-30-04	71	SL 63		3/001-05
001-0-30-05	71	SL 63		3/001-06
001-0-30-06	71	SL 63		3/001-07
001-0-30-07	71	SL 63		3/001-08
001-0-30-08	71	SL 63		3/001-09
001-0-30-09	71	SL 63		3/001-10
001-0-30-10	71	SL 63		3/001-11
001-0-30-11	71	SL 63		3/001-12
001-0-30-12	71	SL 63		3/001-13
001-0-30-13	71	SL 63		3/001-14
001-0-30-14	71	SL 63		3/001-15
001-0-30-15	71	SL 63		3/001-16
001-0-30-16	71	SL 63		3/001-17
001-0-30-17	71	SL 63		3/001-18
001-0-30-18	71	SL 63		3/001-19
001-0-30-19	71	SL 63		3/001-20
001-0-30-20	71	SL 63		3/001-21
001-0-30-21	71	SL 63		3/001-22
001-0-30-22	71	SL 63		3/001-23
001-0-30-23	71	-		
001-0-40-00	52	TL 45		4/001-01
001-0-40-01	52	TL 45		4/001-02
001-0-40-02	52	TL 45		4/001-03
001-0-40-03	52	TL 45		4/001-04
001-0-40-04	52	TL 45		4/001-05
001-0-40-05	52	TL 45		4/001-06
001-0-40-06	52	TL 45		4/001-07
001-0-40-07	52	TL 45		4/001-08
001-0-40-08	52	TL 45		4/001-09
001-0-40-09	52	TL 45		4/001-10
001-0-40-10	52	TL 45		4/001-11
001-0-40-11	52	TL 45		4/001-12
001-0-40-12	52	TL 45		4/001-13
001-0-40-13	52	TL 45		4/001-14
001-0-40-14	52	TL 45		4/001-15
001-0-40-15	52	TL 45		4/001-16
001-0-40-16	52	TL 45		4/001-17
001-0-40-17	52	TL 45		4/001-18
001-0-40-18	52	TL 45		4/001-19
001-0-40-19	52	TL 45		4/001-20
001-0-40-20	52	TL 45		4/001-21
001-0-40-21	52	TL 45		4/001-22
001-0-40-22	52	TL 45		4/001-23
001-0-40-23	52	TL 45		4/001-24
001-0-50-00	31	OL 1	5011	
001-0-60-00	69	-		
001-0-60-01	69	-		
001-0-60-02	69	-		
001-0-60-03	69	-		

001-0-70-00	42	-	
001-0-70-01	42	-	
001-0-70-02	42	-	
001-0-70-03	42	-	
001-0-70-04	42	-	
001-0-70-05	42	-	
001-0-70-06	42	-	
001-0-70-07	42	-	
001-0-70-08	42	-	
001-0-70-09	42	-	
001-0-70-10	42	-	
001-0-70-11	42	-	
001-0-70-12	42	-	
001-0-70-13	42	-	
001-0-70-14	42	-	
001-0-70-15	42	-	
001-0-70-16	42	-	
001-0-70-17	42	-	
001-0-70-18	42	-	
001-0-70-19	42	-	
001-0-70-20	42	-	
001-0-70-21	42	-	
001-0-70-22	42	-	
001-0-70-23	42	-	
001-0-70-24	42	-	
001-0-70-25	42	-	
001-0-70-26	42	-	
001-0-70-27	42	-	
001-0-70-28	42	-	
001-0-70-29	42	-	
001-0-70-30	42	-	
001-0-70-31	42	-	
001-1-00-00	52	TL 45	5/001-01
001-1-00-01	52	TL 45	5/001-02
001-1-00-02	52	TL 45	5/001-03
001-1-00-03	52	TL 45	5/001-04
001-1-00-04	52	TL 45	5/001-05
001-1-00-05	52	TL 45	5/001-06
001-1-00-06	52	TL 45	5/001-07
001-1-00-07	52	TL 45	5/001-08
001-1-00-08	52	TL 45	5/001-09
001-1-00-09	52	TL 45	5/001-10
001-1-00-10	52	TL 45	5/001-11
001-1-00-11	52	TL 45	5/001-12
001-1-00-12	52	TL 45	5/001-13
001-1-00-13	52	TL 45	5/001-14
001-1-00-14	52	TL 45	5/001-15
001-1-00-15	52	TL 45	5/001-16
001-1-00-16	52	TL 45	5/001-17
001-1-00-17	52	TL 45	5/001-18
001-1-00-18	52	TL 45	5/001-19
001-1-00-19	52	TL 45	5/001-20
001-1-00-20	52	TL 45	5/001-21
001-1-00-21	52	TL 45	5/001-22
001-1-00-22	52	TL 45	5/001-23
001-1-00-23	52	TL 45	5/001-24
001-1-10-00	102	AD 0	
001-1-10-01	102	AD 0	
001-1-10-02	102	AD 0	
001-1-10-03	102	AD 0	
001-1-10-04	102	AD 0	
001-1-10-05	102	AD 0	
001-1-10-06	102	AD 0	
001-1-10-07	102	AD 0	
001-1-10-08	102	AD 0	
001-1-10-09	102	AD 0	
001-1-10-10	102	AD 0	
001-1-10-11	102	AD 0	
001-1-10-12	102	AD 0	
001-1-10-13	102	AD 0	
001-1-10-14	102	AD 0	
001-1-10-15	102	AD 0	

001-1-10-16	102	AD	0	
001-1-10-17	102	AD	0	
001-1-10-18	102	AD	0	
001-1-10-19	102	AD	0	
001-1-10-20	102	AD	0	
001-1-10-21	102	AD	0	
001-1-10-22	102	AD	0	
001-1-10-23	102	AD	0	
001-1-10-24	102	AD	0	
001-1-10-25	102	AD	0	
001-1-10-26	102	AD	0	
001-1-10-27	102	AD	0	
001-1-10-28	102	AD	0	
001-1-10-29	102	AD	0	
001-1-10-30	102	AD	0	
001-1-10-31	102	AD	0	
001-1-20-00	77	KL	1	5000
001-1-20-01	77	KL	1	5001
001-1-20-02	77	KL	1	5002
001-1-20-03	77	KL	1	5003
001-1-20-04	77	KL	1	5006
001-1-20-05	77	KL	1	5007
001-1-22-00	87	EL	6	5004
001-1-22-01	87	EL	6	5005
001-1-30-00	27	-		
001-1-30-01	27	TL	30	11/001-01
001-1-30-02	27	TL	30	11/001-02
001-1-30-03	27	TL	30	11/001-03
001-1-30-04	27	TL	30	11/001-04
001-1-30-05	27	TL	30	11/001-05
001-1-30-06	27	TL	30	11/001-06
001-1-30-07	27	TL	30	11/001-07
001-1-30-08	27	TL	30	11/001-08
001-1-30-09	27	TL	30	11/001-09
001-1-30-10	27	TL	30	11/001-10
001-1-30-11	27	TL	30	11/001-11
001-1-30-12	27	TL	30	11/001-12
001-1-30-13	27	TL	30	11/001-13
001-1-30-14	27	TL	30	11/001-14
001-1-30-15	27	TL	30	11/001-15
001-1-30-17	27	TL	30	11/001-16
001-1-30-18	27	TL	30	11/001-17
001-1-30-19	27	TL	30	11/001-18
001-1-30-20	27	TL	30	11/001-19
001-1-30-21	27	TL	30	11/001-20
001-1-30-22	27	TL	30	11/001-21
001-1-30-23	27	TL	30	11/001-22
001-1-30-24	27	TL	30	11/001-23
001-1-30-25	27	TL	30	11/001-24
001-1-30-26	27	TL	30	11/001-25
001-1-30-27	27	TL	30	11/001-26
001-1-30-28	27	TL	30	11/001-27
001-1-30-29	27	TL	30	11/001-28
001-1-30-30	27	TL	30	11/001-29
001-1-30-31	27	TL	30	11/001-30
001-1-40-00	57	-		
001-1-40-01	57	SL	60	9/001-01
001-1-40-02	57	SL	60	9/001-02
001-1-40-03	57	SL	60	9/001-03
001-1-40-04	57	SL	60	9/001-04
001-1-40-05	57	SL	60	9/001-05
001-1-40-06	57	SL	60	9/001-06
001-1-40-07	57	SL	60	9/001-07
001-1-40-08	57	SL	60	9/001-08
001-1-40-09	57	SL	60	9/001-09
001-1-40-10	57	SL	60	9/001-10
001-1-40-11	57	SL	60	9/001-11
001-1-40-12	57	SL	60	9/001-12
001-1-40-13	57	SL	60	9/001-13
001-1-40-14	57	SL	60	9/001-14
001-1-40-15	57	SL	60	9/001-15
001-1-40-17	57	SL	60	9/001-17

001-1-40-18	57	SL 60	9/001-18
001-1-40-19	57	SL 60	9/001-19
001-1-40-20	57	SL 60	9/001-20
001-1-40-21	57	SL 60	9/001-21
001-1-40-22	57	SL 60	9/001-22
001-1-40-23	57	SL 60	9/001-23
001-1-40-24	57	SL 60	9/001-24
001-1-40-25	57	SL 60	9/001-25
001-1-40-26	57	SL 60	9/001-26
001-1-40-27	57	SL 60	9/001-27
001-1-40-28	57	SL 60	9/001-28
001-1-40-29	57	SL 60	9/001-29
001-1-40-30	57	SL 60	9/001-30
001-1-40-31	57	SL 60	9/001-31
001-1-50-00	57	-	
001-1-50-01	57	SL 60	10/001-01
001-1-50-02	57	SL 60	10/001-02
001-1-50-03	57	SL 60	10/001-03
001-1-50-04	57	SL 60	10/001-04
001-1-50-05	57	SL 60	10/001-05
001-1-50-06	57	SL 60	10/001-06
001-1-50-07	57	SL 60	10/001-07
001-1-50-08	57	SL 60	10/001-08
001-1-50-09	57	SL 60	10/001-09
001-1-50-10	57	SL 60	10/001-10
001-1-50-11	57	SL 60	10/001-11
001-1-50-12	57	SL 60	10/001-12
001-1-50-13	57	SL 60	10/001-13
001-1-50-14	57	SL 60	10/001-14
001-1-50-15	57	SL 60	10/001-15
001-1-50-17	57	SL 60	10/001-17
001-1-50-18	57	SL 60	10/001-18
001-1-50-19	57	SL 60	10/001-19
001-1-50-20	57	SL 60	10/001-20
001-1-50-21	57	SL 60	10/001-21
001-1-50-22	57	SL 60	10/001-22
001-1-50-23	57	SL 60	10/001-23
001-1-50-24	57	SL 60	10/001-24
001-1-50-25	57	SL 60	10/001-25
001-1-50-26	57	SL 60	10/001-26
001-1-50-27	57	SL 60	10/001-27
001-1-50-28	57	SL 60	10/001-28
001-1-50-29	57	SL 60	10/001-29
001-1-50-30	57	SL 60	10/001-30
001-1-50-31	57	SL 60	10/001-31
001-1-60-00	7	TL 1	7/001-01
001-1-60-01	7	TL 1	7/001-02
001-1-60-02	7	TL 1	7/001-03
001-1-60-03	7	TL 1	7/001-04
001-1-62-00	8	TL 12	6/001-01
001-1-62-01	8	TL 12	6/001-02
001-1-62-02	8	TL 12	6/001-03
001-1-62-03	8	TL 12	6/001-04
001-1-63-00	26	TL 22	8/001-01
001-1-63-01	26	TL 22	8/001-02
001-1-63-02	26	TL 22	8/001-03

END

## Cisco 3640 Gateway Configuration

The following is the configuration of the Cisco 3640 voice gateway connected to the Ericsson MD-110 PBX E1 QSIG interface.

### Cisco 3640 Voice Gateway Version Information

---

```
Cisco_3640# show version
```

```
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(20)AA2, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)

Cisco_3640 uptime is 2 days, 21 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 24827518
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)
31 Serial network interface(s)
2 Channelized E1/PRI port(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)
16384K bytes of processor board PCMCIA Slot0 flash (Read/Write)

Configuration register is 0x2102
```

### Cisco 3640 Voice Gateway Sample Configuration

---

```
Cisco_3640# show running-config
```

```
Building configuration...

Current configuration : 1550 bytes
!
version 12.2
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Cisco_3640
!
logging rate-limit console 10 except errors
enable secret 5 $1$FrhE$oJQrLNZcCVHNS5cpvhOVr.
enable password cisco
!
voice-card 1
!
ip subnet-zero
!
no ip finger
```

```
!  
no ip dhcp-client network-discovery  
isdn switch-type primary-qsig  
call rsvp-sync  
!  
!  
!  
!  
!  
!  
controller E1 1/0  
  pri-group timeslots 1-31  
!  
controller E1 1/1  
!  
!  
interface Ethernet0/0  
  ip address 10.1.1.2 255.255.255.0  
  no ip mroute-cache  
  load-interval 30  
  no keepalive  
  full-duplex  
!  
interface Ethernet0/1  
  no ip address  
  shutdown  
  half-duplex  
!  
interface Serial1/0:15  
  no ip address  
  no logging event link-status  
  isdn switch-type primary-qsig  
  isdn overlap-receiving  
  isdn protocol-emulate network  
  isdn incoming-voice voice  
  no isdn T309-enable  
  isdn T203 30000  
  isdn T310 60000  
  isdn bchan-number-order ascending  
  no cdp enable  
!  
router rip  
  network 1.0.0.0  
!  
ip kerberos source-interface any  
ip classless  
ip http server  
!  
!  
snmp-server packetsize 4096  
snmp-server manager  
!  
voice-port 1/0:15  
!  
voice-port 2/0/0  
!  
voice-port 2/0/1  
!  
dial-peer cor custom  
!  
!  
!  
dial-peer voice 1 pots  
  destination-pattern 5...  
  direct-inward-dial  
  port 1/0:15  
  prefix 5  
!  
dial-peer voice 2 voip  
  destination-pattern 2...  
  progress_ind setup enable 1
```

```
session target ipv4:10.1.1.1
!
dial-peer voice 3 pots
destination-pattern 5003
port 2/0/0
!
!
line con 0
transport input none
line aux 0
line vty 0 4
password lab
login
!
end
```

## Caveats

- The **isdn contiguous-bchan** command may be necessary in the Cisco 3640 to support ETSI QSIG channel mapping standard.