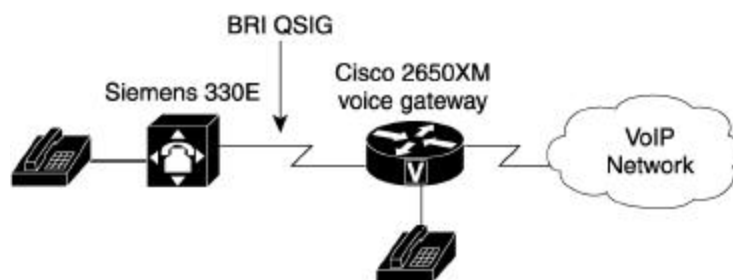


# Cisco 2650XM Gateway -PBX Interoperability: Siemens 330E PBX Using BRI QSIG Interfaces to an H.323 Gateway

## Introduction

- This Application Note describes the interoperability of a Cisco 2650XM gateway and a Siemens 330E PBX using BRI QSIG interfaces.
- The network topology diagram shows the end-to-end interoperability.

## Network Topology



## System Components

### Hardware Requirements

- Cisco 2650XM with VIC-VG-2BRI Card
- Siemens 330E

### Software Requirements

- Cisco 2650XM: Cisco IOS Release 12.2(15)ZJ
- Siemens 330E Software Version 3.1

## Configuration

### Configuring the Siemens 330E PBX

Configure the PBX in the following sequence:

- CO Trunk
- Trunk Group
- Siemens Digital Phone



## Configuring the CO Trunk

### TDCSU

PEN1 = 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

### REFTA

TYPE = circuit  
PEN = 1-1-85-7;

```

+----- REFERENCE CLOCK CIRCUITS -----+
|  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



## Configuring the Trunk Group

### BUEND

TGRP = 43;

```

-----+-----
|          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

### COT

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

COPNO = 4

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

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

AMO-COSSU-108 CLASSES OF SERVICE, SWITCHING UNIT

BCSU

H500: AMO BCSU STARTED

ADDRESS : LTG 1 LTU 1

ASSIGNED	MODULE	FCT	HWY	INSERTED	MODULE			
PEN	MODULE	TYPE	ID	BDL	MODULE	STATE	HW-INFO	STATUS
85	Q2163-X	STMD2	1	A	Q2163-X	1	-09 -	READY

AMO-BCSU -108 BOARD CONFIGURATION, SWITCHING UNIT

Configuring the Siemens Digital Phone

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



```

SSTNO   =N          SECR      =N          LCOSD1 =31          DSSTNA =N          RCBKB   =N
TRACE   =N          DIGNODIS=N         LCOSD2 =31          DSSTNB =Y          RCBKNA  =N
ALARMNO =0          HFMUSIC =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
-----

```

## LDAT

```

+-----+
| LROUTE = 33   LDPLN      NAME = BRI 2                SERVICE = ALL |
| TYPE = LCR                                DNNO OF ROUTE = 1 -1 -999 |
| SERVICE INFO =                               |
+-----+
|   |   |   |   |   | SCHEDULE | CARRIER | BAND |   |   |
| LRTEL | LVAL | TGRP | ODR | LAUTH | ABCDEFGH | ZONE | WIDTH | LATTR |
+-----+
| 1 | 0 | 43 | 1 | 1 | ***** | 1  EMPTY | 1 | NONE |
+-----+
| LROUTE = 40   LDPLN      NAME = BRI TRUNK            SERVICE = ALL |
| TYPE = LCR                                DNNO OF ROUTE = 1 -1 -999 |
| SERVICE INFO =                               |
+-----+
|   |   |   |   |   | SCHEDULE | CARRIER | BAND |   |   |
| LRTEL | LVAL | TGRP | ODR | LAUTH | ABCDEFGH | ZONE | WIDTH | LATTR |
+-----+
| 1 | 1 | 40 | 1 | 1 | ***** | 1  EMPTY | 1 | NONE |
+-----+

```



## RICHT

MODE = lrte  
LRTE = 37;

DIS-RICHT:LRTE,37;

H500: AMO RICHT STARTED

```
+-----+
| LRTE = 37      NAME = PRI TEST                      SRVC = ALL |
| DNNO = 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-RICHT-208 TRUNK ROUTING

## LODR

<dis-lodr

ODR = 1

```
+-----+
| ODR   POSITION  CMD      PARAMETER |
+-----+
| 1     1       ECHO     2           |
|      2       END      |
+-----+
| INFO:PSTN |
+-----+
```

## Configuring the Cisco 2650XM

C2651XM# **show running-config**

Building configuration...

Current configuration : 2191 bytes

```
!
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname C2651XM
!
boot system flash:c2600-js-mz-mcebu_sb.0.5.0
```



```
logging buffered 1000000 debugging
enable password cisco
!
ip subnet-zero
ip tcp synwait-time 13
!
no ip domain lookup
!
mpls ldp logging neighbor-changes
isdn switch-type basic-qsig
!
voice-card 1
!
voice call carrier capacity active
!
no voice hpi capture buffer
no voice hpi capture destination
!
interface FastEthernet0/0
 ip address 172.16.1.2 255.255.255.0
 no ip mroute-cache
 duplex auto
 speed 100
!
interface FastEthernet0/1
 ip address 10.1.1.9 255.255.255.0
 no ip mroute-cache
 duplex auto
 speed auto
!
interface BRI1/0
 no ip address
 no ip route-cache
 no ip mroute-cache
 isdn switch-type basic-qsig
 isdn protocol-emulate network
 isdn layer1-emulate network
 isdn overlap-receiving
 isdn incoming-voice voice
 isdn static-tei 0
 isdn skipsend-idverify
!
interface BRI1/1
 no ip address
 shutdown
 isdn switch-type basic-net3
!
ip http server
ip classless
!
```



```
dialer-list 1 protocol ip permit
!
call rsvp-sync
!
voice-port 1/0/0
  compand-type a-law
!
voice-port 1/0/1
!
voice-port 1/1/0
!
voice-port 1/1/1
!
mgcp profile default
!
dial-peer cor custom
!
dial-peer voice 2 voip
  destination-pattern 2...
  session target ipv4:172.16.1.1
!
dial-peer voice 1 voip
  destination-pattern 3000
  session target ipv4:172.16.1.1
!
dial-peer voice 3 pots
  destination-pattern 1...
  direct-inward-dial
  port 1/0/0
  prefix 1
!
dial-peer voice 4 pots
  destination-pattern 4000
!
!
line con 0
  exec-timeout 0 0
line aux 0
  exec-timeout 0 0
line vty 0 4
  exec-timeout 0 0
  password c
  no login
line vty 5 15
  no login
!
!
end
```





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