



# Siemens Hicom 330E R3.1 to Cisco 2650XM using BRI ECMA QSIG with H.323

January 4, 2008

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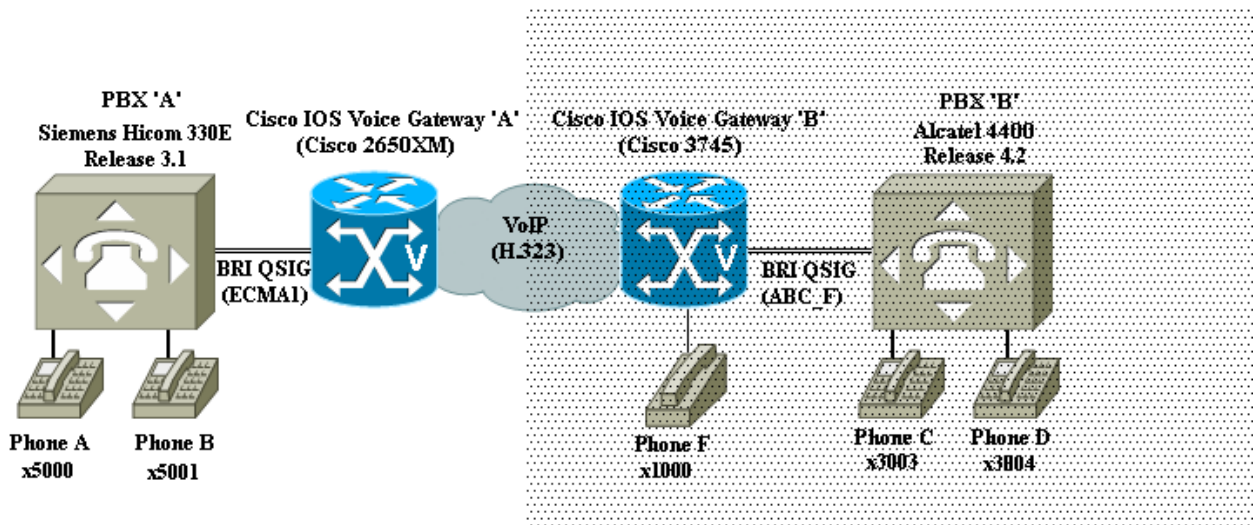
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## Introduction

- This is an Application Note for Connectivity/Interoperability testing of a Siemens Hicom 330E R3.1 PBX to C2650XM to C3745 to Alcatel 4400 R.4.2 PBX over a BRI-QSIG link.
- The Network Topology diagram shows the test set-up for end-to-end interoperability between the Siemens and Alcatel PBX via the C2650XM and C3745 routers supporting a Basic-Qsig link.

## Network Topology

Figure 1. Basic Call Setup



## Limitations

The following section lists known limitations, caveats, or integration issues.

- Basic Call: During Baseline measurements it was evident that when a call is made from the Alcatel (Phone C) to the Siemens (Phone A), the Alcatel phone only displays the connected parties name.
- Basic Call: When configured for Test Scenario B the 3745 Layer 1 emulation has to be configured to simulate USER (Conf T→ISDN BRI 4/0→ISDN LAYER 1 EMMULATE USER) while configuring the Protocol to emulate Network mode due to clocking issues on the lab Alcatel PBX.
- Basic Call with FXS port: Due to the slot allocation limitations of the C2650XM when supporting a 2 NT/TE BRI card, installation of a FXS port was not possible.



## System Components

### Hardware Requirements

The following hardware is required:

- Cisco C3745 with 1 off 2 BRI NT/TE card and an analog FXS Port
- Cisco C2650XM with 1 off 2 BRI NT/TE Card
- Alcatel 4400 OmniPCX 4400 PBX
- Siemens Hicom 330E PBX
- Siemens Hardware: DIU-N2

### Software Requirements

The following software is required:

- IOS software releases
  - C2650XM: c2600-is-mz.122-12.12.T
  - C3745: c3745-is-mz.122-12.12.T
- Siemens Hicom 330E PBX Software Version R3.1
- Alcatel 4400 OmniPCX 4400 PBX Software Version R.4.2

## Features

This section lists new and changed features and features that are not supported.

### Features Supported

- Calling Name Identification Presentation
- Calling Number Identification Presentation
- Connected Name Identification Presentation
- Connected Number Identification Presentation Updating
- Connected Name and Number for Call Transfers
- Updating Connected Name and Number for Call Forwarding

### Features Not Supported

- Not applicable



## Configuration

This section contains configuration menus and commands and describes configuration sequences and tasks.

### **Configuration Sequence and Tasks for the Siemens Hicom 330E PBX Configuration**

Configure in the following sequence

1. Add the new access code to Dialing Plans using WABE + LDPLN.
2. Add the new trunk board using BCSU.
3. Configure Class of Trunk using COT.
4. Configure Class of Parameter for device handler using COP.
5. Configure Class of Service using COSSU.
6. Add the new trunk group access code using BUEND
7. Configure trunk using TDCSU
8. Configure Reference Clock using REFTA
9. Configure trunk Least Cost Routing using LDAT + RICHT
10. Configure LCR Out-dial Rules using LODR



**Configuration Menus and Commands for the Siemens Hicom 330E PBX Configuration**

**Siemens Software Version**

Release 1.3

**DPLN**

<dis-wabe

TYPE = ?

TYPE : DESIRED OPTION

CHARACTERISTIC : REQUIRED CONDITIONAL

POSSIBLE VALUES : ARN ALTERNATE REFERENCE NUMBER (7-8 DIGIT WABE)

DNNO DISPLAY STATION OF DESTINATION NODE NUMBER

CPS DISPLAY OF CPS FOR SPECIFIED DAR

STN STATION

GEN DISPLAY TYPE FOR GENERAL PURPOSES

TYPE = gen

CD = ;

DIS-WABE:GEN, ;

H500: AMO WABE STARTED

DIGIT INTERPRETATION		VALID FOR ALL DIAL PLANS	
CODE	CALL PROGRESS STATE	DIGIT	RESERVED/CONVERT
	1 11111 11112 22	ANALYSIS	DNI/ADD-INFO
	0 12345 67890 12345 67890 12	RESULT	*=OWN NODE



001 - 002	* . . . . .	NETRTE	R
11	. . . . . *	MBKY	
3001	. . ***** ** . . . . .	STN	R
			DESTNO 0
			DNNO 1- 1-150*
3007	. . . . . *	MBKY	
3007	. . ***** ** . . . . .	STN	
			DESTNO 0
			DNNO 1- 1-150*
4100 - 4500	. . ***** ** . . . . .	STN	R
			DESTNO 72
			DNNO 0- 0- 0

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

CODE	CALL PROGRESS STATE		DIGIT ANALYSIS RESULT	RESERVED/CONVERT DNI/ADD-INFO
	1 11111 11112 22	0 12345 67890 12345 67890 12		
5000 - 5007	. . ***** ** . . . . .		STN	R
				DESTNO 0
				DNNO 1- 1-150*
5008 - 5009	. . ***** ** . . . . .		STN	R
				DESTNO 99
				DNNO 0- 0- 0
5010	. . ***** * . ***** ** . . . . .		ATNDIND	
5011	. . ***** ***** ** . . . . .		STN	
				DESTNO 0
				DNNO 1- 1-150*

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

CODE	CALL PROGRESS STATE		DIGIT ANALYSIS RESULT	RESERVED/CONVERT DNI/ADD-INFO
	1 11111 11112 22	0 12345 67890 12345 67890 12		
5012 - 5050	. . ***** ** . . . . .		STN	R
				DESTNO 0
				DNNO 1- 1-150*
800	. . . . . * . . . * ** . . . . .		ATNDIDD	
854	. . ***** ***** ** . . . . .		NETW	R
				DESTNO 2
				DNNO 0- 0- 0
*66	. . . . . * . . . . .		SIGNON	
*91	. . . . . * . . . . *		MBOFF	
#66	. . . . . * . . . . .		SIGNOFF	
#91	. . . . . * . . . . *		MBON	
##22	. . . . . . . . . . . *		DAKY	

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

CODE	CALL PROGRESS STATE		DIGIT ANALYSIS RESULT	RESERVED/CONVERT DNI/ADD-INFO
	1 11111 11112 22	0 12345 67890 12345 67890 12		
				*=OWN NODE



##24	. . . . .	. . . . .	. . . . .	. . . . .	* ..	DSSKY	
##25	. . . . .	. . . . .	. . . . .	. . . . .	* ..	FWDKY	
##26	. . . . .	. . . . .	. . . . .	. . . . .	* ..	HTKY	
##27	. . . . .	. . . . .	. . . . .	. . . . .	* ..	KNOVRKY	
##28	. . . . .	. . . . .	. . . . .	. . . . .	* ..	MBKY	
##29	. . . . .	. . . . .	. . . . .	. . . . .	* ..	MSGRKY	
##35	. . . . .	. . . . .	. . . . .	. . . . .	* ..	TIMEKY	
##36	. . . . .	. . . . .	. . . . .	. . . . .	* ..	VCKY	
##37	. . . . .	. . . . .	. . . . .	. . . . .	* ..	VCRKY	
##38	. . . . .	. . . . .	. . . . .	. . . . .	* ..	CCKY	
##39	. . . . .	. . . . .	. . . . .	. . . . .	* ..	CONFKY	
##41	. . . . .	. . . . .	. . . . .	. . . . .	* ..	NAMEKY	

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

CODE	CALL PROGRESS STATE				DIGIT ANALYSIS RESULT	RESERVED/CONVERT DNI /ADD-INFO *=OWN NODE
	1	11111	11112	22		
0	12345	67890	12345	67890	12	

##42	. . . . .	. . . . .	. . . . .	. . . . .	* ..	PARKKY	
##43	. . . . .	. . . . .	. . . . .	. . . . .	* ..	REMKY	
##44	. . . . .	. . . . .	. . . . .	. . . . .	* ..	STKY	
##45	. . . . .	. . . . .	. . . . .	. . . . .	* ..	CBKKY	
##46	. . . . .	. . . . .	. . . . .	. . . . .	* ..	CONSKY	
##47	. . . . .	. . . . .	. . . . .	. . . . .	* ..	DNDKY	
##48	. . . . .	. . . . .	. . . . .	. . . . .	* ..	EXHOLDKY	
##49	. . . . .	. . . . .	. . . . .	. . . . .	* ..	HOLDKY	
##50	. . . . .	. . . . .	. . . . .	. . . . .	* ..	IUSEKY	
##51	. . . . .	. . . . .	. . . . .	. . . . .	* ..	LNRKY	
##52	. . . . .	. . . . .	. . . . .	. . . . .	* ..	PRIVKY	
##53	. . . . .	. . . . .	. . . . .	. . . . .	* ..	RLSKY	

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

CODE	CALL PROGRESS STATE				DIGIT ANALYSIS RESULT	RESERVED/CONVERT DNI /ADD-INFO *=OWN NODE
	1	11111	11112	22		
0	12345	67890	12345	67890	12	

##54	. . . . .	. . . . .	. . . . .	. . . . .	* ..	SNRKY	
##55	. . . . .	. . . . .	. . . . .	. . . . .	* ..	TRNSKY	
##56	. . . . .	. . . . .	. . . . .	. . . . .	* ..	RCTOFFKY	
##57	. . . . .	. . . . .	. . . . .	. . . . .	* ..	TOGGLEKY	

AMO-WABE -208 DIALLING PLANS, FEATURE ACCESS CODES

DISPLAY COMPLETED;



## Dial plan, DPLN

```
<dis-ldpln
```

```
TYPE = ldp;
```

```
DIS-LDPLN:LDP;
```

```
H500: AMO LDPLN STARTED
```

LDPNO : 45	LDP : 31-XXXX					
	SPC : 22					
	DPLN	LRTE	LAUTH	DPLN	LRTE	LAUTH
	0	31	1	8		
	1			9		
	2			10		
	3			11		
	4			12		
	5			13		
	6			14		
	7			15		
LDPNO : 39	LDP : 33-XXXX					
	SPC : 22					
	DPLN	LRTE	LAUTH	DPLN	LRTE	LAUTH
	0	33	1	8		
	1			9		
	2			10		
	3			11		
	4			12		
	5			13		
	6			14		
	7			15		
LDPNO : 40	LDP : 37-XXXX					
	SPC : 22					
	DPLN	LRTE	LAUTH	DPLN	LRTE	LAUTH



	0	37	1	8		
	1			9		
	2			10		
	3			11		
	4			12		
	5			13		
	6			14		
	7			15		
LDPNO : 43	LDP : 38-XXXX SPC : 22					
	DPLN	LRTE	LAUTH	DPLN	LRTE	LAUTH
	0	38	1	8		
	1			9		
	2			10		
	3			11		
	4			12		
	5			13		
	6			14		
	7			15		
LDPNO : 46	LDP : 40-XXXX SPC : 22					
	DPLN	LRTE	LAUTH	DPLN	LRTE	LAUTH
	0	40	1	8		
	1			9		
	2			10		
	3			11		
	4			12		
	5			13		
	6			14		
	7			15		
LDPNO : 44	LDP : 9-X SPC : 22					
	DPLN	LRTE	LAUTH	DPLN	LRTE	LAUTH
	0	1	1	8		
	1			9		
	2			10		
	3			11		
	4			12		
	5			13		
	6			14		
	7			15		



AMO-LDPLN-208            ADMINISTRATION LCR DIALPLAN

DISPLAY COMPLETED;

**BCSU**

<dis-bcsu

TYPE = tbl;

DIS-BCSU:TBL;

H500: AMO BCSU STARTED

ADDRESS : LTG 1 LTU 1

PEN	ASSIGNED MODULE	MODULE TYPE	FCT ID	HWY BDL	INSERTED MODULE	STATE	HW-INFO	MODULE STATUS
37	Q2261-X	DSCX	2		Q2261-X	1	D994-E	READY
49	Q2159-X140	TM2LP		A	Q2159-X140	1	-03 -	READY
55	Q2139-X	PSIO		A	Q2139-X	1	D321-C	READY
61	Q2233-X	SIUX	2		Q2233-X	1	D802-B	READY
67	Q2286-X	TMLRB		A	Q2286-X	2	B008-D	READY
73	Q2196-X	DIU-N2	1	A	Q2196-X	1	-04 -	READY
79	Q2180-X	SLOP2	1	A	Q2180-X	1	-03 -	READY
85	Q2163-X	STMD2	1	A	Q2163-X	1	-09 -	READY
91	Q2246-X	SLMA24		A	Q2246-X	1	-07 -	READY
97	Q2292-X100	TMEW2		A	Q2292-X100	1	-B1 -	READY
103	Q2292-X100	TMEW2		A	Q2292-X100	1	-B1 -	READY

H02: LTU 1.2            IS NOT ASSIGNED

H02: LTU 1.3            IS NOT ASSIGNED

H02: LTU 1.4            IS NOT ASSIGNED

AMO-BCSU -108            BOARD CONFIGURATION, SWITCHING UNIT

DISPLAY COMPLETED;



## COT

<dis-cot:4;

DIS-COT:4;

H500: AMO COT STARTED

COT: 4 INFO: 4:Q931 EXTERNAL

DEVICE: INDEP SOURCE: DB

PARAMETER:

PRIORITY FOR AC WILL BE DETERMINED FROM MESSAGE	PRI
RECALL IF USER HANGS UP IN CONSULTATION CALL	RCL
TRUNK CALL TRANSFER	XFER
TRUNK SIGNALING ANSWER	ANS
CHANGEOVER FROM HOLD TO RING TONE	CHRT
KNOCKING OVERRIDE POSSIBLE	KNOR
CALL EXTEND FOR BUSY, RING OR CALL STATE	CEBC
NETWORKWIDE AUTOMATIC CALLBACK ON BUSY	CBBN
NETWORKWIDE AUTOMATIC CALLBACK ON FREE	CBFN
DON'T RELEASE CALL TO BUSY HUNT GROUP	BSHT
SEND NO NODE NUMBER TO PARTNER	LWNC
INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR	NLCR
TSC-SIGNALING FOR NETWORKWIDE FEATURES (MANDATORY)	TSCS
INCOMING CDR BY ZONE OR FROM LINE	ICZL
INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR (DATA)	NLRD
INTERWORKING CALLBACK - NO ANSWER AND MAILBOX CALLBACK	IWCB
AOC PER CALL (AUTOMATICAL OR ON REQUEST), MAND. CORNET-NQ	AOCC
CONTROLLED TRUNK AND LINE SELECTION	CTLS



NO TONE

NTON

AMO-COT -108 CLASS OF TRUNK FOR CALL PROCESSING

**COP**

<dis-cop

COPNO = 4

FORMAT = ;

DIS-COP:4,;

H500: AMO COP STARTED

COP: 4 INFO: 4:Q931

DEVICE: INDEP SOURCE: DB

PARAMETER:

LINE WITH END-OF-DIAL

EOD

SPECIAL MODE

SFRM

CODE CALLING RELEASE AFTER EVERY TASK

CCR

REGISTRATION OF LAYER 3 ADVISORIES

L3AR

AMO-COP -208 CLASS OF PARAMETER FOR DEVICE HANDLER

DISPLAY COMPLETED;



**COSSU**

<dis-cossu:cos,32;

DIS-COSSU: COS, 32;

H500: AMO COSSU STARTED

COS	VOICE	FAX	TTX	VTX	DTE
32	>32:TRUNKS TA TNOTCR	NOCO NOTIE	NOCO NOTIE	NOCO NOTIE	TA TNOTCR BASIC MSN CDRINT MULTRA

AMO-COSSU-108 CLASSES OF SERVICE, SWITCHING UNIT

DISPLAY COMPLETED;

**BUEND**

<dis-buend

TGRP = 43;

DIS-BUEND:43;

H500: AMO BUEND STARTED

FORMAT = L					
TGRP NUMBER :	43	TGRP NAME :	BRI2	MAXIMUM NO. :	4
SUBGROUP NO.:	15	DEVICE TYPE :	S0CONN	TRACENO :	0
RESERVED :	N	SEARCH MODE :	CIRCULAR	ACD THRESHOLD :	*
NUMBER OF ASSOCIATED ROUTES :	1	PRIORITY :			2
THE FOLLOWING TRUNKS (LTG-LTU-SLOT-CCT) HAVE BEEN ALLOCATED:					
1- 1- 85-7	B-CHL: 1	1- 1- 85-7	B-CHL: 2	:	

AMO-BUEND-108 TRUNK GROUP

DISPLAY COMPLETED;



## TDCSU

<dis-tdcsu

PEN1 = 1-1-85-7;

DIS-TDCSU:1-1-85-7;

H500: AMO TDCSU STARTED

```
+----- DIGITAL TRUNK (FORMAT=L) -----+
|                DEV = S0CONN                |                PEN = 1-01-085-7                |
+-----+-----+-----+
| COTNO   = 4          COPNO   = 4          DPLN    = 0          |
| ITR     = 0          COS     = 32         LCOSV   = 31         |
| LCOSD   = 31        CCT     =             DESTNO  = 99         |
| PROTVAR = ECMA1     SEGMENT = 1          TCHARG  = N          |
| SUPPRESS = 0        DGTPR  =             CHIMAP  = N          |
| ISDNCC  =           ISDNAC  =             ISDNLC  =           |
| ISDNIP  =           ISDNNP  =           |
| PNPL2C  =           PNPL1C  =           PNPLC   =           |
| PNPL2P  =           PNPL1P  =           PNPAC   =           |
| TRACOUNT = 31       SATCOUNT = MANY     NNO     = 1   -1   -999 |
| ALARMNO = 0        FIDX    = 1          CARRIER = 1          |
| ZONE    = EMPTY    COTX    = 4          FWDX    = 1          |
| DOMTYPE =           DOMAINNO =          TPROFNO =           |
| INIGHT  =           UUSCCX  = 16       UUSCCY  = 8          |
+-----+-----+-----+
| INS     = N          TGRP    = 43        SRCHMODE = CIR        |
| MASTER  = Y          SMD     = Y         CNTRNR  = 0          |
| BCNEG   = N          |
+-----+-----+-----+
```

AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 2

AMO-TDCSU-108            DIGITAL TRUNKS

DISPLAY COMPLETED;



**REFTA**

<dis-refta

TYPE = circuit

PEN = 1-1-85-7;

DIS-REFTA:CIRCUIT,1-1-85-7;

H500: AMO REFTA STARTED

R E F E R E N C E C L O C K C I R C U I T S							
PEN	MODULE	DEVICE	PRI	ERROR	BLOCK	SUPP.	READY BUT ASYN.
1- 1- 85- 7	STMD	S0CONN	0	16000	N		N

AMO-REFTA-108 REFERENCE CLOCK TABLE

DISPLAY COMPLETED;



**LDAT**

<dis-ldat

TYPE = lcr

LROUTE = ;

DIS-LDAT:LCR, ;

H500: AMO LDAT STARTED

LROUTE = 1 LDPLN NAME = CENTRAL OFFICE SERVICE = ALL									
TYPE = LCR DNNO OF ROUTE = 1 -1 -999									
SERVICE INFO =									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
LRTEL	LVAL	TGRP	ODR	LAUTH	SCHEDULE ABCDEFGH	CARRIER ZONE	BAND WIDTH	LATTR	
1	1	30	1	1	*****	1 EMPTY	1	NONE	
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
LROUTE = 31 LDPLN NAME = E&M SERVICE = VCE									
TYPE = LCR DNNO OF ROUTE = 1 -1 -999									
SERVICE INFO =									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
LRTEL	LVAL	TGRP	ODR	LAUTH	SCHEDULE ABCDEFGH	CARRIER ZONE	BAND WIDTH	LATTR	
1	1	31	1	1	*****	1 EMPTY	1	NONE	
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
LROUTE = 33 LDPLN NAME = BRI 2 SERVICE = ALL									
TYPE = LCR DNNO OF ROUTE = 1 -1 -999									
SERVICE INFO =									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
LRTEL	LVAL	TGRP	ODR	LAUTH	SCHEDULE ABCDEFGH	CARRIER ZONE	BAND WIDTH	LATTR	
1	0	43	1	1	*****	1 EMPTY	1	NONE	
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
LROUTE = 37 LDPLN NAME = PRI TEST SERVICE = ALL									
TYPE = LCR DNNO OF ROUTE = 1 -1 -999									
SERVICE INFO =									
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
LRTEL	LVAL	TGRP	ODR	LAUTH	SCHEDULE ABCDEFGH	CARRIER ZONE	BAND WIDTH	LATTR	
1	1	37	1	1	*****	1 EMPTY	1	NONE	
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+									
LROUTE = 38 LDPLN NAME = PRI2 SERVICE = ALL									
TYPE = LCR DNNO OF ROUTE = 1 -1 -999									



```

| SERVICE INFO =
+-----+-----+-----+-----+-----+-----+-----+-----+
| LRTEL | LVAL | TGRP | ODR | LAUTH | SCHEDULE | CARRIER | BAND | LATTR |
|-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1 | 38 | 1 | 1 | ***** | 1 | EMPTY | 1 | NONE |
| | | | | | | | | | |
| | | | | | | | | | |
|-----+-----+-----+-----+-----+-----+-----+-----+
| LROUTE = 40 LDPLN NAME = BRI TRUNK SERVICE = ALL |
| TYPE = LCR DNNNO OF ROUTE = 1 -1 -999 |
| SERVICE INFO = |
+-----+-----+-----+-----+-----+-----+-----+-----+
| LRTEL | LVAL | TGRP | ODR | LAUTH | SCHEDULE | CARRIER | BAND | LATTR |
|-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1 | 40 | 1 | 1 | ***** | 1 | EMPTY | 1 | NONE |
|-----+-----+-----+-----+-----+-----+-----+-----+

```

AMO-LDAT -208 LCR-DIRECTIONS

DISPLAY COMPLETED;

**RIGHT**

<<dis-richt

MODE = lrte

LRTE = 37;

DIS-RICT:LRTE,37;

H500: AMO RICHT STARTED

```

+-----+-----+-----+-----+-----+-----+-----+-----+
| LRTE = 37 NAME = PRI TEST SRVC = ALL |
| DNNNO = 1 -1 -999 |
| ROUTOPT = NO REROUT = YES PLB = NO FWDBL = NO |
| MFV: CNV=WITHOUT DSP=WITHOUT TEXT= PULS= |
| ROUTENO = 11 BUGS = LIN MAINGROUP = 11 |
| INFO = |
+-----+-----+-----+-----+-----+-----+-----+-----+
| TGRP = 37 LDAT PRI TEST SUBGROUP = 10 |
+-----+-----+-----+-----+-----+-----+-----+-----+

```

AMO-RICT-208 TRUNK ROUTING

DISPLAY COMPLETED;



## LODR

<dis-lodr

ODR = 1

INFOPAT = ;

DIS-LODR:1, ;

H500: AMO LODR STARTED

ODR	POSITION	CMD	PARAMETER
1	1	ECHO	2
	2	END	
INFO:PSTN			

H03: THE NEXT FREE ODR IS 4

AMO-LODR -208 ADMINISTRATION OF LCR OUTDIAL RULES

DISPLAY COMPLETED;

<



### Siemens Digital Phone configuration

<dis-sbcsu

STNO = 5000

TYPE = termdata;

DIS-SBCSU:5000,TERMDATA;

H500: AMO SBCSU STARTED

```

----- USER DATA -----
STNO      =5000    OPT      =OPTI    COS1     =7      DPLN     =0      SPDI     =Y
MAINO     =5000    CONN     =DIR      COS2     =7      ITR      =0      SPDC1    =0
PEN       = 1- 1- 79- 1      LCOSV1   =31     COSX     =0      SPDC2    =1
INS       =Y      STD      =3      LCOSV2   =31     SERVID   =0      CBKBMAX  =5
          SECR     =N      LCOSD1   =31     DSSTNA   =N      RCBKB    =N
SSTNO     =N      DIGNODIS=N      LCOSD2   =31     DSSTNB   =Y      RCBKNA   =N
TRACE     =N      HFREE    =      ASYNCT   =500    PERMACT  =      CBKNAMB  =Y
ALARMNO   =0      HMUSIC   =0      API      =N      TEXTSEL  =ENGLISH
EXTBUS    =      REP      =0      OPTICOM  =N      OPTISPA  =0      DLAUT    =
CALLOG    =NONE   IDCR     =N      OPTICA   =0      OPTIS0A  =0      DLMAN    =
          HEADSET =N      OPTIDA   =0      OPTIABA  =0      PRIO     =
          HSKEY   =NORMAL  ATMADDR  =      VPI      =
          DFSVCANA=      TFAGRP   =      PATTERN  =      VCI      =
DVCFIG    =OPTISET TSI      =1      SOPTIDX  =      SPROT    =
          DOPTIDX =      DPROT    =
          FOPTIDX =      FPROT    =
          TOPTIDX =      TPROT    =
          VOPTIDX =      VPROT    =
----- ACTIVATION IDENTIFIERS FOR FEATURES -----
FWDS      :N      FWDT     :N      FWDV     :N      FWDF     :N      FWDD     :N
HTOS      :N      HTOT     :N      HTOV     :N      HTOF     :N      HTOD     :N
DND       :N      VCP      :Y      CWT      :N      TCLOGIN  :N
----- FEATURES AND GROUP MEMBERSHIPS -----
ESSTN     :
PUGR      :      HUNTING GROUP : N
KEYSYS    :N      NIGHT OPTION : N      ASSOCIATED STN : N
----- SUBSCRIBER ATTRIBUTES (AMO SDAT) -----
NONE

```

AMO-SBCSU-108

STATION AND S0-BUS CONFIGURATION OF SWITCHING UNIT

DISPLAY COMPLETED;



## Configuring the Local Voice Gateway (Cisco 2650XM)

### Sho Version

```
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-IS-M), Version 12.2(12.12)T,  MAINTENANCE INTERIM
SOFTWARE
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2002 by cisco Systems, Inc.
Compiled Mon 14-Oct-02 02:57 by ccai
Image text-base: 0x80008098, data-base: 0x8183168C

ROM: System Bootstrap, Version 12.2(7r) [cmong 7r], RELEASE SOFTWARE (fc1)

2650XM_BRI uptime is 5 days, 19 hours, 45 minutes
System returned to ROM by reload
System image file is "flash:c2600-is-mz.122-12.12.T"
```

```
cisco 2650XM (MPC860P) processor (revision 0x100) with 126976K/4096K bytes of me
mory.
Processor board ID JAD06150HXS (761445799)
M860 processor: part number 5, mask 2
Bridging software.
X.25 software, Version 3.0.0.
Basic Rate ISDN software, Version 1.1.
1 FastEthernet/IEEE 802.3 interface(s)
2 ISDN Basic Rate interface(s)
4 Voice NT or TE BRI interface(s)
32K bytes of non-volatile configuration memory.
49152K bytes of processor board System flash (Read/Write)

Configuration register is 0x2
```

### Sho Diag

```
2650XM_BRI#sho diag
Slot 0:
  C2650XM 1FE Mainboard Port adapter, 1 port
  Port adapter is analyzed
  Port adapter insertion time unknown
  EEPROM contents at hardware discovery:
  Hardware Revision      : 1.0
  PCB Serial Number     : JAD06150HXS (761445799)
  Part Number           : 73-7755-02
  RMA History            : 00
  RMA Number            : 0-0-0-0
  Board Revision        : A0
  Deviation Number      : 0-0
  EEPROM format version 4
  EEPROM contents (hex):
    0x00: 04 FF 40 03 6E 41 01 00 C1 17 4A 41 44 30 36 31
    0x10: 35 30 48 58 53 20 28 37 36 31 34 34 35 37 39 39
```



```
0x20: 29 82 49 1E 4B 02 04 00 81 00 00 00 00 42 41 30
0x30: 80 00 00 00 00 FF FF FF FF FF FF FF FF FF FF
0x40: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
```

Slot 1:

```
4 PORT Voice PM for C2600 Port adapter
Port adapter is analyzed
Port adapter insertion time unknown
EEPROM contents at hardware discovery:
Hardware revision 1.1          Board revision C0
Serial number 10560635        Part number 800-02491-02
FRU Part Number: NM-2V=
```

```
Test history 0x0              RMA number 00-00-00
EEPROM format version 1
EEPROM contents (hex):
 0x20: 01 65 01 01 00 A1 24 7B 50 09 BB 02 00 00 00 00
 0x30: 60 00 00 00 98 10 24 17 FF FF FF FF FF FF FF FF
```

VIC Slot 0:

```
NT or TE BRI Voice daughter card (2 port)
Hardware revision 1.0          Board revision E0
Serial number 28528711        Part number 800-07272-03
Test history 0x0              RMA number 00-00-00
```

```
Connector type PCI
EEPROM format version 1
EEPROM contents (hex):
 0x20: 01 32 01 00 01 B3 50 47 50 1C 68 03 00 00 00 00
 0x30: 70 00 00 00 02 08 02 00 FF FF FF FF FF FF FF FF
```

2650XM\_BRI#

**Show Config**

```
2650XM_BRI#sho config
Using 1308 out of 29688 bytes
!
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname 2650XM_BRI
!
boot system flash:c2600-is-mz.122-12.12.T
!
ip subnet-zero
!
!
```



```
no ip domain lookup
ip host danube 171.69.17.14
ip host dirt 171.69.1.129
ip host whiz 171.69.1.162
!
isdn switch-type basic-qsig
!
!
voice call carrier capacity active
!
!
!
!
!
!
!
!
mta receive maximum-recipients 0
!
!
!
!
interface FastEthernet0/0
 ip address 100.100.100.1 255.255.255.0
 duplex auto
 speed auto
!
interface BRI1/0
 no ip address
 isdn switch-type basic-qsig
 isdn overlap-receiving
 isdn incoming-voice voice
 isdn skipsend-idverify
!
interface BRI1/1
 no ip address
 isdn switch-type basic-qsig
!
ip classless
no ip http server
!
!
dialer-list 1 protocol ip permit
!
call rsvp-sync
!
voice-port 1/0/0
 compand-type a-law
!
voice-port 1/0/1
!
!
mgcp profile default
```



```
!  
!  
!  
dial-peer cor custom  
!  
!  
!  
dial-peer voice 1 pots  
  destination-pattern 5...  
  direct-inward-dial  
  port 1/0/0  
  prefix 5  
!  
dial-peer voice 3 voip  
  destination-pattern 3...  
  session target ipv4:100.100.100.2  
!  
dial-peer voice 2 voip  
  destination-pattern 4000  
  session target ipv4:100.100.100.2  
!  
dial-peer voice 5 pots  
  destination-pattern 5005  
!  
!  
line con 0  
line aux 0  
line vty 0 4  
  login  
line vty 5 15  
  login  
!  
!  
end
```



## Configuring the Remote Voice Gateway (Cisco 3745)

### Sho Ver

```
3745#sho ver
Cisco Internetwork Operating System Software
IOS (tm) 3700 Software (C3745-IS-M), Version 12.2(12.12)T,  MAINTENANCE INTERIM
SOFTWARE
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2002 by cisco Systems, Inc.
Compiled Sun 13-Oct-02 14:03 by ccai
Image text-base: 0x60008940, data-base: 0x61986000

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

3745 uptime is 4 days, 51 minutes
System returned to ROM by power-on
System image file is "slot0:c3745-is-mz.122-12.12.T"

cisco 3745 (R7000) processor (revision 2.0) with 131072K/11264K bytes of memory.
Processor board ID JMX0631K03X
R7000 CPU at 350Mhz, Implementation 39, Rev 3.3, 256KB L2, 2048KB L3 Cache
Bridging software.
X.25 software, Version 3.0.0.
SuperLAT software (copyright 1990 by Meridian Technology Corp).
Basic Rate ISDN software, Version 1.1.
2 FastEthernet/IEEE 802.3 interface(s)
2 ISDN Basic Rate interface(s)
2 Voice FXS interface(s)
4 Voice NT or TE BRI interface(s)
DRAM configuration is 64 bits wide with parity disabled.
151K bytes of non-volatile configuration memory.
31360K bytes of ATA System CompactFlash (Read/Write)
125184K bytes of ATA Slot0 CompactFlash (Read/Write)

Configuration register is 0x2102

3745#
```

### Show Diag

```
3745#sho diag
c3700 IO-Board EEPROM:
  Hardware Revision      : 2.0
  Top Assy. Part Number  : 800-14462-01
  Board Revision        : B0
  Deviation Number      : 0-0
  Fab Version           : 03
  PCB Serial Number     : JAD06150N53
  RMA Test History      : 00
  RMA Number            : 0-0-0-0
  RMA History           : 00
```





```
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
c3700 Mid-Plane EEPROM:
Hardware Revision      : 2.0
Top Assy. Part Number : 800-12289-01
Board Revision        : A0
Deviation Number      : 0-0
Fab Version           : 05
PCB Serial Number     : CMD06090068
RMA Test History      : 00
RMA Number            : 0-0-0-0
RMA History           : 00
Calibration Data      : Minimum: -1 dBmV, Maximum: -1 dBmV
  Calibration values  : 0xFFFF 0xFFFF 0xFFFF 0xC306 0x0005 0x9A3A
                        0x7540 0x4300 0x50C2 0x8B4A 0x4D58 0x3036
                        0x3331 0x4B30 0x3358 0xFFFF 0xFFFF 0xFFFF
                        0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF
                        0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF
                        0xFFFF 0xFFFFD 0x0110 0xDFAB 0x1234 0xCD00
                        0x0000 0x0000 0x0000 0x0061 0xB7A6 0x1060
                        0x5455 0x8863 0x7C7B 0x8C63 0x7C7A 0x8000
                        0x0000 0x2600 0x0000 0x00DC 0x5678 0xBBDE
                        0xADBE 0xEF00 0x0000 0x0061 0xB7A6 0x1060
                        0x4A0F 0xD062 0xA6ED 0x1863 0x7BD6 0x5800
                        0x0000 0x1400 0x0000 0x00BE 0xEFBA 0xCCBE
                        0xEFBA 0xCC00 0x0000 0x000D 0x0D0D 0x0D63
                        0x7BD6 0x6862 0xA6ED 0x1863 0x7CB5 0x840D
                        0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D
                        0x0D0D 0x0DAB 0x1234 0xCD00 0x0000 0x7863
                        0x2E22 0xE061 0xF631 0xC461 0x04BF 0x4463
                        0x7C7C 0x1C63 0x7C7B 0x2C80 0x0000 0x3400
                        0x0000 0x0100 0x0000 0x0062 0xB2D6 0x5062
                        0xB2D6 0x5062 0xB2D6 0x5063 0x7CE1 0x1C00
                        0x0000 0x0000 0x0000 0x0000 0x0000 0x4662
                        0x8600 0x0000 0x0000 0x0000 0x0000 0x0000
                        0x0000 0x0000 0x0000 0x0100 0x0000 0x0000
                        0x0000 0x0063 0x7C43 0x7C00 0x0000 0x0000
                        0x0000 0x0000 0x0000 0x0000 0x0000 0x0000
                        0x0000 0x0000 0x0000 0x0000 0x0000 0x00FD
                        0x0110 0xDFAB 0x1234 0xCD00 0x0000 0x8A63
                        0x3D5D 0x3861 0xB7A6 0xB461 0x0A92 0x1C63
                        0x7CB4 0x6863 0x7C7B 0xA000 0x001C 0x1200
                        0x0000 0x0061 0x0A95 0x70DE 0xADBE 0xEF61
                        0x0A95 0x7000 0x0000 0x000D 0x0D0D 0x0D63
                        0x1B20 0xB463 0x7E23 0xC40D 0x0D0D 0x0D0D
                        0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D
                        0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D
                        0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D
                        0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D
                        0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D
                        0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D
                        0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D
                        0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D 0x0D0D
```



```
0x0D0D 0x0D0D 0x0D0D
Chassis MAC Address      : 0005.9a3a.7540
MAC Address block size  : 80
Chassis Serial Number   : JMX0631K03X
EEPROM format version 4
EEPROM contents (hex):
 0x00: 04 FF 40 03 3E 41 02 00 C0 46 03 20 00 30 01 01
 0x10: 42 41 30 80 00 00 00 00 02 05 C1 8B 43 4D 44 30
 0x20: 36 30 39 30 30 36 38 03 00 81 00 00 00 00 04 00
 0x30: C8 09 FF FF FF FF FF FF FF FF FF FF C3 06 00 05 9A
 0x40: 3A 75 40 43 00 50 C2 8B 4A 4D 58 30 36 33 31 4B
 0x50: 30 33 58 FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
```

Backplane TDM Switch :  
Slot 0:

```
C3745 Mother board 2FE(TX)-3W Port adapter, 2 ports
Port adapter is analyzed
Port adapter insertion time unknown
EEPROM contents at hardware discovery:
PCB Serial Number      : JAD061802LB
Processor type         : 69
Top Assy. Part Number  : 800-15934-01
Board Revision         : E0
Fab Part Number        : 28-4672-04
Deviation Number       : 62248-65535
Manufacturing Test Data : FF FF FF FF FF FF FF FF
RMA Number             : 0-0-0-0
RMA History            : 00
RMA Test History       : 00
Field Diagnostics Data : FF FF FF FF FF FF FF FF
Hardware Revision      : 2.0
Fab Version            : 04
Chassis Serial Number  : JMX0631K03X
EEPROM format version 4
EEPROM contents (hex):
 0x00: 04 FF C1 8B 4A 41 44 30 36 31 38 30 32 4C 42 09
 0x10: 69 40 02 F7 C0 46 03 20 00 3E 3E 01 42 45 30 85
 0x20: 1C 12 40 04 80 F3 28 FF FF C4 08 FF FF FF FF FF
 0x30: FF FF FF 81 00 00 00 00 04 00 03 00 C5 08 FF FF
 0x40: FF FF FF FF FF FF 41 02 00 02 04 C2 8B 4A 4D 58
 0x50: 30 36 33 31 4B 30 33 58 FF FF FF FF FF FF FF FF
 0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
 0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
```

Slot 1:

```
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 D0
Serial number 15077168        Part number 800-02491-02
FRU Part Number: NM-2V=
```



```
Test history      0x0          RMA number      00-00-00
EEPROM format version 1
EEPROM contents (hex):
  0x20: 01 65 01 01 00 E6 0F 30 50 09 BB 02 00 00 00 00
  0x30: 68 00 00 00 99 07 31 17 FF FF FF FF FF FF FF FF
```

```
WIC Slot 0:
FXS Voice daughter card (2 port)
Hardware revision 1.1          Board revision A0
Serial number      26688484    Part number      800-02493-04
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 97 3B E4 50 09 BD 04 00 00 00 00
  0x30: 50 00 00 00 01 10 09 01 FF FF FF FF FF FF FF FF
```

Slot 4:

```
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      21979817    Part number      800-02491-02
FRU Part Number:  NM-2V=
```

```
Test history      0x0          RMA number      00-00-00
EEPROM format version 1
EEPROM contents (hex):
  0x20: 01 65 01 01 01 4F 62 A9 50 09 BB 02 00 00 00 00
  0x30: 88 00 00 00 01 01 03 17 FF FF FF FF FF FF FF FF
```

```
WIC Slot 0:
NT or TE BRI Voice daughter card (2 port)
Hardware revision 1.255        Board revision V7
Serial number      4294967295    Part number      800-11534335-255
Test history      0xFF          RMA number      255-255-255
Connector type    PCI
EEPROM format version 1
EEPROM contents (hex):
  0x20: 01 32 01 FF FF FF FF FF FF FF FF FF FF FF FF FF
  0x30: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
```

3745#

**Sho Config**

```
3745#sho config
Using 1669 out of 155640 bytes
!
version 12.2
service timestamps debug datetime msec
```



```
service timestamps log datetime msec
no service password-encryption
!
hostname 3745
!
!
ip subnet-zero
!
!
!
isdn switch-type basic-qsig
!
!
voice call carrier capacity active
!
!
!
!
!
!
!
!
mta receive maximum-recipients 0
!
!
!
!
interface FastEthernet0/0
 ip address 100.100.100.2 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 10.1.1.26 255.255.255.0
 duplex auto
 speed auto
!
interface BRI4/0
 no ip address
 no ip route-cache
 no ip mroute-cache
 shutdown
 isdn switch-type basic-qsig
 isdn overlap-receiving
 isdn protocol-emulate network
 isdn layer1-emulate network
 isdn incoming-voice voice
 isdn sending-complete
!
interface BRI4/1
 no ip address
 no ip route-cache
 no ip mroute-cache
```



```
isdn switch-type basic-qsig
isdn overlap-receiving
isdn protocol-emulate network
isdn layer1-emulate network
isdn incoming-voice voice
isdn sending-complete
!
ip classless
ip http server
!
!
!
!
call rsvp-sync
!
voice-port 1/0/0
  station-id name relatives
  station-id number 1000
  caller-id enable
!
voice-port 1/0/1
!
voice-port 4/0/0
  compand-type a-law
!
voice-port 4/0/1
!
!
mgcp profile default
!
!
!
dial-peer cor custom
!
!
!
dial-peer voice 1 pots
  destination-pattern 3...
  direct-inward-dial
  port 4/0/0
  prefix 3
!
dial-peer voice 2 voip
  destination-pattern 5...
  session target ipv4:100.100.100.1
!
dial-peer voice 3 voip
  destination-pattern 9...
  session target ipv4:100.100.100.1
!
dial-peer voice 4 pots
  destination-pattern 2...
  port 1/0/0
!
```



```
dial-peer voice 5 pots
 destination-pattern 1000
 port 1/0/0
!
!
line con 0
line aux 0
line vty 0 4
 login
!
end
```



## Acronyms

Acronym	Definitions
BRI	Basic Rate ISDN

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