Application Note

Siemens Hipath 4000 Release 1 using E1-QSIG to Cisco Unified Communications Manager 5.0

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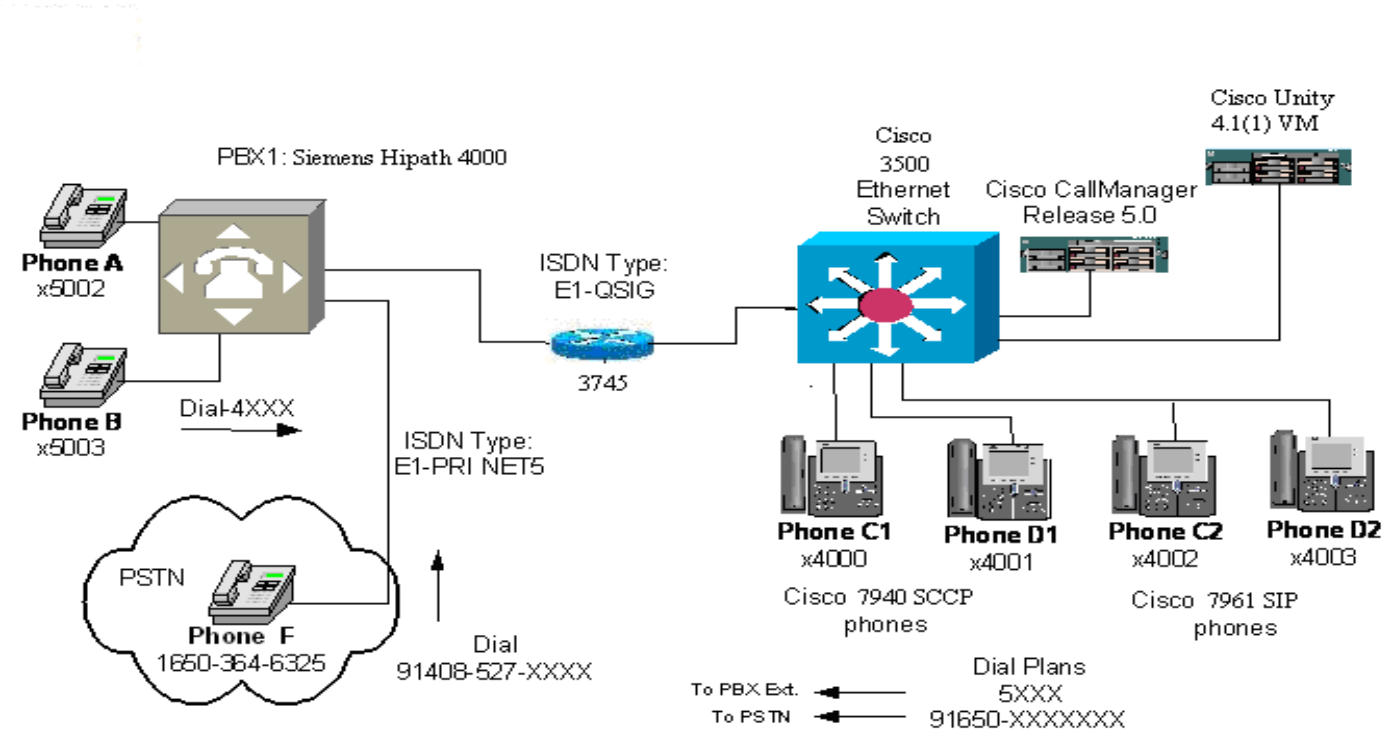
Introduction

- This is an application note for connectivity of Siemens HiPath 4000 Release 1 PBX with Cisco Unified CallManager Release 5.0 via Cisco 3745 w/ VWIC-2MFT-E1 as MGCP gateway using ISO QSIG protocol.
- The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability with the Cisco Unified CallManager connected to the PBX via Cisco3745 w/ VWIC-2MFT-E1 link as MGCP gateway.
- Connectivity is achieved by using the PRI QSIG E1 protocol type on the MGCP gateway with CallManager Service parameter QSIG variant of ISO and PSS1V2 switch type on the Hipath 4000 PBX.
- This Application Note uses the Cisco 3745 w/ VWIC-2MFT-E1 voice gateway, however other Cisco voice gateways are also an option to use since CallManager QSIG implementation does not depend on the physical interface.

Network Topology

Figure 1. Basic Call Setup



Limitations

B-Channel Mapping

- Siemens HiPath 4000 PBX uses sequential channel numbering (1-30) when QSIG protocol “PSS1V2” is selected, therefore the Cisco 3745 Gateway configuration for **Channel IE Type** field should be set to **Continuous Number.**

Connected Name and Number Restrictions

- Siemens phone displayed dialed number and trunk name when CCM sends Connected Name and Number as restricted.

Additional Network Feature Path Replacement for Call Diversion

- Siemens HiPath 4000 PBX does not send Path Replacement proposal for Call Diversion by forward switching.

Overlap Sending

- When CCM is configured for Overlap Sending calls made from SIP Phones C2 or D2 (Fig 1) to Siemens Hipath result in the Name and Number not being updated on the SIP phones (Siemens has been verified to be sending both Alerting Name and Connected Name and Number). This interoperability issue is considered a limitation on Cisco Unified CallManger and an internal corrective action bug fix ticket known internally as DDTS has been generated to resolve this issue in future releases. (DDTS # CSCse36865 Title: Name and Number not updating on SIP Phone when using Overlap sending).

System Components

Hardware Requirements

Cisco Hardware:

- Cisco 3500 Ethernet Switch
- Cisco 3745 Gateway
- Cisco Unified CallManager Server

Siemens Hipath 4000 PBX Hardware:

- DIU-N2

Software Requirements

- Cisco Unified CallManager Release 5.0
- Siemens Hipath 4000 Release 1
- Cisco IOS Release (for the gateway)

Features

Features Supported

- CLIP-Calling Line (Number) Identification Presentation
- CLIR-Calling Line (Number) Identification Restriction
- CNIP-Calling Name Identification Presentation
- CNIR-Calling Name Identification Restriction
- COLP-Connected Line (Number) Identification Presentation
- COLR- Connected Line (Number) Identification Restriction (see limitations section)
- CONP-Connected Name Identification Presentation
- CONR- Connected Name Identification Restriction (see limitations section)
- Sending Alerting Name
- CT-Call Transfer (by join)
- CFU-Call Forwarding Unconditional (by join)
- CFB-Call Forwarding Busy (by join)
- CFNR-Call Forwarding No Reply (by join)
- CFU-Call Forwarding Unconditional (by Reroute)

- CFB-Call Forwarding Busy (by Reroute)
- CFNR-Call Forwarding No Reply (by Reroute)
- CCBS-Call Completion to Busy Subscriber
- CCNR-Call Completion No Reply
- ANF-PR-Additional Network Feature Path Replacement (for Call Transfer by join)
- ANF-PR-Additional Network Feature Path Replacement (for Call Diversion by forward switching) (see limitations section)
- ANF-PR-Additional Network Feature Path Replacement (for Trombone connection)
- MWI- Message Waiting Indication (lamp ON, lamp OFF) [1]

Features Not Supported

- None

Configuration

Configuring the Siemens Hipath 4000

1. Add the new access code to Dialing Plans using WABE + LDPLN.
2. Add the new trunk board using BCSU.
3. Configure Class of Trunk using COT.
4. Configure Class of Parameter for device handler using COP.
5. Configure Class of Service using COSSU.
6. Add the new trunk group access code using BUEND.
7. Configure trunk using TDCSU.
8. Configure Reference Clock using REFTA.
9. Configure trunk Least Cost Routing using LDAT + RICHT.
10. Configure LCR Out-dial Rules using LODR.
11. Enable In-Band DTMF signaling for the Digital Stations using SBCSU.
12. Configure Digital Station for MWI application.
13. Configure Message Center's Service Access Number for MWI application.
14. Configure Digital Station's Class of Service for Mailbox MWI application.

[1] MWI was tested with CallManager 5.0 as the Message Center PINX and PBX users as remote subscribers.

```
  <dis-wabe:gen;
DIS-WABE:GEN;
H500:  AMO WABE  STARTED
  ------------------------------------------------------------------------------
  | DIGIT INTERPRETATION                  VALID FOR ALL DIAL PLANS              |
  ------------------------------------------------------------------------------
  |                 |    CALL PROGRESS STATE     |  DIGIT   | RESERVED/CONVERT |
  |      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
  |                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
  ------------------------------------------------------------------------------
  | 0               |. .**** ..*** **... ..... .*| CO       | R                |
  | 001    - 009    |* ..... ..... ..... ..... ..| NETRTE   |                  |
  | 111             |. .**** ***** **... ..... .*| TIE      |                  |
  | 12              |. .**** ***** **... ..... .*| TIE      | R                |
  | 13     - 14     |. .**** ***** **... ..... .*| TIE      |                  |
  | 21              |. ..... ..... ..... ....* ..| KNOVRKY  |                  |
  | 22              |. ..... ..... ..... ....* ..| DNDKY    |                  |
  | 222             |. .**** ***** **... ..... .*| TIE      |                  |
  | 23              |. ..... ..... ..... ....* ..| FWDKY    |                  |
  | 24              |. ..... ..... ..... ....* ..| MBKY     |                  |
  | 25              |. ..... ..... ..... ....* ..| MSGRKY   |                  |
  | 26              |. ..... ..... ..... ....* ..| DAKY     |                  |
  | 27              |. ..... ..... ..... ....* ..| DSSKY    |                  |
  | 28              |. ..... ..... ..... ....* ..| VCRKY    |                  |
  | 29              |. ..... ..... ..... ....* ..| VCKY     |                  |
  | 30              |. ..... ..... ..... ....* ..| CONFKY   |                  |
  ------------------------------------------------------------------------------
  | DIGIT INTERPRETATION                  VALID FOR ALL DIAL PLANS              |
  ------------------------------------------------------------------------------
  |                 |    CALL PROGRESS STATE     |  DIGIT   | RESERVED/CONVERT |
  |      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
  |                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
  ------------------------------------------------------------------------------
  | 3000   - 3010   |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO  30        |
  |                 |                            |          |DNNO    0-  0-222 |
  | 3011   - 3020   |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO  31        |
  |                 |                            |          |DNNO    0-  0- 31 |
  | 3021   - 3030   |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO  32        |
  |                 |                            |          |DNNO    0-  0- 32 |
  | 3031   - 3040   |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO  33        |
  |                 |                            |          |DNNO    0-  0- 33 |
  | 3041   - 3050   |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO  35        |
  |                 |                            |          |DNNO    0-  0- 35 |
  | 31              |. ..... ..... ..... ....* ..| NAMEKY   |                  |
  | 32              |. ..... ..... ..... ....* ..| PARKKY   |                  |
  ------------------------------------------------------------------------------
  | DIGIT INTERPRETATION                  VALID FOR ALL DIAL PLANS              |
  ------------------------------------------------------------------------------
  |                 |    CALL PROGRESS STATE     |  DIGIT   | RESERVED/CONVERT |
  |      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
  |                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
  ------------------------------------------------------------------------------
  | 33              |. ..... ..... ..... ....* ..| CCKY     |                  |
  | 34              |. ..... ..... ..... ....* ..| HTKY     |                  |
  | 35              |. ..... ..... ..... ....* ..| STKY     |                  |
  | 36              |. ..... ..... ..... ....* ..| REMKY    |                  |
  | 36     - 37     |. .**** ..*** **... ..... .*| CO       |                  |
```

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

DIGIT INTERPRETATION	VALID FOR ALL DIAL PLANS		
CODE	CALL PROGRESS STATE 1 11111 11112 22 0 12345 67890 12345 67890 12	DIGIT ANALYSIS RESULT	RESERVED/CONVERT DNI/ADD-INFO *=OWN NODE
4568 - 4999	. .**** ***** **... ..... .*	STN	
			DESTNO 222
			DNNO 0- 0-222
5000 - 5040	. .**** ***** **... ..... .*	STN	
			DESTNO 0
			DNNO 0- 0-555*
5500 - 5501	. .**** ***** **... ..... .*	STN	
			DESTNO 56
			DNNO 0- 0-560
555	. .**** ***** **... ..... .*	OWNNODE	
560	. .**** ***** **... ..... .*	TIE	
59	. .**** ***** **... ..... .*	TIE	
6000 - 6009	. .**** ***** **... ..... .*	STN	R
			DESTNO 0
			DNNO 0- 0-555*

DIGIT INTERPRETATION	VALID FOR ALL DIAL PLANS		
CODE	CALL PROGRESS STATE 1 11111 11112 22 0 12345 67890 12345 67890 12	DIGIT ANALYSIS RESULT	RESERVED/CONVERT DNI/ADD-INFO *=OWN NODE
7000 - 7002	. .**** ***** **... ..... .*	STN	
			DESTNO 56
			DNNO 0- 0-560
8000 - 8050	. .**** ***** **... ..... .*	STN	
			DESTNO 222
			DNNO 0- 0-222
8060	. .**** ***** **... ..... .*	TIE	
8070	. .**** ***** **... ..... .*	TIE	
83	. .**** ..*** **... ..... .*	SPDC1	
84	. .**** ..*** **... ..... .*	SPDC2	
88	. ...*.. ....*	SCONSI	R
89	. ...*.	SCONSCO	R
9	. .**** ***** **... ..... .*	TIE	
*13	. ....*	AHTVCE	
*15	. *.... ..**. ....*	SPLIT	
*16	. ....* ....*	AREM	
*17	. *.... ..**.	TRACE	

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

```
  | *25            |. ....* ..... ..... ..... ..| FWDTERM  |                 |
  | *29            |. ....* ..... ....* ..... ..| AFFWDVCE |                 |
  ------------------------------------------------------------------------------

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

Enbloc Sending Dial Plan, DPLN

```
<DISPLAY-LDPLN:TYPE=LDP,LDPNO=4;
DISPLAY-LDPLN:TYPE=LDP,LDPNO=4;
H500:  AMO LDPLN STARTED
   +--------------+-------------------------------------------------+
   |              |                                                 |
   | LDPNO :    4 | LDP : 111-X                                     |
   |              | SPC : 22                                        |
   |              | FDSFIELD : 0   SDSFIELD : 0   PINDP : N         |
   +------+-------+-------------------------------------------------+
   | DPLN | LROUTE| LAUTH                                           |
   |------+-------+-------------------------------------------------+
   |   0  |     1 | 1                                               |
   |   1  |     1 | 1                                               |
   |   2  |     1 | 1                                               |
   |   3  |     1 | 1                                               |
   |   4  |     1 | 1                                               |
   |   5  |     1 | 1                                               |
   |   6  |     1 | 1                                               |
   |   7  |     1 | 1                                               |
   |   8  |     1 | 1                                               |
   |   9  |     1 | 1                                               |
   |  10  |     1 | 1                                               |
   |  11  |     1 | 1                                               |
   |  12  |     1 | 1                                               |
   |  13  |     1 | 1                                               |
   |  14  |     1 | 1                                               |
   |  15  |     1 | 1                                               |
   +------+-------+-------------------------------------------------+

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

Access code for Overlap Sending Dial Plan, DPLN

```
<DISPLAY-LDPLN:TYPE=LDP,LDPNO=12;
DISPLAY-LDPLN:TYPE=LDP,LDPNO=12;
H500:  AMO LDPLN STARTED
   +--------------+-------------------------------------------------+
   |              |                                                 |
   | LDPNO :   12 | LDP : 59-X                                      |
   |              | SPC : 22                                        |
   |              | FDSFIELD : 0   SDSFIELD : 0   PINDP : N         |
   +------+-------+-------------------------------------------------+
   | DPLN | LROUTE| LAUTH                                           |
   |------+-------+-------------------------------------------------+
   |   0  |    27 | 1                                               |
   |   1  |    27 | 1                                               |
   |   2  |    27 | 1                                               |
   |   3  |    27 | 1                                               |
   |   4  |    27 | 1                                               |
   |   5  |    27 | 1                                               |
   |   6  |    27 | 1                                               |
   |   7  |    27 | 1                                               |
   |   8  |    27 | 1                                               |
   |   9  |    27 | 1                                               |
   |  10  |    27 | 1                                               |
   |  11  |    27 | 1                                               |
   |  12  |    27 | 1                                               |
   |  13  |    27 | 1                                               |
   |  14  |    27 | 1                                               |
   |  15  |    27 | 1                                               |
   +------+-------+-------------------------------------------------+

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

PSTN Dial Plan, DPLN

```
<DISPLAY-LDPLN:TYPE=LDP,LDPNO=5;
DISPLAY-LDPLN:TYPE=LDP,LDPNO=5;
H500:  AMO LDPLN STARTED
   +--------------+-------------------------------------------------+
   |              |                                                 |
   | LDPNO :    5 | LDP : 9-1650-XXXXXXX                            |
   |              | SPC : 22                                        |
   |              | FDSFIELD : 0   SDSFIELD : 0   PINDP : N         |
   +------+-------+-------------------------------------------------+
   | DPLN | LROUTE| LAUTH                                           |
   |------+-------+-------------------------------------------------+
   |   0  |   165 | 1                                               |
   |   1  |   165 | 1                                               |
   |   2  |   165 | 1                                               |
   |   3  |   165 | 1                                               |
   |   4  |   165 | 1                                               |
   |   5  |   165 | 1                                               |
   |   6  |   165 | 1                                               |
   |   7  |   165 | 1                                               |
   |   8  |   165 | 1                                               |
   |   9  |   165 | 1                                               |
   |  10  |   165 | 1                                               |
   |  11  |   165 | 1                                               |
   |  12  |   165 | 1                                               |
   |  13  |   165 | 1                                               |
   |  14  |   165 | 1                                               |
   |  15  |   165 | 1                                               |
   +------+-------+-------------------------------------------------+
```

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

BCSU

PRI Board

```
<DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=3,SLOT=25;
DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=3,SLOT=25;
H500:  AMO BCSU  STARTED

 ADDRESS :  LTG  1   LTU 3    SOURCE GROUP 1
-----+-----------+---------+---+---+-+------------+-----+--------+------------+
     | ASSIGNED  | MODULE  |FCT|HWY| | INSERTED   |     |        | MODULE     |
 PEN | MODULE    | TYPE    |ID |BDL| | MODULE     |STATE| HW-INFO| STATUS     |
-----+-----------+---------+---+---+-+------------+-----+--------+------------+
  25 | Q2196-X     DIU-N2     1  A | | Q2196-X    |  1  | -06 -  | READY      |

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

PSTN board

```
<DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=2,SLOT=79;
DISPLAY-BCSU:TYPE=TBL,LTG=1,LTU=2,SLOT=79;
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     |
-----+-----------+---------+---+---+-+------------+-----+--------+------------+
  79 | Q2196-X     DIU-N2     1  A | | Q2196-X    |  1  | -06 -  | READY      |

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

Class of Trunk, COT

```
<dis-cot:22;
DIS-COT:22;
H500:  AMO COT   STARTED

   COT:  22  INFO:
   DEVICE: INDEP        SOURCE: DB
   PARAMETER:
        PRIORITY FOR AC WILL BE DETERMINED FROM MESSAGE              PRI
        RECALL IF USER HANGS UP IN CONSULTATION CALL                 RCL
        TRUNK CALL TRANSFER                                          XFER
        TRUNK SIGNALING ANSWER                                       ANS
        CHANGEOVER FROM HOLD TO RING TONE                            CHRT
        KNOCKING OVERRIDE POSSIBLE                                   KNOR
        CALL EXTEND FOR BUSY, RING OR CALL STATE                     CEBC
        NETWORKWIDE AUTOMATIC CALLBACK ON BUSY                       CBBN
        NETWORKWIDE AUTOMATIC CALLBACK ON FREE                       CBFN
        DON'T RELEASE CALL TO BUSY HUNT GROUP                        BSHT
        CONNECTION TO ROUTE OPTIMIZATION NODE                        ROPT
        TSC-SIGNALING FOR NETWORKWIDE FEATURES (MANDATORY)           TSCS
        INCOMING CDR BY ZONE OR FROM LINE                            ICZL
        AOC PER CALL (AUTOMATICAL OR ON REQUEST), MAND. CORNET-NQ    AOCC
        LINE WITH IMPLICIT NUMBERS                                   LINO
        NO TONE                                                      NTON

AMO-COT  -111       CLASS OF TRUNK FOR CALL PROCESSING
```

```
DISPLAY COMPLETED;
```

For Call Forwarding by Reroute need to add FNAN and FWDN to COT22
For Path Replacement need to add ROPT to COT 22 on the Hipath 4000.

```
<CHANGE-COT:COTNO=22,COTTYPE=COTADD,PAR=FNAN&FWDN;
CHANGE-COT:COTNO=22,COTTYPE=COTADD,PAR=FNAN&FWDN&ROPT;
H500:  AMO COT   STARTED
H07: CHANGED COT STILL LINKED WITH FOLLOWING TRUNKS:
   COT   TRUNK         BCGR  DEVICE
   ----------------------------------
    22   1- 3- 55-  0   1    CDGCONN
         1- 3- 55-  1   1    CDGCONN
         1- 3- 25-  0   1    S2CONN
         1- 3- 25-  1   1    S2CONN
   ----------------------------------
H06: COT 22 CHANGED

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

<DISPLAY-COT:COTNO=22;
DISPLAY-COT:COTNO=22;
H500:  AMO COT   STARTED

   COT:  22  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)           TSCS
        INCOMING CDR BY ZONE OR FROM LINE                            ICZL
        AOC PER CALL (AUTOMATICAL OR ON REQUEST), MAND. CORNET-NQ    AOCC
        LINE WITH IMPLICIT NUMBERS                                   LINO
        NO TONE                                                      NTON

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

Class of 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:
        LINE WITH END-OF-DIAL                                        EOD
        SPECIAL MODE                                                 SFRM
        CODE CALLING RELEASE AFTER EVERY TASK                        CCR
        REGISTRATION OF LAYER 3 ADVISORIES                           L3AR

   CO TRUNK ACCESS:
        TRUNK ACCESS                                                 TA
```

```
   TOLL ACCESS:
        TRUNK ACCESS                                                    TA

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

Class of Service, COSSU

```
<DISPLAY-COSSU:TYPE=COS,COS=32;
DISPLAY-COSSU:TYPE=COS,COS=32;
H500:  AMO COSSU STARTED
   +------+-----------------+---------------+-----------------+
   | COS  |      VOICE      |      FAX      |       DTE       |
   +------+-----------------+---------------+-----------------+
   |   32 |>                                                  |
   |      |         TA      |      NOCO     |         TA      |
   |      |     TNOTCR      |     NOTIE     |     TNOTCR      |
   |      |                 |               |      BASIC      |
   |      |                 |               |        MSN      |
   |      |                 |               |     CDRINT      |
   |      |                 |               |     MULTRA      |
   |      |                 |               |                 |
   +------+-----------------+---------------+-----------------+
AMO-COSSU-111       CLASSES OF SERVICE
DISPLAY COMPLETED;
  <DISPLAY-COSSU:TYPE=LCOSV,LCOSV=1;
DISPLAY-COSSU:TYPE=LCOSV,LCOSV=1;
H500:  AMO COSSU STARTED
   +----+-------------------------------------------------------------------+-----+
   |LCOS|                            LAUTH                                  |     |
   |  V |         1         2         3         4         5         6    |     |
   |    |12345678901234567890123456789012345678901234567890123456789012345678|COPIN|
   |    |>SERVICE INFORMATION                                               | NUM |
   +----+----+----|----+----|----+----|----+----|----+----|----+----|----+-----+
   |   1|X..................................................................|  0  |
   |    |>LCR ATTENDANT FOR VOICE                                           |
   +----+-------------------------------------------------------------------+-----+

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

Trunk Group Access Code, BUEND

```
<DISPLAY-BUEND:TGRP=26,FORMAT=L;
DISPLAY-BUEND:TGRP=26,FORMAT=L;
H500:  AMO BUEND STARTED

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

AMO-BUEND-111       TRUNK GROUP
DISPLAY COMPLETED;



<DISPLAY-BUEND:TGRP=27,FORMAT=L;
DISPLAY-BUEND:TGRP=27,FORMAT=L;
H500:  AMO BUEND STARTED

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

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

Trunk Configuration, TDCSU

For Master-side Configuration

```
<dis-tdcsu:1-3-25-1;
DIS-TDCSU:1-3-25-1;
H500:  AMO TDCSU STARTED
  +------------------------ DIGITAL TRUNK (FORMAT=L) -------------------------+
  | DEV      = S2CONN        PEN      =  1-03-025-1   TGRP     = 27           |
  |-----------------------------------------------------------------------------|
  | PROTVAR  = PSS1V2        INS      = Y             SRCHMODE = CIR          |
  | COTNO    = 22            COPNO    = 21            DPLN     = 0            |
  | ITR      = 1             COS      = 32            LCOSV    = 1            |
  | LCOSD    = 1             CCT      = PRI ECMA 4    DESTNO   = 111          |
  | 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      = 111          |
  | ALARMNO  = 0             FIDX     = 1             CARRIER  = 1            |
  | ZONE     = EMPTY         COTX     = 22            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                                     |
  | SVCDOM   =                                                                |
  | BCHAN    =  1 && 30                                                       |
  |                                                                           |
  +---------------------------------------------------------------------------+
  AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 30

AMO-TDCSU-111       DIGITAL TRUNKS
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;
```

For Slave-side Configuration

```
  <dis-tdcsu:1-3-25-1;
DIS-TDCSU:1-3-25-1;
H500:  AMO TDCSU STARTED
  +------------------------ DIGITAL TRUNK (FORMAT=L) -------------------------+
  | DEV      = S2CONN        PEN      =  1-03-025-1   TGRP     = 27          |
  |-----------------------------------------------------------------------------|
  | PROTVAR  = PSS1V2        INS      = Y             SRCHMODE = CIR         |
  | COTNO    = 22            COPNO    = 21            DPLN     = 0           |
  | ITR      = 1             COS      = 32            LCOSV    = 1           |
  | LCOSD    = 1             CCT      = PRI ECMA 4    DESTNO   = 111         |
  | 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      = 111         |
  | ALARMNO  = 0             FIDX     = 1             CARRIER  = 1           |
  | ZONE     = EMPTY         COTX     = 22            FWDX     = 5           |
  | DOMTYPE  =               DOMAINNO =               TPROFNO  =             |
  | INIGHT   =                                        CCHDL    =             |
  | 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                                    |
  | SVCDOM   =                                                                |
  | BCHAN    =  1 && 30                                                       |
  |                                                                           |
  +---------------------------------------------------------------------------+
  AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 30

AMO-TDCSU-111       DIGITAL TRUNKS
DISPLAY COMPLETED;


  <DISPLAY-LWPAR:FORMAT=L,BLNO=0,TYPE=DIUS2;
DISPLAY-LWPAR:FORMAT=L,BLNO=0,TYPE=DIUS2;
H500:  AMO LWPAR STARTED

   +-------------------------------------------------------------------------+
   | LOADWARE PARAMETERS     CIRCUIT TYPE: DIUS2  SOURCE:DB    BLOCK:    0 |
   +-------------------------------------------------------------------------+
   | LNTYPE   = COPPER         VERSION  = S2           QUAL     =  ON       |
   | MASTER   = N              DCHAN1   = 16           DCHAN2   = 0         |
   | PATTERN  = D5H            QUAL1    = 10  SEC.     QUAL2    = 10  MIN.  |
   | SMD      = N              PERMACT  = Y            FCBAB    = DFH       |
   | CDG      = N              FIXEDTEI = 0            CNTRNR   = 255       |
   | TEIVERIF = N              CRC4REP  = N                                  |
   | DEV      = INDEP                                                        |
   | INFO     =                                                              |
   +-------------------------------------------------------------------------+

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

PSTN Trunk Configuration, TDCSU

```
  <dis-tdcsu:1-2-79-1;
DIS-TDCSU:1-2-79-1;
H500:  AMO TDCSU STARTED
  +------------------------ DIGITAL TRUNK (FORMAT=L) -------------------------+
  | DEV      = S2CONN        PEN      =  1-02-079-1   TGRP     = 23           |
  |-------------------------------------------------------------------------|
  | PROTVAR  = ETSI          INS      = Y             SRCHMODE = CIR          |
  | COTNO    = 21            COPNO    = 21            DPLN     = 0            |
  | ITR      = 1             COS      = 10            LCOSV    = 32           |
  | LCOSD    = 32            CCT      = PRI ECMA 2    DESTNO   = 100          |
  | SEGMENT  = 8             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            |
  | ALARMNO  = 0             FIDX     = 1             CARRIER  = 1            |
  | ZONE     = EMPTY         COTX     = 21            FWDX     = 10           |
  | 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                                     |
  | SVCDOM   =                                                               |
  | BCHAN    =  1 && 30                                                      |
  |                                                                          |
  +-------------------------------------------------------------------------+
  AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 30

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

Trunk Configuration to Hicom node, TDCSU

```
<DISPLAY-TDCSU:PEN1=1-3-25-0;
DISPLAY-TDCSU:PEN1=1-3-25-0;
H500:  AMO TDCSU STARTED
  +------------------------ DIGITAL TRUNK (FORMAT=L) -------------------------+
  | DEV      = S2CONN        PEN      =  1-03-025-0   TGRP     = 26           |
  |-------------------------------------------------------------------------|
  | PROTVAR  = PSS1V2        INS      = Y             SRCHMODE = CIR          |
  | COTNO    = 22            COPNO    = 21            DPLN     = 0            |
  | ITR      = 1             COS      = 32            LCOSV    = 1            |
  | LCOSD    = 1             CCT      = PRI ECMA 3    DESTNO   = 222          |
  | 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      = 222          |
  | ALARMNO  = 0             FIDX     = 1             CARRIER  = 1            |
  | ZONE     = EMPTY         COTX     = 22            FWDX     = 10           |
  | 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                                    |
  | SVCDOM   =                                                              |
  | BCHAN    =  1 && 30                                                     |
  |                                                                         |
  +-------------------------------------------------------------------------+
  AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 30

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

Reference Clock Configuration, REFTA

For Master-side Configuration

```
<DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-3-25-1,KIND=ALL;
DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-3-25-1,KIND=ALL;
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- 3- 25- 1 | DIU-N2  | S2CONN   |  0|     0|    N |      |  N  |     1|
   +--------------+---------+----------+---+------+------+------+-----+------+

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

For Slave-side Configuration

```
<DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-3-25-1,KIND=ALL;
DISPLAY-REFTA:TYPE=CIRCUIT,PEN=1-3-25-1,KIND=ALL;
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- 3- 25- 1 | DIU-N2  | S2CONN   | 11|     0|    N |      |  N  |     1|
   +--------------+---------+----------+---+------+------+------+-----+------+

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

Trunk Least Cost Routing Configuration

LDAT

```
<DISPLAY-LDAT:TYPE=LCR,LROUTE=1;
DISPLAY-LDAT:TYPE=LCR,LROUTE=1;
H500:  AMO LDAT  STARTED
   +-------------------------------------------------------------------------+
   | LROUTE = 1     LDPLN      NAME = ROPTCCM                 SERVICE =  ALL |
   | TYPE = LCR                                    DNNO OF ROUTE  =        111 |
   | SERVICE INFO =                                                          |
   +-------+-----+-----+-----+------+----------+------------+----------+------+
   |       |     |     |     |      | SCHEDULE | CARRIER    |          |      |
   | LRTEL | LVAL| TGRP|  ODR| LAUTH| ABCDEFGH |       ZONE |    LATTR | LDSRT|
   +-------+-----+-----+-----+------+----------+------------+----------+------+
   |     1 |    1|   27|  111|  1   | ******** | 1    EMPTY |     NONE |      |
   |       | DNNO =        111                                               |
   +-------+-----+-----+-----+------+----------+------------+----------+------+

AMO-LDAT -111       LCR-DIRECTIONS
DISPLAY COMPLETED;

<DISPLAY-LDAT:TYPE=LCR,LROUTE=26;
DISPLAY-LDAT:TYPE=LCR,LROUTE=26;
H500:  AMO LDAT  STARTED
   +-------------------------------------------------------------------------+
   | LROUTE = 26               NAME = PRI 3 ECMA1              SERVICE =  ALL |
   | TYPE = LCR                                    DNNO OF ROUTE  =        111 |
   | SERVICE INFO =                                                          |
   +-------+-----+-----+-----+------+----------+------------+----------+------+
   |       |     |     |     |      | SCHEDULE | CARRIER    |          |      |
   | LRTEL | LVAL| TGRP|  ODR| LAUTH| ABCDEFGH |       ZONE |    LATTR | LDSRT|
   +-------+-----+-----+-----+------+----------+------------+----------+------+
   |     1 |    1|   26|   15|  3   | ******** | 1    EMPTY |     NONE |      |
   +-------+-----+-----+-----+------+----------+------------+----------+------+

AMO-LDAT -111       LCR-DIRECTIONS
DISPLAY COMPLETED;


  <DISPLAY-LDAT:TYPE=LCR,LROUTE=27;
DISPLAY-LDAT:TYPE=LCR,LROUTE=27;
H500:  AMO LDAT  STARTED
   +-------------------------------------------------------------------------+
   | LROUTE = 27    LDPLN      NAME = PRI 4 ECMA1              SERVICE =  ALL |
   | TYPE = LCR                                    DNNO OF ROUTE  =        111 |
   | SERVICE INFO =                                                          |
   +-------+-----+-----+-----+------+----------+------------+----------+------+
   |       |     |     |     |      | SCHEDULE | CARRIER    |          |      |
   | LRTEL | LVAL| TGRP|  ODR| LAUTH| ABCDEFGH |       ZONE |    LATTR | LDSRT|
   +-------+-----+-----+-----+------+----------+------------+----------+------+
   |     1 |    1|   27|   15|  1   | ******** | 1    EMPTY |     NONE |      |
   +-------+-----+-----+-----+------+----------+------------+----------+------+

AMO-LDAT -111       LCR-DIRECTIONS
DISPLAY COMPLETED;
  <DISPLAY-LDAT:TYPE=LCR,LROUTE=165;
DISPLAY-LDAT:TYPE=LCR,LROUTE=165;
H500:  AMO LDAT  STARTED
   +-------------------------------------------------------------------------+
   | LROUTE = 165   LDPLN      NAME = PSTN 91650               SERVICE =  ALL |
   | TYPE = LCR                                    DNNO OF ROUTE  =        89  |
   | SERVICE INFO =                                                          |
   +-------+-----+-----+-----+------+----------+------------+----------+------+
```

```
   |       |     |     |     |      | SCHEDULE | CARRIER    |          |      |
   | LRTEL | LVAL| TGRP|  ODR| LAUTH| ABCDEFGH |       ZONE |    LATTR | LDSRT|
   +-------+-----+-----+-----+------+----------+------------+----------+------+
   |     1 |    1|   23|   50|  1   | ******** | 1    EMPTY |     NONE |      |
   |       | DNNO =        89                                              |
   +-------+-----+-----+-----+------+----------+------------+----------+------+

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

RICHT

```
DISPLAY-RICHT:MODE=LRTE,LRTE=1;
H500:  AMO RICHT STARTED
+-------------------------------------------------------------------+
| LRTE = 1      NAME = ROPTCCM          (NEUTRAL)  LSVC = ALL       |
| DNNO =       111 PDNNO =       0   DESTNO =111                    |
| ROUTOPT = YES    REROUT = YES   PLB = NO     FWDBL = NO           |
| DTMFCNV = WITHOUT DTMFDSP = WITHOUT DTMFTEXT =                    |
| DTMFPULS =       BUGS = LIN  ROUTATT = NO       MAINGRP =   24    |
| EMCYRTT = NO       CONFTONE = NO   RERINGRP = NO   RTENO =   24   |
| INFO =                                                            |
| NOPRCFWD = NO                                                     |
+-------------------------------------------------------------------+
| TGRP =  27  LDAT  PRI ECMA 4         (NEUTRAL)  SUBGROUP =   10   |
+-------------------------------------------------------------------+

AMO-RICHT-111       TRUNK ROUTING
DISPLAY COMPLETED;

<DISPLAY-RICHT:MODE=LRTE,LRTE=26;
DISPLAY-RICHT:MODE=LRTE,LRTE=26;
H500:  AMO RICHT STARTED
+-------------------------------------------------------------------+
| LRTE = 26     NAME = PRI 3 ECMA1      (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 =   14    |
| EMCYRTT = NO       CONFTONE = NO   RERINGRP = NO   RTENO =   14   |
| INFO =                                                            |
| NOPRCFWD = NO                                                     |
+-------------------------------------------------------------------+
| TGRP =  26  LDAT  PRI ECMA 3         (NEUTRAL)  SUBGROUP =    9   |
+-------------------------------------------------------------------+

AMO-RICHT-111       TRUNK ROUTING
DISPLAY COMPLETED;

  <DISPLAY-RICHT:MODE=LRTE,LRTE=27;
DISPLAY-RICHT:MODE=LRTE,LRTE=27;
H500:  AMO RICHT STARTED
+-------------------------------------------------------------------+
| LRTE = 27     NAME = PRI 4 ECMA1      (NEUTRAL)  LSVC = ALL       |
| DNNO =       111 PDNNO =       0                                  |
| ROUTOPT = YES    REROUT = YES   PLB = NO     FWDBL = NO           |
| DTMFCNV = FIX     DTMFDSP = WITHOUT DTMFTEXT =                    |
| DTMFPULS = PP300 BUGS = LIN  ROUTATT = NO       MAINGRP =   15    |
| EMCYRTT = NO       CONFTONE = NO   RERINGRP = NO   RTENO =   15   |
| INFO =                                                            |
| NOPRCFWD = NO                                                     |
+-------------------------------------------------------------------+
| TGRP =  27  LDAT  PRI ECMA 4         (NEUTRAL)  SUBGROUP =   10   |
+-------------------------------------------------------------------+
```

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

PSTN RICHT

```
<DISPLAY-RICHT:MODE=LRTE,LRTE=165;
DISPLAY-RICHT:MODE=LRTE,LRTE=165;
H500:  AMO RICHT STARTED
+-----------------------------------------------------------------+
| LRTE = 165    NAME = PSTN 91650       (NEUTRAL)  LSVC = ALL     |
| DNNO =       89  PDNNO =       0   DESTNO = 89                  |
| ROUTOPT = YES    REROUT = YES   PLB = NO     FWDBL = NO         |
| DTMFCNV = WITHOUT DTMFDSP = WITHOUT DTMFTEXT =                  |
| DTMFPULS =       BUGS = LIN  ROUTATT = NO       MAINGRP =   27  |
| EMCYRTT = NO       CONFTONE = NO   RERINGRP = NO   RTENO =   27 |
| INFO =                                                          |
| NOPRCFWD = NO                                                   |
+-----------------------------------------------------------------+
| TGRP =  23  LDAT  ECMA 2             (NEUTRAL)  SUBGROUP =    6 |
+-----------------------------------------------------------------+

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

LCR Out-dial Rules, LODR

```
  <DISPLAY-LODR:ODR=111,FORMAT=L;
H500:  AMO LODR  STARTED
   +-------------------------------------------------------+
   |  ODR     POSITION  CMD         PARAMETER              |
   +--------+----------------------------------------------+
   |  111   |      1    ECHO        1                      |
   |        |      2    ECHO        2                      |
   |        |      3    END                                |
   +--------+----------------------------------------------+
H03: THE NEXT FREE ODR IS 2

AMO-LODR -111       ADMINISTRATION OF LCR OUTDIAL RULES
DISPLAY COMPLETED;
  <DISPLAY-LODR:ODR=15,FORMAT=L;
DISPLAY-LODR:ODR=15,FORMAT=L;
H500:  AMO LODR  STARTED
   +-------------------------------------------------------+
   |  ODR     POSITION  CMD         PARAMETER              |
   +--------+----------------------------------------------+
   |   15   |      1    ECHO        2                      |
   |        |      2    END                                |
   +--------+----------------------------------------------+
H03: THE NEXT FREE ODR IS 2

AMO-LODR -111       ADMINISTRATION OF LCR OUTDIAL RULES
DISPLAY COMPLETED;
  <DISPLAY-LODR:ODR=50,FORMAT=L;
DISPLAY-LODR:ODR=50,FORMAT=L;
H500:  AMO LODR  STARTED
   +-------------------------------------------------------+
   |  ODR     POSITION  CMD         PARAMETER              |
   +--------+----------------------------------------------+
   |   50   |      1    ECHO        2                      |
   |        |      2    ECHO        3                      |
   |        |      3    END                                |
   +--------+----------------------------------------------+
```

```
H03: THE NEXT FREE ODR IS 2

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

In-Band DTMF signaling:

In order to enable In-band DTMF signaling on digital stations for Voicemail applications, the station configuration has to be changed so that the parameter DTMFCTRD=Y.

Name and Number Restrictions:

To use Name and Number Restrictions, the station configuration should be changed so that the parameter SSTNO=Y, (Secret Station Number must be set to Yes).

```
  <dis-sbcsu:5002;
DIS-SBCSU:5002;
H500:  AMO SBCSU STARTED

 ---------------------------- USER DATA ---------------------------------------
  STNO    =5002      OPT     =OPTI      COS1    =2         DPLN    =1
  MAINO   =5002      CONN    =DIR       COS2    =2         ITR     =1
  PEN     = 1- 3- 31-  2                LCOSV1  =6         COSX    =0
  INS     =Y         ASYNCT  =500       LCOSV2  =6
                     PERMACT =          LCOSD1  =6
  SSTNO   =Y         EXTBUS  =          LCOSD2  =6         CBKBMAX =5
  TRACE   =N                                               RCBKB   =N
  ALARMNO =0         DFSVCANA=          SPDI    =0         RCBKNA  =N
  HMUSIC  =0         FLASH   =          SPDC1   =          CBKNAMB =Y
  PMIDX   =0                            SPDC2   =
                                                           COMGRP  =0
  SECR    =N         DIGNODIS=N         DSSTNA  =N
  STD     =55        CALLOG  =NONE      DSSTNB  =Y         TEXTSEL =ENGLISH

  REP     =0         OPTICOM =N         OPTIUSB :0         VPI     =
  IDCR    =N         OPTICA  =1         OPTIS0A :          VCI     =
                     OPTIDA  =          OPTISPA :0         PATTERN =
                                        OPTIABA :0
  DCFWBUSY=N         HEADSET =N                            APICLASS=
  DNIDSP  =N         HSKEY   =NORMAL                       ACFAPPL =0
  DTMFBLK =N                            IPPASSW =
  DTMFCTRD=Y         BASICSVC=
  DVCFIG  =OPTIP500  TSI     =1         SPROT   =          SOPTIDX =
                                        DPROT   =          DOPTIDX =
                                        FPROT   =          FOPTIDX =
 ------------------- ACTIVATION IDENTIFIERS FOR FEATURES ----------------------
  FWDS    :N         HTOS    :N         DND     :N
  FWDD    :N         HTOD    :N         VCP     :Y         TWLOGIN :N
  FWDF    :N         HTOF    :N         CWT     :N
 ------------------- FEATURES AND GROUP MEMBERSHIPS ---------------------------
  PUGR    :          ESSTN   :
  KEYSYS  :N         NOPTNO  :
  HUNT CD :N
 ------------------- SUBSCRIBER ATTRIBUTES (AMO SDAT) -------------------------
  NONE
 ------------------------------------------------------------------------------

AMO-SBCSU-111
```

Configure Digital Station for MWI Application:

To get the MWI light to work, the station configuration should be changed so that the parameter PMIDX (phoneMail Index parameter) needs to point to the IDX identifier that identifies the Message Center's Service Access Number.

```
  <dis-sbcsu:5002;
DIS-SBCSU:5002;
H500:  AMO SBCSU STARTED

 ---------------------------- USER DATA ---------------------------------------
  STNO    =5002      OPT     =OPTI      COS1    =2         DPLN    =1
  MAINO   =5002      CONN    =DIR       COS2    =2         ITR     =1
  PEN     = 1- 3- 31-  2                LCOSV1  =6         COSX    =0
  INS     =Y         ASYNCT  =500       LCOSV2  =6
                     PERMACT =          LCOSD1  =6
  SSTNO   =N         EXTBUS  =          LCOSD2  =6         CBKBMAX =5
  TRACE   =N                                               RCBKB   =N
  ALARMNO =0         DFSVCANA=          SPDI    =0         RCBKNA  =N
  HMUSIC  =0         FLASH   =          SPDC1   =          CBKNAMB =Y
  PMIDX   =1                            SPDC2   =
                                                           COMGRP  =0
  SECR    =N         DIGNODIS=N         DSSTNA  =N
  STD     =55        CALLOG  =NONE      DSSTNB  =Y         TEXTSEL =ENGLISH

  REP     =0         OPTICOM =N         OPTIUSB :0         VPI     =
  IDCR    =N         OPTICA  =1         OPTIS0A :          VCI     =
                     OPTIDA  =          OPTISPA :0         PATTERN =
                                        OPTIABA :0
  DCFWBUSY=N         HEADSET =N                            APICLASS=
  DNIDSP  =N         HSKEY   =NORMAL                       ACFAPPL =0
  DTMFBLK =N                            IPPASSW =
  DTMFCTRD=Y         BASICSVC=
  DVCFIG  =OPTIP500  TSI     =1         SPROT   =          SOPTIDX =
                                        DPROT   =          DOPTIDX =
                                        FPROT   =          FOPTIDX =
 ------------------- ACTIVATION IDENTIFIERS FOR FEATURES ----------------------
  FWDS    :N         HTOS    :N         DND     :N
  FWDD    :N         HTOD    :N         VCP     :Y         TWLOGIN :N
  FWDF    :N         HTOF    :N         CWT     :N
 ------------------- FEATURES AND GROUP MEMBERSHIPS ---------------------------
  PUGR    :          ESSTN   :
  KEYSYS  :N         NOPTNO  :
  HUNT CD :N
 ------------------- SUBSCRIBER ATTRIBUTES (AMO SDAT) -------------------------
  NONE
 ------------------------------------------------------------------------------

AMO-SBCSU-111
```

Configure Message Center's Service Access Number for MWI Application:

Since the MWI was tested with the Message Center integrated on CallManager side, the PBX needs to configure an identifier for the Message Center's Service Access Number in order for the MWI light to work. Without this identifier the MWI light will not work.

```
<ADD-RICHT:MODE=PM,IDX=1,SAN=4005;
ADD-RICHT:MODE=PM,IDX=1,SAN=4005;
H500:  AMO RICHT STARTED

AMO-RICHT-111       TRUNK ROUTING
ADD COMPLETED;
  <DISP-RICH:MODE=PM;
S3:  DATA SUBSYSTEM FOR AMO RICH  NOT FOUND ON HARD DISK


  <DISP-RICHT
MODE = PM
DISP-RICHT:PM;
H500:  AMO RICHT STARTED
+------+---------------------+------------------------------+--------+
| IDX  |         SAN         |              NAME            |  TYPE  |
+------+---------------------+------------------------------+--------+
|     1|4005                 |                              |OTHER   |
+------+---------------------+------------------------------+--------+

AMO-RICHT-111       TRUNK ROUTING
DISPLAY COMPLETED;
 <
```

Configure Digital Station's Class of Service for Mailbox MWI application

```
<DISPLAY-COSSU:TYPE=COS,COS=2,FORMAT=L;
DISPLAY-COSSU:TYPE=COS,COS=2,FORMAT=L;
H500:  AMO COSSU STARTED
   +------+-----------------+---------------+-----------------+
   | COS  |      VOICE      |      FAX      |       DTE       |
   +------+-----------------+---------------+-----------------+
   |    2 |>                                                  |
   |      |         TA      |      NOCO     |         TA      |
   |      |      TSUID      |     NOTIE     |     TNOTCR      |
   |      |     TNOTCR      |     BASIC     |      BASIC      |
   |      |     CDRINT      |               |                 |
   |      |       CDRS      |               |                 |
   |      |       CDRC      |               |                 |
   |      |         MB      |               |                 |
   |      |     COSXCD      |               |                 |
   |      |        VCE      |               |                 |
   |      |       SPKR      |               |                 |
   |      |       DATA      |               |                 |
   |      |     FWDNWK      |               |                 |
   |      |     RERING      |               |                 |
   |      |     CDRIND      |               |                 |
   |      |        MSN      |               |                 |
   |      |     FWDECA      |               |                 |
   |      |     FWDBAS      |               |                 |
   |      |     FWDDIR      |               |                 |
   |      |        CFB      |               |                 |
   |      |       CFNR      |               |                 |
   |      |       CCBS      |               |                 |
   |      |         CW      |               |                 |
   |      |     FWDEXT      |               |                 |
```

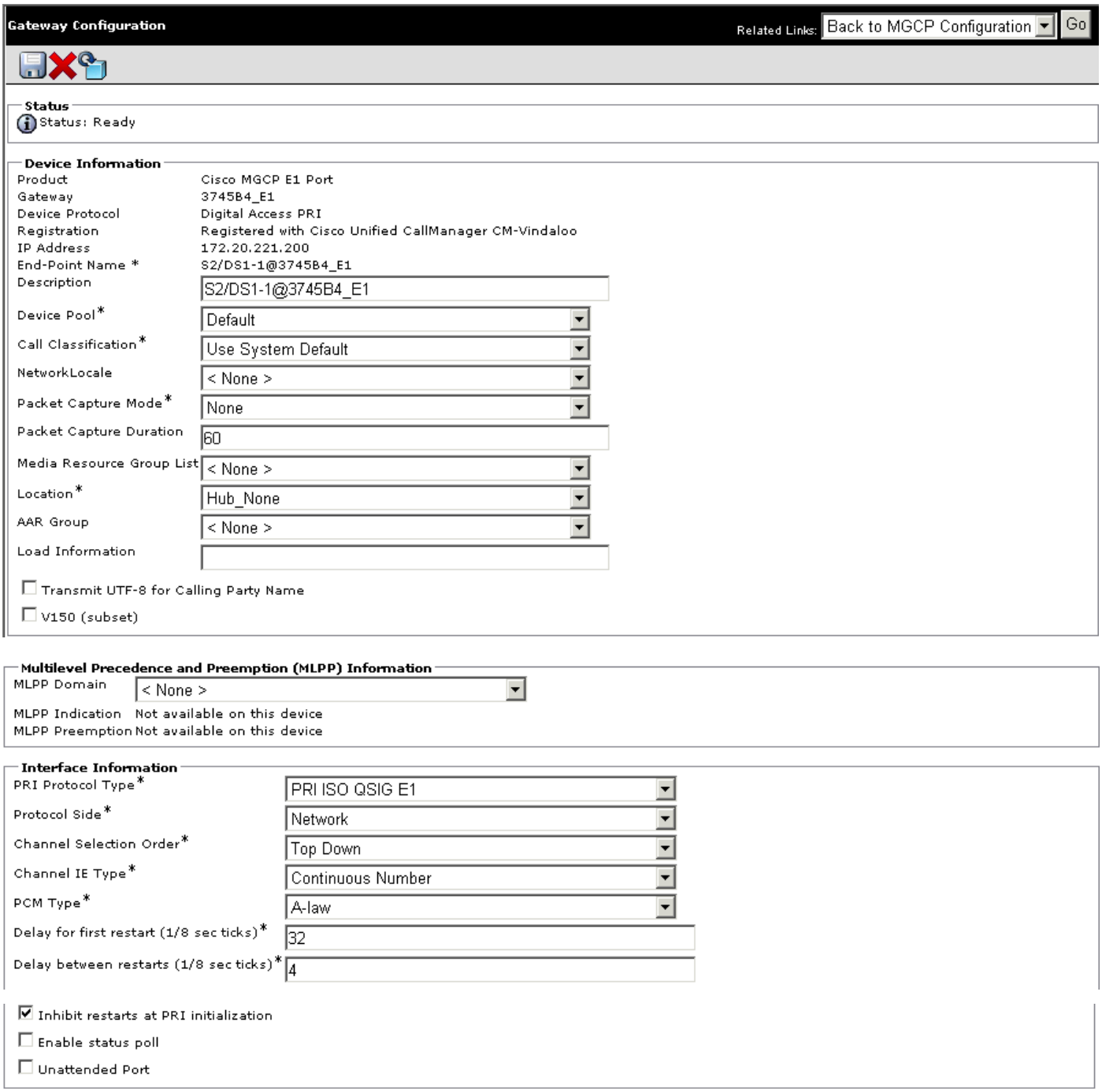
```
   |      |     GRPCAL      |               |                 |
   |      |      SUTVA      |               |                 |
   |      |                 |               |                 |
   +------+-----------------+---------------+-----------------+
AMO-COSSU-111       CLASSES OF SERVICE
DISPLAY COMPLETED;

<DISPLAY-PERSI:TYPE=NAME,STNO=5002;
DISPLAY-PERSI:TYPE=NAME,STNO=5002;
H500:  AMO PERSI STARTED
+--------+----------------------------------------+---------------------------+
| STNO   |    CHRISTIAN AND SURNAME        CHARCON |   ORGANIZATIONAL UNIT     |
+--------+----------------------------------------+---------------------------+
|        |                                        |                           |
| 5002   | HIPATH DT2*                            |                           |
|        |                                        |                           |
+--------+----------------------------------------+---------------------------+

AMO-PERSI-111       PERSONAL IDENTIFICATION DATA
DISPLAY COMPLETED;
```

Configuring the Cisco Unified CallManager

3745 Gateway Configuration



Call Routing Information - Inbound Calls

Significant Digits*	All
Calling Search Space	Incoming Trunk
AAR Calling Search Space	< None >
Prefix DN	

Call Routing Information - Outbound Calls

Calling Party Presentation*	Default
Calling Party Selection*	Originator
Called party IE number type unknown*	National
Calling party IE number type unknown*	National
Called Numbering Plan*	Private
Calling Numbering Plan*	Private
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 Display IE***
- [ ] Setup non-ISDN Progress Indicator IE Enable****
- [ ] MCDN Channel Number Extension Bit Set to Zero**
- [ ] Send Calling Name In Facility IE
- [ ] Interface Identifier Present**

Interface Identifier Value**	0
Connected Line ID Presentation (QSIG Inbound Call)*	Default

UUIE Configuration

- [ ] Passing Precedence Level Through UUIE

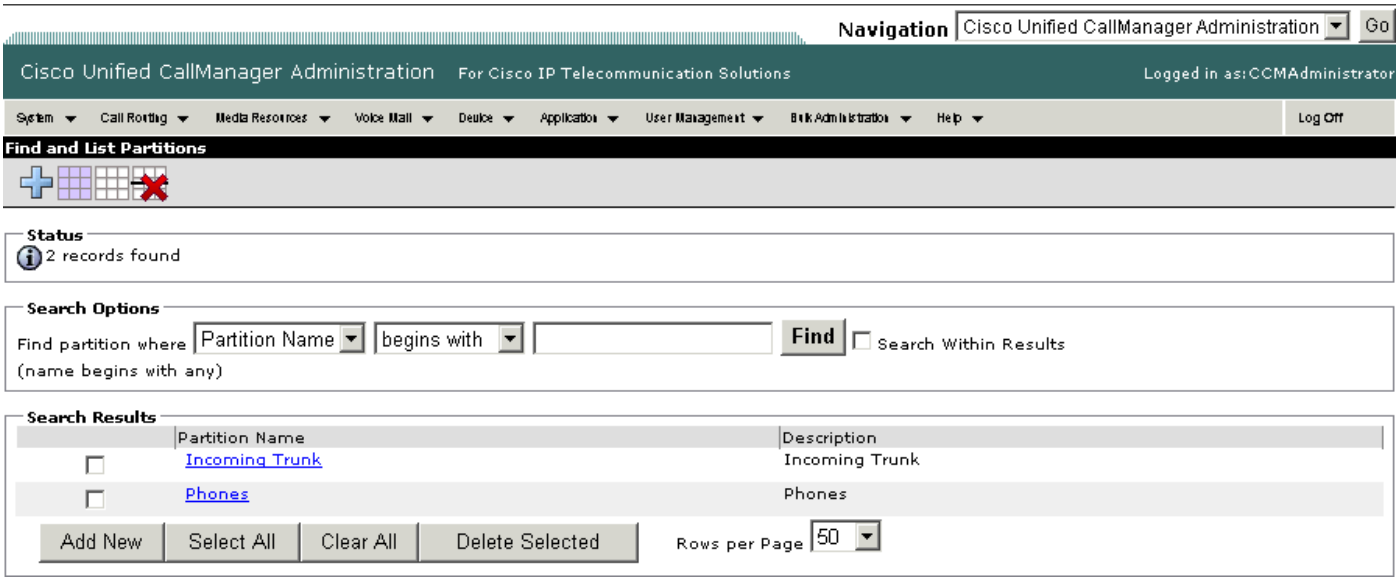
Security Access Level*	2

Product Specific Configuration

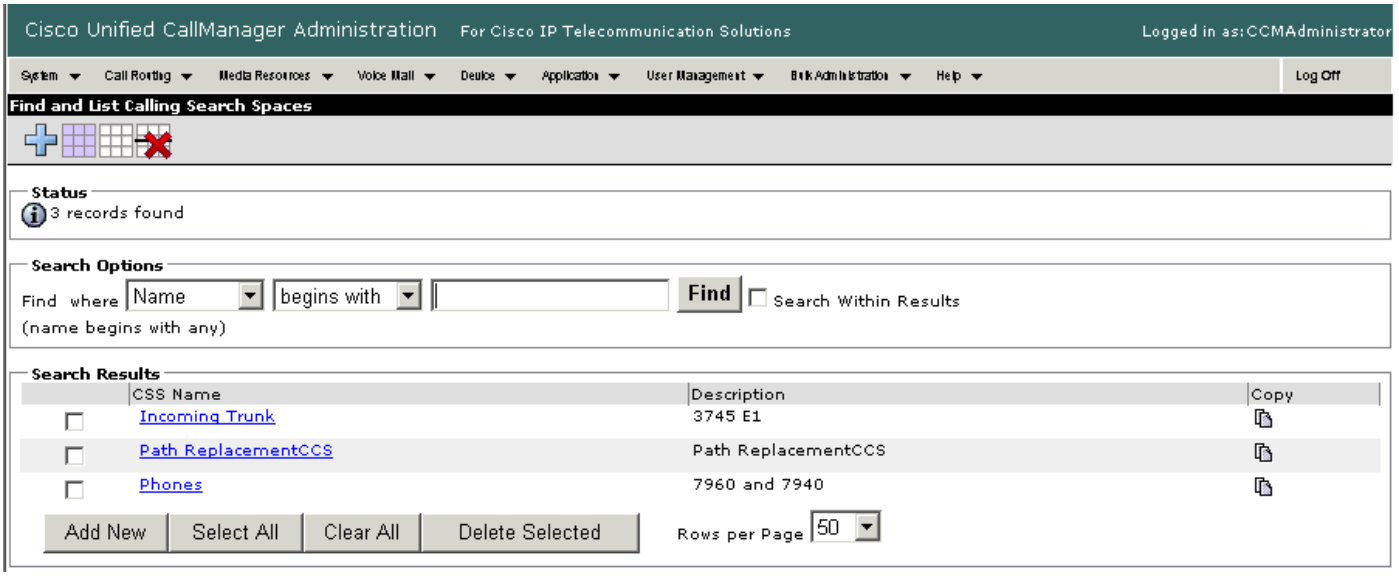
Line Coding *	HDB3
Framing *	CRC4
Clock *	External

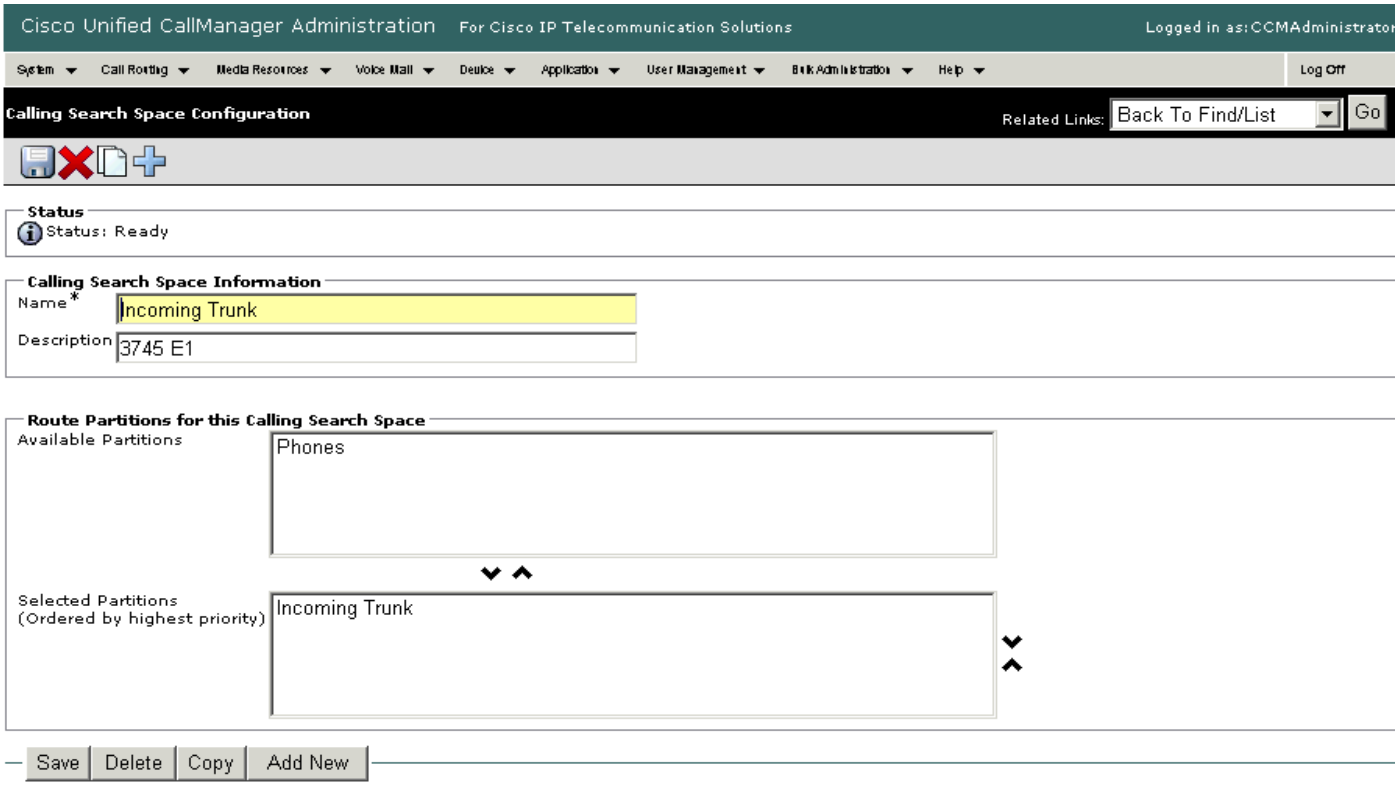
Save | Delete | Reset

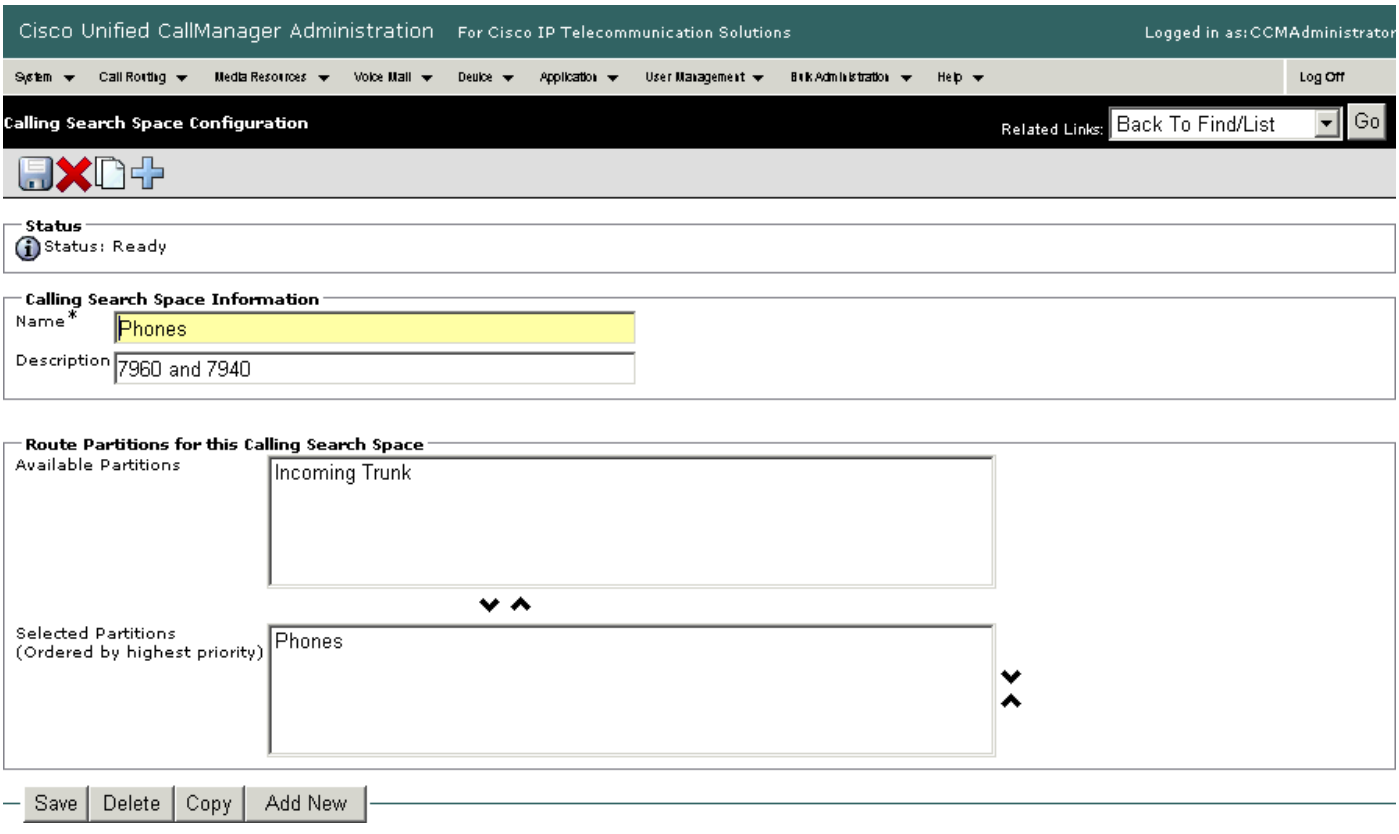
Partition Configuration

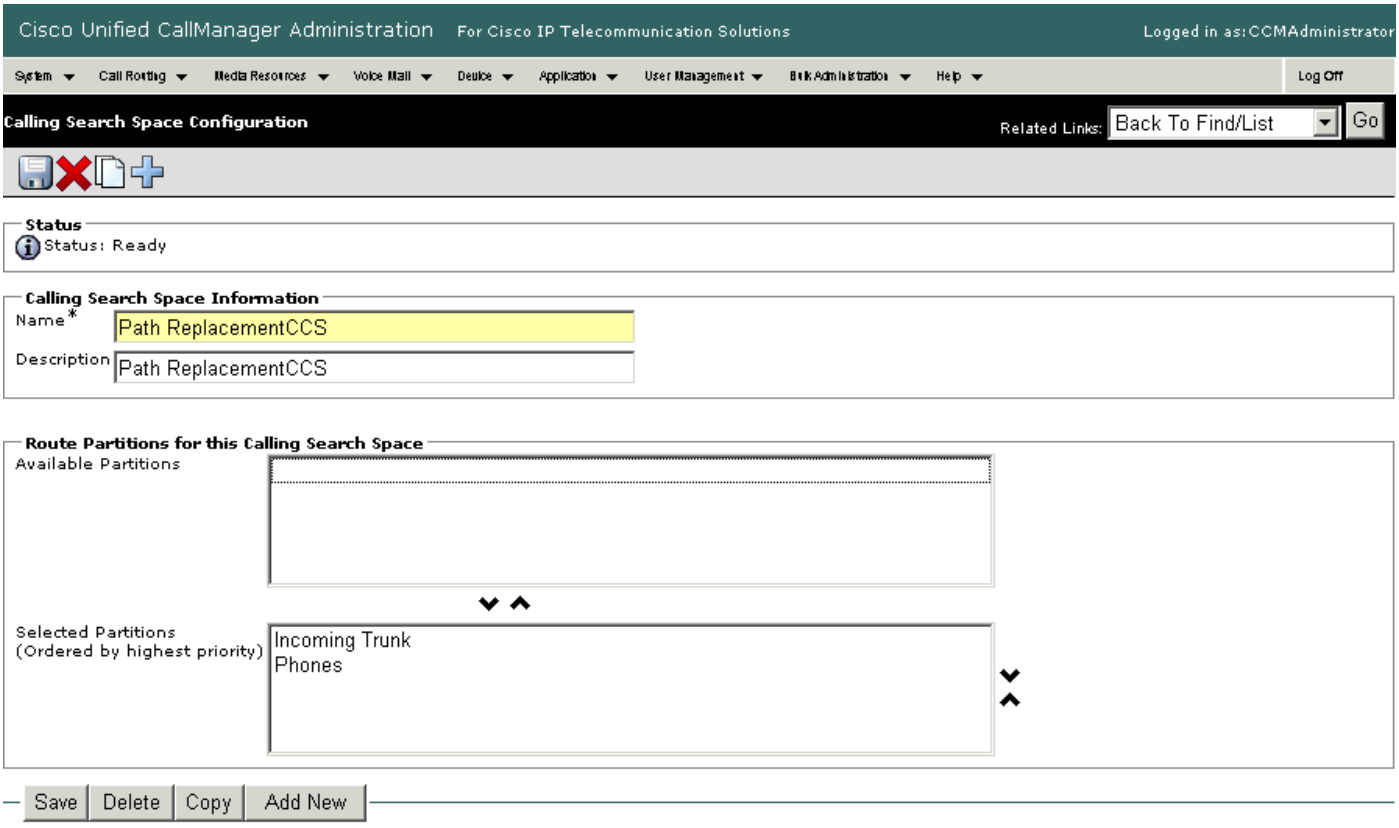


Calling Search Space

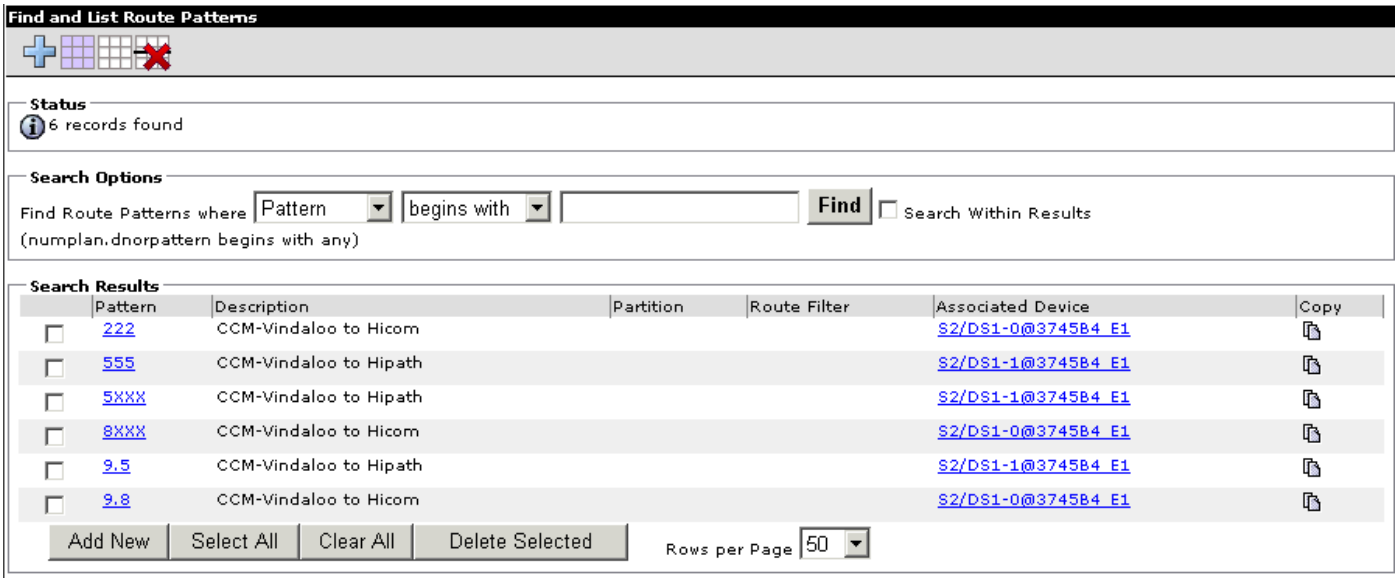


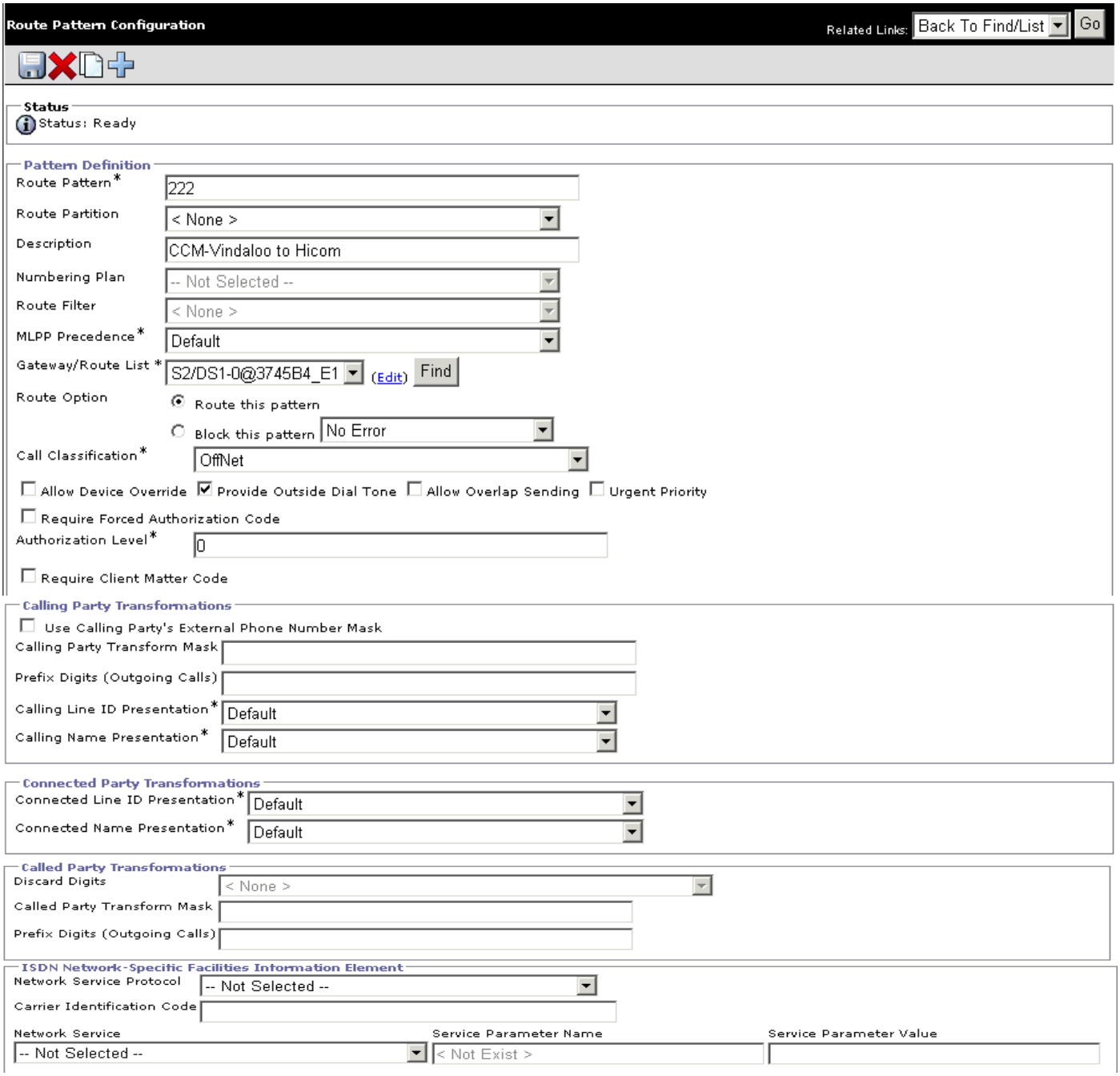


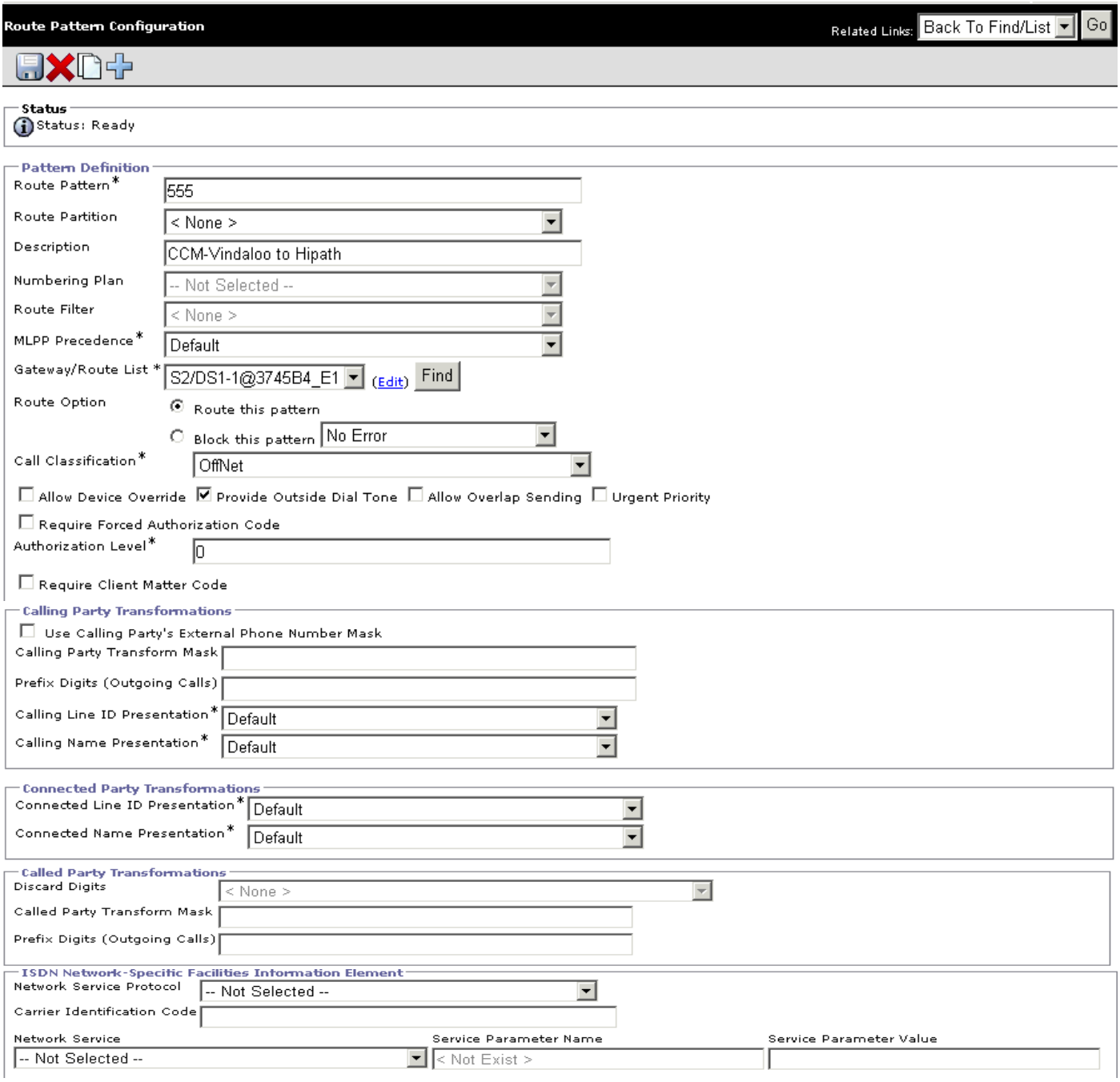


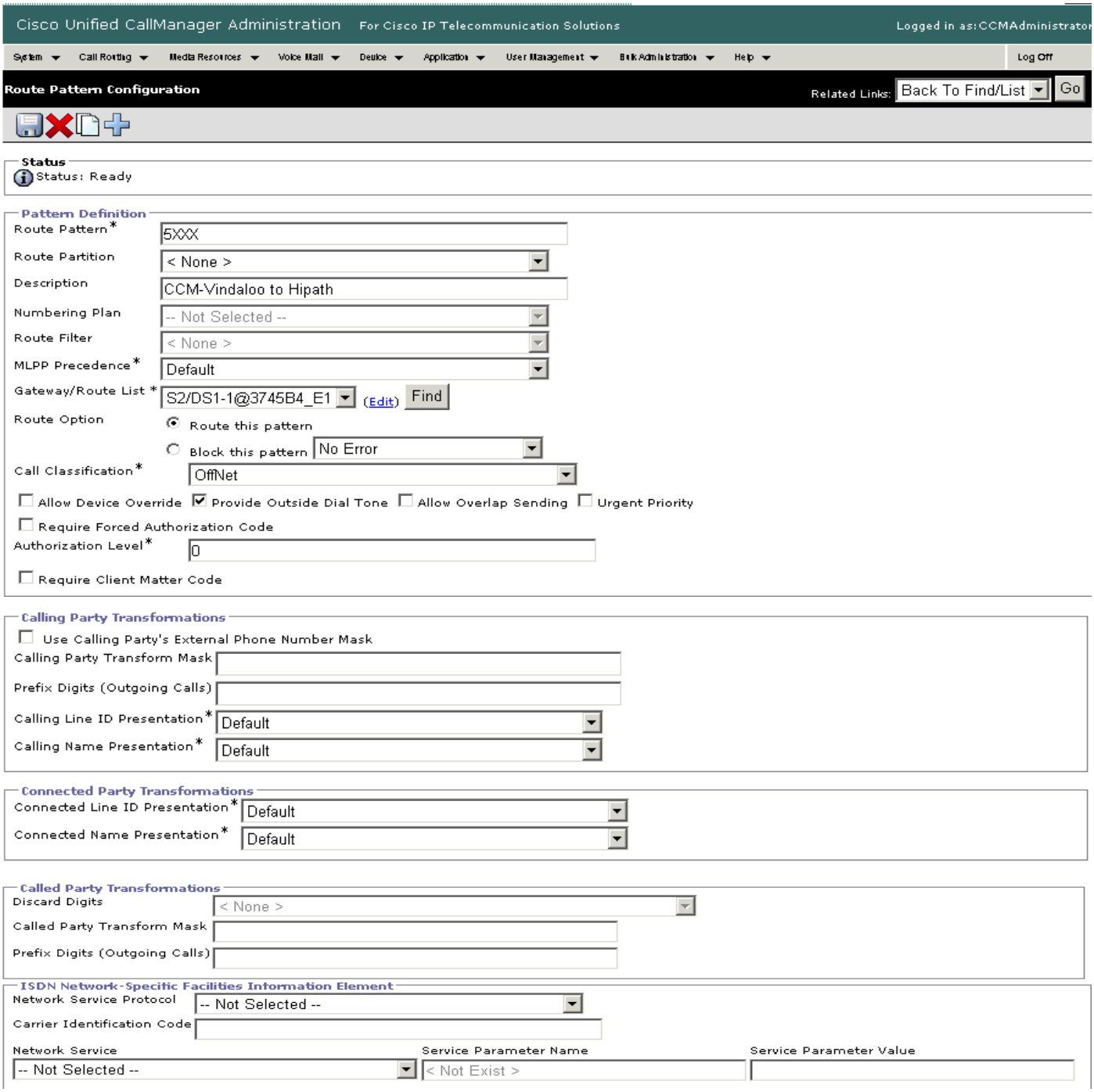


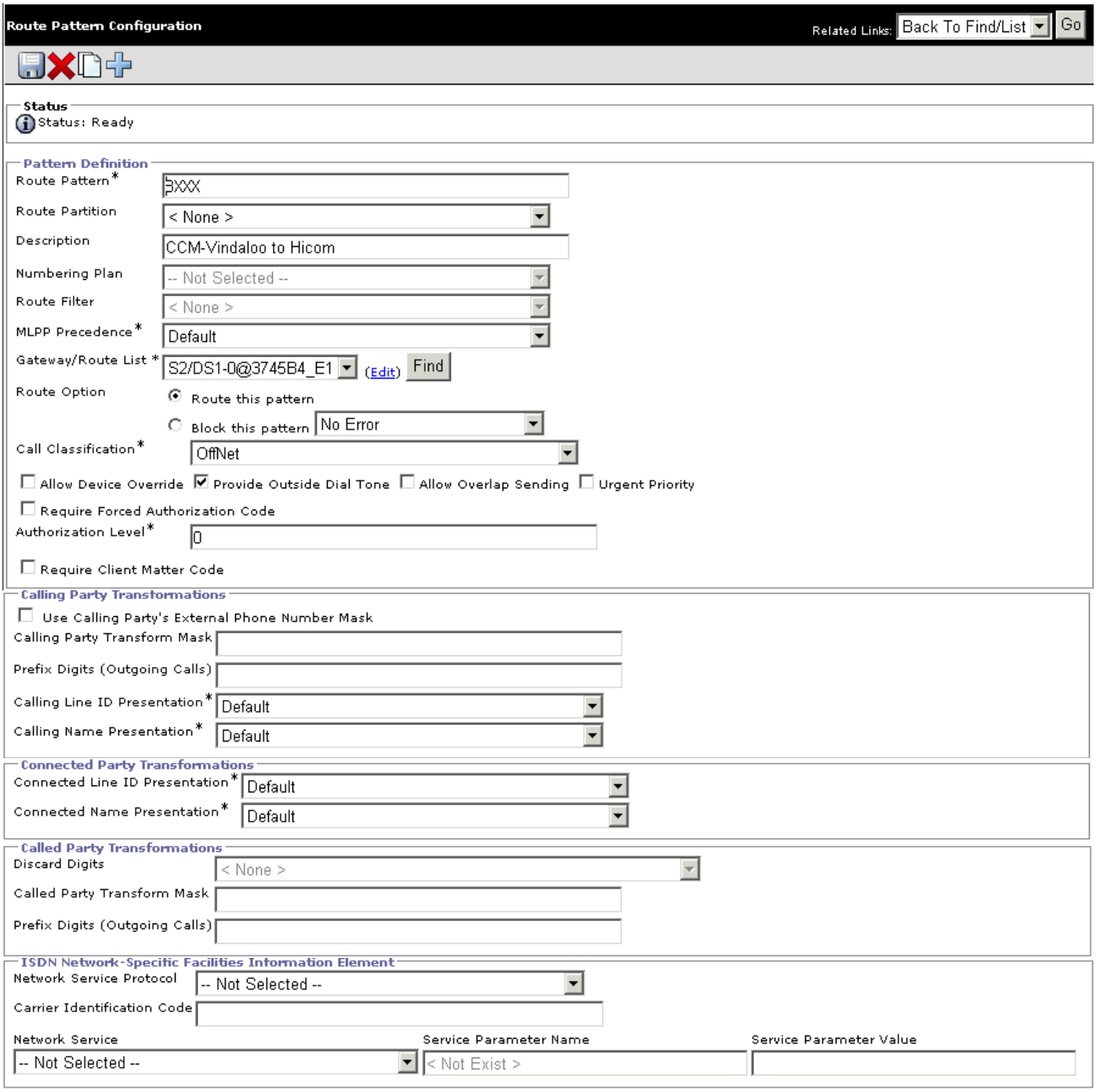
Enbloc Route Configuration



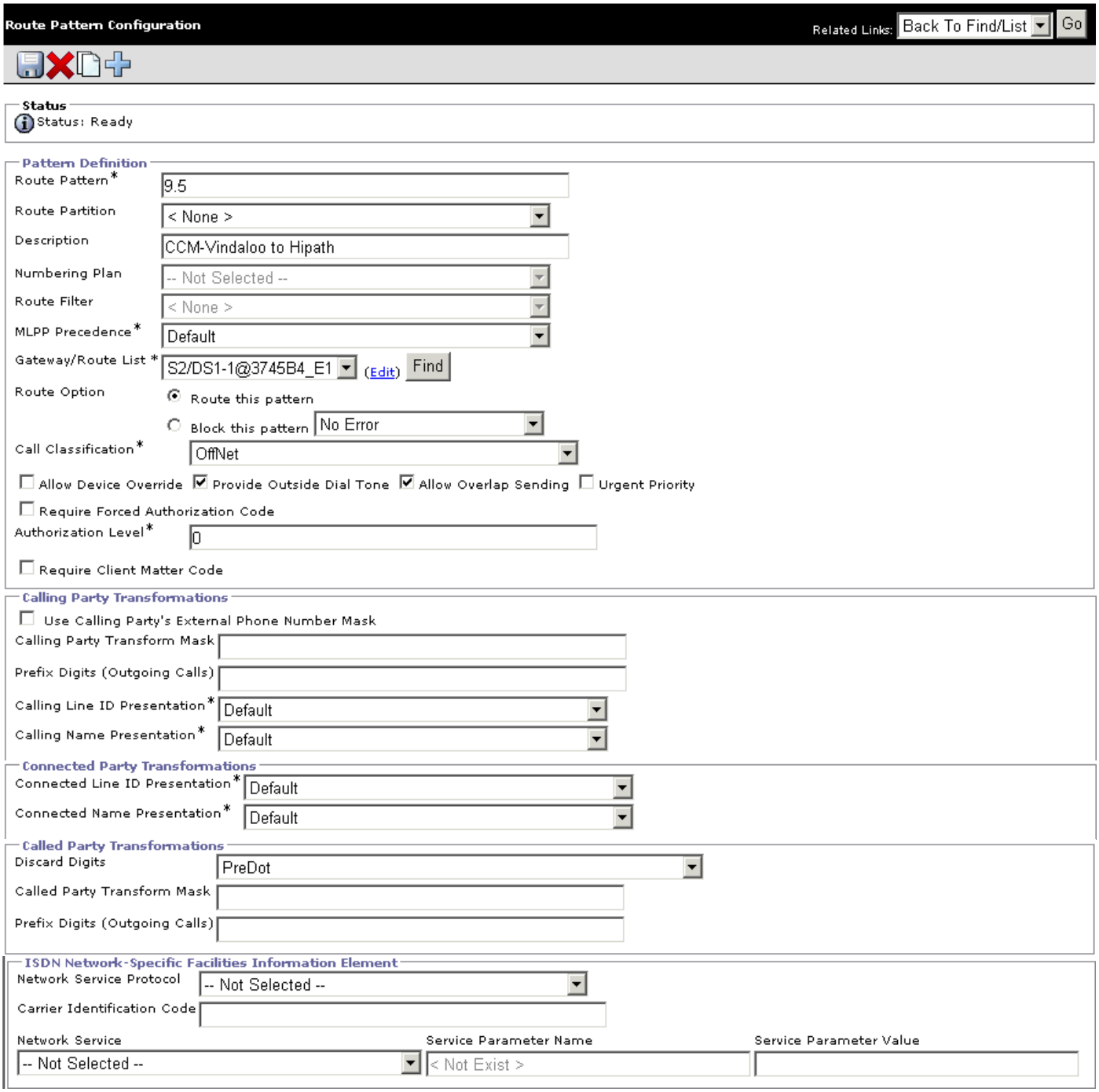


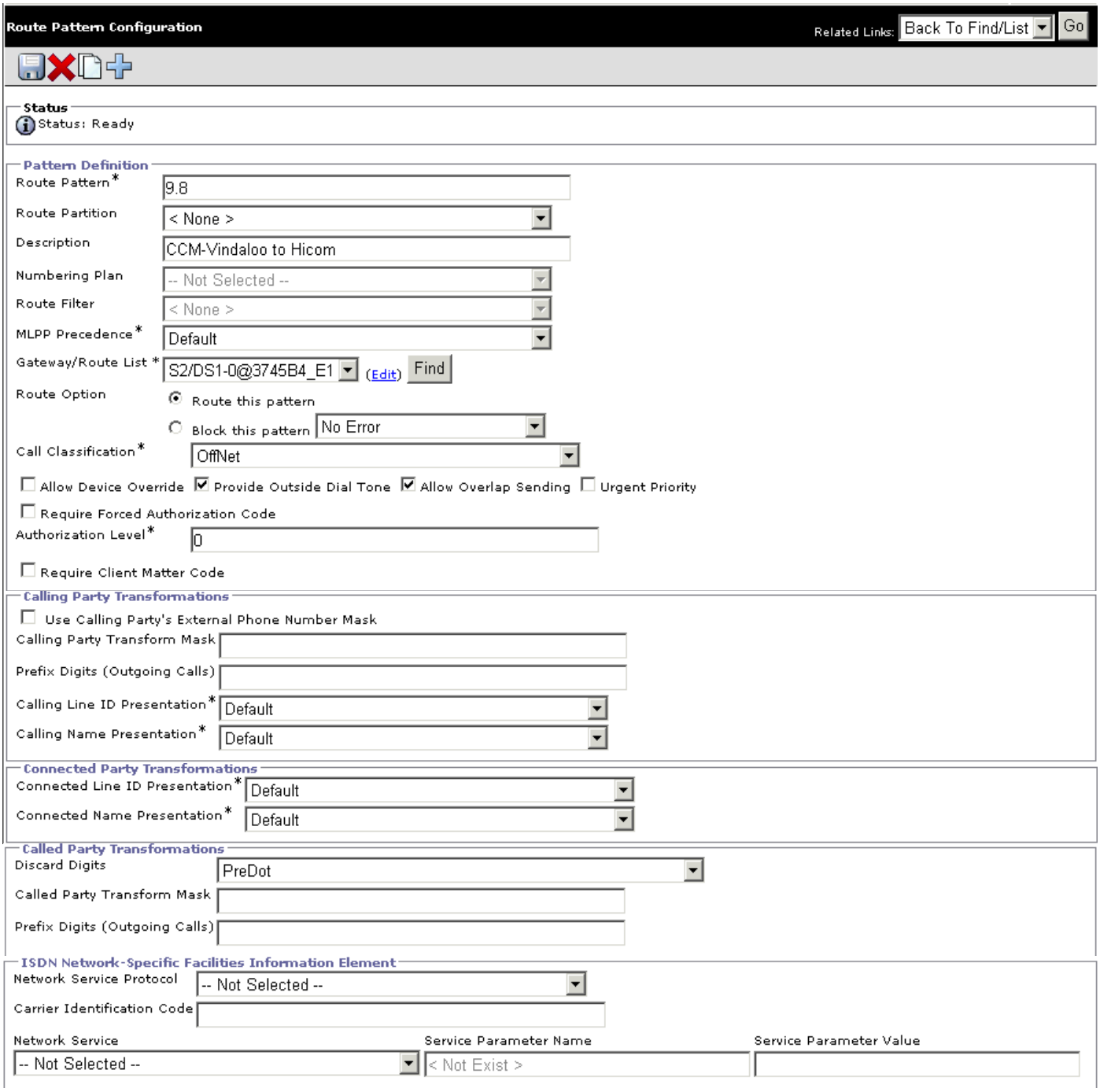




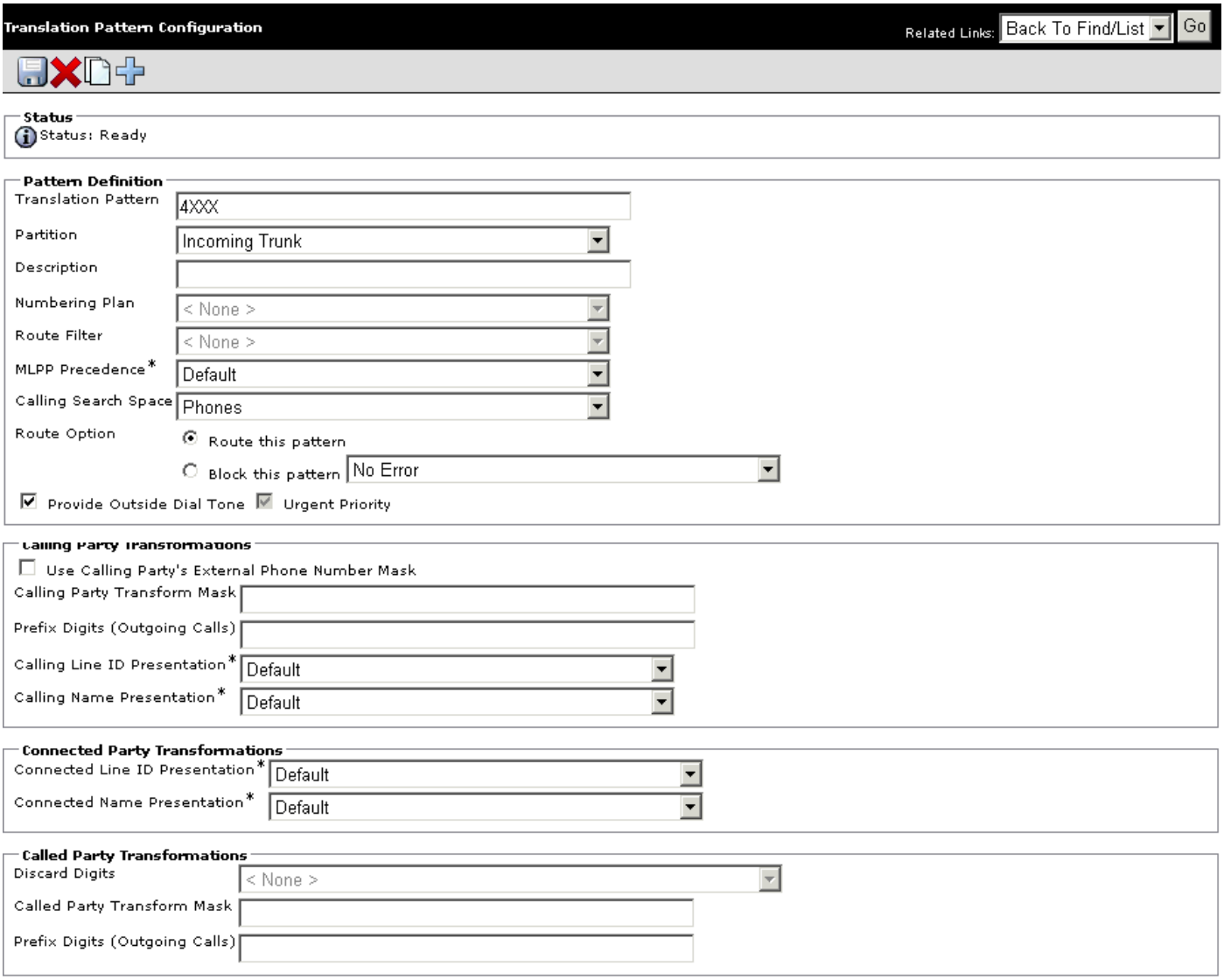


Overlap Sending Route Pattern Configuration

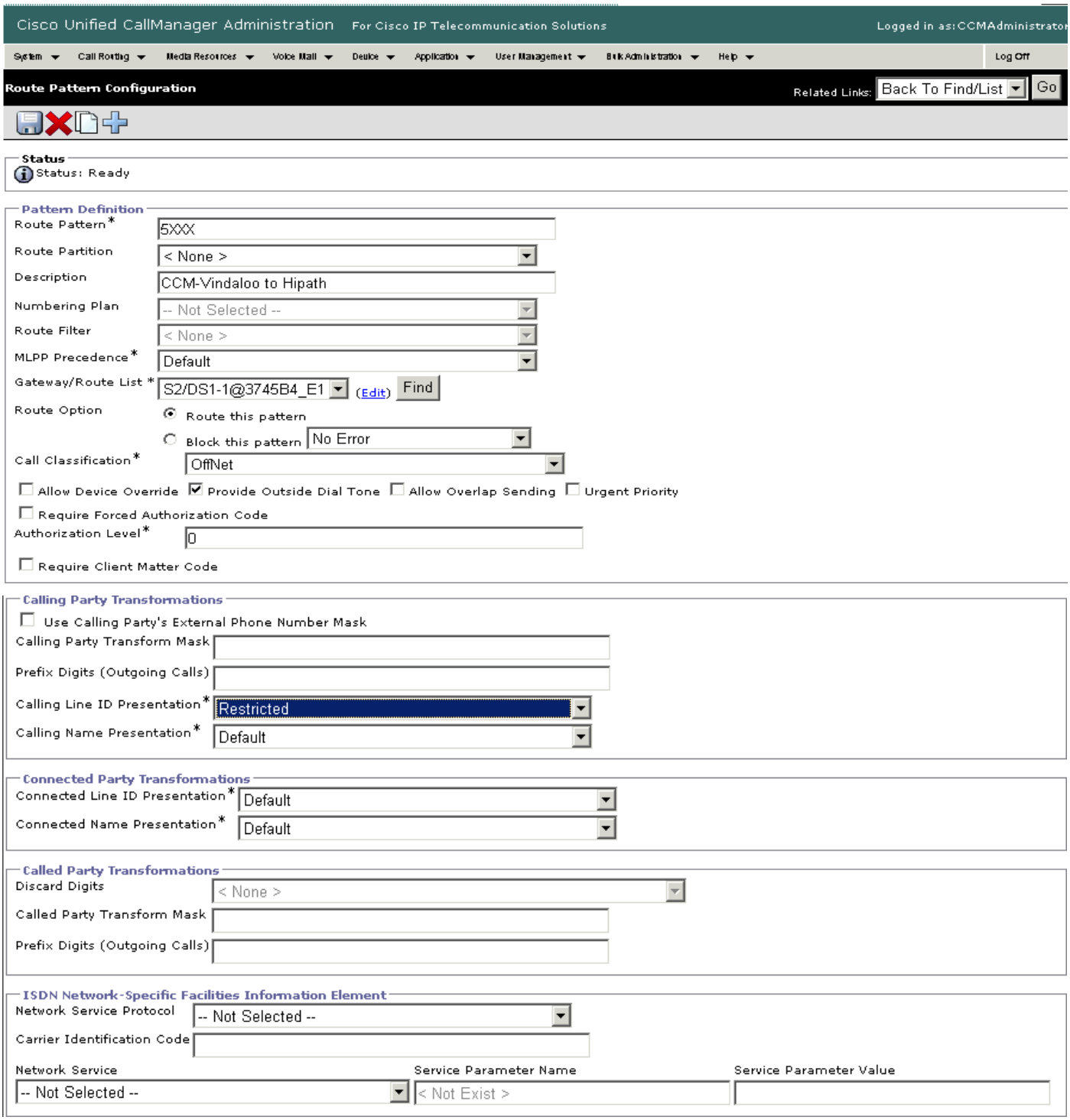




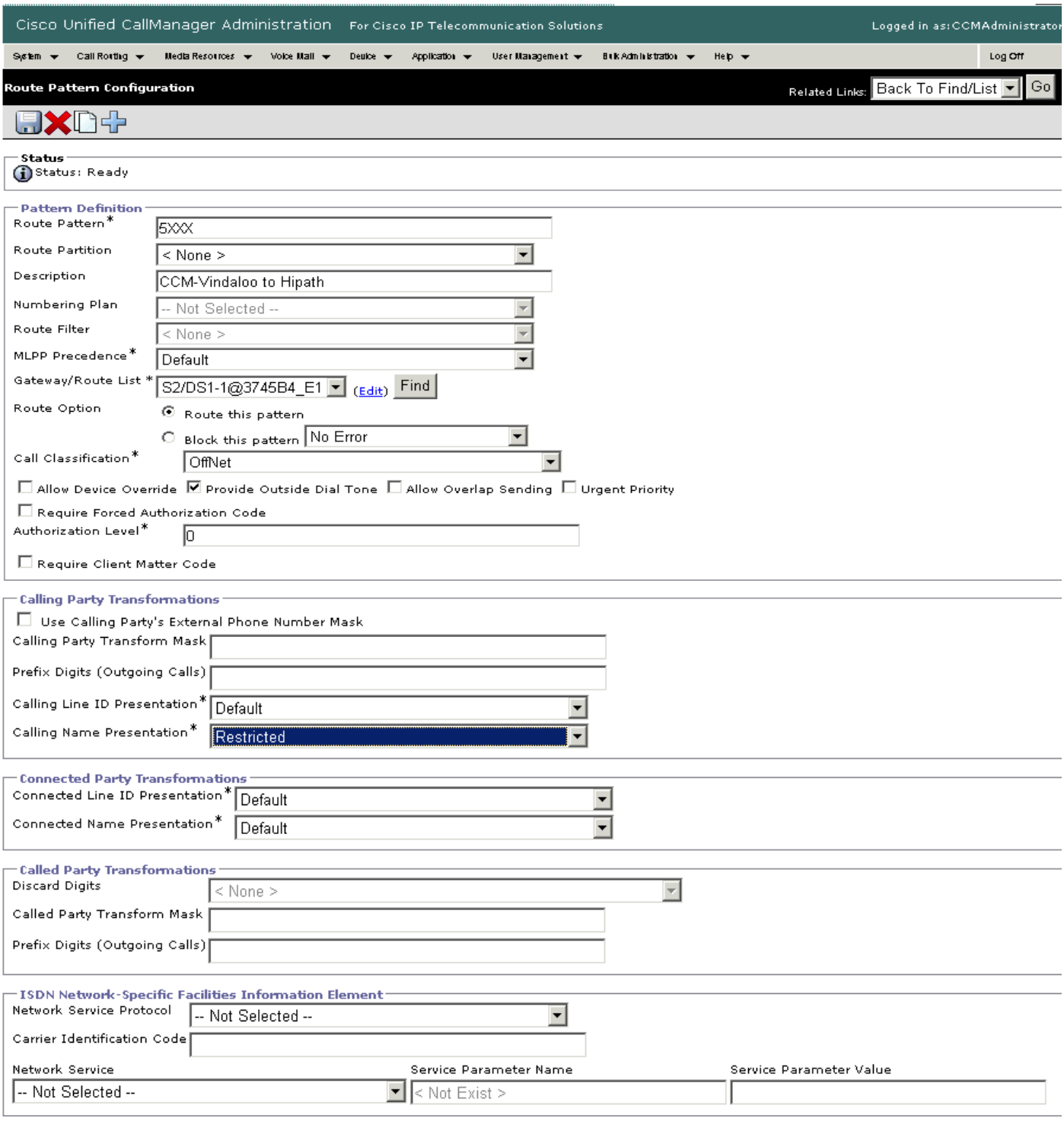
Translation Pattern for Incoming Calls



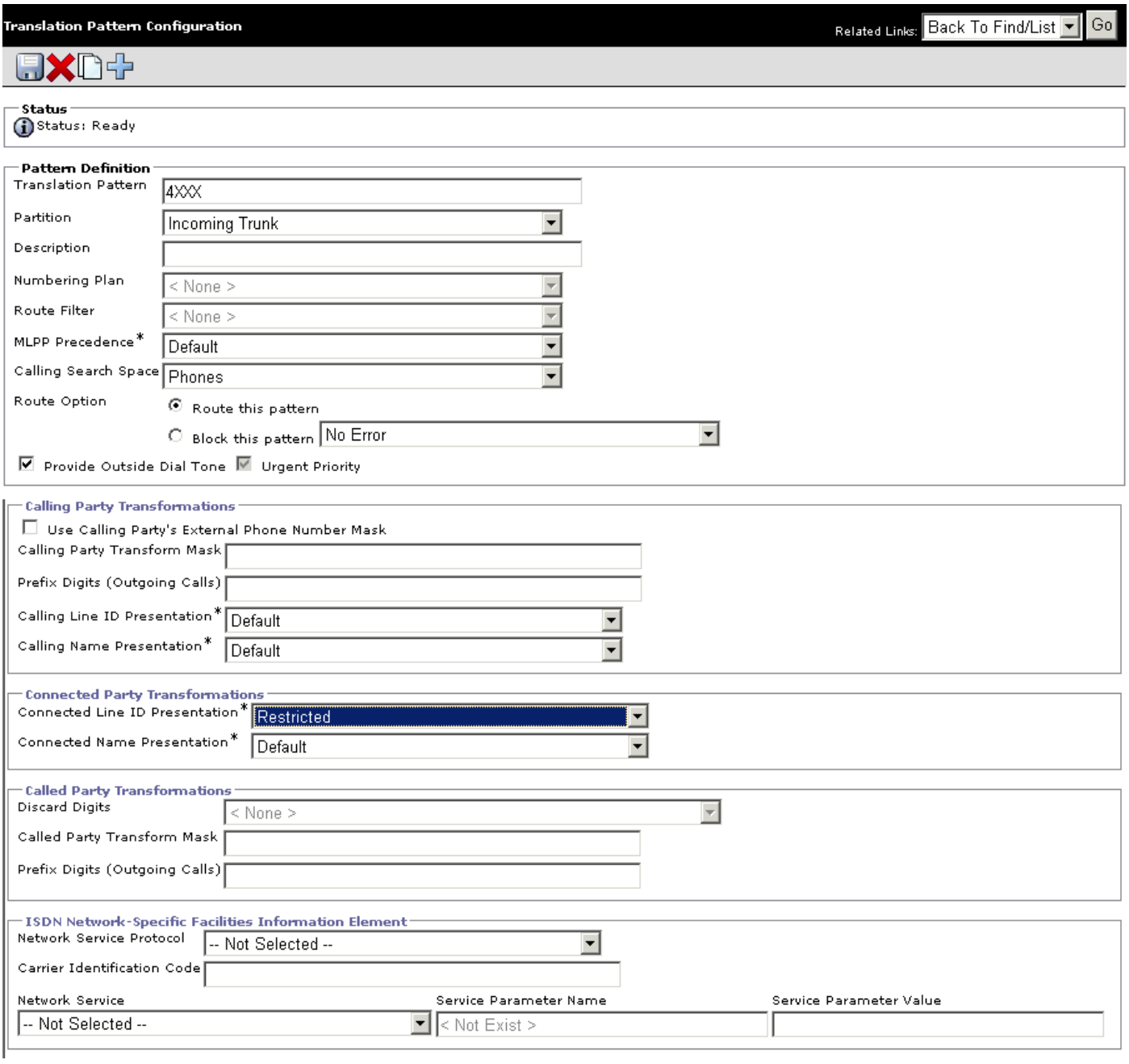
CLIR Route Pattern Configuration



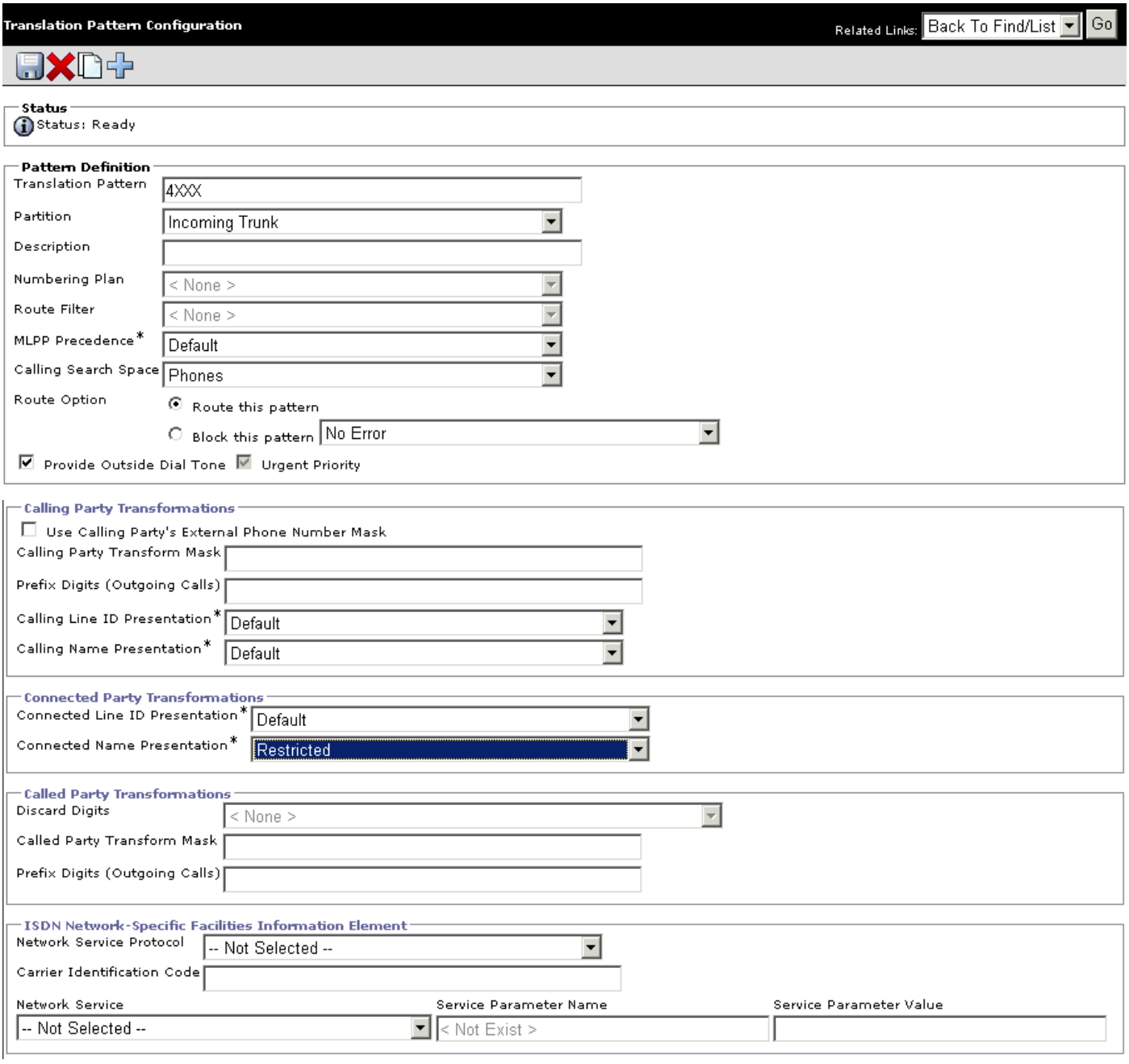
CNIR Route Pattern Configuration



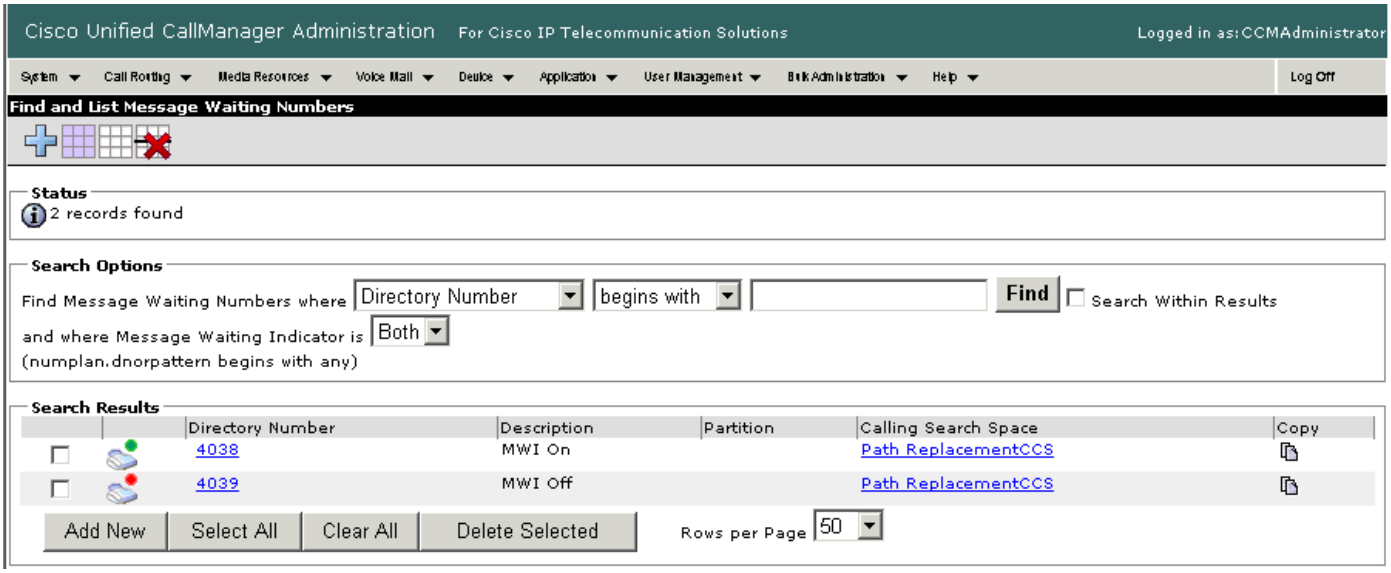
COLR Translation Pattern Configuration

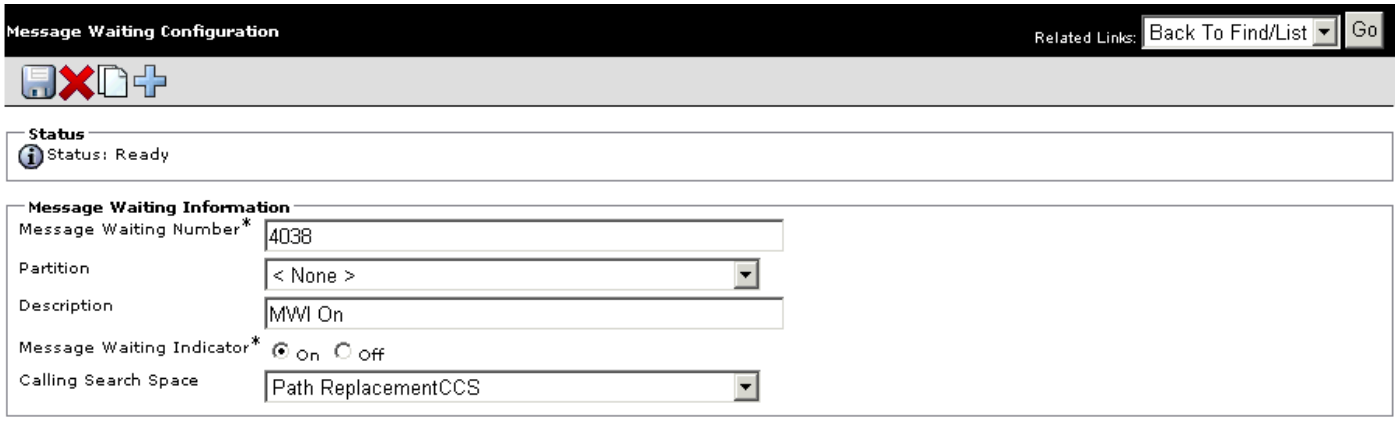


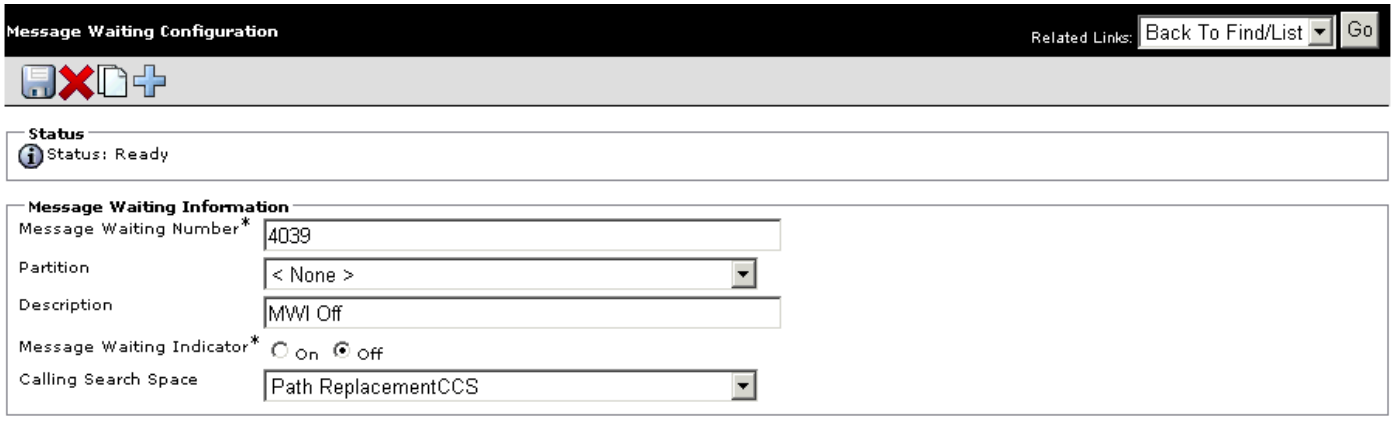
CONR Translation Pattern Configuration



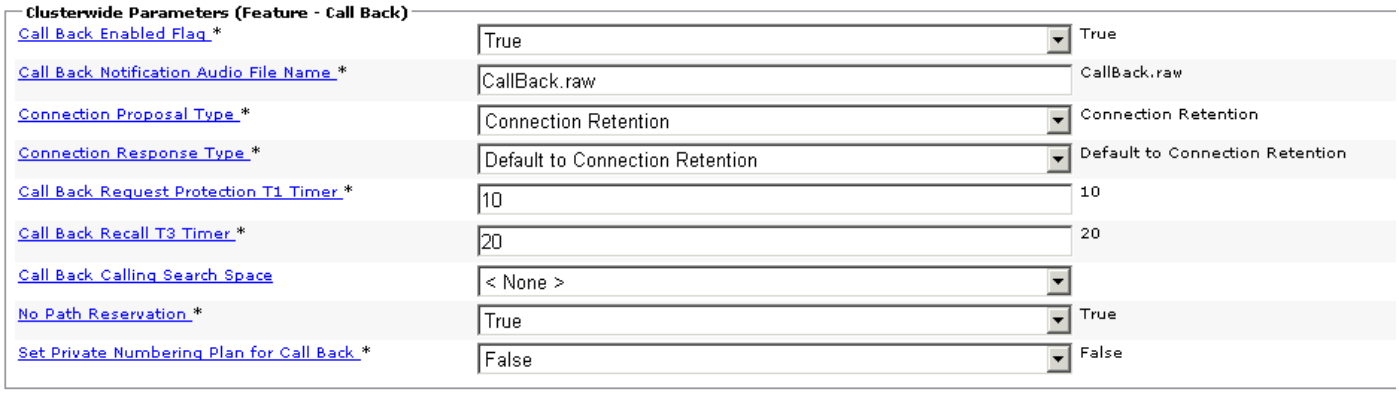
MWI lamp On/Off Configuration



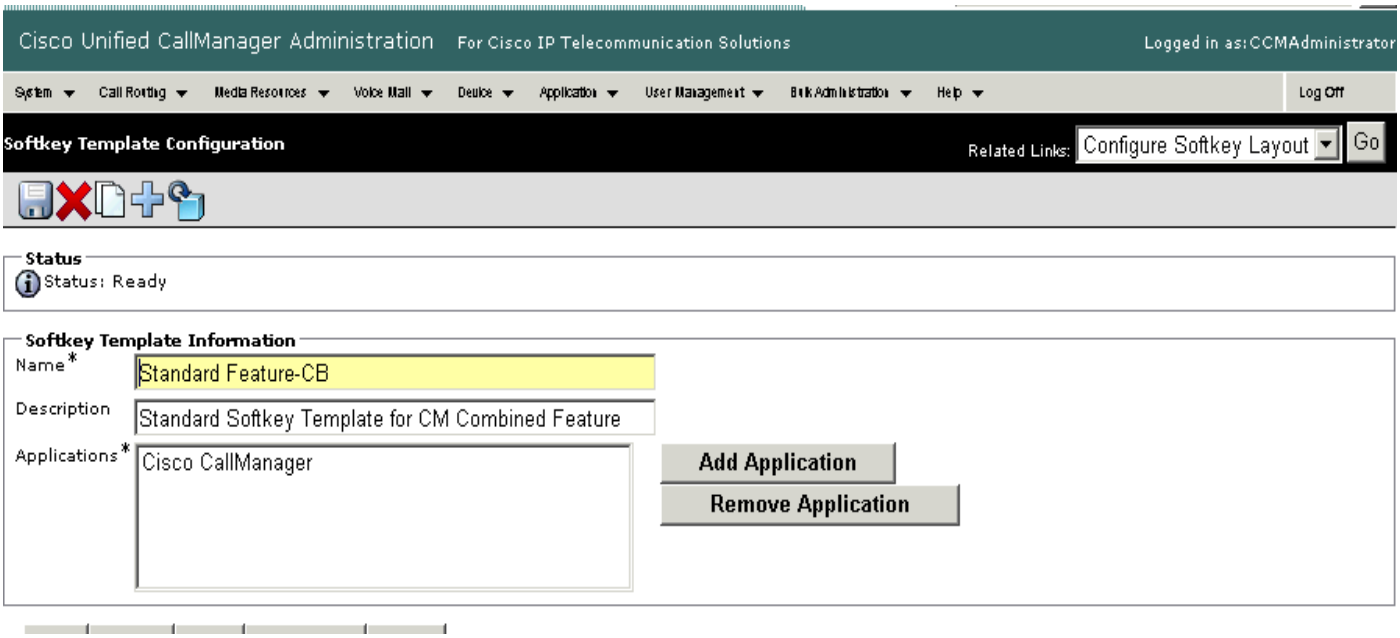


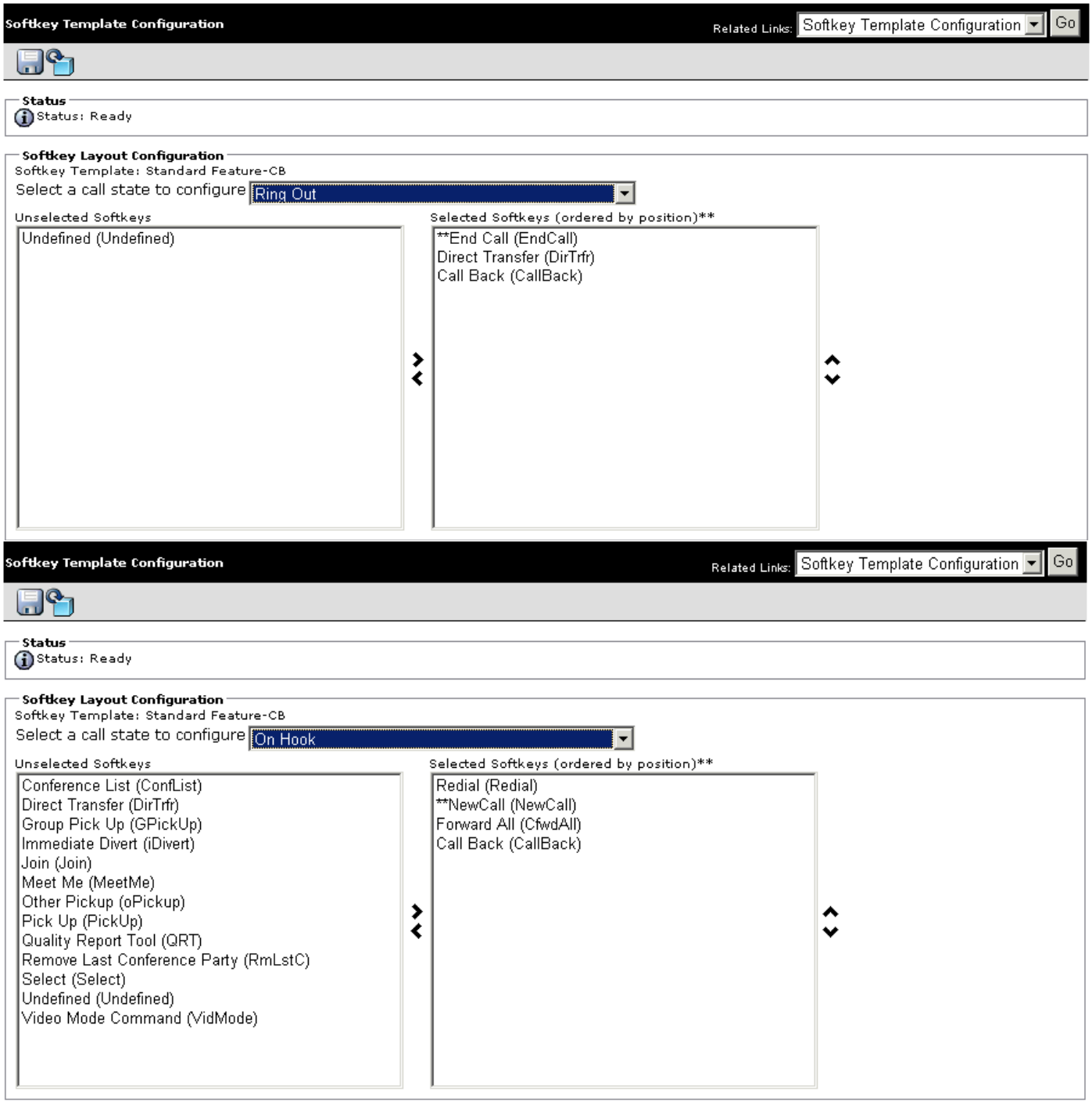


CallBack Service Parameters

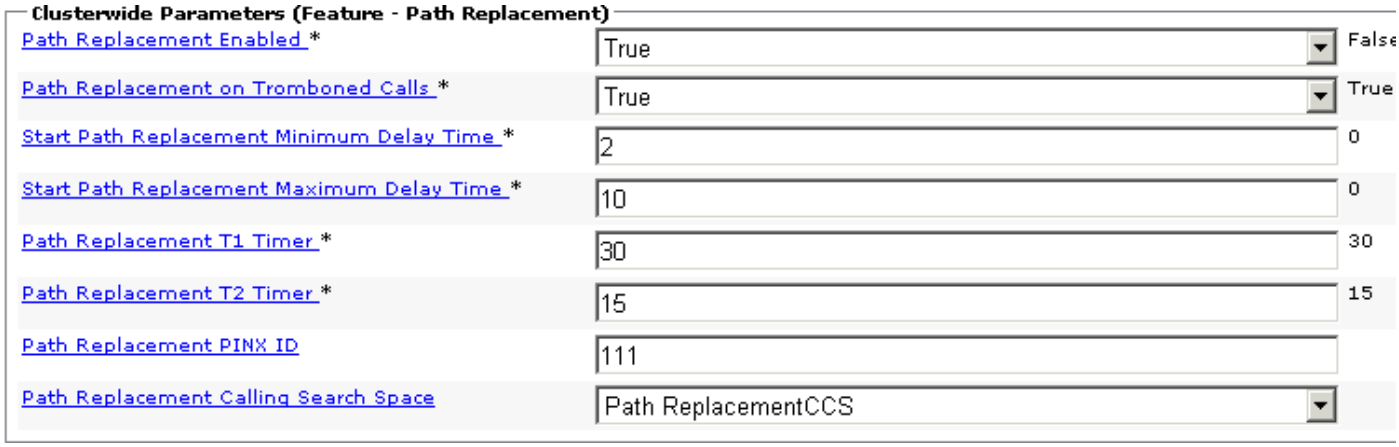


CallBack Softkey Configuration

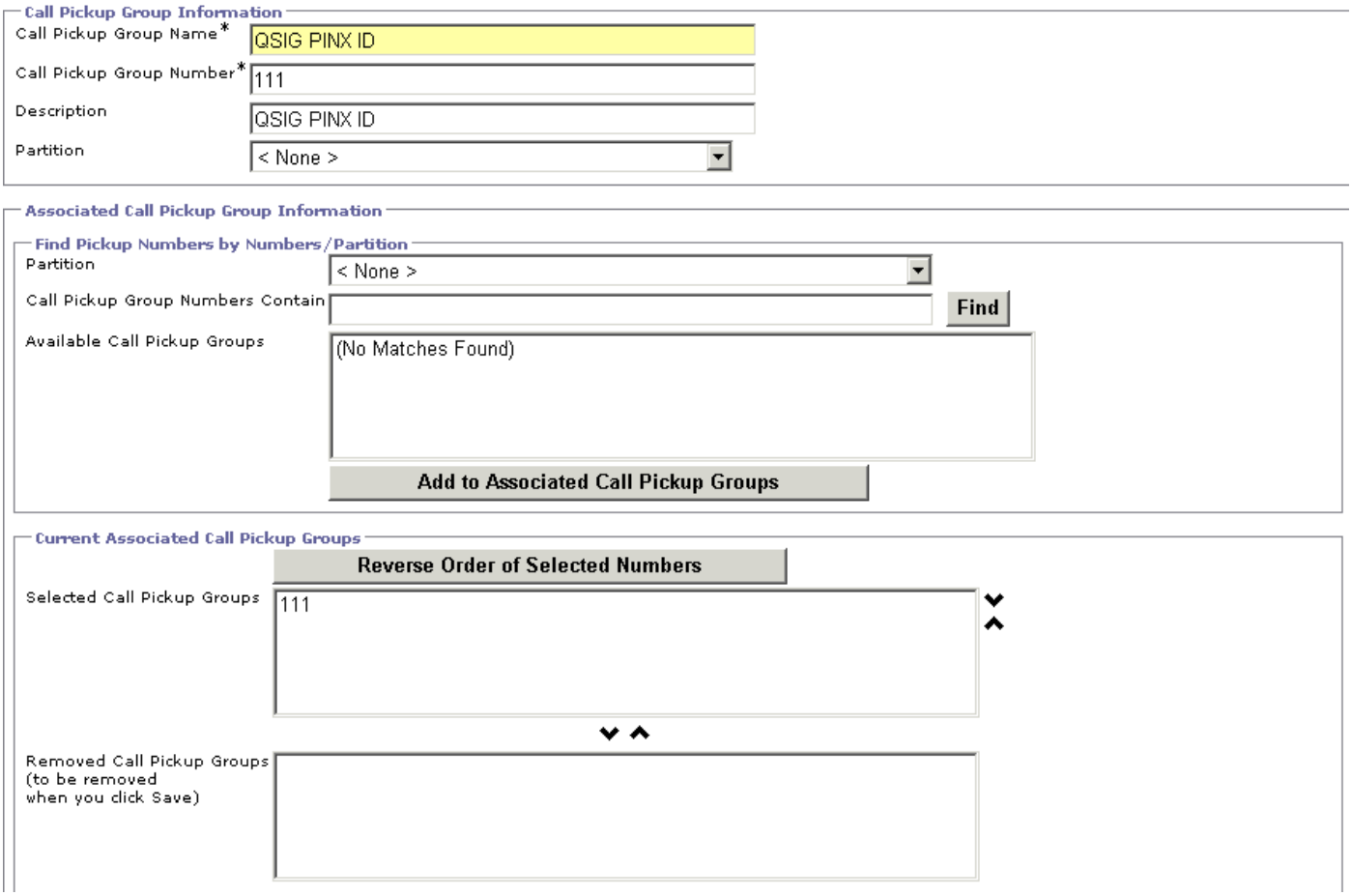




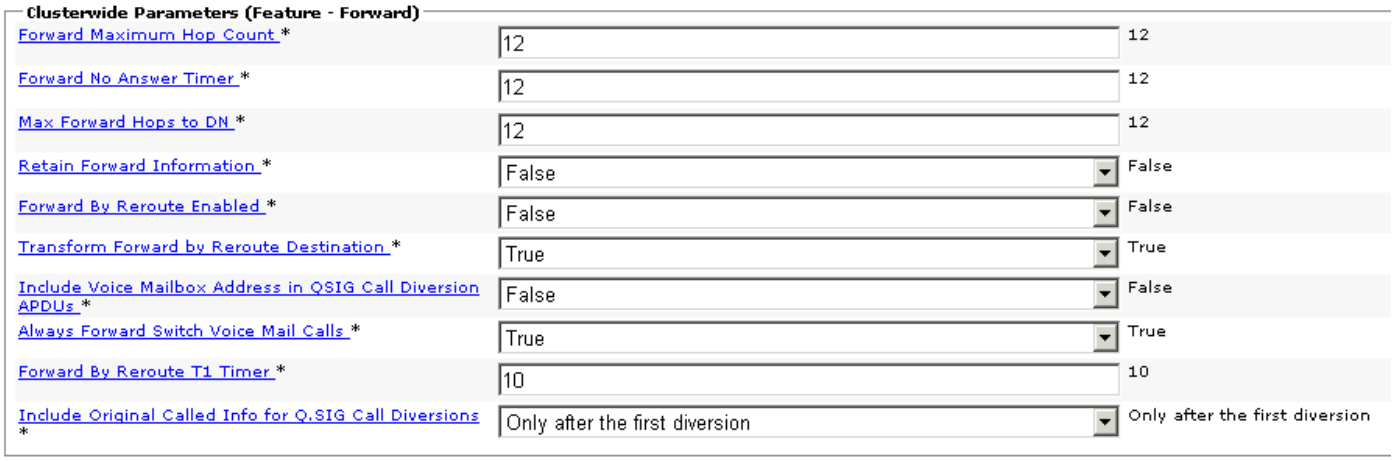
Path Replacement Service Parameters



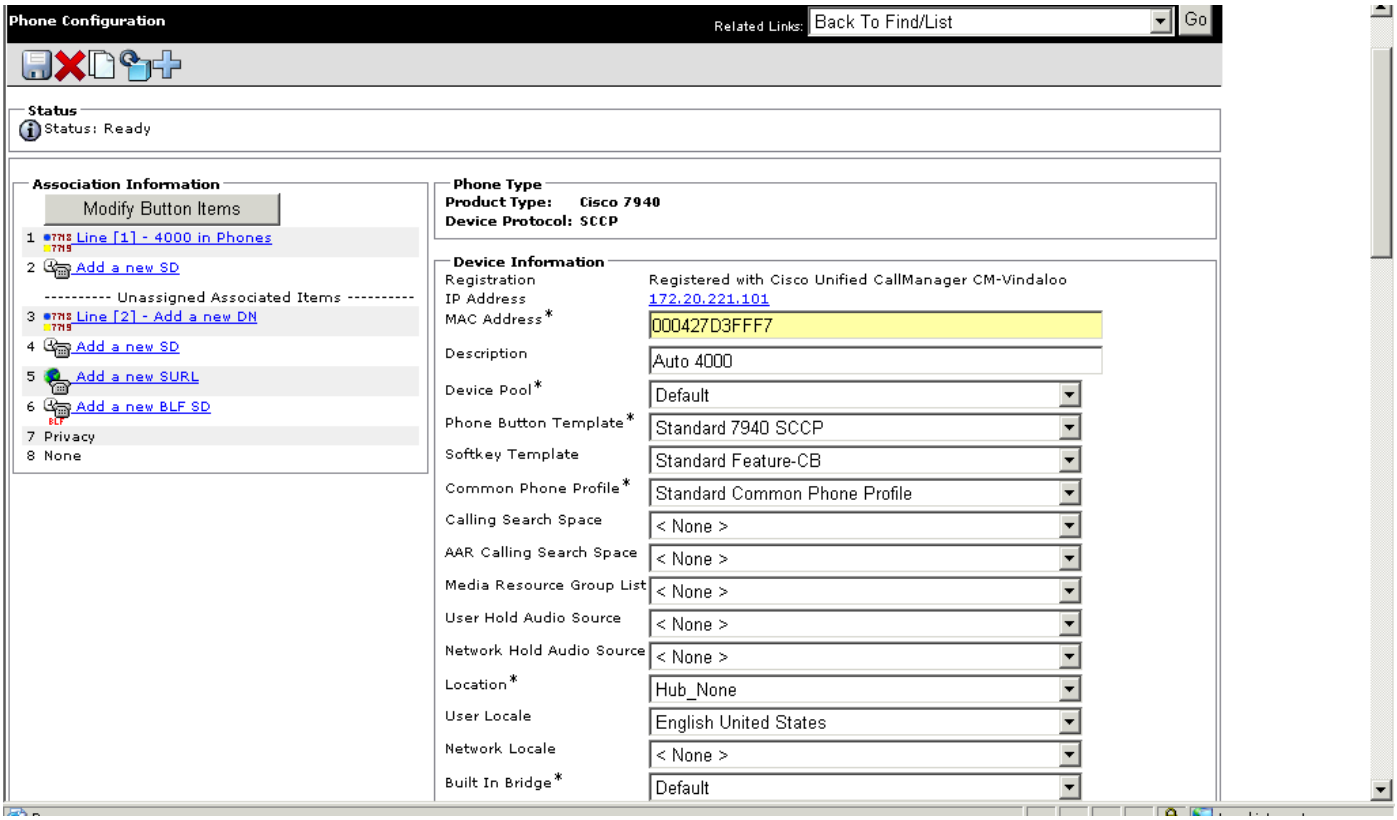
Call Pick Up Group

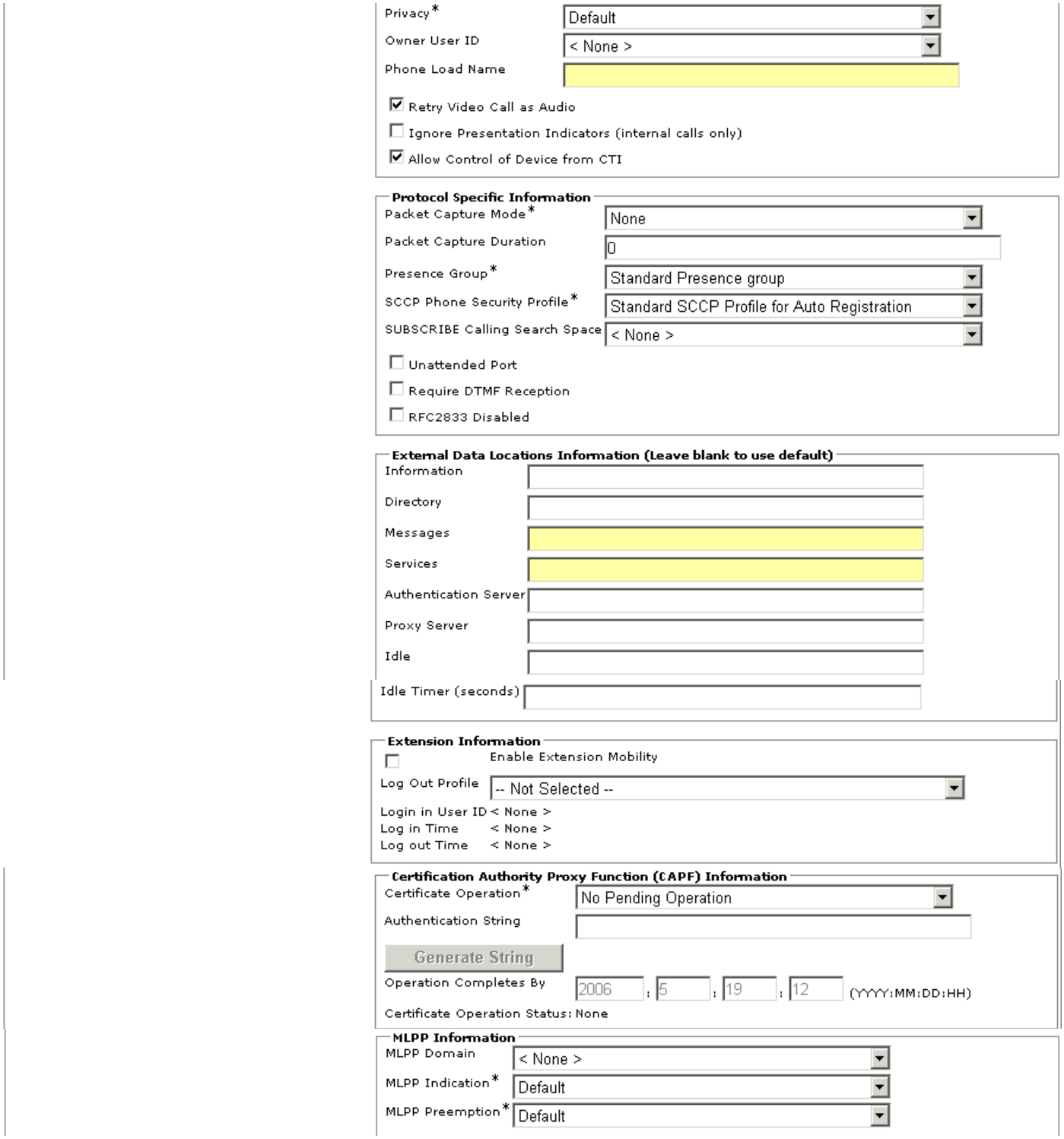


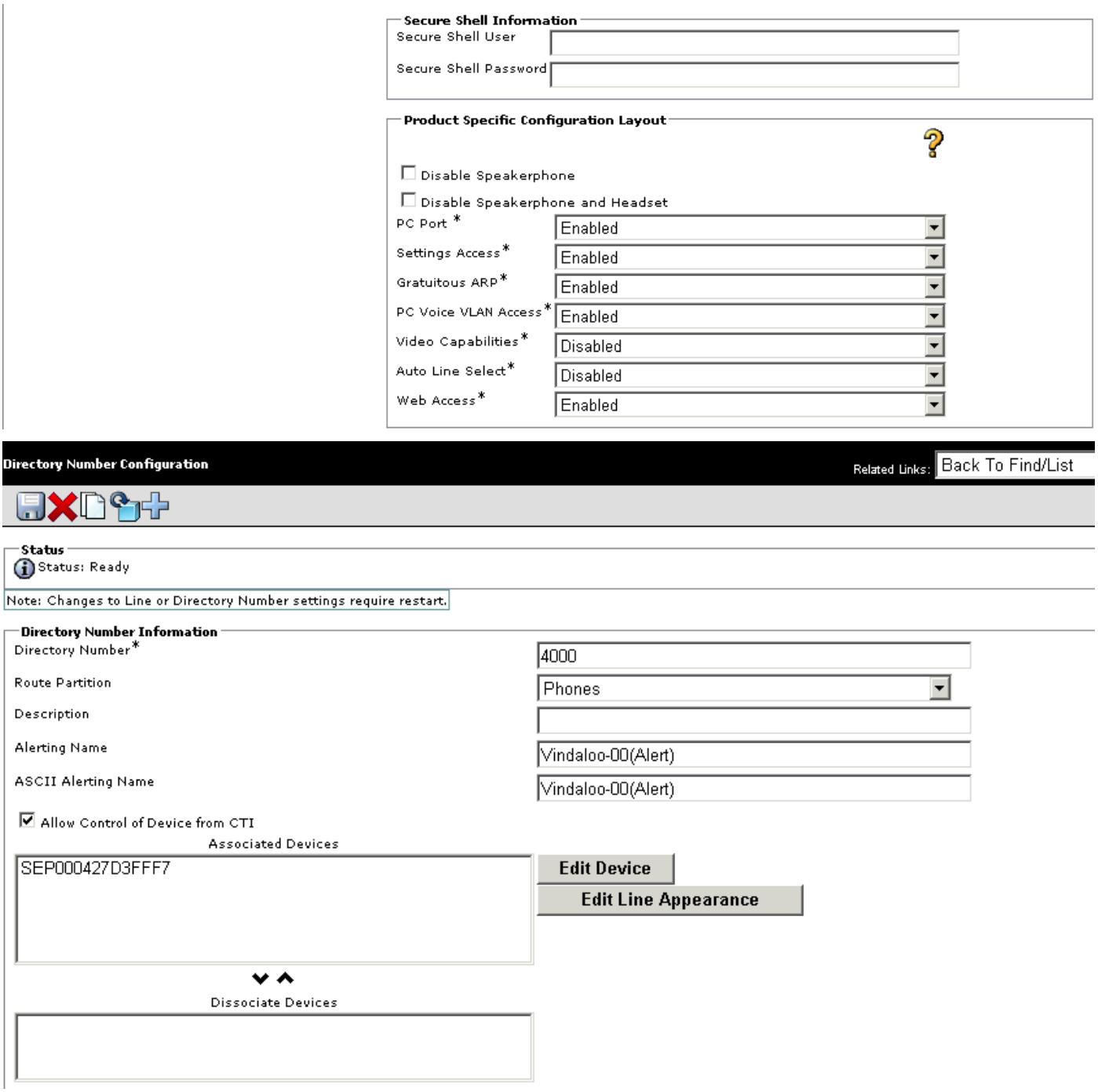
Forward by Reroute Service Parameter



IP phone Configuration







Directory Number Settings

Voice Mail Profile	< None > (Choose <None> to use system default)
Calling Search Space	Phones
Presence Group*	Standard Presence group
AAR Group	< None >
User Hold Audio Source	< None >
Network Hold Audio Source	< None >
Auto Answer*	Auto Answer Off

Call Forward and Call Pickup Settings

	Voice Mail Destination	Calling Search Space
Forward All	☐ or	Phones
Secondary Calling Search Space for Forward All		< None > Find
Forward Busy Internal	☐ or	Phones
Forward Busy External	☐ or	Phones
Forward No Answer Internal	☐ or	Phones
Forward No Answer External	☐ or	Phones
Forward No Coverage Internal	☐ or	< None >
Forward No Coverage External	☐ or	< None >
Forward on CTI Failure	☐ or	< None >
No Answer Ring Duration (seconds)		
Call Pickup Group	< None >	

MLPP Alternate Party Settings

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

Line 1 on Device SEP000427D3FFF7

Display (Internal Caller ID)	Vindaloo-00 Display text for a line appearance is intended for displaying text such as a name inste
	number for internal calls. If you specify a number, the person receiving a call may not see the proper identity of the caller.
ASCII Display (Internal Caller ID)	Vindaloo-00
Line Text Label	Vindaloo-00
ASCII Line Text Label	Vindaloo-00
External Phone Number Mask	
Message Waiting Lamp Policy*	Use System Policy
Ring Setting (Phone Idle)*	Ring
Ring Setting (Phone Active)	Use System Default Applies to this line when any line on the phone has a call in progress.

Multiple Call/Call Waiting Settings on Device SEP000427D3FFF7

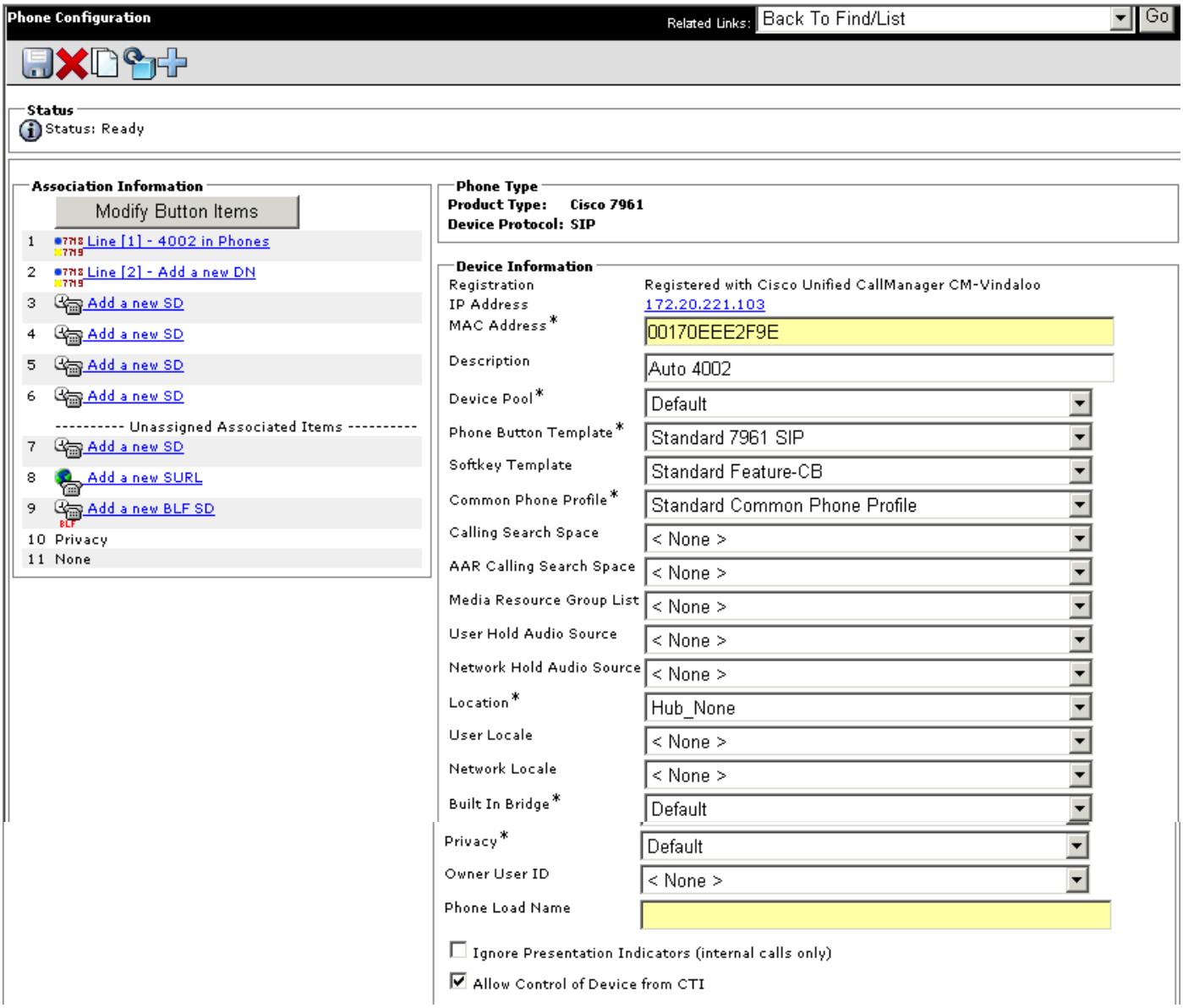
Note:The range to select the Max Number of calls is: 1-200

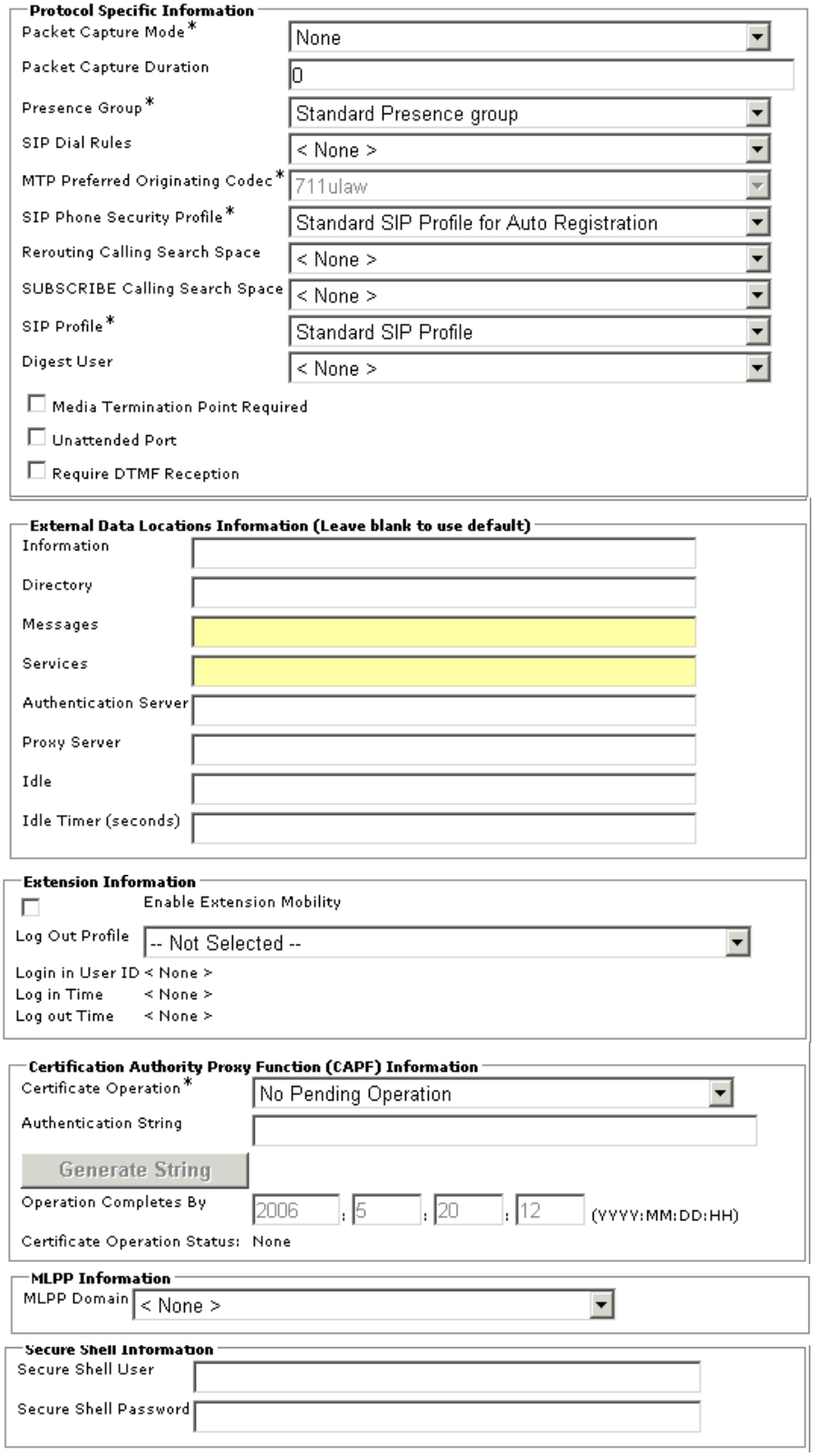
Maximum Number of Calls*	4
Busy Trigger*	2 (Less than or equal to Max. Calls)

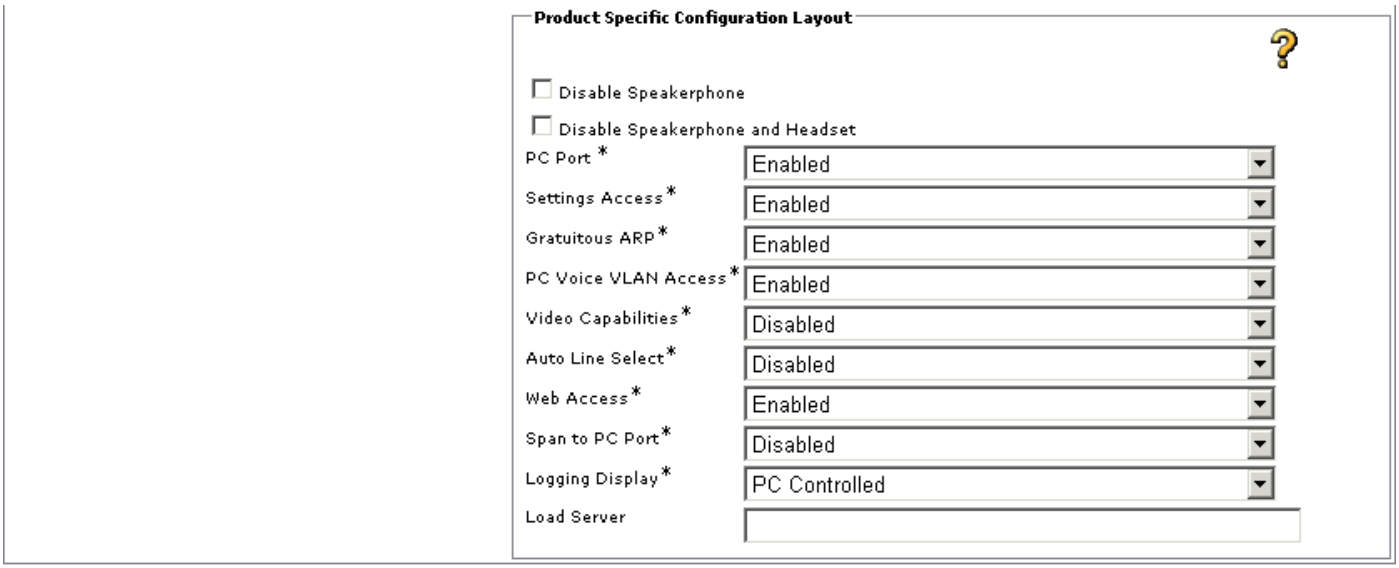
Forwarded Call Information Display on Device SEP000427D3FFF7

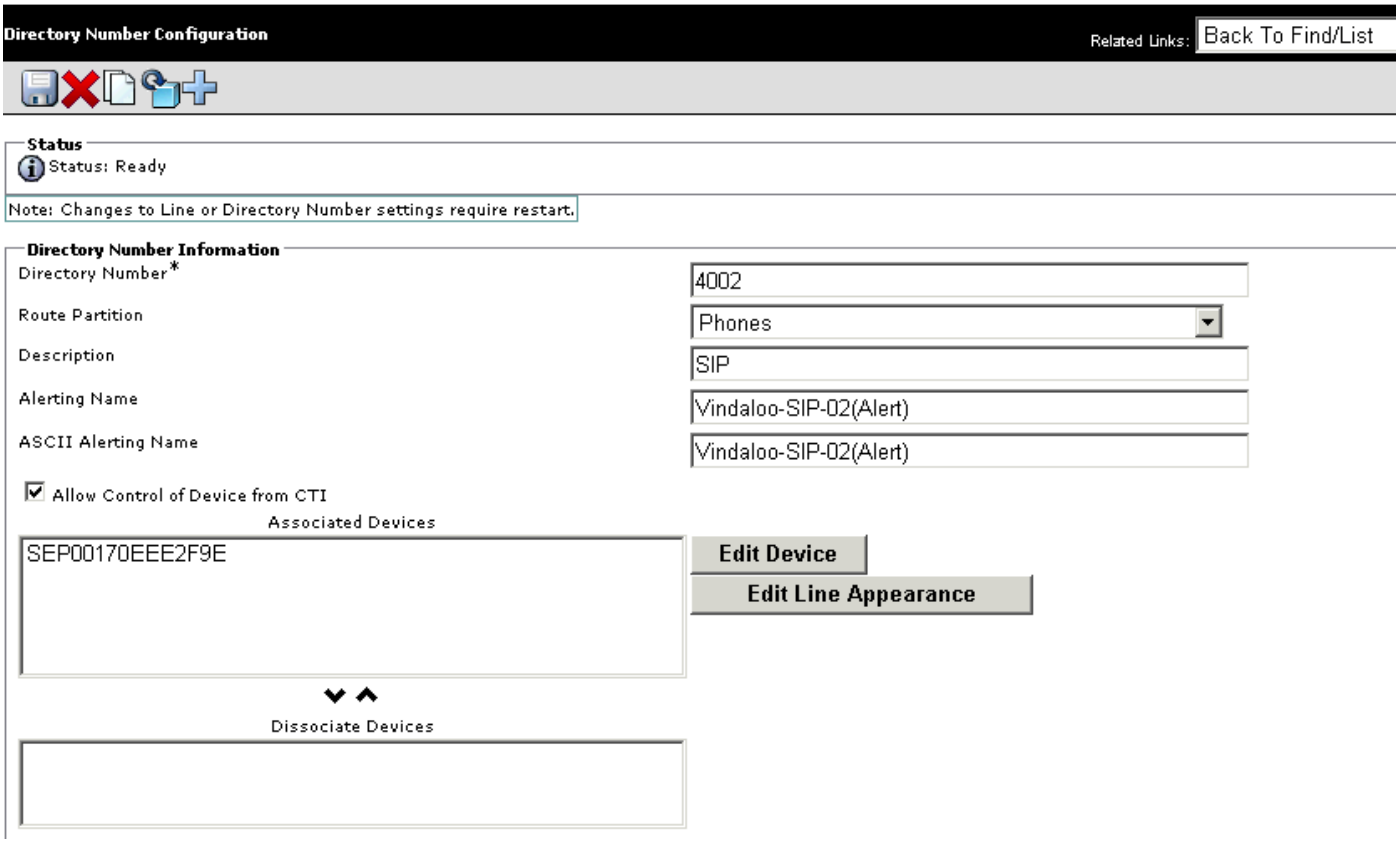
- [x] Caller Name
- [ ] Caller Number
- [ ] Redirected Number
- [x] Dialed Number

SIP phone Configuration









Directory Number Settings

Voice Mail Profile	< None > (Choose <None> to use system default)
Calling Search Space	Phones
Presence Group*	Standard Presence group
AAR Group	< None >
User Hold Audio Source	< None >
Network Hold Audio Source	< None >
Auto Answer*	Auto Answer Off

Call Forward and Call Pickup Settings

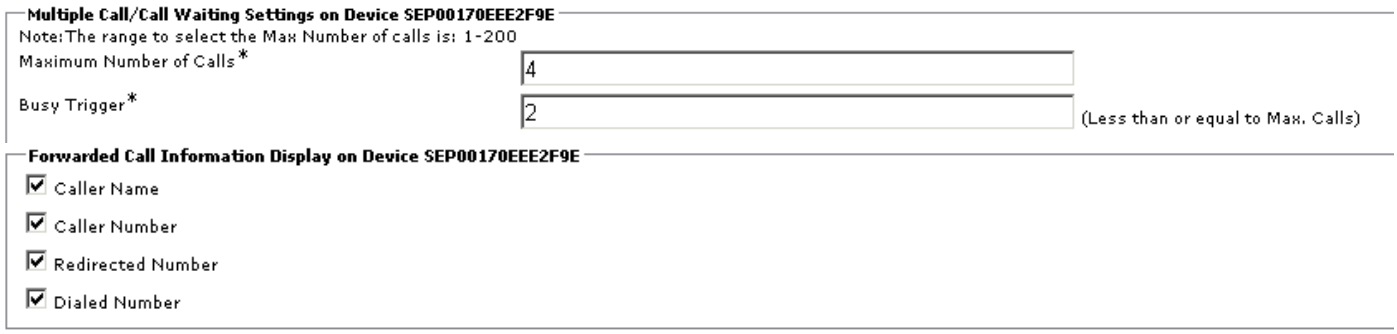
	Voice Mail Destination	Calling Search Space
Forward All	☐ or	Phones
Secondary Calling Search Space for Forward All		< None > Find
Forward Busy Internal	☐ or	Phones
Forward Busy External	☐ or	Phones
Forward No Answer Internal	☐ or	Phones
Forward No Answer External	☐ or	Phones
Forward No Coverage Internal	☐ or	< None >
Forward No Coverage External	☐ or	< None >
Forward on CTI Failure	☐ or	< None >
No Answer Ring Duration (seconds)		
Call Pickup Group	< None >	

MLPP Alternate Party Settings

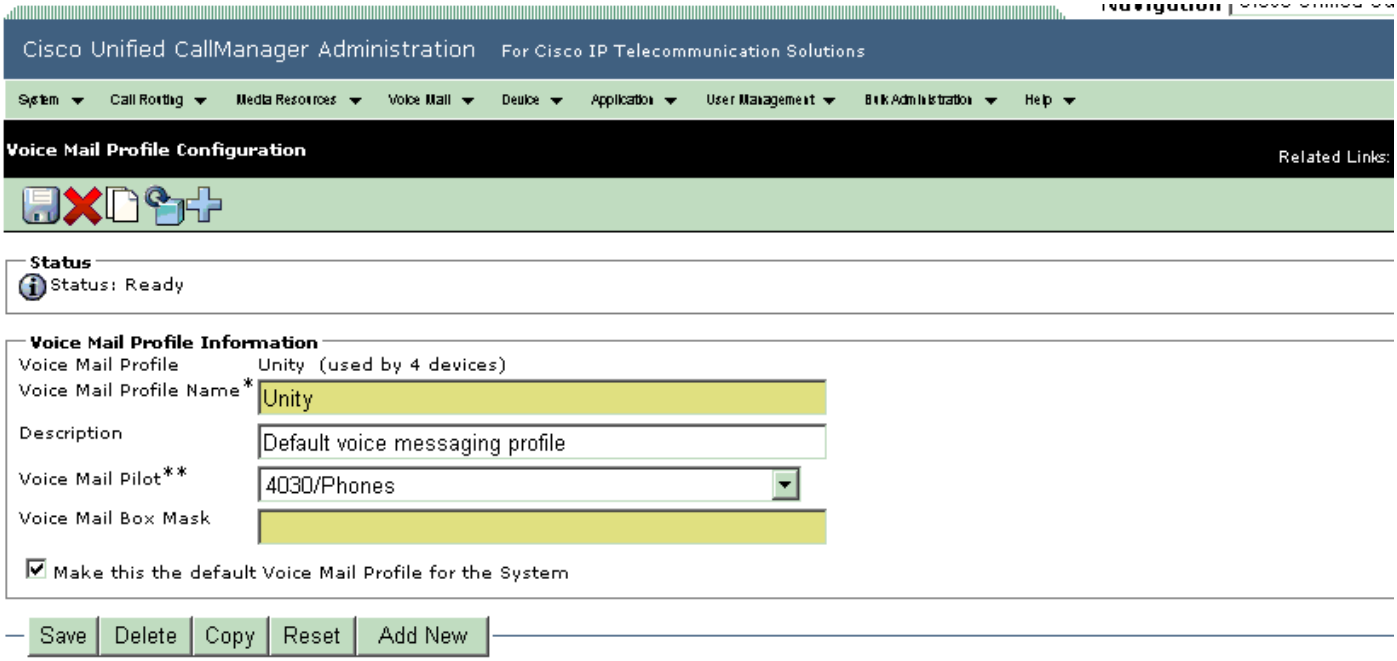
Target (Destination)	
MLPP Calling Search Space	< None >
MLPP No Answer Ring Duration (seconds)	

Line 1 on Device SEP00170EEE2F9E

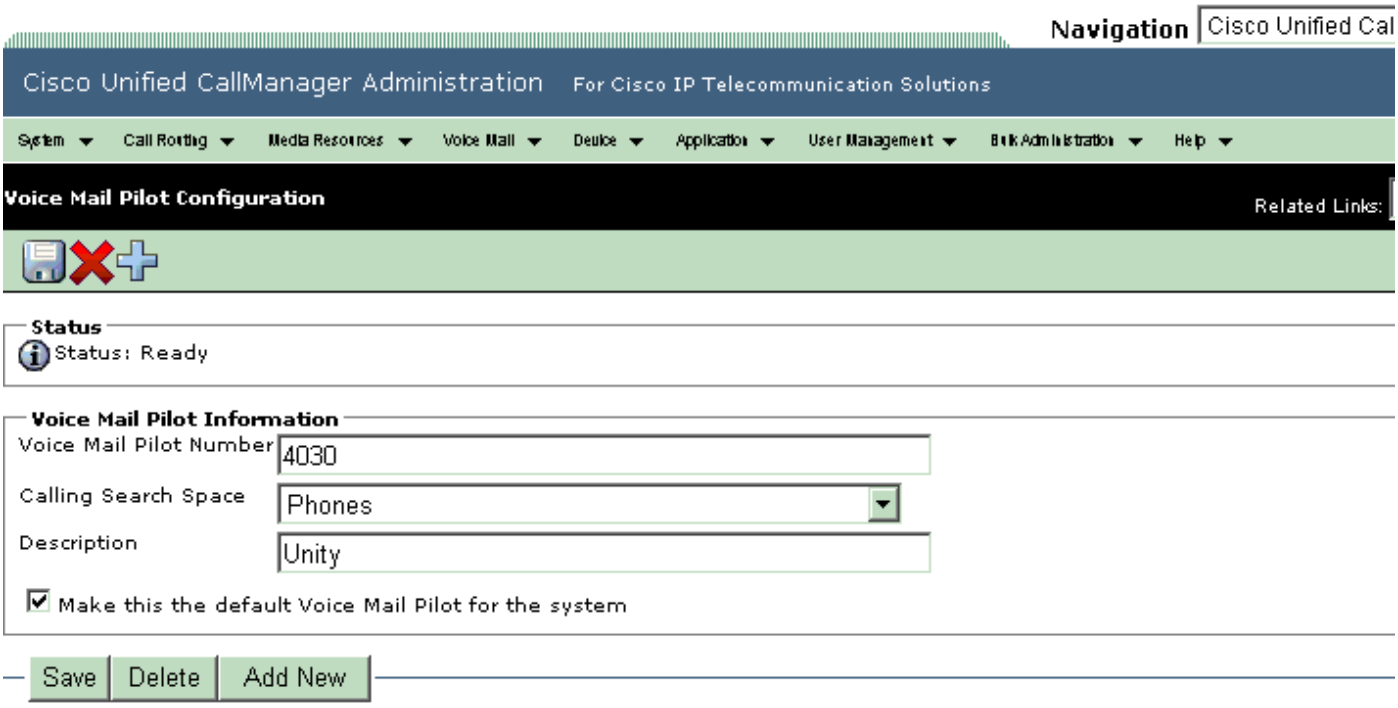
Display (Internal Caller ID)	Vindaloo-SIP-02 Display text for a line appearance is intended for displaying text such as a name in:
	number for internal calls. If you specify a number, the person receiving a call may not see the proper identity of the caller.
ASCII Display (Internal Caller ID)	Vindaloo-SIP-02
Line Text Label	Vindaloo-SIP-02
ASCII Line Text Label	Vindaloo-SIP-02
External Phone Number Mask	
Message Waiting Lamp Policy*	Use System Policy
Ring Setting (Phone Idle)*	Ring
Ring Setting (Phone Active)	Use System Default Applies to this line when any line on the phone has a call in progress.



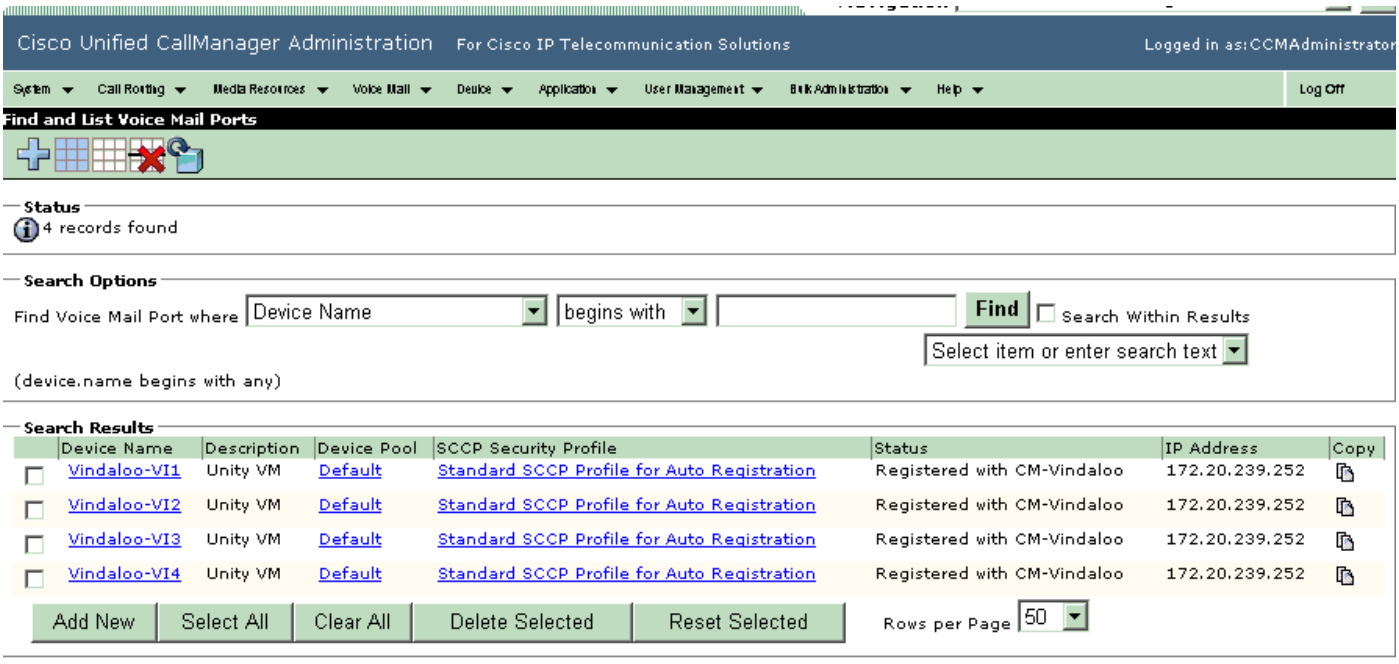
Voicemail Profile Configuration

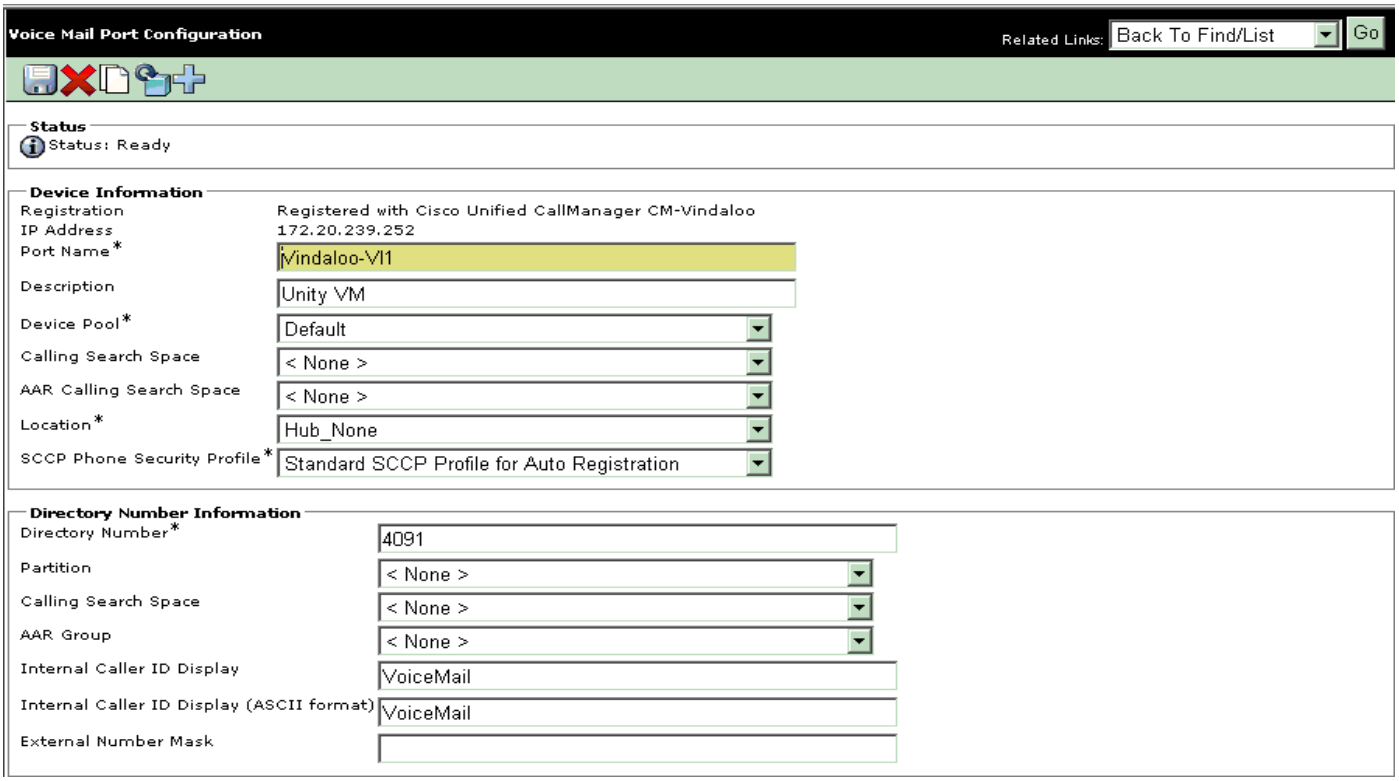


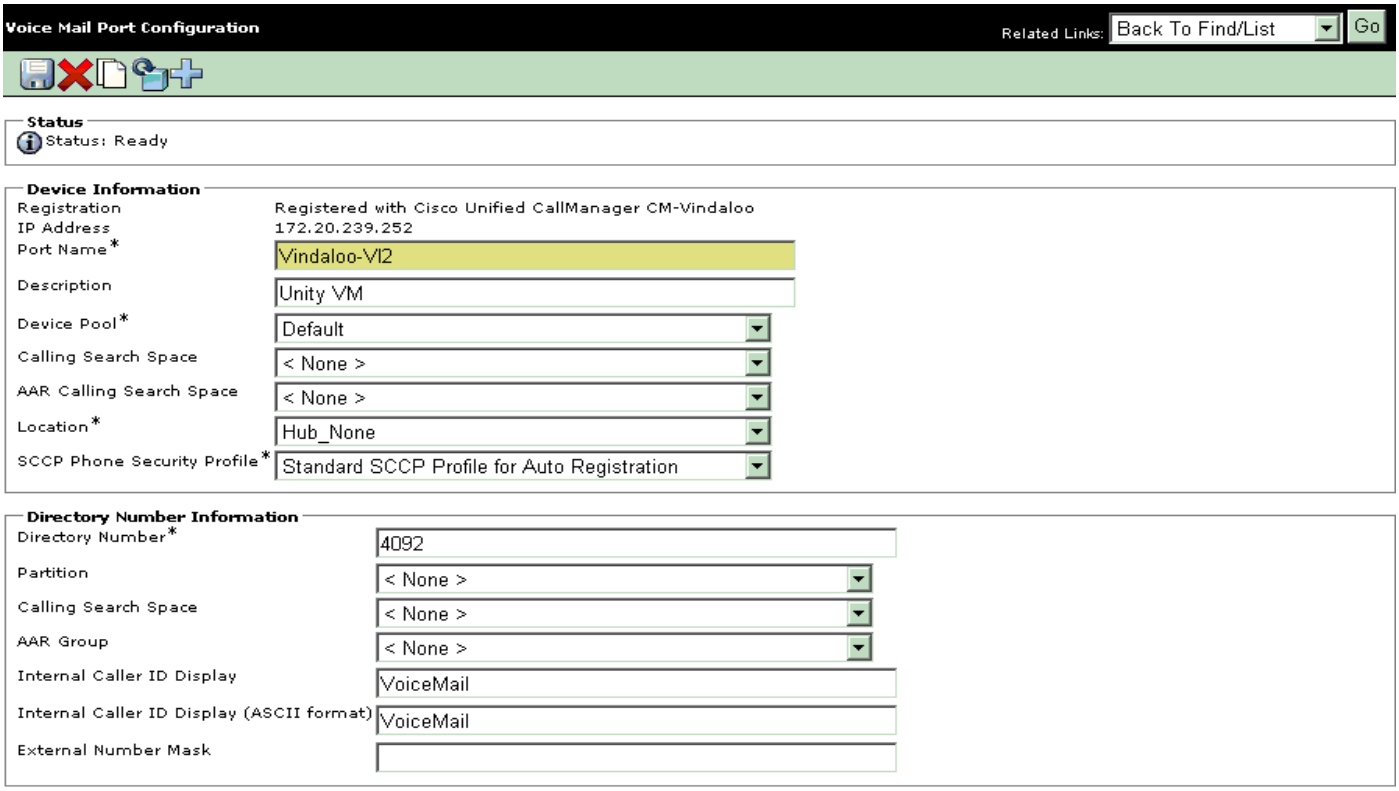
Voicemail Pilot Configuration

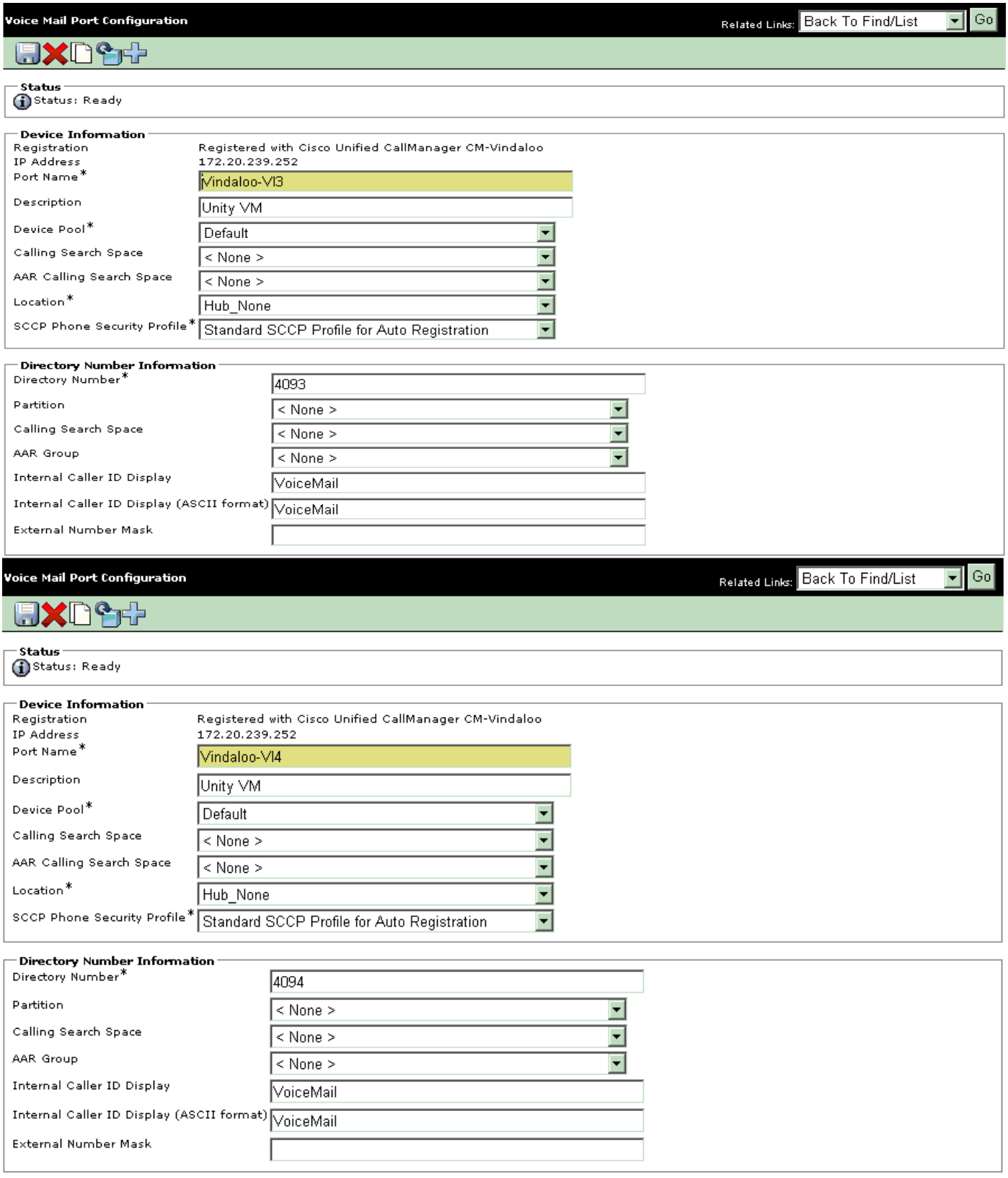


Voicemail Ports

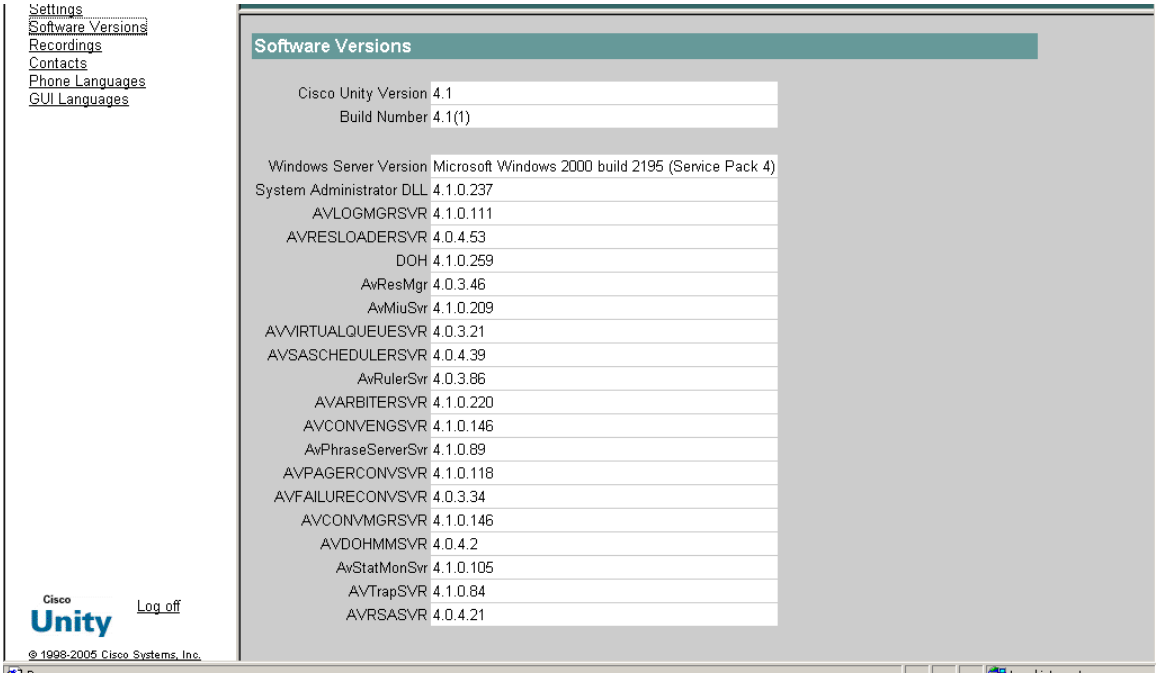




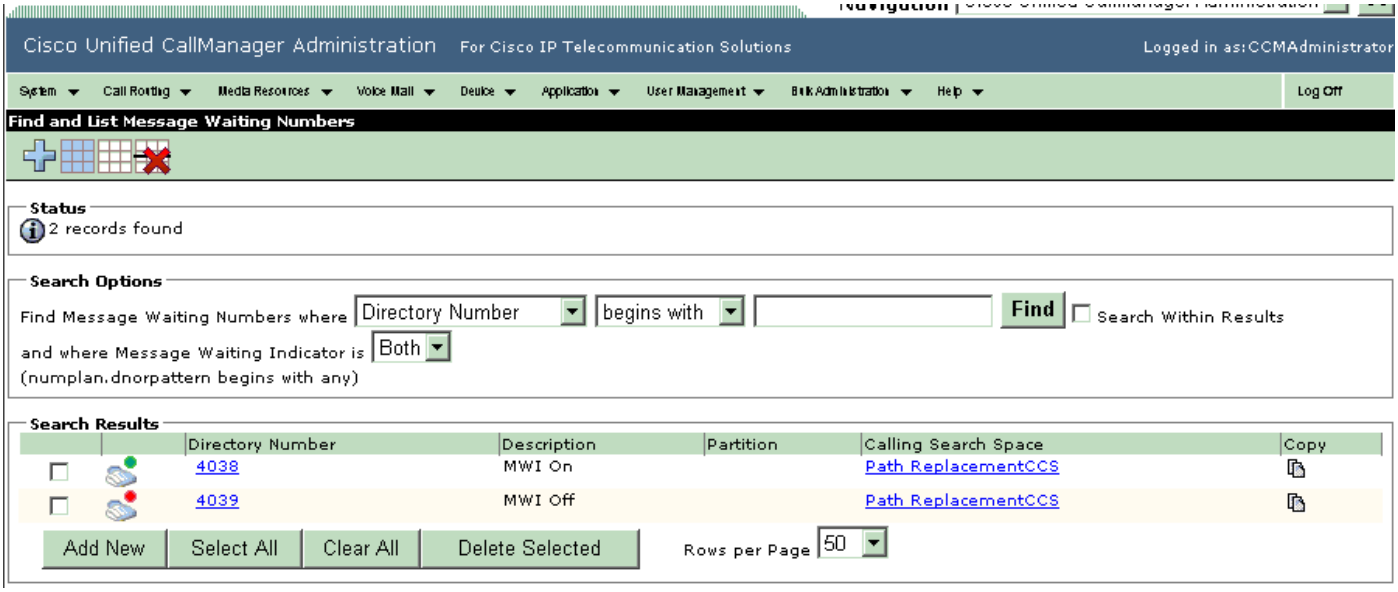




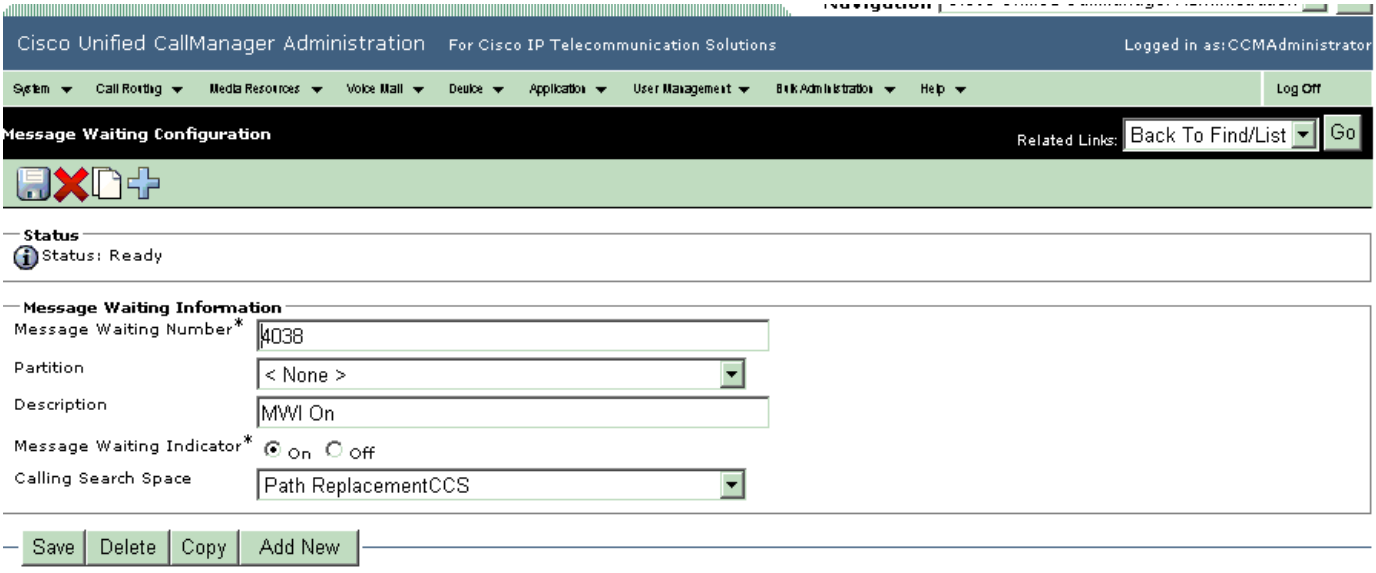
Voicemail Version



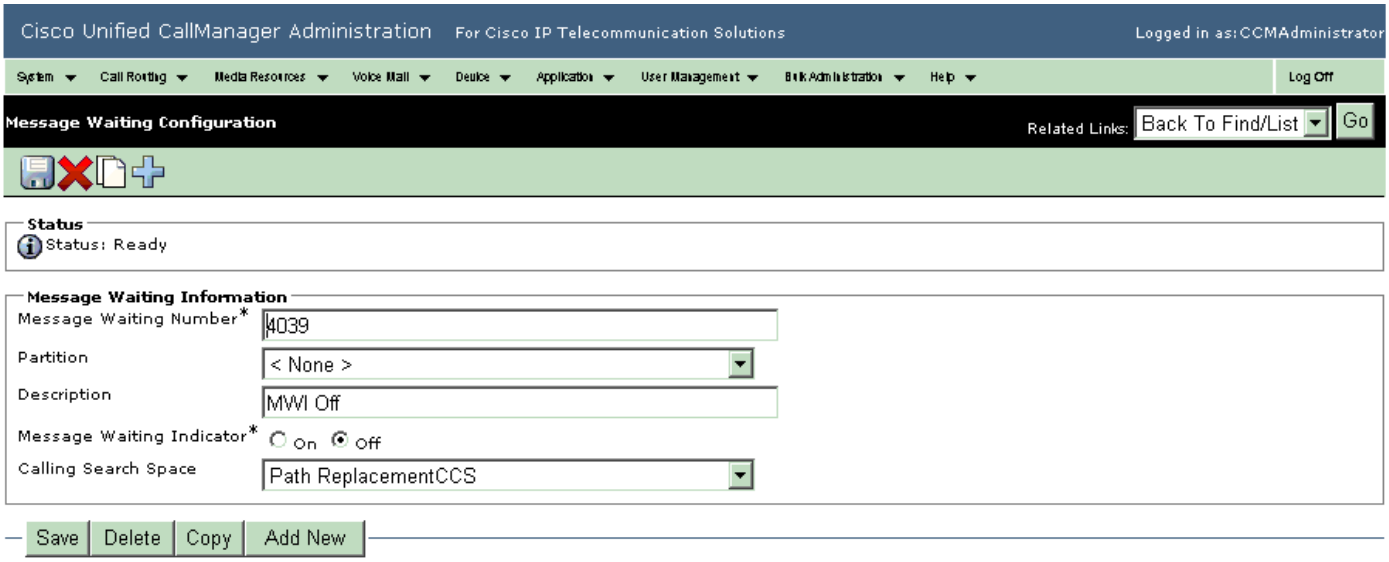
MWI Configuration



MWI ON



MWI OFF



Configuring the 3745 router

sho ver
Cisco IOS Software, 3700 Software (C3745-IPVOICE-M), Version 12.4(3), RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Fri 22-Jul-05 03:09 by hqluong

ROM: System Bootstrap, Version 12.2(8r)T2, RELEASE SOFTWARE (fc1)

3745B4_E1 uptime is 2 weeks, 6 days, 19 hours, 11 minutes
System returned to ROM by power-on
System image file is "flash:c3745-ipvoice-mz.124-3.bin"

Cisco 3745 (R7000) processor (revision 2.0) with 241664K/20480K bytes of memory.
Processor board ID JMX0715L08P
R7000 CPU at 350MHz, Implementation 39, Rev 3.3, 256KB L2, 2048KB L3 Cache
2 FastEthernet interfaces
124 Serial interfaces
4 Channelized E1/PRI ports
2 Voice FXS interfaces
DRAM configuration is 64 bits wide with parity disabled.
151K bytes of NVRAM.
125184K bytes of ATA System CompactFlash (Read/Write)
62592K bytes of ATA Slot0 CompactFlash (Read/Write)
Configuration register is 0x2102

3745B4_E1#
sho run
Building configuration...

Current configuration : 3738 bytes

```
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname 3745B4_E1
!
boot-start-marker
boot system flash:c3745-ipvoice-mz.124-3.bin
boot-end-marker
!
logging buffered 1000000 debugging
!
no aaa new-model
!
resource policy
!
no network-clock-participate slot 1
no network-clock-participate slot 2
voice-card 1
 dspfarm
!
voice-card 2
 dspfarm
!
ip subnet-zero
ip cef
ip tcp synwait-time 13
!
!
no ip dhcp use vrf connected
ip dhcp excluded-address 192.168.10.0 192.168.10.60
ip dhcp excluded-address 192.168.11.0 192.168.11.10
!
ip dhcp pool hq-pool-phones
   network 192.168.10.0 255.255.255.0
   option 150 ip 192.168.10.50
   default-router 192.168.10.1
!
ip dhcp pool hq-pool-data
   network 192.168.11.0 255.255.255.0
   default-router 192.168.11.1
!
!
no ip domain lookup
ip host whiz 171.69.1.162
ip host dirt 171.69.1.129
ip host danube 171.69.17.14
ip host CM-VINDALOO 172.20.221.254
ip name-server 172.20.221.254
ip dhcp-server 192.168.10.1
isdn switch-type primary-net5
!
!
voice call carrier capacity active
!
!
!
```

```
!
!
!
!
!
!
!
!
!
controller E1 1/0
 pri-group timeslots 1-31 service mgcp
!
controller E1 1/1
 pri-group timeslots 1-31 service mgcp
!
controller E1 2/0
 pri-group timeslots 1-31 service mgcp
!
controller E1 2/1
 pri-group timeslots 1-31 service mgcp
!
!
!
interface FastEthernet0/0
 ip address 172.20.221.200 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/0.10
 encapsulation dot1Q 10
 no snmp trap link-status
!
interface FastEthernet0/0.11
 encapsulation dot1Q 11
 ip address 192.168.11.1 255.255.255.0
 no snmp trap link-status
!
interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
!
interface Serial1/0:15
 no ip address
 isdn switch-type primary-net5
 isdn incoming-voice voice
 isdn bind-l3 ccm-manager
 no cdp enable
!
interface Serial1/1:15
 no ip address
 isdn switch-type primary-net5
 isdn protocol-emulate network
isdn incoming-voice voice
 isdn bind-l3 ccm-manager
 no cdp enable
!
interface Serial2/0:15
```

```
 no ip address
 isdn switch-type primary-qsig
 isdn incoming-voice voice
 isdn bind-l3 ccm-manager
 no cdp enable
!
interface Serial2/1:15
 no ip address
 isdn switch-type primary-qsig
 isdn protocol-emulate network
 isdn incoming-voice voice
 isdn T310 120000
 isdn bind-l3 ccm-manager
 no cdp enable
!
ip classless
ip route 0.0.0.0 0.0.0.0 FastEthernet0/0
ip route 0.0.0.0 0.0.0.0 172.20.221.1
!
ip http server
!
dialer-list 1 protocol ip permit
!
!
!
control-plane
!
!
!
voice-port 1/0:15
!
voice-port 1/1:15
!
voice-port 2/0:15
!
voice-port 2/1:15
!
voice-port 3/0/0
!
voice-port 3/0/1
!
ccm-manager mgcp
ccm-manager music-on-hold
ccm-manager config server CM-VINDALOO
ccm-manager config
!
mgcp
mgcp call-agent CM-Vindaloo 2427 service-type mgcp version 0.1
mgcp dtmf-relay voip codec all mode out-of-band
mgcp rtp unreachable timeout 1000 action notify
mgcp modem passthrough voip mode nse
mgcp package-capability rtp-package
no mgcp package-capability res-package
mgcp package-capability sst-package
no mgcp package-capability fxr-package
mgcp package-capability pre-package
no mgcp timer receive-rtcp
mgcp sdp simple
mgcp fax t38 inhibit
```

```
mgcp rtp payload-type g726r16 static
!
mgcp profile default
!
!
dial-peer cor custom
!
!
!
dial-peer voice 1 pots
 service mgcpapp
 port 2/0:15
!
dial-peer voice 2 pots
 service mgcpapp
 port 2/1:15
!
dial-peer voice 3 pots
 service mgcpapp
 port 3/0/0
!
dial-peer voice 4 pots
 service mgcpapp
 port 3/0/1
!
dial-peer voice 999300 pots
 service mgcpapp
 port 3/0/0
!
dial-peer voice 999301 pots
 service mgcpapp
 port 3/0/1
!
dial-peer voice 5 pots
 service mgcpapp
!
!
line con 0
line aux 0
line vty 0 4
 login
!
!
end

3745B4_E1#
sho diag
c3700 IO-Board EEPROM:
        Hardware Revision       : 2.0
        Top Assy. Part Number   : 800-14462-01
        Board Revision          : B0
        Deviation Number        : 0-0
        Fab Version             : 03
        PCB Serial Number       : JAD07060M7X
        RMA Test History        : 00
        RMA Number              : 0-0-0-0
        RMA History             : 00
        Calibration Data        : Minimum: -1 dBmV, Maximum: -1 dBmV
            Calibration values : 0xFFFF 0xFFFF 0xFFFF 0xC28B 0x4A4D 0x5830
```

0x3731 0x354C 0x3038 0x50FF 0xFFFF 0xFFFF
0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF
0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF
0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF
0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF
0xFFFF 0xFF15 0xA3C7 0x8B00 0x0000 0x0161
0x13A5 0x6465 0x1F3F 0x6000 0x0000 0x0200
0x0000 0x0100 0x0001 0x0565 0x25B4 0x4065
0x25B4 0x0065 0x25B3 0xC065 0x25B3 0x8000
0x0000 0x0000 0x0000 0x0200 0x0000 0x0300
0x0000 0x0000 0x0000 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0200 0x0000 0x0100
0x0000 0x0000 0x0000 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000 0x0065
0x25B3 0x4065 0x25B3 0x0000 0x0000 0x0000
0x0001 0x09FF 0xFFFF 0xFF00 0x0000 0x0000
0x0000 0x0015 0xA3C7 0x8B00 0x0000 0x0161
0x13A5 0x6465 0x1F3F 0x6000 0x0000 0x0100
0x0000 0x0100 0x0000 0xC665 0x25B5 0xC065
0x25B5 0x8065 0x25B5 0x4065 0x25B5 0x0000
0x0000 0x0000 0x0000 0x0200 0x0000 0x0300
0x0000 0x0000 0x0000 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0200 0x0000 0x0100
0x0000 0x0000 0x0000 0x0000 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000 0x0065
0x25B0 0xC065 0x25B0 0x8000 0x0000 0x0000
0x0001 0x08FF 0xFFFF 0xFF00 0x0000 0x0000
0x0000 0x0015 0xA3C7 0x8B00 0x0000 0x0161
0x7274 0x8065 0x1F3F 0x6000 0x0000 0x0064
0x7832 0xDCAA 0xAAAA 0xAA00 0x0000 0x0000
0x0000 0x0000 0x0000 0x0000 0x0000 0x0000
0x0000 0x6400 0x2D00 0x3700 0x1400 0x1E00
0x0000 0x0200 0x0000 0x0C66 0x0E5D 0xD000
0x0100 0x0060 0x399D 0xD060 0x39A6 0x8460
0x39A4 0x6C00 0x0000 0x0060 0x39A6 0xF400
0x0000 0x0000 0x0000 0x0000 0x0000 0x0064
0x1FC3 0x3065 0x2131 0xB800 0x0000 0x0000
0x0000 0x0000 0x0042 0x4000 0x0000 0x0064
0x7043 0x0C00 0x0000 0x0000 0x0000 0x0000
0x0000 0x0015 0xA3C7

Chassis Serial Number : JMX0715L08P
EEPROM format version 4
EEPROM contents (hex):
0x00: 04 FF 40 02 F8 41 02 00 C0 46 03 20 00 38 7E 01
0x10: 42 42 30 80 00 00 00 00 02 03 C1 8B 4A 41 44 30
0x20: 37 30 36 30 4D 37 58 03 00 81 00 00 00 00 04 00
0x30: C8 09 FF FF FF FF FF FF FF FF FF C2 8B 4A 4D 58
0x40: 30 37 31 35 4C 30 38 50 FF FF FF FF FF FF FF FF
0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

c3700 Mid-Plane EEPROM:
Hardware Revision : 2.0
Top Assy. Part Number : 800-12289-01
Board Revision : A0
Deviation Number : 0-0
Fab Version : 05

```
PCB Serial Number       : SMQ0710T03N
RMA Test History        : 00
RMA Number              : 0-0-0-0
RMA History             : 00
Calibration Data        : Minimum: -1 dBmV, Maximum: -1 dBmV
     Calibration values : 0xFFFF 0xFFFF 0xFFFF 0xC28B 0x4A4D 0x5830
                          0x3731 0x354C 0x3038 0x5043 0x0050 0xC306
                          0x000C 0x30D0 0x1E50 0xFFFF 0xFFFF 0xFFFF
                          0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF
                          0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF
                          0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF
                          0xFFFF 0xFF15 0xA3C7 0x8B00 0x0000 0x0061
                          0x725D 0x1865 0x1F3F 0x60EF 0x4321 0xCD61
                          0x725F 0xAC0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D15 0xA3C7 0x8B00 0x0000 0x0061
                          0x725D 0x1865 0x1F3F 0x60EF 0x4321 0xCD61
                          0x725F 0xAC0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D15 0xA3C7 0x8B00 0x0000 0x0061
                          0x725D 0x1865 0x1F3F 0x60EF 0x4321 0xCD61
                          0x725F 0xAC0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B 0x0D0B
                          0x0D0B 0x0D15 0xA3C7
Chassis Serial Number    : JMX0715L08P
MAC Address block size   : 80
Chassis MAC Address      : 000c.30d0.1e50
EEPROM format version 4
EEPROM contents (hex):
  0x00: 04 FF 40 03 3E 41 02 00 C0 46 03 20 00 30 01 01
  0x10: 42 41 30 80 00 00 00 00 02 05 C1 8B 53 4D 51 30
  0x20: 37 31 30 54 30 33 4E 03 00 81 00 00 00 00 04 00
  0x30: C8 09 FF FF FF FF FF FF FF FF FF C2 8B 4A 4D 58
  0x40: 30 37 31 35 4C 30 38 50 43 00 50 C3 06 00 0C 30
  0x50: D0 1E 50 FF FF FF FF FF FF FF FF FF FF FF FF FF
```

0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

Slot 0:
C3745 Mother board 2FE(TX)-3W Port adapter, 2 ports
Port adapter is analyzed
Port adapter insertion time unknown
EEPROM contents at hardware discovery:
PCB Serial Number : JAD071106DY
Processor type : 69
Top Assy. Part Number : 800-15934-02
Board Revision : B0
Fab Part Number : 28-4672-04
Deviation Number : 65535-65535
Manufacturing Test Data : FF FF FF FF FF FF FF FF
RMA Number : 0-0-0-0
RMA History : 00
RMA Test History : 00
Field Diagnostics Data : FF FF FF FF FF FF FF FF
Hardware Revision : 2.0
Fab Version : 04
Chassis Serial Number : JMX0715L08P
Product (FRU) Number : C3745-2FE
EEPROM format version 4
EEPROM contents (hex):
0x00: 04 FF C1 8B 4A 41 44 30 37 31 31 30 36 44 59 09
0x10: 69 40 02 F7 C0 46 03 20 00 3E 3E 02 42 42 30 85
0x20: 1C 12 40 04 80 FF FF FF FF C4 08 FF FF FF FF FF
0x30: FF FF FF 81 00 00 00 00 04 00 03 00 C5 08 FF FF
0x40: FF FF FF FF FF FF 41 02 00 02 04 C2 8B 4A 4D 58
0x50: 30 37 31 35 4C 30 38 50 FF FF FF FF FF FF FF FF
0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

Slot 1:
High Density Voice Port adapter
Port adapter is analyzed
Port adapter insertion time unknown
EEPROM contents at hardware discovery:
Hardware Revision : 1.1
Top Assy. Part Number : 800-03567-01
Board Revision : G0
Deviation Number : 0-0
Fab Version : 02
PCB Serial Number : JAD06380IBZ
RMA Test History : 00
RMA Number : 0-0-0-0
RMA History : 00
Product (FRU) Number : NM-HDV=
EEPROM format version 4
EEPROM contents (hex):
0x00: 04 FF 40 00 CC 41 01 01 C0 46 03 20 00 0D EF 01
0x10: 42 47 30 80 00 00 00 00 02 02 C1 8B 4A 41 44 30
0x20: 36 33 38 30 49 42 5A 03 00 81 00 00 00 00 04 00
0x30: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x40: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

HDV SIMMs: Product (FRU) Number: PVDM-12=
SIMM slot 0: PVDM-12 SIMM present.
SIMM slot 1: PVDM-12 SIMM present.
SIMM slot 2: PVDM-12 SIMM present.
SIMM slot 3: PVDM-12 SIMM present.
SIMM slot 4: PVDM-12 SIMM present.

WIC Slot 0:
E1 (2 Port) Multi-Flex Trunk WAN Daughter Card
Hardware revision 1.0 Board revision B0
Serial number 29416808 Part number 800-04479-03
FRU Part Number VWIC-2MFT-E1=

Test history 0x0 RMA number 00-00-00
Connector type PCI
EEPROM format version 1
EEPROM contents (hex):
0x20: 01 23 01 00 01 C0 DD 68 50 11 7F 03 00 00 00 00
0x30: 58 00 00 00 02 12 24 00 FF FF FF FF FF FF FF FF

HDV firmware: Compiled Fri 19-Nov-04 14:23 by michen
HDV memory size 524280 heap free 141761

Slot 2:
High Density Voice Port adapter
Port adapter is analyzed
Port adapter insertion time unknown
EEPROM contents at hardware discovery:
Hardware Revision : 1.1
Top Assy. Part Number : 800-03567-01
Board Revision : E0
Deviation Number : 0-0
Fab Version : 02
PCB Serial Number : JAB043409F7
RMA Test History : 00
RMA Number : 0-0-0-0
RMA History : 00
Product (FRU) Number : NM-HDV=
EEPROM format version 4
EEPROM contents (hex):
0x00: 04 FF 40 00 CC 41 01 01 C0 46 03 20 00 0D EF 01
0x10: 42 45 30 80 00 00 00 00 02 02 C1 8B 4A 41 42 30
0x20: 34 33 34 30 39 46 37 03 00 81 00 00 00 00 04 00
0x30: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x40: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

HDV SIMMs: Product (FRU) Number: PVDM-12=
SIMM slot 0: PVDM-12 SIMM present.
SIMM slot 1: PVDM-12 SIMM present.
SIMM slot 2: PVDM-12 SIMM present.
SIMM slot 3: PVDM-12 SIMM present.
SIMM slot 4: PVDM-12 SIMM present.

WIC Slot 0:
E1 (2 Port) Multi-Flex Trunk WAN Daughter Card
Hardware revision 1.0 Board revision B0

Serial number 22101697 Part number 800-04479-02
FRU Part Number VWIC-2MFT-E1=

Test history 0x0 RMA number 00-00-00
Connector type PCI
EEPROM format version 1
EEPROM contents (hex):
0x20: 01 23 01 00 01 51 3E C1 50 11 7F 02 00 00 00 00
0x30: 58 00 00 00 00 09 07 00 FF FF FF FF FF FF FF FF

HDV firmware: Compiled Fri 19-Nov-04 14:23 by michen
HDV memory size 524280 heap free 141761

Slot 3:
4 PORT Voice PM for MARs Port adapter
Port adapter is analyzed
Port adapter insertion time unknown
EEPROM contents at hardware discovery:
Hardware revision 1.1 Board revision H0
Serial number 25100457 Part number 800-02491-02
FRU Part Number: NM-2V=

Test history 0x0 RMA number 00-00-00
EEPROM format version 1
EEPROM contents (hex):
0x00: 01 65 01 01 01 7F 00 A9 50 09 BB 02 00 00 00 00
0x10: 88 00 00 00 01 03 09 17 FF FF FF FF FF FF FF FF

VIC Slot 0:

FXS Voice daughter card (2 port)
Hardware revision 1.1 Board revision B0
Serial number 27635018 Part number 800-02493-04
FRU Part Number VIC-2FXS=

Test history 0x0 RMA number 00-00-00
Connector type Wan Module
EEPROM format version 1
EEPROM contents (hex):
0x20: 01 0E 01 01 01 A5 AD 4A 50 09 BD 04 00 00 00 00
0x30: 58 00 00 00 02 06 22 01 FF FF FF FF FF FF FF FF

Acronyms

Acronym	Definitions
ANF-PR	Additional Network Feature Path Replacement
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 Unified CallManager
CCBS	Call Completion to Busy Subscriber
CCNR	Call Completion on No Reply
CFB	Call Forwarding on Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CLIP	Calling Line (Number) Identification Presentation
CLIR	Calling Line (Number) Identification Restriction
CMM	Communication Media Module (CMM) is a Cisco Catalyst® 6500 Series and Cisco 7600 Series line card that provides flexible and high-density T1/E1 gateways
CNIP	Calling Name Identification Presentation
CNIR	Calling Name Identification Restriction
COLP	Connected Line (Number) Identification Presentation
COLR	Connected Line (Number) Identification Restriction
CONP	Connected Name Identification Presentation
CONR	Connected Name Identification Restriction
CT	Call Transfer
MWI	Message Waiting Indicator
PSTN	Public Switched Telephone Network

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