



# Siemens HiPath 4000 Release 8.2 and Siemens Hicom 330E Release 3.1 using ISO with Cisco IOS Voice Gateways to Tunnel QSIG over SIP (with CUBE)

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## Introduction

- This application note provides interoperability information and documented configurations for a toll bypass solution using Cisco IOS Voice Gateways tunneling QSIG over SIP between Siemens HiPath 4000 Release 8.2 and Siemens Hicom 330E Release 3.1. The integration

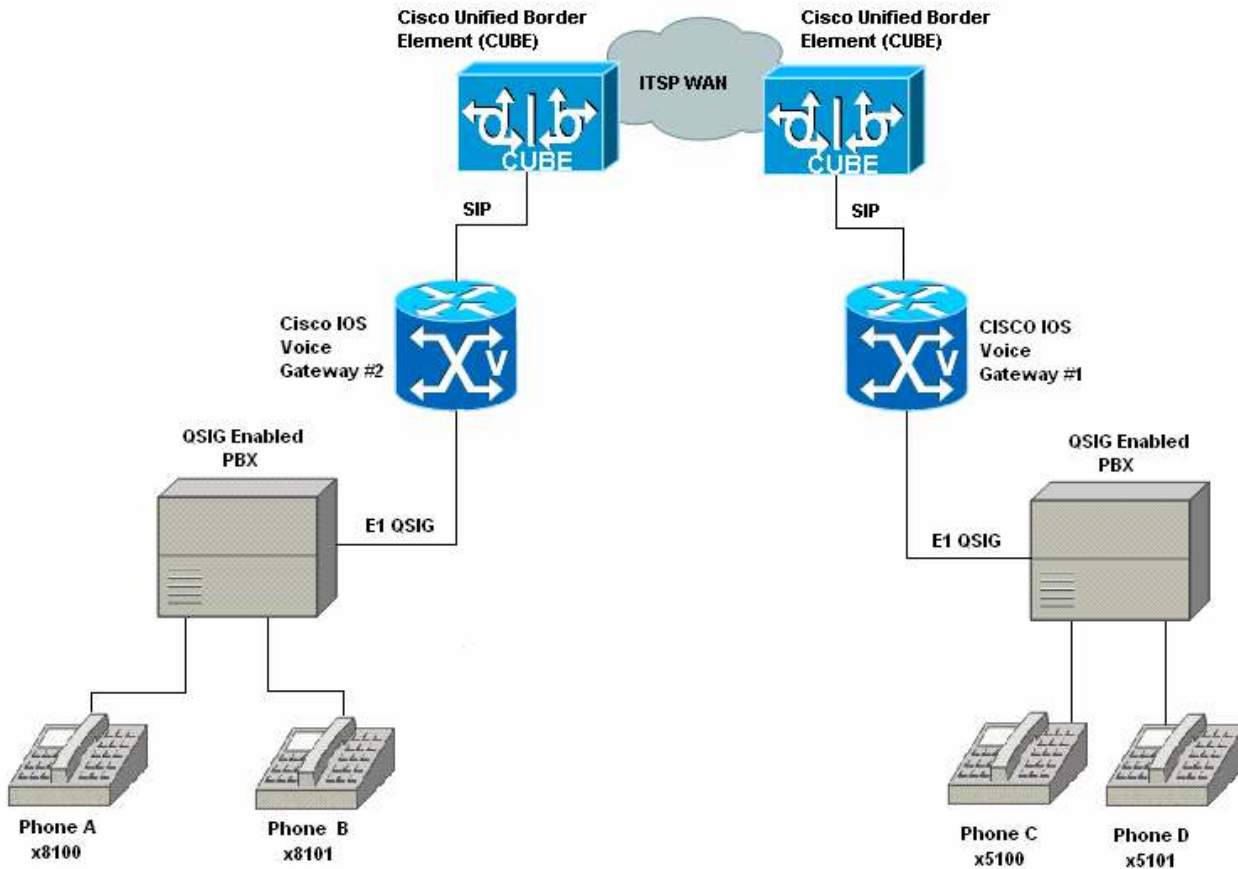


consists of two Cisco IOS Voice Gateways connecting to the Siemens PBXs using E1 QSIG trunks. The IOS gateways establish the QSIG connection between the two PBXs via SIP. An end-to-end connection is thus established between Siemens PBXs. The SIP protocol used between Cisco IOS Voice Gateways “tunnels” the E1 QSIG with Siemens, resulting in a connection similar to connecting the PBXs directly. This integration also demonstrates use of the Cisco Unified Border Element (CUBE) in the SIP connection between the two Cisco IOS Voice Gateways. Figure 1 shows the integration topology.

- Interoperability was verified using a single CUBE. In a production deployment, two CUBEs will be required: one at either side of the toll bypass network, each acting as a point of demarcation between the service provider network and the privately managed networks. The topology in Figure 1 reflects this deployment. This application note includes a sample CUBE configuration that was used in the verification with a single CUBE. It can be used as a guide in a production deployment with two CUBEs. The outcome of limitations and features will not change with a second CUBE in the topology. However, modifications to CUBE and/or IOS Voice Gateway configurations are necessary to point VoIP dial-peers to the proper session target IP addresses, based upon the implemented dial plan.
- The following basic call and supplementary services features were verified: proper establishing and disconnecting of calls; calling name and number presentation and restriction; alerting name; call transfer (consultation and early-attended); call forwarding (all, busy, and no reply); callback; path replacement on trombone call; and voicemail access with MWI activation and deactivation. All of the above features are tested with join or reroute schema in both internal (local) and external networks. Please note that this document does not address performance and scalability, which are part of a broader criterion for a deployment-ready solution.
- This application note uses the Cisco 3825 IOS Voice Gateways. However, the implementation is not platform-dependent, so you may also choose other Cisco IOS Voice Gateways. Below is a list of Cisco platforms capable of voice gateway and CUBE functions. Be careful when selecting a voice gateway platform and consider the capacity and capability required for the intended deployment.
  - [Cisco 1861 Integrated Services Router](#)
  - [Cisco IAD2400 Series Integrated Access Device](#)
  - [Cisco 2800 Series Integrated Services Routers](#)
  - [Cisco 3700 Series Multi-service Access Routers](#)
  - [Cisco 3800 Series Integrated Services Routers](#)
  - [Cisco AS5350XM Universal Gateway](#)
  - [Cisco AS5400XM Universal Gateway](#)

## Network Topology

Figure 1. Basic Call Setup



## Limitations

These are the known limitations, caveats, or integration issues.

- MWI will not interoperate with the Siemens Hicom 300E PBX. If this setup were to use Hipath PBXs on both ends, then MWI would work.
- Issuing the command to restrict caller ID on the PBX will restrict both connected name/number and calling and name/number on specify PBX stations.

## System Components

### Hardware Requirements

The following hardware is required:

Cisco equipment

- Cisco 3825 (Cisco IOS Voice Gateway and CUBE)
- Cisco 3560 powered Ethernet switch



## Siemens Equipments

- Siemens HiPath 4000 PBX
- Siemens Hicom 330E PBX
- (2) Siemens HiPath digital station telephones
- (2) Siemens Hicom digital station telephones

## Software Requirements

The following software is required:

- IOS Gateway: Cisco IOS Release – flash: c3825-ipvoice\_ivs-mz.124-15.XZ.bin
- Siemens HiPath PBX: V3.0 SA12 Patch0.
- Siemens Hicom PBX: Release3.1 SA5 Rev14

## Features

This section lists supported and unsupported features.

### Features Supported

- Basic Call – Local and Network/External
- Calling Number and Calling Name Restrictions on Basic Calls
- Connected Name and Connected Number Restrictions on Basic Calls, Alerting Name display on Basic Calls
- Consultative and Blind Transfer – Local and Network/External
- Call Forward Unconditional, Busy, and No Reply on Local and Network/External – by Join
- Callback feature on No Reply and Busy
- Call Forward Unconditional, Busy, and No Reply on Local and Network/External - Reroute
- Path Replacement

### Features Not Supported

- Voicemail access with MWI de/activation on call forwards no reply. Siemens Hicom 300E does not support MWI.

## Configuration

This section contains configuration menus and commands and describes configuration sequences and tasks.

### Configuring the Siemens Hipath 4000

```
<DISPLAY-VEGAS:LIST=LONG;
DISPLAY-VEGAS:LIST=LONG;
H500: AMO VEGAS STARTED
SYSTEM NO.      AMO   APS NO.      START          USER          STATUS
SWU: L31903Q1930A00001 REGEN P30252B4500B00108 10.05.08  22:00 CDBR    FREE
      SWU RES CODE APS: P30252B4500S00108 (DIR FILE:  :PDS:APSI/PS/S0-EM0SC)
      SWU AMO CODE APS: P30252B4500B00108 (DIR FILE:  :PDS:APSI/PS/B0-EM0BC)
      SWU AMO TEXT APS: P30252B4500B00108 (DIR FILE:  :PDS:APSI/PS/B0-EM0BC)
      BREAK MARK : NO
      RESERVATION : NO
ADS: L31903Q1930A00001 REGEN P30252B4500A00108 10.05.08  22:01 CDBR    FREE
      ADS RES CODE APS: P30252B4500D00108 (DIR FILE:  :PDS:APSI/PS/D0-EM0DC)
      ADS AMO CODE APS: P30252B4500A00108 (DIR FILE:  :PDS:APSI/PS/A0-EM0AC)
      ADS AMO TEXT APS: P30252B4500A00108 (DIR FILE:  :PDS:APSI/PS/A0-EM0AC)
```



BREAK MARK : NO  
 RESERVATION : NO

AMO-VEGAS-111 ADMIN. OF DATABASE GENERATION RUNS ON SUPPORT SYSTEM  
 DISPLAY COMPLETED;

<DISPLAY-WABE:TYPE=GEN,CD=5100&&5109;  
 DISPLAY-WABE:TYPE=GEN,CD=5100&&5109;  
 H500: AMO WABE STARTED

DIGIT INTERPRETATION		VALID FOR ALL DIAL PLANS			
CODE	CALL PROGRESS STATE	DIGIT ANALYSIS	RESERVED/CONVERT		
	1 1111 11112 22		DNI/ADD-INFO		
	0 12345 67890 12345 67890 12	RESULT	*=OWN NODE		
5100 - 5109	. **** * . . . . . *	STN	DESTNO 0		
			DNNO 0- 0-555*		

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

<DISPLAY-WABE:TYPE=GEN,CD=8100&&8109;  
 DISPLAY-WABE:TYPE=GEN,CD=8100&&8109;  
 H500: AMO WABE STARTED

DIGIT INTERPRETATION		VALID FOR ALL DIAL PLANS			
CODE	CALL PROGRESS STATE	DIGIT ANALYSIS	RESERVED/CONVERT		
	1 1111 11112 22		DNI/ADD-INFO		
	0 12345 67890 12345 67890 12	RESULT	*=OWN NODE		
8100 - 8109	. **** * . . . . . *	STN	DESTNO 32		
			DNNO 0- 0- 32		
			PDNNO 0- 0- 32		

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

<DISPLAY-RICHT:MODE=CD,CD=005;  
 DISPLAY-RICHT:MODE=CD,CD=005;  
 H500: AMO RICHT STARTED

ROUTES FOR ALL DPLN										SVC = VCE	
CODE	NAME, CQMAX, DESTNO AND CPS	TGRP CCNO	P	DTMF			LRTE	CPAR	F		
	1 111112		B	CNV	DSP	TEXT	PULS PAUSE				
005	.....	24	W	W				2999			
NEUTRAL	CLOSEDE1										
	DNNO: 31										
	PDNNO: 31										
	DESTNO :31										
	ROUTOPT :YES										
	REROUT :YES										

ROUTES FOR ALL DPLN										SVC = FAX	
CODE	NAME, CQMAX,	TGRP	P	DTMF			LRTE	CPAR	F		



DESTNO AND CPS		CCNO	L	DTMF			PULS		W
12345 67890 123452			B	CNV	DSP	TEXT	PAUSE	D	
005	.....	24						2999	B
NEUTRAL	CLOSEDE1								
	DNNO: 31								
	PDNNO: 31								
	DESTNO :31								
	ROUTOPT :YES								
	REROUT :YES								
ROUTES FOR ALL DPLN								SVC = DTE	
CODE	NAME, CQMAX, DESTNO AND CPS	TGRP CCNO	P	DTMF			LRTE	CPAR	F
	12345 67890 123452		L	DTMF					W
	12345 67890 123452		B	CNV	DSP	TEXT	PAUSE	D	
005	.....	24						2999	B
NEUTRAL	CLOSEDE1								
	DNNO: 31								
	PDNNO: 31								
	DESTNO :31								
	ROUTOPT :YES								
	REROUT :YES								

AMO-RICHT-111 TRUNK ROUTING  
 DISPLAY COMPLETED;

<DISPLAY-RICHT:MODE=CD,CD=005;  
 DISPLAY-RICHT:MODE=CD,CD=005;  
 H500: AMO RICHT STARTED

DESTNO AND CPS		CCNO	L	DTMF			PULS		W
12345 67890 123452			B	CNV	DSP	TEXT	PAUSE	D	
005	.....	24		W	W			2999	B
NEUTRAL	CLOSEDE1								
	DNNO: 31								
	PDNNO: 31								
	DESTNO :31								
	ROUTOPT :YES								
	REROUT :YES								
ROUTES FOR ALL DPLN								SVC = VCE	
CODE	NAME, CQMAX, DESTNO AND CPS	TGRP CCNO	P	DTMF			LRTE	CPAR	F
	12345 67890 123452		L	DTMF					W
	12345 67890 123452		B	CNV	DSP	TEXT	PAUSE	D	
005	.....	24		W	W			2999	B
NEUTRAL	CLOSEDE1								
	DNNO: 31								
	PDNNO: 31								
	DESTNO :31								
	ROUTOPT :YES								
	REROUT :YES								
ROUTES FOR ALL DPLN								SVC = FAX	
CODE	NAME, CQMAX, DESTNO AND CPS	TGRP CCNO	P	DTMF			LRTE	CPAR	F
	12345 67890 123452		L	DTMF					W
	12345 67890 123452		B	CNV	DSP	TEXT	PAUSE	D	



005	.....	24						2999		
NEUTRAL	CLOSEDE1									
	DNNO:	31								
	PDNNO:	31								
	DESTNO	:31								
	ROUTOPT	:YES								
	REROUT	:YES								

-----  
 ROUTES FOR ALL DPLN SVC = DTE  
 -----

CODE	NAME, CQMAX, DESTNO AND CPS	TGRP CCNO	P L	DTMF			LRTE	CPAR	F W D B
	1 111112		B	CNV	DSP	TEXT	PULS		
	12345 67890 123452						PAUSE		

005	.....	24						2999		
NEUTRAL	CLOSEDE1									
	DNNO:	31								
	PDNNO:	31								
	DESTNO	:31								
	ROUTOPT	:YES								
	REROUT	:YES								

AMO-RICHT-111 TRUNK ROUTING  
 DISPLAY COMPLETED;

<DISPLAY-LDAT:TYPE=NWLCR,LROUTE=2999;  
 DISPLAY-LDAT:TYPE=NWLCR,LROUTE=2999;  
 H500: AMO LDAT STARTED

LROUTE = 2999		NAME = CLOSEDE1		SERVICE = ALL					
TYPE = NWLCR		DNNO OF ROUTE =		31					
SERVICE INFO =									
LRTEL	LVAL	TGRP	ODR	LAUTH	SCHEDULE ABCDEFGH	CARRIER ZONE	LATTR	LDSRT	COTIDX
1	1	24	1	1	*****	1 EMPTY	NONE		0
DNNNO =		31							

AMO-LDAT -111 LCR-DIRECTIONS  
 DISPLAY COMPLETED;

<DIS-LODR:1;  
 DIS-LODR:1;  
 H500: AMO LODR STARTED

ODR	POSITION	CMD	PARAMETER
1	1	ECHO	1
	2	END	

H03: THE NEXT FREE ODR IS 3

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



```
<dis-bcsu:tbl;
DIS-BCSU:TBL;
H500: AMO BCSU STARTED
```

```
ADDRESS : LTG 1 LTU 2 SOURCE GROUP 1 ALARMNO-LTU 0
```

PEN	ASSIGNED MODULE	MODULE TYPE	FCT ID	S E C	H W Y	AL- ARM NO	INSERTED MODULE	HW- STATE INFO	MODULE STATUS
103	Q2196-X	DIU-N2	1	A	0		Q2196-X	1 -04 -	READY

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

```
<DIS-TDCSU:1-2-103-1;
DIS-TDCSU:1-2-103-1;
H500: AMO TDCSU STARTED
```

```
DIGITAL TRUNK (FORMAT=L)
```

DEV = S2CONN	PEN = 1-02-103-1	TGRP = 25
<b>PROTVAR = PSS1V2</b>	INS = Y	SRCHMODE = CIR
<b>COTNO = 21</b>	<b>COPNO = 21</b>	DPLN = 0
ITR = 1	<b>COS = 10</b>	<b>LCOSV = 1</b>
<b>LCOSD = 1</b>	CCT = PRI 2 ETSI	DESTNO = 100
SEGMENT = 1	DEDSVC = NONE	DEDSVC = NONE
FACILITY =	DITIDX =	SRTIDX =
TRTBL = GDTR	SIDANI = N	ATNTYP = TIE
CBMATTR = NONE	NWMUXTIM = 10	TCHARG = N
SUPPRESS = 0	DGTPR =	CHIMAP = N
ISDNIP =	ISDNNP =	
PNPL2P =	PNPL1P =	PNPAC =
TRACOUNT = 31	SATCOUNT = MANY	NNO = 1
ALARMNO = 0	FIDX = 1	CARRIER = 1
ZONE = EMPTY	COTX = 21	FWDX = 1
DOMTYPE =	DOMAINNO =	TPROFNO =
INIGHT =		CCHDL =
UUSCCX = 16	UUSCCY = 8	FNIDX = 1
CLASSMRK = EC & G711	& G729OPT	SRCGRP =
TCCID =		
BCNEG = N	BCGR = 1	<b>LWPAR = 1</b>
LWPP = 0	LWLT = 0	LWPS = 0
LWR1 = 0	LWR2 = 0	
DMCALLWD =	DMCSEC =	VNNO =
SVCDOM =		
BCHAN = 1 && 30		

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

AMO-TDCSU-111 DIGITAL TRUNKS



DISPLAY COMPLETED;

<DIS-COT:21;  
 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  
 NETWORKWIDE CALL FORWARDING PERMITTED FWDN  
 NETWORKWIDE FORWARDING NO-ANSWER FNAN  
 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 AOCC  
 LINE WITH IMPLICIT NUMBERS LINO  
 NO TONE NTON

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

<DIS-COP:21;  
 DIS-COP: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  
 MAKE/BREAK RATIO FOR DTMF 1 (PULSE=80MS,PAUSE=80MS) DTML

CO TRUNK ACCESS:  
 TRUNK ACCESS TA

TOLL ACCESS:  
 TRUNK ACCESS TA

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

<dis-cossu  
 TYPE = cos  
 COS = 10;  
 DIS-COSSU: COS,10;  
 H500: AMO COSSU STARTED

COS	VOICE	FAX	DTE
10	>		
	TA	NOCO	NOCO
	TSUID	NOTIE	NOTIE
	TNOTCR		
	CDRS		
	CDRC		
	CDRINT		
	RKOABS		
	COSXCD		
	CFNR		



	VCE		
	FWDNWK		
	MSN		
	CFB		
	FWDECA		
	FWDEXT		

AMO-COSSU-111 CLASSES OF SERVICE  
 DISPLAY COMPLETED;

<dis-cossu  
 DIS-COSSU:LCOSV,1;  
 H500: AMO COSSU STARTED

LCOS	1	2	3	4	5	6	COPIN
V	1234567890123456789012345678901234567890123456789012345678901234						
	>SERVICE INFORMATION						
1	X.....						0
	>LCR ATTENDANT FOR VOICE						

AMO-COSSU-111 CLASSES OF SERVICE  
 DISPLAY COMPLETED;

<DIS-COSSU:LCOSD,1;  
 DIS-COSSU:LCOSD,1;  
 H500: AMO COSSU STARTED

LCOS	1	2	3	4	5	6	COPIN
D	1234567890123456789012345678901234567890123456789012345678901234						
	>SERVICE INFORMATION						
1	XX						.
	>LCR ATTENDANT FOR DATA						

AMO-COSSU-111 CLASSES OF SERVICE  
 DISPLAY COMPLETED;

<dis-buend:25;  
 DIS-BUEND:25;  
 H500: AMO BUEND STARTED

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

TGRP NUMBER :	25	TGRP NAME :	PRI 2 ETSI	MAXIMUM NO. :	30
		CHARCON :	NEUTRAL		
SUBGROUP NO.:	11	DEVICE TYPE :	S2CONN	TRACENO :	0
SEARCH MODE :	CIRCULAR			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- 2-103-1	1	1- 2-103-1	2	1- 2-103-1	3
1- 2-103-1	4	1- 2-103-1	5	1- 2-103-1	6
1- 2-103-1	7	1- 2-103-1	8	1- 2-103-1	9
1- 2-103-1	10	1- 2-103-1	11	1- 2-103-1	12
1- 2-103-1	13	1- 2-103-1	14	1- 2-103-1	15
1- 2-103-1	16	1- 2-103-1	17	1- 2-103-1	18
1- 2-103-1	19	1- 2-103-1	20	1- 2-103-1	21
1- 2-103-1	22	1- 2-103-1	23	1- 2-103-1	24
1- 2-103-1	25	1- 2-103-1	26	1- 2-103-1	27
1- 2-103-1	28	1- 2-103-1	29	1- 2-103-1	30

AMO-BUEND-111 TRUNK GROUP  
 DISPLAY COMPLETED;



```
<DISPLAY-LWPAR:FORMAT=L,BLNO=1,TYPE=DIUS2;
DISPLAY-LWPAR:FORMAT=L,BLNO=1,TYPE=DIUS2;
H500: AMO LWPAR STARTED
```

```

+-----+
| LOADWARE PARAMETERS      CIRCUIT TYPE: DIUS2  SOURCE:DB   BLOCK:    1 |
+-----+
| 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     =
+-----+

```

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

```
<dis-refta
TYPE = circuit
PEN = 1-2-103-1;
DIS-REFTA:CIRCUIT,1-2-103-1;
H500: AMO REFTA STARTED
```

```

+-----+
| REFERENCE CLOCK CIRCUITS
+-----+
| PEN      | MODULE | DEVICE | PRI | ERROR | BLOCK | SUPP. | READY | SRCGRP |
|          |        |        |     |       |       |       | BUT  |        |
|          |        |        |     |       |       |       | ASYN. |        |
+-----+
| 1- 2-103- 1 | DIU-N2 | S2CONN | 0 | 0 | N | | N | 1 |
+-----+

```

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

```
<DISPLAY-SBCSU:STNO=5100;
DISPLAY-SBCSU:STNO=5100;
H500: AMO SBCSU STARTED
```

```

----- USER DATA -----
STNO   =5100      OPT    =OPTI      COS1   =20        DPLN   =3
MAINO  =5100      CONN   =DIR        COS2   =20        ITR    =1
PEN    = 1- 3- 31- 10  LCOSV1 =6         COSX   =0
INS    =Y         ASYNCT =500      LCOSV2 =6
SSTNO  =N         PERMACT =         LCOSD1 =6
TRACE  =N         EXTBUS  =         LCOSD2 =6
ALARMNO =0        DFSVCANA=         SPDI   =0        CBKBMAX =5
HMUSIC =0        FLASH  =         SPDC1  =         RCBKB  =N
PMIDX  =1        SPDC2  =         CBKNA  =N
SECR   =N        DIGNODIS=N       DSSTNA =N        CBKNAMB =Y
STD    =55       CALLOG  =NONE     DSSTNB =Y        COMGRP =0
REP    =0        OPTICOM =N       OPTIUSB :         VPI    =
IDCR   =N        OPTICA  =1       OPTIS0A :0        VCI    =
APPM   =         OPTIDA  =1       OPTISPA :0        PATTERN =
                                OPTIABA :0
DCFWBUSY=N      HEADSET =N       APMOBSR=         APICLASS=
DNIDSP =N       HSKEY   =NORMAL  IPCODEC =         SECAPPL =
DTMFBLK =N      BASICSVC=
DTMFCTR=Y

```



```

DVCFIG =OPTISET   TSI      =1          SPROT   =          SOPTIDX =
                                DPROT   =          DOPTIDX =
                                FPROT   =          FOPTIDX =
-----
ACTIVATION IDENTIFIERS FOR FEATURES -----
HTOS      :N          DND       :N
HTOD      :N          VCP       :Y          TWLOGIN :N
HTOF      :N          CWT       :N
-----
FEATURES AND GROUP MEMBERSHIPS -----
PUGR      :          ESSTN     :
KEYSYS    :N          NOPTNO    :
SRCGRP    :(1 )      TCLASS    : 0
HUNT CD   :N
-----
SUBSCRIBER ATTRIBUTES (AMO SDAT) -----
NONE
-----

```

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

**Configuration for the Siemens Hicom 330E**

```

<DISPLAY-VEGAS:LIST=LONG;
DISPLAY-VEGAS:LIST=LONG;
H500: AMO VEGAS STARTED
SYSTEM NO.      AMO  APS NO.      START          USER          STATUS
SWU: L31900Q2999A00001 REGEN P30252B4200B00105 10.05.08 04:19 HIM      FREE
  SWU RES CODE APS: P30252B4200S00105 (DIR FILE: :PDS:APSI/PS/S0-EK0SC)
  SWU AMO CODE APS: P30252B4200B00105 (DIR FILE: :PDS:APSI/PS/B0-EK0BC)
  SWU AMO TEXT APS: P30252B4200B00105 (DIR FILE: :PDS:APSI/PS/B0-EK0BC)
  BREAK MARK : NO
  RESERVATION : NO
ADS: L31900Q2999A00001 REGEN P30252B4200A00105 10.05.08 04:20 HIM      FREE
  ADS RES CODE APS: P30252B4200D00105 (DIR FILE: :PDS:APSI/PS/D0-EK0DC)
  ADS AMO CODE APS: P30252B4200A00105 (DIR FILE: :PDS:APSI/PS/A0-EK0AC)
  ADS AMO TEXT APS: P30252B4200A00105 (DIR FILE: :PDS:APSI/PS/A0-EK0AC)
  BREAK MARK : NO
  RESERVATION : NO

```

AMO-VEGAS-111 ADMIN. OF DATABASE GENERATION RUNS ON SUPPORT SYSTEM  
 DISPLAY COMPLETED;

**Local Station in WABE**

```

<DISPLAY-WABE:TYPE=GEN,CD=8100&&8109;
DISPLAY-WABE:TYPE=GEN,CD=8100&&8109;
H500: AMO WABE STARTED

```

DIGIT INTERPRETATION		VALID FOR ALL DIAL PLANS			
CODE	CALL PROGRESS STATE	DIGIT ANALYSIS	RESERVED/CONVERT DNI/ADD-INFO		
	1 1111 11112 22	RESULT	*=OWN NODE		
8100 - 8109	. ***** **... ..	STN	DESTNO	0	
			DNNO	0- 0-222*	

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

**510X Route pattern WABE**

```

<DISPLAY-WABE:TYPE=GEN,CD=5100&&5109;
DISPLAY-WABE:TYPE=GEN,CD=5100&&5109;
H500: AMO WABE STARTED

```

DIGIT INTERPRETATION		VALID FOR ALL DIAL PLANS			
----------------------	--	--------------------------	--	--	--



CODE	CALL PROGRESS STATE	DIGIT ANALYSIS RESULT	RESERVED/CONVERT DNI/ADD-INFO
5100 - 5109	1 11111 11112 22 0 12345 67890 12345 67890 12	STN	*=OWN NODE <b>DESTNO 43</b> <b>DNNO 0- 0-444</b>

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



**RICHT 510X Route pattern**

```
<DISPLAY-RICHT:MODE=CD,CD=007;
DISPLAY-RICHT:MODE=CD,CD=007;
H500: AMO RICHT STARTED
```

-----										
ROUTES FOR ALL DPLN										SVC = VCE
CODE	NAME, CQMAX, DESTNO AND CPS	TGRP CCNO	P	DTMF			LRTE	CPAR	U F	
	1 11111 12345 67890 12345		L	CNV	DSP	TEXT	PULS		N W	
			B				PAUSE		I D	T B
-----										
007	.....	72		W	W			2999		
NEUTRAL	E1 1-2-25-0									
	DNNO: 444									
	DESTNO : 43									
	REROUT : YES									
-----										
ROUTES FOR ALL DPLN										SVC = TTX
CODE	NAME, CQMAX, DESTNO AND CPS	TGRP CCNO	P	DTMF			LRTE	CPAR	U F	
	1 11111 12345 67890 12345		L	CNV	DSP	TEXT	PULS		N W	
			B				PAUSE		I D	T B
-----										
007	.....	72						2999		
NEUTRAL	E1 1-2-25-0									
	DNNO: 444									
	DESTNO : 43									
	REROUT : YES									
-----										
ROUTES FOR ALL DPLN										SVC = VTX
CODE	NAME, CQMAX, DESTNO AND CPS	TGRP CCNO	P	DTMF			LRTE	CPAR	U F	
	1 11111 12345 67890 12345		L	CNV	DSP	TEXT	PULS		N W	
			B				PAUSE		I D	T B
-----										
007	.....	72						2999		
NEUTRAL	E1 1-2-25-0									
	DNNO: 444									
	DESTNO : 43									
	REROUT : YES									
-----										
ROUTES FOR ALL DPLN										SVC = FAX
CODE	NAME, CQMAX, DESTNO AND CPS	TGRP CCNO	P	DTMF			LRTE	CPAR	U F	
	1 11111 12345 67890 12345		L	CNV	DSP	TEXT	PULS		N W	
			B				PAUSE		I D	T B
-----										
007	.....	72						2999		
NEUTRAL	E1 1-2-25-0									
	DNNO: 444									
	DESTNO : 43									
	REROUT : YES									
-----										
ROUTES FOR ALL DPLN										SVC = DTE
CODE	NAME, CQMAX,	TGRP	P	DTMF			LRTE	CPAR	U F	



	DESTNO AND CPS	CCNO	L	B	CNV	DSP	TEXT	PULS		N	W
	12345 67890 12345							PAUSE		I	D
										T	B
007	.....	72							2999		
NEUTRAL	E1 1-2-25-0										
	DNNO: 444										
	DESTNO : 43										
	REROUT : YES										

AMO-RICHT-111 TRUNK ROUTING  
 DISPLAY COMPLETED;

**LDAT 510X Route pattern**

<DISPLAY-LDAT:TYPE=NWLCR,LROUTE=2999;  
 DISPLAY-LDAT:TYPE=NWLCR,LROUTE=2999;  
 H500: AMO LDAT STARTED

LRROUTE = 2999 NAME = E1 1-2-25-0 SERVICE = ALL										
TYPE = NWLCR DNNO OF ROUTE = 444										
SERVICE INFO =										
LRTEL	LVAL	TGRP	ODR	LAUTH	SCHEDULE	CARRIER	BAND			LATTR
					ABCDEFGH	ZONE	WDTH			
1	1	72	5	1	*****	1	EMPTY	1	NONE	
DNNO =		444								

AMO-LDAT -111 LCR-DIRECTIONS  
 DISPLAY COMPLETED;

**LODR 510X Route pattern**

<DISPLAY-LODR:ODR=5;  
 DISPLAY-LODR:ODR=5;  
 H500: AMO LODR STARTED

ODR	POSITION	CMD	PARAMETER
5	1	ECHO	1
	2	END	

H03: THE NEXT FREE ODR IS 8

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

**PRI Board**

<DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=2,SLOT=25;  
 DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=2,SLOT=25;  
 H500: AMO BCSU STARTED

ADDRESS : LTG 1 LTU 2

PEN	ASSIGNED	MODULE	FCT	HWY	INSERTED	STATE	HW-INFO	MODULE
	MODULE	TYPE	ID	BDL	MODULE			STATUS
25	Q2196-X	DIU-N2	1	A	Q2196-X	1	-07 -	READY

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

**Trunk Group 72 510X Route pattern**

<dis-tdcsu:1-2-25-0;  
 DIS-TDCSU:1-2-25-0;  
 H500: AMO TDCSU STARTED



```

----- DIGITAL TRUNK (FORMAT=L) -----
DEV = S2CONN                                PEN = 1-02-025-0

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  =
PNPL2C  =           PNPL1C  =           PNPLC   =
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
CCHDL   =

-----
TGRP    = 72        SRCHMODE = ASC          BCNEG   = N
BCGR    = 1        INS      = Y          LWPARG  = 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;

**DIS\_COT**

DIS-COT: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
UNRESTRICTED SUFFIX DIALING	USD
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
<b>NETWORKWIDE CALL FORWARDING PERMITTED</b>	<b>FWDN</b>
<b>NETWORKWIDE FORWARDING NO-ANSWER</b>	<b>FNAN</b>
DON'T RELEASE CALL TO BUSY HUNT GROUP	BSHT
END-OF-DIAL FOR BLOCK IS SET	BLOC
SEND NO NODE NUMBER TO PARTNER	LWNC
<b>CONNECTION TO ROUTE OPTIMIZATION NODE</b>	<b>ROPT</b>
INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR	NLCR
TSC-SIGNALING FOR NETWORKWIDE FEATURES (MANDATORY)	TSCS
INCOMING CDR BY ZONE OR FROM LINE	ICZL
USE DEFAULT NODE NUMBER OF LINE	DFNN
INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR (DATA)	NLRD
PIN NETWORKWIDE POSSIBLE	PINR
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;

**For Call Forwarding by Reroute need to add FNAN and FWDN to COT 5 as highlighted above  
 For Path Replacement need to add ROPT to COT 5 as highlighted above**

**DIS-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
  MAKE/BREAK RATIO FOR DTMF 1 (PULSE=80MS,PAUSE=80MS) DTML
  
```

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

**Dis- 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=LCOS,LCOS=32;  
 DISPLAY-COSSU:TYPE=LCOS,LCOS=32;  
 H500: AMO COSSU STARTED

THE LCR CLASSMARKS ARE CONTAINED IN THE FOLLOWING LCOS:

LCOS	LCOSV	LCOSD
32	12345678901234567890123456789012	12345678901234567890123456789012
	>SERVICE INFORMATION	
	XX	XX

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

<  
 <DISPLAY-BUEND:TGRP=72;  
 DISPLAY-BUEND:TGRP=72;  
 H500: AMO BUEND STARTED

FORMAT = L			
TGRP NUMBER :	72	TGRP NAME :	1-2-25-0
		CHARCON :	NEUTRAL
SUBGROUP NO.:	21	DEVICE TYPE :	S2CONN
RESERVED :	N	SEARCH MODE :	ASCENDING
		MAXIMUM NO. :	30
		TRACENO :	0
		ACD THRESHOLD :	*



```

NUMBER OF ASSOCIATED ROUTES      : 2          PRIORITY      : 2
THE FOLLOWING TRUNKS (LTG-LTU-SLOT-CCT) HAVE BEEN ALLOCATED:
-----
 1- 2- 25-0 B-CHL: 1 | 1- 2- 25-0 B-CHL: 2 | 1- 2- 25-0 B-CHL: 3
 1- 2- 25-0 B-CHL: 4 | 1- 2- 25-0 B-CHL: 5 | 1- 2- 25-0 B-CHL: 6
 1- 2- 25-0 B-CHL: 7 | 1- 2- 25-0 B-CHL: 8 | 1- 2- 25-0 B-CHL: 9
 1- 2- 25-0 B-CHL: 10 | 1- 2- 25-0 B-CHL: 11 | 1- 2- 25-0 B-CHL: 12
 1- 2- 25-0 B-CHL: 13 | 1- 2- 25-0 B-CHL: 14 | 1- 2- 25-0 B-CHL: 15
 1- 2- 25-0 B-CHL: 16 | 1- 2- 25-0 B-CHL: 17 | 1- 2- 25-0 B-CHL: 18
 1- 2- 25-0 B-CHL: 19 | 1- 2- 25-0 B-CHL: 20 | 1- 2- 25-0 B-CHL: 21
 1- 2- 25-0 B-CHL: 22 | 1- 2- 25-0 B-CHL: 23 | 1- 2- 25-0 B-CHL: 24
 1- 2- 25-0 B-CHL: 25 | 1- 2- 25-0 B-CHL: 26 | 1- 2- 25-0 B-CHL: 27
 1- 2- 25-0 B-CHL: 28 | 1- 2- 25-0 B-CHL: 29 | 1- 2- 25-0 B-CHL: 30
-----

```

AMO-BUEND-111 TRUNK GROUP  
 DISPLAY COMPLETED;

<  
 <DISPLAY-LWPAR:FORMAT=L,TYPE=DIUS2,BLNO=3;  
 DISPLAY-LWPAR:FORMAT=L,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;

<DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-2-25-0;  
 DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-2-25-0;  
 H500: AMO REFTA STARTED

```

-----
REFERENCE CLOCK CIRCUITS
-----
PEN      MODULE  DEVICE  PRI  ERROR  BLOCK  SUPP.  READY
        |        |        |    |    |    |    |    | BUT
        |        |        |    |    |    |    |    | ASYN.
-----+-----+-----+-----+-----+-----+-----+-----
 1- 2- 25- 0 | DIU-N2 | S2CONN | 0   | 0   | N   |    | N
-----+-----+-----+-----+-----+-----+-----+-----

```

AMO-REFTA-111 REFERENCE CLOCK TABLE  
 DISPLAY COMPLETED;

<  
 <DISPLAY-SBCSU:STNO=8100;  
 DISPLAY-SBCSU:STNO=8100;  
 H500: AMO SBCSU STARTED

```

-----
USER DATA
-----
STNO =8100  OPT =OPTI  COS1 =7    DPLN =0    SPDI =Y
MAINO =8100  CONN =DIR   COS2 =7    ITR =0     SPDC1 =0
PEN = 1- 1- 55- 11  LCOSV1 =31  COSX =0    SPDC2 =1
INS =Y       STD =3      LCOSV2 =31  SERVID =0  CBKBMAX=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;
<

```

To configure Station for restriction of name and number for both Calling and Connected, ensure **SSTNO=Y** in the station configuration above.

### Configuring Cisco IOS Gateway#1

```

Banaras-Gateway1#sho ver
Cisco IOS Software, 3800 Software (C3825-IPVOICE_IVS-M), Version 12.4(15)XZ, REL
EASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Fri 11-Apr-08 21:10 by prod_rel_team

```

```

ROM: System Bootstrap, Version 12.4(13r)T, RELEASE SOFTWARE (fc1)

```

```

Banaras-Gateway1 uptime is 1 week, 5 days, 21 hours, 22 minutes
System returned to ROM by reload at 12:50:36 UTC Thu Apr 17 2008
System image file is "flash:c3825-ipvoice_ivs-mz.124-15.XZ.bin"

```

```

Cisco 3825 (revision 1.1) with 226304K/35840K bytes of memory.
Processor board ID FTX1112A3WH
2 Gigabit Ethernet interfaces
24 Serial interfaces
2 Channelized E1/PRI ports
2 Channelized T1/PRI ports
DRAM configuration is 64 bits wide with parity enabled.
479K bytes of NVRAM.
62720K bytes of ATA System CompactFlash (Read/Write)

```

```

Configuration register is 0x2102

```

```

=====
Banaras-Gateway1#s run
Building configuration...

```

```

Current configuration : 1901 bytes
!
version 12.4

```



```
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname Banaras-Gateway1
!
boot-start-marker
boot-end-marker
!
logging message-counter syslog
logging buffered 1000000
!
no aaa new-model
no network-clock-participate slot 2
no network-clock-participate wic 1
!
voice-card 0
no dspfarm
!
voice-card 2
dspfarm
!
ip cef
!
!
no ip domain lookup
multilink bundle-name authenticated
!
isdn switch-type primary-qsig1
!
!
!
voice service voip
allow-connections sip to sip
signaling forward rawmsg2
!
!
archive
log config
hidekeys
!
!
!
controller E1 0/1/0
!
controller E1 0/1/1
!
controller E1 2/0/0
pri-group timeslots 1-10,16
!
controller E1 2/0/1
!
!
!
```

---

<sup>1</sup> Global switch type command to support QSIG (PRI).

<sup>2</sup> Raw message except GTD forwarding of the signaling payload.



```
interface GigabitEthernet0/0
ip address 172.20.172.60 255.255.255.0
duplex auto
speed auto
media-type rj45
!
interface GigabitEthernet0/1
no ip address
shutdown
duplex auto
speed auto
media-type rj45
!
interface Serial2/0/0:15
no ip address
encapsulation hdlc
isdn switch-type primary-qsig
isdn timer T310 120000
isdn protocol-emulate network
isdn incoming-voice voice
isdn send-alerting
no cdp enable
!
ip forward-protocol nd
ip route 0.0.0.0 0.0.0.0 172.20.172.1
!
!
no ip http server
!
!
!
!
control-plane
!
!
!
voice-port 2/0/0:15
!
!
!
!
!
dial-peer voice 8100 pots
destination-pattern 81..
progress_ind alert strip 23
direct-inward-dial
port 2/0/0:15
forward-digits all
!
dial-peer voice 5100 voip
destination-pattern 51..
signaling forward rawmsg
session protocol sip2
session target ipv4:172.20.174.30
codec g711ulaw
```

---

<sup>3</sup> Sets the progress indicator for alert messages.



```
!  
!  
!  
gatekeeper  
shutdown  
!  
!  
line con 0  
exec-timeout 0 0  
password cisco  
logging synchronous  
login  
line aux 0  
line vty 0 4  
exec-timeout 0 0  
password cisco  
logging synchronous  
login  
!  
scheduler allocate 20000 1000  
end
```

## Configuring the CUBE

```
Banaras-CUBE#sh ver  
Cisco IOS Software, 3800 Software (C3825-IPVOICE_IVS-M), Version 12.4(15)XZ, REL  
EASE SOFTWARE (fc2)  
Technical Support: http://www.cisco.com/techsupport  
Copyright (c) 1986-2008 by Cisco Systems, Inc.  
Compiled Fri 11-Apr-08 21:10 by prod_rel_team
```

```
ROM: System Bootstrap, Version 12.4(13r)T, RELEASE SOFTWARE (fc1)
```

```
Banaras-CUBE uptime is 1 week, 4 days, 21 hours, 42 minutes  
System returned to ROM by reload at 23:27:37 UTC Fri Apr 18 2008  
System image file is "flash:c3825-ipvoice_ivs-mz.124-15.XZ.bin"
```

```
Cisco 3825 (revision 1.2) with 489472K/34816K bytes of memory.  
Processor board ID FTX1213A1LX  
2 Gigabit Ethernet interfaces  
DRAM configuration is 64 bits wide with parity enabled.  
479K bytes of NVRAM.  
126976K bytes of ATA System CompactFlash (Read/Write)
```

```
Configuration register is 0x2102
```

```
=====  
Banaras-CUBE#s run  
Building configuration...
```

```
Current configuration : 1414 bytes  
!  
version 12.4
```



```
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname Banaras-CUBE
!
boot-start-marker
boot-end-marker
!
logging message-counter syslog
!
no aaa new-model
!
ip cef
!
!
!
no ip domain lookup
multilink bundle-name authenticated
!
!
voice-card 0
no dspfarm
!
!
!
voice service voip
allow-connections sip to sip
signaling forward rawmsg4
sip
midcall-signaling passthru5
!
!
!
archive
log config
hidekeys
!
!
interface GigabitEthernet0/0
ip address 172.20.174.30 255.255.255.0
duplex auto
speed auto
media-type rj45
!
interface GigabitEthernet0/1
no ip address
shutdown
duplex auto
speed auto
media-type rj45
!
ip forward-protocol nd
```

---

<sup>4</sup> Raw message except GTD forwarding of the signaling payload.

<sup>5</sup> SIP messages are passed from one IP leg to another IP leg.



```
ip route 0.0.0.0 0.0.0.0 172.20.174.1
!
!
no ip http server
!
!
!
!
control-plane
!
!
!
dial-peer voice 5100 voip
destination-pattern 51..
session protocol sipv2
session target ipv4:172.20.174.20
codec g711ulaw
supplementary-service pass-through6
!
dial-peer voice 8100 voip
destination-pattern 81..
session protocol sipv2
session target ipv4:172.20.172.60
codec g711ulaw
supplementary-service pass-through
!
!
!
gatekeeper
shutdown
!
!
line con 0
exec-timeout 0 0
password cisco
logging synchronous
login
line aux 0
line vty 0 4
exec-timeout 0 0
password cisco
logging synchronous
login
!
scheduler allocate 20000 1000
end
```

## Configuring the Cisco IOS Gateway#2

```
Banaras-Gateway2#sh ver
Cisco IOS Software, 3800 Software (C3825-IPVOICE_IVS-M), Version 12.4(15)XZ, REL
EASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Fri 11-Apr-08 21:10 by prod_rel_team
```

<sup>6</sup> Configures supplementary service feature to transparently pass supplementary service to the next gateway.



ROM: System Bootstrap, Version 12.4(13r)T, RELEASE SOFTWARE (fc1)

Banaras-Gateway2 uptime is 1 week, 1 day, 23 hours, 11 minutes  
System returned to ROM by power-on  
System image file is "flash:c3825-ipvoice\_ivs-mz.124-15.XZ.bin"

Cisco 3825 (revision 1.1) with 226304K/35840K bytes of memory.  
Processor board ID FTX1112A3WR  
2 Gigabit Ethernet interfaces  
24 Serial interfaces  
2 Channelized T1/PRI ports  
DRAM configuration is 64 bits wide with parity enabled.  
479K bytes of NVRAM.  
62720K bytes of ATA System CompactFlash (Read/Write)

Configuration register is 0x2102

=====  
Banaras-Gateway2#sh run  
Building configuration...

Current configuration : 2180 bytes  
!  
version 12.4  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname Banaras-Gateway2  
!  
boot-start-marker  
boot-end-marker  
!  
logging message-counter syslog  
logging buffered 10000000  
no logging console  
!  
no aaa new-model  
no network-clock-participate slot 1  
!  
voice-card 0  
no dspfarm  
!  
voice-card 1  
dspfarm  
!  
ip cef  
!  
!  
!  
no ip domain lookup  
ip domain name yourdomain.com  
multilink bundle-name authenticated  
!



```
isdn switch-type primary-qsig
!
!
!
voice service voip
  allow-connections sip to sip
  signaling forward rawmsg
!
!
!
username cisco privilege 15 secret 5 $1$md8B$JERd1swBwUoEKE4aeV4dJ.
archive
  log config
  hidekeys
!
!
controller E1 1/0/0
  pri-group timeslots 1-31
!
controller E1 1/0/1
!
!
!
!
interface GigabitEthernet0/0
  ip address 172.20.174.20 255.255.255.0
  duplex auto
  speed auto
  media-type rj45
!
interface GigabitEthernet0/1
  no ip address
  shutdown
  duplex auto
  speed auto
  media-type rj45
!
interface Serial1/0/0:15
  no ip address
  encapsulation hdlc
  isdn switch-type primary-qsig
  isdn overlap-receiving
  isdn incoming-voice voice
  isdn send-alerting
  isdn contiguous-bchan
  isdn bchan-number-order ascending
  no cdp enable
!
ip default-gateway 172.20.174.1
no ip forward-protocol nd
ip route 0.0.0.0 0.0.0.0 172.20.174.1
!
!
ip http server
ip http access-class 23
ip http authentication local
```



```
ip http timeout-policy idle 60 life 86400 requests 10000
!
!
!
!
control-plane
!
!
!
voice-port 1/0/0:23
!
!
!
!
dial-peer voice 5100 pots
destination-pattern 51..
progress_ind alert strip 2
direct-inward-dial
port 1/0/0:15
forward-digits all
!
dial-peer voice 8100 voip
destination-pattern 81..
signaling forward rawmsg
session protocol sipv2
session target ipv4:172.20.174.30
codec g711ulaw
!
!
!
gatekeeper
shutdown
!
!
line con 0
password cisco
logging synchronous
login
line aux 0
line vty 0 4
exec-timeout 0 0
password cisco
logging synchronous
login
transport input all
transport output all
!
exception data-corruption buffer truncate
scheduler allocate 20000 1000
end
```

## Acronyms

Acronym	Definition
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Acronym	Definition
codec	Coder/Decoder
PBX	Private Branch Exchange
PSTN	Public Switched Telephone Network
IOS	Internetworking Operating System



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