

Cisco CallManager 4.0-PBX Interoperability: Siemens HiPath 4300 Release 1 PBX to a Cisco 6608 Gateway using E1 PRI Euro with MGCP

Introduction

This is an application note for connectivity of Siemens HiPath 4300 Rel. 1 PBX with Cisco CallManager Release 4.0 using Cisco 6608-E1 PRI as an MGCP gateway.

Connectivity is achieved by using the PRI EURO protocol type on the MGCP gateway and ETSI switch type on the Siemens HiPath 4300 PBX. This feature supports Calling Number Identification Presentation.

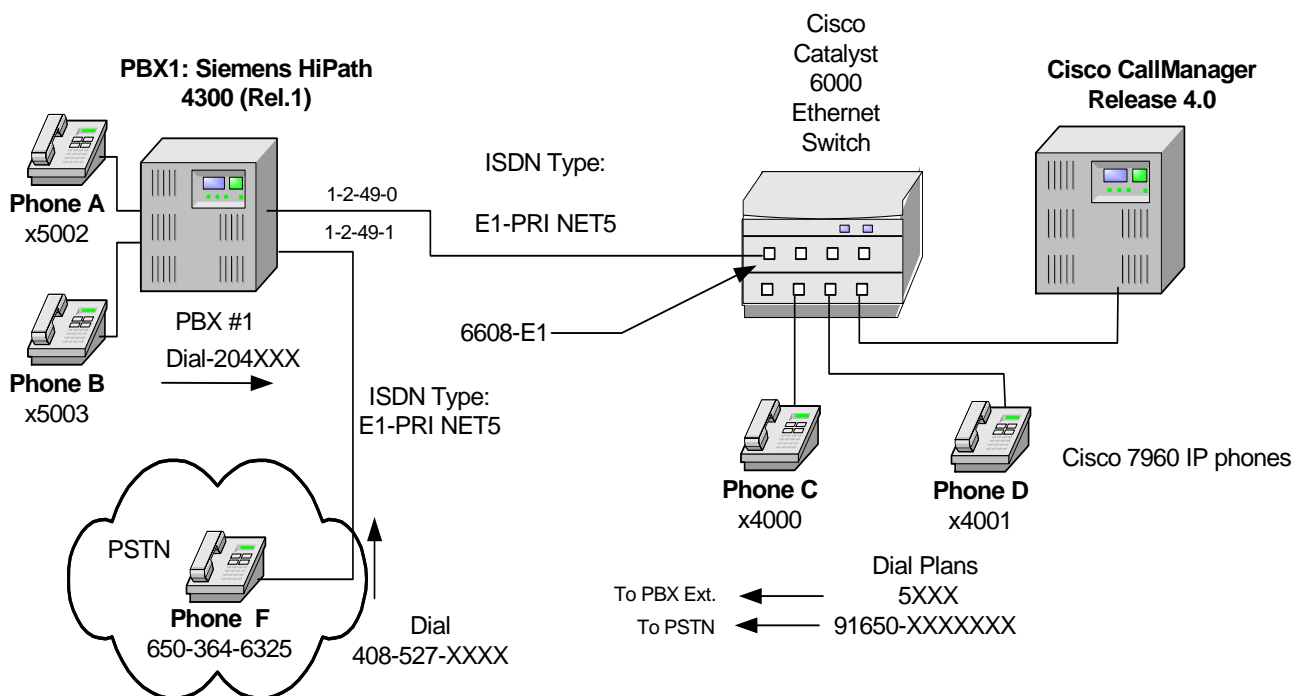
Siemens HiPath 4300 PBX uses Timeslot channel numbering (1-15, 17-31) when ETSI protocol is selected, therefore the Cisco 6608-E1 Gateway configuration for Channel IE Type field should be set to Timeslot Number.

Basic calls work in both directions with Calling Number feature support.

Network Topology

The following diagram shows the test setup for end-to-end interoperability with the Cisco CallManager connected to the PBX via 6608-E1 PRI link as MGCP gateway.

Basic Call Setup End-to-End Configuration





Limitations

Calling Name and Number Feature

The Siemens HiPath 4300 PRI Interface with ETSI protocol does not support Calling Name Delivery Presentation feature.
Cisco CallManager (CCM4.0) Parche release does not support sending Connected Number information.

B-Channel Mapping

Siemens HiPath 4300 PBX uses Timeslot channel numbering (1-15, 17-31) when ETSI protocol is selected, therefore the Cisco 6608-E1 Gateway configuration for Channel IE Type field should be set to Timeslot Number.

System Components

Hardware Requirements

Cisco Catalyst 6000 switch with 6608-E1 Gateway
Siemens HiPath 4300 PBX Hardware, DIU-N2
Cisco CallManager server

Software Requirements

PBX Software Release 1
Cisco CallManager Release 4.0

Features

Key Features Supported

Calling Number Identification Presentation

Key Features Not Supported

Calling/Connected Name delivery is not supported by the Siemens HiPath 4300 PRI Interface with ETSI protocol
Sending Connected Number is not supported by Cisco CallManager 4.0

Configuration

Configuring the Siemens Hicom 330E PBX

Configure in the following sequence:

1. Add the new access code to Dialing Plans using WABE + LDPLN.
2. Add the new trunk board using BCSU.
3. Configure Class of Trunk using COT.
4. Configure Class of Parameter for device handler using COP.
5. Configure Class of Service using COSSU.
6. Add the new trunk group access code using BUEND.



7. Configure the trunk using TDCSU.
8. Configure the Reference Clock using REFTA.
9. Configure trunk Least Cost Routing using LDAT + RICHT.
10. Configure LCR Out-dial Rules using LODR.

DPLN

```
<DISPLAY-WABE:TYPE=GEN;
```

```
DISPLAY-WABE:TYPE=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 | * | NETRTE | | | |
| 002 - 003 | * | NETRTE | R | | |
| 11 - 14 | . ***** ***** **... | TIE | | | |
| 20 - 27 | . ***** ***** **... | TIE | | | |
| 21 | * .. | KNOVRKY | | | |
| 22 | * .. | DNDKY | | | |
| 23 | * .. | FWDKY | | | |
| 24 | * .. | MBKY | | | |
| 25 | * .. | MSGRKY | | | |
| 26 | * .. | DAKY | | | |
| 27 | * .. | DSSKY | | | |

```
-----
```

| 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 |

| | | | |
|-------------|----------------|--------|--------------|
| 28 | * .. | VCRKY | |
| 2800 - 2999 | * .. | STN | R |
| | | | DESTNO 111 |
| | | | DNNO 0- 0- 0 |
| 29 | * .. | VCKY | |
| 30 | * .. | CONFKY | |
| 31 | * .. | NAMEKY | |
| 32 | * .. | PARKKY | |
| 33 | * .. | CCKY | |
| 34 | * .. | HTKY | |
| 35 | * .. | STKY | |
| 36 | * .. | REMKY | |

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 |

| | | | |
|-------------|----------------|--------|----------------|
| 36 - 37 | * .. | CO | |
| 38 | * .. | TIMEKY | |
| 39 | * .. | TIE | |
| 4567 | * .. | STN | |
| | | | DESTNO 34 |
| | | | DNNO 0- 0- 34 |
| 5000 - 5040 | * .. | STN | |
| | | | DESTNO 0 |
| | | | DNNO 2- 1-200* |



| | | | | |
|-------------|----------------------------|----|--------|-----------|
| 6000 - 6009 | . .***** ***** **... | .* | STN | R |
| | | | DESTNO | 0 |
| | | | DNNO | 2- 1-200* |

| | |
|----------------------|--------------------------|
| 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 |

| | | | | |
|-----|----------------------------|----|---------|---|
| 83 | . .***** ..*** **... | .* | SPDC1 | |
| 84 | . .***** ..*** **... | .* | SPDC2 | |
| 88 |*.. | .* | SCONSI | R |
| 89 |*.. | .. | SCONSCO | R |
| *13 |* | .. | AHTVCE | |
| *15 | . *.... ..**.. | .* | SPLIT | |
| *16 |* | .. | AREM | |
| *17 | . *.... ..**.. | .. | TRACE | |
| *18 |* | .. | ACOSX | |
| *19 | . *.... | .. | KNOVR | |
| *20 |* | .. | ADND | |
| *25 |* | .. | FWDTERM | |

| | |
|----------------------|--------------------------|
| 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 |

| | | | | |
|-----|---------------|----|----------|--|
| *29 |* | .. | AFFWDVCE | |
|-----|---------------|----|----------|--|



AMO-WABE -216 DIALLING PLANS, FEATURE ACCESS CODES

DISPLAY COMPLETED;

Enbloc Sending Dial Plan, DPLN

<DISPLAY-LDPLN:TYPE=LDP,LDPNO=5;

DISPLAY-LDPLN:TYPE=LDP,LDPNO=5;

H500: AMO LDPLN STARTED

```
+-----+-----+-----+-----+
|          |          |          |          |
| LDPNO :   5 | LDP : 20-XXXX |          |
|          | SPC : 22 |          |          |
|          | FDSFIELD : 0   SDSFIELD : 0   PINDP : N |          |
+-----+-----+-----+-----+
| DPLN | LROUTE | LAUTH |          |
+-----+-----+-----+-----+
|  0  |   20  |   3   |          |
|  1  |   20  |   3   |          |
|  2  |   20  |   3   |          |
|  3  |   20  |   3   |          |
|  4  |   20  |   3   |          |
|  5  |   20  |   3   |          |
|  6  |   20  |   3   |          |
|  7  |   20  |   3   |          |
|  8  |   20  |   3   |          |
|  9  |   20  |   3   |          |
| 10  |   20  |   3   |          |
| 11  |   20  |   3   |          |
| 12  |   20  |   3   |          |
| 13  |   20  |   3   |          |
| 14  |   20  |   3   |          |
| 15  |   20  |   3   |          |
+-----+-----+-----+-----+
```



AMO-LDPLN-216 ADMINISTRATION LCR DIALPLAN

DISPLAY COMPLETED;

Overlap Sending Dial Plan, DPLN

<DISPLAY-LDPLN:TYPE=LDP,LDPNO=5;

DISPLAY-LDPLN:TYPE=LDP,LDPNO=5;

H500: AMO LDPLN STARTED

| +-----+ | | | |
|-------------------------------------|--------|-------|--|
| | | | |
| LDPNO : 5 LDP : 20-x | | | |
| SPC : 22 | | | |
| FDSFIELD : 0 SDSFIELD : 0 PINDP : N | | | |
| +-----+ | | | |
| DPLN | LROUTE | LAUTH | |
| -----+ | | | |
| 0 | 20 | 3 | |
| 1 | 20 | 3 | |
| 2 | 20 | 3 | |
| 3 | 20 | 3 | |
| 4 | 20 | 3 | |
| 5 | 20 | 3 | |
| 6 | 20 | 3 | |
| 7 | 20 | 3 | |
| 8 | 20 | 3 | |
| 9 | 20 | 3 | |
| 10 | 20 | 3 | |
| 11 | 20 | 3 | |
| 12 | 20 | 3 | |
| 13 | 20 | 3 | |
| 14 | 20 | 3 | |



```

| 15 | 20 | 3 |
+-----+

```

```

AMO-LDPLN-216      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
-----+-----+-----+-----+-----+-----+-----+-----+
| ASSIGNED | MODULE | FCT|HWY| | INSERTED | | | | MODULE | |
PEN | MODULE | TYPE | ID |BDL| | MODULE | |STATE| HW-INFO| STATUS | |
-----+-----+-----+-----+-----+-----+-----+
49 | Q2196-X | DIU-N2 | 1 | A | | Q2196-X | | 1 | -06 - | READY | |

```

```

AMO-BCSU -216      BOARD CONFIGURATION, SWITCHING UNIT
DISPLAY COMPLETED;

```

Class of Trunk, COT

```

<DISPLAY-COT:COTNO=21;
DISPLAY-COT:COTNO=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 FORWARDING NO-ANSWER | FNAN |
| SUPPRESSION OF RECALLS TO AC | RCLS |
| REGENERATED CO DIALTONE ON OUTGOING SEIZURE | COTN |
| TRANSFER OF USER ITR GROUPS VIA S0/S2 (NWU) | ITRN |
| DON'T RELEASE CALL TO BUSY HUNT GROUP | BSHT |
| DESTINATION NUMBER WITH PREFIX DIGITS TO CDR | DPRE |
| CONNECTION TO ROUTE OPTIMIZATION NODE | ROPT |
| INCOMING CDR BY ZONE OR FROM LINE | ICZL |
| TRUNK SENDS CALL CHARGES TO ORIGINATING NODE NUMBER | TRSC |
| USE DEFAULT NODE NUMBER OF LINE | DFNN |
| CALL FORWARDING PROGRAMING FOR OTHER SUBSCRIBERS | CFOS |
| NO TONE | NTON |

AMO-COT -216 CLASS OF TRUNK FOR CALL PROCESSING
DISPLAY COMPLETED;

Class of Parameter for Device Handler, COP

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

```
COP: 21 INFO:  
DEVICE: INDEP SOURCE: DB  
PARAMETER:
```

```
CO TRUNK ACCESS:
```



TRUNK ACCESS

TA

TOLL ACCESS:

TRUNK ACCESS

TA

AMO-COP -216 CLASS OF PARAMETER FOR DEVICE HANDLER

DISPLAY COMPLETED;

Class of Service, COSSU

<DISPLAY-COSSU:TYPE=COS,COS=10;

DISPLAY-COSSU:TYPE=COS,COS=10;

H500: AMO COSSU STARTED

```

+-----+-----+-----+-----+
| COS | VOICE | FAX | DTE |
+-----+-----+-----+-----+
| 10 |> | | |
| | TA | NOCO | NOCO |
| | TNOTCR | NOTIE | NOTIE |
| | CDRC | | |
| | | | |
+-----+-----+-----+-----+

```

AMO-COSSU-216 CLASSES OF SERVICE

DISPLAY COMPLETED;

<DISPLAY-COSSU:TYPE=LCOSV,LCOSV=1;

DISPLAY-COSSU:TYPE=LCOSV,LCOSV=1;

H500: AMO COSSU STARTED

```

+-----+-----+-----+-----+
| LCOS | LAUTH | | |
| V | 1 2 3 4 5 6 | | |
| | 123456789012345678901234567890123456789012345678901234 | COPIN |

```



| >SERVICE INFORMATION | | NUM |
|--------------------------|--------|-----|
| 1 | X..... | 0 |
| >LCR ATTENDANT FOR VOICE | | |

AMO-COSSU-216 CLASSES OF SERVICE

DISPLAY COMPLETED;

Trunk Group Access Code, 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 : | CIRCULAR | ACD THRESHOLD : | * |
| NUMBER OF ASSOCIATED ROUTES : | 1 | | | 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-216 TRUNK GROUP

DISPLAY COMPLETED;

Trunk Configuration, TDCSU

For Master-side Configuration

<dis-tdcsu:1-2-49-0

PEN2 = ;

DIS-TDCSU:1-2-49-0,;

H500: AMO TDCSU STARTED

```

+----- DIGITAL TRUNK (FORMAT=L) -----+
| DEV      = S2CONN      PEN      = 1-02-049-0  TGRP      = 20      |
|-----+
| PROTVAR = ETSI      INS      = Y          SRCHMODE = CIR      |
| 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   =            ISDNNP   =            |
| 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   =            CCHDL    =            |

```



```
| UUSCCX = 16          UUSCCY = 8          FNIDX = 1          |
| CLASSMRK = EC      & G711    & G729OPT    SRCGRP =          |
| TCCID =          |
|-----|
| BCNEG = N          BCGR = 1          LWPAR = 1          |
| LWPP = 0          LWLT = 0          LWPS = 0          |
| LWR1 = 0          LWR2 = 0          |
| BCHAN = 1 && 30    |
|          |
+-----+
```

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

AMO-TDCSU-216 DIGITAL TRUNKS
DISPLAY COMPLETED;

<DISPLAY-LWPAR:INFOPAT="1",FORMAT=L;
DISPLAY-LWPAR:INFOPAT="1",FORMAT=L;
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-216 LOADWARE PARAMETERS FOR NETWORKING MODULES

DISPLAY COMPLETED;

For Slave-side Configuration

<DIS-TDCSU:1-2-49-0,;

H500: AMO TDCSU STARTED

```
+----- DIGITAL TRUNK (FORMAT=L) -----+
| DEV      = S2CONN      PEN      = 1-02-049-0  TGRP      = 20      |
|-----|
| PROTVAR = ETSI      INS       = Y          SRCHMODE = CIR      |
| 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  =         |
| 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  -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          LWPAR   = 0      |
| LWPP     = 0          LWLT     = 0          LWPS    = 0        |
| LWR1     = 0          LWR2     = 0          |
```



```
| BCHAN      = 1 && 30 |
|
+-----+
```

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

AMO-TDCSU-216 DIGITAL TRUNKS
DISPLAY COMPLETED;

DISPLAY-LWPAR:INFOPAT="0",FORMAT=L;
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-216 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

```

+-----+
|           R E F E R E N C E   C L O C K   C I R C U I T S           |
+-----+-----+-----+-----+-----+-----+-----+-----+
| PEN          | MODULE  | DEVICE  | PRI | ERROR | BLOCK | SUPP. | READY | SRCGRP |
|              |         |         |    |      |      |      | BUT  |       |
|              |         |         |    |      |      |      | ASYN. |       |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1- 2- 49- 0 | DIU-N2  | S2CONN  | 0  | 0    | N    |      | N    | 1    |
+-----+-----+-----+-----+-----+-----+-----+-----+

```

AMO-REFTA-216 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

```

+-----+
|           R E F E R E N C E   C L O C K   C I R C U I T S           |
+-----+-----+-----+-----+-----+-----+-----+-----+
| PEN          | MODULE  | DEVICE  | PRI | ERROR | BLOCK | SUPP. | READY | SRCGRP |
|              |         |         |    |      |      |      | BUT  |       |
|              |         |         |    |      |      |      | ASYN. |       |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1- 2- 49- 0 | DIU-N2  | S2CONN  | 11 | 0    | N    |      | N    | 1    |
+-----+-----+-----+-----+-----+-----+-----+-----+

```

AMO-REFTA-216 REFERENCE CLOCK TABLE

DISPLAY COMPLETED;



Trunk Least Cost Routing Configuration

LDAT

<DISPLAY-LDAT:TYPE=LCR,LROUTE=20;

DISPLAY-LDAT:TYPE=LCR,LROUTE=20;

H500: AMO LDAT STARTED

```

+-----+
| LROUTE = 20      LDPLN      NAME = PSS1V                      SERVICE = ALL |
| TYPE = LCR                                DNNO OF ROUTE =      111 |
| SERVICE INFO =                                     |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|           |           |           |           |           | SCHEDULE | CARRIER |           |           |
| LRTEL | LVAL| TGRP| ODR| LAUTH| ABCDEFGH |           | ZONE | LATTR | LDSRT|
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|      1 |      1|   20|   15|   3 | ***** |   1  EMPTY |   NONE |      |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

AMO-LDAT -216 LCR-DIRECTIONS

DISPLAY COMPLETED;

RICHT

<DISPLAY-RICHT:MODE=LRTE,LRTE=20;

DISPLAY-RICHT:MODE=LRTE,LRTE=20;

H500: AMO RICHT STARTED

```

+-----+
| LRTE = 20      NAME = PSS1V                      (NEUTRAL)  LSVC = ALL |
| DNNO =          111 PDNNO =          0           |
| ROUTOPT = YES  REROUT = YES  PLB = NO      FWDBL = NO |
| DTMFCNV = WITHOUT DTMFDSP = WITHOUT DTMFTEXT = |
| DTMFPULS =          BUGS = LIN  ROUTATT = NO      MAINGRP = 3 |
| EMCYRTT = NO      CONFTONE = NO  RERINGRP = NO  RTENO = 3 |
+-----+

```



```
| INFO = |
+-----+
| TGRP = 20 LDAT PRI PSSV1 (NEUTRAL) SUBGROUP = 3 |
+-----+
```

AMO-RICHT-216 TRUNK ROUTING

DISPLAY COMPLETED;

LCR Out-dial Rules, LODR

<DISPLAY-LODR:ODR=15;

DISPLAY-LODR:ODR=15;

H500: AMO LODR STARTED

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

H03: THE NEXT FREE ODR IS 1

AMO-LODR -216 ADMINISTRATION OF LCR OUTDIAL RULES

DISPLAY COMPLETED;



Configuring Cisco CallManager



6608-E1 Gateway Configuration

The screenshot shows the Cisco CallManager Administration web interface in Microsoft Internet Explorer. The browser title is "Cisco CallManager 4.0 Administration - Gateway Configuration - Microsoft Internet Explorer". The address bar shows the URL: <http://cm-kingon/CCMAdmin/gatewayconfig.asp?pkid={2E043967-780A-4425-8FEF-343CBAD17186}&type=2>. The page header includes navigation tabs: System, Route Plan, Service, Feature, Device, User, Application, Help. The main content area is titled "Gateway Configuration" and displays the following information:

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

Status: Ready

Buttons: Update, Delete, Reset Gateway

Device Information

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

Multilevel Precedence and Preemption (MLPP) Information

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

Interface Information

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

The status bar at the bottom shows "Done" and "Local intranet".



Cisco CallManager 4.0 Administration - Gateway Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://cm-kingon/CCMAdmin/gatewayconfig.asp?pkid={2E043967-780A-4425-8FEF-343CBAD17186}&type=2> Go Links

PCM Type* A-law

Delay for first restart (1/8 sec ticks) 32

Delay between restarts (1/8 sec ticks) 4

Inhibit restarts at PRI initialization

Enable status poll

Call Routing Information

Inbound Calls

Significant Digits* All

Calling Search Space Incoming Trunk

AAR Calling Search Space < None >

Prefix DN

Outbound Calls

Calling Line ID Presentation* Default

Calling Party Selection* Originator

Called party IE number type unknown* Unknown

Calling party IE number type unknown* Unknown

Called Numbering Plan* Private

Calling Numbering Plan* Unknown

Number of digits to strip* 0

Caller ID DN

SMDI Base Port* 0

PRI Protocol Type Specific Information

Display IE Delivery

Redirecting Number IE Delivery - Outbound

Redirecting Number IE Delivery - Inbound

Send Extra Leading Character In DisplayIE***

Setup non-ISDN Progress Indicator IE Enable****

MCDN_Channel_Number_Extension_Bit_Set_to_Zero**

Local intranet



Cisco CallManager 4.0 Administration - Gateway Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://cm-kingon/CCMAdmin/gatewayconfig.asp?pkid={2ED43967-780A-4425-8FEF-343CBAD17186}&styp=2>

MCDN Channel Number Extension Bit Set to Zero**

Send Calling Name In Facility IE

Interface Identifier Present**

Interface Identifier Value**

Connected Line ID Presentation (QSIG Inbound Call)*

Connected PBX Model

Product Specific Configuration

Clock Reference*

Framing*

Audio Signal Adjustment into IP Network*

Audio Signal Adjustment from IP Network*

Zero Suppression*

Digit On Duration(50-500ms)*

Interdigit Duration(50-500msec)*

SNMP Community String

Disable SNMP Set operations*

Debug Port Enable*

Hold Tone Silence Duration*

Port Used for Voice Calls*

Port Used for Modem Calls*

Port Used for Fax Calls*

Fax and Modem Parameters

Fax Relay Enable*

Fax Error Correction Mode Override*

Maximum Fax Rate*

Fax Payload Size*

Non Standard Facilities Country Code*

Non Standard Facilities Vendor

Local intranet



Cisco CallManager 4.0 Administration - Gateway Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print

Address <http://cm-klngon/CCMAdmin/gatewayconfig.asp?pkid={2E043967-780A-4425-8FEF-343CBAD17186}&type=2> Go Links

Non Standard Facilities Vendor Code*

Fax/Modem Packet Redundancy*

NSE Type*

Playout Delay Parameters

Initial Playout Delay*

Minimum Playout Delay*

Maximum Playout Delay*

Echo Canceller Configuration

Echo TailLength (ms)*

Minimum ERL (db)*

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

[Back to Find/List Gateways](#)

Local intranet



Enbloc Route Pattern Configuration

Cisco CallManager 4.0 Administration - Route Pattern/Hunt Pilot Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://cm-klington/CCMAdmin/routepatternconfig.asp?pkid={89F5482D-22A8-4FEE-A402-C2E89728F18D}

Route Pattern/Hunt Pilot: 5XXX

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

Copy Update Delete

Pattern Definition

Route Pattern/Hunt Pilot* 5XXX

Partition < None >

Description

Numbering Plan* North American Numbering Plan

Route Filter < None >

MLPP Precedence Default

Gateway or Route/Hunt List* S0/DS1-0@SDA0001C9D8633E (Edit)

Route Option
 Route this pattern
 Block this pattern — Not Selected —

Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation Default

Calling Name Presentation Default

Connected Party Transformations

Connected Line ID Presentation Default

Connected Name Presentation Default

Called Party Transformations

Discard Digits < None >

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Carrier Identification Code

Network Service Protocol — Not Selected —

| Network Service | Service Parameter Name | Service Parameter Value |
|------------------|------------------------|-------------------------|
| — Not Selected — | < Not Exist > | |

Done Local intranet



Overlap Sending Route Pattern Configuration

Cisco CallManager 4.0 Administration - Route Pattern/Hunt Pilot Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://cm-kingon/CCMAdmin/routepatternconfig.asp?pkid={E9598FF6-5645-4444-9E24-2768AFCAAD03}

Route Pattern/Hunt Pilot: 9.X

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

Copy Update Delete

Pattern Definition

Route Pattern/Hunt Pilot* 9.X

Partition < None >

Description

Numbering Plan* North American Numbering Plan

Route Filter < None >

MLPP Precedence Default

Gateway or Route/Hunt List* S0/DS1-0@SDA0001C9D8633E (Edit)

Route Option

Route this pattern

Block this pattern - Not Selected -

Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls)

Calling Line ID Presentation Default

Calling Name Presentation Default

Connected Party Transformations

Connected Line ID Presentation Default

Connected Name Presentation Default

Called Party Transformations

Discard Digits PreDot

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Carrier Identification Code

Network Service Protocol - Not Selected -

| Network Service | Service Parameter Name | Service Parameter Value |
|------------------|------------------------|-------------------------|
| - Not Selected - | < Not Exist > | |

Done Local intranet



PSTN Route Pattern Configuration

Cisco CallManager 4.0 Administration - Route Pattern/Hunt Pilot Configuration - Microsoft Internet Explorer

Address: http://cm-klngon/CCMAdmin/routepatternconfig.asp?pkid={A0E58AC2-80ED-4857-9D43-DCC43AA6EA56}

Route Pattern/Hunt Pilot: 91650XXXXXX

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

Copy Update Delete

Pattern Definition

Route Pattern/Hunt Pilot* 91650XXXXXX

Partition < None >

Description

Numbering Plan* North American Numbering Plan

Route Filter < None >

MLPP Precedence Default

Gateway or Route/Hunt List* S0/DS1-0@SDA0001C9D8633E (Edit)

Route Option
 Route this pattern
 Block this pattern -- Not Selected --

Provide Outside Dial Tone Allow Overlap Sending Urgent Priority

Calling Party Transformations

Use Calling Party's External Phone Number Mask

Calling Party Transform Mask

Prefix Digits (Outgoing Calls) 408527

Calling Line ID Presentation Default

Calling Name Presentation Default

Connected Party Transformations

Connected Line ID Presentation Default

Connected Name Presentation Default

Called Party Transformations

Discard Digits < None >

Called Party Transform Mask

Prefix Digits (Outgoing Calls)

ISDN Network-Specific Facilities Information Element

Carrier Identification Code

Network Service Protocol -- Not Selected --

Network Service Service Parameter Name Service Parameter Value

-- Not Selected -- < Not Exist >

Done Local intranet



7960 IP phone Configuration

Cisco CallManager 4.0 Administration - Phone Configuration - Microsoft Internet Explorer

Address: <http://cm-klngon/CCMAdmin/phoneconfig.asp?pkid={ED74929A-A8BB-4A58-8129-2E4358F511BB}>

Phone Configuration

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

Directory Numbers

Base Phone

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

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

Phone Configuration (Model = Cisco 7960)

Device Information

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

Phone Button Template Information

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

Softkey Template Information

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

Expansion Module Information

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

Done Local intranet



Cisco CallManager 4.0 Administration - Phone Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://cm-klngon/CCMAdmin/phoneconfig.asp?pkid={ED74929A-A8BB-4A58-8129-2E4358F511BB}

Module 1 Load Name (Module 1 selection required)

Module 2 Load Name (Module 2 selection required)

Cisco IP Phone - External Data Locations (leave blank to use default)

Information

Directory

Messages

Services

Authentication Server

Proxy Server

Idle

Idle Timer (seconds)

Extension Mobility (Device Profile) Information

Enable Extension Mobility Feature

Log Out Profile

Log In User ID

Log In Time

Log Out Time

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain (e.g., "0000FF")

MLPP Indication

MLPP Preemption

Product Specific Configuration

Disable Speakerphone

Disable Speakerphone and Headset

Forwarding Delay*

PC Port*

Settings Access*

Gratuitous ARP*

PC Voice VLAN Access*

Video Capabilities*

Auto Line Select*

Done Local intranet



Cisco CallManager 4.0 Administration - Directory Number Configuration - Microsoft Internet Explorer

Address: http://cm-kingon/CCMAdmin/directorynumber.asp?NumPlanMapID={17A63DCE-8B3B-4403-A131-B02B19FC9CF4}

Directory Number Configuration

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

Associated With
SEP003094C39863
7960 (Line 1)

Directory Number: 4001 (Phones)
Status: Ready
Note: Any update to this Directory Number automatically resets the associated devices

Directory Number

Directory Number*
Partition

Directory Number Settings

Voice Mail Profile
(Choose <None> to use default)
Calling Search Space
AAR Group
User Hold Audio Source
Network Hold Audio Source
Auto Answer

Call Forward and Pickup Settings

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

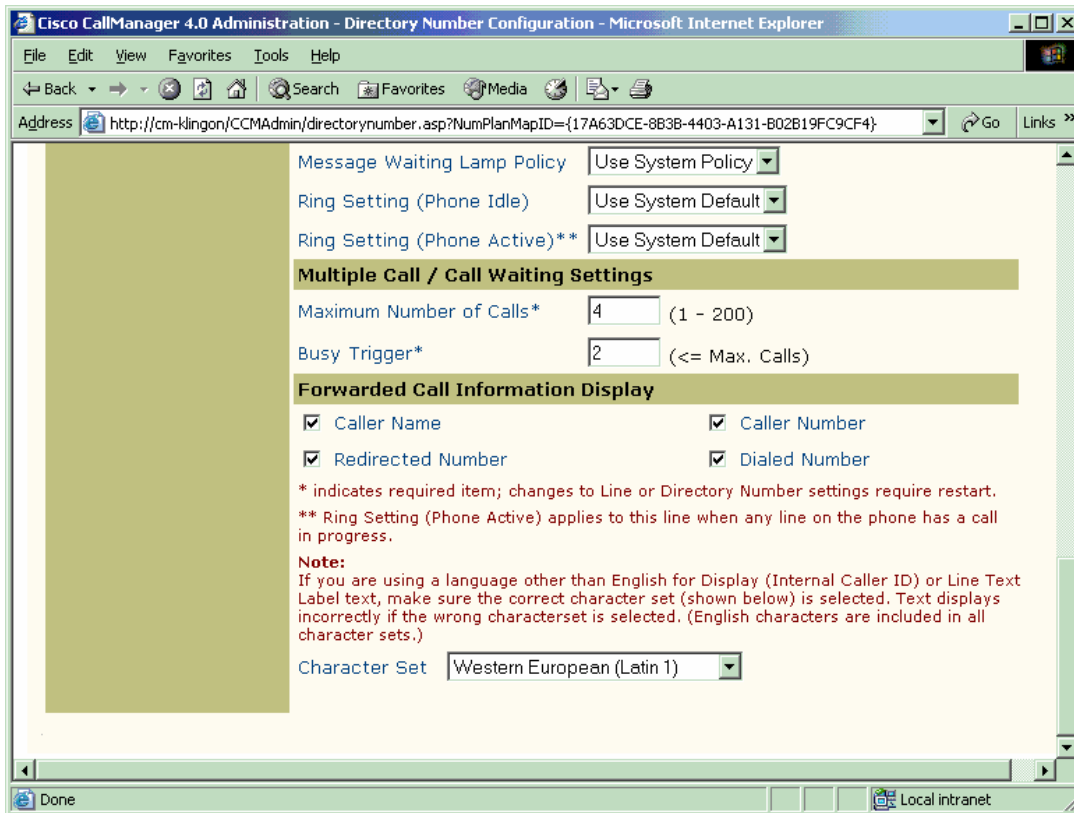
MLPP Alternate Party Settings

Target (Destination)
Calling Search Space
No Answer Ring Duration (seconds)

Line Settings for this Device

Display (Internal Caller ID)
Line Text Label
External Phone Number Mask

Done Local intranet



Acronyms

| Acronym | Definitions |
|---------|---|
| AOC | Advice-of-charge. Information element is sent with the connection setup information for incoming Euro-ISDN connections. The AOC IE is used for call charge calculation. |
| CCM | Cisco CallManager |

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