



Siemens HiPath 4000 Release 1 and Siemens Hicom 330E Release 3.1 to Cisco IOS Voice Gateway using E1 QSIG with SIP

October 30, 2007 Revision 5

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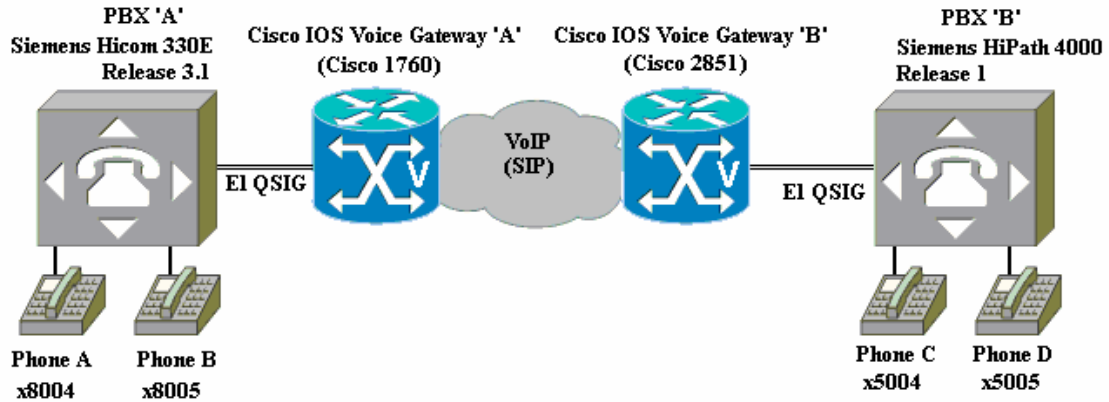
Introduction

- Although specific gateway router models were used to validate its content, this application note also applies to all Cisco 1700/2600/3600/3700/2800/3800 series Cisco IOS voice gateways.
- This application note provides configuration guidelines for a toll-bypass network using Cisco IOS voice gateways to connect Siemens HiPath 4000 Release 1 and Siemens Hicom 330E Release 3.1 PBXs. The PBXs are connected to the Cisco IOS voice gateways by E1 QSIG trunk circuits. The Cisco IOS voice gateways “extend” the E1 QSIG trunk circuits with VoIP, using the SIP protocol.
- A Siemens HiPath 4000 Release 1 PBX and a Siemens Hicom 330E Release 3.1 PBX were each connected via E1 QSIG trunk circuits a Cisco IOS voice gateway. The two voice gateways were connected via IP over Ethernet, and configured for VoIP using SIP. End-to-end calls were placed between the PBXs to exercise and test basic calls as well as QSIG supplementary services such as call transfer, call conference, and call forward.
- Using the Siemens PBX configurations and Cisco IOS voice gateway configurations in this application note, successful toll bypass integration was achieved for basic calls and Calling Name/Number. Supplementary services, including Call transfer, Call Conference, Call Forward, and Called Name/Number were not supported for the SIP toll bypass implementation. If these Supplementary Services are needed, it is recommended that MGCP or H.323 be used as the connection between the Cisco IOS gateways.



Network Topology

Figure 1. Network Topology or Test Setup



System Components

Hardware Requirements

- (2) Cisco IOS voice gateways with E1 VWICs (voice/WAN interface cards)
- (1) Siemens HiPath 4000 PBX
- (1) Siemens Hicom 330E PBX
- (2) Siemens HiPath digital station telephones
- (2) Siemens Hicom digital station telephones

Software Requirements

- Siemens HiPath PBX: V1.0 SA12 Patch0.
- Siemens Hicom PBX: Release 3.1 SA5 Rev14
- Cisco IOS voice gateways: Cisco IOS Release Version 12.3(11) or later.



Features

Features Supported

- Basic Call (ENBLOC and Overlap)
- Calling Name and Number
- Call Conference (Limited)

Features Not Supported

- Call Hold
- Called/Connected Name and Number
- Call Transfer
- Call Forward
- MWI

Notes and Limitations

- All Call Transfers resulted in dropped calls.
- All Call Conference scenarios resulted in dropped calls if certain parties dropped out of the conference.
- On Conference Calls, the Connected Name/Number was not updated on the originating phone display when a conferee dropped out.
- All Call Forward scenarios that were originated by a Network/External (i.e., not Local) call resulted in dropped calls.
- Call Forward scenarios that were originated by a Local call resulted in successful call completion, and the original Calling Name/Number were successfully passed to the final destination phone. However, the Called Name/Number of the forwarding phone were not passed to the final destination phone, nor were the Connected Name/Number updated at the originating phone to reflect the name/number of the final destination.
- Call Hold was not tested as a separate feature. The call is held automatically during Transfers or Conferences, and the call hold is facilitated in NOTIFY message from Siemens HiPath/Hicom PBX. Aside from Transfers or Conferences, it is not possible to put a call on hold from one of the Siemens HiPath/Hicom digital station phones.
- MWI was not tested, as a local voice mail system was not available on the PBXs at the time of testing.



Configuration

Configuring the Siemens HiPath 4000

DPLN

```
<dis-wabe:gen;
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 |
| 0 |  | . **** | ..*** | **... | ..... | .* | CO | R | |
| 001 | - 009 | * ..... | ..... | ..... | ..... | .. | NETRTE | | |
| 111 |  | . **** | ***** | **... | ..... | .* | TIE | | |
| 12 | - 14 | . **** | ***** | **... | ..... | .* | TIE | | |
| 21 |  | . .... | ..... | ..... | ..... | * .. | KNOVRKY | | |
| 22 |  | . .... | ..... | ..... | ..... | * .. | DNDKY | | |
| 222 |  | . **** | ***** | **... | ..... | .* | TIE | | |
| 23 |  | . .... | ..... | ..... | ..... | * .. | FWDKY | | |
| 24 |  | . .... | ..... | ..... | ..... | * .. | MBKY | | |
| 25 |  | . .... | ..... | ..... | ..... | * .. | MSGRKY | | |
| 26 |  | . .... | ..... | ..... | ..... | * .. | DAKY | | |
| 27 |  | . .... | ..... | ..... | ..... | * .. | DSSKY | | |
| 28 |  | . .... | ..... | ..... | ..... | * .. | VCRKY | | |
| 29 |  | . .... | ..... | ..... | ..... | * .. | VCKY | | |
| 30 |  | . .... | ..... | ..... | ..... | * .. | CONFKY | | |

| 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 |
| 3000 | - 3010 | . **** | ***** | **... | ..... | .* | STN | DESTNO 30 | |
| | | | | | | | | DNNO 0- | 0-222 |
| 3011 | - 3020 | . **** | ***** | **... | ..... | .* | STN | DESTNO 31 | |
| | | | | | | | | DNNO 0- | 0- 31 |
| 3021 | - 3030 | . **** | ***** | **... | ..... | .* | STN | DESTNO 32 | |
| | | | | | | | | DNNO 0- | 0- 32 |
| 3031 | - 3040 | . **** | ***** | **... | ..... | .* | STN | DESTNO 33 | |
| | | | | | | | | DNNO 0- | 0- 33 |
| 3041 | - 3050 | . **** | ***** | **... | ..... | .* | STN | DESTNO 35 | |
| | | | | | | | | DNNO 0- | 0- 35 |
| 31 |  | . .... | ..... | ..... | ..... | * .. | NAMEKY | | |
| 32 |  | . .... | ..... | ..... | ..... | * .. | PARKKY | | |

| 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 |
| 33 |  | . .... | ..... | ..... | ..... | * .. | CCKY | | |
| 34 |  | . .... | ..... | ..... | ..... | * .. | HTKY | | |
| 35 |  | . .... | ..... | ..... | ..... | * .. | STKY | | |
| 36 | - 37 | . **** | ..*** | **... | ..... | .* | CO | | |



| | | | |
|-------------|-----------------------|--------|-----------------------------|
| 38 | * | TIMEKY | |
| 39 | . **** * * | TIE | |
| 4000 - 4050 | . **** * * | STN | DESTNO 111 DNNO 0- 0-111 |
| 4051 - 4566 | . **** * * | STN | DESTNO 222 DNNO 0- 0-222 |
| 4567 | . **** * * | STN | DESTNO 34 DNNO 0- 0-200 |

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

| CODE | CALL PROGRESS STATE | | DIGIT ANALYSIS | RESERVED/CONVERT DNI/ADD-INFO |
|-------------|----------------------|------------------------------|----------------|---------------------------------|
| | 1 1111 11112 22 | 0 12345 67890 12345 67890 12 | | |
| 4568 - 4999 | . **** * * | | STN | DESTNO 222 DNNO 0- 0-222 |
| 5000 - 5040 | . **** * * | | STN | DESTNO 0 DNNO 0- 0-555* |
| 5500 - 5501 | . **** * * | | STN | DESTNO 56 DNNO 0- 0-560 |
| 555 | . **** * * | | OWNNODE | |
| 560 | . **** * * | | TIE | |
| 59 | . **** * * | | TIE | |
| 6000 - 6009 | . **** * * | | STN | R DESTNO 0 DNNO 0- 0-555* |

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

| CODE | CALL PROGRESS STATE | | DIGIT ANALYSIS | RESERVED/CONVERT DNI/ADD-INFO |
|-------------|---------------------------|------------------------------|----------------|-------------------------------|
| | 1 1111 11112 22 | 0 12345 67890 12345 67890 12 | | |
| 7000 - 7002 | . **** * * | | STN | DESTNO 56 DNNO 0- 0-560 |
| 8000 - 8050 | . **** * * | | STN | DESTNO 222 DNNO 0- 0-222 |
| 8060 | . **** * * | | TIE | |
| 8070 | . **** * * | | TIE | |
| 83 | . **** * * | | SPDC1 | |
| 84 | . **** * * | | SPDC2 | |
| 88 | * * | | SCONSI | R |
| 89 | * * | | SCONSCO | R |
| 9 | . **** * * | | TIE | |
| *13 | * * | | AHTVCE | |
| *15 | . * * * | | SPLIT | |
| *16 | * * | | AREM | |
| *17 | . * * * | | TRACE | |

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

| CODE | CALL PROGRESS STATE | | DIGIT ANALYSIS | RESERVED/CONVERT DNI/ADD-INFO |
|------|---------------------------|------------------------------|----------------|-------------------------------|
| | 1 1111 11112 22 | 0 12345 67890 12345 67890 12 | | |
| *18 | * * | | ACOSX | |
| *19 | . * * | | KNOVR | |
| *20 | * * | | ADND | |



| | | | | | |
|------|-----------|-----------|-----------|-----------|--------------|
| *25 | * | | | | FWDTERM |
| *29 | * | | * | | AFFWDVCE |
| *91 | * | * | | | MBOFF |
| #91 | * | * | | | MBON |
| ##27 | . ***** | . ** | | | MWACT |
| ##28 | * | | | | MWANS |
| ##29 | * | | | | MWCAN |
| ##30 | . ***** | . ***** | . . *** | . ***** | . . MWCANORI |

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



Overlap Sending Dial Plan

```
<DISPLAY-LDPLN:TYPE=LDP,LDP="8060"- "X" ;  
DISPLAY-LDPLN:TYPE=LDP,LDP="8060"- "X" ;  
H500: AMO LDPLN STARTED
```

| LDPNO : 16 | LDP : 8060-X | |
|------------|--------------|------------------------|
| | SPC : 22 | |
| | FDSFIELD : 0 | SDSFIELD : 0 PINDP : N |
| DPLN | LROUTE | LAUTH |
| 0 | 806 | 1 |
| 1 | 806 | 1 |
| 2 | 806 | 1 |
| 3 | 806 | 1 |
| 4 | 806 | 1 |
| 5 | 806 | 1 |
| 6 | 806 | 1 |
| 7 | 806 | 1 |
| 8 | 806 | 1 |
| 9 | 806 | 1 |
| 10 | 806 | 1 |
| 11 | 806 | 1 |
| 12 | 806 | 1 |
| 13 | 806 | 1 |
| 14 | 806 | 1 |
| 15 | 806 | 1 |

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

ENBLOC Sending Dial Plan

```
<DISPLAY-LDPLN:TYPE=LDP,LDP="8060"- "XXXX" ;  
DISPLAY-LDPLN:TYPE=LDP,LDP="8060"- "XXXX" ;  
H500: AMO LDPLN STARTED
```

| LDPNO : 16 | LDP : 8060-XXXX | |
|------------|-----------------|------------------------|
| | SPC : 22 | |
| | FDSFIELD : 0 | SDSFIELD : 0 PINDP : N |
| DPLN | LROUTE | LAUTH |
| 0 | 806 | 1 |
| 1 | 806 | 1 |
| 2 | 806 | 1 |
| 3 | 806 | 1 |
| 4 | 806 | 1 |
| 5 | 806 | 1 |
| 6 | 806 | 1 |
| 7 | 806 | 1 |
| 8 | 806 | 1 |
| 9 | 806 | 1 |
| 10 | 806 | 1 |
| 11 | 806 | 1 |
| 12 | 806 | 1 |
| 13 | 806 | 1 |
| 14 | 806 | 1 |
| 15 | 806 | 1 |



AMO-LDPLN-111 ADMINISTRATION LCR DIALPLAN
 DISPLAY COMPLETED;

BCSU

<DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=2,SLOT=49;
 DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=2,SLOT=49;
 H500: AMO BCSU STARTED

ADDRESS : LTG 1 LTU 2 SOURCE GROUP 1

| PEN | ASSIGNED MODULE | MODULE TYPE | FCT ID | HWY BDL | INSERTED MODULE | STATE | HW-INFO | MODULE STATUS |
|-----|--------------------|----------------|-----------|------------|--------------------|-------|---------|------------------|
| 49 | Q2196-X | DIU-N2 | 1 | A | Q2196-X | 1 | -06 - | READY |

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

Class of Trunk, COT

<dis-cot:21
 FORMAT = ;
 DIS-COT:21,;
 H500: AMO COT STARTED

COT: 21 INFO:
 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
 CONNECTION TO ROUTE OPTIMIZATION NODE ROPT
 TSC-SIGNALING FOR NETWORKWIDE FEATURES (MANDATORY) TSCS
 INCOMING CDR BY ZONE OR FROM LINE ICZL
 AOC PER CALL (AUTOMATICAL OR ON REQUEST), MAND. CORNET-NQ AOCC
 LINE WITH IMPLICIT NUMBERS LINO
 NO TONE NTON

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

Class of Parameters for Device Handlers, COP

<DISPLAY-COP:COPNO=21;
 DISPLAY-COP:COPNO=21;
 H500: AMO COP STARTED

COP: 21 INFO:
 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

 CO TRUNK ACCESS:
 TRUNK ACCESS TA



TOLL ACCESS:
TRUNK ACCESS

TA

AMO-COP -111 CLASS OF PARAMETER FOR DEVICE HANDLER
DISPLAY COMPLETED;



Class of Services, COSSU

```
<DISPLAY-COSSU:TYPE=COS,COS=10;
DISPLAY-COSSU:TYPE=COS,COS=10;
H500: AMO COSSU STARTED
```

| COS | VOICE | FAX | DTE |
|-----|--|---------------|---------------|
| 10 | > TA TSUID TNOTCR RKOABS CDRINT CDRS CDRC COSXCD VCE FWDNWK MSN FWDECA CFB CFNR FWDEXT | NOCO NOTIE | NOCO NOTIE |

```
AMO-COSSU-111 CLASSES OF SERVICE
DISPLAY COMPLETED;
<DISPLAY-COSSU:TYPE=LCOSV,LCOSV=1;
DISPLAY-COSSU:TYPE=LCOSV,LCOSV=1;
H500: AMO COSSU STARTED
```

| LCOS | LAUTH | | | | | | | | | | | | | | | | | | | | | | | | COPIN |
|------|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| V | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | NUM |
| > | SERVICE INFORMATION | | | | | | | | | | | | | | | | | | | | | | | | NUM |
| 1 | X | | | | | | | | | | | | | | | | | | | | | | | | 0 |
| > | LCR ATTENDANT FOR VOICE | | | | | | | | | | | | | | | | | | | | | | | | |

```
AMO-COSSU-111 CLASSES OF SERVICE
DISPLAY COMPLETED;
```



Trunk Group, BUEND

```
<DISPLAY-BUEND:TGRP=20;
DISPLAY-BUEND:TGRP=20;
H500: AMO BUEND STARTED
```

```
----- FORMAT = L -----
+-----+
| TGRP NUMBER :    20  TGRP NAME   : PRI PSSV1      MAXIMUM NO.   :    70 |
|                   :                   CHARCON    : NEUTRAL      |
| SUBGROUP NO. :    3  DEVICE TYPE : S2CONN        TRACENO       :    0 |
| RESERVED    :    N  SEARCH MODE : ASCENDING     ACD THRESHOLD :    * |
| NUMBER OF ASSOCIATED ROUTES : 2                PRIORITY      :    2 |
| TDDRFLAG    :    ON  TDDRTHRESHOLD: 3            SOURCEGROUPIDX :    1 |
| GDTRRULE    :    0   ACDPMGRP   : 0                |
| THE FOLLOWING TRUNKS (LTG-LTU-SLOT-CCT) HAVE BEEN ALLOCATED: |
+-----+
| 1- 2- 49-0      1 | 1- 2- 49-0      2 | 1- 2- 49-0      3 |
| 1- 2- 49-0      4 | 1- 2- 49-0      5 | 1- 2- 49-0      6 |
| 1- 2- 49-0      7 | 1- 2- 49-0      8 | 1- 2- 49-0      9 |
| 1- 2- 49-0     10 | 1- 2- 49-0     11 | 1- 2- 49-0     12 |
| 1- 2- 49-0     13 | 1- 2- 49-0     14 | 1- 2- 49-0     15 |
| 1- 2- 49-0     16 | 1- 2- 49-0     17 | 1- 2- 49-0     18 |
| 1- 2- 49-0     19 | 1- 2- 49-0     20 | 1- 2- 49-0     21 |
| 1- 2- 49-0     22 | 1- 2- 49-0     23 | 1- 2- 49-0     24 |
| 1- 2- 49-0     25 | 1- 2- 49-0     26 | 1- 2- 49-0     27 |
| 1- 2- 49-0     28 | 1- 2- 49-0     29 | 1- 2- 49-0     30 |
+-----+
```

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

Trunk Configuration, TDCSU

```
<DISPLAY-TDCSU:PEN1=1-2-49-0;
DISPLAY-TDCSU:PEN1=1-2-49-0;
H500: AMO TDCSU STARTED
```

```
----- DIGITAL TRUNK (FORMAT=L) -----
+-----+
| DEV      = S2CONN      PEN      = 1-02-049-0      TGRP      = 20 |
+-----+
| PROTVAR  = PSS1V2      INS       = N              SRCHMODE  = ASC |
| COTNO    = 21          COPNO    = 21             DPLN      = 0 |
| ITR      = 1           COS       = 10             LCOSV     = 1 |
| LCOSD    = 1           CCT       = HICOM S2        DESTNO    = 1 |
| SEGMENT  = 1           DEDSCC   =                 DEDSVC    = NONE |
| FACILITY =             DITIDX   =                 SRTIDX    = |
| TRTBLE  = GDTR        SIDANI   = N               ATNTYP   = TIE |
| CBMATTR  = NONE       NWMUXTIM = 10             TCHARG   = N |
| SUPPRESS = 0          DGTPR    =                 CHIMAP   = N |
| ISDNIP   =            ISDNPNP  = |
| PNPL2P   =            PNPL1P   =                 PNPAC    = |
| TRACOUNT = 31         SATCOUNT = MANY           NNO      = 1  -1  -300 |
| ALARMNO  = 0          FIDX     = 1               CARRIER  = 1 |
| ZONE     = EMPTY     COTX     = 21             FWDX     = 5 |
| DOMTYPE  =           DOMAINNO =                 TPROFNO  = |
| INIGHT   = |
| UUSCCX   = 16         UUSCCY   = 8               FNIDX    = 1 |
| CLASSMRK = EC        & G711   & G729OPT          SRCGRP   = |
| TCCID    = |
+-----+
| BCNEG    = N          BCGR     = 1               LWPARG   = 1 |
| LWPP     = 0          LWLT     = 0               LWPS     = 0 |
| LWR1    = 0          LWR2     = 0 |
| SVCDOM  = |
| BCHAN   = 1 && 30 |
+-----+
```



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

AMO-TDCSU-111 DIGITAL TRUNKS
DISPLAY COMPLETED;
<DISPLAY-LWPAR:DEV=INDEP,TYPE=DIUS2,BLNO=0;
DISPLAY-LWPAR:DEV=INDEP,TYPE=DIUS2,BLNO=0;
H500: AMO LWPAR STARTED

Table with columns: LOADWARE PARAMETERS, CIRCUIT TYPE: DIUS2, SOURCE:DB, BLOCK: 1. Rows include parameters like LNTYPE, MASTER, PATTERN, SMD, CDG, TEIVERIF, DEV, INFO.

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

For Slave Side Configuration

<DISPLAY-TDCSU:PEN1=1-2-49-0;
DISPLAY-TDCSU:PEN1=1-2-49-0;
H500: AMO TDCSU STARTED

Table with columns: DEV, PEN, TGRP, and various parameters like PROTVAR, COTNO, ITR, LCOSD, SEGMENT, FACILITY, TRTBL, CBMATTR, SUPPRESS, ISDNIP, PNPL2P, TRACOUNT, ALARMNO, ZONE, DOMTYPE, INIGHT, UUSCCX, CLASSMRK, TCCID, BCNEG, LWPP, LWR1, SVCDOM, BCHAN.

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

AMO-TDCSU-111 DIGITAL TRUNKS
DISPLAY COMPLETED;
<DISPLAY-LWPAR:DEV=INDEP,TYPE=DIUS2,BLNO=0;
DISPLAY-LWPAR:DEV=INDEP,TYPE=DIUS2,BLNO=0;
H500: AMO LWPAR STARTED



```

+-----+
| LOADWARE PARAMETERS      CIRCUIT TYPE: DIUS2  SOURCE:DB    BLOCK:    0 |
+-----+
| 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     =                |
+-----+

```

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

Reference Clock Configuration, REFTA

For Master-side configuration

```

<DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-2-49-0;
DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-2-49-0;
H500: AMO REFTA STARTED

```

```

+-----+
| REFERENCE CLOCK CIRCUITS |
+-----+
| PEN      | MODULE | DEVICE | PRI | ERROR | BLOCK | SUPP. | READY | SRCGRP |
|          |        |        |     |        |        |        | BUT   |        |
|          |        |        |     |        |        |        | ASYN. |        |
+-----+
| 1- 2- 49- 0 | DIU-N2 | S2CONN | 1 | 0 | N | | N | 1 |
+-----+

```

AMO-REFTA-111 REFERENCE CLOCK TABLE
 DISPLAY COMPLETED;

For Slave-side configuration

```

<DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-2-49-0;
DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-2-49-0;
H500: AMO REFTA STARTED

```

```

+-----+
| REFERENCE CLOCK CIRCUITS |
+-----+
| PEN      | MODULE | DEVICE | PRI | ERROR | BLOCK | SUPP. | READY | SRCGRP |
|          |        |        |     |        |        |        | BUT   |        |
|          |        |        |     |        |        |        | ASYN. |        |
+-----+
| 1- 2- 49- 0 | DIU-N2 | S2CONN | 0 | 0 | N | | N | 1 |
+-----+

```

AMO-REFTA-111 REFERENCE CLOCK TABLE
 DISPLAY COMPLETED;

Trunk Least Cost Routing Configuration

```

<DISPLAY-LDAT:TYPE=LCR;
DISPLAY-LDAT:TYPE=LCR;
H500: AMO LDAT STARTED

```

```

+-----+
| LROUTE = 806  LDPLN      NAME = OPEN NUMBER          SERVICE = ALL |
| TYPE = LCR                                DNNO OF ROUTE = 99 |
| SERVICE INFO = |
+-----+
| LRTEL | LVAL | TGRP | ODR | LAUTH | SCHEDULE | CARRIER | LATR | LDSRT |
|        |      |      |     |       | ABCDEFGH |         |     |       |
+-----+

```



| | | | | | | | | |
|---|--------|----|----|---|-------|---|-------|------|
| 1 | 1 | 20 | 15 | 1 | ***** | 1 | EMPTY | NONE |
| | DNNO = | | 99 | | | | | |



RICHT

<DISPLAY-RICHT:MODE=LRTE;

DISPLAY-RICHT:MODE=LRTE;

H500: AMO RICHT STARTED

```

+-----+
| LRTE = 806   NAME = OPEN NUMBER   (NEUTRAL)  LSVC = ALL
| DNNO =      99  PDNNO =           0  DESTNO = 99
| ROUTOPT = YES  REROUT = YES  PLB = NO    FWDBL = NO
| DTMFCNV = WITHOUT DTMFDSP = WITHOUT DTMFTEXT =
| DTMFPULS =      BUGS = LIN  ROUTATT = NO    MAINGRP = 32
| EMCYRTT = NO   CONFONE = NO  RERINGRP = NO  RTENO = 32
| INFO =
| NOPRCFWD = NO
+-----+
| TGRP = 20  LDAT  PRI  PSSV1           (NEUTRAL)  SUBGROUP = 3
+-----+

```

AMO-RICHT-111 TRUNK ROUTING

DISPLAY COMPLETED;

Out-going Dialing Rule, LODR

<dis-lodr

ODR = ;

DIS-LODR;

H500: AMO LODR STARTED

```

+-----+
| ODR      POSITION  CMD      PARAMETER
+-----+
| 15      | 1    ECHO    2
|          | 2    END
+-----+

```

AMO-LODR -111 ADMINISTRATION OF LCR OUTDIAL RULES

DISPLAY COMPLETED;

Digital Station Configuration

<DISPLAY-SBCSU:STNO=5004;

DISPLAY-SBCSU:STNO=5004;

H500: AMO SBCSU STARTED

```

----- USER DATA -----
STNO   =5004   OPT   =OPTI   COS1   =2       DPLN   =1
MAINO  =5004   CONN  =DIR    COS2   =2       ITR    =1
PEN    = 1- 3- 31- 4   LCOSV1 =6       COSX   =0
INS    =Y      ASYNCT =500    LCOSV2 =6
                PERMACT =        LCOSD1 =6
SSTNO  =N      EXTBUS =        LCOSD2 =6       CBKBMAX =5
TRACE  =N
ALARMNO =0     DFSVCANA=      SPDI   =0       RCBKB  =N
HMUSIC =0     FLASH  =        SPDC1  =        RCBKNA =N
PMIDX  =1     SPDC2  =        CBKNAMB =Y
                COMGRP  =0
SECR   =N     DIGNODIS=N    DSSTNA =N
STD    =55    CALLOG =NONE   DSSTNB =Y       TEXTSEL =ENGLISH
REP    =0     OPTICOM =N     OPTIUSB :      VPI    =
IDCR   =N     OPTICA  =1     OPTIS0A :0     VCI    =
                OPTIDA  =1     OPTISPA :0     PATTERN =
                OPTIABA :0
DCFWBUSY=N    HEADSET =N     APICLASS=
DNIDSP =N     HSKEY   =NORMAL ACFAPPL =
DTMFBLK =N
DTMFCTRDR=Y   BASICSVC=
IPPASSW =

```



DVCFIG =OPTISET TSI =1 SPROT = SOPTIDX =
DPROT = DOPTIDX =
FPROT = FOPTIDX =

----- ACTIVATION IDENTIFIERS FOR FEATURES -----
FWDS :N HTOS :N DND :N
FWDD :N HTOD :N VCP :Y TWLOGIN :N
FWDF :N HTOF :N CWT :N
----- FEATURES AND GROUP MEMBERSHIPS -----
PUGR : ESSTN :
KEYSYS :N NOPTNO :
HUNT CD :N
----- SUBSCRIBER ATTRIBUTES (AMO SDAT) -----
NONE

AMO-SBCSU-111 STATION AND S0-BUS CONFIGURATION OF SWITCHING UNIT
DISPLAY COMPLETED;
<



Configuring the Siemens Hicom 330E

DPLN

```
<dis-wabe;
TYPE = gen;
DIS-WABE:GEN;
H500: AMO WABE STARTED
```

| DIGIT INTERPRETATION | | VALID FOR ALL DIAL PLANS | | | |
|----------------------|------------------------------|--------------------------|------------------|--|--|
| CODE | CALL PROGRESS STATE | DIGIT ANALYSIS | RESERVED/CONVERT | | |
| | 1 1111 1112 22 | | DNI/ADD-INFO | | |
| | 0 12345 67890 12345 67890 12 | RESULT | *=OWN NODE | | |
| 001 - 010 | * | NETRTE | | | |
| 1000 | . ***** ** | STN | DESTNO 25 | | |
| | | | DNNO 0- 0- 25 | | |
| 11 | * | MBKY | | | |
| 111 | . ***** ** | TIE | | | |
| 222 | . ***** ** | OWNNODE | | | |
| 3000 - 3010 | . ***** ** | STN | DESTNO 33 | | |
| | | | DNNO 0- 0-333 | | |
| 3011 - 3020 | . ***** ** | STN | DESTNO 43 | | |
| | | | DNNO 0- 0-444 | | |
| 3021 - 3030 | . ***** ** | STN | DESTNO 53 | | |
| | | | DNNO 0- 0-445 | | |

| DIGIT INTERPRETATION | | VALID FOR ALL DIAL PLANS | | | |
|----------------------|------------------------------|--------------------------|------------------|--|--|
| CODE | CALL PROGRESS STATE | DIGIT ANALYSIS | RESERVED/CONVERT | | |
| | 1 1111 1112 22 | | DNI/ADD-INFO | | |
| | 0 12345 67890 12345 67890 12 | RESULT | *=OWN NODE | | |
| 3031 - 3040 | . ***** ** | STN | DESTNO 63 | | |
| | | | DNNO 0- 0-446 | | |
| 3041 - 3050 | . ***** ** | STN | DESTNO 73 | | |
| | | | DNNO 0- 0-447 | | |
| 3051 - 3060 | . ***** ** | STN | DESTNO 83 | | |
| | | | DNNO 0- 0-448 | | |
| 32 | . ***** ** | TIE | | | |
| 34 - 36 | . ***** ** | TIE | | | |
| 39 | . ***** ** | TIE | | | |
| 4000 - 4050 | . ***** ** | STN | DESTNO 111 | | |
| | | | DNNO 0- 0-111 | | |

| DIGIT INTERPRETATION | | VALID FOR ALL DIAL PLANS | | | |
|----------------------|------------------------------|--------------------------|------------------|--|--|
| CODE | CALL PROGRESS STATE | DIGIT ANALYSIS | RESERVED/CONVERT | | |
| | 1 1111 1112 22 | | DNI/ADD-INFO | | |
| | 0 12345 67890 12345 67890 12 | RESULT | *=OWN NODE | | |
| 4051 - 4599 | . ***** ** | STN | R | | |
| | | | DESTNO 0 | | |
| | | | DNNO 0- 0-222* | | |
| 4700 - 4999 | . ***** ** | STN | R | | |



| | | | |
|-------------|--------------------|---------|-----------------------------|
| 5000 - 5009 | . **** * | STN | DESTNO 0 DNNO 0- 0-222* |
| 5010 | . **** * | ATNDIND | DESTNO 55 DNNO 0- 0- 55 |
| 5011 - 5020 | . **** * | STN | R |
| 5021 - 5050 | . **** * | STN | DESTNO 55 DNNO 0- 0- 55 |
| 5051 | . **** * | ATNDIND | DESTNO 111 DNNO 0- 0-111 |

DIGIT INTERPRETATION VALID FOR ALL DIAL PLANS

| CODE | CALL PROGRESS STATE 1 11111 11112 22 | 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 11111 11112 22 | 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 1 11111 11112 22 | DIGIT ANALYSIS RESULT | RESERVED/CONVERT |
|------|---|--------------------------|----------------------------|
| | | | DNI/ADD-INFO *=OWN NODE |
| ##29 | * | MSGRKY | |



| | | | |
|------|-----------|------|----------|
| ##35 | . . . . . | * .. | TIMEKY |
| ##36 | . . . . . | * .. | VCKY |
| ##37 | . . . . . | * .. | VCRKY |
| ##38 | . . . . . | * .. | CCKY |
| ##39 | . . . . . | * .. | CONFKY |
| ##41 | . . . . . | * .. | NAMEKY |
| ##42 | . . . . . | * .. | PARKKY |
| ##43 | . . . . . | * .. | REMKY |
| ##44 | . . . . . | * .. | STKY |
| ##45 | . . . . . | * .. | CBKKY |
| ##46 | . . . . . | * .. | CONSKY |
| ##47 | . . . . . | * .. | DNDKY |
| ##48 | . . . . . | * .. | EXHOLDKY |
| ##49 | . . . . . | * .. | HOLDKY |
| ##50 | . . . . . | * .. | IUSEKY |
| ##51 | . . . . . | * .. | LNRKY |

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

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

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

Overlap Sending Dial Plan

<DISPLAY-LDPLN:TYPE=LDP,LDPNO=35;
 DISPLAY-LDPLN:TYPE=LDP,LDPNO=35;
 H500: AMO LDPLN STARTED

| | | |
|------------|------------|--|
| LDPNO : 35 | LDP : 79-X | |
| | SPC : 22 | |

| DPLN | LRTE | LAUTH | DPLN | LRTE | LAUTH |
|------|------|-------|------|------|-------|
| 0 | 79 | 1 | 8 | 79 | 1 |
| 1 | 79 | 1 | 9 | 79 | 1 |
| 2 | 79 | 1 | 10 | 79 | 1 |
| 3 | 79 | 1 | 11 | 79 | 1 |
| 4 | 79 | 1 | 12 | 79 | 1 |
| 5 | 79 | 1 | 13 | 79 | 1 |
| 6 | 79 | 1 | 14 | 79 | 1 |
| 7 | 79 | 1 | 15 | 79 | 1 |

AMO-LDPLN-111 ADMINISTRATION LCR DIALPLAN
 DISPLAY COMPLETED;

Enbloc Sending Dial Plan

<DISPLAY-LDPLN:TYPE=LDP,LDPNO=35;
 DISPLAY-LDPLN:TYPE=LDP,LDPNO=35;
 H500: AMO LDPLN STARTED



```

LDPNO : 35 LDP : 79-XXXX
          SPC : 22
-----+-----+-----+-----+-----+-----+-----+
          | DPLN | LRTE | LAUTH | | DPLN | LRTE | LAUTH |
          +-----+-----+-----+-----+-----+-----+
          | 0 | 79 | 1 | | 8 | 79 | 1 |
          | 1 | 79 | 1 | | 9 | 79 | 1 |
          | 2 | 79 | 1 | | 10 | 79 | 1 |
          | 3 | 79 | 1 | | 11 | 79 | 1 |
          | 4 | 79 | 1 | | 12 | 79 | 1 |
          | 5 | 79 | 1 | | 13 | 79 | 1 |
          | 6 | 79 | 1 | | 14 | 79 | 1 |
          | 7 | 79 | 1 | | 15 | 79 | 1 |
          +-----+-----+-----+-----+-----+-----+

```

AMO-LDPLN-111 ADMINISTRATION LCR DIALPLAN
BCSU

DISPLAY COMPLETED;
 <DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=1,SLOT=79;
 DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=1,SLOT=79;
 H500: AMO BCSU STARTED

ADDRESS : LTG 1 LTU 1

```

-----+-----+-----+-----+-----+-----+-----+
PEN | ASSIGNED | MODULE | FCT | HWY | | INSERTED | | MODULE |
   | MODULE  | TYPE   | ID  | BDL | | MODULE   | STATE | HW-INFO | STATUS
-----+-----+-----+-----+-----+-----+-----+
 79 | Q2196-X  | DIU-N2 | 1   | A   | | Q2196-X  | 1     | -06 -  | READY

```

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

Class of Trunk, COT

<DISPLAY-COT:COTNO=5;
 DISPLAY-COT:COTNO=5;
 H500: AMO COT STARTED

COT: 5 INFO: 5:ECMA1 V2.0
 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
CONNECTION TO ROUTE OPTIMIZATION NODE                    ROPT
TSC-SIGNALING FOR NETWORKWIDE FEATURES (MANDATORY)       TSCL
INCOMING CDR BY ZONE OR FROM LINE                         ICZL
AOC PER CALL (AUTOMATICAL OR ON REQUEST), MAND. CORNET-NQ AOC
LINE WITH IMPLICIT NUMBERS                                LINO
NO TONE                                                    NTON

```

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

Class of Parameters for Device Handlers, 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;
```




Trunk Configuration, TDCSU

<DISPLAY-TDCSU:PEN1=1-1-79-0;

DISPLAY-TDCSU:PEN1=1-1-79-0;

H500: AMO TDCSU STARTED

```

+----- DIGITAL TRUNK (FORMAT=L) -----+
|          DEV = S2CONN          PEN = 1-01-079-0          |
+-----+-----+-----+
| COTNO   = 5          COPNO   = 4          DPLN     = 0          |
| ITR     = 0          COS     = 32         LCOSV    = 32         |
| LCOSD   = 32         CCT     =           DESTNO   = 55         |
| PROTVAR = PSS1V2    SEGMENT = 1          TCHARG   = N          |
| SUPPRESS = 0        DGTPR   =           CHIMAP   = N          |
| ISDNCC  =           ISDNAC  =           ISDNLC   =           |
| ISDNIP  =           ISDNNP  =           PNPLC    =           |
| PNPL2C  =           PNPL1C  =           PNPL1P   =           |
| PNPL2P  =           PNPL1P  =           PNPAC    =           |
| TRACOUNT = 31       SATCOUNT = MANY     NNO      = 55         |
| ALARMNO = 0         FIDX    = 1          CARRIER = 1          |
| ZONE    = EMPTY     COTX    = 4          FWDX     = 10         |
| DOMTYPE =           DOMAINNO =          TPROFNO  =           |
| INIGHT  =           UUSCCX  = 16        UUSCCY   = 8          |
+-----+-----+-----+
| TGRP    = 70        SRCHMODE = ASC       BCNEG    = N          |
| BCGR    = 1         INS      = N          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

```
<DISPLAY-TDCSU:PEN1=1-1-79-0;
DISPLAY-TDCSU:PEN1=1-1-79-0;
H500: AMO TDCSU STARTED
```

```

+----- DIGITAL TRUNK (FORMAT=L) -----+
|          DEV = S2CONN          PEN = 1-01-079-0          |
+-----+-----+-----+
| COTNO   = 5          COPNO   = 4          DPLN     = 0          |
| ITR     = 0          COS     = 32         LCOSV    = 32         |
| LCOSD   = 32         CCT     =           DESTNO   = 55         |
| PROTVAR = PSS1V2     SEGMENT = 1          TCHARG   = N          |
| SUPPRESS = 0         DGTPR   =           CHIMAP   = N          |
| ISDNCC  =           ISDNAC  =           ISDNLC   =           |
| ISDNIP  =           ISDNNP  =           PNPLC    =           |
| PNPL2C  =           PNPL1C  =           PNPL2P   =           |
| PNPL2P  =           PNPL1P  =           PNPAC    =           |
| TRACOUNT = 31        SATCOUNT = MANY     NNO      = 55         |
| ALARMNO = 0          FIDX    = 1          CARRIER = 1          |
| ZONE    = EMPTY     COTX    = 4          FWDX     = 10         |
| DOMTYPE =           DOMAINNO =          TPROFNO  =           |
| INIGHT  =           UUSCCX  = 16         UUSCCY   = 8          |
+-----+-----+-----+
| TGRP    = 70         SRCHMODE = ASC       BCNEG    = N          |
| BCGR    = 1          INS     = N          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:TYPE=DIUS2,BLNO=3;
DISPLAY-LWPAR:TYPE=DIUS2,BLNO=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;
```



Reference Clock Configuration, REFTA

For Master-side configuration

```
<DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-1-79-0;
DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-1-79-0;
H500: AMO REFTA STARTED
```

```

+-----+
| REFERENCE CLOCK CIRCUITS |
+-----+
| PEN | MODULE | DEVICE | PRI | ERROR | BLOCK | SUPP. | READY |
|     |        |        |     |        |        |        | BUT   |
|     |        |        |     |        |        |        | ASYN. |
+-----+
| 1- 1- 79- 0 | DIU-N2 | S2CONN | 0 | 35 | N | N |
+-----+

```

```
AMO-REFTA-111 REFERENCE CLOCK TABLE
DISPLAY COMPLETED;
```

For Slave-side configuration

```
<DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-1-79-0;
DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-1-79-0;
H500: AMO REFTA STARTED
```

```

+-----+
| REFERENCE CLOCK CIRCUITS |
+-----+
| PEN | MODULE | DEVICE | PRI | ERROR | BLOCK | SUPP. | READY |
|     |        |        |     |        |        |        | BUT   |
|     |        |        |     |        |        |        | ASYN. |
+-----+
| 1- 1- 79- 0 | DIU-N2 | S2CONN | 11 | 535 | N | N |
+-----+

```

```
AMO-REFTA-111 REFERENCE CLOCK TABLE
DISPLAY COMPLETED;
```

<

Trunk Least Cost Routing Configuration

```
<DISPLAY-LDAT:TYPE=LCR,LROUTE=79;
DISPLAY-LDAT:TYPE=LCR,LROUTE=79;
H500: AMO LDAT STARTED
```

```

+-----+
| LROUTE = 79   LDPLN   NAME = OPEN NUMBER E1   SERVICE = ALL |
| TYPE = LCR   DNNO OF ROUTE = 999 |
| SERVICE INFO = |
+-----+
| LRTEL | LVAL | TGRP | ODR | LAUTH | SCHEDULE | CARRIER | BAND |
|       |      |      |     |       | ABCDEFGH | ZONE     | WPTH |
|       |      |      |     |       |          |          |      |
+-----+
| 1 | 1 | 70 | 1 | 1 | ***** | 1 | EMPTY | 1 | NONE |
|   |   |   |   |   |          |   |       |   |     |
|   |   |   |   |   |          |   |       |   |     |
+-----+

```

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



RICHT

<DISPLAY-RICHT:MODE=LRTE,LRTE=79;
DISPLAY-RICHT:MODE=LRTE,LRTE=79;
H500: AMO RICHT STARTED

```

+-----+
| LRTE = 79      NAME = OPEN NUMBER E1      (NEUTRAL)  SRVC = ALL  |
| DNNO =          999  DESTNO = 99          |
| ROUTOPT = YES   REROUT = YES   PLB = NO      FWDBL = NO      |
| MFV: CNV=WITHOUT DSP=WITHOUT TEXT=        PULS=          |
| ROUTENO =      17  BUGS = LIN  ROUTATT = NO    MAINGRP = 17   |
| INFO =                                                |
+-----+
| TGRP = 70 LDAT OPEN NUMBER E1      (NEUTRAL)  SUBGROUP = 18  |
+-----+

```

AMO-RICHT-111 TRUNK ROUTING
DISPLAY COMPLETED;

Out-going Dialing Rule, LODR

<DISPLAY-LODR:ODR=1;
DISPLAY-LODR:ODR=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;

Digital Station Configuration

<DISPLAY-SBCSU:STNO=8000;
DISPLAY-SBCSU:STNO=8000;
H500: AMO SBCSU STARTED

```

----- USER DATA -----
STNO   =8000  OPT   =OPTI   COS1   =7    DPLN   =0    SPDI   =Y
MAINO  =8000  CONN  =DIR    COS2   =7    ITR    =0    SPDC1  =0
PEN    = 1- 1- 55- 1    LCOSV1 =31   COSX   =0    SPDC2  =1
INS    =Y     STD   =3     LCOSV2 =31   SERVID =0    CBKBMX =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-111      STATION AND S0-BUS CONFIGURATION OF SWITCHING UNIT
DISPLAY COMPLETED;
<
<
```



Configuring the Cisco 1760

1760-West#sho ver

Cisco IOS Software, C1700 Software (C1700-IPVOICE-M), Version 12.3(11)T5, RELEAS

E SOFTWARE (fc1)

Technical Support: <http://www.cisco.com/techsupport>

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Compiled Sat 02-Apr-05 18:50 by yiyan

ROM: System Bootstrap, Version 12.2(7r)XM2, RELEASE SOFTWARE (fc1)

1760-West uptime is 1 day, 4 hours, 57 minutes

System returned to ROM by reload

System image file is "flash:c1700-ipvoice-mz.123-11.T5.bin"

Cisco 1760 (MPC860P) processor (revision 0x600) with 114907K/16165K bytes of memory.

Processor board ID FOC09150JHR (2412779291), with hardware revision 0000

MPC860P processor: part number 5, mask 2

1 FastEthernet interface

31 Serial interfaces

1 Channelized E1/PRI port

32K bytes of NVRAM.

32768K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102



```
1760-West# sho run
```

```
Building configuration...
```

```
Current configuration : 1540 bytes
```

```
!
```

```
version 12.3
```

```
service timestamps debug datetime msec
```

```
service timestamps log datetime msec
```

```
no service password-encryption
```

```
!
```

```
hostname 1760-West
```

```
!
```

```
boot-start-marker
```

```
boot-end-marker
```

```
!
```

```
!
```

```
tdm clock E1 0/0 both export line
```

```
mmi polling-interval 60
```

```
no mmi auto-configure
```

```
no mmi pvc
```

```
mmi snmp-timeout 180
```

```
voice-card 0
```

```
!
```

```
no aaa new-model
```

```
ip subnet-zero
```

```
ip cef
```

```
!
```

```
!
```

```
no ftp-server write-enable
```



```
isdn switch-type primary-qsig
!
!
voice service voip
signaling forward unconditional
sip
!
!
controller E1 0/0
pri-group timeslots 1-31
description ECN-2
!
!
interface FastEthernet0/0
ip address 172.20.4.105 255.255.255.0
speed auto
!
interface Serial0/0:15
description D-channel for ECN-2
no ip address
no logging event link-status
isdn switch-type primary-qsig
isdn overlap-receiving
isdn incoming-voice voice
isdn supp-service name calling
isdn bchan-number-order ascending
isdn sending-complete
no cdp enable
!
```



```
ip classless
ip route 0.0.0.0 0.0.0.0 FastEthernet0/0
!
no ip http server
!
!
control-plane
!
!
voice-port 0/0:15
!
!
dial-peer voice 323 voip
shutdown
destination-pattern 5...
session target ipv4:172.20.4.107
codec g711alaw
ip qos dscp cs5 media
!
dial-peer voice 15 pots
description voice port for ECN-2
destination-pattern 8...
direct-inward-dial
port 0/0:15
forward-digits all
!
dial-peer voice 519 voip
destination-pattern 5...
session protocol sipv2
```



```
session target ipv4:172.20.4.107
supplementary-service pass-through
!
!
line con 0
line aux 0
line vty 0 4
login
!
end
```

1760-West#



Configuring the Cisco 2851

2851_West# sho ver

Cisco IOS Software, 2800 Software (C2800NM-IPVOICE-M), Version 12.3(14)T2, RELEASE SOFTWARE (fc4)

Technical Support: <http://www.cisco.com/techsupport>

Copyright (c) 1986-2005 by Cisco Systems, Inc.

Compiled Wed 11-May-05 21:45 by hqluong

ROM: System Bootstrap, Version 12.3(8r)T7, RELEASE SOFTWARE (fc1)

2851_West uptime is 4 hours, 46 minutes

System returned to ROM by reload at 21:11:56 UTC Tue Jun 7 2005

System image file is "flash:c2800nm-ipvoice-mz.123-14.T2.bin"

Cisco 2851 (revision 53.51) with 249856K/12288K bytes of memory.

Processor board ID FHK0847F03W

2 Gigabit Ethernet interfaces

31 Serial interfaces

2 Channelized E1/PRI ports

DRAM configuration is 64 bits wide with parity enabled.

239K bytes of non-volatile configuration memory.

62592K bytes of ATA CompactFlash (Read/Write)

Configuration register is 0x2102



```
2851_West# sho run

Building configuration...

Current configuration : 2735 bytes

!

version 12.3

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname 2851_West

!

boot-start-marker

boot system flash

boot-end-marker

!

logging buffered 51200 warnings

enable secret 5 $1$9Oh6$eYY8Wqr/FOH5/vTlmtf.x/

!

no aaa new-model

!

resource policy

!

no network-clock-participate slot 1

ip subnet-zero

!

!

ip cef

no ip dhcp use vrf connected
```



```
!  
!  
ip domain name yourdomain.com  
no ftp-server write-enable  
isdn switch-type primary-qsig  
!  
voice-card 0  
no dspfarm  
!  
voice-card 1  
no dspfarm  
!  
!  
voice service voip  
signaling forward unconditional  
sip  
!  
!  
!  
username deepa  
!  
!  
controller E1 1/0/0  
pri-group timeslots 1-31  
description ECN-8  
!  
controller E1 1/0/1  
!  
!
```



```
!  
interface GigabitEthernet0/0  
description $ETH-LAN$$ETH-SW-LAUNCH$$INTF-INFO-GE 0/0$  
ip address 172.20.4.107 255.255.255.0  
duplex auto  
speed auto  
!  
interface GigabitEthernet0/1  
no ip address  
shutdown  
duplex auto  
speed auto  
!  
interface Serial1/0/0:15  
description D-channel for ECN-8  
no ip address  
no logging event link-status  
isdn switch-type primary-qsig  
isdn overlap-receiving  
isdn protocol-emulate network  
isdn incoming-voice voice  
isdn supp-service name calling  
isdn T310 120000  
isdn sending-complete  
no cdp enable  
!  
ip classless  
!  
ip http server
```



```
ip http authentication local
!
!
control-plane
!
!
voice-port 1/0/0:15
description voice port for ECN-8
!
!
dial-peer voice 10015 pots
destination-pattern 5...
direct-inward-dial
port 1/0/0:15
forward-digits all
!
dial-peer voice 323 voip
shutdown
destination-pattern 8...
session target ipv4:172.20.4.105
codec g711alaw
ip qos dscp cs5 media
!
dial-peer voice 519 voip
destination-pattern 8...
session protocol sipv2
session target ipv4:172.20.4.105
supplementary-service pass-through
!
```



```
banner login ^C
```

Cisco Router and Security Device Manager (SDM) is installed on this device. This feature requires the one time use, initial credentials, of username "cisco" with password "cisco".

Please change these publicly known initial credentials through SDM or IOS CLI.

Here's the Cisco IOS command:

```
no username cisco
```

NOTE: Please add a new username to be able to launch SDM for router management.

For more information about SDM please follow the instructions in the QUICK

START GUIDE for your router or at

<http://www.cisco.com/go/sdm>

```
^C
```

```
!
```

```
line con 0
```

```
line aux 0
```

```
line vty 0 4
```

```
privilege level 15
```

```
login local
```

```
transport input telnet
```

```
line vty 5 15
```

```
privilege level 15
```

```
login local
```

```
transport input telnet
```



```
!  
scheduler allocate 20000 1000
```

```
!  
end
```

```
2851_West#
```




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