

Cisco 3640-PBX Interoperability: Siemens Hicom 330E with E1 ISDN PRI Signaling

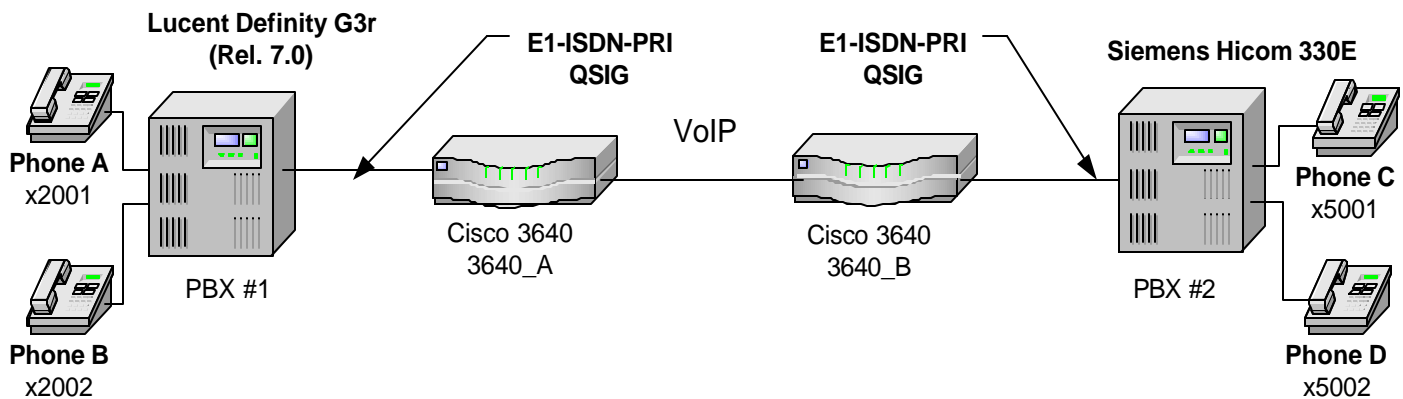
Introduction

This document describes the interoperability and configuration of a Cisco 3640 voice gateway with a Siemens Hicom 330E using E1 ISDN PRI signaling.

Network Topology

This diagram represents the various configurations used for testing.

Basic Call Setup End-to-End Configuration



Limitations

- The Siemens Hicom 330E supports both “USER” and “NETWORK” protocol sides.
- The Cisco 3640 router ISDN switch-type setting primary-qsig supports both protocol sides by using the “isdn protocol-emulate network/user” command.
- To assure that Calling Name is delivered and presented on both sides, both PBXs must be configured for the same type of QSIG Supplementary Services.

System Components

Hardware Requirements

- Cisco hardware—Cisco 3640 with 2MFT-E1
- PBX hardware—DIU-N2



Software Requirements

- Cisco software release— IOS™ Version 12.2
- PBX software release—version 3.1

Configuration

Configuring the Siemens Hicom 330E

Configuration Menus and Commands

DPLN

```
<dis-wabe
```

```
TYPE = gen
```

```
CD =
```

```
DPLN = 0;
```

```
DIS-WABE:GEN, ,0;
```

```
H500: AMO WABE STARTED
```

DIGIT INTERPRETATION		VALID FOR ALL DIAL PLANS			
CODE	CALL PROGRESS STATE 1 11111 11112 22	DIGIT ANALYSIS	RESERVED/CONVERT		
			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 1 11111 11112 22	DIGIT ANALYSIS	RESERVED/CONVERT		
			DNI/ADD-INFO		
	0 12345 67890 12345 67890 12	RESULT	*=OWN NODE		
5000 - 5007	. . **** *	STN	DESTNO 0		
			DNNO	1- 1-150*	
5008 - 5009	. . **** *	STN	R		
			DESTNO	99	
			DNNO	0- 0- 0	
5010	. . **** * . **** *	ATNDIND			



800	. . . . . *	ATNDDID	
854	. ***** *	NETW	R
			DESTNO 2
*66	. . . . . *	SIGNON	DNNO 0- 0- 0

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

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

*91	. . . . . *	MBOFF	
#66	. . . . . *	SIGNOFF	
#91	. . . . . *	MBON	
##22	. . . . . *	DAKY	
##24	. . . . . *	DSSKY	
##25	. . . . . *	FWDKY	
##26	. . . . . *	HTKY	
##27	. . . . . *	KNOVRKY	
##28	. . . . . *	MBKY	
##29	. . . . . *	MSGRKY	
##35	. . . . . *	TIMEKY	
##36	. . . . . *	VCKY	

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

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

##37	. . . . . *	VCRKY	
##38	. . . . . *	CCKY	
##39	. . . . . *	CONFKY	
##41	. . . . . *	NAMEKY	
##42	. . . . . *	PARKKY	
##43	. . . . . *	REMKY	
##44	. . . . . *	STKY	
##45	. . . . . *	CBKKY	
##46	. . . . . *	CONSKY	
##47	. . . . . *	DNDKY	
##48	. . . . . *	EXHOLDKY	
##49	. . . . . *	HOLDKY	

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

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

##50	. . . . . *	IUSEKY	
##51	. . . . . *	LNRKY	
##52	. . . . . *	PRIVKY	
##53	. . . . . *	RLSKY	
##54	. . . . . *	SNRKY	
##55	. . . . . *	TRNSKY	
##56	. . . . . *	RCTOFFKY	
##57	. . . . . *	TOGGLEKY	



DIGIT INTERPRETATION				DPLN 0				
CODE	CALL PROGRESS STATE				DIGIT	RESERVED/CONVERT		
	0	12345	67890	12345	67890	12	ANALYSIS	DNI/ADD-INFO
							RESULT	*=OWN NODE
0	*.....		ATNDDID	
0*	**..	ATND	
150	.	****	*****	**..	OWNNODE	
2	.	****	*****	**..	TIE	
31	.	****	*****	**..	TIE	
33	.	****	*****	**..	TIE	
37	- 38	.	****	*****	**..	.....	TIE	
40	.	****	*****	**..	TIE	
702	.	****	*****	**..	TIE	R
9	.	****	**..	CO	
*0	.	*.....	*..	ACBK	
10	**..	CCMANS	R

DIGIT INTERPRETATION				DPLN 0				
CODE	CALL PROGRESS STATE				DIGIT	RESERVED/CONVERT		
	0	12345	67890	12345	67890	12	ANALYSIS	DNI/ADD-INFO
							RESULT	*=OWN NODE
11	*.....	AFWDVCE	
12	*.....	AFWDDTE	
13	*.....	AFWDDWD	
*14	.	****	*****	**..*	AFWDREM	
								CFREMVAR CFU
								CFREMSE VOICE
*15	.	*...*	APRIV	
16	PUGDIS	
*17	.	*.....	*	SPLIT	
*18	.	*.....	TRACE	
19	*.....	AREM	
*20**	NOPT	

DIGIT INTERPRETATION				DPLN 0				
CODE	CALL PROGRESS STATE				DIGIT	RESERVED/CONVERT		
	0	12345	67890	12345	67890	12	ANALYSIS	DNI/ADD-INFO
							RESULT	*=OWN NODE
21	*.....	AFFWDVCE	
22	*.....	AFFWDDTE	
*23	.	*...*	CALLPARK	
24	DISUON	
*3	.	****	PUDIR	
40	*..	CCANS	R
41	*..	CCDIS	
*43	.	**..*	*.....	**..	DTE	
*44	.	****	*****	**..*	FWDREM	
								CFREMVAR CFU
								CFREMSE VOICE
*45	*..	CCMEETME	



DIGIT INTERPRETATION						DPLN 0	
CODE	CALL PROGRESS STATE					DIGIT	RESERVED/CONVERT
	0	1	2	3	4	ANALYSIS	DNI/ADD-INFO
	12345	67890	12345	67890	12	RESULT	*=OWN NODE
*46	. *****	*.***	**...	CCSCD	R
47	CCSURG	
48	CCVCE	
49	ACOSX	
50**	FWDIGNOR	
51	ADND	
52	AHTVCE	
*53	. *****	*.***	**...	CCMSURG	R
54	SPD	
*55	. *...*	..**	BABYLSNG	
*56	. *****	*.***	**...	CCMS	R
57	CCS	

DIGIT INTERPRETATION						DPLN 0	
CODE	CALL PROGRESS STATE					DIGIT	RESERVED/CONVERT
	0	1	2	3	4	ANALYSIS	DNI/ADD-INFO
	12345	67890	12345	67890	12	RESULT	*=OWN NODE
*58	. *****	*.***	**...	CCSN	R
59	CCSTN	
*60	. *....	KNOVR	
*61	. *****	..***	**...	SPDC1	
*62	. *****	..***	**...	SPDC2	
*63	. ***..*	..**	SPDI	
64*	SPDIPROG	
*69	. *....	..**	EOVR	
*7	. *...*	..***	LNDR	
81***	..	APIN1	
82***	..	APIN2	
83***	..	APIN3	

DIGIT INTERPRETATION						DPLN 0	
CODE	CALL PROGRESS STATE					DIGIT	RESERVED/CONVERT
	0	1	2	3	4	ANALYSIS	DNI/ADD-INFO
	12345	67890	12345	67890	12	RESULT	*=OWN NODE
84***	..	APIN4	
85***	..	APIN5	
*88***	CTLS	
*89	. *...*	*...*	*...	TESTLN	
*9	. *....	CONF3	
***	PU	
*#50	. *...*	..***	ACDLOGON	
*#51	. *...*	..***	ACDAV	
*#52	. *...*	..***	ACDWORK	
*#53	. *...*	..***	ACC	
#54	MONSLNT	
#55	MONTONE	



DIGIT INTERPRETATION				DPLN 0	
CODE	CALL PROGRESS STATE			DIGIT	RESERVED/CONVERT
	0	12345	67890	12345 67890 12	1 11111 11112 22
				ANALYSIS	DNI/ADD-INFO
				RESULT	*=OWN NODE
*#60	. * . . . * *
*#61	. * . . . * *
*#62 *
*#63 *
*#71	. * . . . * *
*#72	. * . . . * *
*#74	. * . . . * *
#0 *
#11 *
#12 *

DIGIT INTERPRETATION				DPLN 0	
CODE	CALL PROGRESS STATE			DIGIT	RESERVED/CONVERT
	0	12345	67890	12345 67890 12	1 11111 11112 22
				ANALYSIS	DNI/ADD-INFO
				RESULT	*=OWN NODE
#14 * * * * *
				DFWDREM	CFREMVAR CFU CFREMSE VOICE
#15	. * . . . * *
#19 *
#21 *
#22 *
#24 * *
#49 *
#51 *
#52 *
#74 *

DIGIT INTERPRETATION				DPLN 0	
CODE	CALL PROGRESS STATE			DIGIT	RESERVED/CONVERT
	0	12345	67890	12345 67890 12	1 11111 11112 22
				ANALYSIS	DNI/ADD-INFO
				RESULT	*=OWN NODE
#8 * * * * *
#92 * *
*#50	. * . . . * * * *
*#51	. * . . . * * * *
*#60	. * . . . * *
*#61	. * . . . * *
*#70	. * . . . * *
*#71	. * . . . * *
*#72	. * . . . * *
*#73	. * . . . * *
*#74	. * . . . * *
##1 *

DIGIT INTERPRETATION				DPLN 0	
CODE	CALL PROGRESS STATE			DIGIT	RESERVED/CONVERT



CODE	1 11111 11112 22	ANALYSIS	DNI/ADD-INFO
	0 12345 67890 12345 67890 12	RESULT	*=OWN NODE
##40	. . . . . * ..	NAKYLO	
##7	. . . . * . . . . *	MBON	
##8	. . . . * . . . . *	MBOFF	

AMO-WABE -162 DIALLING PLANS, FEATURE ACCESS CODES

DISPLAY COMPLETED;>

Enbloc Sending dial plan, DPLN

<dis-ldpln

TYPE = ldp

M40: APPLICABLE GROUP CONDITION: MAXIMUM OF 1 OUT OF 2 PARAMETERS

LDPNO = 47;

DIS-LDPLN:LDP,47;

H500: AMO LDPLN STARTED

LDPNO : 47	LDP : 37-XXXX				
	SPC : 6				
DPLN	LRTE	LAUTH	DPLN	LRTE	LAUTH
0	37	1	8		
1			9		
2			10		
3			11		
4			12		
5			13		
6			14		
7			15		

AMO-LDPLN-196 ADMINISTRATION LCR DIALPLAN

DISPLAY COMPLETED;

Overlap Sending dial plan, DPLN

<dis-ldpln

TYPE = ldp



M40: APPLICABLE GROUP CONDITION: MAXIMUM OF 1 OUT OF 2 PARAMETERS

LDPNO = 47;

DIS-LDPLN:LDP,47;

H500: AMO LDPLN STARTED

```

+-----+
| LDPNO : 47 | LDP : 37-X |
|             | SPC : 6    |
+-----+
|           | DPLN | LRTE | LAUTH | DPLN | LRTE | LAUTH |
+-----+
|           | 0    | 37   | 1     | 8    |     |     |
|           | 1    |     |     | 9    |     |     |
|           | 2    |     |     | 10   |     |     |
|           | 3    |     |     | 11   |     |     |
|           | 4    |     |     | 12   |     |     |
|           | 5    |     |     | 13   |     |     |
|           | 6    |     |     | 14   |     |     |
|           | 7    |     |     | 15   |     |     |
+-----+

```

AMO-LDPLN-196 ADMINISTRATION LCR DIALPLAN

DISPLAY COMPLETED;

BCSU

<dis-bcsu

TYPE = tbl

LTG = 1

LTU = 1

SLOT = 73;

DIS-BCSU:TBL,1,1,73;

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 |
+-----+
| 73 | Q2196-X | DIU-N2 | 1 | A | Q2196-X | 1 | -04 - | READY |
AMO-BCSU -162 BOARD CONFIGURATION, SWITCHING UNIT

```

DISPLAY COMPLETED;

Class of Trunk, COT

<dis-cot



COTNO = 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
END-OF-DIAL FOR BLOCK IS SET	BLOC
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 -162 CLASS OF TRUNK FOR CALL PROCESSING

DISPLAY COMPLETED;

Class of Parameter for device handler, COP

<disp-cop

COPNO = 4;

DISP-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 -162 CLASS OF PARAMETER FOR DEVICE HANDLER

DISPLAY COMPLETED;

Class of Service, COSSU

<dis-cossu



TYPE = cos

COS = 32;

DIS-COSSU: COS, 32;

H500: AMO COSSU STARTED

```

+-----+-----+-----+-----+-----+-----+
| 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-162 CLASSES OF SERVICE, SWITCHING UNIT

DISPLAY COMPLETED;

<dis-cossu

TYPE = lcos

LCOS = 31;

DIS-COSSU: LCOS, 31;

H500: AMO COSSU STARTED

THE LCR CLASSMARKS ARE CONTAINED IN THE FOLLOWING LCOS:

```

+-----+-----+-----+-----+-----+-----+
| LCOS | LCOSV | LCOSD |
| | 12345678901234567890123456789012 | 12345678901234567890123456789012 |
| | >SERVICE INFORMATION |
+-----+-----+-----+-----+-----+-----+
| 31 | | XX | | XX |
+-----+-----+-----+-----+-----+-----+

```

AMO-COSSU-162 CLASSES OF SERVICE, SWITCHING UNIT

DISPLAY COMPLETED;

Trunk group access code, BUEND

<dis-buend

TGRP = 37;

DIS-BUEND: 37;

H500: AMO BUEND STARTED

```

+-----+-----+-----+-----+-----+-----+
| TGRP NUMBER : 37 | TGRP NAME : PRI | MAXIMUM NO. : 30 |
| SUBGROUP NO. : 10 | DEVICE TYPE : S2CONN | TRACENO : 0 |
| RESERVED : N | SEARCH MODE : CIRCULAR | ACD THRESHOLD : * |
| NUMBER OF ASSOCIATED ROUTES : 2 | PRIORITY : 1 |
+-----+-----+-----+-----+-----+-----+

```



THE FOLLOWING TRUNKS (LTG-LTU-SLOT-CCT) HAVE BEEN ALLOCATED:

1- 1- 73-0	B-CHL: 1	1- 1- 73-0	B-CHL: 2	1- 1- 73-0	B-CHL: 3
1- 1- 73-0	B-CHL: 4	1- 1- 73-0	B-CHL: 5	1- 1- 73-0	B-CHL: 6
1- 1- 73-0	B-CHL: 7	1- 1- 73-0	B-CHL: 8	1- 1- 73-0	B-CHL: 9
1- 1- 73-0	B-CHL: 10	1- 1- 73-0	B-CHL: 11	1- 1- 73-0	B-CHL: 12
1- 1- 73-0	B-CHL: 13	1- 1- 73-0	B-CHL: 14	1- 1- 73-0	B-CHL: 15
1- 1- 73-0	B-CHL: 16	1- 1- 73-0	B-CHL: 17	1- 1- 73-0	B-CHL: 18
1- 1- 73-0	B-CHL: 19	1- 1- 73-0	B-CHL: 20	1- 1- 73-0	B-CHL: 21
1- 1- 73-0	B-CHL: 22	1- 1- 73-0	B-CHL: 23	1- 1- 73-0	B-CHL: 24
1- 1- 73-0	B-CHL: 25	1- 1- 73-0	B-CHL: 26	1- 1- 73-0	B-CHL: 27
1- 1- 73-0	B-CHL: 28	1- 1- 73-0	B-CHL: 29	1- 1- 73-0	B-CHL: 30

AMO-BUEND-162 TRUNK GROUP

DISPLAY COMPLETED;

Trunk Configuration, TDCSU

For Master side configuration

<dis-tdcsu

PEN1 = 1-1-73-0;

DIS-TDCSU:1-1-73-0;

H500: AMO TDCSU STARTED

```

+----- DIGITAL TRUNK (FORMAT=L) -----+
|          DEV = S2CONN          PEN = 1-01-073-0          |
+-----+-----+-----+
|  COTNO    = 4          COPNO    = 4          DPLN      = 0          |
|  ITR      = 0          COS      = 32         LCOSV     = 31         |
|  LCOSD    = 31         CCT      = PRI        DESTNO    = 99         |
|  PROTVAR = PSS1V2     SEGMENT  = 1          TCHARG    = N          |
|  SUPPRESS = 0          DGTPR    =           CHIMAP    = N          |
|  ISDNCC   =           ISDNAC   =           ISDNLC    =           |
|  ISDNIP   =           ISDNNP   =           PNPLC     =           |
|  PNPL2C   =           PNPL1C   =           PNPAC     =           |
|  PNPL2P   =           PNPL1P   =           NNO       = 1 -1 -999  |
|  TRACOUNT = 31         SATCOUNT = MANY      CARRIER  = 1          |
|  ALARMNO  = 2          FIDX     = 1          FWDX      = 10         |
|  ZONE     = EMPTY     COTX     = 4          TPROFNO   =           |
|  DOMTYPE  =           DOMAINNO =           UUSCCY   = 8          |
|  INIGHT   =           UUSCCX   = 16         |
|  CCHDL    =           |
+-----+-----+-----+
|  TGRP     = 37         SRCHMODE = CIR        BCNEG     = N          |
|  BCGR     = 1          INS      = Y          LWPAR    = 4         |
|  LWPP     = 0          LWLT     = 0          LWPS     = 0          |
|  LWR1     = 0          LWR2     = 0          |
|  BCHAN    1 && 30     |
+-----+-----+-----+

```

AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 30

AMO-TDCSU-162 DIGITAL TRUNKS

DISPLAY COMPLETED;



```

<dis-lwpar

INFOPAT = 4

FORMAT = 1

DEV = ;

DIS-LWPAR:4,L,;
H500: AMO LWPAR STARTED

```

```

+-----+
| LOADWARE PARAMETERS      CIRCUIT TYPE: DIUS2  SOURCE:DB    BLOCK:    4 |
+-----+
| LNTYPE   = COPPER          VERSION   = S2          QUAL      = ON      |
| MASTER   = Y              DCHAN1    = 16          DCHAN2    = 0      |
| PATTERN  = D5H            QUAL1     = 10 SEC.    QUAL2     = 10 MIN. |
| SMD      = Y              PERMACT   = Y           FCBAB     = DFH    |
| CDG      = Y              FIXEDTEI  = 0           CNTRNR    = 255    |
| TEIVERIF = N              CRC4REP   = N                    |
| DEV      = INDEP          |
| INFO     = 4:COPPER-MASTER CLOCK(DPNSS A-END) |
+-----+

```

AMO-LWPAR-162 LOADWARE PARAMETERS FOR NETWORKING MODULES

DISPLAY COMPLETED;

For Slave side configuration

```

<dis-tdcsu

PEN1 = 1-1-73-0;

DIS-TDCSU:1-1-73-0;
H500: AMO TDCSU STARTED

```

```

+-----+
|                               DIGITAL TRUNK (FORMAT=L)  -----+
|                               DEV = S2CONN                PEN = 1-01-073-0
+-----+
| COTNO    = 4              COPNO    = 4              DPLN      = 0      |
| ITR      = 0              COS      = 32             LCOSV     = 31     |
| LCOSD    = 31             CCT      = PRI           DESTNO    = 99     |
| PROTVAR  = PSS1V2        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  = 2             FIDX     = 1             CARRIER  = 1      |
| ZONE     = EMPTY        COTX     = 4             FWDX     = 10     |
| DOMTYPE  =               DOMAINNO =                TPROFNO   =        |
| INIGHT   =               |
| CCHDL    =               UUSCCX   = 16            UUSCCY   = 8      |
+-----+

```



```

| TGRP      = 37          SRCHMODE = CIR          BCNEG      = N
| BCGR      = 1          INS        = Y          LWPAR     = 1
| LWPP      = 0          LWLT       = 0          LWPS       = 0
| LWR1      = 0          LWR2       = 0
| BCHAN     1 && 30
+-----+

```

AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 30

AMO-TDCSU-162 DIGITAL TRUNKS
 DISPLAY COMPLETED;

<dis-lwpar

INFOPAT = 1

FORMAT = 1

DEV = ;

DIS-LWPAR:1,L,;
 H500: AMO LWPAR STARTED

```

+-----+
| LOADWARE PARAMETERS      CIRCUIT TYPE: DIUS2    SOURCE:DB      BLOCK:      1 |
+-----+
| LNTYPE = COPPER            VERSION = S2            QUAL = ON      |
| MASTER = N                DCHAN1 = 16            DCHAN2 = 0      |
| PATTERN = D5H             QUAL1 = 10 SEC.        QUAL2 = 10 MIN. |
| SMD = N                   PERMACT = Y            FCBAB = DFH     |
| CDG = N                    FIXEDTEI = 0            CNTRNR = 255    |
| TEIVERIF = N              CRC4REP = N                                   |
| DEV = INDEP                                                           |
| INFO = 1:COPPER-DERIVE CLOCK FROM LINE(I421) |
+-----+

```

AMO-LWPAR-162 LOADWARE PARAMETERS FOR NETWORKING MODULES

DISPLAY COMPLETED;

Reference Clock Configuration, REFTA

For Master side configuration

<dis-refta

TYPE = circuit

PEN = 1-1-73-0;

DIS-REFTA:CIRCUIT,1-1-73-0;
 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- 73- 0	DIU-N2	S2CONN	0	17575	N		N

AMO-REFTA-162 REFERENCE CLOCK TABLE
 DISPLAY COMPLETED;

For Slave side configuration

<dis-refta

TYPE = circuit

PEN = 1-1-73-0;

DIS-REFTA:CIRCUIT,1-1-73-0;
 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- 73- 0	DIU-N2	S2CONN	11	17575	N		N

AMO-REFTA-162 REFERENCE CLOCK TABLE
 DISPLAY COMPLETED;

Trunk Least Cost Routing Configuration

LDAT

<dis-ldat

TYPE = lcr

LROUTE = 37;

DIS-LDAT:LCR,37;
 H500: AMO LDAT STARTED

LROUTE = 37 LDPLN NAME = PRI TEST SERVICE = ALL										
TYPE = LCR DNN OF ROUTE = 1 -1 -999										
SERVICE INFO =										
LRTEL	LVAL	TGRP	ODR	LAUTH	SCHEDULE ABCDEFGH	CARRIER ZONE	BAND WDTH	LATR		
1	1	37	1	1	*****	1 EMPTY	1	NONE		

AMO-LDAT -162 LCR-DIRECTIONS
 DISPLAY COMPLETED;



RICHT

```
<dis-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=FIX   DSP=WITHOUT TEXT=              PULS=PP300 |
| ROUTENO =     4 BUGS = LIN                    MAINGROUP = 4  |
| INFO =                                               |
+-----+
| TGRP = 37     LDAT      PRI                    SUBGROUP = 10 |
+-----+
```

```
AMO-RICHT-162      TRUNK ROUTING
```

```
DISPLAY COMPLETED;
```

LCR Out-dial Rules,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 -162      ADMINISTRATION OF LCR OUTDIAL RULES
```

```
DISPLAY COMPLETED;
```

Configuring the Cisco 3640

```
3640_B#show running-configuration
```

```
Using 2080 out of 129016 bytes
```

```
!
```

```
version 12.2
```

```
no service single-slot-reload-enable
```

```
service timestamps debug uptime
```

```
service timestamps log uptime
```



```
no service password-encryption
no service dhcp
!
hostname 3640_B
!
boot system flash
logging rate-limit console 10 except errors
!
voice-card 1
!
ip subnet-zero
!
!
no ip finger
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
!
no ip dhcp-client network-discovery
isdn switch-type primary-qsig
call rsvp-sync
cns event-service server
!
!
!
!
!
!
!
!
controller E1 1/0
  shutdown
  framing NO-CRC4
  ds0-group 1 timeslots 1 type r2-analog r2-compelled
  cas-custom 1
!
controller E1 1/1
  pri-group timeslots 1-31
!
!
interface Tunnel1
  no ip address
!
interface Ethernet0/0
  ip address 100.100.100.1 255.255.255.0
  no ip mroute-cache
  half-duplex
  no cdp enable
!
interface Ethernet0/1
```




```
ip address 192.168.71.6 255.255.255.0
no ip mroute-cache
half-duplex
no cdp enable
!
interface Serial1/1:15
no ip address
no logging event link-status
isdn switch-type primary-qsig
isdn protocol-emulate network
isdn incoming-voice voice
no isdn T309-enable
isdn T310 60000
isdn bchan-number-order ascending
no cdp enable
!
ip kerberos source-interface any
ip classless
ip route 10.1.1.0 255.255.255.0 100.100.100.2
ip route 10.1.1.0 255.255.255.0 10.1.1.7
no ip http server
!
no cdp run
!
!
voice-port 1/0:1
!
voice-port 1/1:15
!
voice-port 2/0/0
!
voice-port 2/0/1
!
dial-peer cor custom
!
!
!
dial-peer voice 1 pots
destination-pattern 6000
port 2/0/0
!
dial-peer voice 5 pots
destination-pattern 3...
direct-inward-dial
port 1/0:1
prefix 3
!
dial-peer voice 3 voip
destination-pattern 2...
progress_ind setup enable 1
```



```
    session target ipv4:100.100.100.2
!
dial-peer voice 10 pots
  destination-pattern 7...
  direct-inward-dial
!
dial-peer voice 11 pots
  destination-pattern 5005
!
dial-peer voice 12 pots
  destination-pattern 4085275000
!
dial-peer voice 15 voip
  destination-pattern 9...
  session target ipv4:100.100.100.2
!
dial-peer voice 16 pots
  destination-pattern 5...
  direct-inward-dial
  port 1/1:15
  prefix 5
!
!
line con 0
  transport input none
line aux 0
line vty 0 4
  no login
!
end
```

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Corporate Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters

Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters

Cisco Systems, Inc.
Capital Tower
168 Robinson Road
#22-01 to #29-01
Singapore 068912
www.cisco.com
Tel: +65 317 7777
Fax: +65 317 7799

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