Cisco Catalyst 6000 Series Gateway-PBX Interoperability: Siemens Hicom 300 E CS PBX with CallManager using T1 PRI Signaling

- This document describes the interoperability and configuration of a Cisco Catalyst 6000 series voice gateway with a Siemens Hicom 300 E CS PBX using T1 PRI signaling. It includes the following sections:
- System Components
- Configuration Tasks
- Caveats

System Components

PBX Model	Siemens Hicom 300 E CS
PBX Release	R 6.5
Telephony Signaling	T1 PRI
Voice Gateway	Cisco Catalyst 6608
Gateway Release	5.5(6a)
Call Manager Release	3.1.1
VoX Protocol	MGCP

Configuration Tasks

See the following sections for configuration tasks for this feature:

- Set Up
- Siemens Hicom 300 E CS PBX Configuration
- Call Manager Configuration
- Cisco Catalyst 6608 Gateway Configuration

Set Up

This section includes the following information:

- Connectivity Diagrams
- Set Up Notes

Connectivity Diagrams

Figure 1: Test Configuration

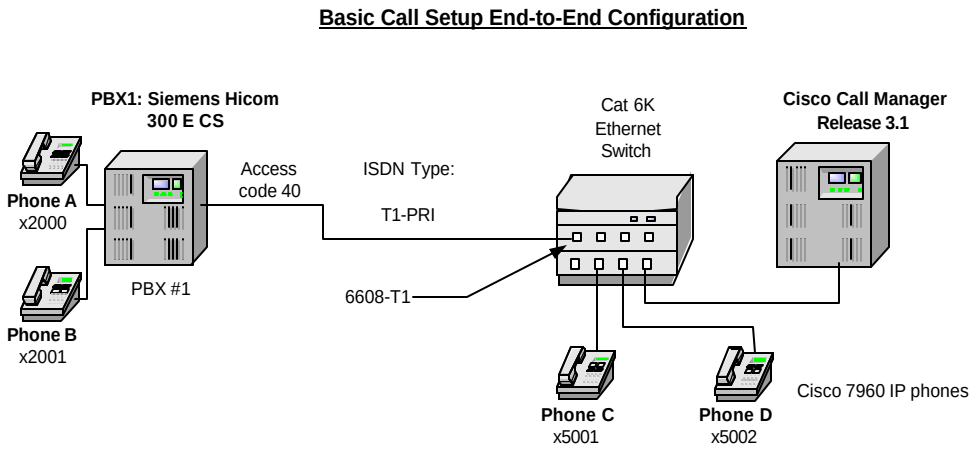


Figure 1 represents the configuration used for testing: A Siemens Hicom 300 E CS PBX connected to a Cisco Catalyst 6608 voice gateway via a T1 PRI connection.

Set Up Notes

- The Cisco 6608-T1 Gateway with ISDN protocol type setting of PRI-NI2 supports both protocol sides by selecting “Network/User” in the protocol side field when configuring the Gateway via CallManager.
  - The “Network/user” choice for the Siemens Hicom 300 E PBX is made by deactivating the B channels/D-channel (<dea-dssu) and the DS1 board (<dea-bssu) consecutively.
  - A change command is then issued to the Board Configuration Switching Unit (BCSU) to get to the “network/user” prompt (<cha-bcsu).
  - The DS1 board by (<act-bssu), the D-channel, and B-channels are then reactivated (<act-dssu), after the settings are changed.
- The Siemens Hicom 300 E CS, supports both “USER” (slave) and “NETWORK” (master) protocol sides.

Siemens Hicom 300 E CS PBX Configuration

Siemens Hicom 300 E CS PBX Version Information

- Software: Version 6.5
- Hardware: TMDN or TMDN 64

Siemens Hicom 300 E CS PBX Sample Configuration

Configure in the following sequence:

1. Add the new access code to DPLN
2. Add the new trunk board using BCSU
3. Configure COT
4. Configure COP
5. Add the new trunk group access code using TGACC
6. Add the channels using TCSU
7. Configure LROUT
8. Configure LODR

Add the new access code to DPLN

```
<dis-dpln

TYPE = dgts

DGTS = ;

DIS-DPLN:DGTS,;
H500:  AMO DPLN  STARTED
```

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
0	·‡·‡‡ ‡·‡‡‡ ‡‡··· ·····‡	GENANS		
1	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	CO		
2000 - 2002	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	STN		
2003 - 2024	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	STN	R	
2025 - 2026	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	STN		
2027 - 2099	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	STN	R	
37 - 41	·‡·‡‡ ‡·‡‡‡ ‡‡··· ·····‡	CO		
43 - 48	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	TIE		
49 - 50	·‡·‡‡ ‡·‡‡‡ ‡‡··· ·····‡	CO		
70000 - 70999	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	STN	R	
71000	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	STN		1
71001 - 79998	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	STN	R	

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
79999	·‡‡‡‡ ‡‡‡‡‡ ‡‡‡·‡ ·····‡	STN		
9	·‡·‡‡ ‡·‡‡‡ ‡‡··· ·····‡	CO		
*0	‡···‡ ··‡‡· ····· ·····‡	ACDWORK		
*2	‡···‡ ··‡‡· ····· ·····‡	ACCTCODE		
*3	‡···‡ ··‡‡· ····· ·····‡	PUDIR		
*4	‡···‡ ··‡‡· ····· ·····‡	CONFRNC		
*52	····‡ ····· ····· ·····‡	MWCAN		
*530	····‡ ····· ····· ·····‡	PMCANCEL		
*532	····‡ ····· ····· ·····‡	PMCALLBK		
*563	‡···· ··‡‡· ····· ·····‡	BADLINE		
*564	‡···‡ ··‡‡· ····· ·····‡	ACDLOGON		
*565	‡···‡ ··‡‡· ····· ·····‡	ACDLOGOF		

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
*570	*...* ..**.	ACDPQ		
*571	*...* ..**.	ACDPS		
*572	....	RING		
*580	*...* ..**.	ACDSQ		
*581	*...* ..**.	ACDSS		
*6	*...* ..**.	ROLMPARK		
*7	*...* ..**.	CONSULT		
*80 - *89	.*** ..**.	PARK		
*9	.... ..**.	HOLD		
**0	.*** ..**.	BVSL		
**1	*... ..**. ....*	TOGGLE		
**3	....* ..**. ....*	PU		

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
**41 - **48	.... ..*. ....*	CONFRMV		
**50	*...* ..**.	CAFGRAVL		
**51	*...* ..**.	CAFGRUNA		
**6	....* ..**.	INTERCOM		
**8	....* ....*	MWANS		
***4	....* ....*	CONFRMVL		
***5	....	MONSLNT		
**#65	*...* ..**.	CAFGROFF		
*#01	....*	RCHNL		
*#02	....*	RTERM		
*#03	....*	LTERM		
*#04	....	PRITEST		

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
*#274	*...*	WS		
*#50	*...* ..**.	CAFAVLB		
*#51	*...* ..**.	CAFUNAV		
*#55	*...* ..**.	CAFFWD		
*#56	*...* ..**.	CAFFWDC		
*#57	....*	PIDON		
*#58	....*	PIDOFF		
*#590	....*	DCOSX		
*#591	....	ACOSX		
*#63	***** ***** ***** *******	CLEAR		
*#65	*...* ..**.	CAFLOGOF		
*#735	....*	RELOCATE		

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
*#738	...*	SET		
*#97	.*.* *....	COXFER		
#0	*...* ..**. ....*	ACDUNAV		
#1	*...* ..*. ....*	ACBK		
#2	*...* ..**.	PRIQN		
#3	.**.* ..**. ....*	SPDI		
#4	***.* ..**. ....*	SNR		
#5	....	ADND		
#61	.**** ..*** **... .....*	SPDC1		
#62	.**** ..*** **...	SPDC2		
#80	*...* ..**.	BROADCST		
#81	*...* ..**.	SPKRCALL		

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
#8378	....*	HWTEST		
#91	....* ....*	CFWVABTH		
#92	....* ....*	CFWVAEXT		
#93	....* ....*	CFWVAINT		

#94	....* ....*	CFWVB		
#95	....* ....*	CFWVBNA		
#96	....* ....*	CFWVNA		
#*056	*.... ..... *....	DATA56		
#*1	*****	MWACT		
#*2	*....	BUZZ		
#*329	.**.* *.*** **...	FAX	R	
#*4	*...* ..**.	VCECALL		

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
#*75	....*	DIGIDAT		
#*76	....* *.**. ...*.	SWITCH		
#*77	....* *.*** ***.*	DTE		
#*78	....* ..**. ....*	CODE		
#*79	....* ..**. ....*	SPEED		
#*8	***** ***** ..*** *****	MWCANORI		
#*90	....* ....*	HUNTPROG		
#*92	....*	AHTVCE		
#*93	....*	DHTVCE		
#*94	....*	AHTDTE		
#*95	....*	DHTDTE		
#*96	....*	AHTFAX		

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
#*97	....* ....*	DHTFAX		
#*99	....* ....*	HUNTCLR		
##0	*...* ..**. ....*	ACDAVLB		
##1	*...*	DCBK		
##2	*...* ..**.	PRIOFF		
##3	*...* ..**. ....*	SPDIPROG		
##4	*...* ..**. ....*	LNR		
##5	....*	DDND		
##7	*.... ....*.	KNOVR		
##8	***** ..**.	DTA		
##91	....* ....*	CFWVAOFF		
##*78	....* ..**. ....*	RESET		

DIGIT INTERPRETATION		VALID FOR DIAL PLAN 0		
DIRECTORY NUMBER	CALL PROGRESS STATE 1 11111 1111222 12345 67890 12345 6789012	DIGIT ANALYSIS RESULT (SKIP DIGIT)	RSVD	ROUTE
###1	*.... ...*.	TRACE		
###20	..... **..* **...	MILLWAT		
###21	..... **..* **...	LOOPBACK		
###22	..... **..* **...	SILENCE		
###23	..... **..* **...	COMBO		
###4	*....	THRCONF		
###6	....*	MONTONE		

```
AMO-DPLN -135       DIALING  PLANS, FEATURE ACCESS CODES
DISPLAY COMPLETED;
```

Add the new trunk board using BCSU

```
<dis-bcsu

TYPE = tmd;

DIS-BCSU:TMD;
H500:  AMO BCSU  STARTED
```

```
-----------------------------------------------------------------
| DETAILS OF TMD BOARD AT ADDRESS (LTG.LTU.SLOT) = 1. 2.103    |
|    CABTYP =    1      TIMTYP = SYST       SIGTYP = MOS       |
|     FRAME =  ESF        TABS =   NO       FCTID  =   2       |
|    BI8SUB =  YES      BIVDET =   NO                          |
-----------------------------------------------------------------
|   RDRATIO =     6       RDTH =  2500      RDQUAL = 15000     |
|    YLSEND =  5000       YLTH =   400      YLQUAL =   100     |
|       LOS =   150        AOS =  4000                         |
|  SESDISTH =    10   SESREQTH =    10                         |
|  OESDISTH =    30   OESDISIN = 24-00-00                      |
|  OESREQTH =     4   OESREQIN = 04-00-00                      |
-----------------------------------------------------------------
|    NETUSR = NETWK     ACKTIM = 1000       DLVTIM = 30000     |
|    OCTMAX =  260      RETMAX =    3       WINDOW =     1     |
|    CRIDC  =           TTSC   =            NSFIV  =           |
|    NSFTSC =           PFDGT  =                               |
-----------------------------------------------------------------
|       IGN = 0          IID = 1                               |
-----------------------------------------------------------------
```

```
AMO-BCSU -135       BOARD CONFIGURATION, SWITCHING UNIT
DISPLAY COMPLETED;
```

Configure COT

```
<dis-cot

COTNO = 0;

DIS-COT:0;

H500:  AMO COT   STARTED
```

```
       |D|A|D|D|D|M|S|V|E|E|A|R|
       |I|N|S|S|I|D|A|L|S|S|N|F|
       |T|S|A|A|S|R|T|S|P|P|I|L|
       | |R| |S| | | |A|A|D|D|A|
       | | | | | | | |T|N|N|N|S|
       | | | | | | | | |I|I|I|H|
   COT | | | | | | | | | |S|S| |
   ----+-+-+-+-+-+-+-+-+-+-+-+-+
     0 | | | | | | | | | | | | |
   ----+-+-+-+-+-+-+-+-+-+-+-+-+
```

```
AMO-COT  -135       CLASS OF TRUNK FOR CALL PROCESSING

DISPLAY COMPLETED;
```

Configure COP

```
<dis-cop


COPNO = 0;


DIS-COP:0;

H500:  AMO COP   STARTED

|   |                   |  |  |    |
|   | S           E A   |  |  |    |
|   | T         E S N   |  |  |    |
|   | A   S   V S P I D |DD| S|    |
|   | D   Z   L P D D T |TT| U|  P |
|   | I A A S S A N N O |MM| P|  D |
|COP| A N C A A N I I N |FF| V|  P |
|IDX| L S K T T I S S E | L|12|1234|
+---+-------------------+--+--+----+
|  0|                   |  |  |    |
+---+-------------------+--+--+----+

AMO-COP  -135       CLASS OF PARAMETER

DISPLAY COMPLETED;
```

Add the new trunk group access code using TGACC

```
<dis-tgacc

TGRP = 40;

DIS-TGACC:40;

H500:  AMO TGACC STARTED

+-------------------------------------------------------------------------------+
| TGRP NUMBER    :    40   TGRP NAME  : T1PRI           /N    MAXIMUM NO:   23 |
| SUBGROUP NUMBER:    11   DEVICE TYPE: PRI B                 DIR TYPE  : BOTH |
| ACD THRESHOLD  :     *   TRACENO    :          0           USAGE TYPE: TERR |
| ALLOCATED TO AT LEAST ONE ROUTE                             GDTR RULE :    0 |
| SELECTION      :  LOW    CFBLOCK    : DISABLED                               |
| THE FOLLOWING PORTS (LTG-LTU-SLOT-CIRCUIT) ARE ALLOCATED:                     |
+-------------------------------------------------------------------------------+
|  1- 2-103- 1| 1- 2-103- 2| 1- 2-103- 3| 1- 2-103- 4| 1- 2-103- 5| 1- 2-103- 6|
+-------------------------------------------------------------------------------+
|  1- 2-103- 7| 1- 2-103- 8| 1- 2-103- 9| 1- 2-103-10| 1- 2-103-11| 1- 2-103-12|
+-------------------------------------------------------------------------------+
|  1- 2-103-13| 1- 2-103-14| 1- 2-103-15| 1- 2-103-16| 1- 2-103-17| 1- 2-103-18|
+-------------------------------------------------------------------------------+
|  1- 2-103-19| 1- 2-103-20| 1- 2-103-21| 1- 2-103-22| 1- 2-103-23|  -  -   -  |
+-------------------------------------------------------------------------------+
```

```
  AMO-TGACC-135       TRUNK GROUP ACCESS CODE

DISPLAY COMPLETED;
```

Add the new trunk group access code using TGACC

TCSU – B Channel

```
<dis-tcsu

PEN1 = 1-2-103-1;

DIS-TCSU:1-2-103-1;

H500:  AMO TCSU  STARTED

 +-------------------------------------------------------------------------+
 | PEN:  1- 2-103- 1  INS: Y   BOARD: TMDN64P    DEV: PRIB      TGRP: 40  |
 +-------------------------------------------------------------------------+
 | TRKID  : 0040          TCCID    :                                       |
 | CCT    :         /0040                                                  |
 |                                                                         |
 | ACDATA : 0             DITIDX   : 0           LOCANA   :                |
 | ATNTYP : ISDN          DPLN     : 0           REMANA   :                |
 | COPNO  : 0             ITR      : 0           SIDANI   : N              |
 | COSNO  : 75            LCRCOSD  : 5           SRTIDX   : 3              |
 | COTNO  : 0             LCRCOSV  : 5           TRTBL    : DIDCR          |
 | DEDSVC : NONE          FACILITY : *                                     |
 +-------------------------------------------------------------------------+


AMO-TCSU -135       TRUNK CONFIGURATION, SWITCHING UNIT

DISPLAY COMPLETED;
```

TCSU – D Channel

```
 <dis-tcsu

PEN1 = 1-2-103-24;

DIS-TCSU:1-2-103-24;

H500:  AMO TCSU  STARTED

 +-------------------------------------------------------------------------+
 | PEN:  1- 2-103-24  INS: Y   BOARD: TMDN64P     DEV: PRID                |
 +-------------------------------------------------------------------------+
 | TCCID  :                                                                |
 | CCT    :                                                                |
 |                                                                         |
 | ACDATA : 0             DEDSCC   :             INTERFID :                |
 | COPNO  : 0             DITIDX   :             ITR      : 0              |
 | COTNO  : 0             DPLN     : 0           PROTOCOL : NI2            |
 |                                                                         |
 | TMR301 :   300 SEC.    TMR308   :     4 SEC.  TMR313   :     4 SEC.    |
 | TMR303 :     4 SEC.    TMR309   :    90 SEC.  TMR316   :    30 SEC.    |
```

```
 | TMR305 :    30 SEC.    TMR310   :    30 SEC.  TMR322   :     4 SEC.    |
 | TDELAY :  3000 MSEC.   BEARER:  ONE                                     |
 | NCT    : N          TNCT     :                                         |
 +-------------------------------------------------------------------------+


AMO-TCSU -135       TRUNK CONFIGURATION, SWITCHING UNIT

DISPLAY COMPLETED;
```

Configure LROUT

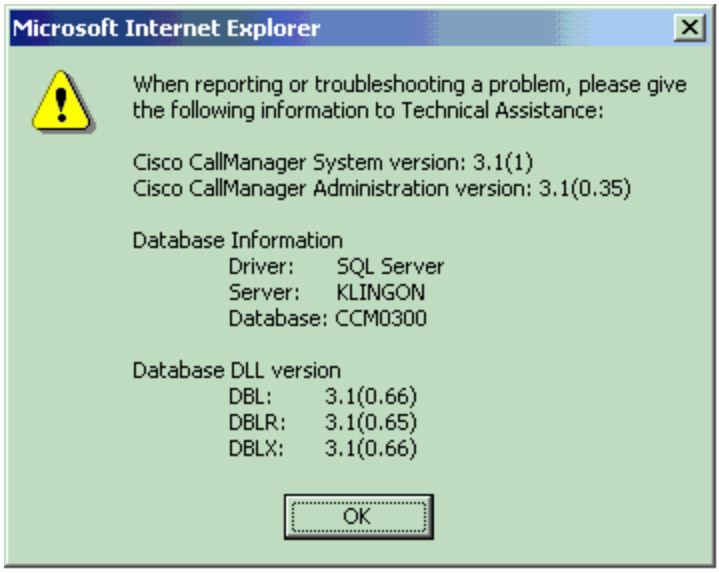
```
<dis-lrout

ROUTE = 40;

DIS-LROUT:40;

H500:  AMO LROUT STARTED

                  LCR ROUTE DEFINITION TABLE

                  -------------------------


-------------------------------------------------------------------------
|ROUTENUM = 40          SCHED A = X  AORT   =       INFORMATION         |
|ROUTEELE = 1                B =    AUTH   = 1     TRANS CAP = S3V     |
|BEARER   = ONE              C =    ONHKQ  = Y     TRKSIG = PRI        |
|BANDWTH  = 1                D =    OFFHKQ = Y     SCCID  =            |
|TRUNKGRP = 40               E =    ODRNUM = 1     SVCVCE = NON        |
|MASTGRP  = 8                F =    APLTYP = VD    SVCN-V = NON        |
|ROUTSERV = N                G =                   FACNUM =            |
|                            H =                                       |
-------------------------------------------------------------------------

END OF LCR ROUTE DEFINITION TABLE DISPLAY

AMO-LROUT-135       ROUTE DEFINITION DETERMINATION PACKAGE

DISPLAY COMPLETED;
```

Configure LODR

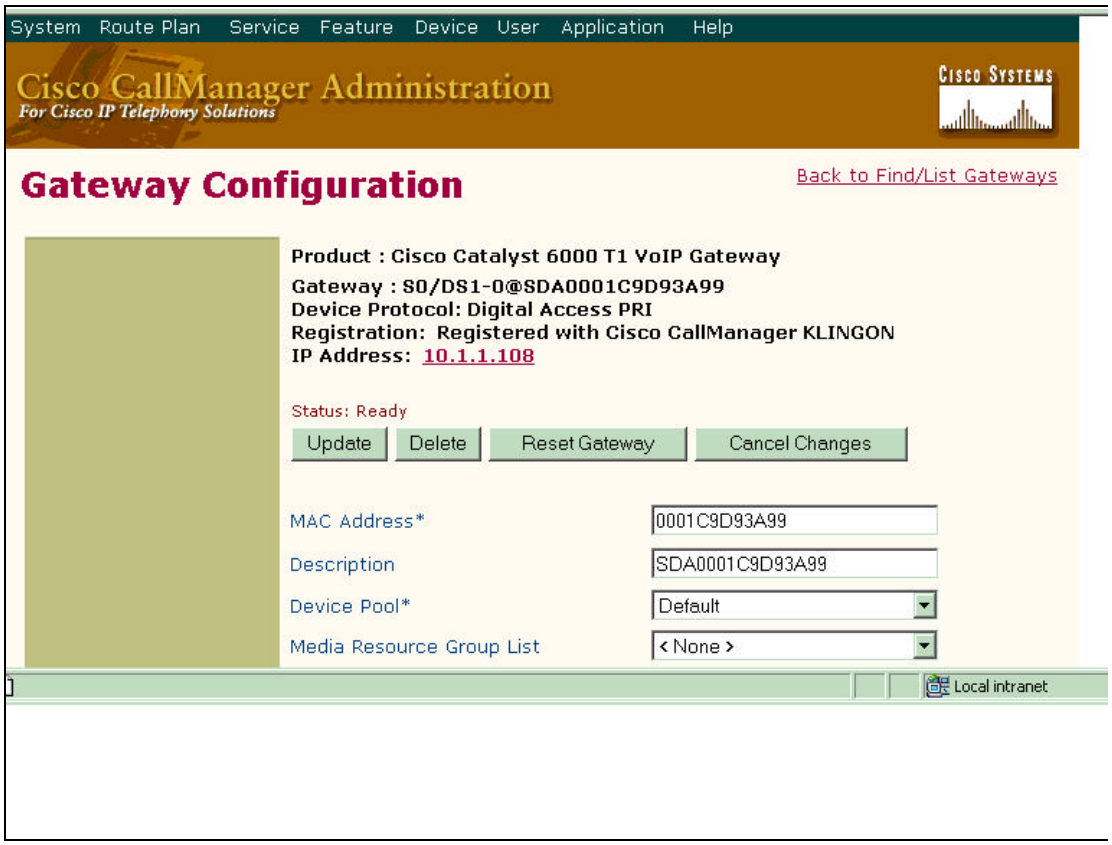
```
<dis-lodr

RANGE =
DIS-LODR:;
H500:  AMO LODR  STARTED
            << DISPLAY LCR OUTDIAL RULE >>

           ODR NO    COMMAND   BRANCH VALUE
           ------    -------   ------------
              1      ECHOALL
                     END
           -------- END OF DISPLAY --------
AMO-LODR -135       AMO LCR ODR FOR SWITCHING UNIT
DISPLAY COMPLETED;
```

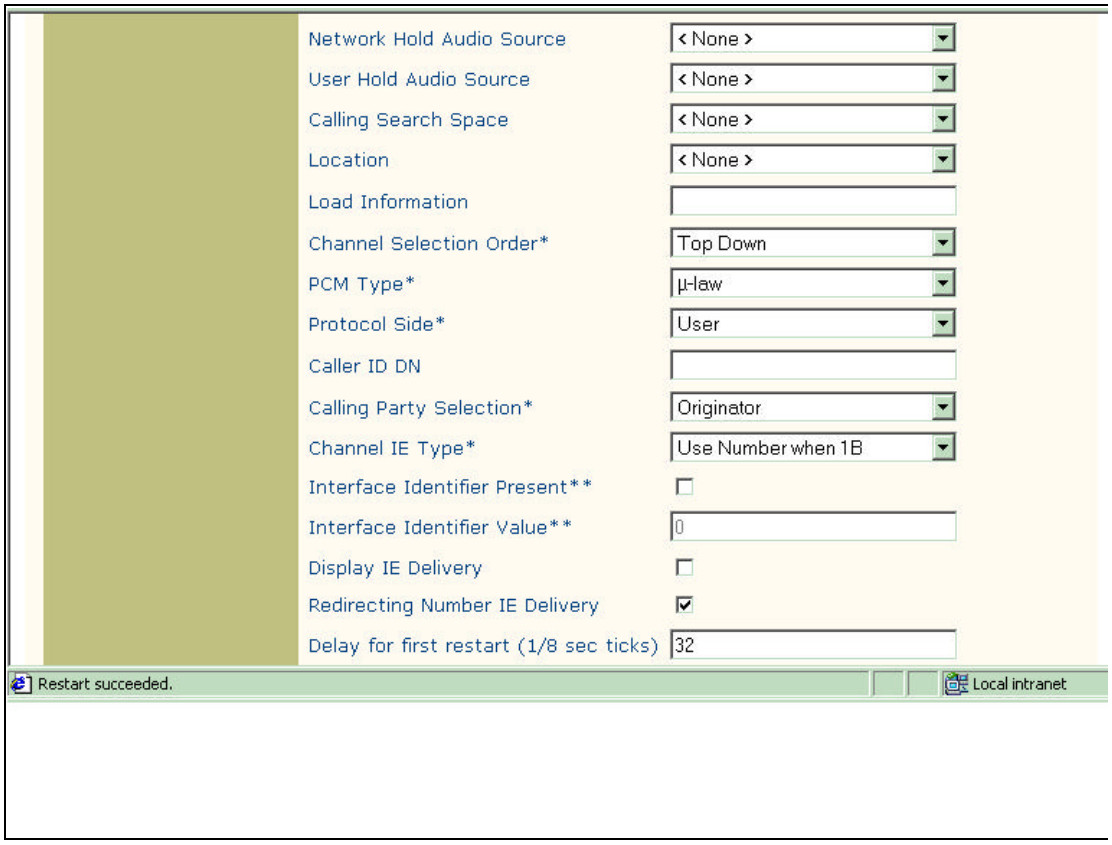
Call Manager Configuration

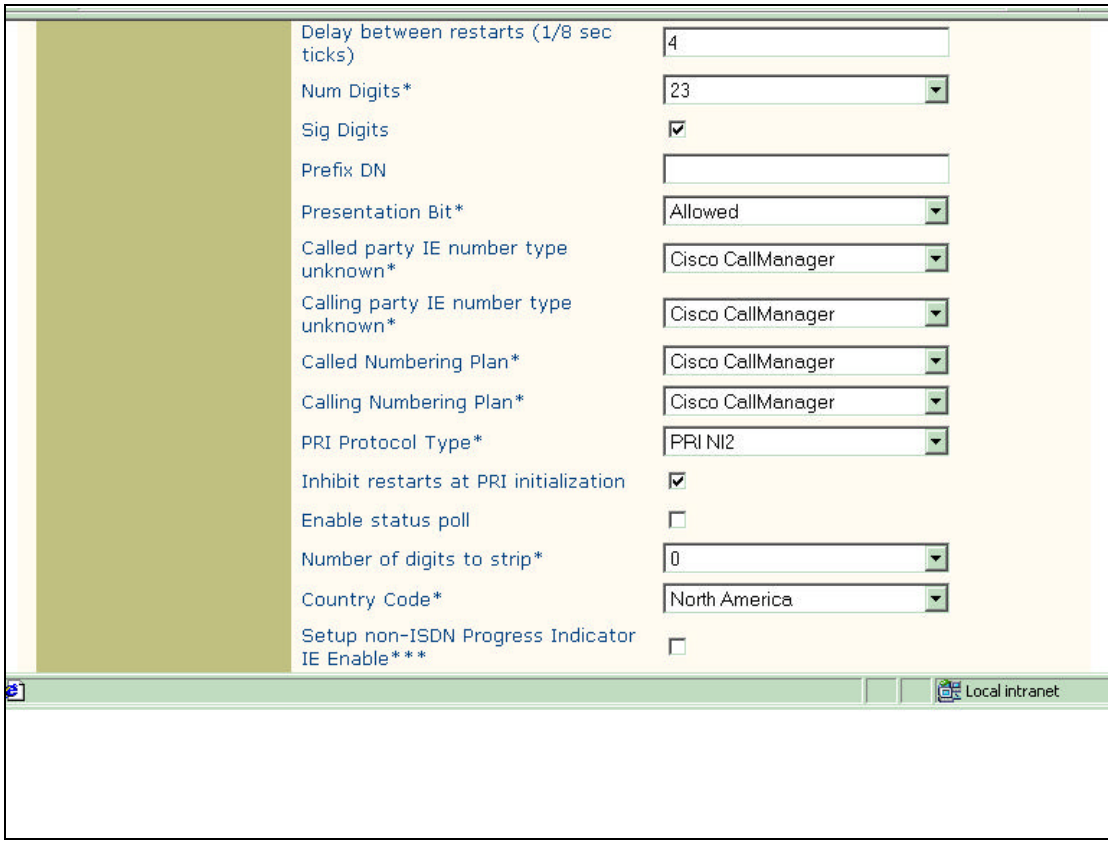
Call Manager Version Information

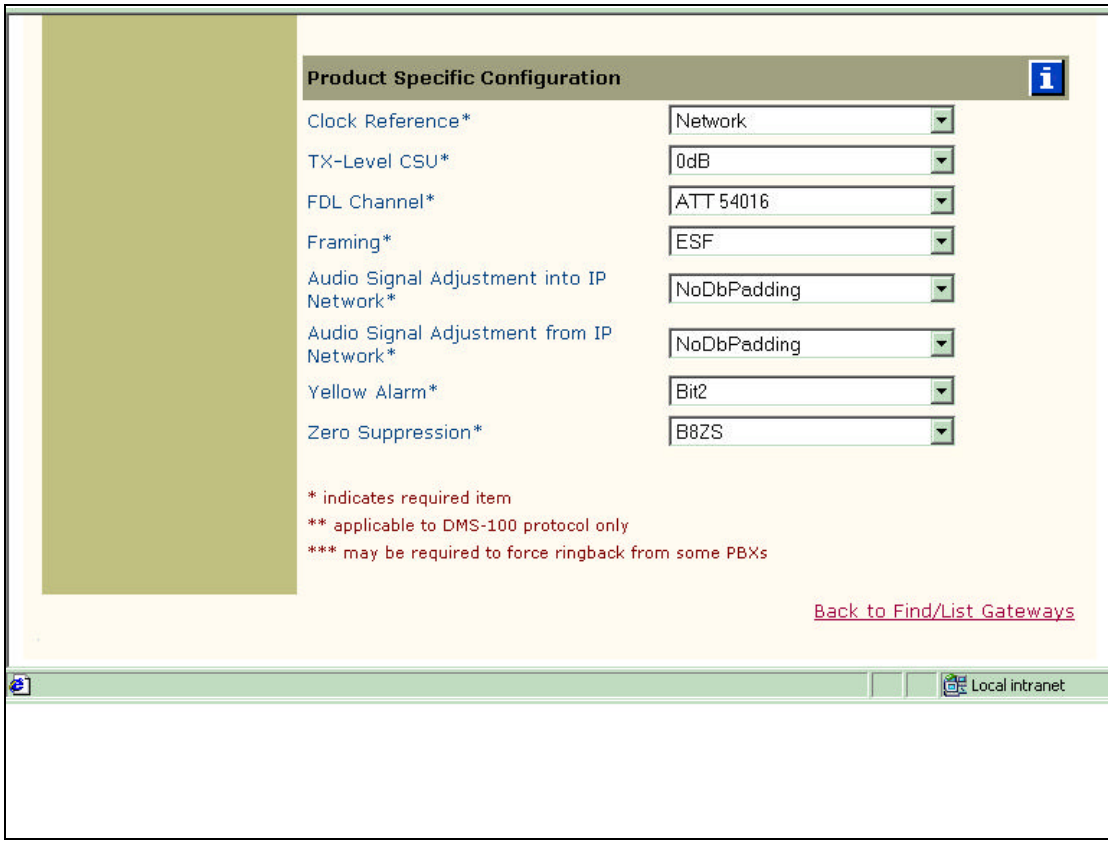


6608 Gateway Configuration

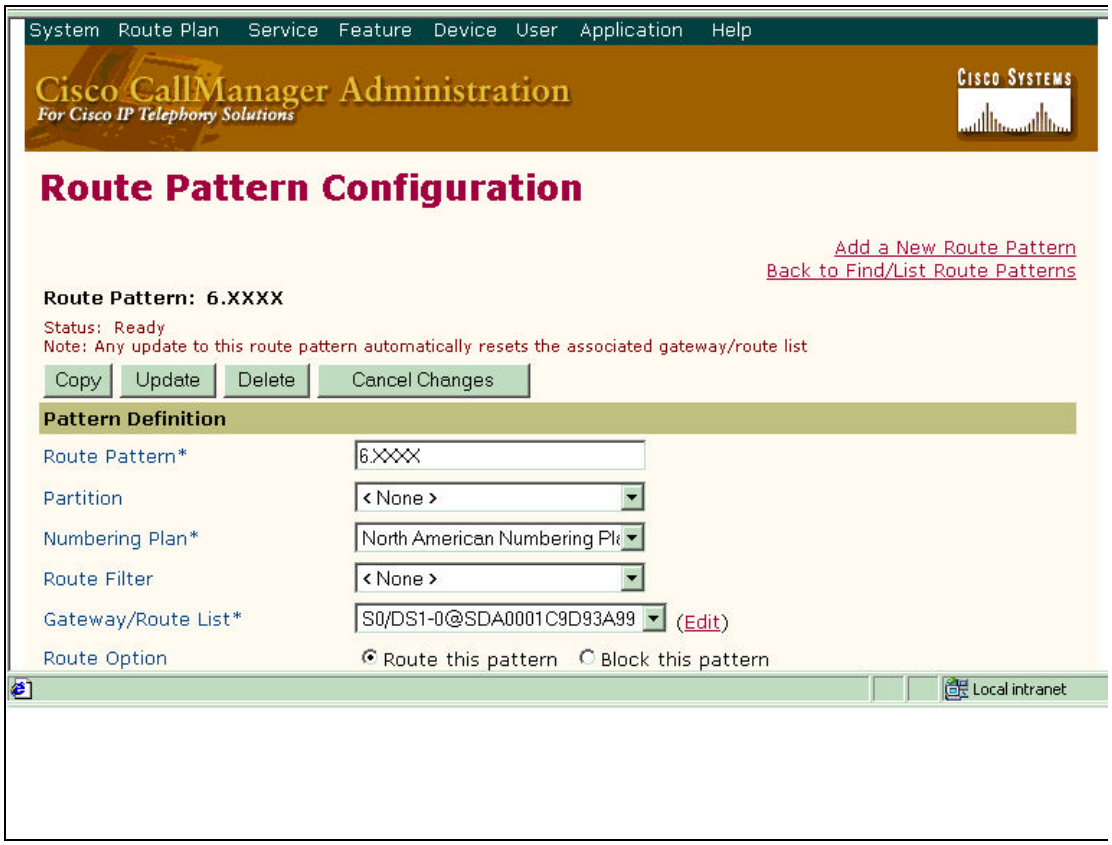


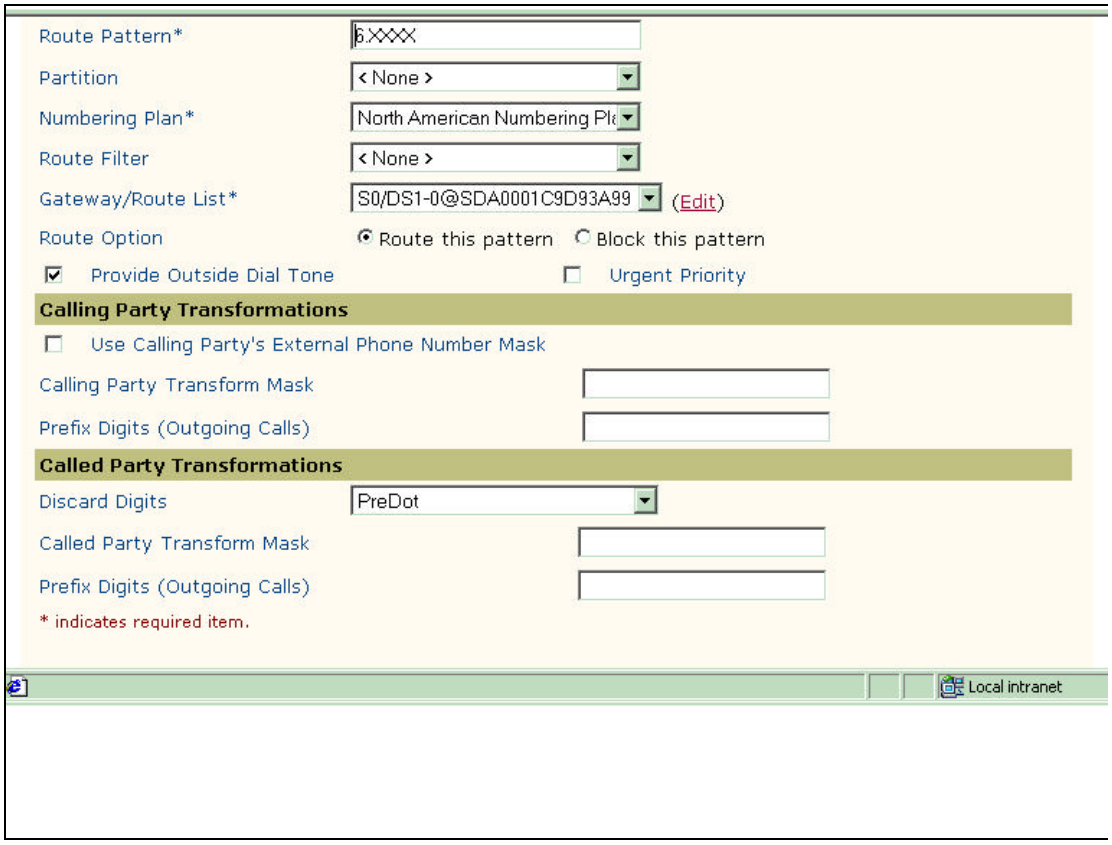

Network Hold Audio Source
< None >
User Hold Audio Source
< None >
Calling Search Space
< None >
Location
< None >
Load Information
Channel Selection Order*
Top Down
PCM Type*
µ-law
Protocol Side*
User
Caller ID DN
Calling Party Selection*
Originator
Channel IE Type*
Use Number when 1B
Interface Identifier Present**
Interface Identifier Value**
0
Display IE Delivery
Redirecting Number IE Delivery
Delay for first restart (1/8 sec ticks)
32
Restart succeeded.
Local intranet


Delay between restarts (1/8 sec ticks)
4
Num Digits*
23
Sig Digits
Prefix DN
Presentation Bit*
Allowed
Called party IE number type unknown*
Cisco CallManager
Calling party IE number type unknown*
Cisco CallManager
Called Numbering Plan*
Cisco CallManager
Calling Numbering Plan*
Cisco CallManager
PRI Protocol Type*
PRI NI2
Inhibit restarts at PRI initialization
Enable status poll
Number of digits to strip*
0
Country Code*
North America
Setup non-ISDN Progress Indicator IE Enable***
Local intranet


Product Specific Configuration
Clock Reference*
Network
TX-Level CSU*
0dB
FDL Channel*
ATT 54016
Framing*
ESF
Audio Signal Adjustment into IP Network*
NoDbPadding
Audio Signal Adjustment from IP Network*
NoDbPadding
Yellow Alarm*
Bit2
Zero Suppression*
B8ZS
* indicates required item
** applicable to DMS-100 protocol only
*** may be required to force ringback from some PBXs
Back to Find/List Gateways
Local intranet

Route Pattern Configuration




Route Pattern*
6.XXXX
Partition
< None >
Numbering Plan*
North American Numbering Pl
Route Filter
< None >
Gateway/Route List*
S0/DS1-0@SDA0001C9D93A99
(Edit)
Route Option
Route this pattern
Block this pattern
Provide Outside Dial Tone
Urgent Priority
Calling Party Transformations
Use Calling Party's External Phone Number Mask
Calling Party Transform Mask
Prefix Digits (Outgoing Calls)
Called Party Transformations
Discard Digits
PreDot
Called Party Transform Mask
Prefix Digits (Outgoing Calls)
* indicates required item.
Local intranet

Cisco Catalyst 6608 Gateway Configuration

The following is the configuration of the Cisco Catalyst 6608 voice gateway connected to the Siemens Hicom 300 E CS PBX T1 PRI NI-2 interface.

Cisco Catalyst 6608 Voice Gateway Version Information

```
Console> (enable) sh version
WS-C6006 Software, Version NmpSW: 5.5(6a)
Copyright (c) 1995-2001 by Cisco Systems
NMP S/W compiled on Feb 23 2001, 10:23:18

System Bootstrap Version: 5.3(1)

Hardware Version: 2.0  Model: WS-C6006  Serial #: TBA04511172

Mod Port Model               Serial #    Versions
--- ---- ------------------- ----------- -------------------------------------
1   2    WS-X6K-SUP1A-2GE    SAD05010NBK Hw : 7.0
                                         Fw : 5.3(1)
                                         Fw1: 5.4(2)
                                         Sw : 5.5(6a)
                                         Sw1: 5.5(6a)
         WS-F6K-PFC          SAD05020221 Hw : 1.1
3   48   WS-X6348-RJ-45      SAD04420N7B Hw : 1.4
                                         Fw : 5.4(2)
                                         Sw : 5.5(6a)
         WS-F6K-VPWR                     Hw : 1.0
4   24   WS-X6624-FXS        SAD050203M8 Hw : 3.0
                                         Fw : 5.4(2)
                                         Sw : 5.5(6a)
                                         HP : A00203010010; DSP : A003E031 (3.3.
32)
5   8    WS-X6608-T1         SAD04400EM0 Hw : 1.1
                                         Fw : 5.4(2)
                                         Sw : 5.5(6a)
                                         HP1: D00403010017; DSP1: D005E031 (3.3.
32)
                                         HP2: D00403010017; DSP2: D005E031 (3.3.
32)
                                         HP3: D00403010017; DSP3: D005E031 (3.3.
32)
                                         HP4: D00403010017; DSP4: D005E031 (3.3.
32)
                                         HP5: D00403010017; DSP5: D005E031 (3.3.
32)
                                         HP6: D00403010017; DSP6: D005E031 (3.3.
32)
                                         HP7: D00403010017; DSP7: D005E031 (3.3.
32)
                                         HP8: D00403010017; DSP8: D005E031 (3.3.
32)
6   8    WS-X6608-E1         SAD04380DW1 Hw : 1.1
                                         Fw : 5.4(2)
                                         Sw : 5.5(6a)
                                         HP1: D00403010017; DSP1: D005E031 (3.3.
32)
                                         HP2: D00403010017; DSP2: D005E031 (3.3.
32)
                                         HP3: D00403010017; DSP3: D005E031 (3.3.
32)
```

```
                                        HP4: D00403010017; DSP4: D005E031 (3.3.
32)
                                        HP5: D00403010017; DSP5: D005E031 (3.3.
32)
                                        HP6: D00403010017; DSP6: D005E031 (3.3.
32)
                                        HP7: D00403010017; DSP7: D005E031 (3.3.
32)
                                        HP8: D00403010017; DSP8: D005E031 (3.3.
32)

       DRAM                    FLASH                   NVRAM
Module Total   Used    Free    Total   Used    Free    Total Used  Free
------ ------- ------- ------- ------- ------- ------- ----- ----- -----
1       65408K  37863K  27545K  16384K  11546K   4838K  512K  198K  314K

Uptime is 83 days, 2 hours, 34 minutes
Console> (enable)
```

Cisco Catalyst 6608 Voice Gateway Sample Configuration

```
Console> (enable) sh module
Mod Slot Ports Module-Type               Model               Sub Status
--- ---- ----- ------------------------- ------------------- --- --------
1   1    2     1000BaseX Supervisor      WS-X6K-SUP1A-2GE    yes ok
3   3    48    10/100BaseTX Ethernet     WS-X6348-RJ-45      yes ok
4   4    24    FXS                       WS-X6624-FXS        no  ok
5   5    8     T1                        WS-X6608-T1         no  ok
6   6    8     E1                        WS-X6608-E1         no  ok

Mod Module-Name         Serial-Num
--- ------------------- -----------
1                       SAD05010NBK
3                       SAD04420N7B
4                       SAD050203M8
5                       SAD04400EM0
6                       SAD04380DW1

Mod MAC-Address(es)                         Hw     Fw          Sw
--- --------------------------------------- ------ ----------- ------------------
1   00-04-c0-f8-42-02 to 00-04-c0-f8-42-03 7.0    5.3(1)      5.5(6a)
    00-04-c0-f8-42-00 to 00-04-c0-f8-42-01
    00-04-9b-f0-78-00 to 00-04-9b-f0-7b-ff
3   00-02-fc-20-5e-50 to 00-02-fc-20-5e-7f 1.4    5.4(2)      5.5(6a)
4   00-03-32-ba-2e-35                      3.0    5.4(2)      5.5(6a)
5   00-01-c9-d9-3a-98 to 00-01-c9-d9-3a-9f 1.1    5.4(2)      5.5(6a)
6   00-01-c9-d8-63-3e to 00-01-c9-d8-63-45 1.1    5.4(2)      5.5(6a)

Mod Sub-Type                Sub-Model           Sub-Serial  Sub-Hw
--- ----------------------- ------------------- ----------- ------
1   L3 Switching Engine     WS-F6K-PFC          SAD05020221 1.1
3   Inline Power Module     WS-F6K-VPWR                     1.0
Console> (enable)
```

```
Console> (enable) sh port 5
Port  Name               Status     Vlan       Duplex Speed Type
----- ------------------ ---------- ---------- ------ ----- ------------
 5/1                     notconnect 1            full 1.544 T1
 5/2                     connected  1            full 1.544 T1
 5/3                     notconnect 1            full 1.544 T1
 5/4                     notconnect 1            full 1.544 T1
 5/5                     notconnect 1            full 1.544 T1
 5/6                     notconnect 1            full 1.544 T1
```

```
 5/7                    notconnect 1            full 1.544 T1
 5/8                    notconnect 1            full 1.544 T1

Port     DHCP    MAC-Address       IP-Address      Subnet-Mask
-------- ------- ----------------- --------------- ---------------
 5/1     enable  00-01-c9-d9-3a-98 10.1.1.107      255.255.255.0
 5/2     enable  00-01-c9-d9-3a-99 10.1.1.108      255.255.255.0
 5/3     enable  00-01-c9-d9-3a-9a 10.1.1.109      255.255.255.0
 5/4     enable  00-01-c9-d9-3a-9b 10.1.1.110      255.255.255.0
 5/5     enable  00-01-c9-d9-3a-9c 10.1.1.111      255.255.255.0
 5/6     enable  00-01-c9-d9-3a-9d 10.1.1.112      255.255.255.0
 5/7     enable  00-01-c9-d9-3a-9e 10.1.1.113      255.255.255.0
 5/8     enable  00-01-c9-d9-3a-9f 10.1.1.114      255.255.255.0

Port     Call-Manager(s)   DHCP-Server     TFTP-Server     Gateway
-------- ----------------- --------------- --------------- ---------------
 5/1     10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7
 5/2     10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7
 5/3     10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7
 5/4     10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7
 5/5     10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7
 5/6     10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7
 5/7     10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7
 5/8     10.1.1.2          10.1.1.2        10.1.1.2        10.1.1.7

Port     DNS-Server(s)     Domain
-------- ----------------- ------------------------------------------------
 5/1     -                 -
 5/2     -                 -
 5/3     -                 -
 5/4     -                 -
 5/5     -                 -
 5/6     -                 -
 5/7     -                 -
 5/8     -                 -

Port     CallManagerState DSP-Type
-------- ---------------- --------
 5/1     registered       C549
 5/2     registered       C549
 5/3     registered       C549
 5/4     registered       C549
 5/5     registered       C549
 5/6     registered       C549
 5/7     registered       C549
 5/8     registered       C549

Port  NoiseRegen NonLinearProcessing
----- ---------- -------------------
 5/1  enabled    enabled
 5/2  enabled    enabled
 5/3  enabled    enabled
 5/4  enabled    enabled
 5/5  enabled    enabled
 5/6  enabled    enabled
 5/7  enabled    enabled
 5/8  enabled    enabled
Console> (enable)
```

Caveats

- Calling Name delivery and presentation features are not supported by the A Siemens Hicom 300 E CS PBX.
- When calling from Cisco 7960 IP phone to Siemens digital phone, Calling/Called Number is displayed on both phones after the call is answered as expected.
- When calling from Siemens digital phone to Cisco 7960 IP phone, IP phone displays Connected Number after the call is answered. The Siemens phone however does NOT get updated when the call is answered. It displays the trunk name.
- When a call is answered, the display on the Siemens phone is only active (Calling Number is displayed) for approximately 4 seconds, thereafter the display goes blank. This could be caused by a timer feature that is expiring for the display.