



Siemens Hicom 330 E Release 3.1 using E1 PRI Euro to Cisco Unified CallManager 4.0

December 13, 2007 Revision 2

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Introduction

This is an application note for connectivity of Siemens Hicom 330 E Release 3.1 PBX with Cisco Unified CallManager (CUCM) Release 4.0 using Cisco 6608-E1 PRI as MGCP gateway.

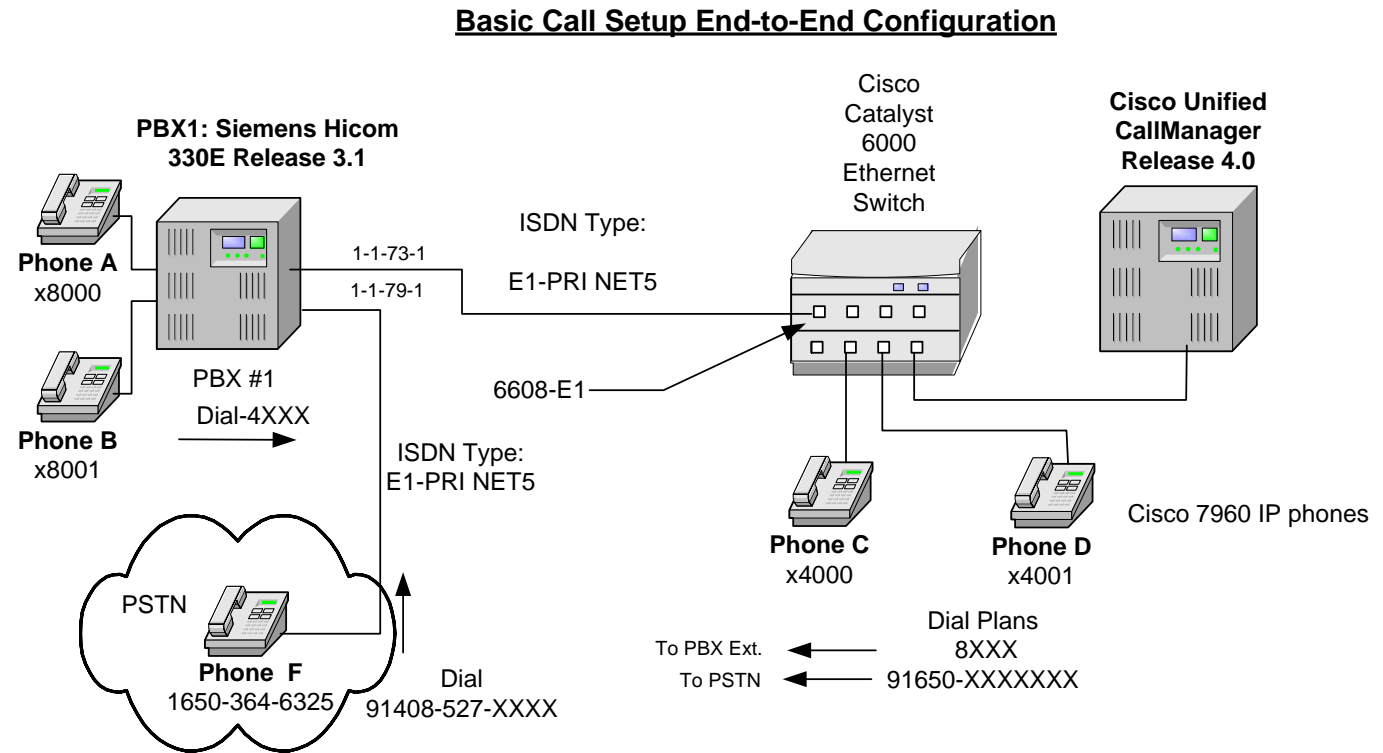
The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco Unified CallManager connected to the PBX via 6608-E1 PRI link as MGCP gateway.

Connectivity is achieved by using the PRI EURO protocol type on the MGCP gateway and ETSI switch type on the Siemens Hicom 330 E PBX.

Basic calls worked fine in both directions with Calling Number feature support.

Network Topology

Figure 1. Network Topology



Limitations

Calling Name and Number Feature

The Siemens Hicom 330 E PRI Interface with ETSI protocol does not support Calling Name Delivery Presentation feature.

Cisco Unified CallManager 4.0 release does not support sending Connected Number information.

When calling from Cisco 7960 IP phone to Siemens digital phone, Siemens phone display Calling Number and trunk name. IP phone display Connected Number.

When calling from Siemens digital phone to Cisco 7960 IP phone, IP phone displays Calling Number. Siemens phone however does NOT get updated when the call is answered. It displays the number being dialed and trunk name instead. It was verified that the CallManager was not sending "Connected Number" information.

B-Channel Mapping

Siemens Hicom 330E PBX uses Timeslot channel numbering (1-15, 17-31) when ETSI protocol is selected, therefore the Cisco 6608-E1 Gateway configuration for **Channel IE Type** field should be set to **Timeslot Number**.

System Components

Hardware Requirements

Cisco Hardware:

Cisco Catalyst 6000 switch with 6608-E1 Gateway



Cisco Unified CallManager 4.0

Siemens Hicom 330E PBX Hardware:

DIU-N2

Software Requirements

PBX Software version 3.1

Cisco Unified CallManager Release 4.0

Cisco WS-X6608-E1 gateway Version 7.6(2)

Features

Features Supported

Calling Number Identification Presentation

Features Not Supported

Calling/Connected Name delivery is not supported by the Siemens Hicom 330E PRI Interface with ETSI protocol

Sending Connected Number is not supported by Cisco Unified CallManager 4.0 PRI trunk

Configuration

Configuring the Siemens Hicom 330E PBX

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

DPLN

```
<DISPLAY-WABE:TYPE=GEN;
DIS-WABE:GEN;
H500: AMO WABE STARTED
```

DIGIT INTERPRETATION		VALID FOR ALL DIAL PLANS			
CODE		CALL PROGRESS STATE	DIGIT ANALYSIS RESULT	RESERVED/CONVERT DNI/ADD-INFO	
		1 1111 11112 22		*=OWN NODE	
001 - 003	*	.....	NETRTE		
004	*	.....	NETRTE	R	
005 - 006	*	.....	NETRTE		
1000	.	***** ** ..	STN		
				DESTNO 25	
				DNNO 0- 0- 25	
11	.	.....*	MBKY		



111	. **** *	TIE	
222	. **** *	OWNNODE	
3000	. **** *	STN	
			DESTNO 33
			DNNO 0- 0-333
4000 - 4050	. **** *	STN	
			DESTNO 111
			DNNO 0- 0-111

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

CODE	CALL PROGRESS STATE 1 1111 1112 22 0 12345 67890 12345 67890 12	DIGIT ANALYSIS RESULT	RESERVED/CONVERT
			DNI/ADD-INFO *=OWN NODE
4051 - 4599	. **** *	STN	R DESTNO 0 DNNO 0- 0-222*
4700 - 4999	. **** *	STN	R DESTNO 0 DNNO 0- 0-222*
5000 - 5009	. **** *	STN	DESTNO 55 DNNO 0- 0- 55
5010	. **** *	ATNDIND	R
5011 - 5020	. **** *	STN	DESTNO 55 DNNO 0- 0- 55
5021 - 5050	. **** *	STN	DESTNO 111 DNNO 0- 0-111
5051	. **** *	ATNDIND	

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

CODE	CALL PROGRESS STATE 1 1111 1112 22 0 12345 67890 12345 67890 12	DIGIT ANALYSIS RESULT	RESERVED/CONVERT
			DNI/ADD-INFO *=OWN NODE
5500 - 5501	. **** *	STN	DESTNO 56 DNNO 0- 0-560
555	. **** *	TIE	
560	. **** *	TIE	
6000	. **** *	STN	DESTNO 33 DNNO 0- 0-333
7000 - 7002	. **** *	STN	DESTNO 56 DNNO 0- 0-560
79	. **** *	TIE	
8000 - 8019	. **** *	STN	DESTNO 0 DNNO 0- 0-222*

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

CODE	CALL PROGRESS STATE 1 1111 1112 22 0 12345 67890 12345 67890 12	DIGIT ANALYSIS RESULT	RESERVED/CONVERT
			DNI/ADD-INFO *=OWN NODE
8020	. **** *	STN	R DESTNO 0 DNNO 0- 0-222*
854	. **** *	NETW	R DESTNO 2 DNNO 0- 0- 0



9	. **** *	TIE
*66	. . . . * . . . . .	SIGNON
*91	. . . . * . . . . .	MBOFF
#66	. . . . * . . . . .	SIGNOFF
#91	. . . . * . . . . .	MBON
##22	. . . . . . . . . .	DAKY
##24	. . . . . . . . . .	DSSKY
##25	. . . . . . . . . .	FWDKY
##26	. . . . . . . . . .	HTKY
##27	. . . . . . . . . .	KNOVRKY
##28	. . . . . . . . . .	MBKY

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

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

##29	. . . . . . . . . .	MSGRKY
##35	. . . . . . . . . .	TIMEKY
##36	. . . . . . . . . .	VCKY
##37	. . . . . . . . . .	VCRKY
##38	. . . . . . . . . .	CKKY
##39	. . . . . . . . . .	CONFKY
##41	. . . . . . . . . .	NAMEKY
##42	. . . . . . . . . .	PARKKY
##43	. . . . . . . . . .	REMKY
##44	. . . . . . . . . .	STKY
##45	. . . . . . . . . .	CBKKY
##46	. . . . . . . . . .	CONSKY
##47	. . . . . . . . . .	DNDKY
##48	. . . . . . . . . .	EXHOLDKY
##49	. . . . . . . . . .	HOLDKY
##50	. . . . . . . . . .	IUSEKY
##51	. . . . . . . . . .	LNRY

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

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

##52	. . . . . . . . . .	PRIVKY
##53	. . . . . . . . . .	RLSKY
##54	. . . . . . . . . .	SNRKY
##55	. . . . . . . . . .	TRNSKY
##56	. . . . . . . . . .	RCTOFFKY
##57	. . . . . . . . . .	TOGGLEKY

AMO-WABE -111 DIALLING PLANS, FEATURE ACCESS CODES
 DISPLAY COMPLETED;

Enbloc Sending Dial Plan, DPLN

```
<dis-richt:lrte,111;
DIS-RICT:LRTE,111;
H500: AMO RICHT STARTED
```

LRTE = 111	NAME = ROPT CCM	(NEUTRAL)	SRVC = ALL
DNNO =	111	DESTNO = 111	
ROUTOPT = YES	REROUT = YES	PLB = NO	FWDBL = NO
MFV: CNV=WITHOUT DSP=WITHOUT TEXT=			PULS=
ROUTENO =	15	BUGS = LIN	ROUTATT = NO
INFO =			MAINGRP = 15



```
+-----+  
| TGRP = 38 LDAT PRI MWI (NEUTRAL) SUBGROUP = 9 |  
+-----+
```

Overlap Sending Dial Plan, DPLN

```
<DISPLAY-LDPLN:TYPE=LDP,LDPNO=43;  
DISPLAY-LDPLN:TYPE=LDP,LDPNO=43;  
H500: AMO LDPLN STARTED
```

LDPNO : 43	LDP : 38-X					
	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		

```
AMO-LDPLN-111 ADMINISTRATION LCR DIALPLAN  
DISPLAY COMPLETED;
```

PSTN Dial Plan, DPLN

```
DIS-LDPLN:LDP,34;  
H500: AMO LDPLN STARTED
```

LDPNO : 34	LDP : 9-1650-XXXXXXX					
	SPC : 22					
	DPLN	LRTE	LAUTH	DPLN	LRTE	LAUTH
	0	916	1	8		
	1			9		
	2			10		
	3			11		
	4			12		
	5			13		
	6			14		
	7			15		

```
AMO-LDPLN-111 ADMINISTRATION LCR DIALPLAN  
DISPLAY COMPLETED;
```

BCSU

```
<DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=1,SLOT=73;  
DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=1,SLOT=73;  
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
73	Q2196-X	DIU-N2	1	A	Q2196-X	1	-04 -	READY

AMO-BCSU -111 BOARD CONFIGURATION, SWITCHING UNIT
 DISPLAY COMPLETED;

Class of Trunk, 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
NETWORKWIDE CALL FORWARDING PERMITTED	FWDN
DON'T RELEASE CALL TO BUSY HUNT GROUP	BSHT
SEND NO NODE NUMBER TO PARTNER	LWNC
CONNECTION TO ROUTE OPTIMIZATION NODE	ROPT
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
LINE WITH IMPLICIT NUMBERS	LINO
CONTROLLED TRUNK AND LINE SELECTION	CTLS
NO TONE	NTON

AMO-COT -111 CLASS OF TRUNK FOR CALL PROCESSING
 DISPLAY COMPLETED;

Class of Parameter for Device Handler, COP

<DISPLAY-COP:COPNO=4;
 DISPLAY-COP:COPNO=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 -111 CLASS OF PARAMETER FOR DEVICE HANDLER
 DISPLAY COMPLETED;

Class of Service, COSSU



```
<DISPLAY-COSSU:TYPE=COS,COS=32;
DISPLAY-COSSU:TYPE=COS,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-111 CLASSES OF SERVICE, SWITCHING UNIT
DISPLAY COMPLETED;
```

```
<DISPLAY-COSSU:TYPE=LCOSV,LCOSV=32;
DISPLAY-COSSU:TYPE=LCOSV,LCOSV=32;
H500: AMO COSSU STARTED
```

LCOS	LAUTH						LCR
V	1	2	3	4	5	6	OPTS=
	1234567890123456789012345678901234567890123456789012345678901234						LCRET
	>SERVICE INFORMATION						LCR
32	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX						.
	>32:TRUNKS						

```
AMO-COSSU-111 CLASSES OF SERVICE, SWITCHING UNIT
DISPLAY COMPLETED;
```

Trunk Group Access Code, BUEND

```
<DISPLAY-BUEND:TGRP=38;
DISPLAY-BUEND:TGRP=38;
H500: AMO BUEND STARTED
```

```
----- FORMAT = L -----
```

TGRP NUMBER :	38	TGRP NAME :	PRI MWI	MAXIMUM NO. :	30
		CHARCON :	NEUTRAL		
SUBGROUP NO.:	9	DEVICE TYPE :	S2CONN	TRACENO :	0
RESERVED :	N	SEARCH MODE :	CIRCULAR	ACD THRESHOLD :	*
NUMBER OF ASSOCIATED ROUTES :	4	PRIORITY :	2		
THE FOLLOWING TRUNKS (LTG-LTU-SLOT-CCT) HAVE BEEN ALLOCATED:					
1- 1- 73-1	B-CHL: 1	1- 1- 73-1	B-CHL: 2	1- 1- 73-1	B-CHL: 3
1- 1- 73-1	B-CHL: 4	1- 1- 73-1	B-CHL: 5	1- 1- 73-1	B-CHL: 6
1- 1- 73-1	B-CHL: 7	1- 1- 73-1	B-CHL: 8	1- 1- 73-1	B-CHL: 9
1- 1- 73-1	B-CHL: 10	1- 1- 73-1	B-CHL: 11	1- 1- 73-1	B-CHL: 12
1- 1- 73-1	B-CHL: 13	1- 1- 73-1	B-CHL: 14	1- 1- 73-1	B-CHL: 15
1- 1- 73-1	B-CHL: 16	1- 1- 73-1	B-CHL: 17	1- 1- 73-1	B-CHL: 18
1- 1- 73-1	B-CHL: 19	1- 1- 73-1	B-CHL: 20	1- 1- 73-1	B-CHL: 21
1- 1- 73-1	B-CHL: 22	1- 1- 73-1	B-CHL: 23	1- 1- 73-1	B-CHL: 24
1- 1- 73-1	B-CHL: 25	1- 1- 73-1	B-CHL: 26	1- 1- 73-1	B-CHL: 27
1- 1- 73-1	B-CHL: 28	1- 1- 73-1	B-CHL: 29	1- 1- 73-1	B-CHL: 30

```
AMO-BUEND-111 TRUNK GROUP
DISPLAY COMPLETED;
```

Trunk Configuration, TDCSU



For Master-side Configuration

```
<dis-tdcsu:1-1-73-1;
DIS-TDCSU:1-1-73-1;
H500: AMO TDCSU STARTED
```

```

+----- DIGITAL TRUNK (FORMAT=L) -----+
|          DEV = S2CONN          PEN = 1-01-073-1          |
+-----+-----+-----+
| COTNO   = 4          COPNO   = 4          DPLN     = 0          |
| ITR     = 0          COS     = 32         LCOSV    = 32         |
| LCOSD   = 32         CCT     = HIPATH S2   DESTNO   = 111        |
| PROTVAR = ETSI     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      = 111        |
| ALARMNO = 0        FIDX     = 1          CARRIER = 1          |
| ZONE    = EMPTY    COTX     = 4          FWDX     = 5          |
| DOMTYPE =          DOMAINNO =           TPROFNO =           |
| INIGHT  =           |
| CCHDL   =           UUSCCX  = 16        UUSCCY   = 8          |
+-----+-----+-----+
| TGRP    = 38        SRCHMODE = CIR        BCNEG    = Y          |
| BCGR    = 1        INS      = Y          LWPAR   = 2          |
| LWPP    = 0        LWLT    = 0          LWPS    = 0          |
| LWR1    = 0        LWR2    = 0          |
| BCHAN   1 && 30    |
+-----+-----+-----+

```

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

```
AMO-TDCSU-111      DIGITAL TRUNKS
DISPLAY COMPLETED;
```

```
<DISPLAY-LWPAR:INFOPAT="2";
DISPLAY-LWPAR:INFOPAT="2";
H500: AMO LWPAR STARTED
```

```

+-----+-----+-----+
| LOADWARE PARAMETERS      CIRCUIT TYPE: DIUS2  SOURCE:DB  BLOCK: 2 |
+-----+-----+-----+
| 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      = N          FIXEDTEI = 0          CNTRNR   = 255        |
| TEIVERIF = N          CRC4REP  = N          |
| DEV      = INDEP        |
| INFO     = 2:COPPER-MASTER CLOCK.(CORNET) |
+-----+-----+-----+

```

```
AMO-LWPAR-111      LOADWARE PARAMETERS FOR NETWORKING MODULES
DISPLAY COMPLETED;
```

For Slave-side Configuration

```
<dis-tdcsu:1-1-73-1;
DIS-TDCSU:1-1-73-1;
H500: AMO TDCSU STARTED
```

```

+----- DIGITAL TRUNK (FORMAT=L) -----+
|          DEV = S2CONN          PEN = 1-01-073-1          |
+-----+-----+-----+

```



```

COTNO      = 4          COPNO      = 4          DPLN       = 0
ITR        = 0          COS        = 32         LCOSV      = 32
LCOSD      = 32        CCT        = HIPATH S2   DESTNO     = 111
PROTVAR   = ETSI     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        = 111
ALARMNO    = 0          FIDX      = 1          CARRIER   = 1
ZONE       = EMPTY     COTX      = 4          FWDX      = 5
DOMTYPE    =           DOMAINNO  =           TPROFNO   =
INIGHT     =
CCHDL      =           UUSCCX    = 16         UUSCCY    = 8
-----
TGRP       = 38        SRCHMODE  = CIR        BCNEG     = Y
BCGR       = 1          INS        = Y          LWPAR    = 3
LWPP       = 0          LWLT      = 0          LWPS      = 0
LWR1       = 0          LWR2      = 0
BCHAN      1 && 30
-----

```

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

AMO-TDCSU-111 DIGITAL TRUNKS
 DISPLAY COMPLETED;

<DISPLAY-LWPAR:INFOPAT="3";
 DISPLAY-LWPAR:INFOPAT="3";
 H500: AMO LWPAR STARTED

```

+-----+
| LOADWARE PARAMETERS      CIRCUIT TYPE: DIUS2    SOURCE:DB    BLOCK:    3 |
+-----+
| 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      = 3:COPPER-DERIVE CLOCK(CORNET) |
+-----+

```

AMO-LWPAR-111 LOADWARE PARAMETERS FOR NETWORKING MODULES
 DISPLAY COMPLETED;

PSTN Trunk Configuration, TDCSU

<dis-tdcsu
 PEN1 = 1-1-79-1;
 DIS-TDCSU:1-1-79-1;
 H500: AMO TDCSU STARTED

```

+-----+
|                            DEV = S2CONN                            PEN = 1-01-079-1                            |
+-----+
| COTNO     = 4            COPNO     = 4            DPLN      = 0            |
| ITR       = 0            COS       = 32           LCOSV     = 32            |
| LCOSD     = 32           CCT       =            DESTNO    = 59            |
| PROTVAR  = ETSI       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 = 59
| ALARMNO = 0       FIDX = 1       CARRIER = 1
| ZONE = EMPTY     COTX = 4       FWDX = 10
| DOMTYPE =        DOMAINNO =        TPROFNO =
| INIGHT =
| CCHDL =          UUSCCX = 16        UUSCCY = 8
+-----+-----+-----+
| TGRP = 71        SRCHMODE = CIR   BCNEG = N
| BCGR = 1         INS = Y         LWPAP = 2
| LWPP = 0         LWLT = 0        LWPS = 0
| LWR1 = 0         LWR2 = 0
| BCHAN 1 && 30
+-----+-----+-----+
AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 30

```

AMO-TDCSU-111 DIGITAL TRUNKS
 DISPLAY COMPLETED;

Reference Clock Configuration, REFTA

For Master-side Configuration

```

<DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-1-73-1;
DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-1-73-1;
H500: AMO REFTA STARTED

```

REFERENCE CLOCK CIRCUITS							
PEN	MODULE	DEVICE	PRI	ERROR	BLOCK	SUPP.	READY BUT ASYN.
1- 1- 73- 1	DIU-N2	S2CONN	0	59090	N		N

AMO-REFTA-111 REFERENCE CLOCK TABLE
 DISPLAY COMPLETED;

For Slave-side Configuration

```

<DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-1-73-1;
DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-1-73-1;
H500: AMO REFTA STARTED

```

REFERENCE CLOCK CIRCUITS							
PEN	MODULE	DEVICE	PRI	ERROR	BLOCK	SUPP.	READY BUT ASYN.
1- 1- 73- 1	DIU-N2	S2CONN	11	59090	N		N

AMO-REFTA-111 REFERENCE CLOCK TABLE
 DISPLAY COMPLETED;



Trunk Least Cost Routing Configuration

LDAT

```
<DISPLAY-LDAT:TYPE=LCR,LROUTE=38;
DISPLAY-LDAT:TYPE=LCR,LROUTE=38;
H500: AMO LDAT STARTED
```

```
-----+-----
| LROUTE = 38   LDPLN      NAME = PRI                SERVICE = ALL |
| TYPE = LCR                                DNNO OF ROUTE = 111 |
| SERVICE INFO = |
+-----+-----+-----+-----+-----+-----+-----+-----+
| LRTEL | LVAL | TGRP | ODR | LAUTH | SCHEDULE | CARRIER | BAND |
| ABCDEFGH | ZONE | WPTH | LATTR |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1 | 38 | 1 | 1 | ***** | 1 | EMPTY | 1 | NONE |
| DNNO = 1 -1 -999 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

```
AMO-LDAT -111          LCR-DIRECTIONS
DISPLAY COMPLETED;
```

RICHT

```
<dis-richt:lrte,111;
DIS-RICT:LRTE,111;
H500: AMO RICHT STARTED
```

```
-----+-----
| LRTE = 111   NAME = ROPT CCM          (NEUTRAL)  SRVC = ALL |
| DNNO =      111  DESTNO = 111 |
| ROUTOPT = YES  REROUT = YES  PLB = NO    FWDBL = NO |
| MFV: CNV=WITHOUT DSP=WITHOUT TEXT=      PULS= |
| ROUTENO =    15  BUGS = LIN  ROUTATT = NO  MAINGRP = 15 |
| INFO = |
+-----+-----+-----+-----+-----+-----+-----+-----+
| TGRP = 38 LDAT PRI MWI                (NEUTRAL)  SUBGROUP = 9 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

```
AMO-RICT-111          TRUNK ROUTING
DISPLAY COMPLETED;
```

PSTN RICHT

```
DIS-RICT:LRTE,916,;
H500: AMO RICHT STARTED
```

```
-----+-----
| LRTE = 916   NAME = 91650 PSTN        (NEUTRAL)  SRVC = ALL |
| DNNO =      59  DESTNO = 59 |
| ROUTOPT = YES  REROUT = YES  PLB = NO    FWDBL = NO |
| MFV: CNV=WITHOUT DSP=WITHOUT TEXT=      PULS= |
| ROUTENO =    20  BUGS = LIN  ROUTATT = NO  MAINGRP = 20 |
| INFO = |
+-----+-----+-----+-----+-----+-----+-----+-----+
| TGRP = 71 LDAT CLOSED NUMBER E1      (NEUTRAL)  SUBGROUP = 19 |
+-----+-----+-----+-----+-----+-----+-----+-----+
```

```
AMO-RICT-111          TRUNK ROUTING
DISPLAY COMPLETED;
```

LCR Out-dial Rules, LODR



```
<dis-lodr:1;
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 7

AMO-LODR -111      ADMINISTRATION OF LCR OUTDIAL RULES
DISPLAY COMPLETED;
```



Configuring the Cisco Unified CallManager

6608-E1 Gateway Configuration

System Route Plan Service Feature Device User Application Help

Cisco CallManager Administration
For Cisco IP Telephony Solutions

CISCO SYSTEMS

Gateway Configuration

[Back to Find/List Gateways](#)
[Dependency Records](#)

Product : Cisco Catalyst 6000 E1 VoIP Gateway
Gateway : S0/DS1-0@SDA0001C9D8633E
Device Protocol: Digital Access PRI
Registration: Registered with Cisco CallManager 172.20.32.254
IP Address: [172.20.32.103](#)

Status: Ready

Device Information

MAC Address*	<input type="text" value="0001C9D8633E"/>
Description	<input type="text" value="SDA0001C9D8633E"/>
Device Pool*	<input type="text" value="Default"/>
Network Locale	<input type="text" value="United States"/>
Media Resource Group List	<input type="text" value=" < None >"/>
Location	<input type="text" value=" < None >"/>
AAR Group	<input type="text" value=" < None >"/>
Load Information	<input type="text"/>

Multilevel Precedence and Preemption (MLPP) Information


MLPP Domain (e.g., "0000FF")	<input type="text"/>
MLPP Indication	Not available on this device
MLPP Preemption	Not available on this device

Interface Information

PRI Protocol Type*	<input type="text" value="PRI EURO"/>
Protocol Side*	<input type="text" value="User"/>
Channel Selection Order*	<input type="text" value="Top Down"/>
Channel IE Type*	<input type="text" value="Timeslot Number"/>



PCM Type*	A-law
Delay for first restart (1/8 sec ticks)	32
Delay between restarts (1/8 sec ticks)	4
<input checked="" type="checkbox"/> Inhibit restarts at PRI initialization	
<input checked="" type="checkbox"/> Enable status poll	
Call Routing Information	
Inbound Calls	
Significant Digits*	All
Calling Search Space	Incoming Trunk
AAR Calling Search Space	< None >
Prefix DN	
Outbound Calls	
Calling Line ID Presentation*	Default
Calling Party Selection*	Originator
Called party IE number type unknown*	Unknown
Calling party IE number type unknown*	Unknown
Called Numbering Plan*	Private
Calling Numbering Plan*	Unknown
Number of digits to strip*	0
Caller ID DN	
SMDI Base Port*	0
PRI Protocol Type Specific Information	
<input checked="" type="checkbox"/> Display IE Delivery	
<input checked="" type="checkbox"/> Redirecting Number IE Delivery - Outbound	
<input checked="" type="checkbox"/> Redirecting Number IE Delivery - Inbound	
<input checked="" type="checkbox"/> Send Extra Leading Character In DisplayIE***	
<input type="checkbox"/> Setup non-ISDN Progress Indicator IE Enable****	
<input type="checkbox"/> MCDN Channel Number Extension Bit Set to Zero**	

<input type="checkbox"/>	MCDN Channel Number Extension Bit Set to Zero**	
<input type="checkbox"/>	Send Calling Name In Facility IE	
<input type="checkbox"/>	Interface Identifier Present**	
Interface Identifier Value**		<input type="text" value="0"/>
Connected Line ID Presentation (QSIG Inbound Call)*		<input type="text" value="Default"/>
Connected PBX Model		<input type="text" value="None"/>
Product Specific Configuration 		
Clock Reference*		<input type="text" value="Network"/>
Framing*		<input type="text" value="CRC4"/>
Audio Signal Adjustment into IP Network*		<input type="text" value="NoDbPadding"/>
Audio Signal Adjustment from IP Network*		<input type="text" value="NoDbPadding"/>
Zero Suppression*		<input type="text" value="HDB3"/>
Digit On Duration(50-500ms)*		<input type="text" value="100"/>
Interdigit Duration(50-500msec)*		<input type="text" value="100"/>
SNMP Community String		<input type="text" value="public"/>
Disable SNMP Set operations*		<input type="checkbox"/>
Debug Port Enable*		<input checked="" type="checkbox"/>
Hold Tone Silence Duration*		<input type="text" value="0"/>
Port Used for Voice Calls*		<input checked="" type="checkbox"/>
Port Used for Modem Calls*		<input checked="" type="checkbox"/>
Port Used for Fax Calls*		<input checked="" type="checkbox"/>
Fax and Modem Parameters		
Fax Relay Enable*		<input checked="" type="checkbox"/>
Fax Error Correction Mode Override*		<input checked="" type="checkbox"/>
Maximum Fax Rate*		<input type="text" value="14400bps"/>
Fax Payload Size*		<input type="text" value="20"/>
Non Standard Facilities Country Code*		<input type="text" value="65535"/>
Non Standard Facilities Vendor		<input type="text" value="65535"/>

Non Standard Facilities Vendor Code*	<input type="text" value="65535"/>
Fax/Modem Packet Redundancy*	<input type="checkbox"/>
NSE Type*	<input type="text" value="Non-IOS Gateways"/>

Playout Delay Parameters

Initial Playout Delay*	<input type="text" value="40"/>
Minimum Playout Delay*	<input type="text" value="20"/>
Maximum Playout Delay*	<input type="text" value="150"/>

Echo Canceller Configuration

Echo TailLength (ms)*	<input type="text" value="32 ms"/>
Minimum ERL (db)*	<input type="text" value="6 db"/>

* indicates required item
** applicable to DMS-100 protocol only
*** applicable to DMS-100 protocol and DMS-250 protocol only
**** may be required to force ringback from some PBXs

[Back to Find/List Gateways](#)



Enbloc Route Pattern Configuration

Route Pattern/Hunt Pilot: 8XXX

Status: Update completed
Note: Any update to this Route Pattern or Hunt Pilot automatically resets the associated gateway or Route/Hunt List

Pattern Definition

Route Pattern/Hunt Pilot*

Partition

Description

Numbering Plan*

Route Filter

MLPP Precedence

Gateway or Route/Hunt List* [\(Edit\)](#)

Route Option

Route this pattern

Block this pattern

Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation

Calling Name Presentation

Connected Party Transformations

Connected Line ID Presentation

Connected Name Presentation

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Carrier Identification Code

Network Service Protocol

Network Service	Service Parameter Name	Service Parameter Value
<input type="text" value=" - Not Selected -"/>	<input type="text" value=" < Not Exist >"/>	<input type="text"/>



Overlap Sending Route Pattern Configuration

Route Pattern/Hunt Pilot: 9.X

Status: Ready
Note: Any update to this Route Pattern or Hunt Pilot automatically resets the associated gateway or Route/Hunt List

Pattern Definition

Route Pattern/Hunt Pilot*

Partition

Description

Numbering Plan*

Route Filter

MLPP Precedence

Gateway or Route/Hunt List* [\(Edit\)](#)

Route Option

Route this pattern

Block this pattern

Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation

Calling Name Presentation

Connected Party Transformations

Connected Line ID Presentation

Connected Name Presentation

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Carrier Identification Code

Network Service Protocol

Network Service	Service Parameter Name	Service Parameter Value
<input type="text" value=" — Not Selected —"/>	<input type="text" value=" < Not Exist >"/>	<input type="text"/>



PSTN Route Pattern Configuration

Route Pattern/Hunt Pilot: 91650XXXXXX

Status: Ready
Note: Any update to this Route Pattern or Hunt Pilot automatically resets the associated gateway or Route/Hunt List

Pattern Definition

Route Pattern/Hunt Pilot*

Partition

Description

Numbering Plan*

Route Filter

MLPP Precedence

Gateway or Route/Hunt List* [\(Edit\)](#)

Route Option

Route this pattern

Block this pattern

Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation

Calling Name Presentation

Connected Party Transformations

Connected Line ID Presentation

Connected Name Presentation

Called Party Transformations

Discard Digits

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Carrier Identification Code

Network Service Protocol

Network Service	Service Parameter Name	Service Parameter Value
<input type="text" value="— Not Selected —"/>	<input type="text" value="< Not Exist >"/>	<input type="text"/>



7960 IP phone Configuration

[Add a new phone](#)
[Add/Update Speed Dials](#)
[Subscribe/Unsubscribe Services](#)
[Dependency Records](#)
[Back to Find/List Phones](#)

Phone Configuration

Directory Numbers
Base Phone

- 7910 Line 1 - 4001 in
7910 Phones
- 7910 Line 2 - Add new DN
7910

Phone: SEP003094C39863 (Auto 4001)
Registration: Registered with Cisco CallManager 172.20.32.254
IP Address: 172.20.32.110

Status: Ready

Phone Configuration (Model = Cisco 7960)

Device Information

MAC Address*	<input type="text" value="003094C39863"/>
Description	<input type="text" value="Auto 4001"/>
Owner User ID	<input type="text"/> (Select User ID)
Device Pool*	<input type="text" value="Default"/> (View details)
Calling Search Space	<input type="text" value="< None >"/>
AAR Calling Search Space	<input type="text" value="< None >"/>
Media Resource Group List	<input type="text" value="< None >"/>
User Hold Audio Source	<input type="text" value="< None >"/>
Network Hold Audio Source	<input type="text" value="< None >"/>
Location	<input type="text" value="< None >"/>
User Locale	<input type="text" value="< None >"/>
Network Locale	<input type="text" value="< None >"/>
Device Security Mode	<input type="text" value="Use System Default"/>
Built In Bridge	<input type="text" value="Default"/>
Privacy	<input type="text" value="Default"/>

Phone Button Template Information

Phone Button Template*	<input type="text" value="Standard 7960"/> (View button list)
------------------------	---------------------------------------------------------------


Softkey Template Information

Softkey Template	<input type="text" value="< None >"/>
------------------	---------------------------------------------

Expansion Module Information

Module 1	<input type="text" value="< None >"/>
Module 2	<input type="text" value="< None >"/>



Module 1 Load Name	<input type="text"/>	(Module 1 selection required)
Module 2 Load Name	<input type="text"/>	(Module 2 selection required)
Cisco IP Phone - External Data Locations (leave blank to use default)		
Information	<input type="text"/>	
Directory	<input type="text"/>	
Messages	<input type="text"/>	
Services	<input type="text"/>	
Authentication Server	<input type="text"/>	
Proxy Server	<input type="text"/>	
Idle	<input type="text"/>	
Idle Timer (seconds)	<input type="text"/>	
Extension Mobility (Device Profile) Information		
<input type="checkbox"/> Enable Extension Mobility Feature		
Log Out Profile	<input type="text" value="-- Not Selected --"/>	
Log In User ID	<input type="text" value="< None >"/>	
Log In Time	<input type="text" value="< None >"/>	
Log Out Time	<input type="text" value="< None >"/>	
Multilevel Precedence and Preemption (MLPP) Information		
MLPP Domain	<input type="text"/>	(e.g., "0000FF")
MLPP Indication	<input type="text" value="Default"/>	
MLPP Preemption	<input type="text" value="Default"/>	
Product Specific Configuration 		
Disable Speakerphone	<input type="checkbox"/>	
Disable Speakerphone and Headset	<input type="checkbox"/>	
Forwarding Delay*	<input type="text" value="Disabled"/>	
PC Port*	<input type="text" value="Enabled"/>	
Settings Access*	<input type="text" value="Enabled"/>	
Gratuitous ARP*	<input type="text" value="Enabled"/>	
PC Voice VLAN Access*	<input type="text" value="Enabled"/>	
Video Capabilities*	<input type="text" value="Disabled"/>	
Auto Line Select*	<input type="text" value="Disabled"/>	



Directory Number Configuration

[Configure Device \(SEP003094C39863\)](#)
[Dependency Records](#)

Associated With

SEP003094C39863
7960 (Line 1)

Directory Number: 4001 (Phones)

Status: Ready

Note: Any update to this Directory Number automatically resets the associated devices

Update

Remove from Device

Reset Devices

Directory Number

Directory Number*

Partition

Directory Number Settings

Voice Mail Profile
(Choose <None> to use default)

Calling Search Space

AAR Group

User Hold Audio Source

Network Hold Audio Source

Auto Answer

Call Forward and Pickup Settings

	Voice Mail Destination	Calling Search Space
Forward All	<input type="checkbox"/> <input type="text"/>	<input type="text" value="< None >"/>
Forward Busy	<input type="checkbox"/> <input type="text"/>	<input type="text" value="< None >"/>
Forward No Answer	<input type="checkbox"/> <input type="text"/>	<input type="text" value="< None >"/>
No Answer Ring Duration	<input type="text"/> (seconds)	
Call Pickup Group	<input type="text" value="< None >"/>	

MLPP Alternate Party Settings

Target (Destination)

Calling Search Space

No Answer Ring Duration (seconds)

Line Settings for this Device

Display (Internal Caller ID)

Line Text Label

External Phone Number Mask

Message Waiting Lamp Policy	<input type="text" value="Use System Policy"/>
Ring Setting (Phone Idle)	<input type="text" value="Use System Default"/>
Ring Setting (Phone Active)**	<input type="text" value="Use System Default"/>
Multiple Call / Call Waiting Settings	
Maximum Number of Calls*	<input type="text" value="4"/> (1 - 200)
Busy Trigger*	<input type="text" value="2"/> (<= Max. Calls)
Forwarded Call Information Display	
<input checked="" type="checkbox"/> Caller Name	<input checked="" type="checkbox"/> Caller Number
<input checked="" type="checkbox"/> Redirected Number	<input checked="" type="checkbox"/> Dialed Number
<p>* indicates required item; changes to Line or Directory Number settings require restart. ** Ring Setting (Phone Active) applies to this line when any line on the phone has a call in progress.</p>	
Note: If you are using a language other than English for Display (Internal Caller ID) or Line Text Label text, make sure the correct character set (shown below) is selected. Text displays incorrectly if the wrong character set is selected. (English characters are included in all character sets.)	
Character Set	<input type="text" value="Western European (Latin 1)"/>



Acronyms

Acronym	Definitions
AOC	Advice-of-charge. Information element is sent with the connection setup information for incoming Euro-ISDN connections. The AOC IE is used for call charge calculation.
CUCM	Cisco Unified CallManager
PSTN	Public Switched Telephone Network



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